ALL IN ONE DAY SEMINAR, CLINICAL EVIDENCE BASED PRACTICE OF CHIROPRACTIC: ETHICS & LAW-CURRENT LAWS, REHABILITATION, AND CHIROPRACTIC ADJUSTIVE TECHNIQUE.

Presented by
Mark Cymerint D.C.

<u>California Approval Numbers:</u>
CA-C-24-05-04036 Rehabilitation
CA-C-24-05-04041 Ethics & Law Current Laws
CA-C-24-05-04037 Adjustive Technique

<u>Arizona Approval Number:</u>
AZCE23493
“All In One Day, Clinical Evidence Based Practice of Chiropractic: Principles of Practice, Ethics, and Chiropractic Adjustive Technique.”

NOTICE FROM: Board of Chiropractic Examiners 1/29/25

Governor Newsom Issues Executive Order Deferring Renewal Fees for Licensees Impacted by Los Angeles Fires

Eligible licensees can elect to postpone 2025 license renewal fees to 2026

On January 29, 2025, Governor Gavin Newsom issued Executive Order N-15-25, which postpones for one year the license renewal fees for Department of Consumer Affairs (DCA) licenses that expire between January 1, 2025 and June 30, 2025, and whose residential or business address is within the impacted zip codes:

- 90041
- 90049
- 90265
- 90272
- 90290
- 90402
- 91001
- 91024
- 91103
- 91104
- 91107
- 91367
- 93536

Upon renewal, licensees eligible for the fee postponement will renew with no payment due. This year's renewal fees will automatically be postponed to 2026.

Licensees with questions should contact the California Board of Chiropractic Examiners' Licensing Unit at (916) 263-5355 or Chiro.Licensing@dca.ca.gov.

BOARD REGULATIONS REGARDING PROMOTION OF SPECIFIC PRODUCTS AND/OR SERVICES

DISCLAIMER:

I may mention specific products or services, which I personally use, for the sole purpose of Continuing Education. However, I am *not* endorsing any manufacturers, distributors, or other sellers of chiropractic products or services. Everything I mention related to seminar content is solely for educational purposes and *not intended to sell or promote any specific vendors, brands, or companies.*

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TO COMPLETE ONLINE DISTANCE LEARNING CE COURSES:

Step 1: Once you have completed the video seminar, go to TriadSeminars.com

Step 2: Select "CE Completion Forms" under the "Seminars" Section of the top menu.

Step 3: California DC's, select:

California Chiropractors ONLY

California D.C.'s CE Completion Form

For both Seminar #1 and/or Seminar #2 – CLICK HERE

Non-California DC's, select:

All Other States (WA, NV, HI, etc)

Seminar #1 Completion Form / Quiz – CLICK HERE

Seminar #2 Completion Form / Quiz – CLICK HERE

If you are licensed in another state, in addition to California, please select "All Other States" Completion Form, then list each one of your License Numbers in the indicated sections.

Step 4: Complete the CE Completion Form that best applies to you and click "Submit".

Once submitted, please allow 3 business days to receive a PDF copy of your CE Certificate via email.

NOTE: Please make sure to keep a copy of your CE Certificate, as we charge a duplication fee for any copies you might request from our records in the future.

ETHICS & LAW – CURRENT LAWS

I. SCOPE OF PRACTICE – CURRENT LAWS

A. REVIEW OF THE SPECIFIC STATE LAWS, RULES AND REGULATIONS RELATED TO THE PRACTICE OF CHIROPRACTIC

B. COMMON BOARD VIOLATIONS

   a) Review of the top 10 most common board violations

   b) Simple ways to prevent violations

C. A REVIEW OF NEW LAWS THAT AFFECT THE CHIROPRACTIC PROFESSION

SCOPE OF PRACTICE

§302. Practice of Chiropractic.

(a) Scope of Practice.

(1) A duly licensed chiropractor may manipulate and adjust the spinal column and other joints of the human body and in the process thereof a chiropractor may manipulate the muscle and connective tissue related thereto.

(2) As part of a course of chiropractic treatment, a duly licensed chiropractor may use all necessary mechanical, hygienic, and sanitary measures incident to the care of the body, including, but not limited to, air, cold, diet, exercise, heat, light, massage, physical culture, rest, ultrasound, water, and physical therapy techniques in the course of chiropractic manipulations and/or adjustments.

(3) Other than as explicitly set forth in section 10(b) of the Act, a duly licensed chiropractor may treat any condition, disease, or injury in any patient, including a pregnant woman, and may diagnose, so long as such treatment or diagnosis is done in a manner consistent with chiropractic methods and techniques and so long as such methods and treatment do not constitute the practice of medicine by exceeding the legal scope of chiropractic practice as set forth in this section.

(4) A chiropractic license issued in the State of California does not authorize the holder thereof:

(A) to practice surgery or to sever or penetrate tissues of human beings, including, but not limited to severing the umbilical cord;

SCOPE OF PRACTICE

(5) A duly licensed chiropractor may employ the use of vitamins, food supplements, foods for special dietary use, or proprietary medicines, if the above substances are also included in section 4057 of the Business and Professions Code, so long as such substances are not included in materia medica as defined in section 13 of the Business and Professions Code.

The use of such substances by a licensed chiropractor in the treatment of illness or injury must be within the scope of the practice of chiropractic as defined in section 7 of the Act.

(6) Except as specifically provided in section 302(a)(4), a duly licensed chiropractor may make use of X-ray and thermography equipment for the purposes of diagnosis but not for the purposes of treatment. A duly licensed chiropractor may make use of diagnostic ultrasound equipment for the purposes of neuromuscular skeletal diagnosis.

(7) A duly licensed chiropractor may only practice or attempt to practice or hold himself or herself out as practicing a system of chiropractic. A duly licensed chiropractor may also advertise the use of the modalities authorized by this section as a part of a course of chiropractic treatment, but is not required to use all of the diagnostic and treatment modalities set forth in this section. A chiropractor may not hold himself or herself out as being licensed as anything other than a chiropractor or as holding any other healing arts license or as practicing physical therapy or use the term "physical therapy" in advertising unless he or she holds another such license.

§ 302.5. Use of Laser

(a) A duly licensed chiropractor and any person under their direct or indirect supervision, as defined in section 312, shall:

(1) Not use any laser in the practice of chiropractic which has not been properly approved or cleared by the United States Food and Drug Administration (FDA).

(2) Not market or advertise the use of a laser or use a laser for purposes other than treatment consistent with section 302 and the product's FDA approval or clearance.

(3) Follow the manufacturer's specified guidelines for the safe use of laser.

(4) Comply with all state and federal laws governing the use of lasers in clinical settings.

USE OF LASER

(b) Nothing in this section shall be construed to authorize the use of a laser by a chiropractor outside of the chiropractic scope of practice. This includes, but is not limited to, laser ablation or surgical procedures, and laser treatment of allergies.

(c) Any violation of this section may constitute unprofessional conduct and the licensee shall be subject to discipline by the Board.

FILING OF ADDRESS

§303. Filing of Addresses.

Each person holding a license to practice chiropractic in the State of California under any and all laws administered by the board shall file his proper and current place of practice address of his principal office and, where appropriate, each and every sub-office, with the board at its office in Sacramento and shall immediately notify the board at its said office of any and all changes of place of practice address, giving both his old and his new address within 30 days of change.

SCOPE OF PRACTICE – FILING ADDRESS

§306.3. Investigators; Authority to Inspect Premises.

The board or its designee may inspect the physical premises of any chiropractic office during regular business hours.

§307. Refund of Fees.

The board is not authorized or permitted by law to return any portion of the license application fee of a qualified applicant.

§308. Display of License.

(a) Each person holding a license shall display a current active license in a conspicuous place in the licensee's principal office or primary place of practice.

(b) Any licensed Doctor of Chiropractic with more than one place of practice shall obtain from the Board a Satellite Office Certificate for each additional place of practice. Said certificate must be renewed annually.

(c) A licensed Doctor of Chiropractic must display in a conspicuous place a current active Satellite Office Certificate at the office for which it was issued.

No licensed Doctor of Chiropractic shall display any chiropractic license, certificate or registration, which is not currently active and valid.

TOP 10 BOARD DISCIPLINARY ACTIONS

INSURANCE FRAUD:

- Double billing
- Billing for service not rendered
- Up coding
- Excessive treatment

UNLICENSED PRACTICE:

- Practicing after license expired
- Failing to promptly renew
- Aiding and abetting unlicensed individuals

SEXUAL MISCONDUCT:

- Erotic behavior
- Inappropriate touching
- Sexual contact or having sexual relations with a patient, client, customer, or employee

EXCESSIVE TREATMENT:

- Treatment beyond what is reasonable/necessary or within the standard of care
- Failure to document necessity (conduct a thorough exam, diagnose the condition, implement a treatment plan, and conduct follow-up exams to assess progress)

VIOLATION(S) INVOLVING DRUGS/ALCOHOL:

- DUI
- Possession or use of any illicit drugs
- Practicing while impaired
- Prescription medication abuse

TOP 10 BOARD DISCIPLINARY ACTIONS

CONVICTION OF A CRIME(S):

- Theft
- DUI
- Domestic violence
- Vandalism

FALSE AND/OR MISLEADING ADVERTISING:

- Sensational claims
- Fraud/misrepresentation
- No "D.C." after chiropractor's name

BEYOND SCOPE OF PRACTICE:

- Performing surgical procedures
- Claiming to treat/cure cancer
- Furnishing/prescribing controlled substances

NEGLIGENCE/INCOMPETENCE:

- Physical harm to patient
- Failure to exercise appropriate standard of care

FAILURE TO RELEASE PATIENT RECORDS WITHIN 15 DAYS OF REQUEST:

- Includes requests from patient, patient attorney, patient representative, insurance company, or BCE representatives

PAYMENT FOR REFERRALS:

- Discounts
- Free services
- Cash/gift cards

BOARD of CHIROPRACTIC EXAMINERS
STATE OF CALIFORNIA

FEDERAL CORPORATE TRANSPARENCY ACT FOR CHIROPRACTORS

IMPORTANT REMINDER FOR CHIROPRACTIC PRACTICE OWNERS: Beneficial Ownership Information Federal Reporting Requirement

Failure to Report Has Significant Penalties, Including Fines of Up to $500 Per Day!

What You Need to Know

1.The Corporate Transparency Act (CTA), effective January 1, 2024, requires many U.S. businesses – including the vast majority of chiropractic practices – to disclose information regarding owners.
2. Failure to comply can result in significant penalties, including fines (up to $500 per day) and imprisonment of up to two year.
3. Entities that existed before January 1, 2024, must **file** their Beneficial Ownership Information (BOI) report no later than December 31, 2024.
4.The Report can be filed online free of charge, and in most cases can be completed without the assistance of a legal or tax professional.

Help & Resources from the Financial Crimes Enforcement Network
•**FinCEN Small Business Resources**
•**FinCEN BOI Toolkit**
•**Small Entity Compliance Guide**
•**BOI FAQs** (Updated October 3, 2024)
•**FinCEN YouTube Channel**

ACM Insurance Updates Dec. 2024

MEDICARE UPDATES

Great news for 2025! The Medicare deductible has been updated to $257.00, a small bump from last year's $240.00. As always, Medicare covers spinal manipulation for subluxations, keeping your care focused and effective. New year, new fee schedule—here's to a healthy 2025!

BlueShield

BLUE SHIELD UPDATE

Heads Up, Providers! Blue Shield keeps things running smoothly by asking providers to attest every 90 days. It's a quick way to confirm your practice details and ensure patients can find you easily. Timely updates mean no hiccups with claims and happy patients!

Don't have a Blue Shield account yet? No problem! Visit their provider portal to sign up—it's simple. Just gather your NPI and practice details, follow the prompts, and you'll be set up in no time. Let's keep everything running like clockwork!

United Healthcare

UHC UPDATE

Some UnitedHealthcare Senior Plans now require prior authorization for certain services. A quick eligibility check before care keeps everything running smoothly and ensures hassle-free claims. Let's keep things seamless for you and your patients!

ACM Insurance Billing Updates June 2024

Change Healthcare

On February 21, 2024 it was reported that there had been a cyber attack on Change Healthcare's. It is estimated that this breach impacts 1 in 3 Americans, potentially the PHI of more than 100 Million people!

This breach has impacted providers far & wide. The AMA conducted a survey and the results show:

- 33% of physician practices have seen claims payments suspended
- 32% have not been able to submit claims
- 39% have not been able to obtain ERA's and 22%. Insurances impacted with ERA's:
  - Kaiser
  - Meritain
  - Aetna
  - Medicare
  - BC of CA
  - BS of CA
  - Many others

If a provider has been set up with direct deposit, most payments are being received now. MANY insurances are still not issuing ERA's though & it's up to the providers to "hunt down" these remittances via other websites (Availity, Noridian Medicare Portal…) (Noridian Medicare has not mailed any paper remittances out since February!)

This issue is expected to continue for quite some time. Hang in there!!

3rd Party Personal Injury Claims

Often times provider shy away from taking on Personal Injury Cases when there is no attorney to represent/honor a lien. These 3rd Party Claims are risky – the patient treats, makes no payment throughout the course of treatment and then eventually settles with the 3rd Party. Upon settlement the patient is "supposed to" pay the provider but often they skip out & the provider is out of luck! We are finding many insurances now are willing to pay the provider directly upon settlement. It's definitely worth a phone call to the insurance adjuster to see if a claim would be handled this way.

FORMER CHIROPRACTOR SENTENCED TO NEARLY SIX YEARS IN FEDERAL PRISON FOR FRAUDULENTLY SUBMITTING $2.2 MILLION IN BILLINGS TO HEALTH INSURERS

Article Link

THURSDAY, APRIL 21, 2022: SANTA ANA, California – A former Orange County chiropractor was sentenced today to 70 months in federal prison for stealing from health insurers by fraudulently causing the submission of $2.2 million in billings for chiropractic services never provided, medical diagnoses never given, office visits that never occurred, and medical devices that were falsely prescribed.

Susan H. Poon, 57, of Dana Point, was sentenced by United States District Judge David O. Carter, who ordered her to pay $1,379,622 in restitution to her victims. At the conclusion of a five-day trial in June 2021, a federal jury found Poon guilty of five counts of health care fraud, three counts of making false statements relating to health care matters, and one count of aggravated identity theft.

From January 2015 to April 2018, Poon, whose office was in Rancho Santa Margarita, schemed to defraud health insurance companies by submitting false reimbursement claims for services that were never performed. Poon also submitted fraudulent prescriptions containing medical diagnoses of individuals that she had never met, including toddlers and children, which led a medical device manufacturer to submit false claims for reimbursement to one health insurer. The patients that Poon claimed to have met with and treated were dependents – such as the spouses and children – of Costco Wholesale Corp. and United Parcel Service Inc. employees. Poon unlawfully took and used the dependent's personal identifying information (PII) in her reimbursement requests and prescriptions. Poon obtained the PII by attending health fairs at various UPS warehouses and Costco locations and soliciting such information from employees.

"[Poon's] scheme consisted of interdependent moving parts," prosecutors wrote in a sentencing memorandum. "She lied about visits with, diagnoses of, and treatments given to actual people and their children. She sent fraudulent Durable Medical Equipment (DME) prescriptions – predicated on visits with these patients that never happened – to a DME manufacturer. And she fabricated medical documentation containing the personal identifying information of these 'ghost' patients to mislead an auditor." In total, Poon billed and caused to be billed approximately $2.2 million through her scheme. Poon's chiropractic license was revoked in July 2019, according to the California Department of Consumer Affairs.

The following agencies investigated this matter: Amtrak – Office of the Inspector General, California Department of Insurance, U.S. Department of Labor – Employee Benefits Security Administration, U.S. Department of Labor Office of the Inspector General, the FBI, and Office of Personnel Management – Office of the Inspector General.

Assistant United States Attorneys Daniel S. Lim and Daniel H. Ahn of the Santa Ana Branch Office prosecuted this case.

BCE NEWS: ADVERTISING CHIROPRACTIC SERVICES: https://www.chiro.ca.gov/about_us/spring_2018.pdf

- Whether you choose to advertise your services online or through other avenues such as TV, radio, or signage it is crucial that understand and comply with the Board of Chiropractic Examiners (Board's) rules and regulations to prevent deceptive advertising.

- Advertising must be in compliance with the California Codes or Regulations (CCR) Title 16, section 311, and the Business and Professions code section 651.

  - CCR section 311 reads: *Constructive educational publicity is encouraged, but the use by any licensee of advertising which contains* ***misstatements, falsehoods, misrepresentations, distorted, sensational or fabulous statements****, or which is intended or has a tendency to deceive the public or impose upon credulous or ignorant persons, constitutes grounds for the imposition of any of the following disciplinary penalties*

THE CHIROPRACTIC INITIATIVE ACT OF CALIFORNIA

HTTPS://WWW.CHIRO.CA.GOV/LAWS_REGS/INITIATIVE_ACT.SHTML

§ 15. Noncompliance with and violations of act

Any person who shall practice or attempt to practice chiropractic, or any person who shall buy, sell or fraudulently obtain a license to practice chiropractic, whether recorded or not, or who shall use the title "chiropractor" or "D.C." or any word or title to induce, or tending to induce belief that he or she is engaged in the practice or chiropractic, without first complying with the provisions of this act; "(or any licensee under this act who uses the word "doctor" or the prefix "Dr." without the word "chiropractor," or "D.C." immediately following his or her name) or the use of the letters "M.D." or the words "doctor of medicine," or the term "surgeon," or the term "physician," or the word "osteopath," or the letters "D.O." or any other letters, prefixes or suffixes, the use of which would indicate that he or she was practicing a profession for which he or she held no license from the State of California, or any person who shall violate any of the provisions of this act, shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than one hundred dollars ($100) and not more than seven hundred fifty dollars ($750), or by imprisonment in the county jail for not more than six months, or by both fine and imprisonment.

(Initiative Measure, Stats. 1923, p. xcii, § 15. Amended by Stats. 1988, c. 1094, § 2.)

PRIVACY RISKS OF SOCIAL MEDIA

- Social media platforms present strong marketing opportunities for healthcare professionals.
- However, many licensees find themselves inadvertently breaching patient confidentiality and violating the Health Insurance Portability and Accountability Act (HIPAA).
- HIPAA requires all individually identifiable health information to be protected.
- Common Violations Include:
  - Uploading photos of patients on social media networking sites, which can possibly lead to penalties and tighter regulatory scrutiny.
  - Unintentionally disclosing information that allows other community member to guess the patient's identity.
  - Responding to negative reviews on rating sites such as Yelp. Healthcare providers may inadvertently share personal details about a patient’s treatment or reveal diagnostics as they try to rebut criticism.

HEALTHCARE PROFESSIONALS SHOULD CONSIDER A RISK MANAGEMENT APPROACH:

- Regularly monitor social media conversations for possible HIPAA violations.
- Be sure to do your own research before using social medial to communicate with your patients. Familiarize yourself with HIPAA confidentiality requirements and understand how it protects the patient privacy. Specific guidelines found via HIPAA website: https://www.hhs.gov/hipaa/for-professionals/index.html
- Develop a social media policy in which your practice identifies how social media will be used, who in your office is permitted to use your practice's social media accounts, and what types of information may be shared.
- Regularly train your employees on HIPAA compliances and social media policy.
- Have a system in place to help you not only prevent, but also react to a HIPAA noncompliance issues and implement corrective action immediately.

§316. Responsibility for Conduct on Premises.

(a) Every licensee is responsible for the conduct of employees or other persons subject to his supervision in his place of practice, and shall insure that all such conduct in his place of practice conforms to the law and to the regulations herein.

(b) Where a chiropractic license is used in connection with any premises, structure or facility, no sexual acts or erotic behavior involving patients, patrons or customers, including, but not necessarily limited to, sexual stimulation, masturbation or prostitution, shall be permitted on said premises, structure or facility.

(c) The commission of any act of sexual abuse, sexual misconduct, or sexual relations by a licensee with a patient, client, customer or employee is unprofessional conduct and cause for disciplinary action. This conduct is substantially related to the qualifications, functions, or duties of a chiropractic license.

This section shall not apply to sexual contact between a licensed chiropractor and his or her spouse or person in an equivalent domestic relationship when that chiropractor provides professional treatment.

§319.1. Informed Consent.

(a) A licensed doctor of chiropractic shall verbally and in writing inform each patient of the material risks of proposed care. "Material" shall be defined as a procedure inherently involving known risk of serious bodily harm. The chiropractor shall obtain the patient's written informed consent prior to initiating clinical care. The signed written consent shall become part of the patient's record.

(b) A violation of this section constitutes unprofessional conduct and may subject the licensee to disciplinary action.

INFORMED CONSENT TO CHIROPRACTIC CARE

Cymerint Chiropractic Center
25283 Cabot Rd, Ste 109
Laguna Hills, CA 92653
(959) 707-5785
markcymerintdc@gmail.com
markcymerintdc.com

This Informed Consent to Chiropractic Care form is intended to provide you with the necessary information regarding chiropractic care, its potential risks, material risks, and benefits, and to obtain your consent to proceed with treatment. Please read the entire document carefully and ask any questions you may have before signing.

I, _____ (Patient Name), hereby request and consent to chiropractic care and related diagnostic procedures performed by Mark Cymerint, D.C., at Cymerint Chiropractic Center.

1. Chiropractic Care

Chiropractic care involves the diagnosis and treatment of musculoskeletal disorders, primarily through manual manipulation, instrument posture balancing of the spine and other joints. We may employ the use of cold laser, to reduce inflammation and or pain. The goal of chiropractic care is to restore joint mobility, reduce pain, and promote overall health and well-being.

1. Potential Risks and Side Effects

As with any form of health care, there are potential risks and side effects associated with chiropractic care. Although the majority of patients do not experience any significant complications, it is important to be aware of the potential risks, which may include:

- Mild discomfort or soreness at the site of the adjustment, typically lasting no more than a few days.
- Dizziness, lightheadedness, or fainting, which may occur immediately following an adjustment.
- Bruising, swelling, or tenderness at the site of the adjustment or surrounding soft tissues.
- Fractures, dislocations, or other injuries to the bones or joints, which are rare but can occur in cases of severe osteoporosis, and pre-existing joint instability.
- Nerve irritation or injury, which can cause numbness, tingling, weakness, or pain in the arms, legs, or other areas.
- In extremely rare cases, complications such as stroke or spinal cord injury can occur in a chiropractic office but may or may not have a cause and effect as a result of chiropractic adjustments.

In addition to the above-listed risks and side effects, the following list includes other possible adverse situations and extenuating circumstances that may be associated with chiropractic care:

- Aggravation of pre-existing conditions, such as herniated discs or spinal stenosis.
- Temporary increase in pain or discomfort.
- Soft tissue injuries, such as sprains, strains, or muscle tears.
- Incomplete or slow recovery from treatment.
- Inflammation or irritation of the joints or surrounding tissues.
- Loss of sensation or changes in sensation.
- Headaches or migraines.
- Fatigue or tiredness.
- Insomnia or difficulty sleeping.
- Digestive issues, such as constipation or diarrhea.
- Difficulty with balance or coordination.
- Exacerbation of pre-existing neurological conditions.
- Development or worsening of allergies or asthma.
- Worsening of anxiety or depression symptoms.
- Mood swings or irritability.
- Tinnitus or ringing in the ears.
- Changes in vision or eye function.
- Jaw pain or temporomandibular joint (TMJ) dysfunction.
- Changes in menstrual cycle or menstrual pain.
- Difficulties with pregnancy or breastfeeding.
- Adverse reactions to supplements or recommendations provided by the chiropractor.
- Blood clots or deep vein thrombosis (DVT).
- Allergic reactions to chiropractic equipment or materials.
- Adverse interactions between chiropractic care and medications.
- Inability to participate in certain activities or exercises due to treatment.
- Injuries sustained while traveling to or from the clinic.
- Slips, trips, or falls within the clinic.
- Injuries from chiropractic equipment malfunction.

Miscommunication or misunderstanding regarding treatment recommendations.

- Emotional distress or upset related to treatment.
- Financial difficulties or stress due to the cost of care.
- Inadequate response to treatment, resulting in the need for additional care.
- Increased risk of injury during chiropractic adjustment for patients with certain medical conditions.
- Changes in blood pressure.
- Skin irritation or rash.
- Development of scar tissue.
- Complications related to undiagnosed medical conditions.
- Injuries related to at-home exercises or self-care recommendations.
- Adverse effects on the immune system.
- Exacerbation of autoimmune disorders.
- Effects on blood sugar levels.
- Hormonal imbalances.
- Interference with other ongoing treatments or therapies.
- Injuries related to the use of therapeutic devices, such as electrical muscle stimulation or ultrasound, flection distraction motorized table, cold laser devices.
- Complications related to the use of spinal traction devices.
- Injuries sustained during the performance of chiropractic adjustments on infants or young children.
- Any other unforeseen or unpredictable adverse events or circumstances that may occur during or after chiropractic care.
- Alternatives to Chiropractic Care

Alternatives to chiropractic care may include, but are not limited to, the following:

- Medical care, including medications for pain relief or muscle relaxation.
- Physical therapy or exercise programs to improve strength, flexibility, and overall function.
- Acupuncture, massage therapy, or other complementary and alternative therapies.
- No treatment, accepting the risk that symptoms may worsen or not improve.
- Acknowledgment and Consent

I have read this document in its entirety and understand the potential risks and benefits associated with chiropractic care. I have had the opportunity to ask questions and have received satisfactory answers. I understand that there are no guarantees regarding the outcome of chiropractic care, and I acknowledge that results may vary among individuals.
I understand that I am free to withdraw my consent and discontinue treatment at any time. By signing below, I voluntarily consent to receive chiropractic care at Cymerint Chiropractic Center.

Patient Name (please print) _____ Patient Signature _____

Date _____

Parent/Guardian Name (if applicable) _____

Parent/Guardian Signature (if applicable) _____

Date _____

DC Name and Signature _____ Date _____

NEW CALIFORNIA BOARD OF CHIROPRACTIC EXAMINERS

MAILING ADDRESS

DEPARTMENT OF CONSUMER AFFAIRS

BOARD OF CHIROPRACTIC EXAMINERS

1625 North Market Blvd. | Suite N-327

SACRAMENTO, CA 95834

Telephone: (916) 263-5355

Fax: (916) 327-0039

CA Relay Service TT/TDD: (800) 735-2929

Consumer Complaint Hotline: (866) 543-1311

chiro.info@dca.ca.gov

AFTER TODAYS SEMINAR, A CERTIFICATE OF ATTENDANCE WILL BE PASSED OUT TO EACH ATTENDEE, YOU WILL NEED TO KEEP THIS FOR YOUR RECORDS FOR 5 YEARS IN CASE OF AUDIT. IF LOST A DUPLICATE COPY IS AVAILABLE FOR $35.

BOARD OF CHIROPRACTIC EXAMINERS' UPDATED FEE SCHEDULE

BOARD of CHIROPRACTIC EXAMINERS
STATE OF CALIFORNIA

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY • GAVIN NEWSOM, GOVERNOR
DEPARTMENT OF CONSUMER AFFAIRS • CALIFORNIA BOARD OF CHIROPRACTIC EXAMINERS
1625 N. Market Blvd., Suite N-327, Sacramento, CA 95834
P (916) 263-5355 | Toll-Free (866) 543-1311 | F (916) 327-0039 | www.chiro.ca.gov

BOARD OF CHIROPRACTIC EXAMINERS' UPDATED FEE SCHEDULE

EFFECTIVE JANUARY 1, 2023

Senate Bill 1434 (Roth, Chapter 623, Statutes of 2022) amends Business and Professions Code section 1006.5 and implements the following fee schedule for the Board of Chiropractic Examiners beginning January 1, 2023:

Fee Description	Fee Amount
Doctor of Chiropractic License Application	$345
Doctor of Chiropractic Reciprocal License Application	$283
Doctor of Chiropractic Initial License	$137
Doctor of Chiropractic License Renewal (Annual)	$336
Doctor of Chiropractic License Restoration	$672
Doctor of Chiropractic Duplicate/Replacement License	$71
Satellite Certificate Application	$69
Satellite Certificate Renewal (Annual)	$50
Satellite Certificate Duplicate/Replacement	$71
Chiropractic Corporation Certificate Application	$171
Chiropractic Corporation Certificate Renewal (Annual)	$62
Chiropractic Corporation Special Report Filing	$98
Chiropractic Corporation Certificate Duplicate/Replacement	$70
Petition for Early Termination of Probation or Reduction of Penalty	$3,195
Petition for Reinstatement of a Revoked or Surrendered License	$4,185

Fee Description	Fee Amount
License Certification	$83
Continuing Education Provider Application	$291
Continuing Education Provider Renewal (Biennial)	$118
Continuing Education Course Application	$116 per hour of instruction
Preceptor	$72
Referral Service Application	$279

NEW CHIROPRACTIC BOARD UPDATES 2025

Expedited Licensure for Honorably Discharged Members of the United States Armed Forces

Each Department of Consumer Affairs (DCA) licensing program is required to expedite the licensure/registration process for an applicant that served as an active duty member of the Armed Forces of the United States and was honorably discharged.

For an applicant's license/registration to be expedited, the applicant must:

Supply evidence that they were an active duty member of the Armed Forces of the United States who was honorably discharged.

Expedited Licensure and Initial Fee Waiver for Spouses or Domestic Partners of Active-Duty Military Personnel

Each DCA licensing board and bureau is required to expedite the licensure/registration process for spouses and domestic partners of those on active duty in the Armed Forces. Beginning July 1, 2022, each board and bureau must also waive the initial application and license fee for military spouses. Please note: Not all fees collected by DCA boards and bureaus or required for licensure are waived for military spouses. Please contact the specific board or bureau for more information about which fees may be waived.

For an applicant's license/registration to be expedited, the applicant must:

Supply evidence that they are married to, or in a domestic partnership or other legal union with, an active duty member of the Armed Forces of the United States who is assigned to a duty station in California under official orders, and;

Hold a current license/registration in another state, district or territory of the United States in the profession or vocation for which the applicant is seeking a license/registration.

FEES A CHIROPRACTOR CAN CHARGE FOR A COPY OF RECORDS

As of my knowledge cutoff in September 2021, California law allows healthcare providers, including chiropractors, to charge a reasonable fee for copying and providing medical records to patients or authorized individuals. However, the specific fee structure may vary, and it's essential to refer to the most up-to-date information and consult the relevant statues to determine the exact fees permissible in California. In general, California law stipulates that the fees charged for copying medical records should reflect the actual costs incurred by the healthcare provider. These costs may include expenses for supplies, labor, postage, and preparation of an explanation or summary if requested by the patient. Additionally, there may be restrictions on the maximum fees that can be charged for certain types of records, such as X-rays.

It is in my clinical opinion, that the (Click Here) California Code, Evidence Code - EVID § 1563 you are allowed to charge $15 plus the actual cost of review of file, or retrieval and/or return of records that are off site plus mileage. So, an itemized statement should reflect all of the above charges and fees.

To obtain accurate and current information on the fees charged by chiropractors in California for copying records, it's recommended to consult the California statutes, such as the California Health and Safety Code or the California Business and Professions Code. Alternatively, you can contact the California Board of Chiropractic Examiners or the California Chiropractic Association for guidance on the specific fee structure allowed in the state.

SAMPLE ITEMIZED STATEMENT – COPY OF RECORDS

Orange County Chiropractic Center
1111 Pacific Coast Hwy
Newport Beach, CA 90210
(949) 888-8888

1. California Evidence Code EVID 1563 Copy of Records Fee $15.00
2. Doctor additional review of patient chart $30.00
3. Off site retrieval and return of records, staff hourly rate + mileage (9 miles)
   30 minutes total each way ($25.00 each way)

$50.00

TOTAL: $95.00

Payment due at time of copying. All copying can be done at the doctor's office/ doctor does not have copying equipment to make copies.

Beginning July 1, 2024, boards and bureaus under the Department of Consumer Affairs (DCA) must expedite licensure application processing for service members currently enrolled in the U.S. Department of Defense SkillBridge Program.

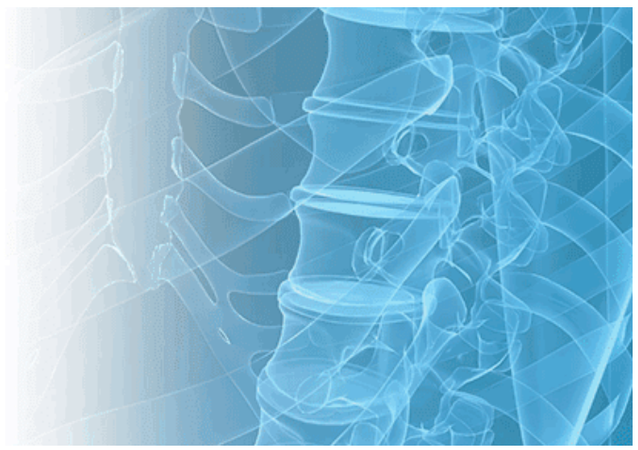
Service members seeking licensure in California who qualify must provide documentation of enrollment, such as an official letter from the commanding officer. Failure to provide proper documentation could result in application processing delays. Applicants must still meet all board or bureau licensing requirements. For questions or assistance regarding licensing requirements, please contact the Board's Licensing Unit at Chiro.Licensing@dca.ca.gov.

For more information on licensing resources available to service members, visit: www.dca.ca.gov/military.

Sincerely,

Board of Chiropractic Examiners
1625 N. Market Blvd., Suite N-327
Sacramento, CA 95834
Email: Chiro.Info@dca.ca.gov
Phone: (916) 263-5355
Web: https://www.chiro.ca.gov/

BOARD of CHIROPRACTIC EXAMINERS
STATE OF CALIFORNIA



Effective January 1, 2024, under Business and Professions Code section 27.5, licensees may notify the Board of Chiropractic Examiners (Board) of a name and/or gender change and request confidentiality of the previous name or gender information, when meeting certain specified requirements.
When the licensee submits the documentation identified below demonstrating that their name or gender changed, the Board will recognize the licensee's name or gender change and update the individual's license and the online publicly viewable licensing information by replacing references to the former name or gender with references to the current name or gender. Licensees eligible for a name change and request for confidentiality include:

•Individuals participating in the Secretary of State's Safe at Home program who confidentially change their name in a court proceeding based on concerns related to domestic violence, stalking, sexual assault, or human trafficking, pursuant to Code of Civil Procedure section 1277(b).
•Individuals who change their name in a court proceeding to conform to their gender identity, pursuant to Code of Civil Procedure section 1277.5.
•Individuals who obtain a court order to change their name in connection with a court proceeding to change their gender or sex identifier, pursuant to article 7 of chapter 11 of part 1 of division 102 of the Health and Safety Code. Such court orders are typically issued in connection with a change to a birth certificate or marriage license and certificate.

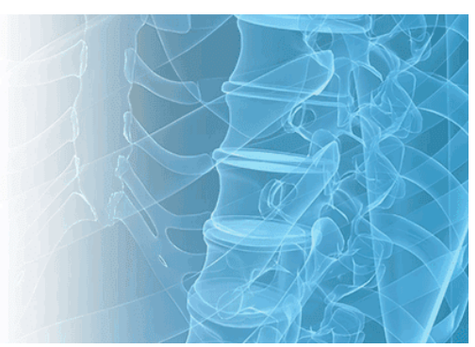
Once a licensee's name or gender is updated, the former name or gender will not be published online, except that if a public search of the online license verification system is performed using the licensee's former name, a statement will appear in connection with the search directing the public to contact the Board for more information about the licensee.

Enforcement records that reference the licensee's former name or gender will not be posted online. Instead, a statement will appear noting that the licensee was previously subject to enforcement action and directs the public to contact the Board for more information about the enforcement action. Enforcement records that are not posted online may be subject to disclosure pursuant to the California Public Records Act. To request a name or gender change under the new law, or to learn more, visit the Name and Gender Change Notification and Request for Confidentiality webpage.

Questions may be directed to the Board's Licensing Unit at (916) 263-5355 and Chiro.Licensing@dca.ca.gov.

Thank you,
Board of Chiropractic Examiners

BOARD of CHIROPRACTIC EXAMINERS
STATE OF CALIFORNIA



CALIFORNIA SCHOOL VACCINE EXEMPTION FORM

https://eziz.org/assets/docs/shotsforschool/IMM-1363.pdf

https://www.policiesforpeople.com/

SCOPE OF PRACTICE AZ

State Laws for Arizona Licensees Only

California DC's can skip slides marked AZ

SCOPE OF PRACTICE - AZ

§32-922.01. RECIPROCITY; REQUIREMENTS

A. A. The board shall issue a license to practice chiropractic under this section to an applicant who meets the following requirements:

1. Holds a current license to practice chiropractic issued after examination by a licensing board in another state or country in which, in the opinion of the board, the licensing requirements are at least substantially equivalent to those of this state and the other state or country grants similar reciprocal privileges to chiropractors licensed in this state.
2. Receives a grade of at least seventy-five per cent on the Arizona jurisprudence examination.
3. Pays the original license fee of one hundred dollars.

B. The applicant shall pay the application fee prescribed by section §32-921 and present proof satisfactory to the board that:

1. A license issued by any other state has not been sanctioned for any cause that is a basis of a sanction imposed by the board pursuant to this chapter, except for failure to pay fees.
2. The applicant has not previously failed to pass the examination in this state.
3. The applicant has been engaged in the practice of chiropractic continuously for not less than three of the five years immediately preceding the application

SCOPE OF PRACTICE - AZ

§32-923. CHANGE OF ADDRESS; ANNUAL RENEWAL FEE; FAILURE TO RENEW; WAIVERS; DEFINITION

A. Every person who is licensed pursuant to this chapter shall notify the board in writing of any change in residence or office address and telephone number within thirty days after that change. The board shall impose a penalty of fifty dollars on a licensee who does not notify the board as required by this subsection.

B. Except as provided in section §32-4301, every person who is licensed to practice chiropractic in this state shall annually make a renewal application to the board before January 1 after original issuance of a license and shall pay a renewal license fee of not more than two hundred twenty-five dollars as established by the board. The renewal application shall be made on a form and in a manner prescribed by the board. At least thirty days before the renewal application and renewal fee are due, the board shall send by first class mail a renewal application and notice requiring license renewal and payment of the renewal fee.

SCOPE OF PRACTICE - AZ

§32-924. GROUNDS FOR DISCIPLINARY ACTION; HEARING; CIVIL PENALTY; DEFINITION

A. The following are grounds for disciplinary action, regardless of where they occur:

1. Employment of fraud or deception in securing a license.
2. Practicing chiropractic under a false or assumed name.
3. Impersonating another practitioner.
4. Habitual use of alcohol, narcotics or stimulants to the extent of incapacitating the licensee for the performance of professional duties.
5. Unprofessional or dishonorable conduct of a character likely to deceive or defraud the public or tending to discredit the profession.
6. Conviction of a misdemeanor involving moral turpitude or of a felony.
7. Gross malpractice, repeated malpractice or any malpractice resulting in the death of a patient.
8. Representing that a manifestly incurable condition can be permanently cured, or that a curable condition can be cured within a stated time, if this is not true.
9. Offering, undertaking or agreeing to cure or treat a condition by a secret means, method, device or instrumentality.
10. Refusing to divulge to the board on demand the means, method, device or instrumentality used in the treatment of a condition.
11. Giving or receiving or aiding or abetting the giving or receiving of rebates, either directly or indirectly.
12. Acting or assuming to act as a member of the board if this is not true.
13. Advertising in a false, deceptive or misleading manner.
14. Having had a license refused, revoked or suspended by any other state or country, unless it can be shown that the action was not taken for reasons that relate to the ability to safely and skillfully practice chiropractic or to any act of unprofessional conduct.
15. Any conduct or practice contrary to recognized standards in chiropractic or any conduct or practice that constitutes a danger to the health, welfare or safety of the patient or the public or any conduct, practice or condition that impairs the ability of the licensee to safely and skillfully practice chiropractic.
16. Violating or attempting to violate, directly or indirectly, or assisting in or abetting the violation of or conspiring to violate any of the provisions of this chapter or any board order.

SCOPE OF PRACTICE - AZ

§32-925. PRACTICE OF CHIROPRACTIC; LIMITATIONS

A. A doctor of chiropractic is a portal of entry health care provider who engages in the practice of health care that includes:

1. The diagnosis and correction of subluxations, functional vertebral or articular dysarthrosis or neuromuscular skeletal disorders for restoring and maintaining health.

2. Physical and clinical examinations, diagnostic x-rays and clinical diagnostic laboratory procedures that are limited to nasal swabs, oral swabs, sputum collection, urine collection, finger pricks or venipuncture in order to determine the propriety of a regimen of chiropractic care or to form a basis for referring patients to other licensed health care professionals, or both.

3. Treatment by:

a) Physical medicine modalities, therapeutic procedures and adjustment of the spine or bodily articulations.

b) Procedures related to the correction of subluxations and neuromuscular skeletal disorders.

c) Prescription of orthopedic supports.

d) Acupuncture.

B. A doctor of chiropractic who is licensed under this chapter shall not prescribe or administer medicine or drugs, perform surgery or practice obstetrics.

SCOPE OF PRACTICE - AZ

§32-931. CONTINUING EDUCATION; REQUIREMENTS

- A. The board by rule may require each licensee to complete up to twelve hours of continuing education each calendar year as a condition of licensure renewal.

Beginning July 1, 2012, the board shall adopt rules to prescribe the continuing education requirements.

- B. Continuing education shall cover topics listed in section §32-922, subsection B and section §32-922.02 and shall be taught by a faculty member of a college or university that is accredited by or has status with the council on chiropractic education or is accredited by an accrediting agency recognized by the United States department of education or the council on postsecondary accreditation.

- C. Compliance with this section shall be documented at the times and in the manner as prescribed by the board in rule. 20 of 121

- D. Failure of a person holding a license to practice chiropractic to comply with this section without adequate cause being shown is grounds for probation or suspension of the person's license

SCOPE OF PRACTICE - AZ

R4-7-501. DISPLAY OF LICENSES

- A licensee shall, at all times, display the license issued to the licensee by the Board in a conspicuous place at all locations where the licensee engages in the practice of chiropractic, including mobile practices. A licensee shall, upon request of any person, produce for inspection the license renewal certificate for the current calendar year.

NEW ORDERS & LAWS CONCERNING CHIROPRACTORS

- COVID-19 Updates
- Most recent Governor's orders for California

environmental services, laundry, security, engineering and facilities management, administrative, billing, and volunteer personnel." To the extent that other staff, including correctional officers, meet this definition they would be required to comply with the testing requirements. This Order does not apply to inmates.

In state correctional facilities, other staff who do not meet this definition are subject to vaccine verification and testing pursuant to separate state requirements.

If a homeless provider also acts as a daycare facility - what do they do if the ratio of childcare professionals fall below state requirements?

The homeless provider should confer with the California Department of Social Services (who license day care facilities) to discuss impacts and alternatives.

Covered health care settings

What facilities/offices are not covered under this Order?

- Acupuncture office
- Chiropractic office
- Naturopathic doctor office
- Occupational therapy office
- Optometry office
- Outpatient physical, speech, occupational therapy offices
- Pharmacies
- Podiatry office
- First aid offices (e.g., at a resort or theme park)

Does the Order cover unlicensed group and transitional housing facilities and homes?

No, the Order only covers those adult and residential care facilities licensed by the California Department of Social Services.

Are school-based clinics covered?

School-based clinics that are licensed are covered under the Order and would be required to follow all applicable rules for unvaccinated healthcare workers. Nurses' offices that are not licensed would be not covered by the State Heath Officer Order.

Will home health and hospice agencies be required to verify vaccine status of their staff?

Home health and hospice agencies are covered by the Order only with respect to agency staff who are providing care on site at one of the covered settings.

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH MOST CURRENT GUIDELINES

FOR MORE INFORMATION, VISIT:

CDPH.CA.GOV

FRAUD ALERT: Notice from the Board of Chiropractic Examiners

Dear Licensees,
The Board of Chiropractic Examiners (BCE) has learned of a scam aimed at licensees of the Board. In the scheme, an individual falsely identifying themselves as an employee of the Board has phoned licensees asking them to confirm personally identifying information. During the phone call, the scammers attempt to gain the information by telling the licensee someone is attempting to use their license to practice or their license has been suspended and they're under investigation.

If you receive a call from an individual claiming to be an employee of the Board and they attempt to gather personal and financial information, please consider the following:

- Simply take down the caller's information (including name, title, phone number, and email address), let them know you will follow-up directly with the Board and end the call.

- You may also consider ending the call without explanation if it appears suspicious or to be a scam.

- Contact BCE. Contact information for all DCA boards and bureaus can be found at: www.dca.ca.gov/about_us/entities.shtml

- If you don't know who to contact at the Board, call the Department of Consumer Affairs' Consumer Information Center at (800) 952-5210 for assistance and to get directed to the appropriate entity.

- NEVER disclose any personal information, i.e. social security numbers, date of births, or credit/debit card numbers, without first taking steps to verify that the person requesting the information has a legitimate need for it.

- Be aware that BCE or Department of Consumer Affairs staff will never ask for credit/debit card information over the phone.

Thank you,
Board of Chiropractic Examiners | October 27th, 2021

INSURANCE FLASH UPDATES!

The greatest piece of advice I can give you is to pay attention to your EOB's. There is much to be learned by doing so. Most importantly, learn what DOESN'T pay per carrier and per payor class. Look for those denials. A little time spent doing so will make you more money, so pay attention.

TIP # 1 : If you are not in on the Triwest game, you need to be. Our veterans are everywhere and they need your care. The VA (Triwest) is the best paying carrier in California, so if you are not a provider, you are missing the boat.

Tip # 2 : United Healthcare is actually reading your diagnosis now! If you think that sounds funny, they are the first one to do so. Other than workers comp and personal injury carriers, health insurance carriers cannot and do not actually read your diagnosis and they do not correlate the diagnosis and the procedure codes you bill. For example, you can put a "Toe Pain" diagnosis *ONLY* on your claim and bill a full spine adjustment (98942) and it will pay every time. EXCEPT NOW UNITED HEALTHCARE IS PAYING ATTENTION! They are now denying manipulations if the improper number of spinal region diagnosis are not on your claims. So be sure to code three or 5 regions (M99.01, M99.02, M99.03, M99.04, M99.05 for example) in your diagnosis if billing 98941 or 98942 now with UHC.

Tip # 3 : Aetna is becoming increasing difficult with any physical therapy coding that requires a -59 for the code. If possible, your safest codes are 97110 and 97530 as they do not require this -59 modifier. These codes can also be billed in multiple units as well. And always remember, Aetna allows 4 units or procedures per day.

These tips may not apply to all of you, but the tip about paying attention does. You are running a business, so do all you can to do so profitably.

Lis Donaldson, ACM

949-598-9999

INFO@ACMBILLINGSERVICE.COM for questions

CHIROPRACTORS ARE ESSENTIAL WORKERS

www.covid19.ca.gov/essential-workforce/

Essential workforce, if remote working is not practical:

1. Health care providers and caregivers (including physicians, dentists, psychologists, mid-level practitioners, nurses, assistants, and aids; infection control and quality assurance personnel; pharmacists; physical, respiratory, speech and occupational therapists and assistants; social workers and providers serving individuals with disabilities including developmental disabilities; optometrists; speech pathologists; **chiropractors;** diagnostic and therapeutic technicians; and radiology technologists).

CHIROPRACTORS ARE ESSENTIAL WORKERS

www.covid19.ca.gov/essential-workforce/

2. Workers required for effective clinical, command, infrastructure, support service, administrative, security and intelligence operations across the direct patient care and full healthcare and public health spectrum, including accounting, administrative, admitting and discharge, engineering, **accrediting, certification, licensing, credentialing,** epidemiological, source plasma and blood donation, food service, environmental services, housekeeping, medical records, information technology and operational technology, nutritionists, sanitarians; emergency medical services workers; prehospital workers including but not limited to urgent care workers; inpatient and hospital workers; outpatient care workers; home care workers; workers at long-term care facilities, residential and community-based providers; workplace safety workers).

DEPARTMENT OF CONSUMER AFFAIRS
DCA WAIVERS THAT AFFECT CHIROPRACTIC

FOR MORE INFORMATION, VISIT:
HTTPS://WWW.DCA.CA.GOV/LICENSEES/DCA_WAIVERS.SHTML

SEARCH THROUGH WAIVERS TO FIND ONES THAT AFFECT CHIROPRACTIC

CalOSHA COVID-19 Revised Emergency Temporary Standards

Effective January 14, 2022

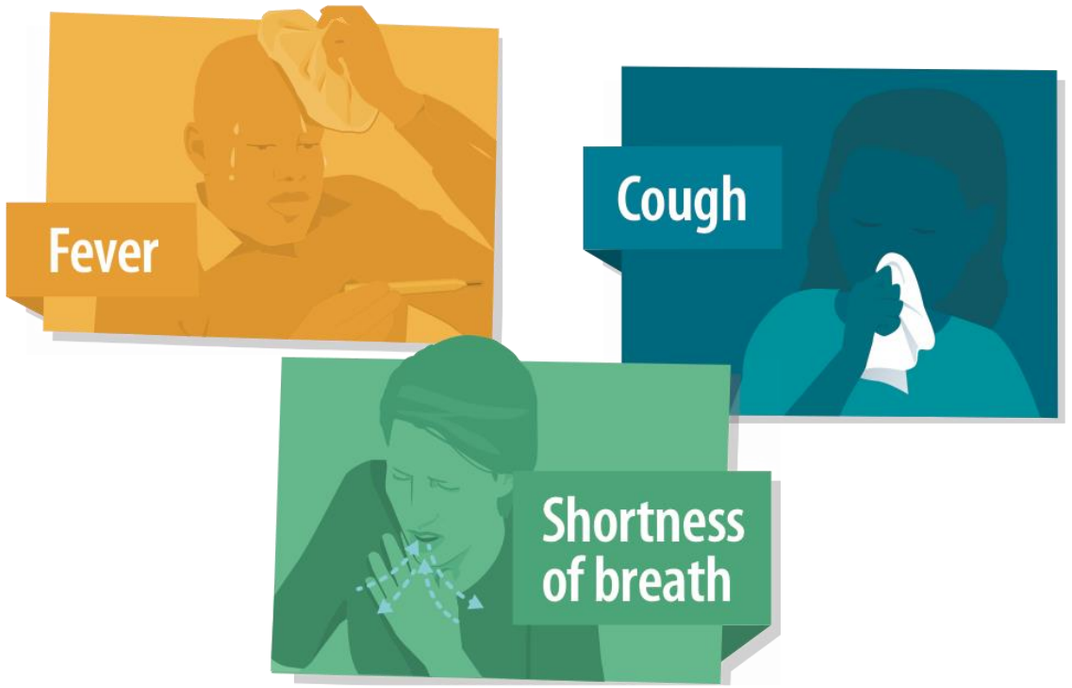
- **3205 COVID-19 Prevention**
- **3205.1 Multiple COVID-19 Infections and COVID-19 Outbreaks**
- **3205.2 Major COVID-19 Outbreaks**
- **3205.3 COVID-19 Prevention in Employer-Provided Housing**
- **3205.4 COVID-19 Prevention in Employer-Provided Transportation**

Click Articles to View via Website

For more information, see Cal/OSHA: https://www.dir.ca.gov/dosh/coronavirus/ETS.html

Please read before entering.

IF YOU HAVE



Please call our office before coming inside.
Clinic Phone # _____

The clinic staff may ask you to wear a mask or use tissues to cover your cough.

Thank you for helping us keep our patients and staff safe.

CDC

CS 315889-B 03/12/2020

For more information: **www.cdc.gov/COVID19**

https://www.cdc.gov/coronavirus/2019-ncov/healthcare-facilities/index.html

II. REHABILITATION RELATED TO DISEASES USING FUNCTIONAL MOVEMENT TECHNIQUES (TAPING)

A. PHYSIOLOGICAL EFFECTS OF TAPING ON THE HUMAN BODY WITH SUPPORTIVE RESEARCH AND LITERATURE.

B. DEMONSTRATE FUNCTIONAL MOVEMENT TECHNIQUES OF TAPING AND ITS ROLE FOR USE IN REHABILITATION, NEUROPATHIC PAIN, AND POSTURE MOVEMENT.

PRINCIPLES OF PRACTICE RELATED TO DISEASES USING FUNCTIONAL MOVEMENT TECHNIQUES (TAPING)

Physiological Effects of Taping on The Human Body

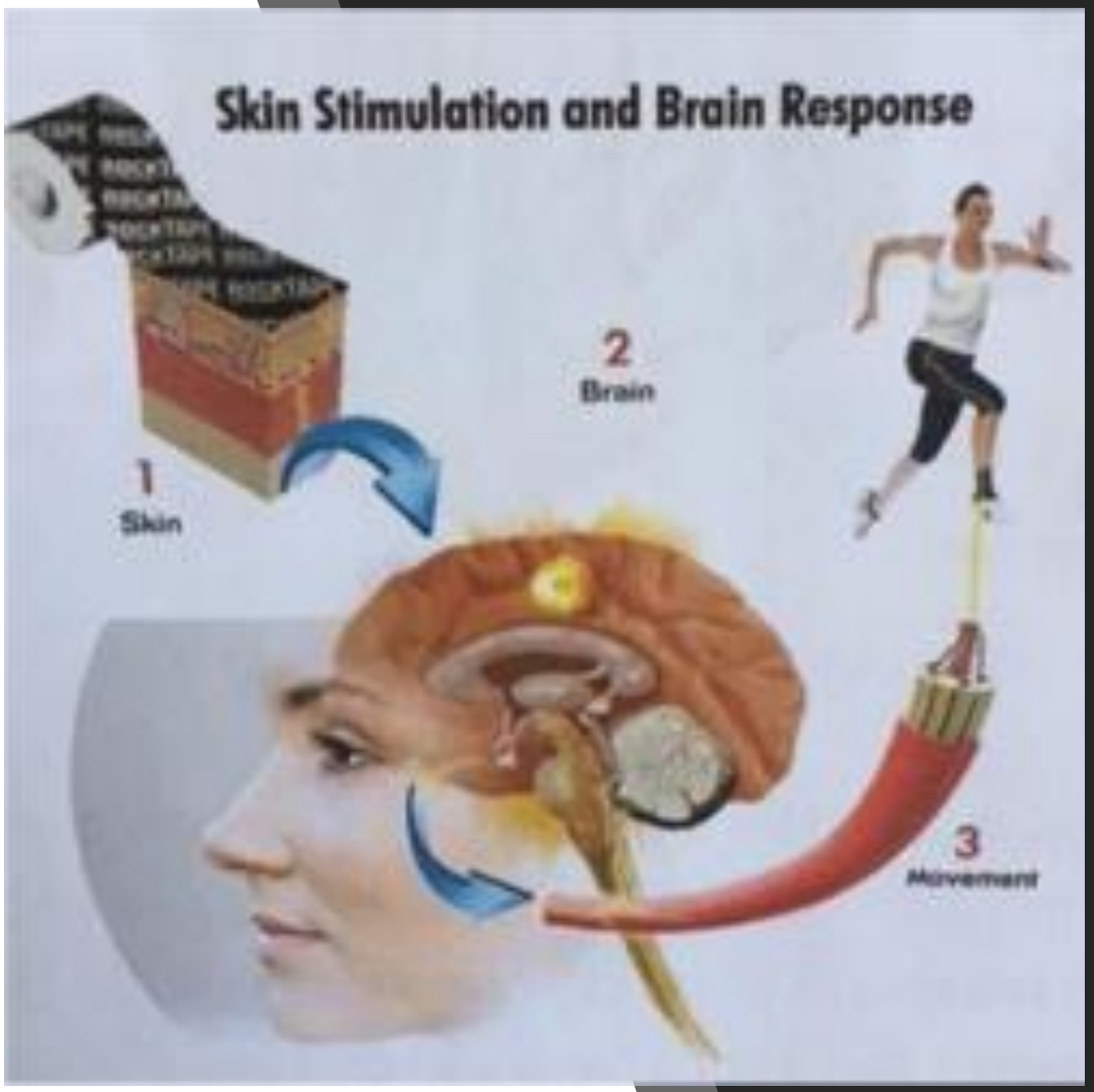
Purpose of Taping:

Pain Mitigation

Decompression

Neurosensory Input

REHABILITATION TAPING



- As tape is placed on the skin, it causes an alteration of the afferent signals going from the taped area to the brain.
- The brain's response to the incoming information is to alter the efferent signals returning to the taped area.
- Taping alters proprioception, muscle contraction timing and forced output, as well as range of motion.

RESOURCES:

Vercelli S, Sartorio F, Foti C et al. Immediate Effects of Kinesiotaping on Quadriceps Muscle Strength. *Clinical Journal of Sport Medicine*. 2012;22(4):319-326. doi:10.1097/jsm.0b013e31824c835d.

Lumbroso D, Ziv E, Vered E, Kalichman L. The effect of kinesio tape application on hamstring and gastrocnemius muscles in healthy young adults. *Journal of Bodywork and Movement Therapies*. 2014;18(1):130-138. doi:10.1016/j.jbmt.2013.09.011.

Callaghan M, McKie S, Richardson P, Oldham J. Effects of Patellar Taping on Brain Activity During Knee Joint Proprioception Tests Using Functional Magnetic Resonance Imaging. *Physical Therapy*. 2012;92(6):821-830. doi:10.2522/ptj.20110209.

Wand B, Di Pietro F, George P, O'Connell N. Tactile thresholds are preserved yet complex sensory function is impaired over the lumbar spine of chronic non-specific low back pain patients: a preliminary investigation. *Physiotherapy*. 2010;96(4):317-323. doi:10.1016/j.physio.2010.02.005.

5. Lim ETay M. Kinesio taping in musculoskeletal pain and disability that lasts for more than 4 weeks: is it time to peel off the tape and throw it out with the sweat? A systematic review with meta-analysis focused on pain and also methods of tape application. *British Journal of Sports Medicine*. 2015;49(24):1558-1566. doi:10.1136/bjsports-2014-094151.

DEMONSTRATION OF FUNCTIONAL MOVEMENT TECHNIQUES

BEFORE TAPING YOUR PATIENTS

REMEMBER TO ASK THEM ABOUT:

- Previous history with an unpleasant reaction to adhesive or tapes
- Apply a small test patch on the inside of the forearm for 10-15 minutes to see skin reaction.
- Sensitive Skin Zones:
  - Posterior knee
  - Neck
  - Inside of the arm, axilla, & anterior elbow
  - Hands & feet

TAPING CONTRAINDICATIONS

Cautions:

- Infants
- Elderly
- Pregnant patients *(especially in last trimester)*

Remember:

- Don’t crank tape.
- Tape can cause skin irritations, contact dermatitis, or blisters.

Absolute Contraindications:

Open wounds, skin infection, active cancer, deep vein thrombosis, kidney disease, and congestive heart failure.

TAPING CARE

- Use soap and water, or mix rubbing alcohol with water to cleanse the area to be taped.
- Patient's skin must be clean and dry.
- Do NOT tape over hairy patients.
- Round all edges of tape with scissors to prevent peeling. Rub tape to activate adhesive.
- **Tape is water resistant and can last up to 5 days (NO LONGER).**
- **If tape gets wet, DO NOT use hair dryers. Simply pat dry with a towel.**
- To take off **DO NOT** rip off.

  Tape can be removed gently with:

  - Baby oil
  - Lathered soap
  - Hot water in shower

PAIN TAPING METHOD

Pain taping requires 1-3 pieces of tape:

2 Stabilizing Pieces - Run along the length of the area being taped.

Applied with NO stretch

Apply with anchors on both top and bottom

1 Decompression Piece - Applied perpendicular (90°) to the stabilization strip.

Applied with 0-50% of stretch in the middle.

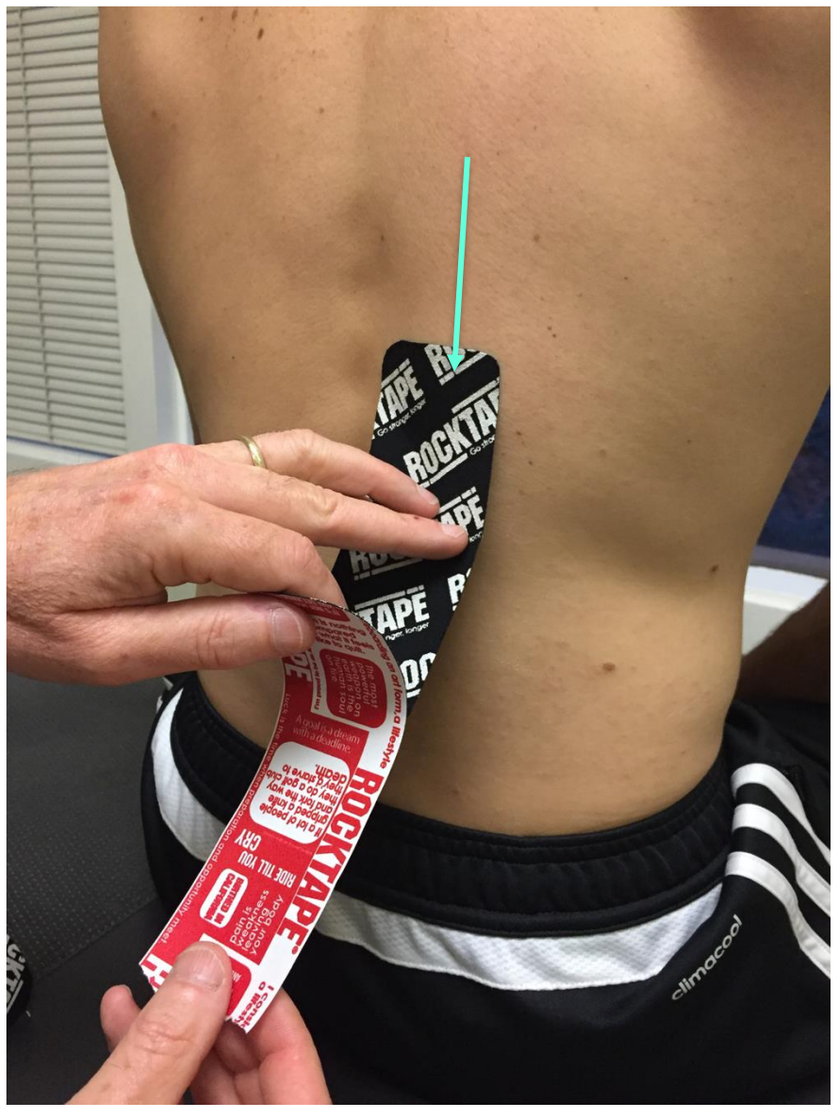
Applied over area of greatest pain.

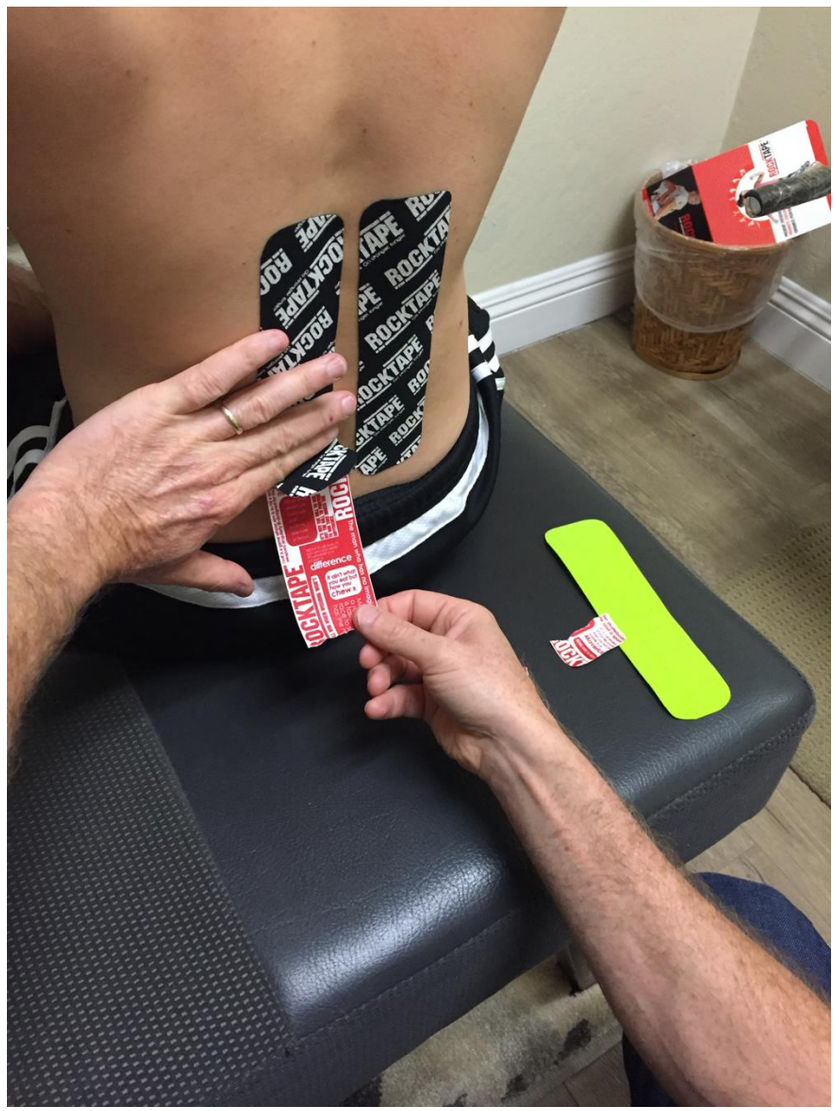
No anchors should be torn in the middle of the tape.

Make sure *all tape endings are on skin, NOT tape.*

TWO STABILIZATION PIECES

Apply with anchor
& NO stretch.

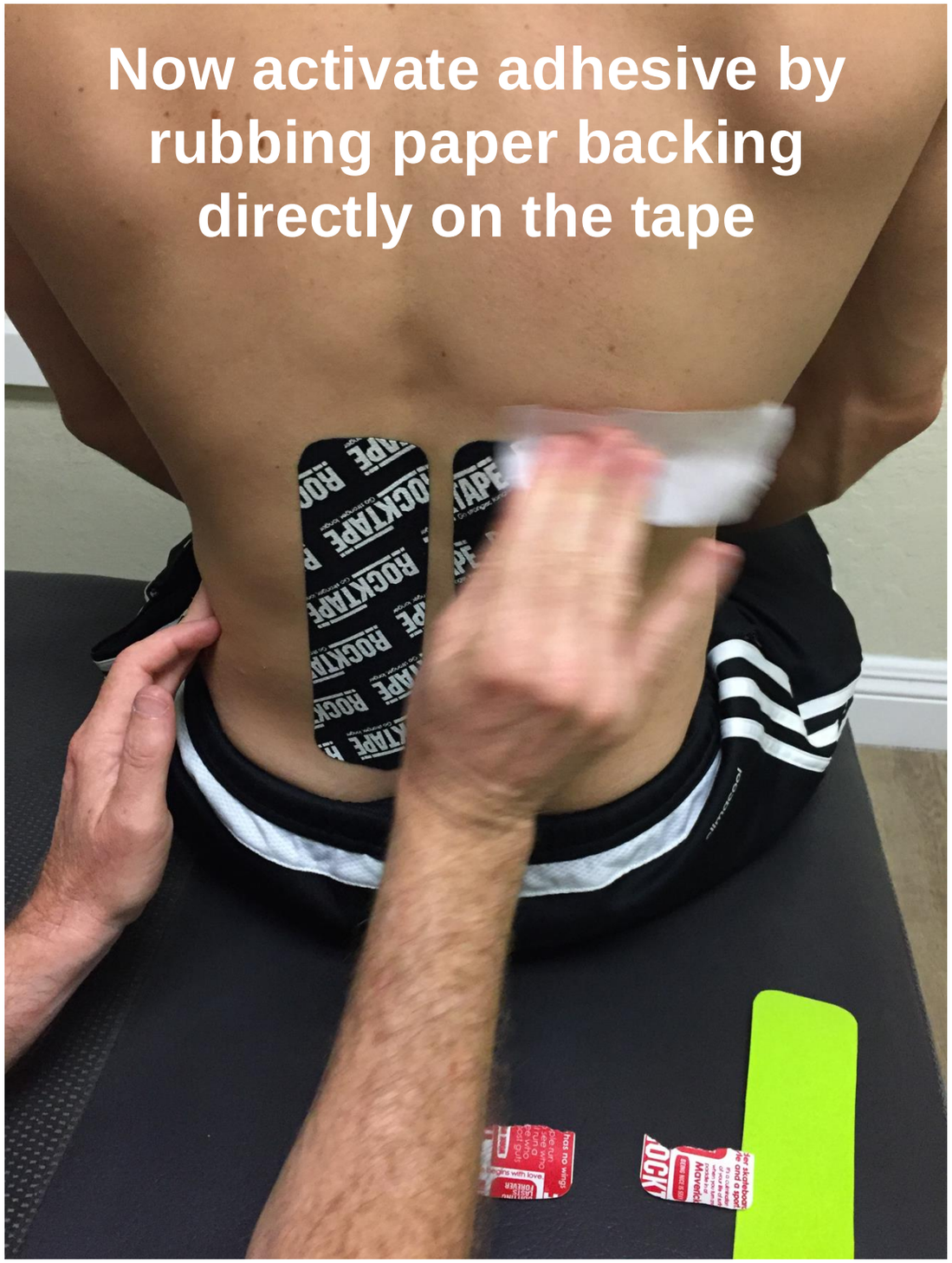




Measure, Cut, &
Round edges of
Stabilization pieces.

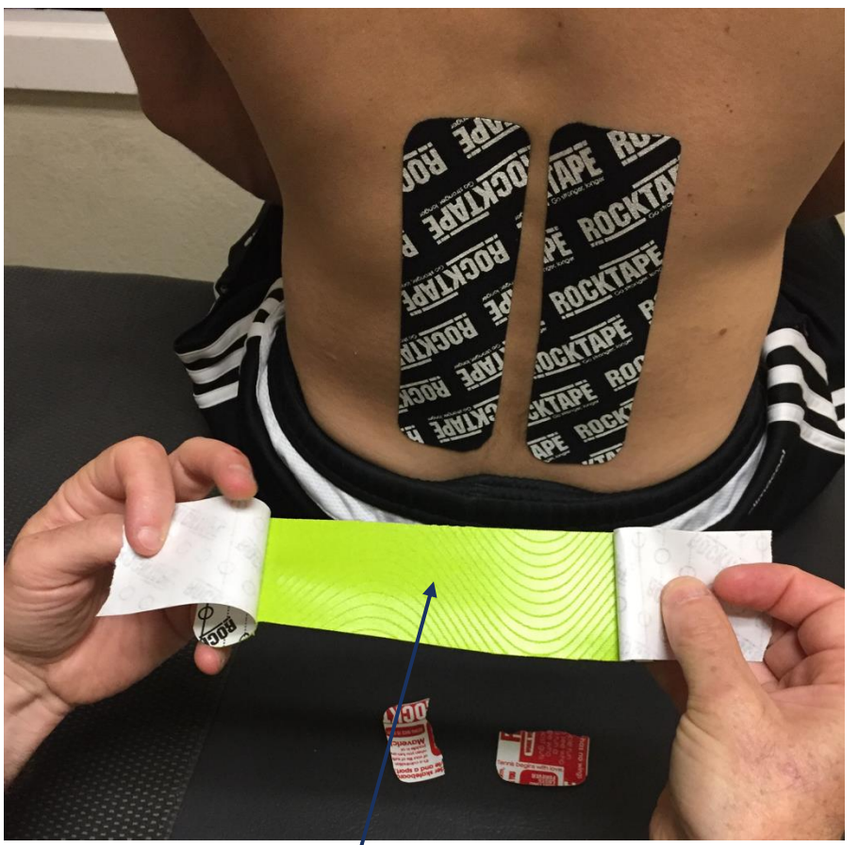
Same thing for the
second stabilizing piece.


Both pieces are on.

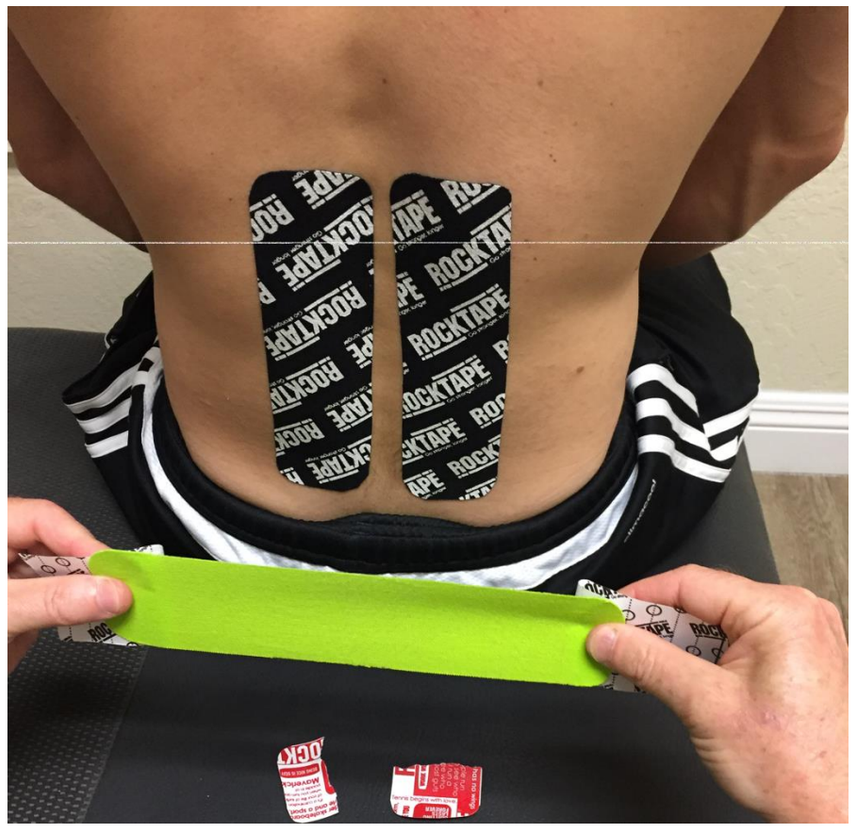

Now activate adhesive by rubbing paper backing directly on the tape

DECOMPRESSION PIECE FOR PAIN RELIEF

Pull apart WITH 50% stretch

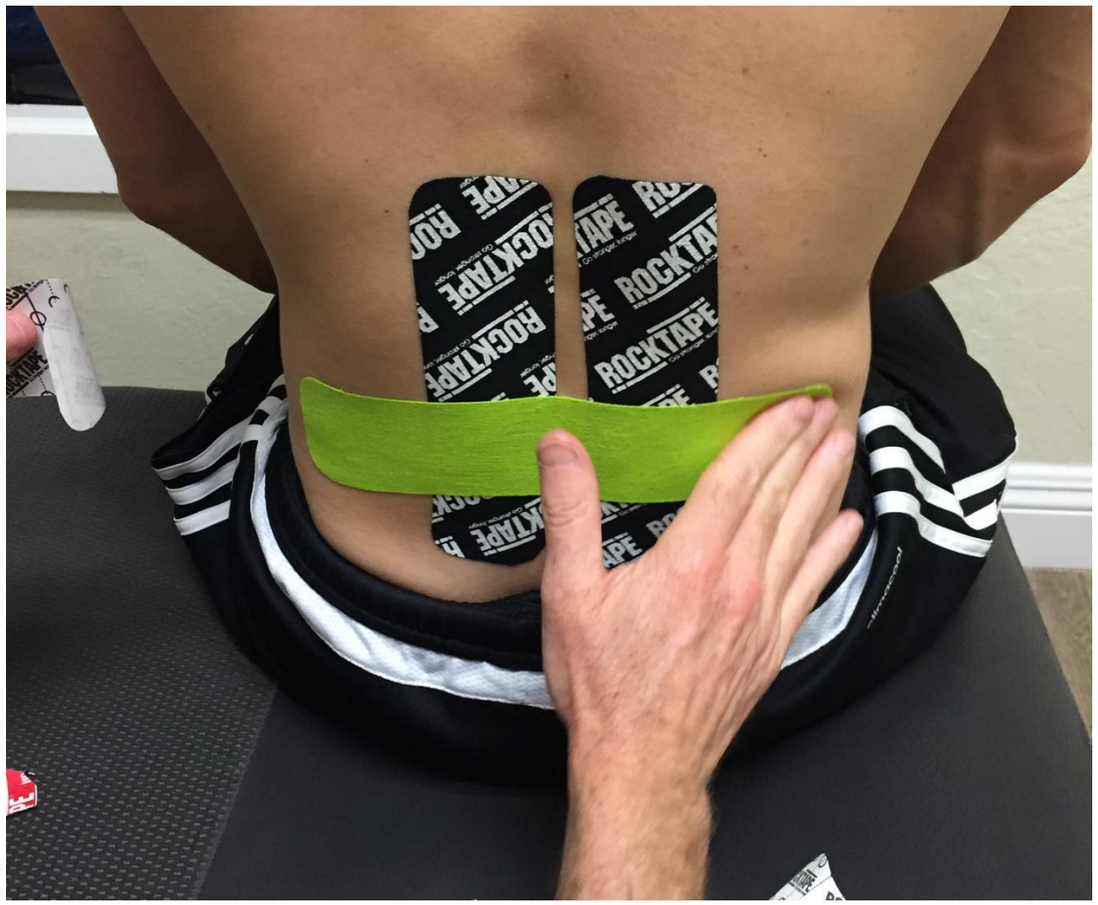


Tear paper backing down middle.



Apply directly over area of pain

Decompression Piece for Pain Relief



Activate adhesive by rubbing paper backing over tape.

Final product!

FUNCTIONAL MOVEMENT TAPING TECHNIQUES FOR REHABILITATION & NEUROPATHIC PAIN

LIVE/VIDEO DEMONSTRATION

WITH MARK CYMERINT, DC

PAIN TAPING UPPER THORACIC REGION

Simply apply two stabilization strips to the mid- thoracic area and a decompression strip, across the area of greatest discomfort.

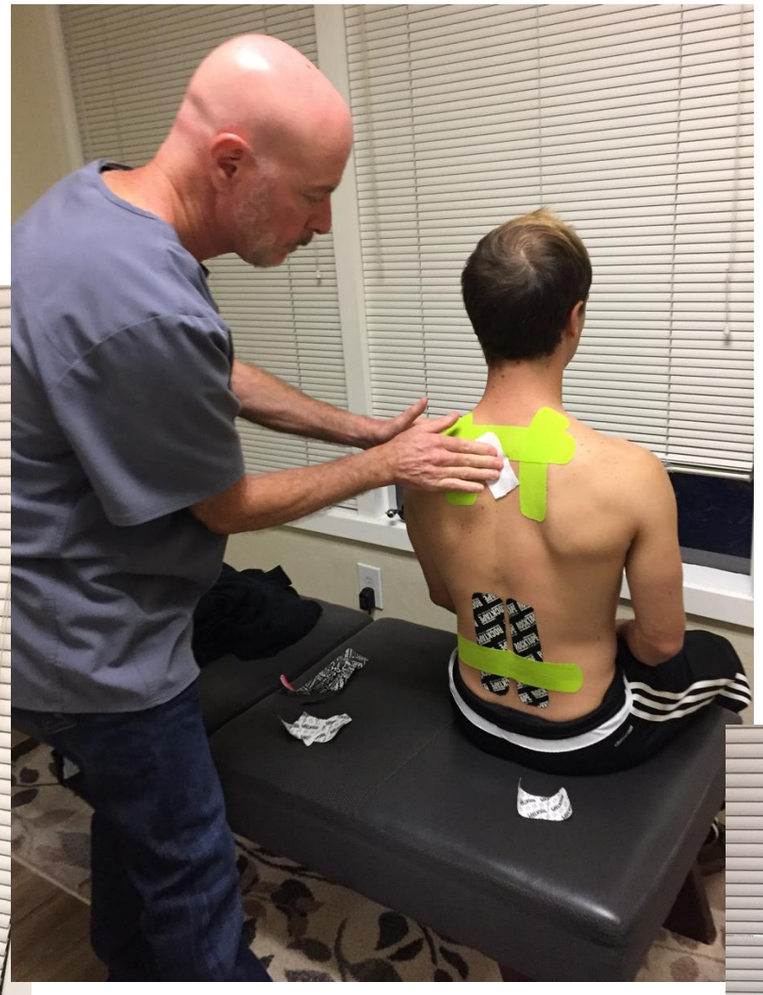
The same approach applies to neck pain. However, be aware that the skin in the cervical spine is more sensitive to taping, there may be a hairline that is sensitive to the stretch of the tape. Do not tape over the baroreceptors in the carotid arteries in the anterolateral neck.

1. Measure & place two stabilization pieces

2. Activate adhesive by rubbing the tape

Remember ***NO*** stretch!

Apply decompression piece over area of pain
Apply WITH 50% stretch



Rub paper backing over tape.

Final product!

KNEE PAIN TAPING

Measure two stabilization strips of tape that will curve around the inside and outside of the knee, essentially around knee cap. (Measure from tibial tuberosity to the quadratus tendon area). Make one piece longer than the other so that it anchors on SKIN not on the tape. Round corners

Make a decompression strip that will go across knee, usually below kneecap. (Make sure it is long enough to anchor on SKIN.

Stretch the tissues being taped by simply flexing the patient's knee to 90° during taping application

To apply first strip, remove that paper from one of the tape and anchor the strip at the top or bottom of the knee area. Peel back most of the paper backing and using paper off tension, use both hands to guide and curve the tape around the knee. Apply the second one the same and rub to activate adhesive. Apply the decompression strip.

owing the basic application of the FMT knee pain framework with decompression of pat

☆ THE EFFECTIVENESS OF KINESIO TAPING ® FOR MOBILITY AND FUNCTIONING IMPROVEMENT IN KNEE OSTEOARTHRITIS: A RANDOMIZED, DOUBLE-BLIND, CONTROLLED TRIAL.

DATE & JOURNAL: CLIN REHABIL 2020 JUL

Abstract

Objective: To evaluate the effectiveness of the Kinesio Taping® method for mobility and functioning improvement for patients with knee osteoarthritis (KO).

Results: The mean age of participants was 68.7 ± 9.9 in intervention group and 70.6 ± 8.3 in control group. TImproved knee flexion and enhancement in functioning assessed by KOOS were noticed in both groups, with lasting improvement to follow up. No difference in the change in the above-mentioned outcomes was found between groups. Fewer subjects from Kinesio Taping group were unsure if taping alleviated their mobility and more intervention group patients indicated higher subjective satisfaction with the effect of knee taping to symptom and mobility alleviation than control group.

Conclusion: Investigated Kinesio Taping technique did not produce better results in mobility and functioning improvement over non-specific knee taping; however, it had higher patient-reported subjective value for symptom attenuation and experienced mobility enhancement.

Donec V, Kubilius R. The effectiveness of Kinesio Taping® for mobility and functioning improvement in knee osteoarthritis: a randomized, double-blind, controlled trial. Clin Rehabil. 2020 Jul;34(7):877-889. doi: 10.1177/0269215520916859. Epub 2020 May 6. PMID: 32372651; PMCID: PMC7376619.

MOBILIZATION WITH MOVEMENT AND KINESIO TAPING IN KNEE ARTHRITIS-EVALUATION AND OUTCOMES.

DATE & JOURNAL: INT ORTHOP. 2018 DEC

- INTRODUCTION: The aim of this study was to investigate the acute effects of Mulligan mobilization with movement (MwM) and taping on function and pain intensity in patients with osteoarthritis (OA).

- RESULTS: Performance in all tests improved significantly in the MwM + taping group, while only sit and stand-up, ten metres walk, and TUG test performances improved in the MwM + placebo taping group ($p < 0.05$). Pain intensity during the tests was also significantly better after intervention in those two groups ($p < 0.05$). Comparison between the groups showed that the pain intensity during all tests was less and functional test scores were better in sit and stand-up, ten metres walk, and walking down stairs in the MwM + taping group than the MwM + placebo taping group.

- CONCLUSIONS: MwM accompanied by taping improves pain during functional activities as well as the performance. MwM without taping may also improve pain intensity; however, it may be inadequate in increasing the performance.

Altmış H, Oskay D, Elbasan B, Düzgün İ, Tuna Z. Mobilization with movement and kinesio taping in knee arthritis-evaluation and outcomes. Int Orthop. 2018 Dec;42(12):2807-2815. doi: 10.1007/s00264-018-3938-3. Epub 2018 M 10. PMID: 29750315.

PLANTAR FASCIITIS PAIN TAPING

Measure stabilization strip from the heel to the base of the toes on the affected foot. Round corners.

Measure a decompression strip around the circumference of the patient's midfoot, accounting for a 2-3 in. of overlap for the second anchor. Round corners.

To stretch the plantar fascia and bottom of the foot, have the patient dorsiflex their ankle as much as possible to extend the toes back as much as they can.

Apply the stabilization strip with paper off to the bottom of the foot from the base of the toes to the heel. The direction of application doe not matter. Rub the strip to activate the adhesive.

Photos showing the FMT pain taping framework applied to a patient with plantar fasciitis

PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION KINESIO TAPING IMPROVES RANGE OF MOTION OF ANKLE DORSIFLEXION AND BALANCE ABILITY IN CHRONIC STROKE PATIENTS

Date & Journal: Healthcare (Basel) . 2021 Oct 22.

Abstract

This study aimed to determine the effect of a proprioceptive neuromuscular facilitation (PNF) pattern Kinesio taping (KT) application on the ankle dorsiflexion range of motion (DF-ROM) and balance ability in patients with chronic stroke. This crossover study included 18 patients with stroke. The subjects were randomly assigned to three interventions: barefoot, ankle KT (A-KT), and PNF-KT. The A-KT was applied to the gastrocnemius and tibialis anterior (TA) muscles, and subtalar eversion. The PNF-KT was applied on the extensor hallucis, extensor digitorum, and TA muscles. DR-ROM was measured using the iSen™, a wearable sensor. Balance ability was assessed based on static balance, measured by the Biodex Balance System (BBS), and dynamic balance, measured by the timed up and go (TUG) test and dynamic gait index (DGI). Compared with the barefoot and A-KT interventions, PNF-KT showed significant improvements in the ankle DF-ROM and BBS scores, TUG, and DGI. PNF-KT, for functional muscle synergy, improved the ankle DF-ROM and balance ability in patients with chronic stroke. Therefore, the application of PNF-KT may be a feasible therapeutic method for improving ankle movement and balance in patients with chronic stroke. Additional research is recommended to identify the long-term effects of the PNF-KT.

Park D, Bae Y. Proprioceptive Neuromuscular Facilitation Kinesio Taping Improves Range of Motion of Ankle Dorsiflexion and Balance Ability in Chronic Stroke Patients. Healthcare (Basel). 2021 Oct 22;9(11):1426. doi: 10.3390/healthcare9111426. PMID: 348284

DEVELOPMENT OF A CLINICAL PREDICTION RULE TO IDENTIFY PATIENTS WITH PLANTAR HEEL PAIN LIKELY TO BENEFIT FROM BIOMECHANICAL ANTI-PRONATION TAPING: A PROSPECTIVE COHORT STUDY.

DATE & JOURNAL: INT ORTHOP. 2018 DEC

- OBJECTIVES: To develop a clinical prediction rule (CPR) to identify patients with plantar heel pain (PHP) likely to benefit from biomechanical anti-pronation taping (BAPT).

- RESULTS: 28 patients achieved a successful outcome. A CPR with 6 significant variables was identified by a multivariate logistic regression: FFI score less than 33.3, hip adduction angle of the most affected side was greater than the contralateral side, ankle plantar-flexors and hip abductors on the most affected side were not weaker than those on the contralateral side, ankle invertors on the most affected side were weaker than the contralateral side, and having more than 2 painful sites in the low back and lower extremity regions.

- CONCLUSIONS: A CPR has been developed to identify patients with PHP likely to benefit from BAPT.

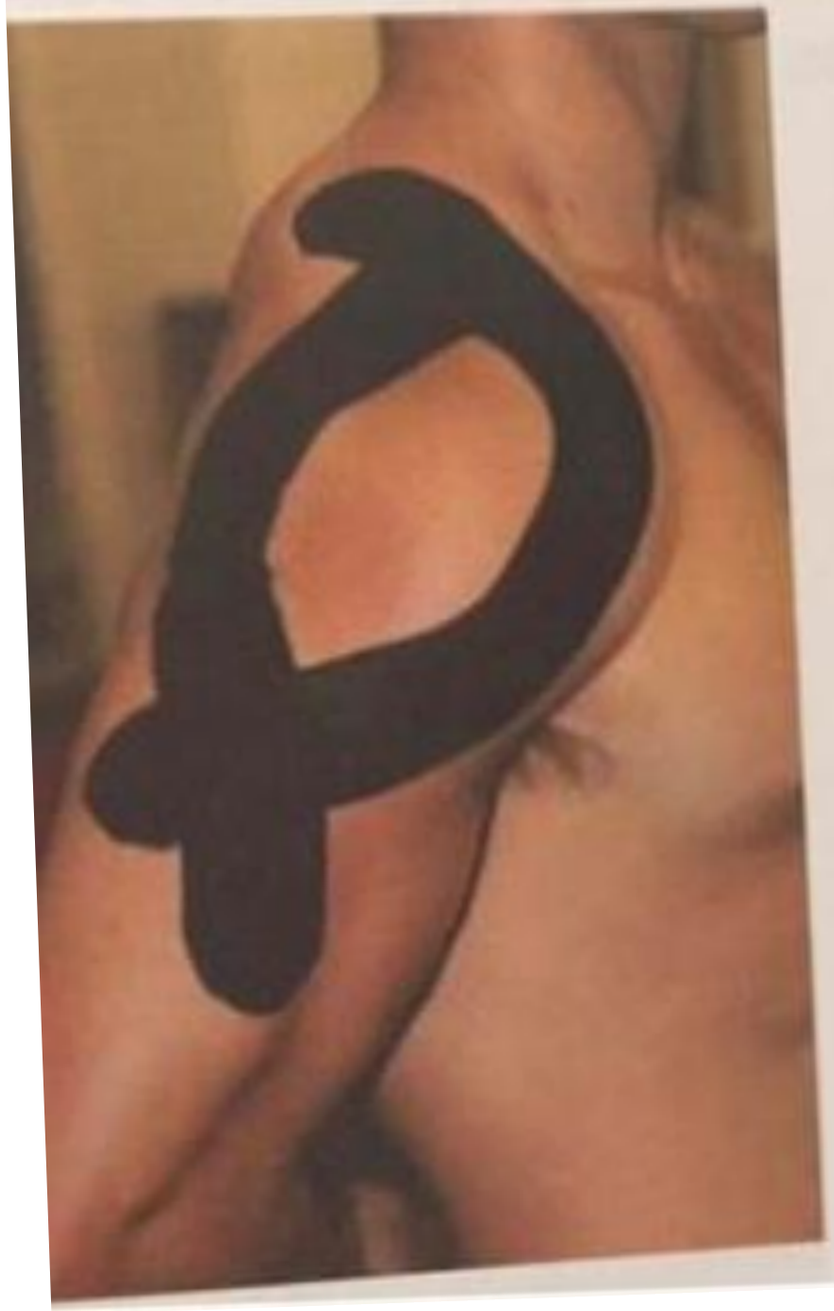
Wu FL, Shih YF, Lee SH, Luo HJ, Wang WT. Development of a clinical prediction rule to identify patients with plantar heel pain likely to benefit from biomechanical anti-pronation taping: A prospective cohort study. Phys Ther Sport. 2018 May;31:58-67. doi: 10.1016/j.ptsp.2018.01.010. Epub 2018 Feb 2. PMID: 29655069.

SHOULDER PAIN TAPING

Basic framework for taping the shoulder is similar to the knee, with two stabilization strips surrounding the shoulder area and decompression strip focused over the area of greatest pain, usually the top of the glenohumeral joint area or across the acromioclavicular joint.

1. Two stabilization strips that will start on the upper shoulder/trapezius area and end around the bottom of the deltoid muscle. Measure one longer than the other so the anchor is on skin.

2. Measure a strip of decompression at the area of greatest pain. AVOID sensitive skin in the axilla and medial upper arm.



EFFECT OF KINESIO TAPING ON WRIST KINEMATICS AND FUNCTIONAL PERFORMANCE: A RANDOMIZED CONTROLLED TRIAL

Date & Journal: J Hand Ther . 2021 Oct 27.

Abstract

Background: Kinesio taping (KT) is a popular adjunct treatment modality for musculoskeletal injuries, hand and wrist injuries. The effectiveness of KT on wrist kinematics has been analyzed during single plane movements in general, and no study has investigated its effectiveness during dart throwing motion (DTM).

Purpose: To compare the effects of different KT techniques on wrist kinematics during DTM and functional performance of hand in healthy participants.

Results: DTM range increased (P = .0) and Minnesota Manual Dexterity Test time decreased (P = .0) after KT and PT applications on FCU and ECRB/L muscles. Amount of change in wrist kinematics (P = .0; effect size = 0.2 and 0.3) and functional performance (P = .0; effect size = 0.6 and 0.8) were more obvious with KT applications, independent from the muscles they were applied on (P = .2 for wrist kinematics and P = .7 for functional performance).

Conclusions: KT on either FCU or ECRB/L muscles improve wrist kinematics and functional performance, significantly. Further studies should investigate if these findings apply for the patients with different wrist injuries, for both immediate- and long-term effectiveness.

Oruk DÖ, Karakaya MG, Yenişehir S, Karakaya İÇ. Effect of Kinesio taping on wrist kinematics and functional performance: A randomized controlled trial. J Hand Ther. 2021 Oct 27:S0894-1130(21)00148-4. doi: 10.1016/j.jht.2021.09.005. Epub ahead of print. PM

EFFECT OF KINESIOLOGY TAPING ON UPPER TORSO MOBILITY AND SHOULDER PAIN AND DISABILITY IN US MASTERS NATIONAL CHAMPIONSHIP SWIMMERS: AN EXPLORATORY STUDY.

DATE & JOURNAL: J MANIPULATIVE PHYSIOL THER. 2019 JUN 17

- OBJECTIVE: The purpose of this study was to observe changes in shoulder pain and upper-extremity functional movement after kinesiology taping (KT) in competitive swimmers.
- METHODS: 76 healthy participants competing in the US Masters Swimming 2017 National Championship participated in the study.
- RESULTS: A change in the functional movement assessment was observed after KT application when compared to the pre-KT application. A statistical significant change for pain and disability scores of 2.17 was observed.
- CONCLUSION: For the participants in this study, KT changed shoulder pain and active functional movement scores significantly in swimmers.

Hanson JH, Ostrem JD, Davies BL. Effect of Kinesiology Taping on Upper Torso Mobility and Shoulder Pain and Disability in US Masters National Championship Swimmers: An Exploratory Study. J Manipulative Physiol Ther. 2019 May;42(4):247-253. doi: 10.1016/j.jmpt.2018.11.009. Epub 2019 Jun 17. PMID: 31221494.

COMPARISON OF THE EFFICACY OF CONVENTIONAL PHYSICAL THERAPY MODALITIES AND KINESIO TAPING TREATMENTS IN SHOULDER IMPINGEMENT SYNDROME.

DATE & JOURNAL: EURASIAN J MED. 2019 JUN

Abstract

Objective: The aim of the present study was to compare the effectiveness of kinesio taping (KT) treatments and conventional physical therapy (PT) modalities that are applied to reduce pain and improve physical movements and functions of patients with sub acromial impingement syndrome (SIS).

Results: Physical therapy was found to be more effective than KT when these two treatment modalities were assessed based on ASESS-100, WORC index values, night pain, and movement pain. PT and KT treatments have similar effects in active ROM, rest pain, and C-M scale. At the end of the study, they were found to have similar effects except the night pain value. PT was found to be more effective for night pain than KT.

Conclusion: Physical therapy was concluded to be more effective after treatment. The application of KT does not appear to be an alternative treatment method for SIS, but it can provide a potential supportive care for SIS. However, the outcomes suggest that KT can provide a remarkable benefit.

Kul A, Ugur M. Comparison of the Efficacy of Conventional Physical Therapy Modalities and Kinesio Taping Treatments in Shoulder Impingement Syndrome. Eurasian J Med. 2019 Jun;51(2):139-144. doi: 10.5152/eurasianjmed.2018.17421. Epub 2018 Nov 30. PMID: 31258353; PMCID: PMC6592440.

A TRIPLE APPLICATION OF KINESIO TAPING SUPPORTS REHABILITATION PROGRAM FOR ROTATOR CUFF TENDINOPATHY: A RANDOMIZED CONTROLLED TRIAL.

DATE & JOURNAL: ORTOP TRAUMATOL REHABIL. 2018 DEC 31

- BACKGROUND: Rotator cuff tendinopathy ***(RoCT)*** is a common pathology among adults. Kinesio-taping (KT) represents a possible rehabilitative treatment. The aim of the present study is to investigate the efficacy of a combination of three different applications of KT combined with a standardized protocol of rehabilitative exercises in reducing pain and in functional recovery in patients affected by RoCT.

- RESULTS: Within-group analysis for RG at T1 showed significant improvement in: NRS at-rest, during-movement; CMS; MRC shoulder flexion, extension, abduction, adduction, external rotation, internal rotation, elbow flexion and extension strength. Within-group analysis for SG at T1 showed significant improvement in: during-movement NRS; CMS.

- CONCLUSIONS: 1 KT application combined with conventional rehabilitative treatment can facilitate immediate pain reduction during rehabilitative treatment. 2. KT application combined with conventional rehabilitative treatment can increase function recovery. 3. KT application combined with conventional rehabilitative treatment can increase strength recovery. 4. Our findings however are not strong enough to recommend the application of KT during rehabilitative treatment for RoCT. 5. These results are the basis for future prospective, randomized controlled trials of larger samples of patients.

Miccinilli S, Bravi M, Morrone M, Santacaterina F, Stellato L, Bressi F, Sterzi S. A Triple Application of Kinesio Taping Supports Rehabilitation Program for Rotator Cuff Tendinopathy: a Randomized Controlled Trial. Ortop Traumatol Rehabil. 2018 Dec 31;20(6):499-505. PMID: 30676323.

TAPING FOR POSTURE MOVEMENT

Taping can be used to help with the correction of posture because it gives kinesthetic guidance to the body and can be used to give feedback using tension, whether it is consciously noticed or not, to promote better positions.

Thedon's study on the degradation of posture due to muscle fatigue showed that simply using a small piece of tape on the Achilles' tendon was enough stimulation to improve quiet standing posture in fatigued individuals. The study concluded that" when the muscular sensory input flow normally relevant for the postural system is impaired due to fatigue, the weight of cutaneous information increases for the successful representation of movements in space to adjust postural control. [1]

POSTURAL TAPING/ MIRROR IMAGE TAPING

As the patient falls into unwanted posture they will receive a conscious or subconscious cue from the tape as it increases tension, reminding them to return to a more desirable posture that places less tension on the tape.

1. Place the body into the position that is opposite of the unwanted posture, (but NOT overly exaggerated).

2. Apply the stabilization tape along the fascial line(s) that will facilitate the intended posture.

3. Apply the strips of tape with paper-off tension or light to moderate stretch (it is usually best to use less stretch on the tape initially and then apply more with subsequent taping applications if needed).

***** You are using long stabilization strips for posture taping.***

CERVICOTHORACIC FMT POSTURAL CONTROL TAPING

Basic postural faults that are noticed in this region are forward head posture, slumped and rounded shoulders, internal rotation, and/or un-leveling of the shoulders.

- 1. Position patient in the opposite (neutral), but NOT exaggerated, of their unwanted posture.
- 2. Simply position the patient where you want them and apply the tape.

EFFECTS OF RIGID AND KINESIO TAPING ON SHOULDER ROTATION MOTIONS, POSTERIOR SHOULDER TIGHTNESS, AND POSTURE IN OVERHEAD ATHLETES: A RANDOMIZED CONTROLLED TRIAL.

DATE & JOURNAL: J SPORT REHABIL . 2019 MAR 1.

Abstract

Context: Alterations in posture and motion patterns are thought to play a role in developing shoulder injuries in overhead athletes. Taping is widely used in the sporting population, but there are limited empirical data regarding its effectiveness.

Objectives: To determine and compare the effects of rigid and kinesio taping on shoulder rotation motions, posterior shoulder tightness (PST), and posture in overhead athletes.

Results: Glenohumeral internal rotation increased immediately and at 60 to 72 hours after application in the KTG, whereas it decreased immediately after application in the RTG. Immediately after application, total rotation range of motion increased in the KTG and decreased in the RTG, and there was a difference between groups. Immediately after application, PST increased in the RTG; after 60 to 72 hours, it decreased in the KTG and increased in the RTG. Posture outcomes did not change significantly.

Conclusions: Kinesio taping may improve and rigid taping may worsen glenohumeral internal rotation and PST in overhead athletes. For increasing total rotation range of motion, kinesio taping is superior to rigid taping. Taping did not affect posture. Short-term kinesio taping in overhead athletes may be useful to improve glenohumeral internal rotation, total rotation range of motion, and PST.

Gulpinar D, Tekeli Ozer S, Yesilyaprak SS. Effects of Rigid and Kinesio Taping on Shoulder Rotation Motions, Posterior Shoulder Tightness, and Posture in Overhead Athletes: A Randomized Controlled Trial. J Sport Rehabil. 2019 Mar 1;28(3):256-265. doi: 10.1123/jsr.2017-0047. Epub 2018 Jul 14. PMID: 28714759.

DOES KINESIOLOGY TAPE COUNTER EXERCISE RELATED IMPAIRMENTS OF BALANCE IN THE ELDERLY?

Date & Journal: Gait Posture. 2018 May

- BACKGROUND: Maintaining balance is an essential requirement for the performance of daily tasks and sporting activities, particularly in older adults to prevent falls and associated injuries. Kinesiology tape has gained great popularity in sports and is frequently used as a tool for performance enhancement. However, there is little research investigating its influence on balance.

- METHODS: Twelve physically active, healthy men aged 63-77 years performed the test on two separate days, with and without Kinesiology tape at the knee joint.

- RESULTS: Factorial ANOVA revealed significant time × taping condition interaction effects on all performance parameters ($p < 0.05$), indicating that the exercise-related changes in dynamic balance, postural stability and knee proprioception differed between the two taping conditions. The deterioration of performance was always greater when no tape was used.

- SIGNIFICANCE: This study demonstrated that physical exercise significantly deteriorated dynamic balance, postural stability and knee proprioception in older men. These effects can be attenuated through the usage of Kinesiology tape. By preventing exercise-related impairments of balance, Kinesiology tape might help reduce the risk of sports-associated falls and associated injuries.

Hosp S, Csapo R, Heinrich D, Hasler M, Nachbauer W. Does Kinesiology tape counter exercise-related impairments of balance in the elderly? G… Posture. 2018 May;62:167-172. doi: 10.1016/j.gaitpost.2018.03.022. Epub 2018 Mar 10. PMID: 29550696.

REFERENCES

- 1.Thedon, T, et al. Degraded postural performance after muscle fatigue can be compensated by skin stimulation. Gait & Posture. 2011; 33:686-689.

- 2.Simsek TT, et al. The effects of kinesio taping on sitting posture, functional independence and gross motor function in children with cerebral palsy.Disability and Rehabilitation. 2011; 33(21-22):2058-2063.

- 3.Cook,G.2010. Movement. On Target Publications. Aptos, California.

- 4.Walsh SF. Treatment of a brachial plexus injury using kinesiotape and exercise. Physiotherapy Theory and Practice. 2010;26(7):490-496.

- 5.Anadkumar S. Kinesio tape management for superficial radial nerve entrapment: a case report. Physiotherapy Therapy and Practice. 2013 Apr; 29(3):232-241.

III. PRINCIPLES OF REHABILITATION RELATED TO PAIN MANAGEMENT

A. INSTRUMENTATION, TECHNOLOGY RELATED TO REHABILITATION PRINCIPLES.

B. THERAPEUTIC LASERS RELATED TO PAIN MANAGEMENT OF ACUTE AND CHRONIC PAIN, AND REHABILITATION OF INJURIES.

C. MANAGING PAIN AND INFLAMMATION OF AN INJURED PATIENT THROUGH INSTRUMENTATION AND TECHNOLOGY.

D. INFLAMMATION AND ITS RELATIONSHIP TO DISEASE, AND PAIN MANAGEMENT PROTOCOLS FOR THE CHIROPRACTIC TREATMENT PLAN INCLUDING NUTRITIONAL OPTIONS

INSTRUMENTATION & TECHNOLOGY RELATED TO REHABILITATION PRINCIPLES.

- POSTURE BALANCING NEUROLOGY
- MASSAGE THERAPY
- LASER THERAPY
- TRACTION
- MASSAGE
- E-STIM
- FUNCTIONAL MOVEMENT TECHNIQUES (TAPING)
- SUPPLEMENTS

INTRODUCTION TO REHABILITATION PRINCIPLES RELATED TO PAIN MANAGEMENT & INFLAMMATION

- Chiropractic
- Nutritional Supplements
  Ex.) Turmeric, Collagen, Minerals
- Laser
- Cold Pack/ Ice
- Functional Movement Techniques (Taping)
- Pain Relief Creams

THERAPEUTIC LASERS RELATED TO PAIN MANAGEMENT OF ACUTE AND CHRONIC PAIN, AND REHABILITATION OF INJURIES.

MILLENNIUM MUSCLE STRAIN PROTOCOL - NEW

Mobilization

Elevation

Laser

Taping

LASER

THERAPEUTIC LASERS RELATED TO PAIN MANAGEMENT OF ACUTE AND CHRONIC PAIN, AND REHABILITATION OF INJURIES

WHAT IS LASER / LIGHT THERAPY?

Laser Therapy is the common term

used to describe any a modality that

utilizes photons of light (typically red and/or infrared light for the relief of pain, to accelerate healing and decrease inflammation

FDA CLEARED USES FOR LASER

- Temporary relief of minor muscle & joint pain
- Arthritis
- Muscle spasms
- Relieving stiffness
- Promoting relaxation of muscle tissue
- Temporarily increase local blood circulation where heat is indicated

510(k) Number (if known): _K123474_____ Page 1 of 1

Device Name: AVANT LASER MODEL LZ30 and LZ30-X

Indications for Use:

The Avant Laser Model LZ30 and LZ30-X are intended to emit energy in the visible and near infrared spectrum to provide topical heating for the purpose of elevating tissue temperature for a temporary relief of minor muscle and joint pain and stiffness, minor arthritis pain, or muscle spasm; the temporary increase in local blood circulation; and the temporary relaxation of muscles.

Prescription Use x (Part 21 CFR 801 Subpart D) Over-The-Counter Use _____ (Part 21 CFR 807 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE -CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of Device Evaluation (ODE)

Neil R Ogden
2013.12.02 14:55:32
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(Division Sign-Off) Div: BSA

Division of Surgical Devices

510(k) Number K123474

CONTRAINDICATIONS TO LASER THERAPY

- Pregnancy
- Cancer
- Fever (body temperature higher than 100.4°f/38°c)
- During stages of acute infection (including localized infections)
- Over hemorrhages
- In the vicinity of pacemakers

SOURCE: FDA

THERAPEUTIC LASERS RELATED TO PAIN MANAGEMENT OF ACUTE & CHRONIC PAIN, AND REHABILITATION

Laser Function

Light is absorbed through skin, and then absorbed by the mitochondria in the cell

Light energy is transformed into biochemical energy

Additional energy assist cells to enhance healing and assist to restore normal cell function

PHOTOBIOMODULATION

DEFINITION: (PBMT) IS A FORM OF LIGHT THERAPY THAT UTILIZES LIGHT SOURCES INCLUDING LASERS, LEDS, AND BROADBAND LIGHT FOR THE RELIEF OF PAIN AND INFLAMMATION.

Photon energy has been known to have a photophysical and photobiological effect at the cellular level to modulate healing and anti-inflammatory action within the cell.

No photo-therapeutic effects are seen when low level laser therapy was applied to uninjured muscle [2]

Injured cells & tissues emit enzymes that encourage the receipt of photons more readily than healthy cells and tissues.

LASER CLASSIFICATIONS: 1, 2, 3, 4

Classification has nothing to do with effectiveness but what controls are needed to ensure safe operation

Classification is measured by how much injury a laser can cause to the eye.

Safest Class: 1

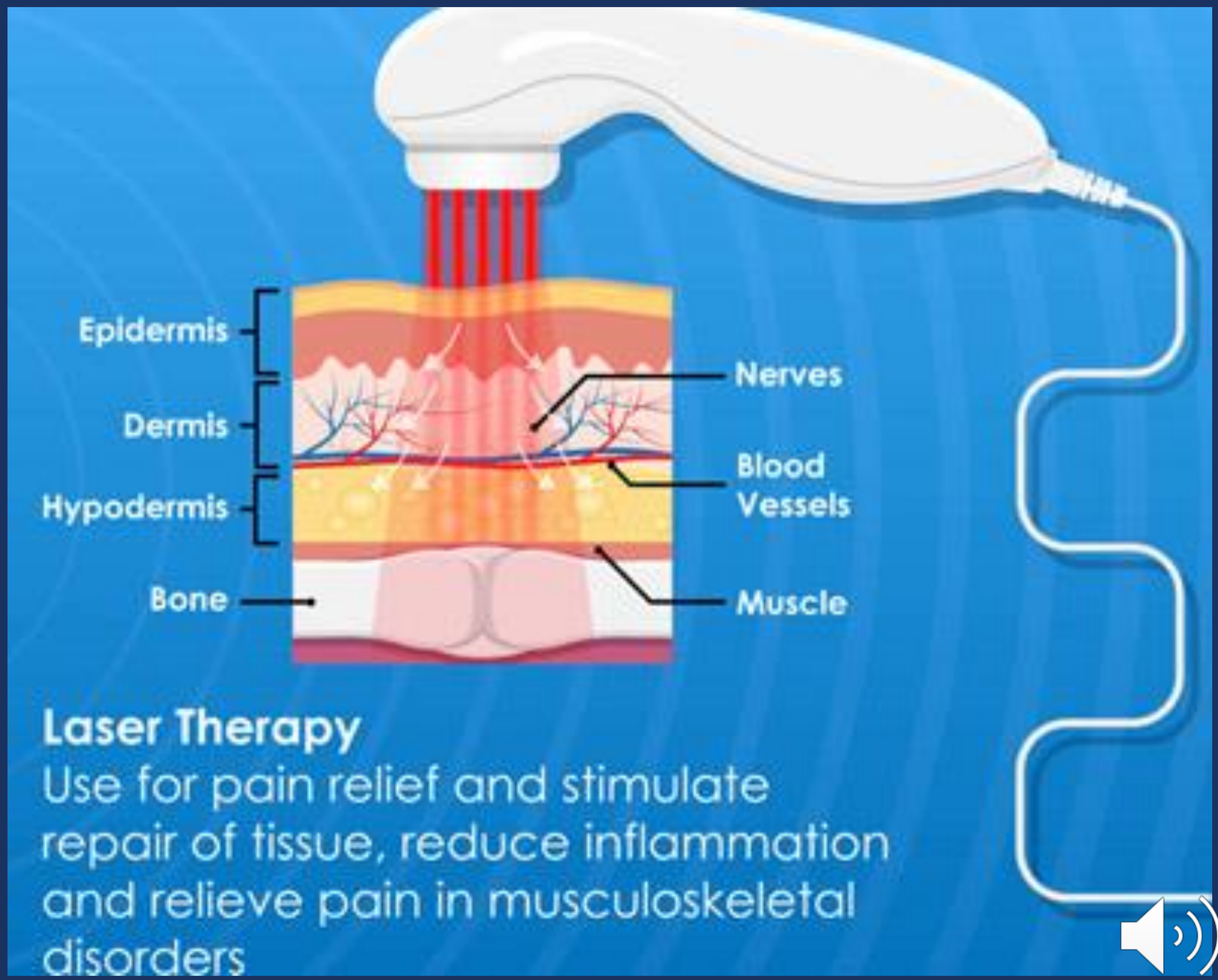
Most Hazardous Class: 4

EXAMPLE OF LASER THAT I USE IN MY OFFICE WITH DEMONSTRATION:

- Device Specs – LZ30Z
- High Power
- Dual Wavelength
- 1000mW Rd, 1400mW Infrared
- Preloaded with many protocols
- Compact, Cordless, & lightweight
- Fully Programmable
- Expandable- software upgrades available

PHOTOBIOMODULATION RESEARCH:

LOW LEVEL LASER THERAPY



Laser Therapy

Use for pain relief and stimulate repair of tissue, reduce inflammation and relieve pain in musculoskeletal disorders

EVIDENCE BASED REFERENCES & RESOURCES

RE: LASERS/PHOTOBIOMODULATION

LASERS VS. RED LIGHT LEDS

IS THERE A DIFFERENCE BESIDES PRICE?

The article compares the efficacy of lasers and red light LEDs in therapeutic settings, highlighting significant differences beyond cost. Research indicates that lasers provide superior long-term benefits, with patients showing sustained improvement post-treatment. In contrast, LEDs often fail to deliver lasting results, with symptoms re-emerging after treatment ends. Additionally, high-quality laser devices tend to offer more effective and safer outcomes compared to LEDs, which can potentially cause harm with excessive use. Clinical studies and expert opinions, including those from USA universities, support the use of lasers for their effectiveness and lasting benefits. The article concludes that practitioners should consider these findings to avoid introducing suboptimal treatments like low-cost LED devices that may not meet patient expectations or provide durable results.

Hamblin, Michael, and Viljami Heiskanen. "Lasers vs. Red Light LEDs: Is There a Difference Besides Price?" *Chiropractic Economics*, 14 Apr. 2024, p. 20.

PHOTOBIOMODULATION THERAPY FOR TREATMENT OLFACTORY AND TASTE DYSFUNCTION COVID-19-RELATED: A CASE REPORT

Date & Journal: J Biophotonics . 2022 Apr 2.

Abstract

It is postulated that the inflammatory process resulting from SARS-CoV-2 infection is the main cause of smell and taste dysfunctions in patients. In view of this, photobiomodulation, due to its anti-inflammatory and antioxidant effects, may be a promising therapeutic modality to treat these disorders. In the present case report, we observed clinical improvement in the symptoms of anosmia and ageusia related to COVID-19 after treatment with photobiomodulation. Due to the inflammatory nature of COVID-19 and the anti-inflammatory effects, photobiomodulation antioxidants already proven in the literature make it a promising therapeutic modality, especially sequela COVID-related, including olfactory (anosmia) and taste (ageusia) dysfunction. In the present case report, the patient's olfactory and gustatory functions were re-established after 10 treatment sessions with photobiomodulation. This article is protected by copyright. All rights reserved.

J Biophotonics . 2022 Apr 21Brocca de Souza V, Ferreira LT, Sene-Fiorese M, Garcia V, Zuccolotto Rodrigues T, de Aquino Junior A, Bagnato VS, Panhoca VH. Photobiomodulation therapy for treatment olfactory and taste dysfunction COVID-19-related: a case re

PHOTOBIOMODULATION: EVOLUTION AND ADAPTATION

Date & Journal: Photobiomodul Photomed Laser Surg . 2022 Apr.

Abstract

Photobiomodulation (PBM) can be described as the *intentional* use of low-power laser or light-emitting diode light in the visible and near-infrared light spectra as a *medical treatment* to *living biological tissues*. This article describes the evolution of photochemical reactions on Earth, the mitochondria, and their implications in PBM; the science of light and energy (necessary to understand the mechanisms of PBM); and the clinical science of light as therapeutic medicine. Finally, selected reviews of current treatment protocols and ongoing research regarding the possibilities for the use of PBM in the human body are examined.

Lipko NB. Photobiomodulation: Evolution and Adaptation. Photobiomodul Photomed Laser Surg. 2022 Apr;40(4):213-233. doi: 10.1089/photob.2021.0145. Epub 2022 Mar 29. PMID: 35353639.

COMPARATIVE EFFICACY OF LOW-LEVEL LASER THERAPY (LLLT) TO TENS AND THERAPEUTIC ULTRASOUND IN MANAGEMENT OF TMDS: A SYSTEMATIC REVIEW & META-ANALYSIS

Date & Journal: Cranio . 2022 Mar 22.

Abstract

Objective: To assess the reduction in pain, muscle tenderness, joint clicking, and improvement in mouth opening (MO) after low-level laser therapy (LLLT) compared to transcutaneous electrical nerve stimulation (TENS) and therapeutic ultrasound (US) among temporomandibular joint disorder (TMD) patients.

Results: Twelve RCTs were included in the systematic review, and 9 were included in the meta-analysis. For reduction in pain between LLLT and TENS, LLLT was found to be better than TENS, at 95% CI. LLLT was also proven to be better in reducing pain than therapeutic US, at 81% CI.

Conclusion: This systematic review and meta-analysis compared the effectiveness of LLLT, TENS, and therapeutic US in TMD. LLLT provided relatively more effective pain relief and improvement in MO.

Ansari S, Charantimath S, Lagali-Jirge V, Keluskar V. Comparative efficacy of low-level laser therapy (LLLT) to TENS and therapeuti ultrasound in management of TMDs: a systematic review & meta-analysis. Cranio. 2022 Mar 22:1-10. doi: 10.1080/08869634.202

EFFECTS OF PHOTOBIOMODULATION AND DEEP WATER RUNNING IN PATIENTS WITH CHRONIC NON-SPECIFIC LOW BACK PAIN: A RANDOMIZED CONTROLLED TRIAL

Date & Journal: Lasers Med Sci . 2022 Mar 4

Abstract

Photobiomodulation therapy (PBM) is often used to treat musculoskeletal disorders such as chronic non-specific low back pain (NSCLBP) as it can have positive effects on biomarkers-creatine kinase (CK) and serum cortisol levels-related to stress caused by physical exercise, such as deep water running (DWR) or by pain. The aim of this study was to evaluate the effects of the combination of PBM and aquatic exercise (DWR) on the intensity of pain, disability, 6-min walk test adapted (6WTA), and on cortisol and creatine kinase (CK) levels in a population with NSCLBP. The participants were allocated into three groups: TG_{PBM} (Photobiomodulation and Training Group), TG_{PLA} (Placebo Photobiomodulation and Training Group), and the G_{PBM} (Photobiomodulation Group). Information regarding anthropometric data, blood pressure, and heart rate were collected, and the questionnaires were applied: IPAQ-Short Form, Oswestry Disability Index, and the Visual Analog Scale for Pain. The submaximal exercise test (6WTA) was performed. Blood was collected for analysis of cortisol and CK levels. The training sessions were performed twice a week, for 4 weeks. In the intragroup comparisons, there were statistically significant changes in the TG_{PBM} and G_{PBM} groups in the outcomes pain intensity, disability (reductions in both groups), and in cortisol (increased in the TG_{PBM} and reduced in the G_{PBM}); in the TG_{PLA} group, there was a statistically significant reduction only in the outcome of pain intensity. In the intergroup comparison, in the comparison between TG_{PBM} and TG_{PLA}, there was a statistically significant difference in the level of cortisol, as well as in the comparison between TG_{PBM} and G_{PBM}, in which there was a statistically significant difference for this same outcome (cortisol) and for the 6WTA outcome. The effects of the combination of PBM and aquatic exercise have positive effects on reducing pain intensity, disability, and cortisol levels, but its effects on other variables (6WTA and CK) are too small to be considered significant.

Nardin DMK, Stocco MR, Aguiar AF, Machado FA, de Oliveira RG, Andraus RAC. Effects of photobiomodulation and deep water running in patients with chronic non-specific low back pain: a randomized controlled trial. Lasers Med Sci. 2022 Mar 4. doi: 10.1007/s1

★ A COMPARATIVE STUDY OF THE DOSE-DEPENDENT EFFECTS OF LOW LEVEL AND HIGH INTENSITY PHOTOBIOMODULATION (LASER) THERAPY ON PAIN AND ELECTROPHYSIOLOGICAL PARAMETERS IN PATIENTS WITH CARPAL TUNNEL SYNDROME.

DATE & JOURNAL: EUR J PHYS REHABIL MED. 2020 DEC

ABSTRACT

Background: Carpal tunnel syndrome (CTS) is a common peripheral nerve disorder of the wrist. Nonsurgical treatments e.g. laser therapy may cause potential beneficial effects.

Results: VAS was significantly lower in all groups after 3 weeks. CMAP latency decreased in all groups. The interaction of group and time (5×2) was significant for pain, the latency of CMAP and CMAP amplitude. The interaction of group and time was not significant for the CMAP conduction velocity, sensory nerve latency and amplitude.

Conclusions: HILT with a power of 1.6 W and low fluence of 8 J/cm2 was superior in reduction of pain and improvement of the median motor nerve electrophysiological studies compared to LLLT and exercise-only control groups.

Ezzati K, Laakso EL, Saberi A, Yousefzadeh Chabok S, Nasiri E, Bakhshayesh Eghbali B. A comparative study of the dose-dependent effects of low level and high intensity photobiomodulation (laser) therapy on pain and electrophysiological parameters in patients with carpal tunnel syndrome. Eur J Phys Rehabil Med. 2020 Dec;56(6):733-740. doi: 10.23736/S1973-9087.19.05835-0. Epub 2019 Nov 18. PMID: 31742366.

★ INFRARED LOW-LEVEL LASER THERAPY (PHOTOBIOMODULATION THERAPY) BEFORE INTENSE PROGRESSIVE RUNNING TEST OF HIGH-LEVEL SOCCER PLAYERS: EFFECTS ON FUNCTIONAL, MUSCLE DAMAGE, INFLAMMATORY, AND OXIDATIVE STRESS MARKERS-A RANDOMIZED CONTROLLED TRIAL.

DATE & JOURNAL: OXIF MED CELL LONGEV. 2019 NOV.

ABSTRACT: The effects of pre-exercise photobiomodulation therapy (PBMT) to enhance performance, accelerate recovery, and attenuate exercise-induced oxidative stress were still not fully investigated, especially in high-level athletes. The aim of this study was to evaluate the effects of PBMT (using infrared low-level laser therapy) applied before a progressive running test on functional aspects, muscle damage, and inflammatory and oxidative stress markers in high-level soccer players. A randomized, triple-blind, placebo-controlled crossover trial was performed. 22 high-level male soccer players from the same team were recruited and treated with active PBMT and placebo. The order of interventions was randomized. Immediately after the application of active PBMT or placebo, the volunteers performed a standardized high-intensity progressive running test until exhaustion. We analyzed rates of oxygen uptake, time until exhaustion, and aerobic and anaerobic threshold during the intense progressive running test. PBMT increased the VO2 max, time until exhaustion, time and volume in which anaerobic threshold happened, and volume in which aerobic threshold happened. Moreover, PBMT decreased CK and LDH activities. Regarding the cytokines, PBMT decreased only IL-6. Finally, PBMT decreased TBARS and carbonylated protein levels and increased SOD and CAT activities. The findings of this study demonstrate that pre-exercise PBMT acts on different functional aspects and biochemical markers. Moreover, preexercise PBMT seems to play an important antioxidant effect, decreasing exercise-induced oxidative stress and consequently enhancing athletic performance and improving postexercise recovery.

Tomazoni SS, Machado CDSM, De Marchi T, Casalechi HL, Bjordal JM, de Carvalho PTC, Leal-Junior ECP. Infrared Low-Level Laser Therapy (Photobiomodulation Therapy) before Intense Progressive Running Test of High-Level Soccer Players: Effects on Functional, Muscle Damage, Inflammatory, and Oxidative Stress Markers-A Randomized Controlled Trial. Oxid Med Cell Longev. 2019 Nov 16;2019:6239058.

PHOTOBIOMODULATION WITH LOW-LEVEL LASER THERAPY FOR TREATING ACHILLES TENDINOPATHY: A SYSTEMATIC REVIEW AND META-ANALYSIS.

DATE & JOURNAL: CLIN REHABIL. 2020 JUN.

ABSTRACT

Objective: The purpose of this study was to determine the benefits and harms of low-level laser therapy for Achilles tendinopathy.

Results: Four trials (119 participants) were analyzed. Laser therapy associated to eccentric exercises when compared to eccentric exercises and sham had very low to low certainty of evidence in pain and function assessment. Despite one trial favored laser therapy at two months. The function assessment showed an improvement favoring the placebo group at one month and non-significant difference between groups at 3 and 13 months. Adverse events were poorly reported but restricted to minor events related to the exercises.

Conclusion: The certainty of evidence was low to very low, and the results are insufficient to support the routine use laser therapy for Achilles tendinopathy.

Martimbianco ALC, Ferreira RES, Latorraca COC, Bussadori SK, Pacheco RL, Riera R. Photobiomodulation with low-level laser therapy for treating Achilles tendinopathy: a systematic review and meta-analysis. Clin Rehabil. 2020 Jun;34(6):713-722. doi: 10.1177/0269215520912820. Epub 2020 Mar 23. PMID: 32204620.

THE EFFECTIVENESS OF PHOTOBIOMODULATION THERAPY VERSUS CRYOTHERAPY FOR SKELETAL MUSCLE RECOVERY: A CRITICALLY APPRAISED TOPIC.

DATE & JOURNAL: J SPORT REHABIL. 2019 JAN 29

- Cryotherapy is one of the most commonly used modalities for postexercise muscle recovery despite inconsistencies in the literature validating its effectiveness. With the need to find a more effective modality, photobiomodulation therapy (PBMT) has gained popularity because of recent research demonstrating its ability to accelerate the muscle recovery process. Focused Clinical Question: Is PBMT more effective than cryotherapy at reducing recovery time and decreasing delayed onset muscle soreness after strenuous exercise? Summary of Key Findings: Three moderate- to high-quality double-blinded, randomized, placebo-controlled trials and 2 low- to moderate-quality translational studies performed on rats were included in this critically appraised topic. All 5 studies supported the use of PBMT over cryotherapy as a treatment for postexercise muscle recovery following exercise. PBMT was superior in reducing creatine kinase, inflammation markers, and blood lactate compared with cryotherapy, following strenuous/high intensity aerobic or strength muscular exercise. PBMT was also shown to improve postexercise muscle performance and function more than cryotherapy. Clinical Bottom Line: There is moderate evidence to suggest the use of PBMT over cryotherapy postexercise to enhance muscle recovery in trained and untrained athletes. Shorter recovery times and increased muscle performance can be seen 24 to 96 hours following PBMT application. Strength of Recommendation: Based on consistent findings from all 5 studies, there is grade B evidence to support the use of PBMT over cryotherapy for more effective postexercise recovery of skeletal muscle performance.

Fisher SR, Rigby JH, Mettler JA, McCurdy KW. The Effectiveness of Photobiomodulation Therapy Versus Cryotherapy for Skeletal Muscle Recovery: A Critically Appraised Topic. J Sport Rehabil. 2019 Jul 1;28(5):526-531. doi: 10.1123/jsr.2017-0359. Epub 2019 Jan 29. PMID: 29952693.

PHOTOBIOMODULATION FOR TRAUMATIC BRAIN INJURY AND STROKE.

Date & Journal: J Neurosci Res . 2018 Apr.

- There is a notable lack of therapeutic alternatives for what is fast becoming a global epidemic of traumatic brain injury (TBI). Photobiomodulation (PBM) employs s red or near-infrared (NIR) light (600-1100nm) to stimulate healing, protect tissue from dying, increase mitochondrial function, improve blood flow, and tissue oxygenation. PBM can also act to reduce swelling, increase antioxidants, decrease inflammation, protect against apoptosis, and modulate microglial activation state. All these mechanisms of action strongly suggest that PBM delivered to the head should be beneficial in cases of both acute and chronic TBI. Most reports have used NIR light either from lasers or from light-emitting diodes (LEDs). Many studies in small animal models of acute TBI have found positive effects on neurological function, learning and memory, and reduced inflammation and cell death in the brain. There is evidence that PBM can help the brain repair itself by stimulating neurogenesis, upregulating BDNF synthesis, and encouraging synaptogenesis. In healthy human volunteers (including students and healthy elderly women), PBM has been shown to increase regional cerebral blood flow, tissue oxygenation, and improve memory, mood, and cognitive function. Clinical studies have been conducted in patients suffering from the chronic effects of TBI. There have been reports showing improvement in executive function, working memory, and sleep. Functional magnetic resonance imaging has shown modulation of activation in intrinsic brain networks likely to be damaged in TBI (default mode network and salience network).

Hamblin MR. Photobiomodulation for traumatic brain injury and stroke. J Neurosci Res. 2018 Apr;96(4):731-743. doi: 10.1002/jnr.24190. Epub 2017 Nov 13. Erratum in: J Neurosci Res. 2019 Mar;97(3):373. PMID: 29131369; PMCID: PMC5803455.

III. PRINCIPLES OF REHABILITATION RELATED TO PAIN MANAGEMENT

A. INSTRUMENTATION, TECHNOLOGY RELATED TO REHABILITATION PRINCIPLES.

B. THERAPEUTIC LASERS RELATED TO PAIN MANAGEMENT OF ACUTE AND CHRONIC PAIN, AND REHABILITATION OF INJURIES.

C. MANAGING PAIN AND INFLAMMATION OF AN INJURED PATIENT THROUGH INSTRUMENTATION AND TECHNOLOGY.

D. INFLAMMATION AND ITS RELATIONSHIP TO DISEASE, AND PAIN MANAGEMENT PROTOCOLS FOR THE CHIROPRACTIC TREATMENT PLAN INCLUDING NUTRITIONAL OPTIONS

MANAGING PAIN AND INFLAMMATION OF AN INJURED PATIENT THROUGH INSTRUMENTATION AND TECHNOLOGY.

The Efficacy of Laser Therapy for Musculoskeletal and Skin Disorders: A Criteria-Based Meta-analysis of Randomized Clinical Trials by Beckerman et al

The efficacy of laser therapy for musculoskeletal disorders seems, on average, to be larger than the efficacy of a placebo treatment. More specifically, for rheumatoid arthritis, posttraumatic joint disorders, and myofascial pain, laser therapy seems to have a substantial specific therapeutic effect.

Efficacy of low-level laser therapy in the management of neck pain: a systematic review and meta-analysis of randomised placebo or active-treatment controlled trials by Chow et al

We show that LLLT reduces pain immediately after treatment in acute neck pain and up to 22 weeks after completion of treatment in patients with chronic neck pain.

A systematic review with procedural assessments and meta-analysis of low level laser therapy in lateral elbow tendinopathy (tennis elbow) by Bjordal et al

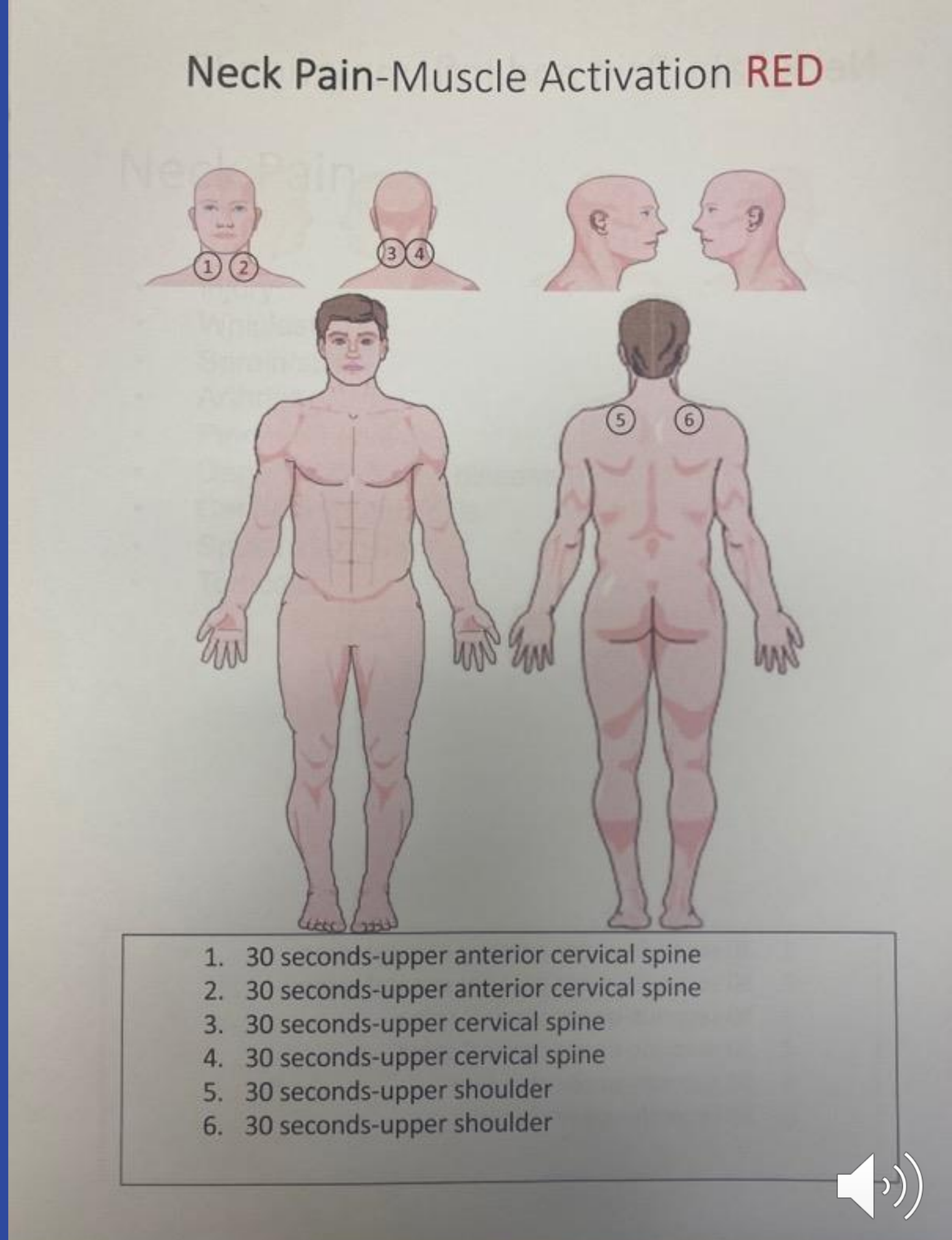
LLLT administered with optimal doses of 904 nm and possibly 632 nm wavelengths directly to the lateral elbow tendon insertions, seem to offer short-term pain relief and less disability in LET, both alone and in conjunction with an exercise regimen. This finding contradicts the conclusions of previous reviews which failed to assess treatment procedures, wavelengths and optimal doses.

Chiropractic management of myofascial trigger points and myofascial pain syndrome: a systematic review of the literature by Vernon and Schneider

Manual-type therapies and some physiologic therapeutic modalities have acceptable evidentiary support in the treatment of MPS and TrPs. Laser therapy (strong)

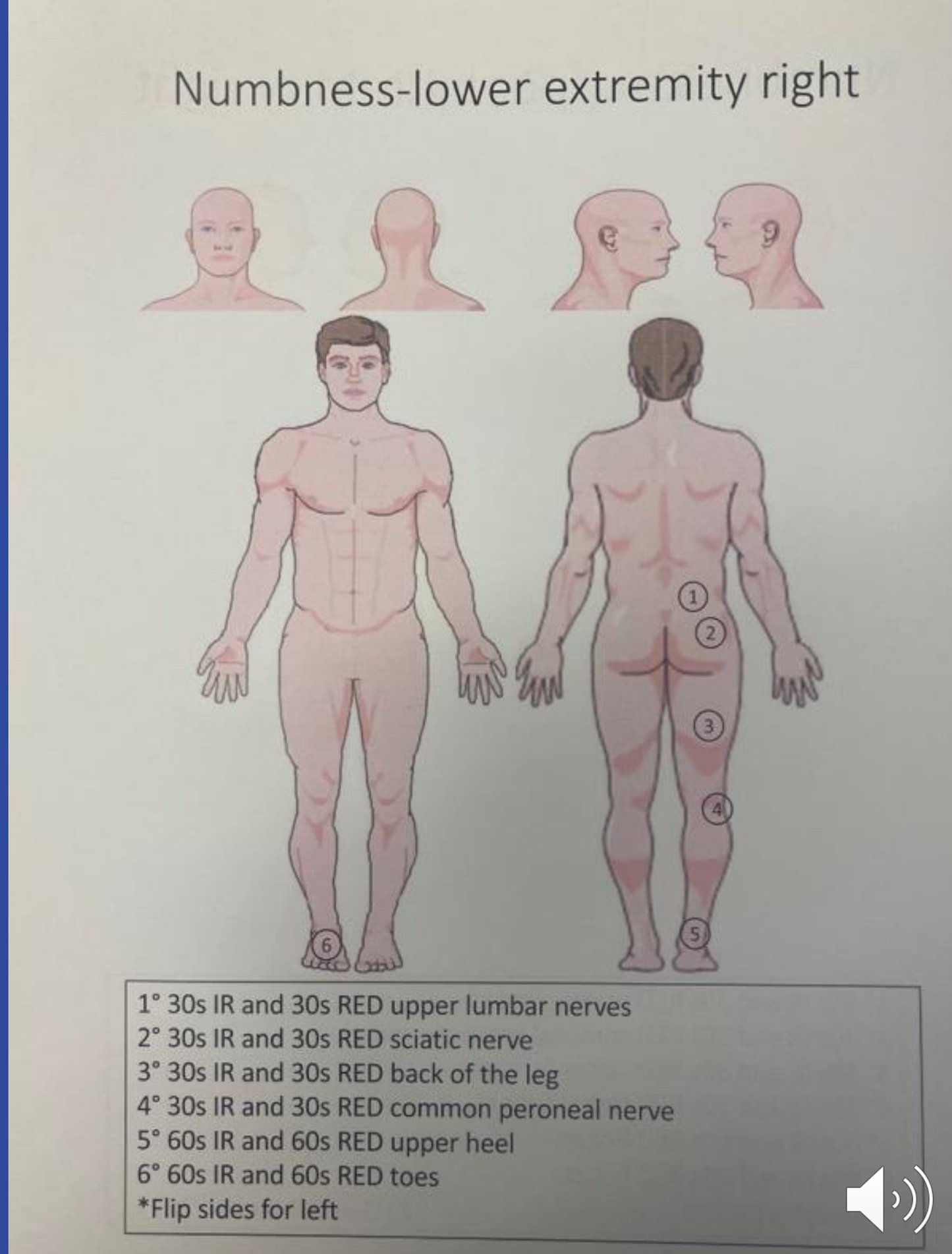
MANAGING PAIN AND INFLAMMATION OF AN INJURED PATIENT THROUGH INSTRUMENTATION AND TECHNOLOGY.

Example of Treatment Protocol for Neck Pain - Laser



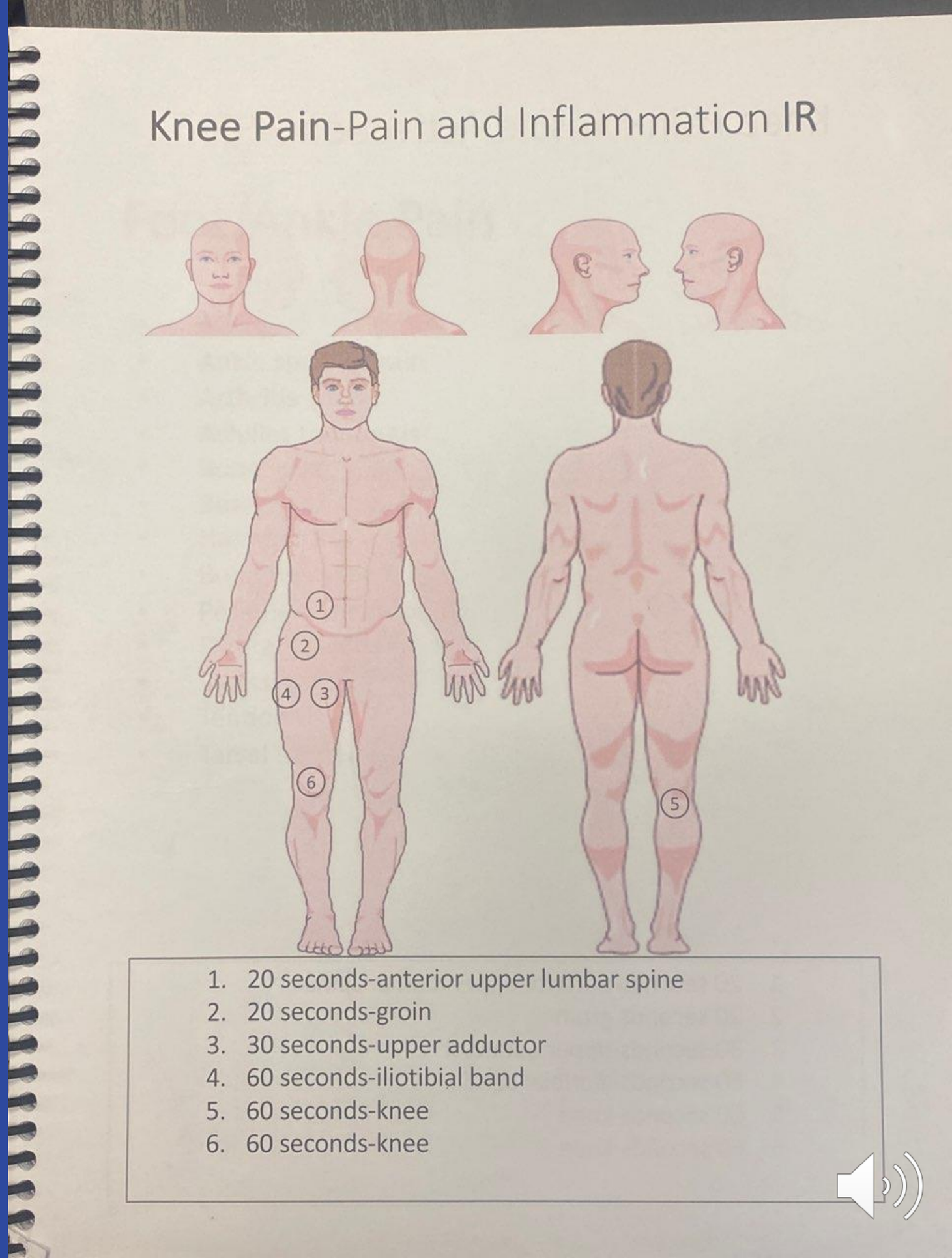
MANAGING PAIN AND INFLAMMATION OF AN INJURED PATIENT THROUGH INSTRUMENTATION AND TECHNOLOGY.

Example of Treatment Protocol for Numbness / Radiculopathy in the Lower Extremities
- Laser



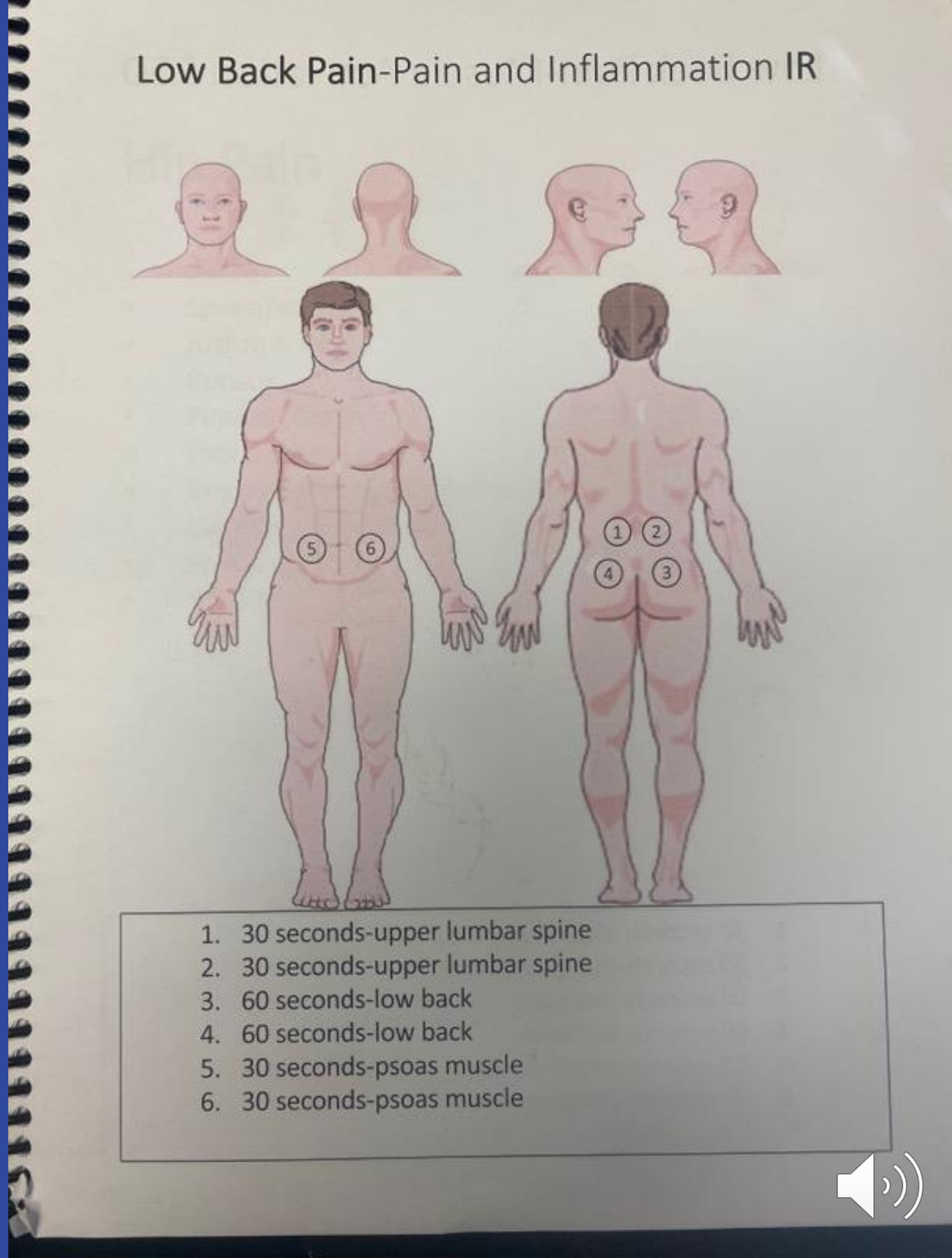
MANAGING PAIN AND INFLAMMATION OF AN INJURED PATIENT THROUGH INSTRUMENTATION AND TECHNOLOGY.

Example of Treatment Protocol for Knee Pain and Inflammation
- Laser



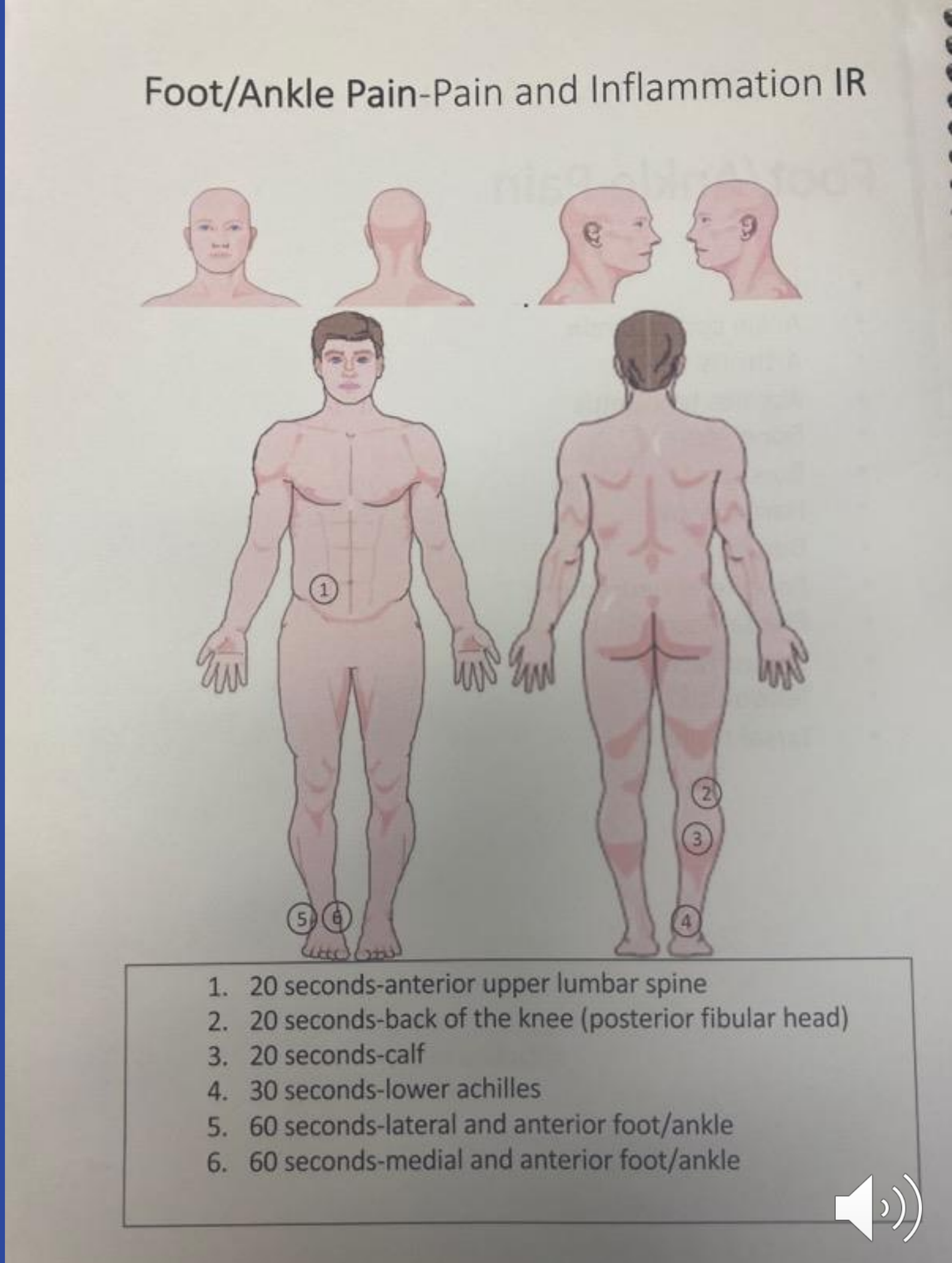
MANAGING PAIN AND INFLAMMATION OF AN INJURED PATIENT THROUGH INSTRUMENTATION AND TECHNOLOGY.

Example of Treatment Protocol for Low Back Pain and Inflammation - Laser



MANAGING PAIN AND INFLAMMATION OF AN INJURED PATIENT THROUGH INSTRUMENTATION AND TECHNOLOGY.

Example of Treatment Protocol for Foot/Ankle Pain and Inflammation - Laser



INFLAMMATION AND ITS RELATIONSHIP TO DISEASE, AND PAIN MANAGEMENT PROTOCOLS FOR THE CHIROPRACTIC TREATMENT PLAN INCLUDING NUTRITIONAL OPTIONS

Literature review

Natural inflammation reduction treatment options, including nutritional supplements and special dietary recommendations for an anti-inflammatory protocol.

1. What is an inflammation?. *Institute for Quality and Efficiency in Health Care (IQWiG)*. 2015. Available at: https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0072482/. Accessed October 12, 2016

INFLAMMATION AND ITS RELATIONSHIP TO DISEASE, AND PAIN MANAGEMENT PROTOCOLS FOR THE CHIROPRACTIC TREATMENT PLAN INCLUDING NUTRITIONAL OPTIONS

Possible Causes of Inflammation:

- Pathogens (germs) like bacteria, viruses
- External injuries (i.e. Sports, Work-related, or Trauma)
- Chemicals found in OTC or prescription medications, environmental and product exposure
- Any disease, disorder, condition ending in “-itis.”

What is an inflammation?. Institute for Quality and Efficiency in Health Care (IQWiG). 2015. Available at: https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0072482/. Accessed October 12, 2016.

INFLAMMATION AND ITS RELATIONSHIP TO DISEASE, AND PAIN MANAGEMENT PROTOCOLS FOR THE CHIROPRACTIC TREATMENT PLAN INCLUDING NUTRITIONAL OPTIONS

<u>Autoimmune Diseases:</u> The immune system attacks itself causing harmful inflammatory responses (*i.e. AIDS/HIV*)

- Rheumatoid arthritis | Inflammation of joints
  - mainly hands
- Psoriasis | Inflammation of skin
  - mainly elbow
- Crohn's/ ulcerative colitis | Inflammation of bowel

What is an inflammation?. Institute for Quality and Efficiency in Health Care (IQWiG). 2015. Available at: https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0072482/. Accessed October 12, 2016.

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- Tilg H. Cruciferous vegetables: prototypic anti-inflammatory food components. *Clinical Phytoscience*. 2015;1:1-6.

- Kocabas H, Kocabas V, Buyukbas S, Salli A, Ugurlu H. Relationship of Cellular Oxidant and Antioxidant Status with Disease Activity in Patients with Rheumatoid Arthritis. Turkish Journal of Rheumatology. 2010;25:141-146.

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- Disease-modifying potential of Cinnamon extract in inflammation and arthritis. Australian Journal of Herbal Medicine. 2014;26:36.

NEW TECHNOLOGIES FOR REHABILITATION AND PAIN MANAGEMENT

EXTRACORPOREAL SHOCKWAVE THERAPY IN THE MANAGEMENT OF SPORTS MEDICINE INJURIES

DATE & JOURNAL: CURR SPORTS MED REP. 2021 JUN 1

Abstract

Treatment of musculoskeletal conditions in athletes with extracorporeal shockwave therapy (ESWT) is gaining popularity as greater evidence supports its use. ESWT protocols (describing energy flux density, number of impulses, type of shockwave (focused or radial), number/frequency/duration of treatment session, area of application, and postprocedural therapy protocols) can be adjusted in the clinical setting. Protocols vary across studies, and optimal protocols for most indications are yet to be determined. ESWT can safely be used to treat various musculoskeletal conditions in athletes, including rotator cuff tendinopathy, lateral elbow epicondlyopathy, greater trochanteric pain syndrome, hamstring tendinopathy, patellar tendinopathy, Achilles tendinopathy, other tendinopathies, plantar fasciopathy, bone stress injuries, and medial tibial stress syndrome. ESWT can be used to treat in-season athletes, as it often requires no/minimal time away from sport and may result in rapid benefits. ESWT should be used in conjunction with physical therapy to facilitate longer-term gains in function and to optimize healing.

Schroeder AN, Tenforde AS, Jelsing EJ. Extracorporeal Shockwave Therapy in the Management of Sports Medicine Injuries. Curr Sports Med Rep. 2021 Jun 1;20(6):298-305. doi: 10.1249/JSR.0000000000000851. PMID: 34099607.

EFFICACY OF UNFOCUSED MEDIUM-INTENSITY EXTRACORPOREAL SHOCKWAVE THERAPY(MI-ESWT) FOR PLANTAR FASCIITIS

DATE & JOURNAL: J FOOT ANKLE SURG. 2021 MAY-JUN;60(3)

Abstract

Extracorporeal shock wave therapy (ESWT) is a promising treatment for plantar fasciitis (PF), however, treatment results have varied due to inconsistencies among types of shock wave treatment and devices used. This retrospective chart review includes patients who underwent ESWT using the OrthoGold 100™ shock wave device (MTS, Konstanz, Germany) for PF between January, 2013 and September, 2018. There were 108 patients (119 heels) identified, with a mean age of 51.7 ± 16.5 (Range 21-83) years. Patients were treated weekly for 3 weeks, with 2000 impulses per session at an energy flux density between 0.10 and 0.17 mJ/mm^2. Mean follow-up duration was 11.5 ± 9.7 (Range 3-51) months. Mean pre-ESWT pain visual assessment scale improved from 6.7 ± 1.7 to 2.6 ± 2.7 ($p < .001$). The Foot and Ankle Outcome Score subscales: pain, function of daily living, function of sports and recreational activities and quality of life domains improved from 53.7 ± 14.9 to 75.7 ± 16.7 ($p < .001$), from 38 ± 15.2 to 71.8 ± 23 ($p < .001$), from 55.8 ± 16.4 to 71.4 ± 18 ($p < .001$), from 42.4 ± 21.5 to 59.4 ± 20.3 ($p < .001$) and from 44.9 ± 16.4 to 69 ± 23.9 ($p < .001$), respectively. Eighty-eight (81.5%) patients were satisfied with the procedure at final follow-up. Treatment of PF with unfocused shock waves was well tolerated and led to significant pain reduction, functional improvement, and patient satisfaction.

Fansa A, Talsania AJ, Kennedy JG, O'Malley MJ. Efficacy of Unfocused Medium-Intensity Extracorporeal Shock Wave Therapy (MI-ESWT) for Plantar Fasciitis. J Foot Ankle Surg. 2021 May-Jun;60(3):471-476. doi: 10.1053/j.jfas.2020.08.027. Epub 2020 Sep 3. PMID: 33551229.

EXTRACORPOREAL SHOCKWAVE THERAPY FOR TREATING CHRONIC LOW BACK PAIN: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

DATE & JOURNAL: JBIOMED RES INT. 2021 NOV 15;2021

Abstract

Objective: To assess the effectiveness and safety of extracorporeal shockwave therapy (ESWT) for the treatment of chronic low back pain (CLBP).

Methods: This was a systematic review and meta-analysis of randomized controlled trials (RCTs) designed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analysis statement standard. We identified relevant studies by searching multiple electronic databases, trial registries, and websites up to April 30, 2021, and examining reference lists. We selected RCTs that compared ESWT, in unimodal or multimodal therapeutic approaches, with sham ESWT or other active therapies. Two investigators independently extracted data and assessed the risk of bias and quality of the evidence. The main outcomes were pain intensity and disability status, examined as standardized mean differences (SMD) with 95% confidence intervals (CI). The risk of bias was assessed by using Cochrane Back and Neck (CBN) Group risk of bias tool and Jadad score, and GRADE was applied to determine the confidence in effect estimates. Heterogeneity was explored using sensitivity analysis and meta-regression.

Results: Ten RCTs, including a total of 455 young to middle-aged individuals (29.2-55.8 years), were identified. Compared with control, the ESWT group showed lower pain intensity at month 1 (SMD = -0.81, 95% CI -1.21 to -0.42), as well as lower disability score at month 1 (SMD = -1.45, 95% CI -2.68 to -0.22) and at month 3 (SMD = -0.69, 95% CI -1.08 to -0.31). No serious shockwave-related adverse events were reported.

Conclusion: The use of ESWT in CLBP patients results in significant and quantifiable reductions in pain and disability in the short term. However, further well-conducted RCTs are necessary for building high-quality evidence and promoting the application of ESWT in clinical practice.

Yue L, Sun MS, Chen H, Mu GZ, Sun HL. Extracorporeal Shockwave Therapy for Treating Chronic Low Back Pain: A Systematic Review and Meta-analysis of Randomized Controlled Trials. Biomed Res Int. 2021 Nov 15;2021:5937250. doi: 10.1155/2021/5937250. PMID: 34840977; PMCID: PMC8617566.

INFLAMMATION AND ITS RELATIONSHIP TO DISEASE, AND PAIN MANAGEMENT PROTOCOLS FOR THE CHIROPRACTIC TREATMENT PLAN INCLUDING NUTRITIONAL OPTIONS

RESEARCH: CANNABIDIOL, CANNABINOL, & CANNABIGEROL FOR PAIN AND INFLAMMATION MANAGEMENT & REHABILITATION OF INJURY

INFLAMMATION AND ITS RELATIONSHIP TO DISEASE, AND PAIN MANAGEMENT PROTOCOLS FOR THE CHIROPRACTIC TREATMENT PLAN INCLUDING NUTRITIONAL OPTIONS

CBD: ANTI-INFLAMMATORY NUTRITIONAL OPTION

Cannabidiol: A Non-psychoactive cannabinoid

- *Analgesic*
- *Anti-inflammatory*
- *Neuroprotective*

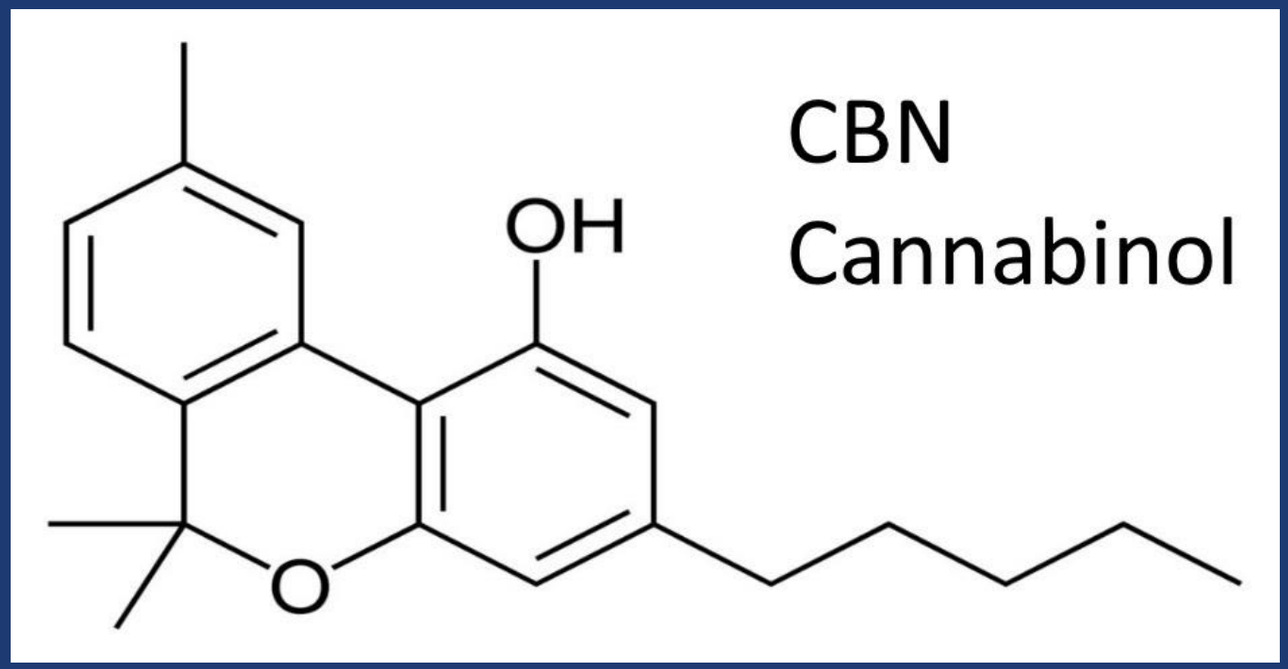
Lucas, C. J., Galettis, P., & Schneider, J. (2018). The Pharmacokinetics and the Pharmacodynamics of Cannabinoids. *British Journal of Clinical Pharmacology*. doi:10.1111/bcp.13710

INFLAMMATION AND ITS RELATIONSHIP TO DISEASE, AND PAIN MANAGEMENT PROTOCOLS FOR THE CHIROPRACTIC TREATMENT PLAN INCLUDING NUTRITIONAL OPTIONS

CBN: ANTI-INFLAMMATORY NUTRITIONAL OPTION

Cannabinol: A Non-psychoactive cannabinoid

- Sedative
- Anti-inflammatory



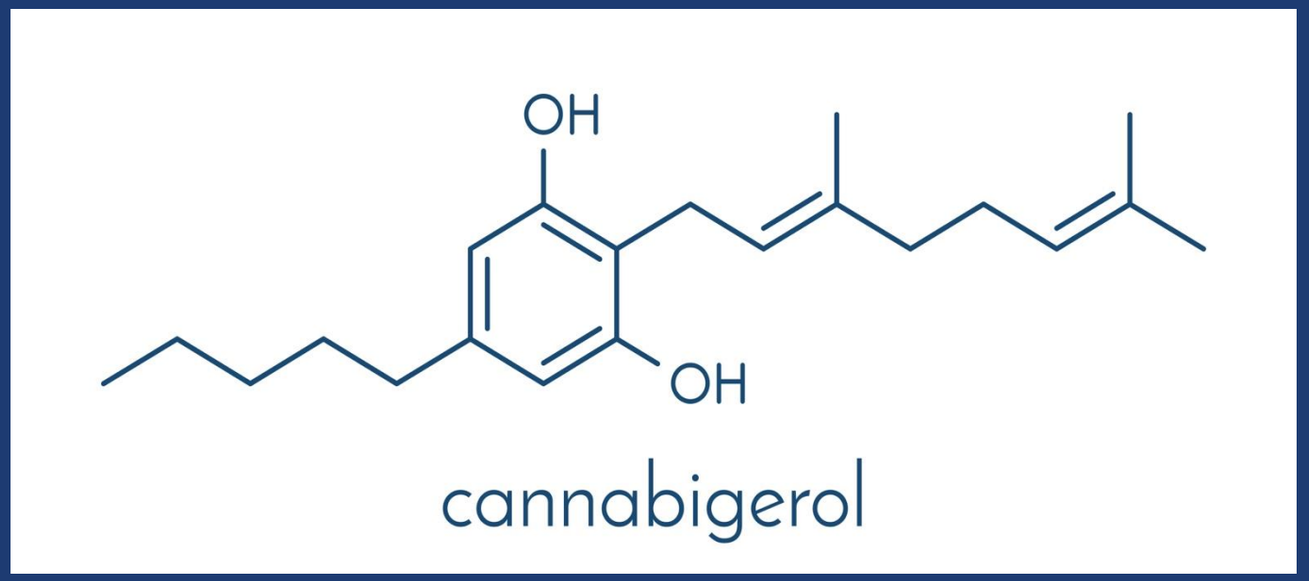
Lucas, C. J., Galettis, P., & Schneider, J. (2018). The Pharmacokinetics and the Pharmacodynamics of Cannabinoids. *British Journal of Clinical Pharmacology*. doi:10.1111/bcp.13710

INFLAMMATION AND ITS RELATIONSHIP TO DISEASE, AND PAIN MANAGEMENT PROTOCOLS FOR THE CHIROPRACTIC TREATMENT PLAN INCLUDING NUTRITIONAL OPTIONS

CBG: AN ANTI-INFLAMMATORY NUTRITIONAL OPTION

Cannabigerol: A Non-psychoactive cannabinoid

- Anti-inflammatory
- Analgesic
- Effective for:
  - Psoriasis
  - Neuropsychiatric Disorders (ADHD, PTSD)
  - Inflammatory Bowel Disease

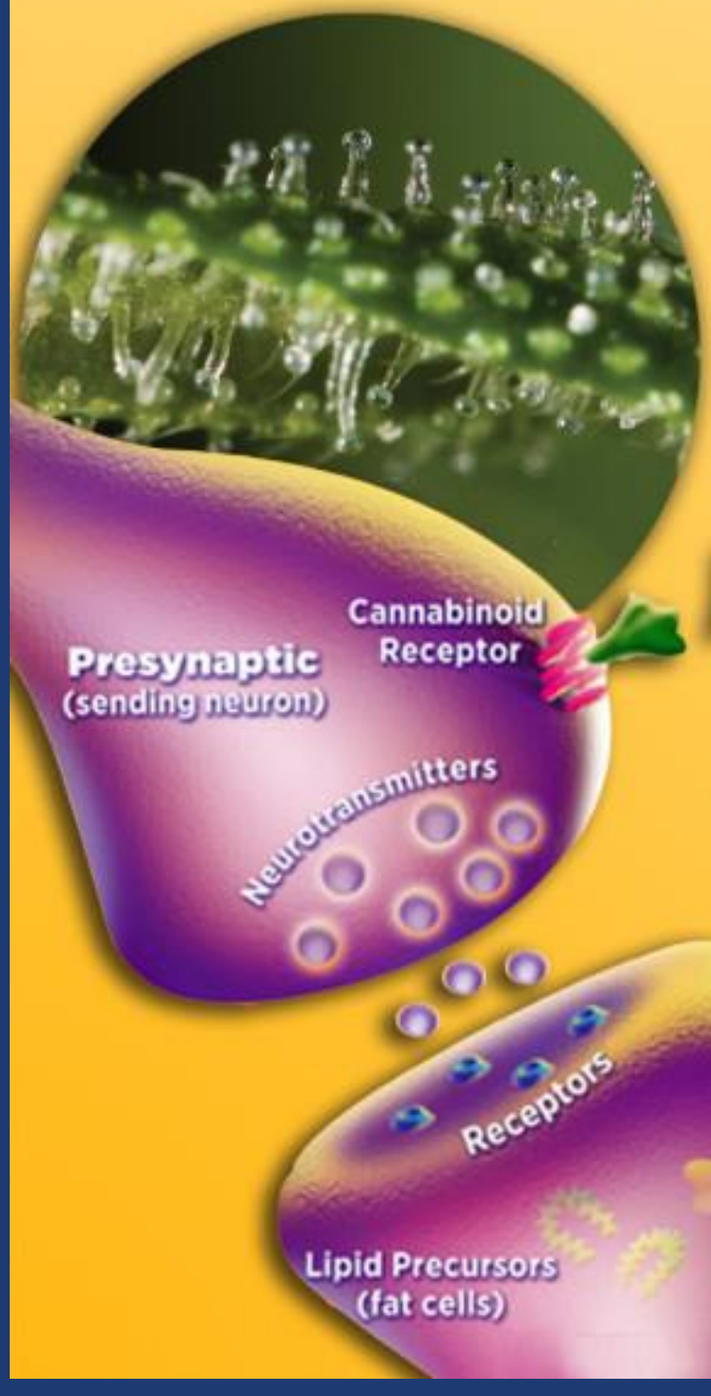


Lucas, C. J., Galettis, P., & Schneider, J. (2018). The Pharmacokinetics and the Pharmacodynamics of Cannabinoids. *British Journal of Clinical Pharmacology*. doi:10.1111/bcp.13710

The Human Endocannabinoid System

THC and CBN are known to "fit" like lock and key into network of existing receptors . The Endocannabinoid System exists to receive cannabinoids produced inside the body called "Anadnamide" and "2-Arachidonyl-glycerol". Stimulating the ECS with plant-based cannabinoids restores balance and helps maintain symptoms.

CB1 receptors are concentrated in the brain and central nervous system but also sparsely populates other parts of the human body.



THC

Tetrahydrocannibinol

CB1

CBD

Cannabidiol

CBD does not directly "fit" CB1 or CB2 receptors but has powerful indirect effects still being studied.

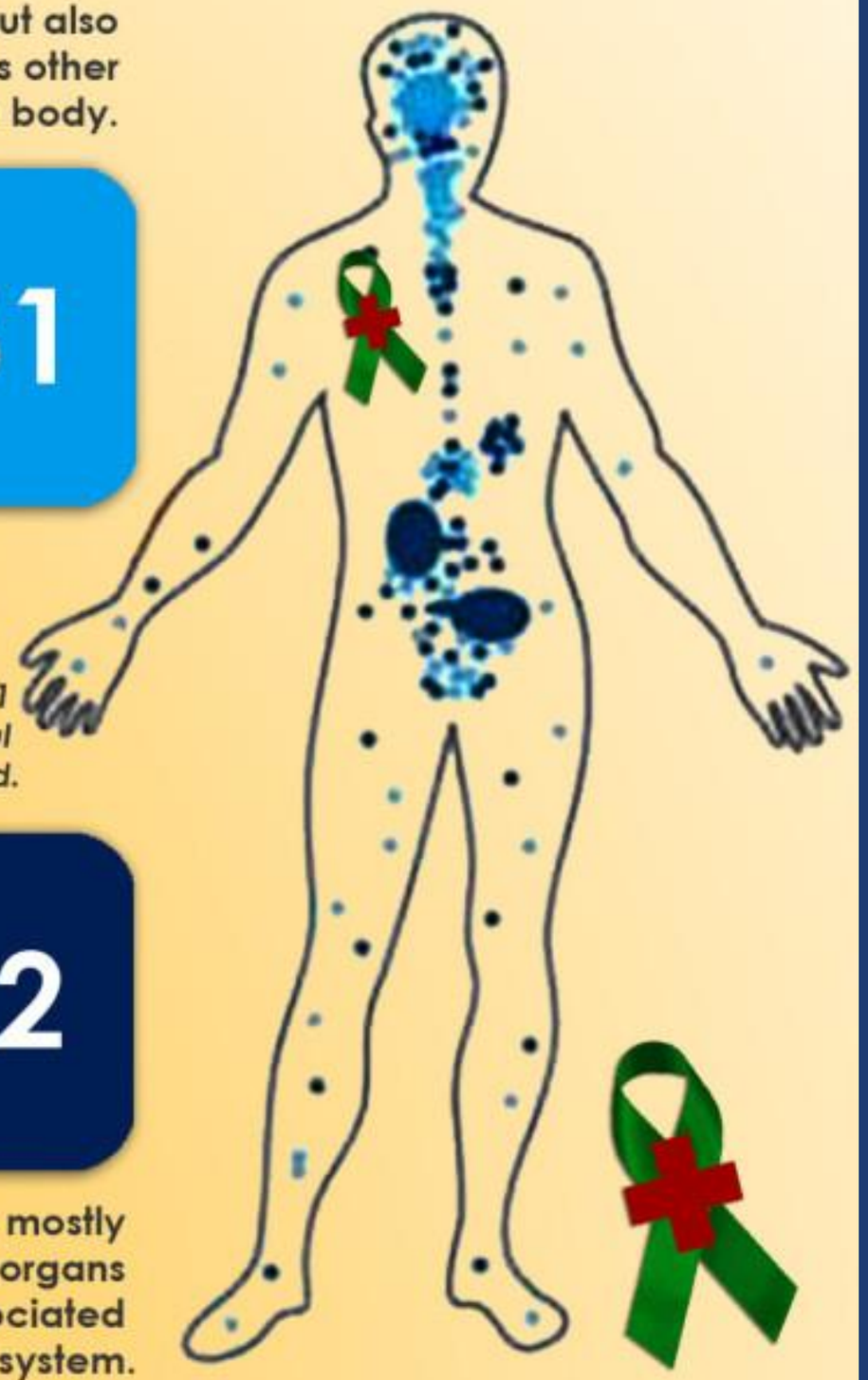
CBN

Cannabinol

CB2

CB2 receptors are mostly in the perepheral organs especially cells associated with the immune system.

Receptors are found on cell surfaces



www.the-human-solution.org

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WHAT SHOULD I LOOK FOR WHEN CONSIDERING CBD AS A NUTRITIONAL OPTION FOR INFLAMMATION?

- Consider extraction methods:
  - Alcohol/Solvent Extraction
  - CO_2 Extraction
- Be cautious of products with:
  - Flavors, sugars, unpronounceable ingredients

ALCOHOL SOLVENT EXTRACTION (WORST METHOD)

Ethanol, low-grade alcohol & butane (most-commonly used)

Chlorophyll extracted together with cannabinoids & terpenes (leaves dark color and bitter flavor)

Additional post processing required to remove the chlorophyll reducing potency of the oil

Destroys plant waxes

SUPERCRITICAL CO2 EXTRACTION

Most superior & expensive CBD extraction method

The pressure and temperature of carbon dioxide (CO2) is manipulated over time to reach supercritical phase

CO2 passed through high-quality hemp

CO2 extracts oils without denaturing the phytocannabinoids, terpenes & flavonoids

HOW MUCH CBD FOR INFLAMMATION MANAGEMENT?

- Start with minimum amount as directed on the bottle label, and, if needed, slowly increase for symptomatic relief

  - Assess how you feel after one week

CBD SAFETY PROFILE

- CBD Does not alter heart rate, blood pressure, or body temperature
- No negative influence on food intake, gastrointestinal transit, psychomotor or psychological functions

Iffland, K., & Grotenhermen, F. (2017). An update on safety and side effects of cannabidiol: A review of clinical data and relevant animal studies. *Cannabis and Cannabinoid Research, 2*(1), 139-154. doi:10.1089/can.2016.0034

WHO REPORT ON CBD:

SAFETY / USE - 2017

“In humans, CBD exhibits no effects indicative of any abuse or dependence potential.”

CANNABIDIOL (CBD) Pre-Review Report Agenda Item 5.2 Geneva, 6-10 November 2017. Expert Committee on Drug Dependence Thirty-ninth Meeting. http://www.who.int/medicines/access/controlled-substances/5.2_CBD.pdf. Accessed October 7, 2018.

DIFFERENT OPTIONS OF DELIVERY & BIOAVAILABILITY FOR INFLAMMATION MANAGEMENT

Oral ~ 6% bioavailability
(gel capsules)

- Undergoes extensive hepatic first-pass metabolism
- Slow working & requires higher serving sizes

Inhalation ~ 31% bioavailability
(vaporizing)

- Avoids extensive hepatic first-pass metabolism
- More instantaneous
- Requires lower serving sizes
- Not recommended for people with asthma, SOB, respiratory issues

DIFFERENT OPTIONS OF DELIVERY & BIOAVAILABILITY FOR INFLAMMATION MANAGEMENT

- **Oromucosal 30% bioavailability~**
  (CBD Oil with dropper recommendations on bottle)
  - Avoids extensive hepatic first-pass metabolism
  - Rapid absorption (useful for symptoms requiring rapid relief)
  - Drops under tongue
    Hold under the tongue 60-90 seconds

DIFFERENT OPTIONS OF DELIVERY & BIOAVAILABILITY FOR INFLAMMATION MANAGEMENT

- **Topical administration** **30% bioavailability**
  - HIGH ABSORPTION RATE

  - Avoids first-pass metabolism

  -- Used for:

  - Inflammation / pain

  --- Types:

    - Salve
    - Rollerball
    - Recovery stick

Most Popular with Chiropractors!

Lucas, C. J., Galettis, P., & Schneider, J. (2018). The Pharmacokinetics and the Pharmacodynamics of Cannabinoids. *British Journal of Clinical Pharmacology*. doi:10.1111/bcp.13710

WHAT CONCENTRATION OF CBD SHOULD BE CONSIDERED FOR INFLAMMATION MANAGEMENT?

500mg, 600mg, 750mg, 1000mg:

- Used by those trying to target a specific health concern

2500mg:

- For those who have experience with CBD
- Severe pain / accident
- Terminal illness pain

CLINICAL PRACTICE GUIDELINES FOR CANNABIS AND CANNABINOID-BASED MEDICINES IN THE MANAGEMENT OF CHRONIC PAIN AND CO-OCCURRING CONDITIONS

Date & Journal: Cannabis Cannabinoid Res. 2024 Apr

Background: One in five individuals live with chronic pain globally, which often co-occurs with sleep problems, anxiety, depression, and substance use disorders. Although these conditions are commonly managed with cannabinoid-based medicines (CBM), health care providers report lack of information on the risks, benefits, and appropriate use of CBM for therapeutic purposes. Aims: We present these clinical practice guidelines to help clinicians and patients navigate appropriate CBM use in the management of chronic pain and co-occurring conditions.

Results: From our literature search, 70 articles met inclusion criteria and were utilized in guideline development, including 19 systematic reviews and 51 original research studies. Research typically demonstrates moderate benefit of CBM in chronic pain management. There is also evidence for efficacy of CBM in the management of comorbidities, including sleep problems, anxiety, appetite suppression, and for managing symptoms in some chronic conditions associated with pain including HIV, multiple sclerosis, fibromyalgia, and arthritis.

Conclusions: All patients considering CBM should be educated on risks and adverse events. Patients and clinicians should work collaboratively to identify appropriate dosing, titration, and administration routes for each individual.

Bell AD, MacCallum C, Margolese S, Walsh Z, Wright P, Daeninck PJ, Mandarino E, Lacasse G, Kaur Deol J, de Freitas L, St Pierre M, Belle-Isle L, Gagnon M, Bevan S, Sanchez T, Arlt S, Monahan-Ellison M, O'Hara J, Boivin M, Costiniuk C. Clinical Practice Gu

CANNABIDIOL (CBD): A KILLER FOR INFLAMMATORY RHEUMATOID ARTHRITIS SYNOVIAL FIBROBLASTS

Date & Journal: Cell Death Dis . 2020 Sep 1.

Abstract

Cannabidiol (CBD) is a non-intoxicating phytocannabinoid from cannabis sativa that has demonstrated anti-inflammatory effects in several inflammatory conditions including arthritis. However, CBD binds to several receptors and enzymes and, therefore, its mode of action remains elusive. In this study, we show that CBD increases intracellular calcium levels, reduces cell viability and IL-6/IL-8/MMP-3 production of rheumatoid arthritis synovial fibroblasts (RASF). These effects were pronounced under inflammatory conditions by activating transient receptor potential ankyrin (TRPA1), and by opening of the mitochondrial permeability transition pore. Changes in intracellular calcium and cell viability were determined by using the fluorescent dyes Cal-520/PoPo3 together with cell titer blue and the luminescent dye RealTime-glo. Cell-based impedance measurements were conducted with the XCELLigence system and TRPA1 protein was detected by flow cytometry. Cytokine production was evaluated by ELISA. CBD reduced cell viability, proliferation, and IL-6/IL-8 production of RASF. Moreover, CBD increased intracellular calcium and uptake of the cationic viability dye PoPo3 in RASF, which was enhanced by pre-treatment with TNF. Concomitant incubation of CBD with the TRPA1 antagonist A967079 but not the TRPV1 antagonist capsazepine reduced the effects of CBD on calcium and PoPo3 uptake. In addition, an inhibitor of the mitochondrial permeability transition pore, cyclosporin A, also blocked the effects of CBD on cell viability and IL-8 production. PoPo3 uptake was inhibited by the voltage-dependent anion-selective channel inhibitor DIDS and Decynium-22, an inhibitor for all organic cation transporter isoforms. CBD increases intracellular calcium levels, reduces cell viability, and IL-6/IL-8/MMP-3 production of RASF by activating TRPA1 and mitochondrial targets. This effect was enhanced by pre-treatment with TNF suggesting that CBD preferentially targets activated, pro-inflammatory RASF. Thus, CBD possesses anti-arthritic activity and might ameliorate arthritis via targeting synovial fibroblasts under inflammatory conditions.

Lowin T, Tingting R, Zurmahr J, Classen T, Schneider M, Pongratz G. Cannabidiol (CBD): a killer for inflammatory rheumatoid arthritis synovial fibroblasts. Cell Death Dis. 2020 Sep 1;11(8):714. doi: 10.1038/s41419-020-02892-1. PMID: 32873[illegible] PMCID: PMC74

A MOLECULAR BASIS FOR THE ANTI-INFLAMMATORY AND ANTI-FIBROSIS PROPERTIES OF CANNABIDIOL

Date & Journal: FASEB J . 2020 Nov

Abstract

Cannabidiol (CBD) is considered a non-psychoactive, antioxidant, and anti-inflammatory compound derived from the Cannabis sativa plant. There are various reports on the versatile function of CBD, including ameliorating chronic inflammation and fibrosis formation in several tissue types. However, only a hand full of studies have proposed or provided a molecular justification for the beneficial properties of this Phyto-compound. This review focused on the anti-inflammation and anti-fibrotic effects of CBD based on modulating the associated chemokines/cytokines and receptor-mediated pathways. We also highlighted the regulatory impact of CBD on reactive oxygen species (ROS) producing-NADPH oxidase (Nox), and ROS scavenging-superoxide dismutase (SOD) enzymes. Although CBD has a low affinity to Cannabinoid receptors 1 and 2 (CB_1 and CB_2), we reported on the activation of these receptors by other CBD analogs, and CBD on non-CBD receptors. CBD downregulates pro-inflammatory and pro-fibrotic chemokines/cytokines by acting as direct or indirect agonists of Adenosine A_{2A} /equilibrative nucleoside transporter receptors, Peroxisome proliferator-activated receptor gamma, and Transient receptor potential vanilloid receptors or channels, and as an antagonist of GPR55 receptors. CBD also caused the reduction and enhancement of the ROS producing, Nox and ROS-scavenging, SOD enzyme activities, respectively. This review thus recommends the continued study of CBD's molecular mechanism in treating established and emerging inflammatory and fibrosis-related diseases.

Sunda F, Arowolo A. A molecular basis for the anti-inflammatory and anti-fibrosis properties of cannabidiol. FASEB J. 2020 Nov;34(11):14083-14092. doi: 10.1096/fj.202000975R. Epub 2020 Sep 3. PMID: 32885502.

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Mandolini, G. M., Lazzaretti, M., Pigoni, A., Oldani, L., Delvecchio, G., & Brambilla, P. (2018). Pharmacological properties of cannabidiol in the treatment of psychiatric disorders: a critical overview. *Epidemiology and Psychiatric Sciences, 27*, 327-335. doi:10.1017/S2045796018000239

III. PRINCIPLES OF REHABILITATION RELATED TO PAIN MANAGEMENT – INFLAMMATION (NUTRITIONAL OPTIONS)

RESEARCH: TURMERIC, CURCUMIN, GINGER, BLACK PEPPER, SAFFRON, & BROMELAIN FOR PAIN AND INFLAMMATION MANAGEMENT & REHABILITATION OF INJURY

CURCUMIN IN METABOLIC HEALTH AND DISEASE

Date & Journal: Nutrients . 2021 Dec 11.

Abstract

In recent years, epidemiological studies have suggested that metabolic disorders are nutritionally dependent. A healthy diet that is rich in polyphenols may be beneficial in the treatment of metabolic diseases such as polycystic ovary syndrome, metabolic syndrome, non-alcoholic fatty liver disease, cardiovascular disease, and, in particular, atherosclerosis. Curcumin is a polyphenol found in turmeric and has been reported to have antioxidant, anti-inflammatory, hepatoprotective, anti-atherosclerotic, and antidiabetic properties, among others. This review summarizes the influence of supplementation with curcumin on metabolic parameters in selected metabolic disorders.

Jabczyk M, Nowak J, Hudzik B, Zubelewicz-Szkodzińska B. Curcumin in Metabolic Health and Disease. Nutrients. 2021 Dec 11;13(12):4440. doi: 10.3390/nu13124440. PMID: 34959992; PMCID: PMC8706619.

EFFECTS OF SAFFRON EXTRACT ON SLEEP QUALITY: A RANDOMIZED DOUBLE-BLIND CONTROLLED CLINICAL TRIAL.

Date & Journal: Nutrients. 2021 Apr 27.

Abstract

A saffron extract has been found to be effective in the context of depression and anxiety, but its effect on sleep quality has not been investigating yet using objective approaches. For this purpose, a randomized double-blind controlled study was conducted in subjects presenting mild to moderate sleep disorder associated with anxiety. Sixty-six subjects were randomized and supplemented with a placebo (maltodextrin) or a saffron extract (15.5 mg per day) for 6 weeks. Actigraphy was used to collect objective data related to sleep quality at baseline, at the middle and at the end of the intervention. Sleep quality was also assessed by completion of the LSEQ and PSQI questionnaires and quality of life by completion of the SF-36 questionnaire. Six weeks of saffron supplementation led to an increased time in bed assessed by actigraphy, to an improved ease of getting to sleep evaluated by the LSEQ questionnaire and to an improved sleep quality, sleep latency, sleep duration, and global scores evaluated by the PSQI questionnaire, whereas those parameters were not modified by the placebo. In conclusion, those results suggest that a saffron extract could be a natural and safe nutritional strategy to improve sleep duration and quality.

Pachikian BD, Copine S, Suchareau M, Deldicque L. Effects of Saffron Extract on Sleep Quality: A Randomized Double-Blind Controlled Clinical Trial. Nutrients. 2021 Apr 27;13(5):1473. doi: 10.3390/nu13051473. PMID: 33925432; PMCID: PMC8145009.

EFFICACY OF ARTICHOKE AND GINGER EXTRACTS WITH SIMETHICONE TO TREAT GASTROINTESTINAL SYMPTOMS IN ENDURANCE ATHLETES: A PILOT STUDY

Date & Journal: Minerva Gastroenterol (Torino) . 2022 Mar.

Abstract

Background: Exercise-induced gastrointestinal (GI) symptoms are frequently reported by athletes during training and competitions. A standardized combination of artichoke leaves and ginger root extracts has shown beneficial effects in managing GI discomfort in otherwise healthy subjects.

Results: Fifty endurance athletes took the extracts' combination 320 mg + simethicone 40 mg chewable pills. The extracts combination and simethicone were effective in reducing the mean intensity of upper GI (86.6%) lower GI (85.9%) and systemic symptoms (81.9%), with superior results compared to placebo. The most remarkable effects were reported in the lower GI tract, with a significant decrease in flatulence, intestinal cramps, loose stools and diarrhea. Athletes also benefited from a reduction in belching and bloating and in dizziness, headache and muscle cramps, although the decrease in systemic symptoms was not significant.

Conclusions: The supplementation of standardized artichoke and ginger extracts, combined with simethicone, may be effective in decreasing digestive discomfort and alteration of gastric motility not only in healthy subjects but also in endurance athletes.

Drobnic F, Fonts S, García-Alday I, Petrangolini G, Riva A, Frattini E, Allegrini P, Togni S, Vitale J. Efficacy of artichoke and ginger extracts with simethicone to treat gastrointestinal symptoms in endurance athletes: a pilot study. Minerva Gastroenter

HERBAL FORMULATION "TURMERIC EXTRACT, BLACK PEPPER, AND GINGER" VERSUS NAPROXEN FOR CHRONIC KNEE OSTEOARTHRITIS: A RANDOMIZED, DOUBLE-BLIND, CONTROLLED CLINICAL TRIAL.

DATE & JOURNAL: PHYTOTHER RES . 2020 AUG.

Abstract

Osteoarthritis is the most common articular disease that can lead to chronic pain and severe disability. Curcumin-an effective ingredient in turmeric with anti inflammatory property-plays an important role in protecting the joints against destructive factors. Gingerols and piperine, are the effective ingredients of ginger and black pepper, which may potentially enhance and sustain the effect of curcumin in this direction. To determine the effect of cosupplementation with turmeric extract, black pepper, and ginger on prostaglandin E2 (PGE2) in patients with chronic knee osteoarthritis, compared with Naproxen. Sixty patients with two different levels of knee osteoarthritis (Grade 2 and 3) were studied. Individuals were randomly assigned to receive daily turmeric extract, ginger, and black pepper together or Naproxen capsule for 4 weeks. PGE2 was evaluated by ELISA method. 24-hr recall was also assessed. All of participants completed the study. PGE2 decreased significantly in both groups ($p < .001$), but there was no significant differences between groups. The results of this study indicated that intake of the selected herbs twice a day for 4 weeks may improve the PGE2 levels in patients with chronic knee osteoarthritis similar to Naproxen drug.

Heidari-Beni M, Moravejolahkami AR, Gorgian P, Askari G, Tarrahi MJ, Bahreini-Esfahani N. Herbal formulation "turmeric extract, black pepper, and ginger" versus Naproxen for chronic knee osteoarthritis: A randomized, double-blind, controlled clinical trial. Phytother Res. 2020 Aug;34(8):2067-2073. doi: 10.1002/ptr.6671. Epub 2020 Mar 16. PMID: 32180294.

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Suggested Dosage:
Up to 3 capsules per day or as recommended by your healthcare provider.

Servings per container: 30

Serving Size: 3 capsules

Ingredient	Amount Per Serving
Organic Turmeric Powder	1100mg*
95% Standardized Curcuminoid	200mg*
Black Pepper Fruit Extract (Piperine)	10mg*

A proprietary blend of the following natural ingredients: Organic ginger root extract; saffron powder; bromelain. Other ingredients: Vegetable cellulose capsule; EDTA. Made with 72% organic ingredients. Daily value not established.

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III. PRINCIPLES OF REHABILITATION RELATED TO PAIN MANAGEMENT – INFLAMMATION (MORE NUTRITIONAL OPTIONS)

RESEARCH: GREENS AND RELATED INGREDIENTS FOR PAIN AND INFLAMMATION MANAGEMENT & REHABILITATION OF INJURY

DIETARY CHOICES HAVE 'PROFOUND' IMPACT ON BRAIN HEALTH: STUDY

Date & Journal: NMH April 1, 2024

In this article, it is highlighted that swapping nutrient-poor foods for healthier options can significantly enhance brain health and intelligence. A study from the University of Warwick, published in the *Nutritional Medicine Journal* on April 1, found that a balanced diet correlates with greater mental well-being, brain function, and even increased gray matter, indicating higher intelligence. Diet definitely affects brain health including anxiety, mental disorders and conditions, inflammation, cholesterol and fat biomarkers.

Brain foods: vegetables, fruits, grains, nuts, seeds, eggs, legumes, extra virgin olive oil, fatty fish (dha omega-3)

The study suggests that both families and schools should offer diverse and nutritious meals to foster physical and mental health, emphasizing the long-term benefits of healthy eating habits.

SPIRULINA SUPPLEMENTATION PREVENTS EXERCISE-INDUCED LIPID PEROXIDATION, INFLAMMATION AND SKELETAL MUSCLE DAMAGE IN ELITE RUGBY PLAYERS

Date & Journal: J Hum Nutr Diet . 2022 Apr 8.

Abstract

Background: The present study aimed to examine the effects of spirulina supplementation on pro/antioxidant status, inflammation and skeletal muscle damage markers immediately and 24 h after exhaustive exercise in elite rugby players.

Results: Our results showed that F2-Isop, CRP and CK levels significantly increased at T1 only in the PLA group ($p < 0.05$, $p < 0.05$ and $p < 0.001$, respectively) with no change in the SPI group, which reflects the effect of spirulina to prevent lipid peroxidation, inflammation and skeletal muscle damage induced by exhaustive exercise. Moreover, spirulina supplementation accelerated the return to baseline values given that F2-Isop, CRP and CK levels at T2 were significantly lower than at T0 in the SPI group ($p < 0.05$, $p < 0.01$ and $p < 0.001$, respectively).

Conclusions: Based on the markers used in the present study, our results show that spirulina supplementation potentially prevents exercise-induced lipid peroxidation, inflammation and skeletal muscle damage, and may also accelerate the recovery of some of these markers. Based on our findings, we recommend spirulina supplementation especially for those athletes who do not achieve the recommended antioxidant dietary intake and who perform a high training load aiming to reduce the magnitude of OS, inflammation and skeletal muscle damage, which could help to reduce performance losses and accelerate recovery after training/competitions throughout the season.

Chaouachi M, Gautier S, Carnot Y, Guillemot P, Pincemail J, Moison Y, Collin T, Groussard C, Vincent S. Spirulina supplementation prevents exercise-induced lipid peroxidation, inflammation and skeletal muscle damage in elite rugby players. J Hum Nutr Diet

A 12-WEEK RANDOMIZED DOUBLE-BLIND PLACEBO-CONTROLLED CLINICAL TRIAL, EVALUATING THE EFFECT OF SUPPLEMENTATION WITH A SPINACH EXTRACT ON SKELETAL MUSCLE FITNESS IN ADULTS OLDER THAN 50 YEARS OF AGE

Date & Journal: Nutrients . 2021 Dec 6.

Abstract

The aim of a 12-week randomized double-blind placebo-controlled study was to assess the effect of daily supplementation with a natural extract of *Spinacia oleracea* L. (4 × 500 mg capsules/day; total 2 g per day) combined with a moderate-intensity training program (1 h session/3 times a week) on skeletal muscle fitness in adults over 50 years of age. Muscle strength assessed by isokinetic and isometric dynamometry improved significantly in the experimental (n = 23) and the placebo (n = 22) groups, but the magnitude of improvement was higher in the experimental group, with between-group differences in almost all variables, including isokinetic at 60° s^{-1} in knee extension, peak torque ($p < 0.007$); total work per repetition maximum ($p < 0.009$); isokinetic at 180°s^{-1} in knee extension, peak torque ($p < 0.002$); total work ($p < 0.007$); total work per repetition maximum ($p < 0.005$); average power ($p < 0.027$); isometric in knee extension, peak torque ($p < 0.005$); and average peak torque ($p < 0.002$). Similar findings were observed for muscle quality. Changes in quality of life (SF-36) were not found, except for improvements in the role physical ($p < 0.023$) and role emotional ($p < 0.001$) domains, likely as a result of the physical training sessions. A nutritional survey did not revealed changes in dietary habits. No adverse events were recorded. In subjects over 50 years of age, moderate-intensity strength training combined with daily supplementation for 12 weeks with a natural extract of *Spinacia oleracea* L. improved muscle-related variables and muscle quality. Maintaining muscle health is a key component of healthy aging.

Pérez-Piñero S, Ávila-Gandía V, Rubio Arias JA, Muñoz-Carrillo JC, Losada-Zafrilla P, López-Román FJ. A 12-Week Randomized Double-Blind Placebo-Controlled Clinical Trial, Evaluating the Effect of Supplementation with a Spinach Extract on Skeletal Muscle F

EVALUATION OF DIET SUPPLEMENTATION WITH WHEAT GRASS JUICE ON GROWTH PERFORMANCE, BODY COMPOSITION AND BLOOD BIOCHEMICAL PROFILE OF CARP (*CYPRINUS CARPIO* L.)

Date & Journal: Animals (Basel) . 2021 Sep 3.

Abstract

Wheat grass juice (WGJ) is an extract of young wheat plantlets (*Triticum aetivum* L.) used worldwide for its health related properties. In this study, the following feeds containing WGJ were tested on common carp (*Cyprinus carpio* L.): Control (C), WGJ1% (V1), WGJ2% (V2) and WGJ4% (V3) *w/w*. Fish with an average initial weight of 102 g/individual were grown in a recirculating aquaculture system. The results showed that WGJ had stimulatory effects on growth performance. Accordingly, final body weight increased by 11% at V1, 39% at V2 and 23% at V3, while other indices (feed conversion ratio, specific growth rate, relative growth rate, protein efficiency ratio, and condition factor) were unaffected. Body composition analyses revealed a significant decrease in fat content at V2 and a significant increase in collagen and ash at the same variant, while the protein content was unmodified. Regarding the blood profile, significant increases in the content of albumin, globulin, total protein, and calcium were recorded in the variants with WGJ. The positive results of WGJ on carp can be attributed to its biochemical composition, which is rich in chlorophyll (4.71 mg mL^{-1}), total phenols (164 µg mL^{-1} gallic acid equivalents), and high antioxidant activity (67% inhibition of DPPH 2,2-diphenyl-1-picrylhydrazyl). The results suggest WGJ can be used as a promising feed additive for common carp.

Barbacariu CA, Burducea M, Dîrvariu L, Oprea E, Lupu AC, Teliban GC, Agapie AL, Stoleru V, Lobiuc A. Evaluation of Diet Supplementation with Wheat Grass Juice on Growth Performance, Body Composition and Blood Biochemical Profile of Carp (Cyprinus carpio L

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III. PRINCIPLES OF REHABILITATION RELATED TO PAIN MANAGEMENT – INFLAMMATION (MORE NUTRITIONAL OPTIONS)

RESEARCH: IMMUNE FUNCTION AND RELATED NUTRITIONAL INGREDIENTS FOR PAIN & INFLAMMATION MANAGEMENT & REHABILITATION OF INJURY

BROMELAIN FROM ANANAS COMOSUS (PINEAPPLE) STEM ATTENUATES OXIDATIVE TOXICITY AND TESTICULAR DYSFUNCTION CAUSED BY ALUMINUM IN RATS

Date & Journal: J Trace Elem Med Biol . 2020 Dec.

Abstract

Background: Aluminum (Al) has been reported to induce testicular injury via oxidative stress. Ananas comosus (pineapple) stem extract is an inexpensive byproduct waste rich in bromelain which is a group of sulfur-containing enzymes known for its biological activities and medicinal applications. So, the current investigation aims to evaluate the efficacy of bromelain in counteracting oxidative injury and testicular dysfunction stimulated by aluminum in rats.

Results: Al intoxicated animals revealed an elevation in lipid peroxidation level and lactate dehydrogenase activity. However, reduced glutathione and protein contents, antioxidant enzymes, phosphatases and aminotransferases activities were significantly reduced. Considerable amendments in hormonal levels (testosterone, luteinizing and follicle-stimulating hormone) and sperm characteristics were spotted. Further, histological variations in the testes section were detected and this supports the biochemical observations. Otherwise, rats supplemented with bromelain alone diminished TBARS and H_2O_2 and augmented mostly other parameters. Furthermore, supplementation with bromelain before Al intoxication in rats exhibited worthy betterment in oxidative stress markers, hormones, and sperm quality compared to Al treated group.

Conclusion: In conclusion, bromelain had a powerful protective role against aluminum-induced testicular dysfunction so, it represents a novel approach in metal toxicity processing.

Jebur AB, El-Demerdash FM, Kang W. Bromelain from Ananas comosus stem attenuates oxidative toxicity and testicular dysfunction caused by aluminum in rats. J Trace Elem Med Biol. 2020 Dec;62:126631. doi: 10.1016/j.jtemb.2020.12[illegible]31. Epub 2020 Aug 1. PMID:

CHEMICAL COMPOSITION AND CHROMATOGRAPHIC FINGERPRINT OF THREE STRAINS OF AGARICUS SUBRUFESCENS CULTIVATED WITH HANDMADE AND COMMERCIAL SUPPLEMENTS

Date & Journal: Food Chem . 2021 Nov 30.

Abstract

Exploratory factor analysis was applied to determine the chemical differences between fruitbodies of three Agaricus subrufescens mushroom strains [from Japan (JP), Brazil (ABZ), and Belgium (T2)] grown with handmade and commercial supplements. The composition of the ABZ strain cultivated with agro-industrial waste supplement presented a high nutritional composition regarding the amounts of fibre and protein, similar to mushrooms cultivated with the commercial supplement. The chromatographic fingerprints obtained for T2 and JP strains grown with commercial supplements presented similar profiles compared to those cultivated with the supplement based on peanut and the mix of supplements. The chromatographic analysis also showed that the similarities are correlated with the relative abundance of antioxidant compounds annotated by HPLC-MS, such as vanillic acid deoxyhexoside, caffeic acid hexoside, catechin hexosemalonate, digallic acid, cinnamic acid derivative, and p-coumaroylmalic acid. This study showed that handmade supplements based on agro-industrial waste could be viable alternatives for replacing high-cost supplements.

Sabino Ferrari AB, Galo Marcheafave G, Mannochio-Russo H, da Silva Bolzani V, Cunha Zied D, Spacino Scarminio I, Zeraik ML. Chemical composition and chromatographic fingerprint of three strains of Agaricus subrufescens cultivated with handmade and commerc

EFFECT OF SUPPLEMENTATION WITH OLIVE LEAF EXTRACT ENRICHED WITH OLEUROPEIN ON THE METABOLOME AND REDOX STATUS OF ATHLETES' BLOOD AND URINE-A METABOLOMIC APPROACH

Date & Journal: Metabolites . 2022 Feb 20.

Abstract

Oleuropein (OE) is a secoiridoid glycoside occurring mostly in the Oleaceae family and presenting several pharmacological properties, including hypolipidemic and antioxidant properties. Based on these, several dietary supplements containing olive leaf extracts enriched with OE are commercially available in many countries. The current study aimed to examine the effect of supplementation with such an extract on the serum and urine metabolome of young healthy male athletes. For this purpose, applying a randomized, balanced, double-blind study, nine young, healthy males (physical education students) received either a commercially prepared extract or placebo for one week, followed by a two-week washout period; then, they were subsequently dosed with the alternate scheme (crossover design). Urine and serum samples were analyzed using UHPLC-HRMS, followed by evaluation with several multivariate methods of data analysis. The data were interpreted using a multilevel metabolomic approach (multilevel-sPLSDA) as it was found to be the most efficient approach for the study design. Metabolic pathway analysis of the most affected metabolites revealed that tryptophan and acylcarnitine's biochemistries were most influenced. Furthermore, several metabolites connected to indole metabolism were detected, which may indicate enhanced serotonin turnover. Phenylethylamine and related metabolites, as well as estrone, were connected to enhanced performance. In addition, possible changes to the lipidemic profile and the blood and urine redox statuses were investigated.

Lemonakis N, Mougios V, Halabalaki M, Dagla I, Tsarbopoulos A, Skaltsounis AL, Gikas E. Effect of Supplementation with Olive Leaf Extract Enriched with Oleuropein on the Metabolome and Redox Status of Athletes' Blood and Urine-A Metabolomic Approach.

PHARMACOLOGICAL EFFECTS AND SAFETY OF ANDROGRAPHIS PANICULATA (BURM.F.) NEES

Date & Journal: J Food Sci. 2022 Mar.

Abstract

Andrographis paniculata (Burm.f.) Nees (AP) is widely used in most Asian and some Western countries. However, its main effects and underlying pharmacological mechanism have not been thoroughly characterized, and its safety has not been sufficiently investigated. The present study aimed to predict and visualize the potential targets and pathways, clarify the main pharmacological effects, and investigate the toxicological properties of AP extract (APE). First, ingenuity pathway analysis (IPA) was performed to directly predict AP's therapeutic targets and pathways; main pharmacological effects of AP were speculated based on IPA results and confirmed by pharmacodynamics experiments. Rodent toxicity studies were then performed through administration of a single dose of 10 g/kg or daily doses of 2, 1, or 0.5 g/kg for 8 weeks to evaluate the safety of APE, and a similar repeated-dose study was performed using dogs with doses equal to half of the above-mentioned doses. Thus, repeated-dose toxicity studies were performed with both rodents and nonrodents. The IPA analysis and confirmatory pharmacodynamics experiments revealed that the main pharmacological effect of APE was anti-inflammation, which might be achieved by influencing various targets (e.g., AR, AKT, and BAX) and pathways (IL-8). In the single-dose toxicity test, no death or abnormal consequences were observed, and maximum tolerated dose of APE was 10 g/kg. Results from the repeated-dose toxicity tests did not reveal any obvious toxic effects from the repeated daily intragastric administration of APE at 1 g/kg for 8 weeks. In conclusion, APE at a dose of 1 g/kg did not exert any adverse effects, and administration of APE could be beneficial for the inflammatory diseases' treatment. PRACTICAL APPLICATION: Andrographis paniculata (Burm.f.) Nees is a plant that exerts clearing and detoxification effects and is widely used around the world, but a comprehensive analysis of its efficacy and safety is needed.

Tian J, Li C, Meng J, Wang L, Tong Y, Zhao Y, Yi Y, Zhang Y, Xian Z, Pan C, Liu S, Han J, Liang A. Pharmacological effects and safety of Andrographis paniculata (Burm.f.) Nees. J Food Sci. 2022 Mar;87(3):1319-1330. doi: 10.1111/1750-3841.16079. Epub 2022

EFFECT OF MUSHROOM AGARICUS BLAZEI ON IMMUNE RESPONSE AND DEVELOPMENT OF EXPERIMENTAL CEREBRAL MALARIA

Date and Journal: Malar J . 2015 Aug 1.

Background: Cerebral malaria (CM) is debilitating and sometimes fatal. Disease severity has been associated with poor treatment access, therapeutic complexity and drug resistance and, thus, alternative therapies are increasingly necessary. In this study, the effect of the administration of Agaricus blazei, a mushroom of Brazilian origin in a model of CM caused by Plasmodium berghei, strain ANKA, was investigated in mice.

Results: Mice treated with A. blazei aqueous extract or fraction C, that shows antioxidant activity, displayed lower parasitaemia, increased survival, reduced weight loss and protection against the development of CM. The administration of A. blazei resulted in reduced levels of TNF, IL-1β and IL-6 production when compared to untreated P. berghei-infected mice. Agaricus blazei (aqueous extract or fraction C) treated infected micedisplayed reduction of brain lesions. Although chloroquine treatment reduced parasitaemia, there was increased production of proinflammatory cytokines and damage in the CNS not observed with A. blazei treatment. Moreover, the in vitro pretreatment of infected erythrocytes followed by in vivo infection resulted in lower parasitaemia, increased survival, and little evidence of clinical signs of disease.

Conclusions: This study strongly suggests that the administration of A. blazei (aqueous extract or fraction C) was effective in improving the consequences of CM in mice and may provide novel therapeutic strategies.

Val, C.H., Brant, F., Miranda, A.S. et al. Effect of mushroom Agaricus blazei on immune response and development of experimental cerebral mala[illegible] Malar J 14, 311 (2015). https://doi.org/10.1186/s12936-015-0832-y

ARTICLE TITLE: OLIVE LEAF EXTRACTS ACT AS MODULATORS OF THE HUMAN IMMUNE RESPONSE

Journal & Date: Endocr Metab Immune Disord Drug Targets . 2018

Abstract

Background: Olive tree leaves have been used in the Mediterranean area as traditional medicine in virtue of their healthy effects. Olive leaf extracts (OLEs) contain higher amounts of polyphenols than those detected in the extra virgin olive oil and fruit. Several lines of evidence support the cardioprotective, anti-oxidant and anti-inflammatory activities exerted by OLEs.

Results: Both extracts, but especially extract A, increased absolute numbers of CD8+ and natural killer (NK) cells. In addition, an increased production of interferon (IFN)-γ by both extracts as an expression of T helper (h)1 activation was observed. Finally, both extracts enhanced NO release.

Conclusion: OLEs, and mostly extract A, are able to in vitro modify healthy human immune response by increasing IFN-γ production which seems to be associated to the higher absolute numbers of CD8+ and NK cells and this may suggest a reinforcement of the anti-tumor activity. Furthermore, increased levels of NO may indicate the potential cardioprotective effects exerted by OLEs in virtue of their vasodilation dependent activity. Finally, OLEs are able to maintain the equilibrium between T regulatory cells and Th17 cells as evidenced by unmodified levels of interleukin (IL)-IL-10 and IL-17, respectively. In the light of these results, OLEs are potential therapeutic compounds for the treatment of chronic inflammatory disease, also preventing cardiovascular event outcome.

Magrone T, Spagnoletta A, Salvatore R, et al. Olive Leaf Extracts Act as Modulators of the Human Immune Response. Endocr Metab Immune Disord Drug Targets. 2018;18(1):85-93.doi:10.2174/1871530317666171116110537

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Suggested Dosage: Up to 3 capsules per day or as recommended by your healthcare provider.

Servings per container: 30
Serving Size: 3 capsules

Ingredient	Amount Per Serving	% Daily Value
Vitamin B6 (as pyridoxine HCL)	50 mg	2941%
Vitamin D3 (as cholecalciferol)	5000 IU	1250%
Vitamin C (as ascorbyl palmitate)	300 mg	333%
Magnesium BisGlycinate Chelate TRAACS®	500 mg (90 mg elemental)	21%
Selenium Glycinate TRAACS®	200 mcg	1110%
Zinc Bisglycinate Chelate TRAACS®	26 mg	236%

A proprietary blend of 900 mg the following natural ingredients: Organic olive leaf powder, Organic maitake mushroom powder, Shiitake mushroom powder, Reishi mushroom powder, Agaricus blazei mushroom powder, Organic ginger root powder, Organic licorice root powder, Andrographis powder, Arabinogalactan powder, Ashwagandha powder, and Astragalus powder. Other ingredients: Silicon dioxide, Magnesium stearate, vegetable capsule. Made with organic ingredients when possible.

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CASE REPORT

CHIROPRACTIC PATIENT
JAN. 2016

- COMORBIDITIES –
HEIGHT: 5’8”
WEIGHT: 225LBS (OBESITY)
MEDS: 5 DIFFERENT CARDIOVASCULAR MEDS.
LIFESTYLE: SEDENTARY
DIET: POOR
MENTAL HEALTH: DEPRESSION

CASE REPORT

CHIROPRACTIC PATIENT
DEC. 2016

- COMORBIDITIES –
HEIGHT: 5’8”
WEIGHT: 153LBS (WNL)
MEDS: REPLACED WITH 6 DIETARY SUPPLEMENTS DAILY
LIFESTYLE: ACTIVE (WALKS 3-4 MILES PER DAY)
DIET: VERY GOOD. REDUCED SUGAR, DAIRY, CARBS.
MENTAL HEALTH: STABLE AND HEALTHY

IV. REHABILITATION RELATED TO MUSCLE & TISSUE STRENGTHENING

A. NUTRITIONAL OPTIONS TO HELP STRENGTHEN MUSCLES FOR THE CHIROPRACTIC PATIENT

B. EXERCISE OPTIONS TO HELP REHABILITATE MUSCLES & TISSUES.

IV. REHABILITATION RELATED TO MUSCLE & TISSUE STRENGTHENING (NUTRITIONAL OPTIONS)

RESEARCH: AMINO ACIDS AND RELATED INGREDIENTS FOR CARDIOVASCULAR HEALTH, MUSCLE & TISSUE STRENGTHENING MANAGEMENT, & REHABILITATION OF INJURY

ISOLATED LEUCINE AND BRANCHED-CHAIN AMINO ACID SUPPLEMENTATION FOR ENHANCING MUSCULAR STRENGTH AND HYPERTROPHY: A NARRATIVE REVIEW

Date & Journal: Int J Sport Nutr Exerc Metab . 2021 May 1

- Branched-chain amino acids (BCAA) are one of the most popular sports supplements, marketed under the premise that they enhance muscular adaptations. Despite their prevalent consumption among athletes and the general public, the efficacy of BCAA has been an ongoing source of controversy in the sports nutrition field. Early support for BCAA supplementation was derived from extrapolation of mechanistic data on their role in muscle protein metabolism. Of the three BCAA, leucine has received the most attention because of its ability to stimulate the initial acute anabolic response. However, a substantial body of both acute and longitudinal research has now accumulated on the topic, affording the ability to scrutinize the effects of BCAA and leucine from a practical standpoint. This article aims to critically review the current literature and draw evidence-based conclusions about the putative benefits of BCAA or leucine supplementation on muscle strength and hypertrophy as well as illuminate gaps in the literature that warrant future study.

Plotkin DL, Delcastillo K, Van Every DW, Tipton KD, Aragon AA, Schoenfeld BJ. Isolated Leucine and Branched-Chain Amino Acid Supplementation for Enhancing Muscular Strength and Hypertrophy: A Narrative Review. Int J Sport Nutr Exerc Metab. 2021 May 1;31(2

EFFECTS OF DIETARY SUPPLEMENTATION IN SPORT AND EXERCISE: A REVIEW OF EVIDENCE ON MILK PROTEINS AND AMINO ACIDS

Date & Journal: Crit Rev Food Sci Nutr . 2021

Abstract

Dietary supplements, especially protein, are used by athletes to achieve the exercise and training daily demands, and have been receiving research focus on their role regarding recovery and performance. Protein supplements are preferred over traditional protein sources because of their ease of availability and use. In addition to consuming a complete protein supplement, such as whey protein, the ingestion of a supplement containing only amino acids has been of interest for promoting skeletal muscle anabolism and high-quality weight loss. The aim of this study was to review the existing evidence on the effects of protein and amino acid supplementation on exercise. The preponderance of evidence suggests that protein supplementation, especially milk proteins, potentiate muscle protein synthesis, lean mass and exercise recovery. Unlike proteins, amino acids supplementation (branched-chain amino acids, glutamine or leucine) results from research are equivocal and are not warranted.

Master PBZ, Macedo RCO. Effects of dietary supplementation in sport and exercise: a review of evidence on milk proteins and amino acids. Crit Rev Food Sci Nutr. 2021;61(7):1225-1239. doi: 10.1080/10408398.2020.1756216. Epub 2020 May 2. PMID: 32363897.

EFFECT OF EXERCISE THERAPY COMBINED WITH BRANCHED-CHAIN AMINO ACID SUPPLEMENTATION ON MUSCLE STRENGTH IN ELDERLY WOMEN AFTER TOTAL HIP ARTHROPLASTY: A RANDOMIZED CONTROLLED TRIAL

Date & Journal: Asia Pac J Clin Nutr . 2019

Abstract

Background and objectives: Many patients develop a prolonged decrease of muscle strength after total hip arthroplasty (THA) despite their reconstructed hip joint. Physical exercise combined with branched-chain amino acid (BCAA) supplementation has been reported to improve muscle strength in elderly persons with sarcopenia. However, the effect of BCAA supplementation in patients after THA is unknown. This study examined the effects of BCAA supplementation combined with exercise therapy on the improvement of physical function in elderly patients after THA.

Methods and study design: The subjects were 31 elderly women who underwent THA. The participants were randomly assigned to two groups: BCAA (n=18) and control (n=13). The combined therapy was carried out for one month after THA. For the exercise intervention, a 3-set physical exercise program was conducted. For the nutritional intervention, the participants consumed 3.4 g of BCAA supplement or 1.2 g of starch immediately after the exercise intervention.

Results: BCAA supplementation combined with muscle strengthening exercises had a significant effect on knee extension strength of the contralateral side and on upper arm cross-sectional area. The improvement ratio of knee extension strength before and after intervention on the operated side was also significantly higher in the BCAA group.

Conclusions: BCAA supplementation is effective for patients to improve the strength of some muscles when combined with physical exercises, but hip abductor muscle strength of the operated leg did not improve. A future study is needed to determine the efficacy of this combined therapy for hip abductor muscle strength.

Ikeda T, Matsunaga Y, Kanbara M, Kamono A, Masuda T, Watanabe M, Nakanishi R, Jinno T. Effect of exercise therapy combined with branched-chain amino acid supplementation on muscle strength in elderly women after total hip arthroplasty: a randomized contro...

FUNCTIONAL NITRIC OXIDE NUTRITION TO COMBAT CARDIOVASCULAR DISEASE

Date & Journal: Curr Atheroscler Rep . 2018 Mar 17.

Purpose of review: To reveal the mechanisms of nitric oxide (NO) production in humans and how lifestyle, drug therapy, and hygienic practices can decrease NO production. Furthermore, to show how functional nitric oxide nutrition can overcome these limitations to restore endogenous NO production and combat cardiovascular disease.

Recent findings: Research over the past decade has revealed that inorganic nitrate and nitrite found naturally in green leafy vegetables and other vegetables such as beets can provide the human body with a source of bioactive nitric oxide. NO is one of the most important molecules produced within the cardiovascular system that maintains normal blood pressure and prevents inflammation, immune dysfunction, and oxidative stress, hallmarks of cardiovascular disease. This pathway is dependent upon the amount of inorganic nitrate and nitrite in the foods we eat, the presence of oral nitrate-reducing bacteria, and sufficient stomach acid production. The concept of food being medicine and medicine being food has lost its place in the practice and implementation of modern medicine over the past century. Certain dietary patterns and specific foods are known to confer very significant protective effects for many human diseases, including cardiovascular disease, the number one killer of men and women in the developed world. However, identification of single or multiple bioactive molecules that are responsible for these effects has escaped scientists and nutritionists for many years. This review will highlight the biochemical, physiological, and epidemiological basis for functional nitric oxide nutrition that can be safely and effectively utilized in patients.

Bryan NS. Functional Nitric Oxide Nutrition to Combat Cardiovascular Disease. Curr Atheroscler Rep. 2018;20(5):21. Published 2018 Mar 17. doi:10.1007/s11883-018-0723-0

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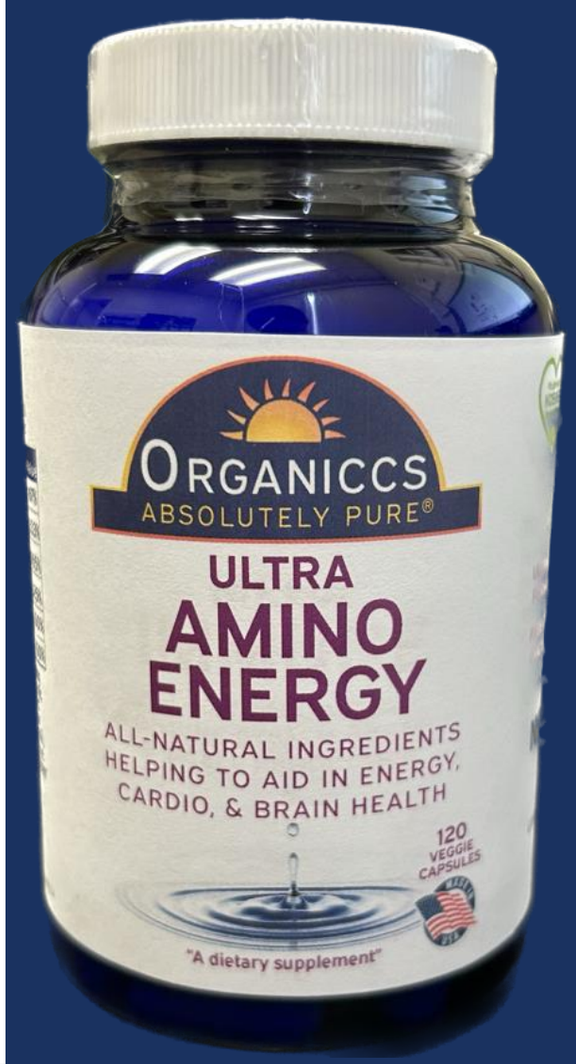

Supplement Facts

Suggested Dosage: Up to 4 capsules per day or as recommended by your healthcare provider.

Servings per container: 30
Serving Size: 4 capsules

Ingredient	Amount Per Serving	% Daily Value
Vitamin C (Ascorbic Acid)	100mg	167%
Vitamin B1 Thiamine	20 mg	1333%
Vitamin B2 Riboflavin	40 mg	1765%
Vitamin B3 Niacinimide	65 mg	325%
Pantothenic Acid	10 mg	100%
Vitamin B6 Pyridoxine HCL	20 mg	1000%
Folic Acid	400 mcg	100%

A proprietary blend of 3955 mg total of the following ingredients: L-Arginine; L-Taurine, L-Lysine, L-Glutamine; L-Leucine; L-Isoleucine; L-Valine; Green tea leaf extract (Camelia sinensis); Organic American Ginseng (Panax ginseng); Organic Maca Root Powder (Lipidium Meyenii); L-Phenylalanine; N-Acetyl Tyrosine; L-Phenylethylamine; Caffeine from Coffee Bean (natural source) 150mg. Made with organic ingredients when possible.
Other ingredients: Vegetable capsule.

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Vitamin B3 Niacinimide	65 mg	325%
Pantothenic Acid	10 mg	100%
Vitamin B6 Pyridoxine HCL	20 mg	1000%
Folic Acid	400 mcg	100%

A proprietary blend of 2225 mg total of the following ingredients: L-Arginine; L-Taurine, L-Lysine, L-Glutamine; L-Leucine; L-Isoleucine; L-Valine; Korean Ginseng (Panax ginseng); Eleutherococcus Senticosus; Maca Root extract; L-Phenylalanine; L-Tyrosine; Phenylethylamine. Made with organic ingredients when possible.
Other ingredients: HPMC vegetable capsule.

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IV. REHABILITATION RELATED TO MUSCLE & TISSUE STRENGTHENING (NUTRITIONAL OPTIONS)

RESEARCH: COLLAGEN AND RELATED INGREDIENTS FOR MUSCLE CRAMPING, BONE DENSITY, MUSCLE & TISSUE STRENGTHENING MANAGEMENT & REHABILITATION OF INJURY

A WHITE PAPER ON COLLAGEN HYDROLYZATES AND ULTRAHYDROLYZATES: POTENTIAL SUPPLEMENTS TO SUPPORT JOINT HEALTH IN OSTEOARTHRITIS?

Date & Journal: Curr Rheumatol Rep . 2021 Oct 30.

Abstract

Purpose of review: Osteoarthritis (OA) is the most common forms of arthritis in the general population, accounting for more pain and functional disability than any other musculoskeletal disease. There are currently no approved disease modifying drugs for OA. In the absence of effective pharmacotherapy, many patients with OA turn to nutritional supplements and nutraceuticals, including collagen derivatives. Collagen hydrolyzates and ultrahydrolyzates are terms used to describe collagens that have been broken down into small peptides and amino acids in the presence of collagenases and high pressure.

Recent findings: This article reviews the relevant literature and serves as a White Paper on collagen hydrolyzates and ultrahydrolyzates as emerging supplements often advertised to support joint health in OA. Collagen hydrolyzates have demonstrated some evidence of efficacy in a handful of small scale clinical trials, but their ability to treat and reverse advanced joint disease remains highly speculative, as is the case for other nutritional supplements. The aim of this White Paper is to stimulate research and development of collagen-based supplements for patients with OA and other musculoskeletal diseases at academic and industrial levels. This White Paper does not make any treatment recommendations for OA patients in the clinical context, but simply aims to highlight opportunities for scientific innovation and interdisciplinary collaboration, which are crucial for the development of novel products and nutritional interventions based on the best available and published evidence.

Mobasheri A, Mahmoudian A, Kalvaityte U, Uzieliene I, Larder CE, Iskandar MM, Kubow S, Hamdan PC, de Almeida CS Jr, Favazzo LJ, van Loon LJC, Emans PJ, Plapler PG, Zuscik MJ. A White Paper on Collagen Hydrolyzates and Ultrahydrolyzates: Potential Supplements to Support Joint Health in Osteoarthritis? Curr Rheumatol Rep. 2021 Oct 30;23(11):78. doi: 10.1007/s11926-021-01042-6. PMID: 34716494; PMCID: PMC8556166.

DAILY ORAL SUPPLEMENTATION WITH COLLAGEN PEPTIDES COMBINED WITH VITAMINS AND OTHER BIOACTIVE COMPOUNDS IMPROVES SKIN ELASTICITY AND HAS A BENEFICIAL EFFECT ON JOINT AND GENERAL WELLBEING

Date & Journal: Nutr Res . 2018 Sep.

Abstract

Aging is a multifactorial and natural process that causes physiological changes in organs, tissues and cells over time. In the skin and cartilage, aging leads to a decrease in the synthesis and changes in the arrangement of proteoglycans and collagen, in addition to the loss of glycosaminoglycans, which are responsible for the integrity and health of these tissues. We hypothesized that daily oral supplementation with a liquid nutraceutical containing hydrolyzed fish collagen, vitamins, antioxidants and other active ingredients could improve skin texture and elasticity, and in addition have a protective effect on joint health. A double-blind, randomized, placebo-controlled clinical trial was conducted on 120 subjects who consumed either the test product or placebo on a daily basis for 90 days. Subjects consuming the test product had an overall significant increase in skin elasticity (+40%; $P < .0001$) when compared to placebo. Histological analysis of skin biopsies revealed positive changes in the skin architecture, with a reduction in solar elastosis and improvement in collagen fiber organization in the test product group. As reported in the self-perception questionnaires, these results were confirmed by the subjects' own perceptions in that participants agreed their skin was more hydrated and more elastic. In addition, the consumption of the test product reduced joint pain by -43% and improved joint mobility by +39%. Oral supplementation with collagen bioactive peptides combined with chondroitin sulphate, glucosamine, L-carnitine, vitamins, and minerals significantly improved the clinical parameters related to skin aging and joint health, and therefore, might be an effective solution to slow down the hallmarks of aging.

Czajka A, Kania EM, Genovese L, Corbo A, Merone G, Luci C, Sibilla S. Daily oral supplementation with collagen peptides combined with vitamins and other bioactive compounds improves skin elasticity and has a beneficial effect on joint and general wellbeing. Nutr Res. 2018 Sep;57:97-108. doi: 10.1016/j.nutres.2018.06.001. Epub 2018 Jun 9. PMID: 30122200.

RESEARCH: COLLAGEN PROTEIN FOR PAIN MANAGEMENT & REHABILITATION OF INJURY

Arginine L-alpha-ketoglutarate, methylsulfonylmethane, hydrolyzed type I collagen and bromelain in rotator cuff tear repair: a prospective randomized study.

Gumina S[1], Passaretti D, Gurzi MD, Candela V.

⊕ Author information

Abstract

OBJECTIVE: Arthroscopic rotator cuff repair generally provides satisfactory result, in terms of decreasing shoulder pain, resulting in improvement in range of motion. Unfortunately, imaging studies have shown that after surgical repair re-rupture rate is potentially high. Literature data indicate that each of the components present in a commercial supplement sold in Italy as Tenosan * (arginine L-alpha-ketoglutarate, methylsulfonylmethane, hydrolyzed type I collagen and bromelain) have a potential role in tendon healing and mitigating the pain due to tendonitis. We evaluated the clinical and MRI results of rotator cuff repair with and without the employment of this oral supplement in patients with a large, postero-superior rotator cuff tear (RCT).

RESEARCH DESIGN AND METHODS: We enrolled 90 consecutive patients who had a large, postero-superior RCT. All the lesions were managed with an arthroscopic repair. Patients were randomized and treated either with (Group I) or without (Group II) the supplement. The primary outcomes were the difference between the pre- and post-operative Constant score and repair integrity assessed by MRI according to Sugaya's classification. The secondary outcome was the pre- and post-operative Simple Shoulder Test.

RESULTS: No statistically significant differences were identified between the two groups for each considered variable, except for shoulder pain (follow-up: 6 months) and repair integrity (final follow-up). Intensity of shoulder pain was lower in the Group I patients ($p < 0.001$). Analogously, in Group I, the percentage of patients with a better repair integrity result was significantly higher than Group II.

CONCLUSION: The use of the supplement for 3 months after cuff repair decreases shoulder post-operative pain and leads to a slight improvement in repair integrity. This improvement does not seem to correlate with an better objective functional outcome. However, these effects could facilitate and abbreviate the post-operative rehabilitation program and reduce re-rupture rate. The main limitations of this study are the relative short follow-up period and small number of patients studied.

PMID: 23043451 DOI: 10.1185/03007995.2012.737772

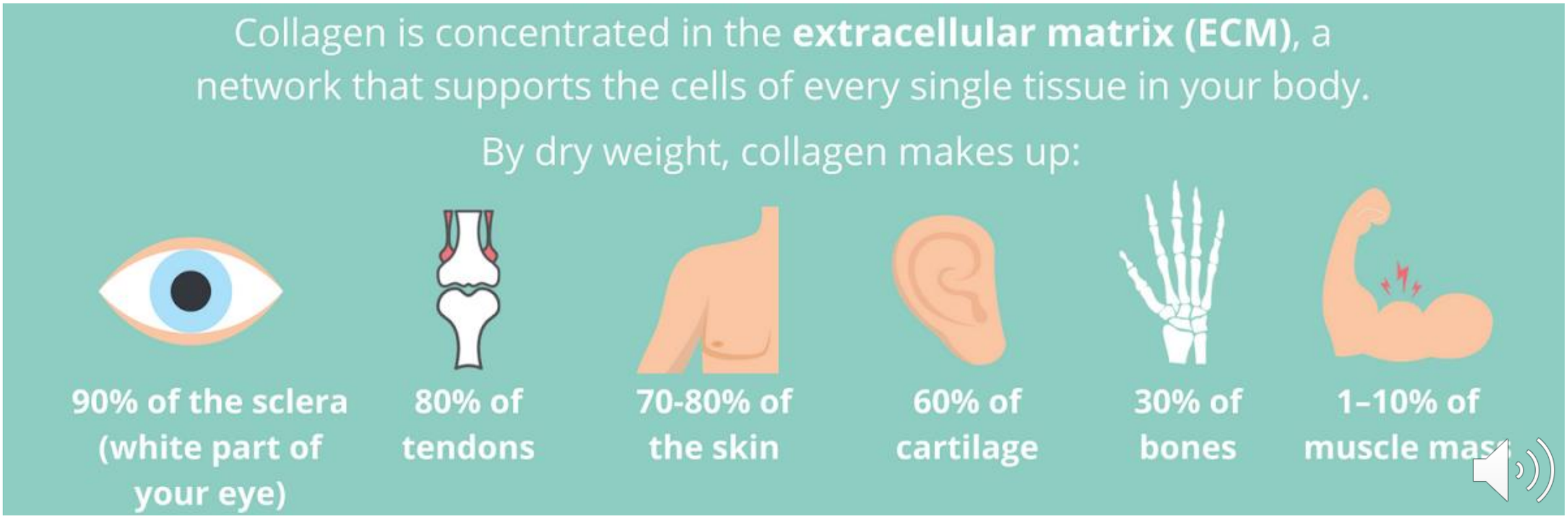
WHAT IS COLLAGEN PROTEIN?

- Largest Protein in our body. 70% of our total protein.

- Collagen Protein make up heart, lungs, blood vessels, discs, muscle, bone, internal organs.

- Ptosis: Defined as ”loss of collagen, droopy organs and skin”.

Caused by hormonal changes, drugs, alcohol, processed foods, white sugar, hydrogenated oils, fluoridated water, dehydration, stress, and trauma.



COLLAGEN TYPES USED IN NUTRITIONAL PRODUCTS FOR PAIN MANAGEMENT & INFLAMMATION REDUCTION

SEVERAL DIFFERENT TYPES OF PROTEIN HAVE BEEN IDENTIFIED, BUT MOST OF THE COLLAGEN IN THE BODY IS TYPE I, II, OR III.

TYPE I – Most Common. In the bones, teeth, ligaments, & tendons.
Also present in skin and is responsible for the skin's elasticity & strength.
Loss of Type 1 Collagen results in wrinkles & aged appearance.

Source: Hides of Organic Grass Fed Cows

TYPE II – Found in the cartilage.

Source: Feet of GMO Fed Chickens or Hooves of GMO Fed Cows

TYPE III - Most prevalent in skin, blood vessels, and internal organs.

Source: Feet of Caged, GMO Fed Chickens

León-López, Arely et al. "Hydrolyzed Collagen-Sources and Applications." *Molecules (Basel, Switzerland)* vol. 24,22 4031. 7 Nov. 2019, doi:10.3390/molecules24224031

WHY HYDROLYZED COLLAGEN TYPE-1 FOR REHABILITATION FOR MUSCLES AND TISSUES?

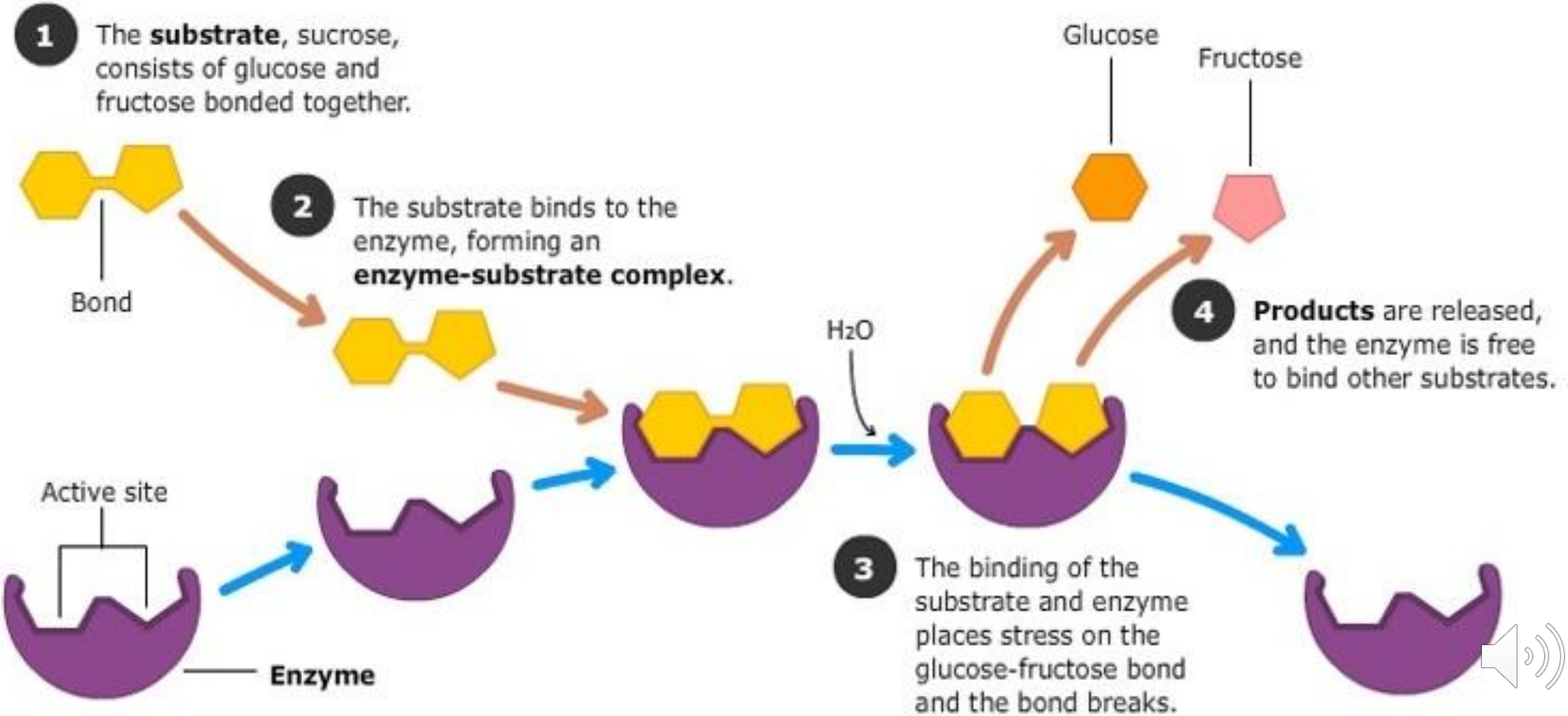
- The body can’t absorb collagen in whole form.
- This protein must be broken down during the digestive process before it can be absorbed.
- To increase bioavailability, we use *Hydrolyzed* collagen
- Collagens long amino acid chain is broken down into peptides
- Resulting in a much easier absorption process in the GI tract.
- Capsules are better for this digestion process than powder due to the lack of clumping.

León-López, Arely et al. “Hydrolyzed Collagen-Sources and Applications.” *Molecules (Basel, Switzerland)* vol. 24,22 4031. 7 Nov. 2019, doi:10.3390/molecules24224031

PROCESS OF ENZYMATIC HYDROLYSIS

Definition: Catalytic decomposition of a chemical compound by reaction with water.

In supplements it is used for the breakdown of proteins into amino acids by the addition of the enzyme protease.



WHAT IS HYDROLYZED COLLAGEN TYPE 1?

- Results of Clinical Studies Suggest:

  - Increase of lean muscle, muscle tone, skin tone, joint rebuilding, stronger arteries, increased energy, and organ rebuilding.

  - Long Term Improvements Suggest:

    - Reduction in: Osteoporosis, high blood pressure, arthritis, weak bladder, obesity, chronic fatigue, and autoimmune diseases.

Nutritional option that I use in my practice for Rehabilitation of Injuries, and Muscle & Tissue Strengthening.

Scan with your smartphone!

ORGANICCS
ABSOLUTELY PURE®

TYPE-1
COLLAGEN
PROTEIN

ALL-NATURAL AID FOR STRENGTHENING HAIR, SKIN, NAILS, MUSCLES & JOINTS

180 VEGGIE CAPSULES

MADE IN USA

" A dietary supplement"

Supplement Facts

Suggested Dosage: Up to 6 capsules per day or as recommend by your healthcare provider.

Servings per container: 30
Serving Size: 6 capsules

Ingredient	Amount Per Serving	% Daily Value
Type 1 Hydrolyzed Collagen Kosher(Bovine)	3000 mg	120%
Vitamin C (Ascorbic Acid)	200 mg	333%

A proprietary blend of 320 mg of the following natural ingredients:
Glucosamine sulfate; Horsetail herb; Citrus Bioflavonoids. Made with organic ingredients when possible.

Other ingredients: Vegetable capsule.

Distributed by:
Organiccs Absolutely Pure, LLC
Laguna Hills, CA. 92653
(949) 707-5785
USP Inc. Facility Code 20181

Lot:

Exp:

Manufactured by PHS Oxnard CA

IV. REHABILITATION RELATED TO MUSCLE & TISSUE STRENGTHENING (NUTRITIONAL OPTIONS)

RESEARCH: MINERALS AND RELATED INGREDIENTS FOR MUSCLE CRAMPING, BONE DENSITY, MUSCLE & TISSUE STRENGTHENING MANAGEMENT & REHABILITATION OF INJURY

EFFECT OF MAGNESIUM SUPPLEMENTATION ON CHRONIC KIDNEY DISEASE-MINERAL AND BONE DISORDER IN HEMODIALYSIS PATIENTS: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

Date & Journal: J Ren Nutr . 2022 Jan.

Abstract

Objectives: Research about the effects of magnesium (Mg) supplementation on chronic kidney disease-mineral bone disorder (CKD-MBD) among hemodialysis (HD) patients is controversial. Thus, we conducted a meta-analysis to examine Mg supplementation's effects on CKD-MBD in patients requiring dialysis.

Results: Eight eligible studies comprising 309 HD patients were included in our meta-analysis. Mg supplementation alone produced a negative effect on serum PTH levels (WMD = -236.56; 95% CI -349.71 to -123.41) and CIMT (WMD = -0.18; 95% CI -0.34 to -0.01). A subgroup analysis based on intervention type showed a significant improvement in serum Mg and Ca levels when Mg was administered via dialysate and oral medication, respectively. Different intervention durations had no effect on serum Mg levels. Mg supplementation had no significant effect on serum phosphate and C-reactive protein levels.

Conclusions: Our results showed that Mg supplementation alone could improve CKD-MBD by regulating serum Ca and PTH metabolism and decreasing CIMT among HD patients.

Guo G, Zhou J, Xu T, Sheng Z, Huang A, Sun L, Yao L. Effect of Magnesium Supplementation on Chronic Kidney Disease-Mineral and Bone Disorder in Hemodialysis Patients: A Meta-Analysis of Randomized Controlled Trials. J Ren Nutr. 2022 Jan;32(1):102-111. doi

INVITED REVIEW: MINERAL ABSORPTION MECHANISMS, MINERAL INTERACTIONS THAT AFFECT ACID-BASE AND ANTIOXIDANT STATUS, AND DIET CONSIDERATIONS TO IMPROVE MINERAL STATUS.

DATE & JOURNAL: J DAIRY SCI. 2018 APR

Several minerals are required for life to exist. In animals, 7 elements (Ca, P, Mg, Na, K, Cl, and S) are required to be present in the diet in fairly large amounts (grams to tens of grams each day for the dairy cow) and are termed macrominerals. Several other elements are termed microminerals or trace minerals because they are required in much smaller amounts (milligrams to micrograms each day). In most cases the mineral in the diet must be absorbed across the gastrointestinal mucosa and enter the blood if it is to be of value to the animal. The bulk of this review discusses the paracellular and transcellular mechanisms used by the gastrointestinal tract to absorb each of the various minerals needed. Unfortunately, particularly in ruminants, interactions between minerals and other substances within the diet can occur within the digestive tract that impair mineral absorption. The attributes of organic or chelated minerals that might permit diet minerals to circumvent factors that inhibit absorption of more traditional inorganic forms of these minerals are discussed. Once absorbed, minerals are used in many ways. One focus of this review is the effect macrominerals have on the acid-base status of the animal. Manipulation of dietary cation and anion content is commonly used as a tool in the dry period and during lactation to improve performance. A section on how the strong ion theory can be used to understand these effects is included. Many microminerals play a role in the body as cofactors of enzymes involved in controlling free radicals within the body and are vital to antioxidant capabilities. Those same minerals, when consumed in excess, can become pro-oxidants in the body, generating destructive free radicals. Complex interactions between minerals can compromise the effectiveness of a diet in promoting health and productivity of the cow. The objective of this review is to provide insight into some of these mechanisms.

Goff JP. Invited review: Mineral absorption mechanisms, mineral interactions that affect acid-base and antioxidant status, and diet considerations to improve mineral status. J Dairy Sci. 2018 Apr;101(4):2763-2813. doi: 10.3168/jds.2017-13112. Epub 2018 Fe

Nutritional option that I use in my practice for muscle cramping & bone loss prevention

Scan with your smartphone!

ORGANICCS
ABSOLUTELY PURE®

CHELATED MINERALS

ALL-NATURAL AID TO HELP PREVENT BONE LOSS & MUSCLE CRAMPING

90 VEGGIE CAPSULES

MADE IN USA

" A dietary supplement"

Supplement Facts

Suggested Dosage: Up to 3 capsules per day or as recommended by your healthcare provider.

Servings per container: 30
Serving Size: 3 capsules

Ingredient	Amount Per Serving	% Daily Value
Calcium Bisglycinate Chelate TRAACS®	600mg	60%
Magnesium Bisglycinate Chelate TRAACS®	500mg	125%
Potassium Glycinate complex TRAACS®	300mg	6%
Calci-K® (Calcium Potassium Phosphate Citrate)TRAACS®	50mg	1%
Ferrochel® (Ferrous Bisglycinate Chelate)TRAACS®	5mg	2%
Vitamin D3 (Cholecalciferol)	400 IU	100%
Sodium (as bicarbonate)	100 mg	4%
Zinc Bisglycinate Chelate TRAACS®	15mg	136%

A proprietary blend of 500 mg of the following natural ingredients: Raspberry Leaf extract 4:1; Corydalis; Organic Wild Yam; Cramp Bark; Organic Ginger root. Bioavailable naturally occurring minerals: Calcium; Magnesium; Potassium; Manganese; Copper; Iron; Zinc; Vitamins A, C, & E; Vitamin B complex.
Other Ingredients: Glucose; Silicon dioxide; Vegetable capsule.
Made with organic ingredients when possible.

Distributed by:
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(949) 707-5785
USP Inc. Facility Code 20181

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Exp:

Manufactured by PHS Oxnard CA

IV. REHABILITATION RELATED TO MUSCLE & TISSUE STRENGTHENING

A. NUTRITIONAL OPTIONS TO HELP STRENGTHEN MUSCLES FOR THE CHIROPRACTIC PATIENT

B. EXERCISE OPTIONS TO HELP REHABILITATE MUSCLES & TISSUES.

REHABILITATION

PRINCIPLES RELATED

TO

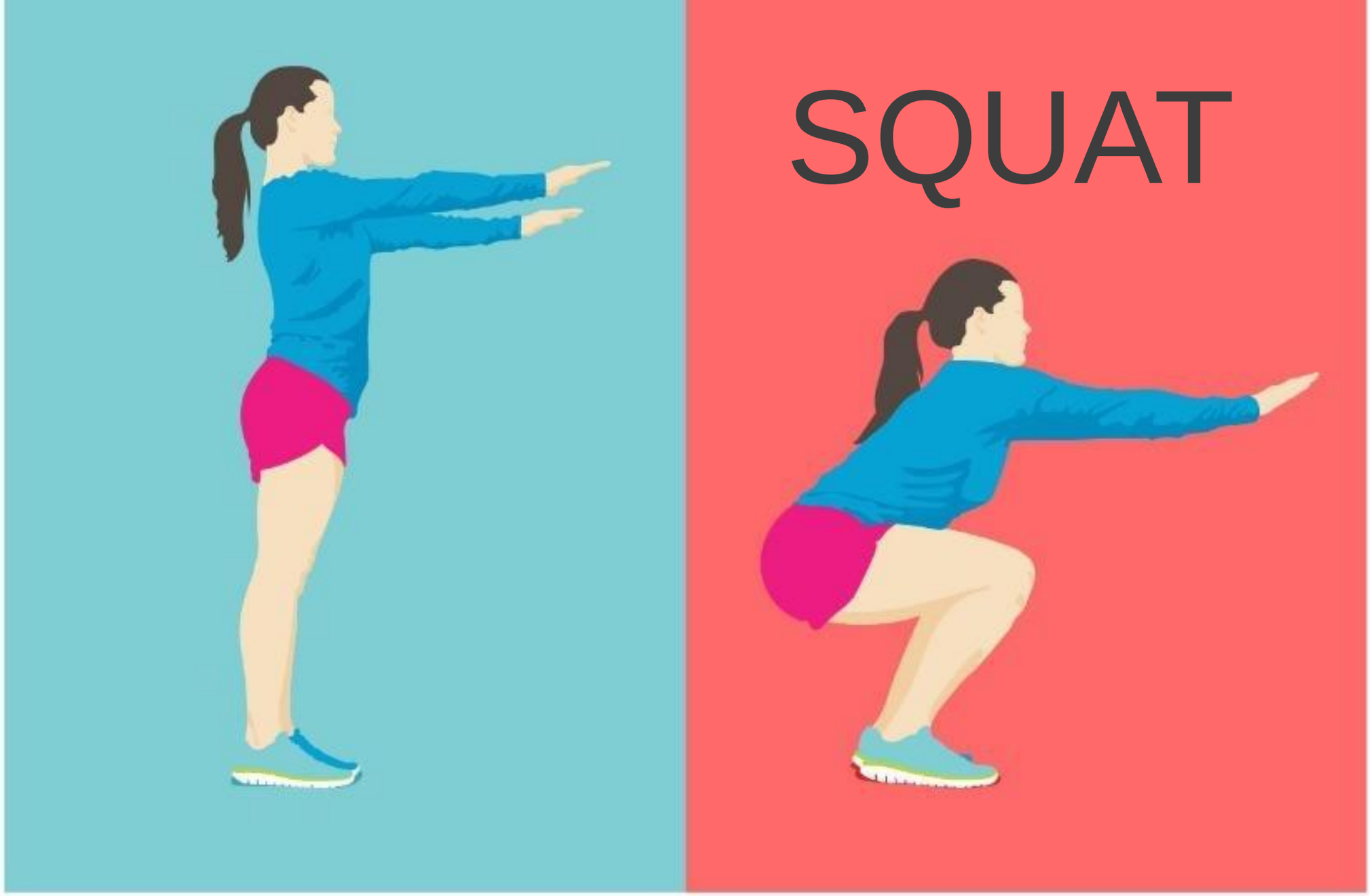
MUSCLE & TISSUE

STRENGTHENING

20 minutes of strength training exercises
2-3 week with AT LEAST 1 day off between workouts for muscles to recover & grow!

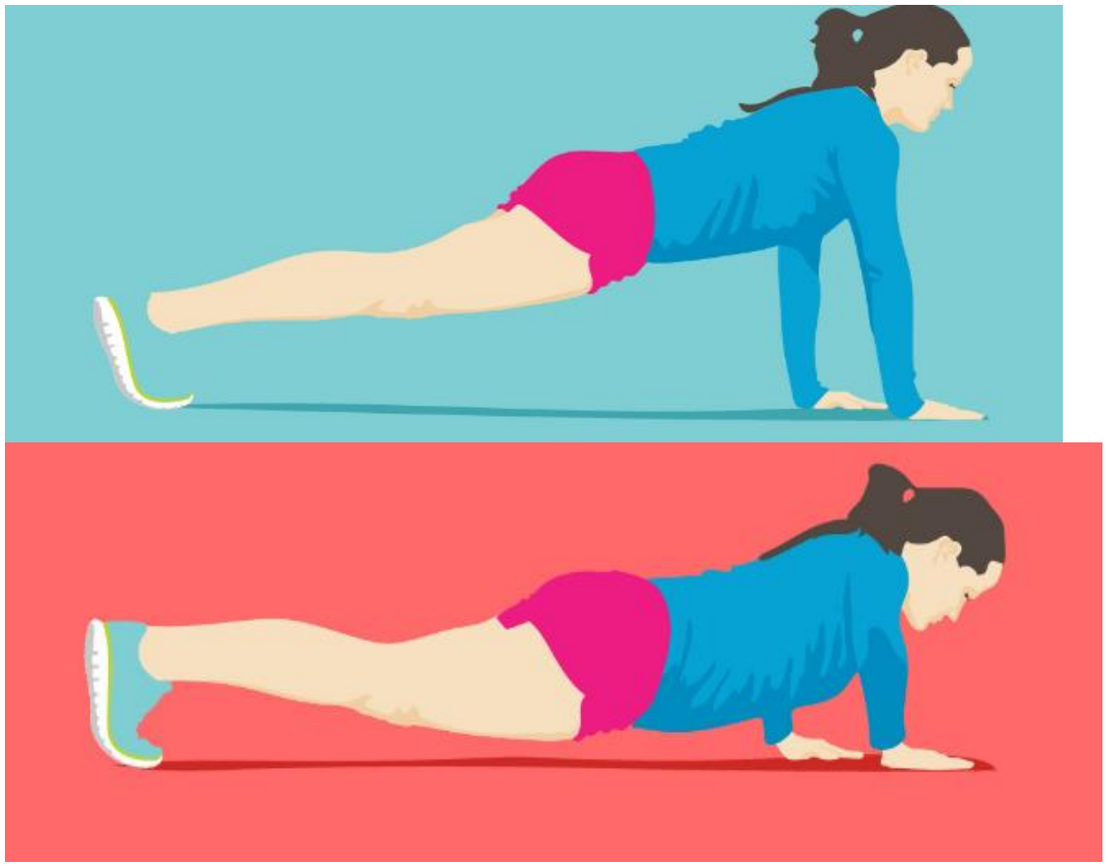
Exercises:
Sets:1-3 | Reps: 8-15 | Rest Intervals: 45sec

- Squats - Buttocks & Thighs
- Modified Push Up – Chest, abs, shoulders, & arms
- Shoulder Press - Shoulders & arms
- Biceps Curls - Biceps
- Plank - Abdominals, shoulders, chest, lower back, buttocks, thighs

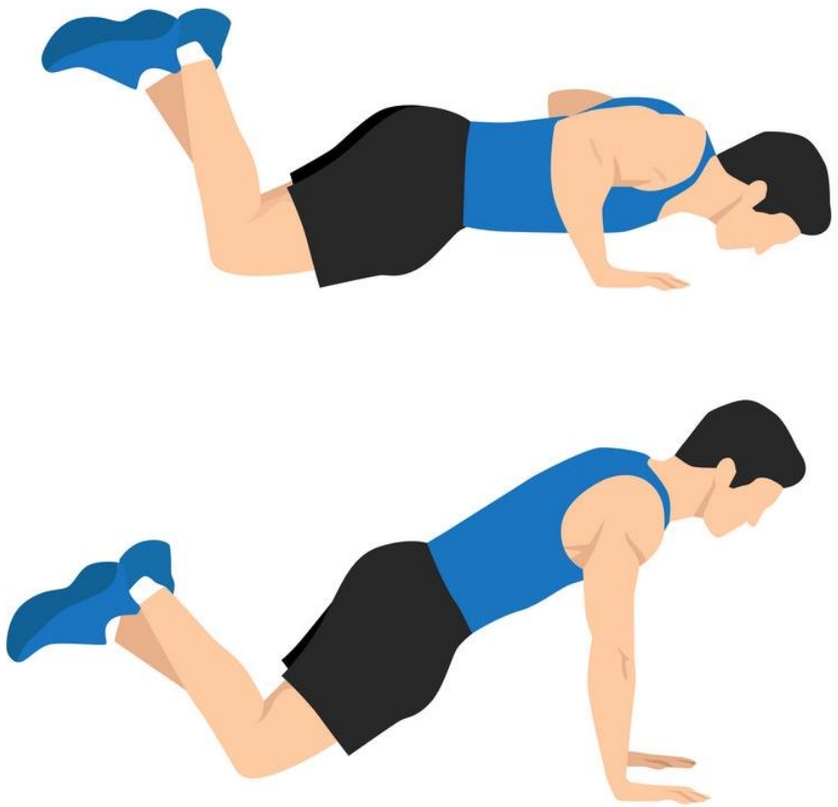


- Start by standing upright with your feet placed in a position slightly wider than shoulder-width apart, and your toes pointed straight ahead.
- Bend your legs and drop your buttocks down to the height of your knees. Your legs should form a 90-degree angle when you're at the bottom of the movement.
- With your weight on your heels, push yourself back upright, squeezing through your glutes (buttock muscles) on the way up.
- Perform 5 sets of 25 repetitions. Adjust this rep number if you feel you can do more at the end of each set.

Push Up



Modified Push Up:



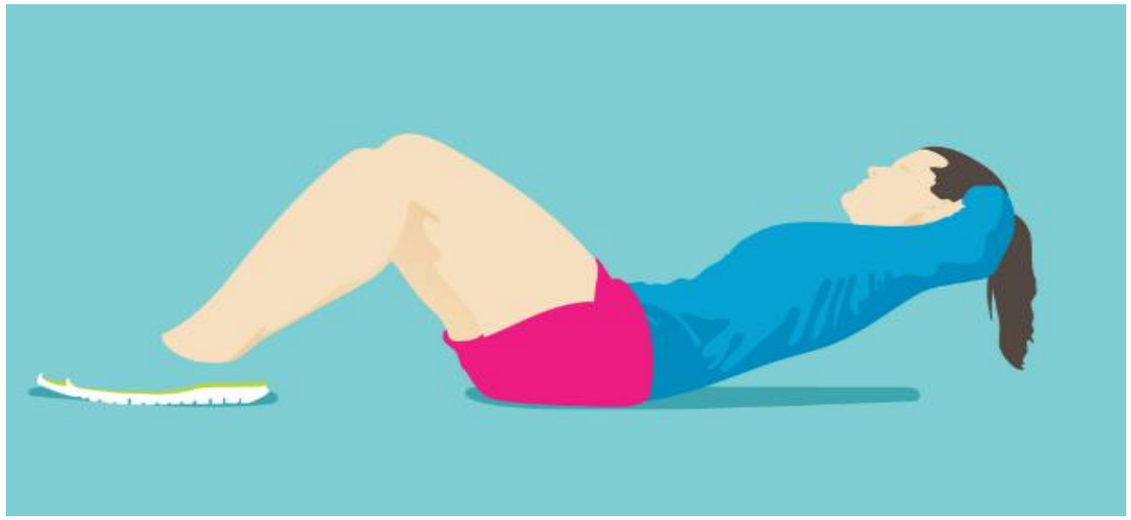
- Lie on your stomach, knees bent and ankles crossed. Place your palms on the floor a bit to the side and in front of your shoulders. Tuck your chin a few inches into your chest so your forehead faces the floor.

- Straighten your arms and lift your body so you are balanced on your palms and knees, abdominals tight. Be careful not to lock your elbows.

- Bend your elbows and lower your entire body at once. Rather than trying to touch your chest to the floor, lower just until your upper arms are parallel to the floor. Push back up.

Crunches

100 crunches:
50 to the left
50 to the right



- Start by lying flat on your back, with your legs bent and your feet flat on the ground. Place your hands beneath your neck, with your elbows out to the sides.
- Clench your stomach muscles and bring your torso up so that it’s flush with your thighs. Resist the urge to use momentum, rather than your muscles, to bring your body up.
- Guide your body down in a controlled motion to maximize your muscle use.
- Perform 5 sets of 25 repetitions.

Plank

- To start, lie flat on your stomach (hips touching the ground) with your legs flat and upper body propped up by your forearms.
- Tightening your lower back and shoulder muscles, raise your hips off the ground.
- Hold for as long as you can (aim for intervals of 30 to 45 seconds) and then relax. That completes one repetition (rep).

REFERENCES:

- http://physioworks.com.au/treatments-1/core-stability-exercises
- https://www.realsimple.com/health/fitness-exercise/workouts/exercises-muscle-maintenance

FORMS RELATED TO REHABILITATION PRACTICE AND NUTRITIONAL RECOMMENDATIONS

YOU MAY PERSONALIZE THESE FORMS FOR YOUR PRACTICE REGARDING TREATMENT PLAN:

- LASER
- EXERCISE
- TAPING
- NUTRITIONAL RECOMMENDATIONS

D.C. Treatment Plan

PATIENT INFORMATION

Name:
Address:

DOB:
Gender:

Treatment Plan

□ Initial Care (M,W,F)
□ Continuing Care (M,W,F)

Date of First Treatment in this office for condition:
Anticipated Release Date:

Subjective Complaint:

Lost Days of Work:
Days of Work Restriction:
Mechanism of Injury:
□ Acute Trauma
□ Worsening Of Prior Condition
□ Repetitive Motion
□ Gradual Onset
□ Chronic
□ Other
Date of Onset:
Date of Initial Evaluation:

Treatment Goals: (Functional Improvement and Expected outcome ie-able to sit 30 minutes with pain decreased by 50%)

Treatment Type:

□ Posture Correction/ Neuro
□ Chiropractic Adjustments
□ Cold Laser Therapy
□ Infrared Pain Mgt.
□ Functional Movement Taping
□ Electric Massage/ Muscle Stim.
□ Acute Trauma
□ Flexion/ Distraction- Disc

Treatment Schedule: (Frequency and time frame)

Anticipated No. of Treatments Until next evaluation:

Objective Findings

Inspection:

Palpation:

Summary of Clinical Findings **(Ortho. and neuro. tests used to support diagnosis) :**

Home Care:

□ Stretching
□ Exercise
□ Hot/Cold
□ Dietary instructions
□ Referral:
_____

□ Supplements
  □ Turmeric
  □ Minerals
  □ Collagen
  □ Amino Acids
  □ Greens

Diagnosis:

Complicating Factors:

□ Surgery
□ Diabetes
  □ Medications
□ Obesity
□ Inflammation

□ Other: _____
□ Other Diagnostic Testing Suggested:
_____
_____

Doctor Signature: _____ Date: _____

Patient Signature: _____ Date: _____

Objective Nutritional / Metabolic Questionnaire

Name: _____ **Date:** _____

Do you Eat:	
Do you eat 5 or more servings of vegetables in a day?	Yes or No
Do you eat 4 or more servings of fruit in a day?	Yes or No
Do you drink more than 1 sugar sweetened beverage (sodas energy drinks, sweetened tea) in a day?	Yes or No
Do you drink more than 2 cups of coffee in a day?	Yes or No
Do you eat more than 3 servings candy, cookies, cakes, sweetened rolls in a week?	Yes or No
Do you eat bread all 7 days of the week?	Yes or No
Do you eat whole grain bread & pasta?	Yes or No
Do you eat more than 2 servings a day of packaged snack foods i.e.-potato chips, crackers, corn chips, Cheetos etc. daily?	Yes or No
Do you eat more than 2 packaged entrees and side dishes daily?	Yes or No
Do you purchase/eat regular store bought meat (not grass-fed)?	Yes or No
Do you purchase/eat farm raised fish (not wild caught)?	Yes or No
Do you eat almonds, walnuts, cashews, pistachio, macadamia, pecans more than 2 times a week?	Yes or No
Do you eat chia, flaxseed, or hempseed more than 5 times week?	Yes or No
Total Yes's :	

Cooking	
What oils do you cook with? ☐ olive oil ☐ coconut oil ☐ grass-fed butter ☐ corn oil ☐ sunflower oil ☐ vegetable oil	
Do you eat Yogurt?	Yes or No
Do you consume cheese or milk products?	Yes or No

Objective Nutritional / Metabolic Questionnaire

Do you cook at home more than 5 times in a week?	Yes or No
Total Yes's :	

Do you feel?	
Do you have muscle cramping?	Yes or No
Do you have restless leg syndrome?	Yes or No
Are you nervous or have anxiety?	Yes or No
Do you get headaches often?	Yes or No
Are you constipated frequently?	Yes or No
Do you suffer from osteoporosis or osteopenia?	Yes or No
Do you suffer from chronic pain?	Yes or No
Have you been diagnosed with an autoimmune disease?	Yes or No
Do you have muscle stiffness or pain?	Yes or No
Total Number of Yes':	

Exercise	
Do you exercise?	Yes or No
Do you exercise 5 days a week?	Yes or No
What types of exercises ?	
Are you more of a couch potato?	Yes or No
Do you ever get sore from exercising?	Yes or No
Total Number of Yes':	

Immune	
Do you get a cold or the flue each season?	Yes or No
Do you believe that you have a strong immune system?	Yes or No
Do you have more than 1 bowl movement in a day?	Yes or No
Do you have allergies ?	Yes or No

Objective Nutritional / Metabolic Questionnaire

Do you get a sore throat and/or stuffy/runny nose more than once a month?	Yes or No
Do you eat dairy products – ice cream?	Yes or No
Do you eat sugar foods? i.e. candy/cakes	Yes or No
Would you like to strength your immune response?	Yes or No
Total Number of Yes':	

Cardio-Metabolic Health	
Are you currently diagnosed with ?	
Cholesterol Problems?	Yes or No
High Blood Pressure	Yes or No
Diabetes ?	Yes or No
Pre-diabetes ?	Yes or No
Metabolic Syndrome?	Yes or No
Any other diagnosis please list below:	

Do you take medications for:	
Cholesterol	Yes or No
High Blood Pressure	Yes or No
Diabetes / Pre-diabetes?	Yes or No
Total Yes's :	
Please list all medications:	

Are you under the care of a physician for these conditions?
If yes, who is your physician currently managing these conditions?(Name, Address, Phone #)

Objective Nutritional / Metabolic Questionnaire

How important is it to you function at your optimum 100% health? On a scale of 1-10 (10 being ready to change today) _____

How ready are to change? On a scale of 1-10 (10 being ready to change today) _____

_____ Your Diet
_____ Supplementation
_____ Consistent Chiropractic Care
_____ Exercise

For Practitioner Use Only:

Note- Yes = 1 point No= 0 points (ex. 5 yes' = 5 points)

	Totals:	**Supplement Recommendations**
Do you eat?		> 5 **Greens- If yes is the primary answer this shows that the diet may be a very acidic diet. To counter balance the acidity, we recommend the Greens product which is an alkaline superfood which will help improve digestion, immunity, inflammation, energy, and aiding in weight loss.** **Turmeric- With the increased amount of processed foods and sugary foods the body is undergoing an overwhelming amount of inflammation which could lead to pain, chronic disease, or autoimmune disease. Turmeric helps the body fight inflammation with the curcuminoids, ginger, curcumin, bromelain, and saffron. Turmeric will also help if the patient has any current pain or chronic conditions by supporting the body with an anti- inflammatory product.**
Cooking		> 2 & corn oil & vegetable oil are chosen **With the increase in saturated fats, eating out, and the need for energy the patient is a great candidate for the Ultra Amino Energy.** **Why? This supplement is full of amino acids specifically L-arginine which is a vasodilator. This is why it is great for our cardiovascular system. It is also full of B- vitamins that will supply the patients with energy & no crash. Educate patient on cooking methods to incorporate more healthy fats. Also, great to improve brain function.**

Objective Nutritional / Metabolic Questionnaire

Do you feel		>1 **Minerals Chelated- This formula uses chelated minerals with Albion and TRACCS (The Real Amino Acid Chelate System) a highly bioavailable and absorptive form of the minerals. This supplement is formulated with ferrous gluconate (iron) to aid with hemoglobin formation, an oxygen carrier, muscle function, and brain function. This supplement has magnesium which helps prevent muscle aches and spasms, helps increase energy, calms nerves and anxiety, aids digestion by relieving constipation, important in heart health, and helps prevent migraine headaches. These minerals are also essential in building & maintaining strong bones.** **Turmeric- Turmeric helps the body fight inflammation which is the underlying root of a lot of diseases. Patients who suffer from chronic pain, autoimmune disease, and muscle stiffness/pain may benefit from this supplement by adding in an anti-inflammatory product like our Turmeric product.**
Exercise		>2 **Turmeric- With turmeric being an anti-inflammatory supplement, it can be great for post work out inflammation and recovery/ soreness .** **Type One Collagen- Working out helps strengthen our muscles, tendons, and ligaments. Type One Collagen Protein is important for growth and maintenance of tendons and ligaments. It also helps with joint health and improves our muscle mass.** **Ultra Amino Energy- Aminos are a great aid for the cardiovascular system. By adding these into your daily supplement regiment it can be a great aid in improving stamina during a working out and provide you sustained energy throughout the day without any crash or added sugars!** **Minerals - Helps with cramping during and after exercise. Great for bone health to keep bones strong!**
Immune		< 2 **Mega Immune- This is a daily immune product that helps maintain the integrity of the immune system by a synergistic blend of ingredients. This product is a great immune support supplement to keep the immune system strong all year long.**

Objective Nutritional / Metabolic Questionnaire

Cardio-Metabolic Health		> 2 **ALL (Greens, Minerals, Turmeric, Type 1 Collagen Protein, & Ultra Amino Energy) SUPPLEMENTS TO SUPPORT THE BODY & CURRENT DISEASES.**

Dr. Mark Cymerint D.C. Recommendations:

For Patient: _____

Supplement Recommendations:

- □ **Total Turmeric - _____**
- □ **Chelated Minerals - _____**
- □ **Type-1 Collagen - _____**
- □ **Ultra Amino Energy - _____**
- □ **Ultra Amino Energy (Caffeine Free) - _____**
- □ **Alkaline Greens - _____**
- □ **Mega Immune - _____**

Exercise Recommendations:

Dietary Recommendations:

DID YOU KNOW?

- Vitamin C and Molecular Hydrogen can BOTH neutralize free radicals. However, studies show that Molecular Hydrogen provides greater protection than Vitamin C because ONLY Molecular Hydrogen can increase powerful antioxidant enzymes in the body.

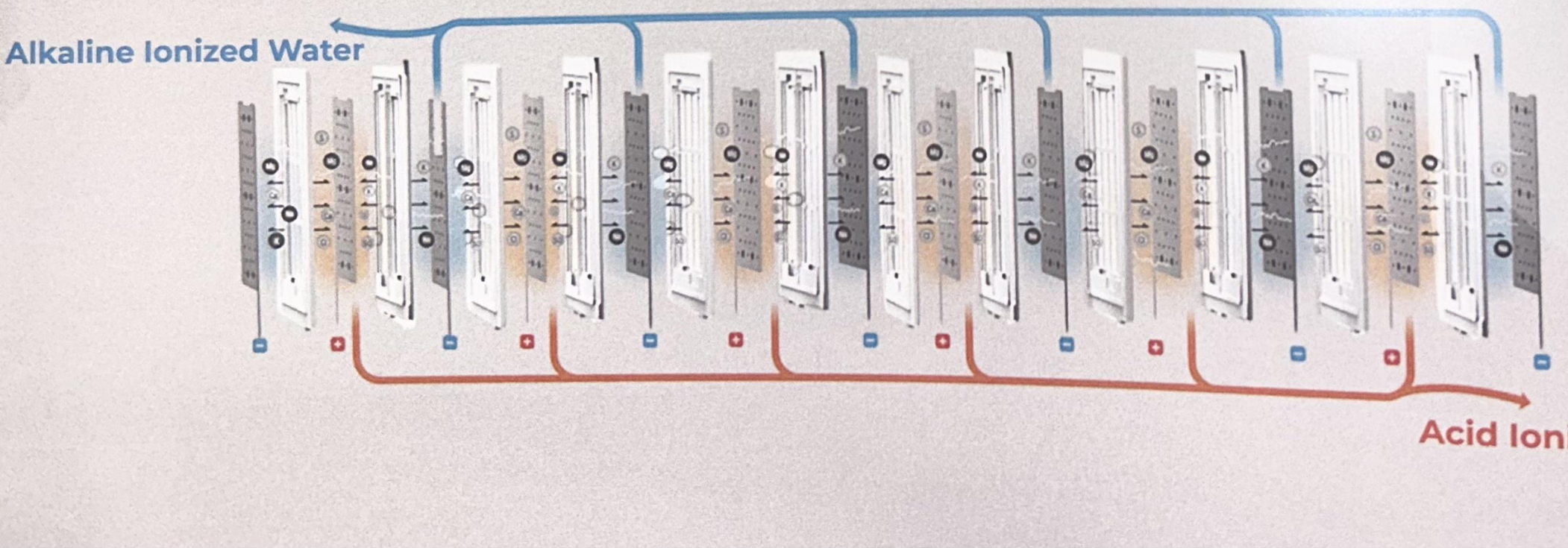
HOW IT WORKS

The secret is the water cell...

When your tap water enters the Tyent water ionizer, it runs through two filters and is filtered to 99% purity.

Next, it runs through our proprietary electrolysis process where “free” and available hydrogen gas (H2 molecular hydrogen) is dissolved into the water. Then, the water molecules are split into two unique streams of water. One stream becomes acidic, which is great for your skin and hair. We call it Beauty Water!

The other water stream becomes the perfect drinking water! It’s alkaline, ultra-hydrating and filled with therapeutic antioxidants called molecular hydrogen.

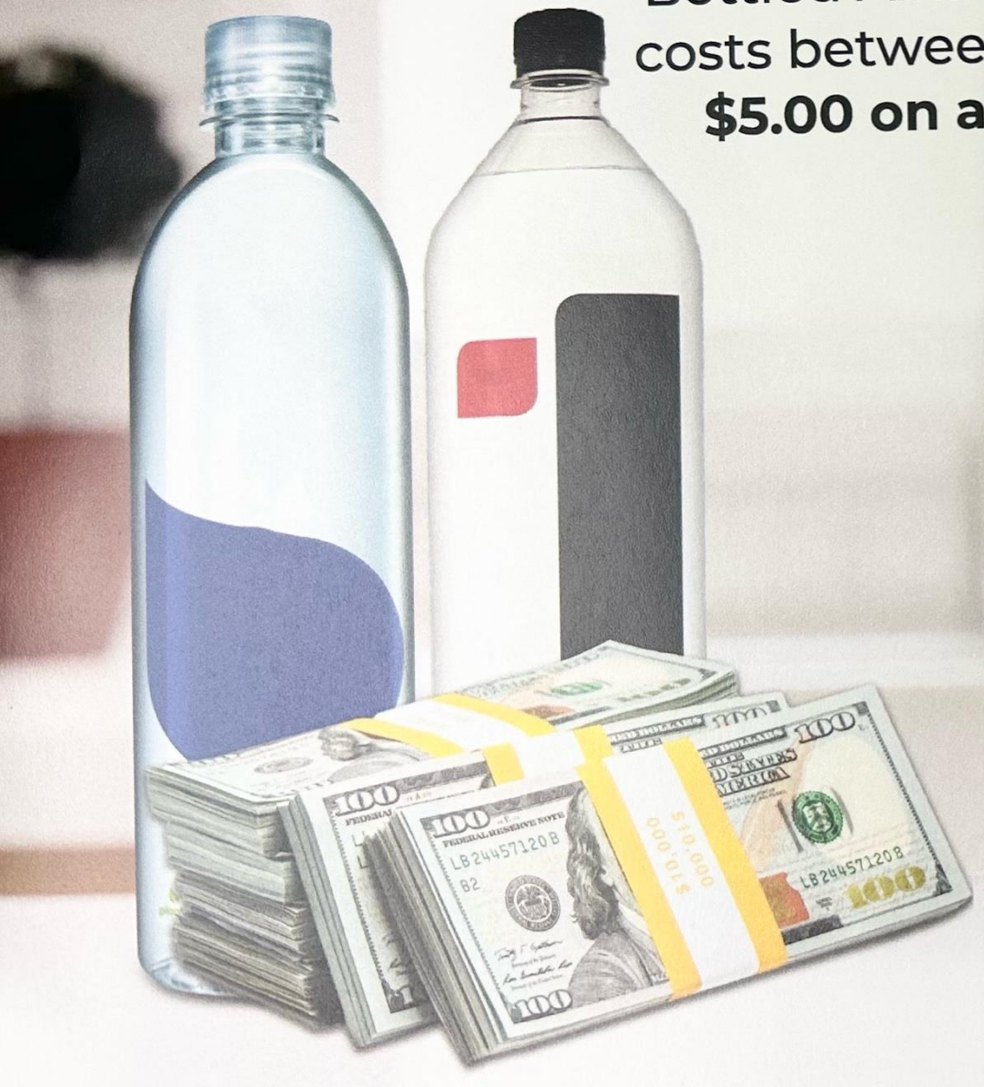


BOTTLED WATER VS. TYENT WATER

DOES IT MAKE CENT$?

Bottled Alkaline Water costs between **$2.00 to $5.00 on average!**

Tyent water ONLY costs about **6¢ a glass!**



V. CHIROPRACTIC ADJUSTIVE TECHNIQUE

A. DIVERSIFIED POSTURE EVALUATION AND MANUAL DEMONSTRATION OF POSTURAL PATTERNS

B. CHIROPRACTIC BIO-PHYSICS AND DIVERSIFIED POSTURE CORRECTION
   a) Neurological proprioceptive stimulation introduced
   b) Sleep posture

C. DIVERSIFIED PEDIATRIC EVALUATION AND ADJUSTIVE PROCEDURES
   a) Posture evaluation and demonstration of the pediatric patient.
   b) Diversified / biophysics manual adjustive procedures. Exercises for pregnancy.

D. INTRODUCTION TO DIVERSIFIED MYOFASCIAL RELEASE TECHNIQUES, INCLUDING PIRIFORMIS SYNDROME AND FROZEN SHOULDER SYNDROME.

E. POSTURE AND SYSTEMIC HEALTH. A LITERATURE REVIEW
   a) A review of current medical literature including forward head posture, proprioception posture, and conditions caused by poor posture.

CEREBELLUM & POSTURE

- **The cerebellum increased in size over the course of vertebrate evolution. The large size in the human brain coincides with the need for synergy of muscles, especially for the maintenance of the erect posture.**
  - The Human Nervous System: An Anatomical viewpoint. Murray Barr and John Kieman.

- **The cerebellum is responsible for the regulation and control of muscular tone, the coordination of movement, and the control of posture and gait.**
  - Principles of Neurology. Raymond Adams, Maurice Victor, Allan Roper, McGraw-Hill 1997

- **The cerebellar input originates in proprioceptors and exterocepetors and is conveyed by massive afferent channels like the spinocerebellar, cuneocerebellar and vestibulocerebellar tracts. This input provides raw data about the condition and interrelationships of parts of the skeletomuscular system and of the body as a whole.**

DIVERSIFIED POSTURE EVALUATION AND MANUAL DEMONSTRATION

Patient standing in front of a mirror with eyes closed.

- *Head in extension then flexion, then back to where they think its center. Hold for 5 seconds.*

-- Head/ Neck Lateral Translation or Deviation
Main listing usually has symptoms associated with this listing.

-- Head Tilt Right/Left (most common listing you will see)

-- Head Rotation: Right/left (may have symptoms)

-- High Shoulder right/left (lowest on priority list)

DIVERSIFIED POSTURE EVALUATION AND MANUAL DEMONSTRATION *(CONTINUED)*

Analyze Lower Torso Posture

- Lateral Hip Translation

(The deviation is toward the high hip side. Pants pocket may appear higher)

- Forward Hip Rotation

(Pocket is rotating forward)

Lateral Posture

- Forward Head Posture of the shoulders and body
- Rounded forward shoulders
- Dowager hump- T1/ T2 area
- Hyperlordosis = increased lumbar curve

INTRODUCTION TO CHIROPRACTIC BIO-PHYSICS AND DIVERSIFIED POSTURE CORRECTION

1. Mirror image setup, (opposite posture that the patient presented.)

2. Super stress posture into the opposite pattern (stress posture into passive range of motion.)

3. Stimulate areas of large proprioceptive beds with a high speed, low force instrument or hand.(Lower forces are preferred.)

Ex.) In the upper torso regions, stimulate lightly on skin, anywhere in upper cervical area.

Ex.) For lower torso regions, stimulate iliac crest or SI Joints

INTRODUCTION TO CHIROPRACTIC BIO-PHYSICS AND DIVERSIFIED POSTURE CORRECTION (CONTINUED)

4. Stimulate other proprioceptive areas to reinforce cerebellar learning.

   Ex) Shoulder paraspinals, rhomboids, achillies tendon.

5. Adjust posture in standing position if possible or lying down or sitting.

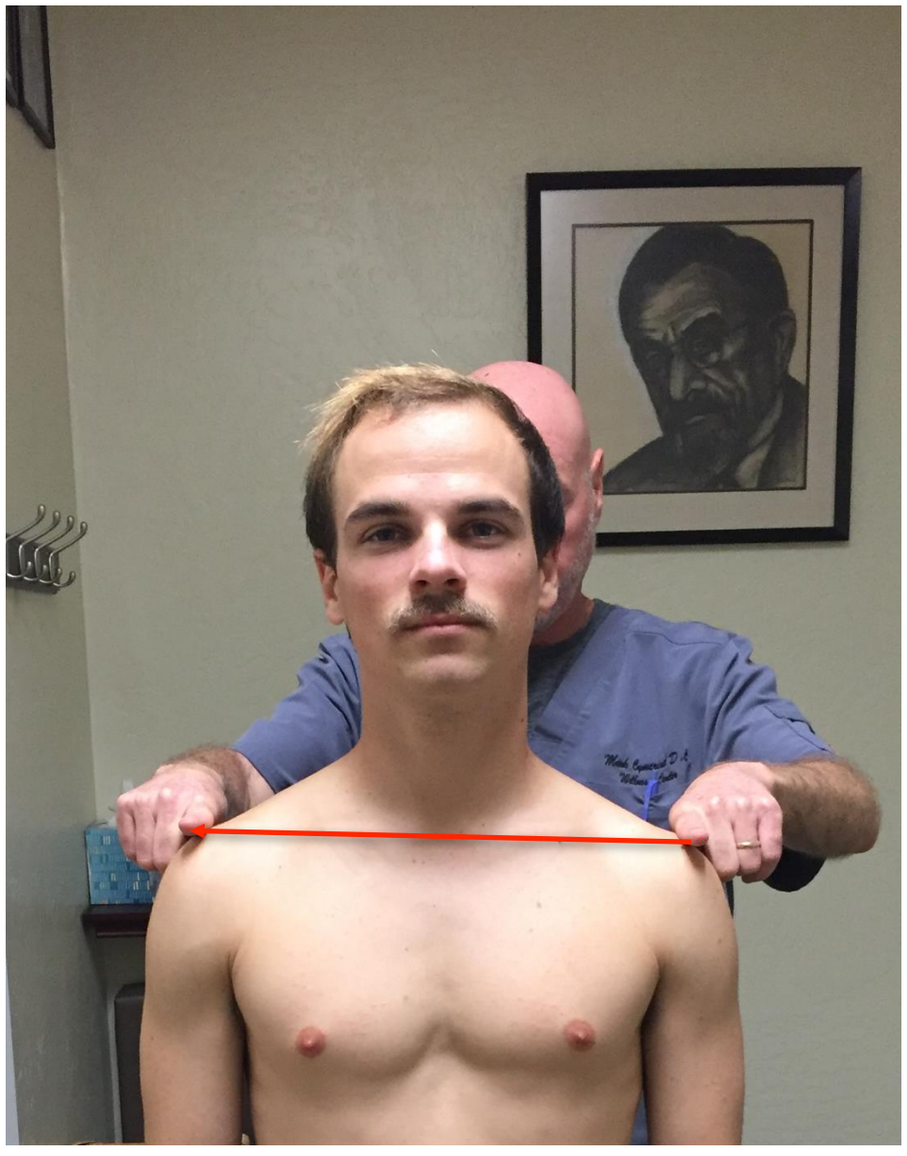
6. Deviations/Translations Cervical/Lumbar

   Lying down with posture blocks (preferred set up).

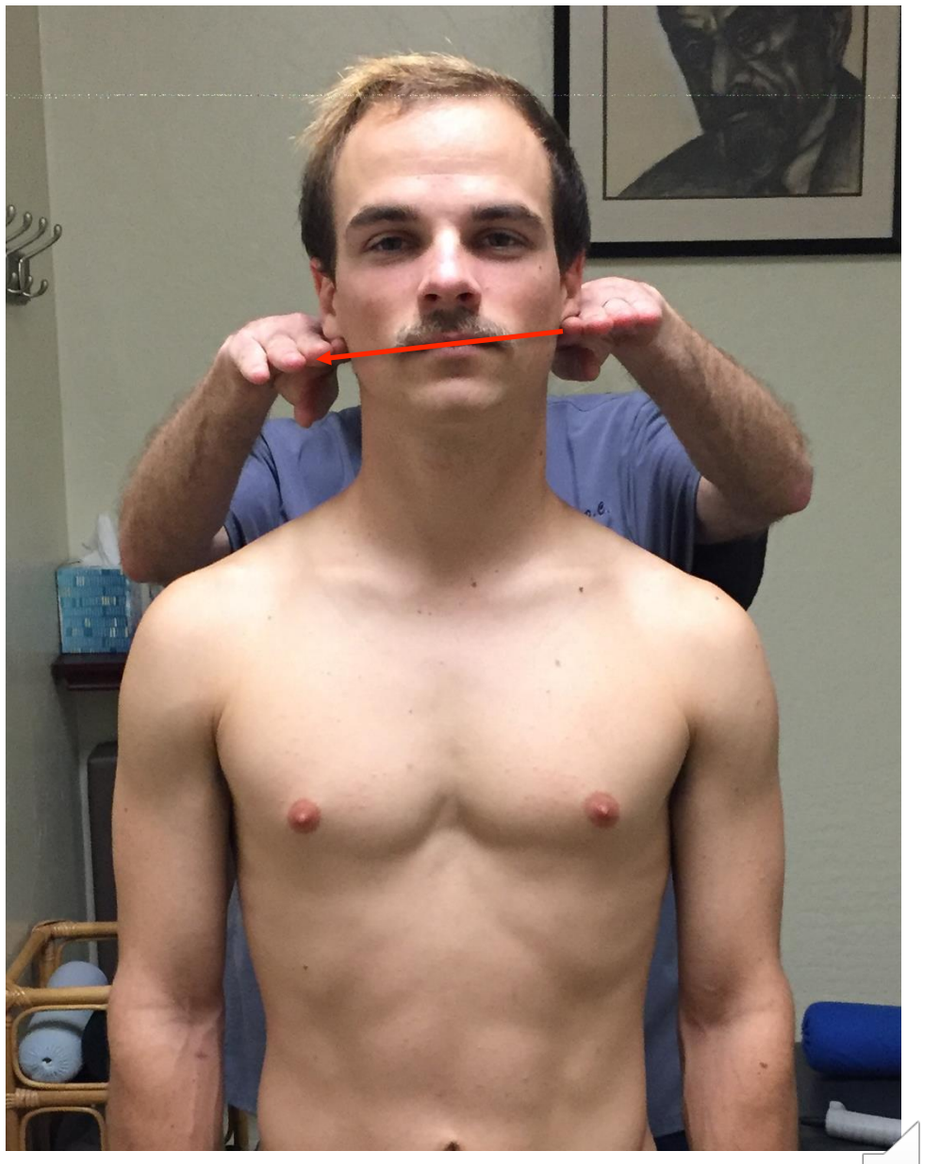
7. Always balance posture last.

CHIROPRACTIC BIO-PHYSICS AND DIVERSIFIED POSTURE CORRECTION:
A) NEUROLOGICAL PROPRIOCEPTIVE STIMULATE INTRODUCED (MIRROR IMAGING IN A-P POSITION)

Is when you put the patient into the opposite postural pattern than what the patient originally presented to you with when they came in. This process is called **Mirror Imaging**. It is also the set up for your posture correction.



Before
Right high
Shoulder



Before
Right head
tilt

(CONTINUED) MIRROR IMAGING IN A-P POSITION

Place patient in the opposite postural pattern with which they presented.

Right shoulder down

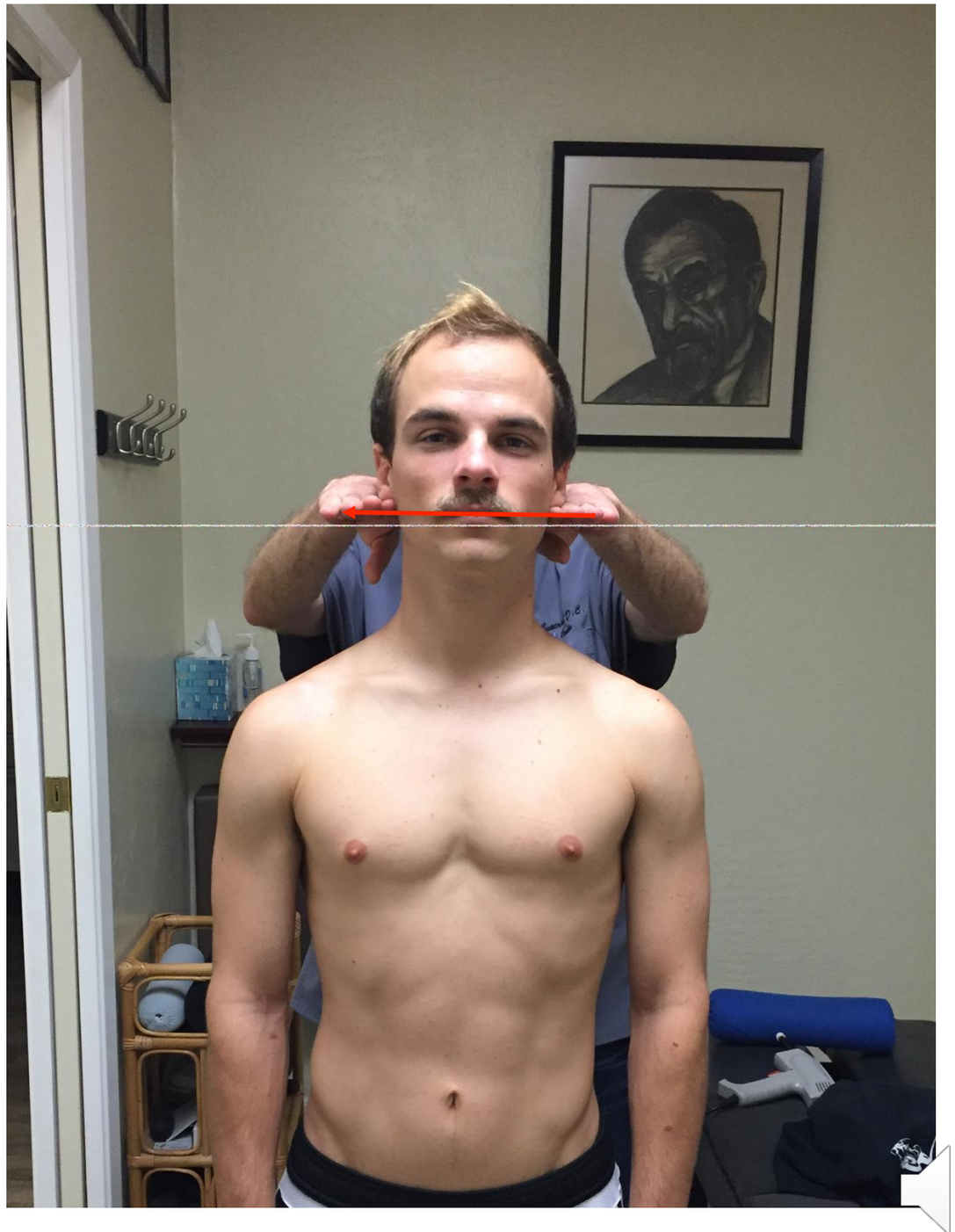
Tilt head to the left

(CONTINUED) MIRROR IMAGING IN A-P POSITION

After postural balancing.

After Shoulders level

After Head Level



CHIROPRACTIC BIO-PHYSICS AND DIVERSIFIED POSTURE CORRECTION:
A) NEUROLOGICAL PROPRIOCEPTIVE STIMULATE INTRODUCED (LATERAL POSITION)

Patient presented with forward head carriage, rounded-forward shoulders, and slight *Dowager Hump.*

From the position that patient went into prior to posture correction:

A. Rotate shoulders all the way back, past neutral
B. Retract head straight back, as far as patient can go.
C. Stimulate with high-speed, low-force instrument areas of largest proprioceptive beds, including upper-cervical region and shoulder paraspinal region.

(CONTINUED) MIRROR IMAGING IN LATERAL POSITION CORRECTION

With the patient in the opposite/mirror-image posture, the correction includes:

A. Stimulating the upper-cervical region with a high-speed, low-force impulse that would communicate the corrected change through the proprioceptive neurological network and the cerebellum of the brain.

B. In the mirror-image posture, rotate shoulders and head posterior, and stimulate the paraspinal muscles, rhomboids, and even the spinus process at C7-T1.

BALANCE CONTROL IN UNSTABLE SITTING IN INDIVIDUALS WITH AN ACUTE EPISODE OF LOW BACK PAIN.

Date & Journal: Gait Posture . 2022 Jun.

Abstract

Background: Low back pain (LBP) is associated with altered postural control, mostly observed at later stages in the LBP trajectory. It is unclear whether postural control differs in the acute phase of LBP.

Research question: Is postural control different in the acute phase of LBP (<2 weeks) and do differences depend on pain intensity, psychological features and/or availability of vision to control posture?

Results: Center of Pressure (CoP) displacement and critical point coordinates (time and distance where CoP diffusion rate or spread slows) were larger in LBP than pain-free controls independent of balance condition. Long-term diffusion rate was greater in LBP than controls with eyes closed. CoP velocity measures (RMS, short term diffusion rate) were not different between groups. Pain intensity and psychological features were not linearly related to balance performance in participants with acute LBP. Higher pain catastrophizing was associated with touching the safety bar.

van den Hoorn W, Meroni R, Klyne DM, Alshehri MA, Hodges PW. Balance control in unstable sitting in individuals with an acute episode of low back pain. Gait Posture. 2022 Mar 24;95:15-21. doi: 10.1016/j.gaitpost.2022.03.014. Epub ahead of print. PMID: 353

POSTURAL BALANCE AND GAIT PARAMETERS OF INDEPENDENT OLDER ADULTS: A SEX DIFFERENCE ANALYSIS

Date & Journal: Int J Environ Res Public Health . 2022 Mar 29.

Abstract

Postural balance and gait are important factors in the functional status of older people; however, few studies have addressed differences by sex. The objective of this study was to analyze the postural balance and temporal-spatial parameters of gait in independent older adults by sex. A cross-sectional study was conducted. Thirty-eight independent older women (69 ± 5 years), and 33 men (71 ± 5 years) were evaluated. The postural balance test with open and closed eyes was performed on two surfaces (hard/soft) on a force platform. Gait was recorded with cameras to analyze cycle duration and speed, step length, stride length, and foot clearance. The area of postural balance was greater in men in all tests (*p* < 0.001). Foot clearance height and cycle duration were lower in women (*p* < 0.05). Men showed a negative correlation between the area of balance and gait parameters. In women, a positive correlation was observed between foot clearance and balance with eyes closed. The postural balance and gait suggest discrepancies by sex, showing that older men behave differently according to the requirement of the motor task compared to women. These findings suggest being corroborated in more complex studies in the future.

Espinoza-Araneda J, Bravo-Carrasco V, Álvarez C, Marzuca-Nassr GN, Muñoz-Mendoza CL, Muñoz J, Caparrós-Manosalva C. Postural Balance and Gait Parameters of Independent Older Adults: A Sex Difference Analysis. Int J Environ Res Public Health. 2022 Mar 29;1

HIGH-VELOCITY, LOW-AMPLITUDE SPINAL MANIPULATION TRAINING OF PRESCRIBED FORCES AND THRUST DURATION: A PILOT STUDY.

DATE & JOURNAL: J CHIROPR EDUC. 2019 APR 5

- OBJECTIVE: High-velocity, low-amplitude spinal manipulation (HVLA-SM) may generate different therapeutic effects depending on force and duration characteristics. Variability among clinicians suggests training to target specific thrust duration and force levels is necessary to standardize dosing. This pilot study assessed an HVLA-SM training program using prescribed force and thrust characteristics.

- RESULTS: Error from peak force target, expressed as adjusted mean constant error (standard deviation), went from 107 N at baseline, to 0.2 N immediately after training, and 32 N (53) 8 weeks after training for the 350 N target, and 63 N (148), -6 N (58), and 9 N (87) for the 550 N target. Student median values met thrust duration target, but doctors' were >150 ms immediately after training.

- CONCLUSION: After participation in an HVLA-SM training program, participants more accurately delivered two prescribed peak forces, but accuracy decreased 1 week afterwards. Future HVLA-SM training research should include follow-up of 1 week or more to assess skill retention.

Shannon ZK, Vining RD, Gudavalli MR, Boesch RJ. High-velocity, low-amplitude spinal manipulation training of prescribed forces and thrust duration: A pilot study. J Chiropr Educ. 2020 Oct 1;34(2):107-115. doi: 10.7899/JCE-18-19. PMID: 30951380; PMCID: PMC

CORRECT POSTURE FOR SLEEP

MORE THAN **70 MILLION** PEOPLE IN THE U.S. & CANADA ARE AFFECTED BY A SLEEP PROBLEM

SLEEP & BRAIN HEALTH

QUALITY OF SLEEP

QUALITY OF LIFE

DECREASED IMMUNE FUNCTION

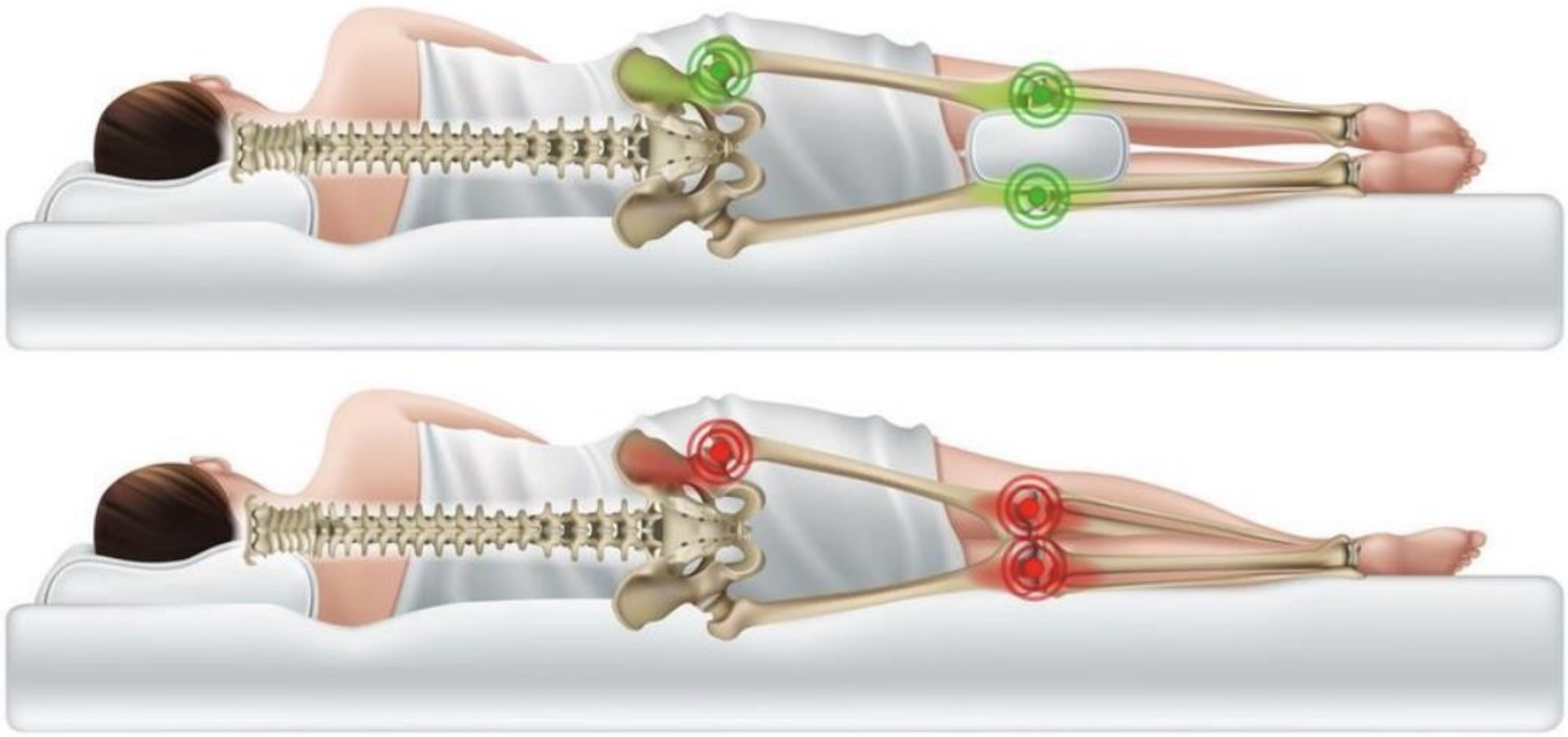
FACTS ABOUT SLEEP

Sleep is important for neural development, learning, memory, emotional regulation, cardiovascular and metabolic function, and cellular toxin removal. (1)

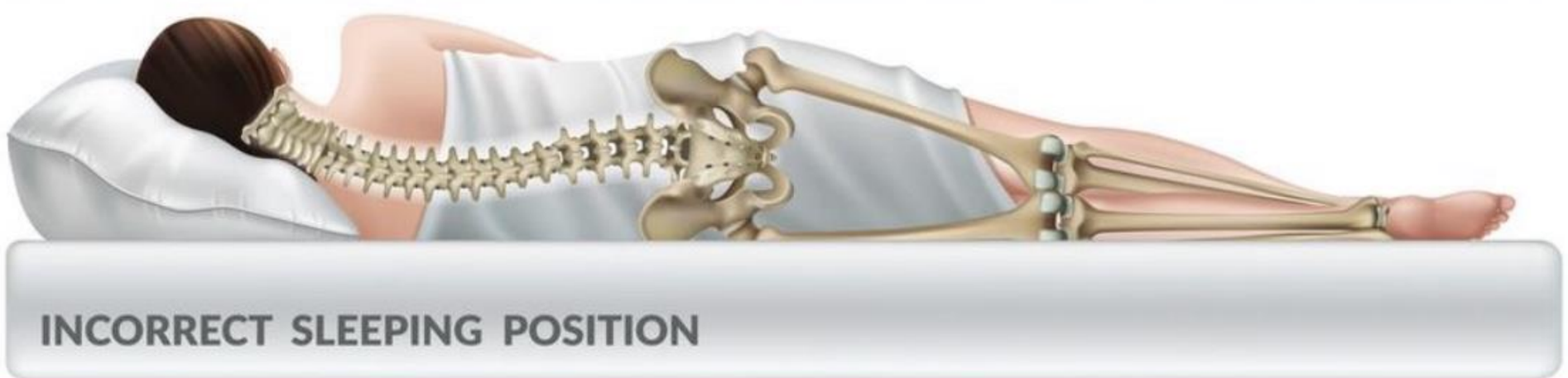
Sleep posture, mattress, and pillow all contribute to over all quality of sleep.

Not getting enough sleep can cause excessive drowsiness, which as been associated with an increased risk of work-related injuries (1)

In just 24 hours without sleep, humans experience dramatically decreased metabolic activity in the brain, decreased release of growth hormone, and decreased immune system function.



CORRECT SLEEPING POSITION



INCORRECT SLEEPING POSITION

BAD SLEEPING HABITS IN INFANTS: RISK FACTOR FOR SUDDEN INFANT DEATH SYNDROME. PILOT STUDY

Date & Journal: Rev Chil Pediatr . 2020 Aug.

Abstract

Objective: To describe the sleeping position of a group of infants and the risk factors associated with sudden infant death syndrome (SIDS).

Subjects and method: Prospective pilot study, including infants < 45 days of life in well-child care visits at a medical center.

Results: We included a sample of 100 infants between 16.78 ± 12.88 days old (57% girls). Mothers were the main information source (84%). 79% of the infants slept in supine position, 19% slept on their sides, and 2% in prone position. Regarding the place where the infants slept, 66% did in their crib in the parents' room and 31% slept in parents' bed. 74% of infants fell asleep while being fed. 28% of infants were exposed to passive smoking at home. 91% of parents were informed about safe sleep positions, reporting that pediatricians were the main source of information (54%).

Conclusion: We found a high percentage of infants < 45 days of life who slept in an unsafe position, and frequently co-sleep with their parents. Thus, it is important to implement local SIDS prevention campaigns to reinforce safe infant sleep.

Sánchez T, Peirano D, Pipino C, Brockmann PE. Malos hábitos de sueño en lactantes: Factor de riesgo para síndrome de muerte súbita del lactante. Estudio piloto [Bad sleeping habits in infants: Risk factor for sudden infant death syndrome. Pilot study]. Re

REFERENCES

- 1) Mukherjee S, Patel SR, Kales SN, et al. An official American thoracic society statement: The importance of healthy sleep. Recommendations and future priorities. Am J Respir Crit Care Med. 2015; 191(12): 1450-8. doi: 10.1164/rccm.201504-0767ST.
- 2) Journal of the ACA [serial online]. Proper Sleep Ergonomics. 2011; 48(4): 1-2. Available from: CINAHL Plus with Full Text. Accessed August 24, 2016.
- 3) Sezgin M, Hasanefendioğlu EZ, Sungur MA, et al. Sleep quality in patients with chronic low back pain: A cross-sectional study assessing its relations with pain, functional status and quality of life. J Back Musculoskelet Rehabil. 2014; 28(3): 433-41. doi: 10.3233/BMR-140537.
- 4) www.mayoclinic.com
- 5) www.sleepfoundation.org
- 6) www.aasmnet.org

EXAMPLES OF MY PREVIOUS PROFESSIONAL PATIENTS


Rams
84
LOS ANGELES RAMS
JULY 27
FAMILY AND FRIENDS TENT

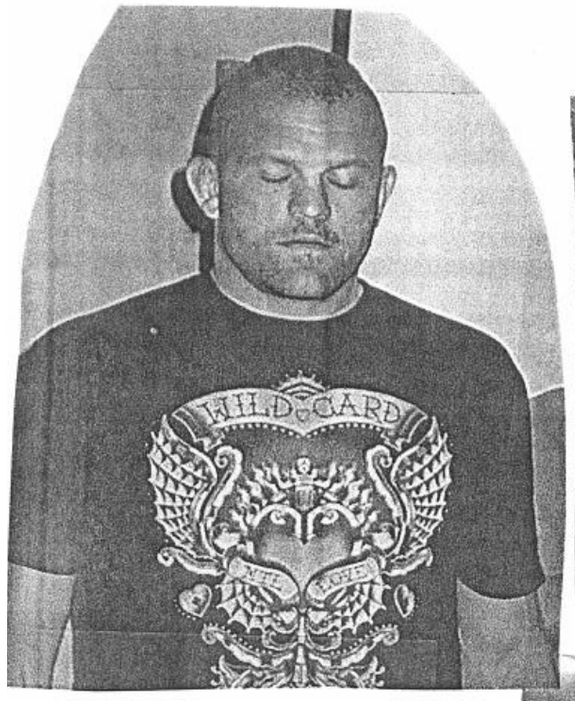

Rams
LOS ANGELES RAMS

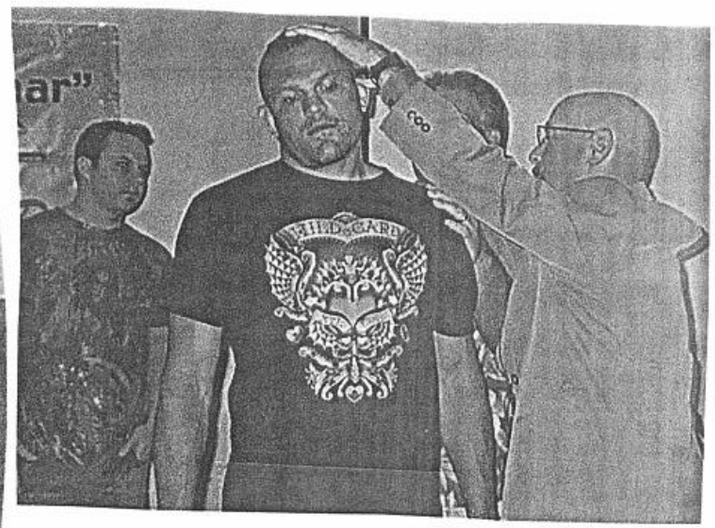

Rams
54
LOS ANGELES RAMS
JULY 23 2019

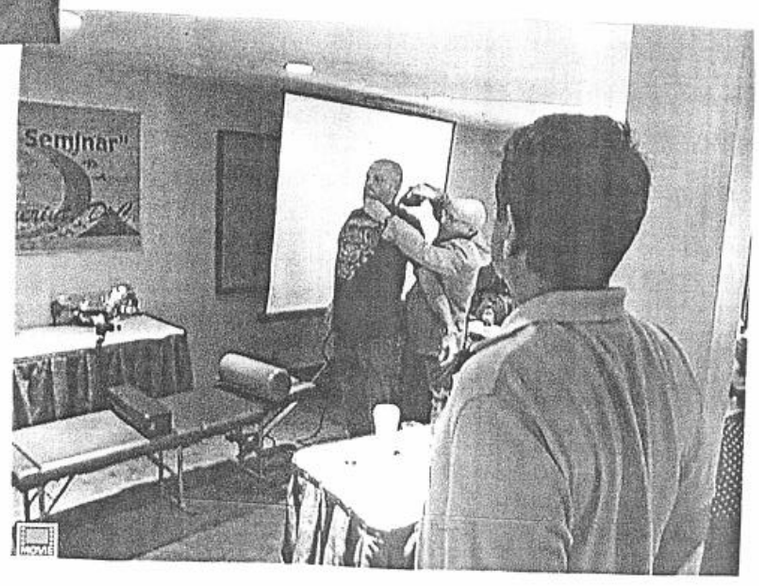

RAMS
Rams


LOS ANGELES RAMS
American Airlines

THE "ICEMAN" CHUCK LIDDELL GETS HIS
POSTURE CORRECTED BY MARK CYMERINT
D.C. IN AUGUST 2008.







ROCKY MARCIANO, HEAVYWEIGHT BOXING CHAMPION, RELIES ON CHIROPRACTIC

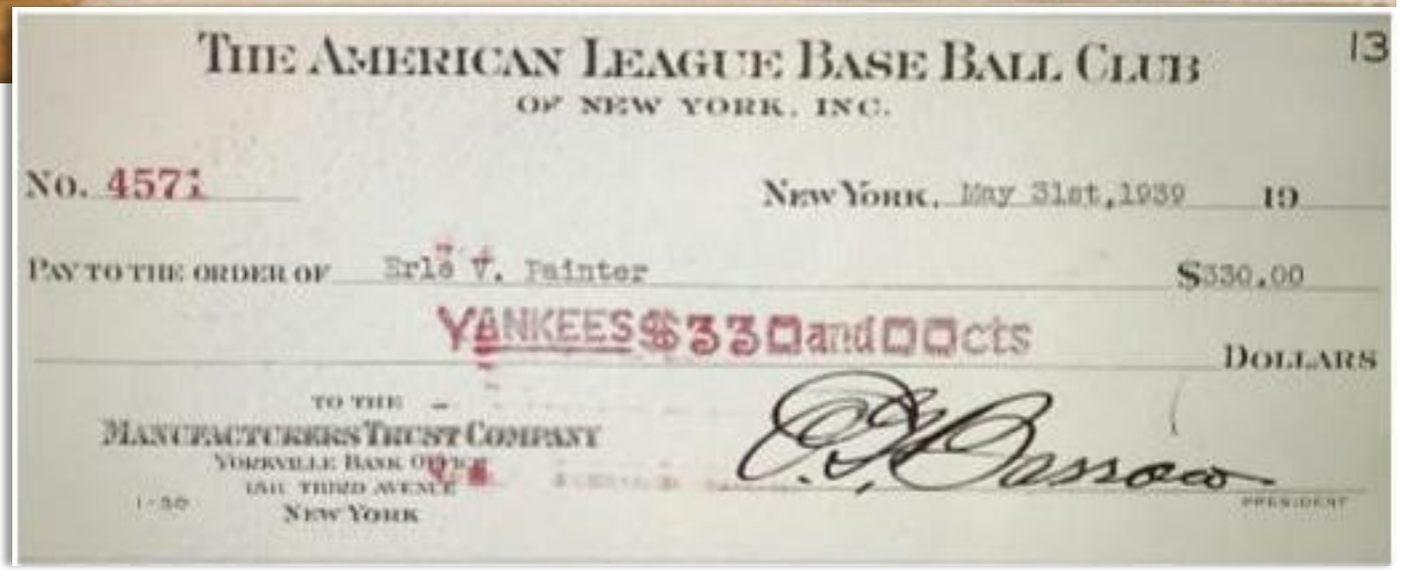
The obvious aspiration of every prizefighter is to attain the top spot in his particular class. To reach this goal, perfect physical fitness is a must. Immediate responsive reflexes, coordination, and stamina are the result of proper training, good habits, a well-balanced diet, and last but certainly not least, a spine free from nerve interference as the result of bony encroachment.

Rocky Marciano, world's heavyweight champ, exemplifies near perfect physical fitness. This, no doubt, is attributive to his willingness to take all measures necessary to keep him in the optimum of health. He does not smoke or drink and shuns devitalized and demineralized foods. The fact that the "Rock" receives his periodic adjustment indicates that he appreciates the efficacy of Chiropractic as one of the most important factors in the maintenance of health.

E. J. CREALESE, D.C.

From "Chiropractic Institute News of New York."

Heavyweight Champion Rocky Marciano and Chiropractor Edward J. Crealese of Brockton, Mass.



THE AMERICAN LEAGUE BASE BALL CLUB
OF NEW YORK, INC.

13

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PAY TO THE ORDER OF Earle V. Painter $330.00

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Chiropractic Helps Babe Ruth and Other Yankees Keep in Perfect Physical Condition

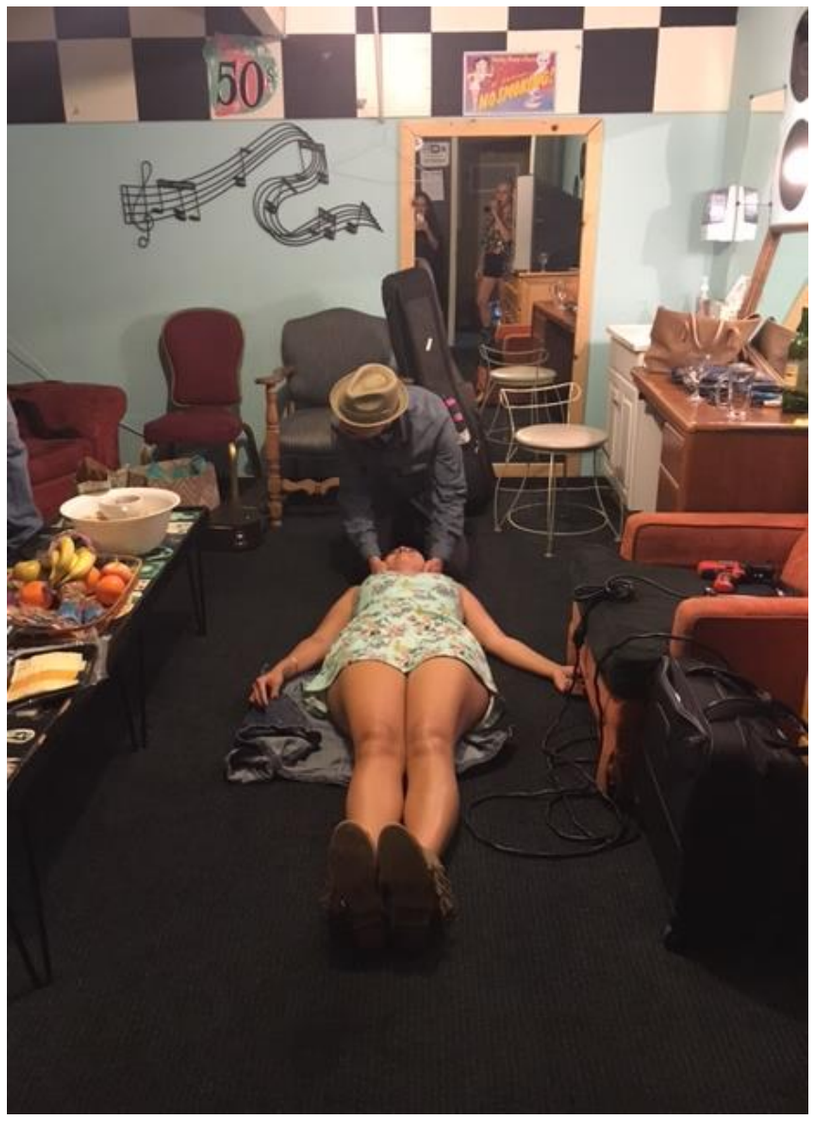
EVERY baseball fan will of course immediately recognize "Babe" Ruth in the picture reproduced above. But the gentleman at the extreme left, in the process of applying a bandage, is not so well known to the general public. In Chiropractic circles, however, he is quite as prominent as is the Bambino in the baseball world.

We present, Erle V. Painter, D. C., trainer of the New York Yankees, and the man largely responsible for the excellent physical condition of this fine team. By applying the principles of modern Chiropractic, in treating Ruth, Dr. Painter has amazed the wiseacres of the diamond, who years ago opined that "The Babe" was definitely "out of the running." The results he has accomplished with other members of the team have been almost equally remarkable.

Although he never clouts one over the fence, or aids in a sensational double play, Erle Painter is generally recognized as one of the most valuable men on the Yankee pay roll.

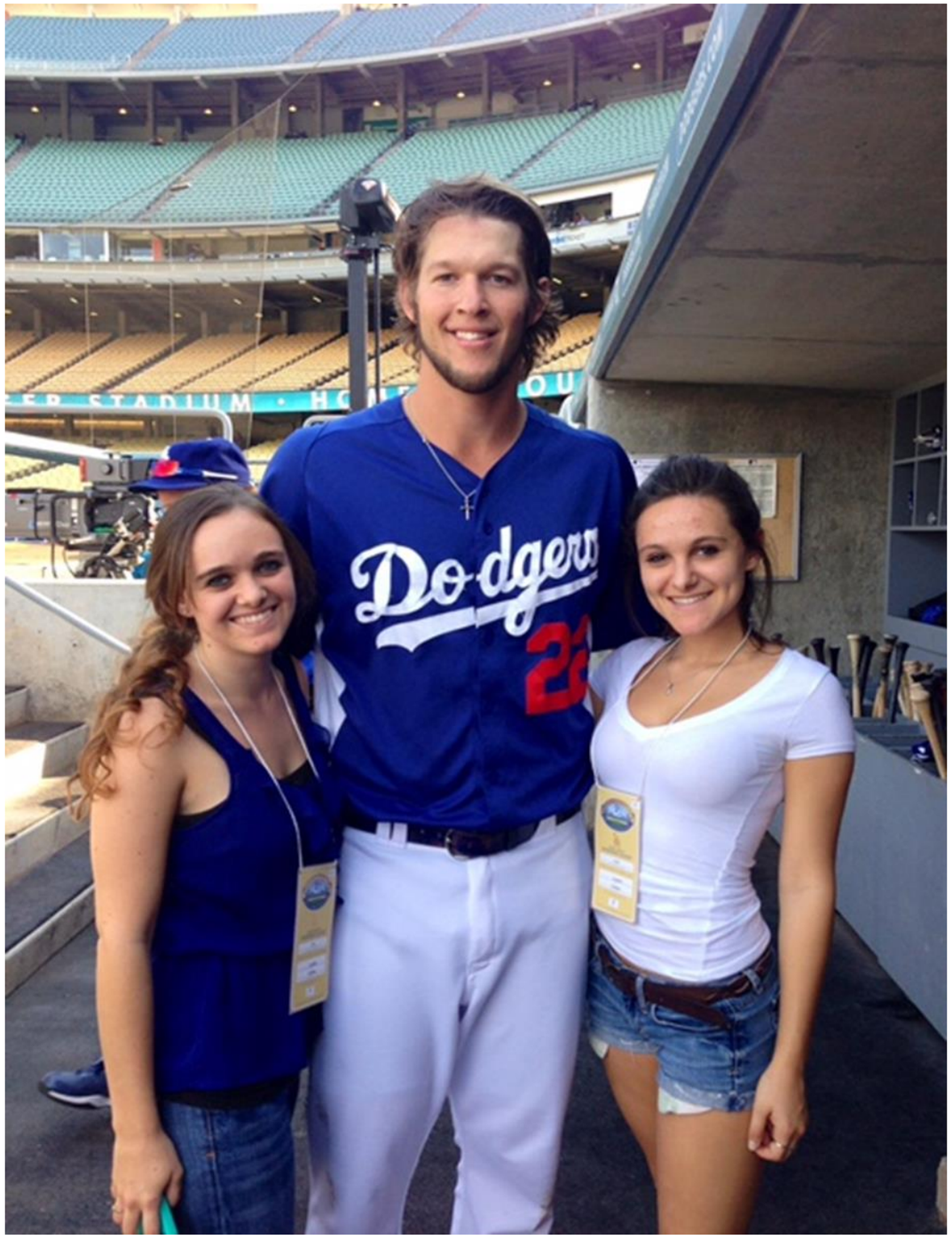
Dr. Painter is one of a growing group of enlightened Chiropractors who place much stress upon preventive counsel. As a general practitioner, he has devoted much time to teaching patients how to relax and rest; what to eat; how to walk correctly; the proper posture to maintain, and other essentials of health conservation. He conceives the Chiropractor's duty to embrace not only the correct adjustment of the spine, but also to educate the patient in maintaining a high standard of health. And this creed is heartily endorsed by Chiropractors of high standing throughout the country.

REGGAE/ POP ARTIST ANUHEA GETTING ADJUSTED



REGGAE/ POP ARTIST
MATISYAHU
GETTING ADJUSTED

DODGERS GETTING ADJUSTED


Do-dgers


Dodgers
8
NEW ERA


THE SKELETAL SYSTEM


Dodgers


THE SKELETAL SYSTEM

PRO SURFERS GETTING ADJUSTED

PRO SURFERS GETTING ADJUSTED

V. CHIROPRACTIC ADJUSTIVE TECHNIQUE

A. DIVERSIFIED POSTURE EVALUATION AND MANUAL DEMONSTRATION OF POSTURAL PATTERNS

B. CHIROPRACTIC BIO-PHYSICS AND DIVERSIFIED POSTURE CORRECTION
   a) Neurological proprioceptive stimulation introduced
   b) Sleep posture

C. DIVERSIFIED PEDIATRIC EVALUATION AND ADJUSTIVE PROCEDURES
   a) Posture evaluation and demonstration of the pediatric patient.
   b) Diversified /biophysics manual adjustive procedures. Exercises for pregnancy.

D. INTRODUCTION TO DIVERSIFIED MYOFASCIAL RELEASE TECHNIQUES, INCLUDING PIRIFORMIS SYNDROME AND FROZEN SHOULDER SYNDROME.

E. POSTURE AND SYSTEMIC HEALTH. A LITERATURE REVIEW
   a) A review of current medical literature including forward head posture, proprioception posture, and conditions caused by poor posture.

Diversified Biomechanics Adjusting Manual Moves

Adjusting Moves
Presented By
Mark A Cymerint D.C.
(714) 707-5795

#1 move:

-Acute angle between the pelvis and the lumbar spine.
-The objective is to open this angle up by bringing the high pelvis down, away from the spine.
-This move is a traction-type force, which takes the pressure off the spine.

To Adjust: Side posture, with slant board elevated. Superior arm is an "L", inferior arm is a "Y". Bring inf. shoulder down board as far as possible. The high pelvis (#1) is up. Pre-stress the entire pelvis by bringing the inf. pelvis up as far as possible, the sup. pelvis down as far as possible. Make sure there is little lumbar spine rotation before thrusting. Thrust sup. to inf., not down! Block patient's area with stabilization hand, as correction hand drives the iliac crest toward their feet. Breathing instructions: inhale, exhale and thrust.

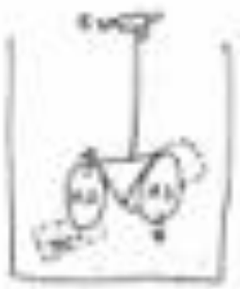
#3 move:

-Obtuse angle betw the pelvis and lumbars.
-Objective is to close this angle by bringing the low pelvis up.
-This is a compression-type force, which is contraindicated with any type of lumbar lesion, i.e., lumbar disc protrusion.
-This move does the same job as the #1, except from the opp. side.

To adjust: Same position as the #1, except the low pelvis is now the sup. pelvis. Pre-stress the inf. pelvis by pulling it down as far as possible and pushing the the #3 pelvis up toward the spine as far as possible. The thrust is inf. to sup., not down! Breathing is inhale, hold, and thrust.

#6 move:

-Sacral base not level, rides up with the AS pelvis.
-Objective is to correct the sacrum by bringing the AS down and the PI up toward the spine.
-This is a compound rotational subluxation and is corrected by rotating both pelvis' back to normal.



To adjust: Pt. prone. 1 block goes under ASIS on AS side. The other block goes under femur head on PI side. Place inf. hand on ischium on AS side, sup. hand on PSIS on PI side. Pt. inhales and exhales 3X as you rock the pelvis in the normal position. Thrust is done when Pt. inhales quickly and holds. Must check C2 rotation after performing the #6. The SP usually rotates toward the high side of the sacrum. Adjust C2.

#4 move:

-lumbar spine scoliosis.
-Objective is to decrease the lateral angle by contacting the apex and bringing it around (the bucket handle theory).
-The angles are determined by lower lumbar line to middle of vertebra at the apex (usually L3), then from apex to lower dorsal.

To Adjust: Side posture like #1 & 3. Apex of lumbars up. Contact apex with inf. hand and pump the lumbars into as much lordosis as they will go. Thrust is P-A, Lat-med, and slightly sup-inf.
*The exact point of contact is the TP's at the apex.

#5 move:

-Retrolisthesis of L5.
-Objective is to take the posteriority out by pushing it anterior.

To adjust: Pt. is prone with blocks under both ASIS' to stabilize the pelvis. Contact L5 SP with pisiform and modified toggle. Pump the vertebra 3X as the Pt. inhales and exhales (go down with inhalation and zone off with ext; have Pt. take a fast and hard breath in and hold, thrust at this point.

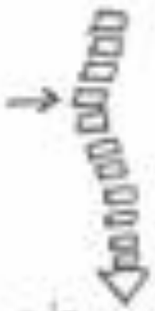
#2 move:

-Anterolisthesis of L5, or a base posterior sacrum.
-Objective is to take the anteriority out by pushing the sacrum anterior to create enough pressure so L5 is forced posterior.

To adjust: Side posture, with Pt. in a "curled" configuration. Bring shoulder down the slant board as far as possible. Contact the base of the sacrum with the heel of your hand and thrust. Breathe in and hold, then thrust.

#4a move:

-Dorsal spine scoliosis.
-Objective is the same as the #4 in the lumbars.



To adjust: Pt. prone. Contact the SP of the vert that is at the apex of the lateral curvature. This will usually be T7-8. Sup. hand contacts with tip of thumb, inf. hand supports the cervical spine by placing the thumb under occiput to cradle head. This gives you control of the head to move it in any direction you want. To stress the upper dorsals, turn Pt's Head away from contact and thrust when you feel the Pt relax the upper back.
*Can use pisiform to contact SP instead of thumb.

C-D move:

-Apex at cervical-dorsal junction (usually T1-2).
-Objective is to reduce this lateral curve.
To adjust: The same method as #4a.

Standard Posture Analysis: As simple as XYZ

by Mark R. Payne, D.C.

Most of us were taught some rudimentary method of postural analysis in college. Unfortunately, it often consisted of little more than looking for a high/low shoulder or hip, or maybe a bit of head tilt in the frontal view and perhaps a glance at the lumbar lordosis in the lateral plane. Even worse, there has been little or no standardization of the language used to describe aberrations of posture. There exists a real need for an organized approach to postural analysis and a standard way for doctors to record their findings. Fortunately, there has been some good work in this area already published in the scientific literature. All that remains now is for the profession at large to begin incorporating existing methods whenever postural analysis is performed.

In 1974, orthopedic researchers Panjabi, White, and Brand[1] authored a standardized method for describing three dimensional positioning and movement of the human body, using the centuries old, and widely accepted, Cartesian Coordinate System. (Rene Descartes circa 1637) Panjabi, et al., applied three mutually perpendicular axes to the human body, as seen in Fig. 1. Once this was done, it became possible to describe ALL movements of the human frame as either 1) translations along and/or 2) rotations around, one or more of the three axes. This method has since been popularized to some degree by Harrison[2], Troyanovich[3], and others with an interest in postural chiropractic methods. Unfortunately, many doctors seem to find the method too technical or burdensome. Hopefully, this article will make the simplicity and practicality of the method more apparent.

In the frontal view (Fig. 1), we see the X axis, extending out the left side of the patient and the Y axis extending vertically out the top of the patient's head. In this view, the Z axis extends forward, out the front of the patient's body and toward the reader.

In the lateral view (Fig. 2), the Z axis is now visible extending to the anterior. The Y axis, of course, is still seen extending vertically out the top of the body while the X axis (not visible here) extends to the patient's left and away from the reader. Note that it simply isn't possible to observe all three axes of movement in either view. Proper analysis requires observation of the patient from both front and side.

Take just a moment to make sure you are clear about the directions of each of the three axes. Once you have done so, it now becomes very simple to describe any motion or position of the body in terms of translation along one or more of the axes, and/or rotation around one or more of the axes. Fig. 3 shows forward head carriage, a very common posture, as an example.

Using Panjabi's method, we can describe this as translation of the head along the Z axis. Because it is theoretically possible for movement to occur along or around an axis in either direction, we will need to record the direction of movement. Translations are recorded as "positive" when they occur in the direction of arrow and "negative" when in the opposite direction. Rotational movements (not shown here) are recorded as "positive" when clockwise around an axis and "negative" when counterclockwise.

Finally, we need a concise way to record our findings in the patient's chart. There are actually four components which must be recorded. Here they are in no particular order.

1. In which direction has movement occurred?
2. Is the movement a translation along or a rotation around an axis?
3. Which body part is involved in the movement?
4. Which axis of motion is involved?

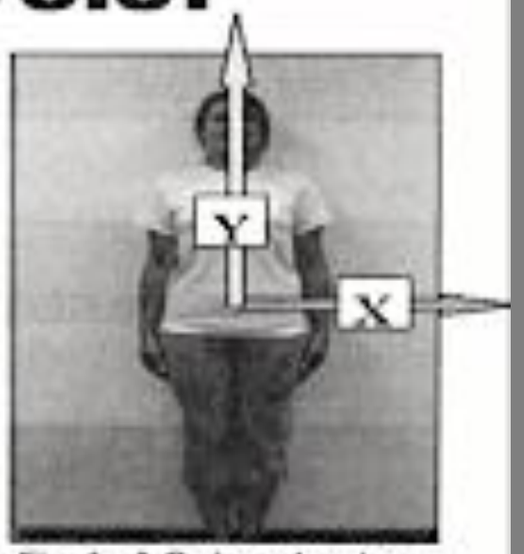


Fig. 1: A-P view showing both X and Y axes

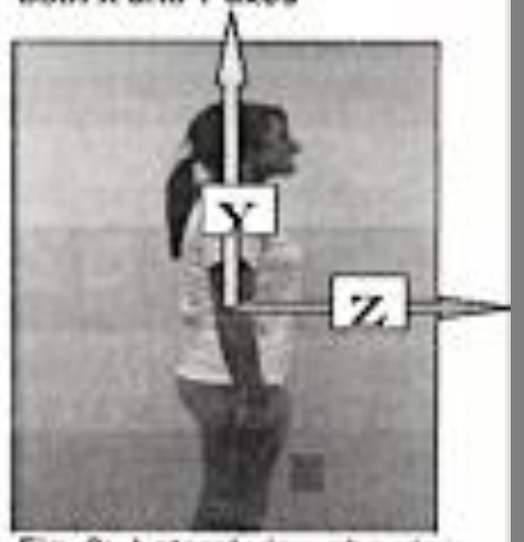


Fig. 2: Lateral view showing both Y and Z axes

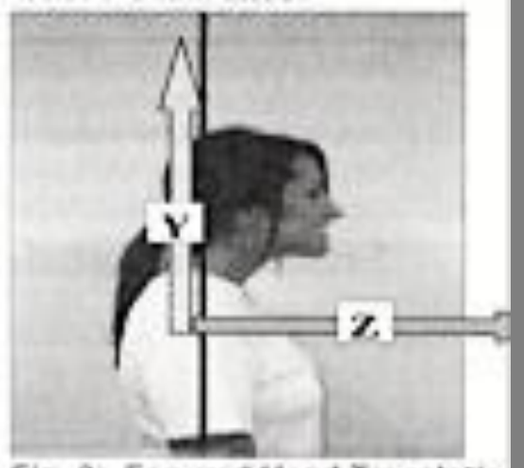
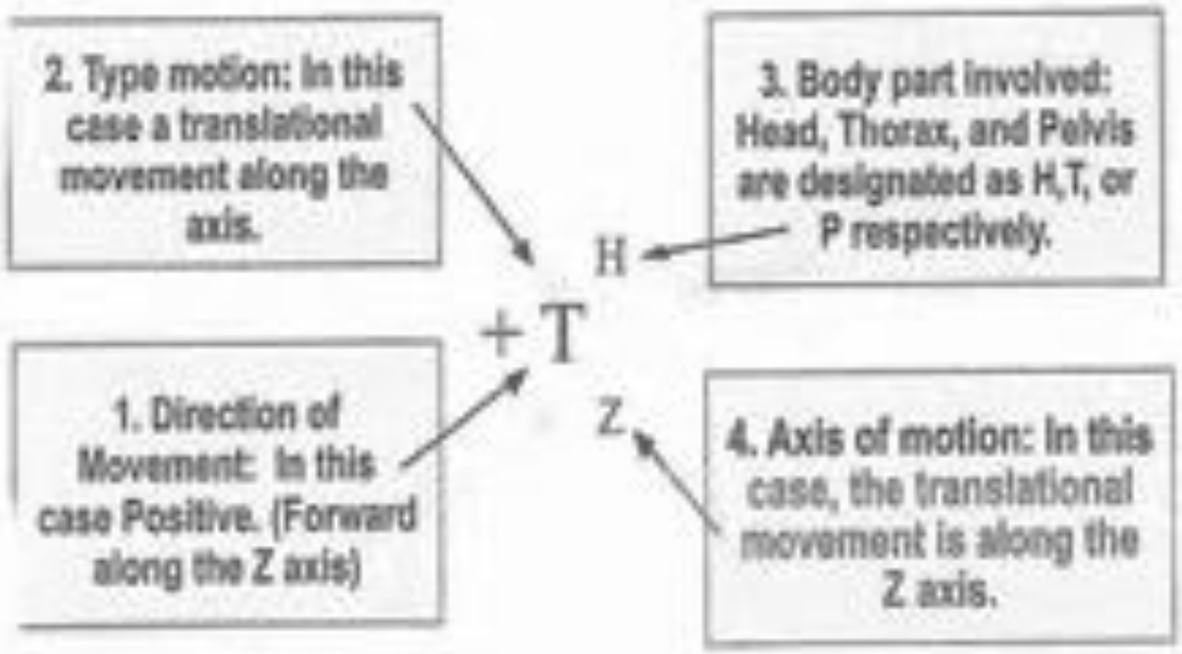


Fig. 3: Forward Head Translatio along the Z axis.

In his original article, Panjabi abbreviated translations and rotations as "T" and "R" respectively. In more recent years, Harrison described a way to incorporate all four items into a brief notation system. The method has now been described in numerous articles by both Harrison and Troyanovich and is probably as close as we have to a standardized method of notating human posture. Fig. 4 describes how this simple method would be used to record our patient's forward head translation posture.

Truthfully, the really important thing is just that you analyze the posture in all possible directions and accurately describe your observations. How you choose to notate it isn't nearly so important, as long as interested third parties can understand your records. Certainly, you could just write it all down in long hand…nothing whatsoever wrong with that. In this case, "the patient presents with abnormal head carriage consisting of pronounced positive translation of the head along the Z axis."

Fig. 4: Abbreviated notation system. (After Harrison)



Or you just abbreviate it with a standardized system. Here's how it would actually look on your chart.

H
+T
Z

Understanding the Cartesian Coordinate System encourages doctors to analyze posture and motion in a more systematic fashion. In addition, it allows for more accurate communication between doctors and other interested parties. Obviously, the above example is just one simple posture. I have prepared a report which describes the method in more detail. Interested doctors may call 1-334-448-1210 to request a FREE copy of "Visual Postural Analysis."

Dr. Mark Payne is president of Matlin Mfg., a manufacturer and distributor of postural rehab products since 1988. For more information about low tech rehab for today's economy, call 1-334-448-1210 for a FREE REPORT…Guerilla Rehab: Survival Tactics for the Chiropractic Jungle.

1. Panjabi M, White A, Brand R. A note on defining body parts configurations. *J. Biomech* 1974; 7:385
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Journal of Manipulative and Physiological Therapeutics
Volume 23 • Number 9 • November/December 2000
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COMMENTARY

JMPT

A Normal Spinal Position: It's Time to Accept the Evidence

INTRODUCTION

Recent trends in our chiropractic profession seem to be leading away from wellness care into an exclusive focus on short-term care for relief of symptoms, especially pain.[1] In contrast, some recent articles authored by CBP Nonprofit, Inc, researchers express an interest in spinal reconstruction, structural outcomes, and care beyond the mere relief of symptoms.[2-6] In a recent commentary, Haas et al[7] have taken exception to this approach.

A commentary by Haas et al[7] concerning one of our recent papers[8] expressed a paradigm for chiropractic science and patient treatment that is different from that expressed in our recent literature reviews and original publications. Their views on normal spinal position, radiograph usage, radiograph reliability, and spinal rehabilitation of normal structure, as expressed in their commentary, did not include mechanical engineering principles, which we believe necessary for understanding the stresses and strains in abnormal or asymmetric loading of spinal tissues.

In 1998, we had discussed a number critical flaws in 8 commonly held beliefs espoused by some diplomate chiropractic radiologists.[9] Thus, given the fact that the "conventional wisdom" of chiropractic radiologists was challenged, it was not surprising that there were a total of 8 authors and consultants who contributed to the rebuttal commentary of Haas et al.[7] What was not expected was the divergence into a critical analysis of Chiropractic Biophysics (CBP) methods and the Harrison spinal model,[9] which is used as an anatomical outcome for patients receiving CBP-based treatment. However, we are pleased to both address those raised concerns and present our rebuttal to Haas et al's misconceptions about the use of radiography in chiropractic clinical practice.

Because this normal spinal model was only self-published until 1992,[10-12] some have denied the existence of the Harrison normal spinal model and its implications for physiology. These implications were discussed in a short review of Wolff's law (bone remodels to stress) and Davis' law (soft tissue remodels to stress) for abnormal sagittal spinal configurations.[2] Because this Harrison model has recently been published in the indexed literature,[13-16] its existence can no longer be denied or ignored.

Inasmuch as Haas et al[7] had many different topics in their commentary and did provide section titles, it is convenient to respond with reference to those section titles. It is noted that some of their section titles are obscure and certainly not mainstream (eg, their reference to Sackett); nonetheless, the titles are useful as objects for debate. First, however, we present a logical approach to movements in upright posture, from which much about a normal upright position can immediately be derived.

It is a basic theorem of physics and engineering that the movement of any object can be decomposed into rotation, translation, and deformation.[20] Whereas White and Panjabi[21] have used this theorem to describe the 6 degrees of freedom (DOF) of individual spinal segments (rigid bodies), we have used this theorem to express all possible movements of the human head, thoracic cage, and pelvis in 3 dimensions.[10-12] Figs 1 and 2 are reprinted from a previous article in the *Journal of Manipulative and Physiological Therapeutics*.[22] These movements will form the basis on which we illuminate a normal postural position.

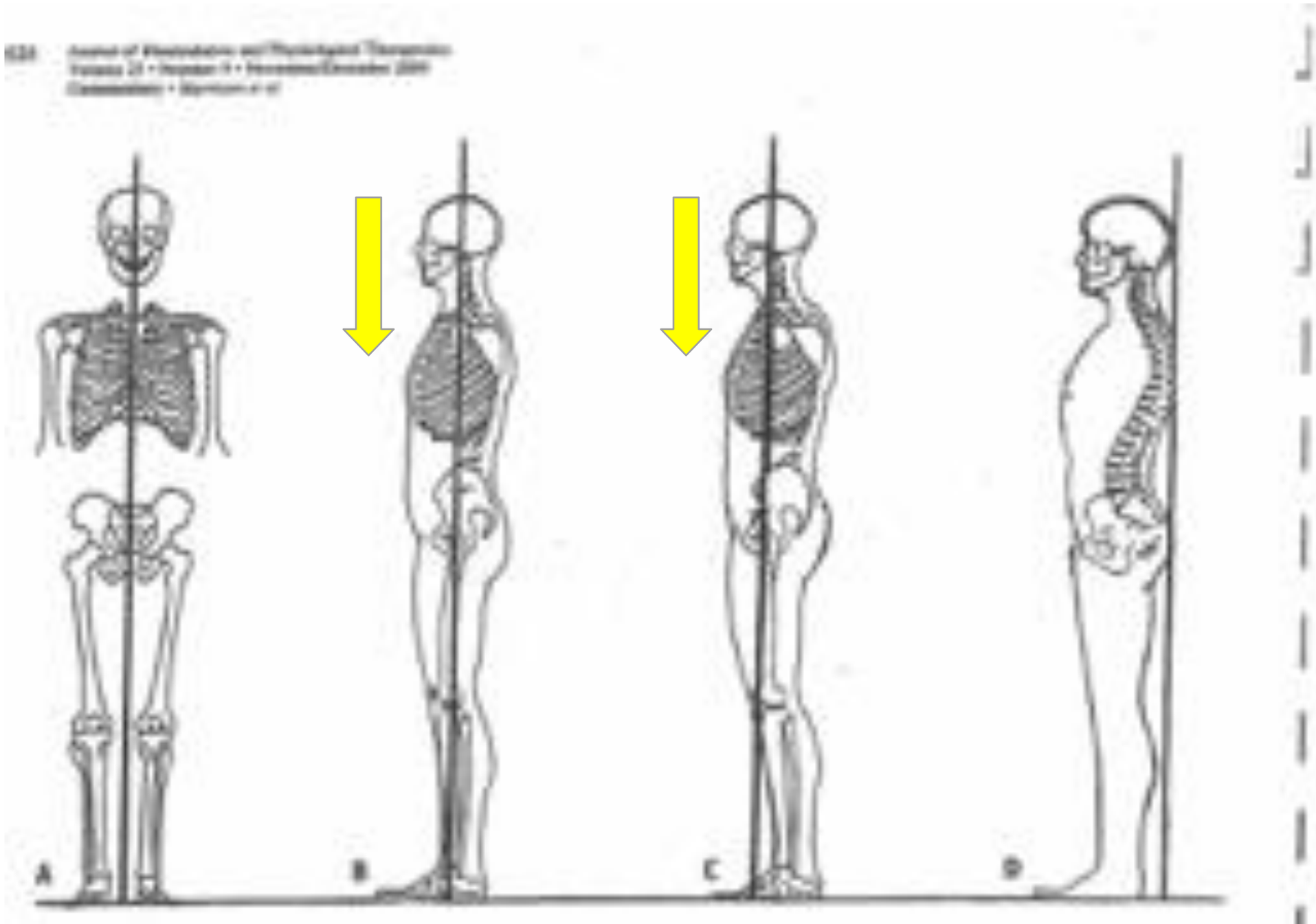
After providing a review of normal upright position in terms of the engineering principles and literature reviews to be presented below, analysis of chiropractic manipulations (which are mostly torsional loads) will lead the reader to conclude that diversified manipulation is inadequate for obtaining a structural change in the neutral resting posture. Thus, precise postural setups (such as those used in the CBP® technique) are recommended for the sake of obtaining structural correction in a patient's spine after the relief of symptoms.

Biologic Plausibility and Validity

Haas et al[7] defined "biologic plausibility" for us. They appear to have assumed that the only important "biologic process" is back pain, and on the basis of that view they assume that it is unnecessary to address the upright spinal configuration under gravity. In addition, they state that our model is "merely a mathematical description of optimal stress on a static system".[7] We now reply that back pain is a multifactorial condition. The process of spinal degeneration and abnormal biomechanics causing mechanical distortions of the central nervous system (CNS) is better characterized as a degenerative disease process. Thus, symptoms appear after the disease process is well advanced (as is the

Picture B: Representative of Normal Spinal Model & Good/Perfect plumb line with equal weight distribution along the entire spinal column & joints of the spine.

Picture C: Shows an anterior forward head posture (slightly) and how the plumb line falls anterior to the spinal column & all other joints.



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INFANT PEDIATRIC POSTURE EVALUATION

(UPSIDE DOWN)

An infant is evaluated posturally by the Doctor of Chiropractic, holding the infant upside down, by their thighs (bilaterally) with the infant facing away from the DC and toward the parent.

Evaluation:

1. Look at infant's head for any:
   a. Head rotation;
   b. Head tilt;
   c. High shoulder;

2. Look at infant's hips:
   a. High hip;
   b. Rotation of hip

POSTURE CORRECTION IN CHILDREN (INFANT)

1. To analyze an infant's posture where the infant cannot hold their head in the upright position on their own:

a) Hold the infant upside down by the thighs, facing the parent. Hold the infant straight in front of you, and watch the direction the head is in. ***ie. Rotation of the head, lateral head tilt. Be aware of shoulder rotation***

b) Once you analyze the relative position of the head and shoulders, you will set up the child for instrument posture correction ***if the child cannot rotate fully in both directions***.

c) In this case *(right)* the infant's head is rotating to the left side, and has a left head tilt.

d) Facing the parent, lay the infant right-side-down with the parent's arms held outward, and put the infant's cervical spine over the wrist of the parent. Also, rotate the left arm and shoulder posterior.

e) <u>Correction:</u> Lightly super-stress the infant's head over the wrist of the parent, putting the head into the mirror image right head tilt. Gently, on the lowest setting (#1) stimulate the upper cervical area with the infant's head bent over the fulcrum of the parent arm.

f) Re-check posture with infant in upside down position.

POSTURE CORRECTION IN CHILDREN (INFANT)

II. As you see in the re-checked posture, the infant's head rotation is now rotating to the right side with no restriction or decrease in range of motion. Also, the level of the head and ears is balanced with no head tilt.

POSTURE CORRECTION IN CHILDREN (INFANT)

III. OBSERVATIONS:

PATIENT HAD AN IMMEDIATE BOWEL MOVEMENT AFTER LUMBAR SPINE WAS CHECKED, AND PARENT COMMENTED THAT THE BABY WAS EXTREMELY CONSTIPATED PRIOR TO COMING IN.

a) Received phone call at 7:00AM the following day, parent claiming that the infant slept through the night all night long for the very first time since birth.

b) Infants are people too! Don’t be afraid to do chiropractic care on an infant. The results sometimes can be amazing!

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CHILD POSTURE EVALUATION

Remember to look up!

0° degrees
10 - 12 lbs

15° degrees
27 lbs

30° degrees
40 lbs

45° degrees
49 lbs

60° degrees
60 lbs

Combat Tech-Neck

UPRITE: PROMOTING POSITIVE POSTURE IN CHILDREN AND ADOLESCENTS

Date & Journal: Stud Health Technol Inform. 2023 Jun 29

Abstract

Technology use associated with habitual posture is linked with the decline in mental well-being. The objective of this study was to evaluate the potential of posture improvement through game play. 73 children and adolescents were recruited, and accelerometer data collected through game play was analyzed. The data analysis reveals that the game/app affects and encourages upright/vertical posture.

Perimal-Lewis L, Light J, Strobel J. UPRITE: Promoting Positive Posture in Children and Adolescents. Stud Health Technol Inform. 2023 Jun 29;305:495-498. doi: 10.3233/SHTI230541. PMID: 37387075.

RELATIONSHIPS BETWEEN CERVICAL SAGITTAL POSTURE, MUSCLE ENDURANCE, JOINT POSITION SENSE, RANGE OF MOTION AND LEVEL OF SMARTPHONE ADDICTION

Date & Journal: BMC Musculoskelet Disord. 2023 Jan 23

Abstract

Background: Frequent smartphone use in a pathological way forces the user to adopt a compromised posture. This gradually results in changes to both the postural and musculoskeletal systems. This study's objectives were evaluation of head posture, muscle endurance, neck range of motion (ROM) and joint position sense in two separate smartphone user groups, one 'Addicted', the other 'Non-Addicted'.

Results: The difference between 'Addicted' and 'Non-Addicted' groups was confirmed by the values for SAS-SV scores (25.23 ± 5.5 versus 43.9 ± 6.61) ($p < 0.001$). There were statistically significant differences between groups for the CVA and FHD parameters ($p < 0.001$). Further, the neck extensor muscle endurance (97 ± 3.79 versus 74.86 ± 2.23 s), was significantly different between groups ($p = 0.010$) but not after Bonferroni correction. There was no notable difference in the neck flexor muscle endurance, joint position error, SA, and SHA parameters between groups ($p > 0.05$).

Conclusions: There is a positive correlation between smartphone addiction and both decreased extensor muscle endurance and changes in neck postural alignment.

Torkamani MH, Mokhtarinia HR, Vahedi M, Gabel CP. Relationships between cervical sagittal posture, muscle endurance, joint position sense, range of motion and level of smartphone addiction. BMC Musculoskelet Disord. 2023 Jan 23;24(1):61. doi: 10.1186/s128

PREVALENCE OF INCORRECT POSTURE AMONG CHILDREN AND ADOLESCENTS: FINDING FROM A LARGE POPULATION-BASED STUDY IN CHINA.

Date & Journal: iScience . 2020 May 22.

Abstract

Evidence showed that bad posture in adulthood is often formed from the childhood, and individuals with severe incorrect posture may be associated with the progress of scoliosis. We aimed to estimate the prevalence of incorrect posture in Chinese children and adolescents and to describe the epidemiological findings stratified by the demographic characteristics. A total of 595,057 students were screened; the overall prevalence of incorrect posture in children and adolescents was 65.3%, and around 3.7% of the students were referred to radiography. Girls had a higher prevalence of incorrect posture than boys, students aged >10 years accounted for a higher rate of incorrect posture than students aged <10 years. We found that Chinese children and adolescents had a high prevalence of incorrect posture, with girls and older students being an especially high-risk group. Early interventions targeted for students with incorrect posture are urgently needed.

Yang L, Lu X, Yan B, Huang Y. Prevalence of Incorrect Posture among Children and Adolescents: Finding from a Large Population-Based Study in China. iScience. 2020 May 22;23(5):101043. doi: 10.1016/j.isci.2020.101043. Epub 2020 Apr 8. PMID: 32330860; PMCID

KNOWLEDGE AND PRACTICES OF BACK CARE, EXPERIENCE IN COLOMBIAN CHILDREN

Date & Journal: Glob Pediatr Health. 2021 Jun 9.

Abstract

Early back care has become the preventive strategy to mitigate bad postural habits and musculoskeletal alterations that trigger inadequate postural patterns in the body schema. The objective was to determine the knowledge and practice of back care in first-grade school children after applying an educational intervention for back care. Quasi-experimental study with pre-test and post-tests in a sample of 71 first grade school students. Knowledge and practices for back care were evaluated before and after of the intervention. During 5 weeks, a program of education for back care was developed in the intervention group, formed by concepts about anatomy, physiology, alterations of the spine, adoption of appropriate postures and movements in school life and the execution of adequate movements learned. Simultaneously, physical exercises based on aerobic work, strengthening and stretching the back muscles were carried out with the children in the control group. A linear regression model and a two-level hierarchical model were applied to estimate the effect of the intervention. After the execution of the back care education program, a better score was found in the knowledge and practice questionnaire, which was different between the intervention group and the control group (1.72 95% CI 1.21-2.24). The development of an education program generated a change in the score of the questionnaire on knowledge of back care in the intervention group, which suggests the implementation of these strategies in the school context during early childhood, contributing to the prevention of back disorders and deficiencies.

Mantilla Toloza SC, Jaimes Guerrero CA, Lerma Castaño PR. Knowledge and Practices of Back Care, Experience in Colombian Children. Glob Pediatr Health. 2021 Jun 9;8:2333794X211023460. doi: 10.1177/2333794X211023460. PMID: 34179301; PMCID: PMC8193600.

DEVELOPMENT OF A SITTING POSTURE MONITORING SYSTEM FOR CHILDREN USING PRESSURE SENSORS: AN APPLICATION OF CONVOLUTIONAL NEURAL NETWORK

Date & Journal: Work . 2022 Apr 8.

Abstract

Background: Today, sedentary lifestyles are very common for children. Therefore, maintaining a good posture while sitting is very important to prevent musculoskeletal disorders. To maintain a good posture, the formation of good postural habit must be encouraged through posture correction. However, long-term observation is required for effective posture correction. Additionally, posture correction is more effective when it is performed in real time.

Results: The results of our experiments revealed model accuracies of 99.66%, 99.40%, and 77.35%, respectively. When comparing the recall values for each posture, leaning left and leaning right postures had high recall values, but good posture, leaning forward, and crossed-legs postures had low recall values.

Conclusion: The results of experiments indicated that CNN is an excellent classification method to classify the posture when the pressure distribution data is used as input data. This study is expected to contribute a development of system to aid in observing the natural sitting behavior of children and correcting poor posture in real time.

Lee Y, Kim YM, Pyo S, Yun MH. Development of a sitting posture monitoring system for children using pressure sensors: An application of convolutional neural network. Work. 2022 Apr 8. doi: 10.3233/WOR-213634. Epub ahead of print. PMID: 35431221.

PREDICTIVE VALUE OF HEART RATE AND BLOOD PRESSURE ON THE PROGNOSIS OF POSTURAL TACHYCARDIA SYNDROME IN CHILDREN

Date & Journal: Front Pediatr . 2022 Mar 30.

Abstract

Background: To investigate the predictive value of heart rate (HR) and blood pressure (BP) on the prognosis of postural tachycardia syndrome (POTS) in children.

Results: There were 91 research subjects, of which 45 are males, with a mean age of 11.52 ± 2.13 years. (1) HR at 5 and 10 min (HR 5 and HR 10, respectively), HR difference at 5 and 10 min (HRD 5 and HRD 10, respectively), and HR and BP product at 5 and 10 min (RPP 5 and RPP 10, respectively) were greater in the POTS group than in the control group ($P < 0.01$). (2) HR 5, HR 10, HRD 5, HRD 10, and RPP 10 in children with POTS were smaller in the good prognosis group than the poor prognosis group ($P < 0.01$). (3) The area under curve was 0.925 on the four combined indicators (HR 5, HR 10, HRD 5, and HRD 10), predicting a good prognosis of POTS, sensitivity of 99.99%, and specificity of 75.00%.

Conclusions: HR 5, HR 10, HRD 5, HRD 10, and RPP 10 and the four combined indicators (HR 5, HR 10, HRD 5, and HRD 10) had predictive value for the POTS prognosis in children. The predictive value of the four combined indicators for the POTS prognosis was better than that of the single HR 5, HRD 5, and RPP 10.

Wang S, Zou R, Cai H, Wang C. Predictive Value of Heart Rate and Blood Pressure on the Prognosis of Postural Tachycardia Syndrome in Children. Front Pediatr. 2022 Mar 30;10:802469. doi: 10.3389/fped.2022.802469. PMID: 35433537; PMCID: PMC9005773.

PREVALENCE OF BACK PAIN AND IDIOPATHIC SCOLIOSIS IN ADOLESCENTS FROM THE SEMIARID REGION OF BRAZIL: A CROSS-SECTIONAL STUDY

Date & Journal: Journal of Chiropractic Medicine. 2021 Sep

Abstract

Objective: The purpose of this study was to estimate the prevalence of adolescent idiopathic scoliosis (AIS), and back pain and its risk factors, in schoolchildren from the semiarid region of Brazil.

Results: Among the participants, 3.1% (95% confidence interval, 3.2%-6.9%) had a confirmed AIS diagnosis: 1.9% girls and 1.1% boys. There was no difference between boys and girls in AIS prevalence. The prevalence of back pain in the previous 3 months was 63.7% (95% confidence interval, 59.5%-67.7%), at a moderate level (visual analog scale = 3.83; 95% confidence interval, 3.57-4.08). Multivariable analysis showed that back pain is associated with postural variables, sex, and age.

Conclusion: The prevalence of AIS in the semiarid region of Brazil was 3.1%, and that of back pain was 63.7%. Only body mass index was different between adolescents with and without AIS, with those with AIS having a lower mean body mass index. Back pain was higher in girls and increased in older adolescents. Furthermore, behavioral and postural habits and hereditary factors were associated with an increased chance of back pain.

Dantas MGB, Aquino AN, Correia HJ, Ferreira KP, Nascimento BBD, Silva LS, Da Silva APS, Penha PJ, João SMA. Prevalence of Back Pain and Idiopathic Scoliosis in Adolescents From the Semiarid Region of Brazil: A Cross-sectional Study. J Chiropr Med. 2021 Se

EFFECT OF DURATION OF SMARTPHONE USE ON MUSCLE FATIGUE AND PAIN CAUSED BY FORWARD HEAD POSTURE IN ADULTS.

Date & Journal: J Phys Ther Sci . 2016 Jun.

- [Purpose] The effect of duration of smartphone use on neck and shoulder muscle fatigue and pain was investigated in adults with forward head posture.

- [Results] There was a significant difference in the degree of fatigue in the left upper trapezius muscles in group 2 and left cervical erector spinae and bilateral upper trapeziuses group 3. There was a significant difference in fatigue in the left upper trapezius in groups 1 and 3. The VAS showed significant differences in all groups before and after the experiment and between groups 1 and 3.

- [Conclusion] Pain and fatigue worsened with longer smartphone use. This study provided data on the proper duration of smartphone use. Correct posture and breaks of at least 20 minutes are recommended when using smartphones.

Kim SY, Koo SJ. Effect of duration of smartphone use on muscle fatigue and pain caused by forward head posture in adults. J Phys Ther Sci. 2016 Jun;28(6):1669-72. doi: 10.1589/jpts.28.1669. Epub 2016 Jun 28. PMID: 27390391; PMCID: PMC4932032.

fig 14-26 Patient positioning for adjustive procedure to reverse components of abnormal posture of pelvic flexion (+dx) relative to the feet.

14-27 Patient positioning and placement of hands for adjustive procedure to reverse posterior translation (-Sz) of the thorax vs the pelvis.

14-28 Patient positioning for adjustive procedure to reverse anterior skull displacement vs tho-

pelvic section of the table. A broad foam wedge is placed beneath the patient's ischia so as to "rock" the pelvis into the "mirror-image" position of extension, as described by Harrison.[37]

The drop mechanism is elevated, and the DC places the hypothenar area of each hand over the corresponding anterior-superior iliac spine of the patient. The DC then thrusts toward the floor. The drop piece falls to its released position, and the DC "holds" this position, rather than recoiling the hands away from the iliac spine contacts. This procedure activates the mechanoreceptors of the joints of the lower spine, the pelvis, and the hipjoint, which aborts pain signals entering the spinal cord at various levels. This activity also changes the postural position of the spine, the pelvis, and the lower extremity by transiently resetting muscle tensions that are governed by electrical activity in the nervous system.[38]

Figure 14-27 demonstrates patient positioning and DC hand placement for the adjustive technique for posterior translation (-Sz) of the thorax vs the pelvis. The patient is placed supine with the iliac crests even with the cranial edge of the pelvic section of the adjusting table. A broad foam block or firm pillow is placed beneath the patient's thorax so as to translate the patient's torso anteriorly (+Sz) relative to the pelvis. The drop pelvic section is elevated, and the DC places the hypothenar eminence of each hand across the patient's anterior-superior iliac spine on each side. Again, the DC thrusts toward the floor, and when the drop pelvic piece falls to its released position the DC holds rather than recoiling.

Because these two components of displaced posture often occur simultaneously in the pregnant patient, the corrective adjustments for each may be safely combined into one maneuver. In this case, the patient would be placed supine with a foam block beneath the thorax and a broad foam wedge beneath the ischia. This automatically places the patient's thorax in a position of anterior translation (+Sz) and pelvic extension (-dx). The drop section is elevated, and the adjustive thrust is again applied at the area of the anterior-superior iliac spines. Obviously, the degree of patient positioning for this procedure (and all procedures presented in this chapter) is to the patient's tolerance.

As a result of the posterior displacement of the thorax relative to the pelvis (-Sz), the most commonly seen skull-vs-thorax posture in the pregnant patient is that of anterior translation (+Sz). This skull-vs-thorax displacement is depicted in Figure 14-14.

The adjustive procedure for anterior skull displacement vs thorax is demonstrated in Figure 14-28. The patient is placed supine on a drop cervical table with the occipital bone at the caudal edge of the drop

Pregnancy drop table adjusting. This is the preferred set up over side posture in late pregnancy. Make sure you set the drop at a very light tension.

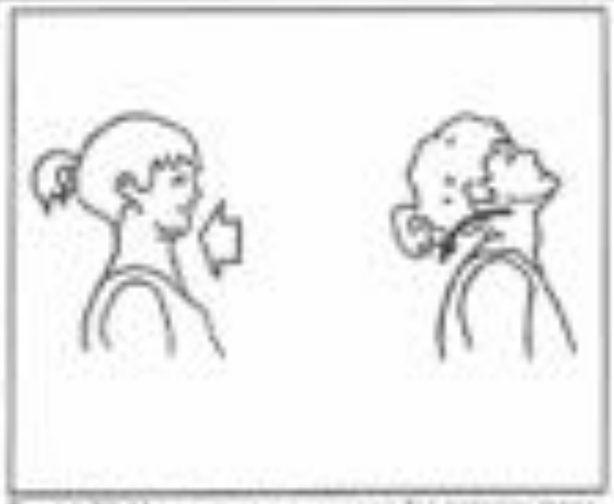


Fig 14-36 Micro-image exercises for anterior translation (+Sz) and flexion (+Sx) postures of the skull versus the thorax. The patient is instructed to stand with the shoulders against a firm object or sit in a chair that supports at the shoulders. The cervical muscles are contracted, and the skull is glided into posterior translation (-Sz). Or, the posterior cervical muscles are contracted into extension (-Sx), and the patient is instructed to perform multiple sets of 10 to 20 repetitions per day. Source: Adapted from Chiropractic Physics of Spinal Correction by D Harrison, ed, with permission of CBP Publications. Drawing © 1986 by Bang Harrison, DC

Fig 14-37 The partial sit-up or "crunch." The patient lies on her back with knees bent. The head and shoulders are slowly raised off the floor until the small of the back is pressed to the floor. The crunch position is held for a count of five, and then the patient relaxes to the starting position. Multiple sets of 10 to 20 repetitions are performed daily. Source: Adapted from Essential Exercises for the Childbearing Year: A Guide to Health and Comfort before and after Your Baby is Born by E Noble with permission of Houghton Mifflin, © 1976.

Fig 14-38 The pelvic rock exercise. The patient is instructed to assume a position on the hands and knees with the arms extended directly beneath the shoulders. Abdominal and buttock muscles are contracted causing the pelvis to be forced into flexion (+Sx) relative to the femur heads. The patient is instructed further to hold this position for a count of five and then relax to the neutral position. Multiple sets of repetitions of 10 to 20 are performed daily. Source: Adapted from Essential Exercises for the Childbearing Year: A Guide to Health and Comfort before and after Your Baby is Born by E Noble with permission of Houghton Mifflin, © 1976.

Fig 14-39 The squatting position of primitive peoples. The patient is instructed to squat in the position pictured here for up to 5 minutes or to tolerance. A book or 2 x 4-inch wood board can be placed beneath the heels to relieve tension in the achilles tendons, or the patient can be instructed to let the back rest against a couch or other heavy piece of furniture to maintain balance. This position relieves lumbar hyperextension and posterior translation (-Sz) of the thorax and likely facilitates sacral nutation during labor and delivery. Source: Adapted from Journal of Clinical Chiropractic (1991;1[3]:8-14). Copyright © 1991, Clinical Chiropractic Publishing Company Inc.

Pregnancy exercises to be given to patient.

Exercises for Pregnancy

PELVIC FLOOR + CORE

- When performing pelvic floor exercises aim to do 10 repetitions x 3 sets.
- Without contracting your glutes or inner thighs, try to gently squeeze and lift up through your pelvic floor muscles.
- It's equally important to relax the pelvic floor as it is to contract it to avoid an overactive pelvic floor.

Source: Pregactive.com

Common Pregnancy Injuries

Pelvic Girdle Pain: Any pain around your pelvis is something to be mindful of. Seek advice from your health care professional

Tip Avoid asymmetrical movements such as single leg lifts, lunges or any single leg work.

Carpal Tunnel: Swelling in the wrists is common in pregnancy and often can lead to wrist condition such as carpal tunnel.

Tip: When in all four kneeling, lower onto elbows or support your elbows with yoga blocks. Alternatively use fists rather than having hands flat.

Lower Back Pain: Sitting or standing for prolonged periods of time is not ideal in pregnancy. Regular movement is key in helping to reduce back ache.

Tip: Strengthening your core is so important in protecting your lower back in pregnancy. Prenatal Pilates is perfect for this.

SAFE PRENATAL EXERCISE

Walking, swimming, prenatal yoga, prenatal Pilates, pelvic floor exercises and specific prenatal exercises are highly recommended to keep you strong, reduce aches and pains and improve your energy levels throughout your pregnancy.

Pregnancy Specific Stretches

Exercises for Pregnancy (Continued)

Back + Core Strengthening Exercises

BIRTH PREP + RECOVERY

Staying physically active in your pregnancy can help to improve your mood and energy levels and prepare you for your birth marathon and have a quicker recovery postpartum.

Being both physically and mentally prepared for birth can help you to have an empowering birth experience.

Source: Pregactive.com

V. CHIROPRACTIC ADJUSTIVE TECHNIQUE

A. DIVERSIFIED POSTURE EVALUATION AND MANUAL DEMONSTRATION OF POSTURAL PATTERNS

B. CHIROPRACTIC BIO-PHYSICS AND DIVERSIFIED POSTURE CORRECTION
   a) Neurological proprioceptive stimulation introduced
   b) Sleep posture

C. DIVERSIFIED PEDIATRIC EVALUATION AND ADJUSTIVE PROCEDURES
   a) Posture evaluation and demonstration of the pediatric patient.
   b) Diversified /biophysics manual adjustive procedures. Exercises for pregnancy.

D. INTRODUCTION TO DIVERSIFIED MYOFASCIAL RELEASE TECHNIQUES, INCLUDING PIRIFORMIS SYNDROME AND FROZEN SHOULDER SYNDROME.

E. POSTURE AND SYSTEMIC HEALTH. A LITERATURE REVIEW
   a) A review of current medical literature including forward head posture, proprioception posture, and conditions caused by poor posture.

MYOFASCIAL TRIGGER POINT THERAPY: WHAT IS IT?

- Myofascial pain results from muscle injury or repetitive strain.
- When stressed or injured, muscles from trigger points, like contracted knots that cause pain & tightness
- Common cause of pain
- When these points are pressed on, muscles fibers shorten, and cause referred pain

Reference: http://www.myofascialtherapy.org/myofascial-therapy/index.html

RESEARCH ON TRIGGER POINTS

- Patients evaluated in one pain management center were found to have a myofascial component to their pain in 95% of cases

  (Gerwin RD. A study of 96 subjects examined for both fibromyalgia and myofascial pain. J Musculoskeletal Pain 1995; 3 (suppl. 1):121-5.).

- There is increasing awareness that active myofascial trigger points often play a role in the symptoms of patients with tension headaches

  (Fernandez-de-Las-Penas C, onso-Blanco C, Cuadrado ML, Gerwin RD, Pareja JA. Myofascial trigger points and their relationship to headache clinical parameters in chronic tension-type headache. Headache 2006; 46(8):1264-72.).

- Low back pain, neck pain

  (Fernandez-de-Las-Penas C, onso-Blanco C, Miangolarra JC. Myofascial trigger points in subjects presenting with mechanical neck pain: A blinded, controlled study. Man Ther 2006;).

- Temporomandibular pain, forearm and hand pain, postural pain

  (Treaster D, Marras WS, Burr D, Sheedy JE, Hart D. Myofascial trigger point development from visual and postural stressors during computer work. J Electromyogr Kinesiol 2005;), pelvic/urogenital pain syndromes.

TREATMENT OF MYOFASCIAL TRIGGER POINTS

- Take a full medical and pain history
- Ergonomics of your work station and other regular activities.
- Assess and make suggestions to improve the quality of your sleep
- Make nutritional recommendations
- Choose an appropriate exercise/movement program
- Learn some self-treatment, self management and self care to assist you to treat your condition and your trigger points.

Reference: http://www.myofascialtherapy.org/myofascial-therapy/index.html

MYOFASCIAL RELEASE

(DONE BY HANDS ONLY)

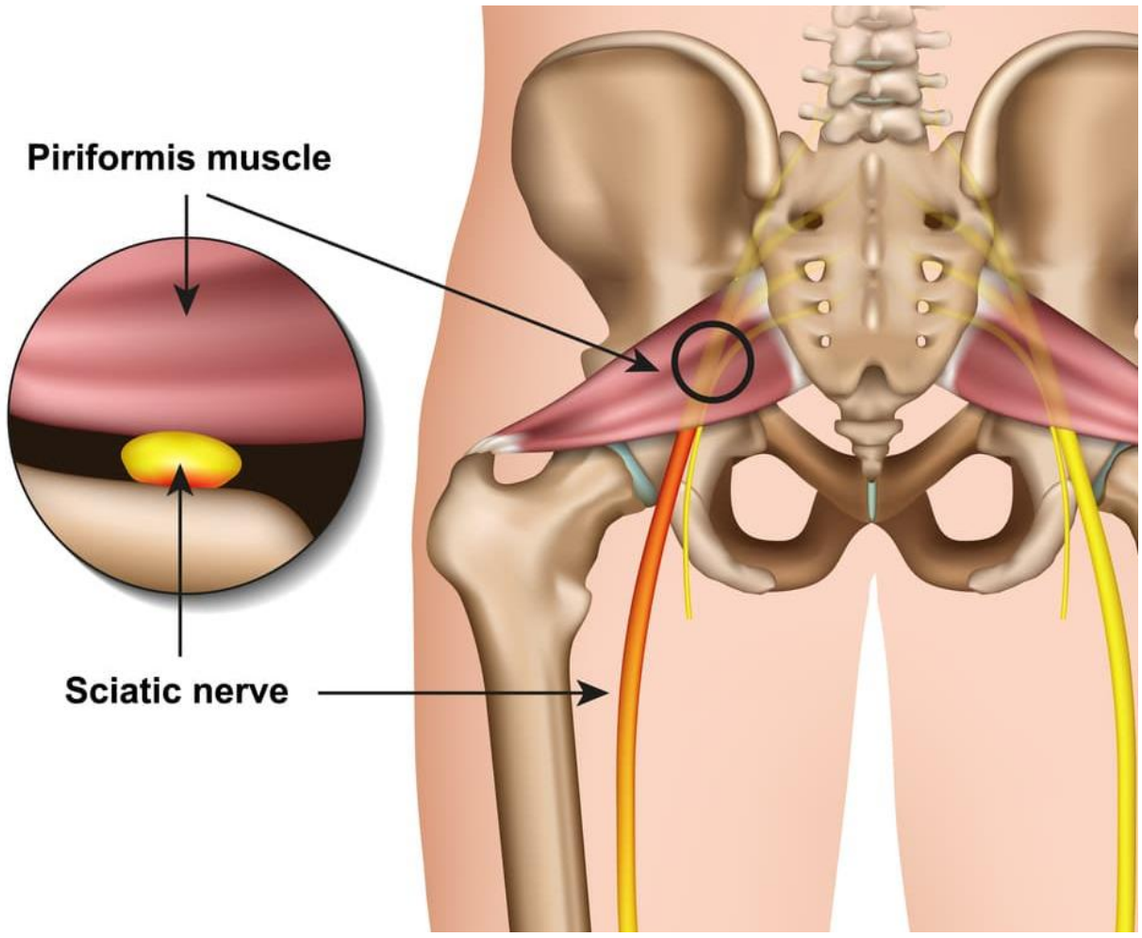
- During therapy, find the myofascial area that feels stiff and fixed instead of elastic and movable under light manual pressure.
- Manually apply pressure and stretching will help loosen up restricted movement, leading to reduced pain.
- Insurance will only cover HANDS ONLY myofascial therapy work. No instrument work will be covered.

ELECTRICAL MASSAGERS: ADJUNCTIVE THERAPY TO WORK ON THE MUSCULATURE & POSTURE

- Massage is a great adjunctive therapy to use for preparatory readiness of muscle tissues prior to hands on treatment. Reminders:
  - Only use on large muscle groups, NEVER over bony process or in the cervical spine. Not near hair or on bare skin. (Only over material or towel.)
- T1- L5 in the paraspinal muscle region, gluteal region and around shoulder musculature region.
- May go slightly deeper on extremely muscular athletes.
- ONLY use for 4 seconds on one spot, then move location.
- Entire treatment lasts between 1 and 2 minutes.
- Go Light & be careful.

PIRIFORMIS SYNDROME

The piriformis syndrome is a condition in which the piriformis muscle irritates the sciatic nerve, causing pain in the buttocks, and referring pain along the entire course of the sciatic nerve.



Patients usually complain of deep buttock pain which is made worse by sitting, stairs, or squats. The piriformis muscle assists in abduction and laterally rotating the thigh. Stretching the muscle often duplicates the pain.

Anatomically, the piriformis muscle lies deep to the gluteal muscles. It originates from the sacral spine and attaches to the greater trochanter. The sciatic nerve usually passes underneath the piriformis muscle, but in 15% of the population it travels through the muscle. Any acute or chronic injury with inflammation irritates the sciatic nerve . Piriformis syndrome is diagnosed by symptoms from the physical exam.

Once diagnosed, the treatment will include progressive piriformis stretching starting with four seconds of sustained stretch or up to 60sec. sustained stretch using your hands.

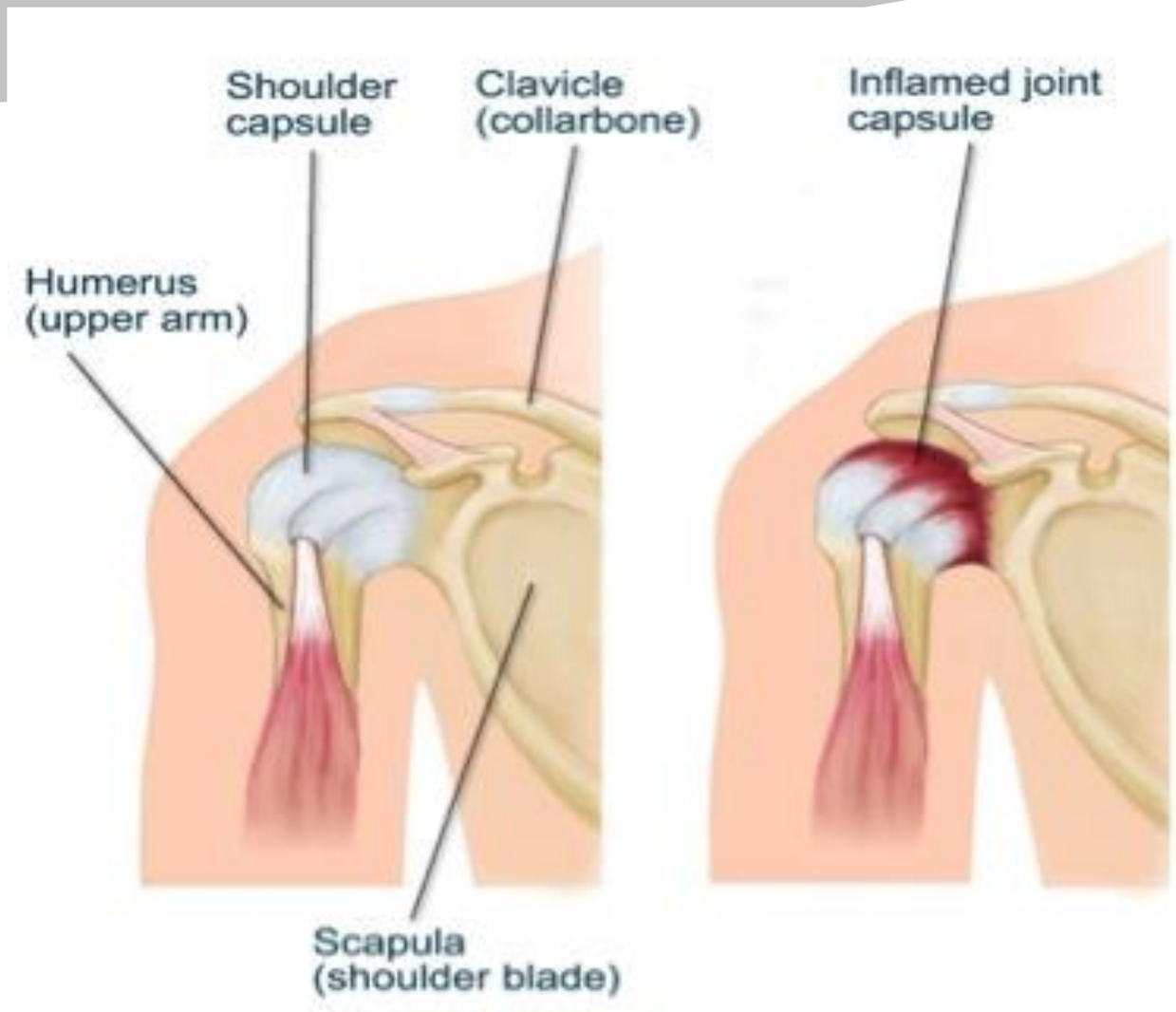
Frozen Shoulder Syndrome

Shoulder range of motion is locked up.

Common in pitchers, quarterbacks, and sports that use a dominant arm.

Treatment:

- Dig Myofascial trigger points
- Put patient through full range of motion while working on specific trigger points
- May use electric massagers to loosen muscles prior to hands-on work



V. CHIROPRACTIC ADJUSTIVE TECHNIQUE

A. DIVERSIFIED POSTURE EVALUATION AND MANUAL DEMONSTRATION OF POSTURAL PATTERNS

B. CHIROPRACTIC BIO-PHYSICS AND DIVERSIFIED POSTURE CORRECTION

   a) Neurological proprioceptive stimulation introduced

C. DIVERSIFIED PEDIATRIC EVALUATION AND ADJUSTIVE PROCEDURES

   a) Posture evaluation and demonstration of the pediatric patient.

   b) Diversified /biophysics manual adjustive procedures. Exercises for pregnancy.

D. INTRODUCTION TO DIVERSIFIED MYOFASCIAL RELEASE TECHNIQUES, INCLUDING PIRIFORMIS SYNDROME AND FROZEN SHOULDER SYNDROME.

E. POSTURE AND SYSTEMIC HEALTH. A LITERATURE REVIEW

   a) A review of current medical literature including forward head posture, proprioception posture, and conditions caused by poor posture.

A review of current medical literature including forward head posture, proprioception posture, and conditions caused by poor posture.

FORWARD HEAD POSTURE: A LITERATURE REVIEW

THE RELATIONSHIP BETWEEN FORWARD HEAD POSTURE, POSTURAL CONTROL AND GAIT: A SYSTEMATIC REVIEW

DATE & JOURNAL: GAIT POSTURE. 2022 OCT

Abstract

Background: Forward head posture (FHP) is a common postural deviation. An increasing number of studies have reported that people with FHP present with impaired postural control and gait; however, there is conflicting evidence. A systematic review focusing on these relationships has been unavailable to date.

Results: Nineteen studies were selected for this review. Consistent evidence supported that people with FHP had significant alterations in limits of stability (n = 3), performance-based balance (n = 3), and cervical proprioception (n = 4). Controversial evidence existed for a relationship of FHP with static balance (n = 4) and postural stability control (n = 4). Limited evidence existed to support an alteration in gait and vestibular function. Three studies on induced FHP consistently identified no reduced postural control.

Significance: Current evidence supports an association between FHP and a detrimental alteration in limits of stability, performance-based balance, and cervical proprioception. Instead of simply indicating impaired overall balance, the findings of this review indicate that a reduction in specific aspects of the postural control requires to be clarified in clinical evaluation for individuals with FHP, which would facilitate the planning and application of appropriate interventions to prevent dysfunctions and disability.

Lin G, Zhao X, Wang W, Wilkinson T. The relationship between forward head posture, postural control and gait: A systematic review. Gait Posture. 2022 Oct;98:316-329. doi: 10.1016/j.gaitpost.2022.10.008. Epub 2022 Oct 14. PMID: 36274469.

STRUCTURAL REHABILITATION OF THE CERVICAL LORDOSIS AND FORWARD HEAD POSTURE: A SELECTIVE REVIEW OF CHIROPRACTIC BIOPHYSICS ® CASE REPORTS

DATE & JOURNAL: J PHYS THER SCI. 2022 NOV

Abstract

[Purpose] To characterize the case report evidence of Chiropractic BioPhysics® (CBP®) technique methods applied to increase cervical lordosis and improve forward head posture

[Results] Sixty patients were reported in 41 unique manuscripts detailing the improvement in cervical spine alignment by CBP technique methods. On average, there was a 14° improvement in cervical lordosis and a 12 mm reduction in forward head position after 40 treatments over 16 weeks with a 5-point reduction in pain rating scores. Thirty-eight percent of cases included follow-up showing only slight loss of lordosis, but maintenance of pain and disability improvements after an average of 1.5 treatments per month for 1.8 years.

[Conclusion] An abundance of reports document improvement in craniocervical and other ailments by CBP methods that increase cervical lordosis. Routine radiographic imaging of the spine is recommended as it is safe and the only current practical method of screening for critical biomechanical biomarkers of sagittal spine alignment.

Oakley PA, Kallan SZ, Harrison DE. Structural rehabilitation of the cervical lordosis and forward head posture: a selective review of Chiropractic BioPhysics® case reports. J Phys Ther Sci. 2022 Nov;34(11):759-771. doi: 10.1589/jpts.34.759. Epub 2022 Nov 1. PMID: 36337218; PMCID: PMC9622351.

SUBOCCIPITAL MUSCLES, FORWARD HEAD POSTURE, AND CERVICOGENIC DIZZINESS

Date & Journal: Medicina (Kaunas). 2022 Dec 5

Abstract

Dizziness or vertigo can be caused by dysfunction of the vestibular or non-vestibular systems. The diagnosis, treatment, and mechanism of dizziness or vertigo caused by vestibular dysfunction have been described in detail. However, dizziness by the non-vestibular system, especially cervicogenic dizziness, is not well known. This paper explained the cervicogenic dizziness caused by abnormal sensory input with references to several studies. Among head and neck muscles, suboccipital muscles act as stabilizers and controllers of the head. Structural and functional changes of the suboccipital muscles can induce dizziness. Especially, myodural bridges and activation of trigger point stimulated by abnormal head posture may be associated with cervicogenic dizziness.

Sung YH. Suboccipital Muscles, Forward Head Posture, and Cervicogenic Dizziness. Medicina (Kaunas). 2022 Dec 5;58(12):1791. doi: 10.3390/medicina58121791. PMID: 36556992; PMCID: PMC9786116.

EXERCISE-MEDIATED REINNERVATION OF SKELETAL MUSCLE IN ELDERLY PEOPLE: AN UPDATE

Date & Journal: Eur J Transl Myol . 2022 Feb 28.

Abstract

Sarcopenia is defined by the loss of muscle mass and function. In aging sarcopenia is due to mild chronic inflammation but also to fiber-intrinsic defects, such as mitochondrial dysfunction. Age-related sarcopenia is associated with physical disability and lowered quality of life. In addition to skeletal muscle, the nervous tissue is also affected in elderly people. With aging, type 2 fast fibers preferentially undergo denervation and are reinnervated by slow-twitch motor neurons. They spread forming new neuro-muscular junctions with the denervated fibers: the result is an increased proportion of slow fibers that group together since they are associated in the same motor unit. Grouping and fiber type shifting are indeed major histological features of aging skeletal muscle. Exercise has been proposed as an intervention for age-related sarcopenia due to its numerous beneficial effects on muscle mechanical and biochemical features. In 2013, a precursor study in humans was published in the European Journal of Translation Myology (formerly known as Basic and Applied Myology), highlighting the occurrence of reinnervation in the musculature of aged, exercise-trained individuals as compared to the matching control. This paper, entitled «Reinnervation of Vastus lateralis is increased significantly in seniors (70-years old) with a lifelong history of high-level exercise», is now being reprinted for the second issue of the «Ejtm Seminal Paper Series». In this short review we discuss those results in the light of the most recent advances confirming the occurrence of exercise-mediated reinnervation, ultimately preserving muscle structure and function in elderly people who exercise.

Coletti C, Acosta GF, Keslacy S, Coletti D. Exercise-mediated reinnervation of skeletal muscle in elderly people: An update. Eur J Transl Myol. 2022 Feb 28;32(1):10416. doi: 10.4081/ejtm.2022.10416. PMID: 35234025; PMCID: PMC8992679.

IMMEDIATE EFFECT OF CERVICO-THORACIC MOBILIZATION ON DEEP NECK FLEXORS STRENGTH IN INDIVIDUALS WITH FORWARD HEAD POSTURE: A RANDOMIZED CONTROLLED TRIAL.

DATE & JOURNAL: J MAN MANIP THER . 2020 OCT 22

Abstract

Introduction: Forward head posture is the most frequently observed postural deviations and is said to be associated with shortening of posterior cervical extensors and weakening of the anterior deep cervical flexors. Manual therapy has the potential to achieve reflexogenic changes in muscle and enhance the motor activity and strength.

Purpose of the study: To evaluate the immediate effect of grade IV cervicothoracic Maitland mobilization on deep neck flexors strength in individuals with forward head posture.

Results: The strength of deep neck flexors effectively increased after advocating grade IV mobilization.

Conclusion: This study concluded that grade IV central and unilateral posteroanterior Maitland mobilization demonstrated significant increase in the deep neck flexors strength in individuals with forward head posture.

Ghan GM, Babu VS. Immediate Effect of Cervico-thoracic Mobilization on Deep Neck Flexors Strength in Individuals with Forward Head Posture: A Randomized Controlled Trial. J Man Manip Ther. 2020 Oct 22:1-11. doi: 10.1080/10669817.2020.1834321. Epub ahead o

RELATIONSHIP BETWEEN FORWARD HEAD POSTURE AND TISSUE MECHANOSENSITIVITY: A CROSS-SECTIONAL STUDY

DATE & JOURNAL: J CLIN MED . 2020 FEB 27.

Abstract

The relationship between forward head posture (FHP) and neck pain is not clear. FHP could possibly increase the mechanosensitivity of cervical tissues, which could lead to the development of pain depending on the adaptation capability of the central nervous system. The purpose of this study was to analyse the influence of FHP in the mechanosensitivity of articular, muscular, and neural tissues related to the cervical spine. The pressure pain threshold was bilaterally measured in different muscles and nerves and the second cervical vertebrae. The cervical spine's range of movement was also examined. The measurements were obtained from people with (n = 32) and without (n = 64) FHP. The analyses included a 2-by-2 mixed analysis of variance (ANOVA), pairwise comparisons with Bonferroni correction, and point-biserial correlation coefficients. Subjects with FHP showed a less pressure pain threshold (PPT) in all locations except for the upper trapezius and scalenus medius muscles. They also showed less extension and right-rotation range of motion. There was no association between FHP, neck pain, disability, and headache. Nevertheless, more research is needed to evaluate the relationship between FHP, tissue mechanosensitivity, and neck pain.

Martinez-Merinero P, Nuñez-Nagy S, Achalandabaso-Ochoa A, Fernandez-Matias R, Pecos-Martin D, Gallego-Izquierdo T. Relationship between Forward Head Posture and Tissue Mechanosensitivity: A Cross-Sectional Study. J Clin Med. 2020 Feb 27;9(3):634. doi: 10.

IS FORWARD HEAD POSTURE RELEVANT TO AUTONOMIC NERVOUS SYSTEM FUNCTION AND CERVICAL SENSORIMOTOR CONTROL? CROSS SECTIONAL STUDY

DATE & JOURNAL: GAIT POSTURE . 2020 MAR.

Abstract

Background: There is a growing interest concerning the understanding of the sagittal configuration of the cervical spine as a clinical outcome. However, evaluating sensorimotor control and autonomic nervous system for participants with forward head posture (FHP) compared to strictly matched control participants with normal head alignment has not been adequately addressed.

Results: The unpaired t-test analysis showed that there were statistically significant differences between the FHP group and control group for all of the sensorimotor measured variables including SPNT, OSI and left and right rotation repositioning accuracy. Also, there was a significant difference in neurophysiological findings, including SSR amplitude, but there was no significant difference for SSR Latency. The CVA significantly correlated with all measured variables.

Conclusions: Participants with FHP exhibited abnormal sensorimotor control and autonomic nervous system dysfunction compared to those with normal head alignment.

Moustafa IM, Youssef A, Ahbouch A, Tamim M, Harrison DE. Is forward head posture relevant to autonomic nervous system function and cervical sensorimotor control? Cross sectional study. Gait Posture. 2020 Mar;77:29-35. doi: 10.1016/j.gaitpost.2020.01.004.

THE EFFECTS OF FORWARD HEAD POSTURE ON EXPIRATORY MUSCLE STRENGTH IN CHRONIC NECK PAIN PATIENTS: A CROSS-SECTIONAL STUDY.

DATE & JOURNAL: TURK J PHYS MED REHABIL . 2020 MAY 18.

Abstract

Objectives: This study aims to investigate the relationship between forward head posture (FHP) and respiratory dysfunctions in patients with chronic neck pain.

Results: There was a negative correlation between the FHPmm with Pe_{max}%. A negative correlation was also observed between C7° and forced expiratory volume in one sec (FEV1)/forced vital capacity (FVC)%, forced expiratory flow… There was a positive correlation between neck disability and VAS scores while there was a negative correlation between neck disability and chest expansion, maximum voluntary ventilation.

Conclusion: Based on our study results, FHP is associated with expiratory muscle weakness in chronic neck pain patients. To evaluate respiratory dysfunction, chest expansion tests may be useful, although these tests are not specific to muscle weakness. Interventions about FHP and neck pain should focus on the effects of respiratory muscle training.

Solakoğlu Ö, Yalçın P, Dinçer G. The effects of forward head posture on expiratory muscle strength in chronic neck pain patients: A cross-sectional study. Turk J Phys Med Rehabil. 2020 May 18;66(2):161-168. doi: 10.5606/tftrd.2020.3153. PMID: 32760891 [PubM

EFFECT OF FORWARD HEAD POSTURE ON THORACIC SHAPE AND RESPIRATORY FUNCTION.

DATE & JOURNAL: J PHYS THER SCI. 2019 JAN

Objective: This study investigated the effect of forward head posture on upper and lower thoracic shape in adults to better understand the relationship between a forward head posture and respiratory function.

Results: Forced vital capacity, expiratory and inspiratory reserve volumes, forced expiratory volume at 1 second, and the peak flow rate observed with the forward head posture were significantly lower than that with the neutral head posture. The upper thorax showed a greater forward shift and the lower thorax showed a greater forward and inward shift with the forward head posture than with the neutral head posture. No significant difference in upper thoracic mobility was observed during respiration between the forward head posture and the neutral head posture. However, mobility of the lower thorax during respiration was significantly reduced with the forward head posture.

Conclusion: The forward head posture causes expansion of the upper thorax and contraction of the lower thorax, and these morphological changes cause decreased respiratory function.

Koseki T, Kakizaki F, Hayashi S, Nishida N, Itoh M. Effect of forward head posture on thoracic shape and respiratory function. J Phys Ther Sci. 2019 Jan;31(1):63-68. doi: 10.1589/jpts.31.63. Epub 2019 Jan 10. PMID: 30774207; PMCID: PMC6348172.

THE EFFECT OF MANUAL THERAPY AND STABILIZING EXERCISES ON FORWARD HEAD AND ROUNDED SHOULDER POSTURES: A SIX-WEEK INTERVENTION WITH A ONE-MONTH FOLLOW-UP STUDY.

DATE & JOURNAL: BMC MUSCULOSKELET DISORD. 2019 FEB 18

BACKGROUND: The purpose of this study is to evaluate the effect of a six-week combined manual therapy (MT) and stabilizing exercises (SEs), with a one-month follow-up on neck pain and improving function and posture in patients with forward head and rounded shoulder postures (FHRSP).

RESULTS: There were significant within-group improvements in pain, function, and head and shoulder posture in groups 1 and 2. There were significant between-group differences in groups 1 and 2 in head posture, pain, and function favoring group 1 with effect size respectively. There were significant between-group differences in both intervention groups versus the control group favoring the intervention groups.

CONCLUSION: These findings suggest that both interventions were significantly effective in reducing neck pain and improving function and posture in patients. However, the improvement in function and pain were more effective in Group 1 as compared to Group 2, suggesting that MT can be used as a supplementary method to the stabilizing intervention in the treatment of neck pain. More researches are needed to confirm the result of this study.

Fathollahnejad K, Letafatkar A, Hadadnezhad M. The effect of manual therapy and stabilizing exercises on forward head and rounded shoulder postures: a six-week intervention with a one-month follow-up study. BMC Musculoskelet Disord. 2019 Feb 18;20(1):86.

IMMEDIATE RESPONSES TO BACKPACK CARRIAGE ON POSTURAL ANGLES IN YOUNG ADULTS: A CROSSOVER RANDOMIZED SELF-CONTROLLED STUDY WITH REPEATED MEASURES.

Date & Journal: Work. 2017.

Abstract

- BACKGROUND: Heavy backpacks have been associated with various postural changes and consequently musculoskeletal disorders.

- OBJECTIVE: We evaluated the immediate responses of varying backpack loads on cranio-vertebral angle (CVA), sagittal shoulder angle (SSA) and trunk forward lean (TFL) of young adults between the ages of 18-25 years.

- RESULTS: Generally, there was a trend toward a decrease in the CVA and TFL with increasing backpack loads. Specifically, a significant decrease was seen for TFL at10% and 15% BW loads when compared with no load condition. In contrast, the decrease in CVA was only significant between no load condition and 15% body weight load. The SSA remained unchanged with backpack weight within 15% BW.

- CONCLUSION: Whereas the SSA of young adults may not be upset by an acute loading with a backpack within 15% of body weight, a 15% BW backpack led to more forward posture of the head on the neck. In addition, backpack load as low as 10% BW is enough to cause an immediate forward lean of the trunk

Abaraogu UO, Ezenwankwo EF, Nwadilibe IB, Nwafor GC, Ugwuele BO, Uzoh PC, Ani I, Amarachineke K, Atuma C, Ewelunta O. Immediate responses to backpack carriage on postural angles in young adults: A crossover randomized self-controlled study with repeated m

A review of current medical literature including forward head posture, proprioception posture, and conditions caused by poor posture.

PROPRIOCEPTION POSTURE: A LITERATURE REVIEW

NECK MUSCLE FATIGUE AFFECTS PERFORMANCE OF AN EYE-HAND TRACKING TASK.

DATE & JOURNAL: J ELECTROMYOGR KINESIOL. 2019 APR 10

Altered afferent input from the neck due to fatigue alters upper limb proprioception and is likely to impact upper limb performance accuracy. This study examined the effect of cervical extensor muscle (CEM) fatigue on eye-hand tracking accuracy in healthy participants. Twenty-four healthy right-handed individuals were randomly assigned to either a control or CEM fatigue group. Each participant performed a tracking task which required shoulder rotation to move a circular object to a square target on a touchscreen computer. The task was performed with vision of the target and with the target hidden. A prone lying position, CEM fatigue protocol required participants to hold a 2 kg weight against gravity with their head in a neutral posture. The control intervention rested for 5 min, in a prone position, with the head supported in a neutral posture. Participants performed 3 trials with vision and 3 without at 5 different time points: (1) pre-intervention (fatigue or control), (2) immediately post-intervention, (3) 5 min, (4) 10 min, and (5) 20 min post-intervention.

There were significant differences between the target with vision and the hidden condition for both groups between pre- and post-fatigue trials in angle of trajectory, and distance from release point to the target. Significant differences occurred in the hidden target condition for the fatigue group immediately post fatigue for distance from release to the target. Neck muscle fatigue reduced the accuracy of an upper limb tracking task to a hidden target, suggesting that altered afferent input from the neck due to fatigue may impair body schema and result in decreased upper limb performance accuracy.

Zabihhosseinian M, Yielder P, Holmes MWR, Murphy B. Neck muscle fatigue affects performance of an eye-hand tracking task. J Electromyogr Kinesiol. 2019 Aug;47:1-9. doi: 10.1016/j.jelekin.2019.04.001. Epub 2019 Apr 10. PMID: 31005033.

THE PROPRIOCEPTIVE SYSTEM MASTERMINDS SPINAL ALIGNMENT: INSIGHT INTO THE MECHANISM OF SCOLIOSIS.

Date and Journal: Dev Cell. 2017 Aug 21.

Maintaining posture requires tight regulation of the position and orientation of numerous spinal components. Yet, surprisingly little is known about this regulatory mechanism, whose failure may result in spinal deformity as in adolescent idiopathic scoliosis. Here, we use genetic mouse models to demonstrate the involvement of proprioception in regulating spine alignment. Null mutants for Runx3 transcription factor, which lack TrkC neurons connecting between proprioceptive mechanoreceptors and spinal cord, developed peripubertal scoliosis not preceded by vertebral dysplasia or muscle asymmetry. Deletion of Runx3 in the peripheral nervous system or specifically in peripheral sensory neurons, or of enhancer elements driving Runx3 expression in proprioceptive neurons, induced a similar phenotype. Egr3 knockout mice, lacking muscle spindles, but not Golgi tendon organs, displayed a less severe phenotype, suggesting that both receptor types may be required for this regulatory mechanism. These findings uncover a central role for the proprioceptive system in maintaining spinal alignment.

Blecher R, Krief S, Galili T, Biton IE, Stern T, Assaraf E, Levanon D, Appel E, Anekstein Y, Agar G, Groner Y, Zelzer E. The Proprioceptive System Masterminds Spinal Alignment: Insight into the Mechanism of Scoliosis. Dev Cell. 2017 Aug 21;42(4):388-399.e

THE SIGNIFICANCE OF DIRECTIONAL PREPONDERANCE IN THE EVALUATION OF VESTIBULAR FUNCTION IN PATIENTS WITH VERTIGO.

Date & Journal: Zhonghua Er Bi Yan Hou Tou Jing Wai Ke Za Zhi . 2017 Mar 7

Objective: To analyze the relationship between directional preponderance (DP), spontaneous nystagmus(SN) and vestibular disorders, and to investigate the significance of DP in directing peripheral vestibular function in patients with vertigo.

Methods: This was a retrospective analysis of 394 cases diagnosed with peripheral vestibular disease accompanied by vertigo from March 2012 to June 2014 in the Outpatient Department of the Eye & ENT Hospital of Fudan University.

Results: The patients were divided into two groups according to DP results of caloric test. DP-normal group had 203 cases and DP-abnormal group had 191 cases. Spontaneous nystagmus was presented in 44 cases in the DP-normal group and four in the DP-abnormal group. A significant difference was found between the two groups. Deficiency of vestibular function was noted in 165 cases in the DP-normal group and 123 in the DP-abnormal group in static and dynamic posture equilibrium tests. The difference between the two groups was statistically significant.

Conclusion: Compared with DP-normal patients, DP-abnormal patients are more likely to have spontaneous nystagmus and balance disorders due to vestibular dysfunction.

Wang J, Zhou YJ, Yu J, Gu J. [The significance of directional preponderance in the evaluation of vestibular function in patients with vertigo]. Zhonghua Er Bi Yan Hou Tou Jing Wai Ke Za Zhi. 2017 Mar 7;52(3):200-204. Chinese. doi: 10.3760/cma.j.issn.1673-

A review of current medical literature including forward head posture, proprioception posture, and conditions caused by poor posture.

CONDITIONS CAUSED BY POOR POSTURE: A LITERATURE REVIEW

EFFECT OF HOME EXERCISE TRAINING IN PATIENTS WITH NONSPECIFIC LOW-BACK PAIN: A SYSTEMATIC REVIEW AND META-ANALYSIS

Date & Journal: Int J Environ Res Public Health . 2021 Aug 10.

Abstract

Background: Exercise therapy is recommended to treat non-specific low back pain (LBP). Home-based exercises are promising way to mitigate the lack of availability of exercise centers. In this paper, we conducted a systemic review and meta-analysis on the effects of home-based exercise on pain and functional limitation in LBP.

Results: We included 33 studies and 9588 patients. We found that pain intensity decreased in the exclusive home exercise group (Effect size = -0.89. 95% CI -0.99 to -0.80) and in the group which conducted exercise both at-home and at another setting (-0.73. -0.86 to -0.59). Similarly, functional limitation also decreased in both groups (-0.75. -0.91 to -0.60, and -0.70, -0.92 to -0.48, respectively). Relaxation and postural exercise seemed to be ineffective in decreasing pain intensity, whereas trunk, pelvic or leg stretching decreased pain intensity. Yoga improved functional limitation. Supervised training was the most effective method to improve pain intensity. Insufficient data precluded robust conclusions around the duration and frequency of the sessions and program.

Conclusion: Home-based exercise training improved pain intensity and functional limitation parameters in LBP.

Quentin C, Bagheri R, Ugbolue UC, Coudeyre E, Pélissier C, Descatha A, Menini T, Bouillon-Minois JB, Dutheil F. Effect of Home Exercise Training in Patients with Nonspecific Low-Back Pain: A Systematic Review and Meta-Analysis. Int J Environ Res Public He

INVOLVING PATIENTS AND CLINICIANS IN A PILOT RANDOMISED CLINICAL TRIAL OF SPINAL MANUAL THERAPY VERSUS NERVE ROOT INJECTION FOR LUMBAR RADICULOPATHY: PROTOCOL OF A PATIENT AND PUBLIC INVOLVEMENT PROJECT

Date & Journal: BMJ Open . 2022 Apr 25.

Abstract

Introduction: A patient and public involvement (PPI) project will be embedded within the SALuBRITY pilot trial, a two parallel group, double sham controlled, randomised clinical trial. The study aims to compare the effectiveness of spinal manual therapy and corticosteroid nerve root injections, two methods commonly used to treat patients with lumbar radiculopathy. We aim to gather patients' and clinicians' perspectives and involve them in decisions related to the research question and objectives, proposed trial recruitment processes and methods, and proposed outcome measures.

Methods & Analysis: A small group of patients with lived experience of lumbar radiculopathy and primary care clinicians with experience in the treatment of patients with lumbar radiculopathy are involved. An initial kickoff event will prepare and empower the advisors for involvement in the project, followed by semistructured patient group and one-on-one clinician interviews. We will follow the Critical Outcomes of Research Engagement framework for assessing the impact of patient engagement in research. We will summarise and feedback PPI content to the patient and clinician advisors during a member-checking process to ensure accurate interpretation of patient and clinician inputs. Inductive and deductive thematic analysis will be used for the qualitative analysis of the interviews. Two surveys will be completed at different points along the trial to track the advisors' and researchers' experiences over the course of the PPI project. Any modifications to the SALuBRITY trial methods due to PPI inputs will be thoroughly documented and recorded in an impact log.

Ethics and dissemination: The independent research ethics committee of Canton Zurich confirmed that ethical approval for this PPI subproject was not required. PPI results will be disseminated in a peer-reviewed journal and presented at conferences.

Ryf C, Hofstetter L, Clack L, Puhan MA, Hincapié CA. Involving patients and clinicians in a pilot randomised clinical trial of spinal manual therapy versus nerve root injection for lumbar radiculopathy: protocol of a patient and public involvement project

TREATING 'SLOUCHY' (HYPERKYPHOSIS) POSTURE WITH CHIROPRACTIC BIOPHYSICS®: A CASE REPORT UTILIZING A MULTIMODAL MIRROR IMAGE® REHABILITATION PROGRAM.

DATE & JOURNAL: J PHYS THER SCI. 2017 AUG

- Purpose: To present a case of the non-surgical reduction of 'slouchy' hyperkyphosis posture utilizing the multimodal Chiropractic BioPhysics® rehabilitation program emphasizing the mirror image® concept.

- Results: After 6-months of treatment the patient displayed a total correction of the posterior thoracic translation with a significant reduction in thoracic hyperkyphosis. The dramatic correction of her overall posture and spine alignment corresponded to the significant relief of neck and back pains, headaches and improvement of various other health issues as demonstrated by self-report and SF-36.

- Conclusion: Poor postures corresponding to poor health can be changed for the better with multimodal rehabilitation programs that are now showing consistent postural improvements corresponding with improvements in various health conditions. We suggest that the postural correction of those with various pain symptoms be considered as a first line non-pharmalogical, non-surgical rehabilitation approach for those presenting with poor posture.

Fortner MO, Oakley PA, Harrison DE. Treating 'slouchy' (hyperkyphosis) posture with chiropractic biophysics®: a case report utilizing a multimodal mirror image® rehabilitation program. J Phys Ther Sci. 2017 Aug;29(8):1475-1480. doi: 10.1589/jpts.29.1475.

CORRECTION OF PSEUDOSCOLIOSIS (LATERAL THORACIC TRANSLATION POSTURE) FOR THE TREATMENT OF LOW BACK PAIN: A CBP® CASE REPORT.

DATE & JOURNAL: J PHYS THER SCI. 2018 SEP

- [Purpose] To present the case of a total reduction of pseudoscoliosis spinal deformity in an adult female suffering from recurrent back pains.

- [Results] The patient achieved a complete reduction of the lateral thoracic translation posture (pseudoscoliosis) as indicated on a post-treatment radiograph after 36 total treatments. Most orthopedic tests became normalized and the patients back pains were significantly improved after the correction of posture, but only slight improvements after the initial 12 sessions of manipulative therapy only.

- [Conclusion] Pseudoscoliosis is structurally reducible by use of CBP® mirror image® lateral translation traction methods and exercises and led to the resolution of back pains in this case. The diagnosis of pseudoscoliosis as opposed to true scoliosis is very important and likely underdiagnosed in common practice. Upright radiographic imaging is essential to differentiate these two spinal disorders and offers no harm to the patient. Comprehensive assessment including routine use of x-ray is recommended to differentiate between spinal disorders.

Henshaw M, Oakley PA, Harrison DE. Correction of pseudoscoliosis (lateral thoracic translation posture) for the treatment of low back pain: a CBP® case report. J Phys Ther Sci. 2018 Sep;30(9):1202-1205. doi: 10.1589/jpts.30.1202. Epub 2018 Sep 4. PMID: 30

POSTURE-RELATED STIFFNESS MAPPING OF PARASPINAL MUSCLES.

DATE & JOURNAL: J PHYS THER SCI. 2018 SEP

The paraspinal compartment acts as a bone-muscle composite beam of the spine. The elastic properties of the paraspinal muscles play a critical role in spine stabilization. These properties depend on the subjects' posture, and they may be drastically altered by low back pain. Supersonic shear wave elastography can be used to provide quantitative stiffness maps (elastograms), which characterize the elastic properties of the probed tissue. The aim of this study was to challenge shear wave elastography sensitivity to postural stiffness changes in healthy paraspinal muscles. The stiffness of the main paraspinal muscles (longissimus, iliocostalis, multifidus) was measured by shear wave elastography at the lumbosacral level (L3 and S1) for six static postures performed by volunteers. Passive postures (rest, passive flexion, passive extension) were performed in a first shear wave elastography session, and active postures (upright, bending forward, bending backward) with rest posture for reference were performed in a second session. Measurements were repeated three times for each posture. Sixteen healthy young adults were enrolled in the study. Non-parametric paired tests, multiple analyses of covariance, and intra-class correlations were implemented for analysis. Shear wave elastography showed good to excellent reliability, except in the multifidus at S1, during bending forward, and in the multifidus at L3, during bending backward. Yet, during bending forward, only poor quality was recorded for nine volunteers in the longissimus. Significant intra- and inter-muscular changes were observed with posture. Stiffness significantly increased for the upright position and bending forward with respect to the reference values recorded in passive postures. In conclusion, shear wave elastography allows reliable assessment of the stiffness of the paraspinal muscles except in the multifidus at S1 and longissimus, during bending forward, and in the multifidus at L3, during bending backward. It reveals a different biomechanical behaviour for the multifidus, the longissimus, and the iliocostalis.

Creze M, Bedretdinova D, Soubeyrand M, Rocher L, Gennisson JL, Gagey O, Maître X, Bellin MF. Posture-related stiffness mapping of paraspinal muscles. J Anat. 2019 Jun;234(6):787-799. doi: 10.1111/joa.12978. Epub 2019 Mar 22. PMID: 30901090; PMCID: PMC6539

MUSCULOSKELETAL DISORDER AND PAIN ASSOCIATED WITH SMARTPHONE USE: A SYSTEMATIC REVIEW OF BIOMECHANICAL EVIDENCE.

DATE & JOURNAL: HONG KONG PHYSIOTHER J. 2018 DEC

The number of smartphone users is growing dramatically. Using the smartphone frequently forces the users to adopt an awkward posture leading to an increased risk of musculoskeletal disorders and pain. The objective of this study is to conduct a systematic review of studies that assess the effect of smartphone use on musculoskeletal disorders and pain. A systematic literature search of AMED, CINAHL, PubMed, Proquest, ScienceDirect using specific keywords relating to smartphone, musculoskeletal disorders and pain was conducted. Reference lists of related papers were searched for additional studies. Methodological quality was assessed by two independent reviewers using the modified Downs and Black checklist. From 639 reports identified from electronic databases, 11 were eligible to include in the review. One paper was found from the list of references and added to the review. The quality scores were rated as moderate. The results show that muscle activity of upper trapezius, erector spinae and the neck extensor muscles are increased as well as head flexion angle, head tilt angle and forward head shifting which increased during the smartphone use. Also, smartphone use in a sitting position seems to cause more shift in head-neck angle than in a standing position. Smartphone usage may contribute to musculoskeletal disorders. The findings of the included papers should be interpreted carefully in light of the issues highlighted by the moderate-quality assessment scores.

Eitivipart AC, Viriyarojanakul S, Redhead L. Musculoskeletal disorder and pain associated with smartphone use: A systematic review of biomechanical evidence. Hong Kong Physiother J. 2018 Dec;38(2):77-90. doi: 10.1142/S1013702518300010. Epub 2018 Aug 14. P

A review of current medical literature including forward head posture, proprioception posture, and conditions caused by poor posture.

CHIROPRACTIC CURRENT LITERATURE REVIEW: ADDITIONAL RESEARCH

DOCTORS OF CHIROPRACTIC WORKING WITH OR WITHIN INTEGRATED HEALTHCARE DELIVERY SYSTEMS: A SCOPING REVIEW PROTOCOL

Date & Journal: BMJ Open . 2021 Jan 25.

Abstract

Introduction: Back and neck pain are the leading causes of disability worldwide. Doctors of chiropractic (DCs) are trained to manage these common conditions and can provide non-pharmacological treatment aligned with international clinical practice guidelines. Although DCs practice in over 90 countries, chiropractic care is rarely available within integrated healthcare delivery systems. A lack of DCs in private practice, particularly in low-income communities, may also limit access to chiropractic care. Improving collaboration between medical providers and community-based DCs, or embedding DCs in medical settings such as hospitals or community health centres, will improve access to evidence-based care for musculoskeletal conditions.

Methods and analyses: This scoping review will map studies of DCs working with or within integrated healthcare delivery systems. We will use the recommended six-step approach for scoping reviews. We will search three electronic data bases including Medline, Embase and Web of Science. Two investigators will independently review all titles and abstracts to identify relevant records, screen the full-text articles of potentially admissible records, and systematically extract data from selected articles. We will include studies published in English from 1998 to 2020 describing medical settings that have established formal relationships with community-based DCs (eg, shared medical record) or where DCs practice in medical settings. Data extraction and reporting will be guided by the Proctor Conceptual Model for Implementation Research, which has three domains: clinical intervention, implementation strategies and outcome measurement. Stakeholders from diverse clinical fields will offer feedback on the implications of our findings via a web-based survey.

Roseen EJ, Kasali BA, Corcoran K, Masselli K, Laird L, Saper RB, Alford DP, Cohen E, Lisi A, Atlas SJ, Bean JF, Evans R, Bussières A. Doctors of chiropractic working with or within integrated healthcare delivery systems: a scoping review protocol. BMJ Ope

CHIROPRACTIC CASE REPORTS: A REVIEW AND BIBLIOMETRIC ANALYSIS

Date & Journal: Chiropr Man Therap . 2021 Apr 28.

Abstract

Objective: To determine publication trends, gaps, and predictors of citation of chiropractic case reports (CRs).

Results: The search identified 1176 chiropractic CRs meeting selection criteria. There was an increasing trend of CRs having a case management topic, non-spinal focus, non-chiropractic journal, neuromusculoskeletal-focus, diagnosis of vascular pathology, and a decreasing trend of adverse effect vascular pathology CRs. Independent predictors of greater total citations (or citation rate) included ICD-10 categories of perinatal conditions, infections, "case" in title, case management topic, and physical therapy, integrative, and dental journal type. Predictors of fewer citations included diseases of the blood, neoplasms, other findings not elsewhere classified, a title > 11 words, and multidisciplinary authorship. ICD-10 categories describing non-musculoskeletal diseases and special populations such as pediatrics, pregnancy, and perinatal conditions had few CRs.

Conclusion: Chiropractic CRs are diversifying from spine-related topics. Chiropractors are encouraged to publish objective, structured CRs within defined research gaps. Published CRs can inform the design of future research studies with a higher level of clinical relevance and evidence.

Trager RJ, Dusek JA. Chiropractic case reports: a review and bibliometric analysis. Chiropr Man Therap. 2021 Apr 28;29(1):17. doi: 10.1186/s12998-021-00374-5. PMID: 33910610; PMCID: PMC8080364.

"DOING OUR BEST FOR PATIENT SAFETY" : AN INTERNATIONAL AND INTERPROFESSIONAL QUALITATIVE STUDY WITH SPINAL MANIPULATIVE THERAPY PROVIDERS IN COMMUNITY-BASED SETTINGS

Date & Journal: Musculoskelet Sci Pract . 2021 Dec.

Abstract

Background: Patient safety research is expanding from hospitals to community-based healthcare settings. Knowledge gaps persist among manual therapy professions that may impede patient safety initiatives within musculoskeletal care settings.

Objectives: To describe perceptions of patient safety among chiropractors and physiotherapists who provide spinal manipulation therapy (SMT).

Conclusion: Findings align with World Health Organization guiding principles that the nature of healthcare settings influence patient safety strategies. Most responses focused on individual strategies to prevent adverse events. However, this approach may overlook the benefits of identifying and documenting adverse events, setting time to discuss adverse events with clinic members, standardizing clinical practices, and building transparent patient safety cultures across healthcare professions and settings.

Funabashi M, Holmes MM, Pohlman KA, Salsbury S, O'Beirne M, Vohra S, Mior S. "Doing our best for patient safety": An international and interprofessional qualitative study with spinal manipulative therapy providers in community-based settings. Musculoskele\

DEVELOPMENT OF A MANNEQUIN LAB FOR CLINICAL TRAINING IN A CHIROPRACTIC PROGRAM

Date & Journal: J Chiropr Educ . 2022 Mar 31.

Abstract

Introduction: Faced with COVID-19 safety protocols that severely limited the ability to conduct chiropractic technique instruction in the usual manner, our university invested the resources to develop a new mannequin lab for hands-on training, which would help supplement the loss of person-to-person contact.

Methods: Training mannequins could enable student learning of palpation and adjustment skills while avoiding close human-human contact. The university had developed a mannequin over the previous 4 years consisting of a full-sized human torso with individually movable and palpable vertebrae, pelvis, and thighs. In the mannequin, 64 pressure sensors are attached to particular vertebral and skeletal landmarks and provide feedback on palpation location and level of force applied. We assembled 3 teams to produce 20 copies of that mannequin for student use.

Results: Mannequins were produced in 7 weeks, and space was built out for a special lab. Faculty members are developing classroom procedures to introduce the mannequin to students, phase in the skills from static and motion palpation, and practice thrust performance.

Conclusion: The production run was successful, and the resulting equipment, well-received by students and faculty. In addition to helping teach manual skills, the lab serves as a platform for educational research to test the efficacy of mannequin-based training protocols. With the pressure sensors on known locations along the spine, future research may be able to test the ability of students to identify and contact specific target locations for adjustive thrusts.

Owens EF, Dever LL, Hosek RS, Russell BS, Dc SS. Development of a mannequin lab for clinical training in a chiropractic program. J Chiropr Educ. 2022 Mar 31. doi: 10.7899/JCE-21-10. Epub ahead of print. PMID: 35394042.

MITIGATING GAIT DECLINE IN A WOMAN WITH PARKINSON'S DISEASE: A CASE REPORT

Date & Journal: J Med Cases . 2022 Mar.

Abstract

Levodopa therapy is the standard pharmacological treatment for Parkinson's disease (PD). However, after an initial period of significant benefit, the effects of levodopa begin to wear off. This results in a reduction in the effect duration and the development of motor complications. We describe the case of a 69-year-old woman presented with a 3-year history of lower back pain and progressive left leg weakness. One year prior to referral for neurological assessment, the patient first noted progressive leg weakness and insufficient strength to rise from a chair. The diagnosis of PD was made after excluding potential neurological disorders. The patient was initially started on oral levodopa, which improved her motor symptoms considerably during the first year. However, dose adjustment and combined pharmacological strategies failed to sufficiently control motor symptoms during the subsequent year. The patient experienced declines in gait ability, clumsiness in the left limbs, and difficulty in performing housework. The patient then sought chiropractic attention. Gait rehabilitation was the major goal in the treatment program for this patient, with the impression of motor complications of PD. The intervention consisted of spinal manipulation, intermittent motorized traction of the lumbar segments, and gait training programs. Following 3 months of the intervention, the patient demonstrated increased muscle strength and improved gait characteristics, as depicted by a gait cyclogram and vertical ground reaction force graphing. The current report illustrates that a multicomponent chiropractic approach may be used as an additional measure to mitigate gait decline in PD patients.

Chu EC, Wong AY. Mitigating Gait Decline in a Woman With Parkinson's Disease: A Case Report. J Med Cases. 2022 Mar;13(3):140-144. doi: 10.14740/jmc3856. Epub 2022 Mar 5. PMID: 35356393; PMCID: PMC8929208.

SPINAL MANIPULATION VS PRESCRIPTION DRUG THERAPY FOR CHRONIC LOW BACK PAIN: BELIEFS, SATISFACTION WITH CARE, AND QUALIFY OF LIFE AMONG OLDER MEDICARE BENEFICIARIES

Date & Journal: J Manipulative Physiol Ther . 2022 Mar 26.

Abstract

Objective: The objective of this study was to compare patients' perspectives on the use of spinal manipulative therapy (SMT) compared to prescription drug therapy (PDT) with regard to health-related quality of life (HRQoL), patient beliefs, and satisfaction with treatment.

Results: Recipients of SMT were more likely to be very satisfied with their care (84%) than recipients of PDT (50%; P = .002). The SMT cohort self-reported significantly higher HRQoL compared to the PDT cohort; mean differences in physical and mental health scores on the 12-item Short Form Health Survey were 12.85 and 9.92, respectively. The SMT cohort had a lower degree of concern regarding chiropractic care for their back pain compared to the PDT cohort's reported concern about PDT (P = .03).

Conclusion: Among older Medicare beneficiaries with chronic low back pain, long-term recipients of SMT had higher self-reported rates of HRQoL and greater satisfaction with their modality of care than long-term recipients of PDT. Participants who had longer-term management of care were more likely to have positive attitudes and beliefs toward the mode of care they received.

Kizhakkeveettil A, Bezdjian S, Hurwitz EL, Toler AWJ, Rossi D, Uptmor S, Sagester K, Bangash M, MacKenzie TA, Lurie JD, Coulter I, Haldeman S, Whedon JM. Spinal Manipulation vs Prescription Drug Therapy for Chronic Low Back Pain: Beliefs, Satisfaction Wit

IMPROVEMENTS IN CERVICAL SPINAL CANAL DIAMETER AND NECK DISABILITY FOLLOWING CORRECTION OF CERVICAL LORDOSIS AND CERVICAL SPONDYLOLISTHESES USING CHIROPRACTIC BIOPHYSICS TECHNIQUE: A CASE SERIES.

DATE & JOURNAL: J RADIOL CASE REP . 2020 APR 30

Abstract

Cervical spondylolisthesis indicates instability of the spine and can lead to pain, radiculopathy, myelopathy and vertebral artery stenosis. Currently degenerative cervical spondylolisthesis is a wait-and-watch condition with no treatment guidelines. A literature review and discussion will be provided. 8 females presented with neck pain, disability, and history of motor vehicle collision. Radiographs revealed abnormal cervical alignment, spinal canal narrowing, and spondylolistheses. After 30 sessions of Chiropractic BioPhysics® care over 12 weeks, patients reported improved symptoms and disabilities. Radiographs revealed improvements in cervical alignment, spondylolistheses, and spinal canal diameter. Motor vehicle collision may cause instability and abnormal alignment of the cervical spine leading to cervical spondylolisthesis. Improving spinal alignment may be an effective treatment to reduce vertebral subluxation and cervical spondylolistheses and improve neck disability as a result of improved spinal alignment.

Fedorchuk C, Lightstone DF, Comer RD, Katz E, Wilcox J. Improvements in Cervical Spinal Canal Diameter and Neck Disability Following Correction of Cervical Lordosis and Cervical Spondylolistheses Using Chiropractic BioPhysics Technique: A Case Series. J R

BEST PRACTICES FOR CHIROPRACTIC MANAGEMENT OF PATIENTS WITH CHRONIC MUSCULOSKELETAL PAIN: A CLINICAL PRACTICE GUIDELINE.

DATE & JOURNAL: J ALTERN COMPLEMENT MED . 2020 OCT.

Abstract

Objective: To develop an evidence-based clinical practice guideline (CPG) through a broad-based consensus process on best practices for chiropractic management of patients with chronic musculoskeletal (MSK) pain.

Results: The Delphi process was conducted January-February 2020. The 62-member Delphi panel reached consensus on chiropractic management of five common chronic MSK pain conditions: low-back pain (LBP), neck pain, tension headache, osteoarthritis (knee and hip), and fibromyalgia. Recommendations were made for nonpharmacological treatments, including acupuncture, spinal manipulation/mobilization, and other manual therapy; modalities such as low-level laser and interferential current; exercise, including yoga; mind-body interventions, including mindfulness meditation and cognitive behavior therapy; and lifestyle modifications such as diet and tobacco cessation. Recommendations covered many aspects of the clinical encounter, from informed consent through diagnosis, assessment, treatment planning and implementation, and concurrent management and referral. Appropriate referral and co-management were emphasized.

Conclusions: These evidence-based recommendations for a variety of conservative treatment approaches to the management of common chronic MSK pain conditions may advance consistency of care, foster collaboration between provider groups, and thereby improve patient outcomes.

Hawk C, Whalen W, Farabaugh RJ, Daniels CJ, Minkalis AL, Taylor DN, Anderson D, Anderson K, Crivelli LS, Cark M, Barlow E, Paris D, Sarnat R, Weeks J. Best Practices for Chiropractic Management of Patients with Chronic Musculoskeletal Pain: A Clinical Pra

EVALUATION OF THE EFFECT OF CHIROPRACTIC MANIPULATIVE TREATMENT ON OXIDATIVE STRESS IN SACROILIAC JOINT DYSFUNCTION.

DATE & JOURNAL: TURK J PHYS MED REHABIL . 2020 MAY 18

Abstract

Objectives:

This study aims to investigate the effect of chiropractic manipulative treatment on sacroiliac joint dysfunction (SIJD) and its relationship to oxidative stress (OXS) parameters.

Results:

Prior to treatment, we demonstrated that serum native thiol (µmol/L) and total thiol (µmol/L) levels in the patient group were lower compared to control subjects. Serum IMA levels were higher in the patient group. There was no change in OXS parameters after manipulative treatment in the patient group.

Conclusion:

Manipulation is useful in SIJD. Thiol/disulphide homeostasis and serum IMA levels may be used to measure the OXS in patients with SIJD.

Kültür T, Çiftçi A, Okumuş M, Doğan M, Arıkan Durmaz Ş, Neşelioğlu S, Erel Ö. Evaluation of the effect of chiropractic manipulative treatment on oxidative stress in sacroiliac joint dysfunction. Turk J Phys Med Rehabil. 2020 May 18;66(2):176-183. doi: 10.

RESTORING LUMBAR LORDOSIS: A SYSTEMATIC REVIEW OF CONTROLLED TRIALS UTILIZING CHIROPRACTIC BIO PHYSICS ® (CBP ®) NON-SURGICAL APPROACH TO INCREASING LUMBAR LORDOSIS IN THE TREATMENT OF LOW BACK DISORDERS.

DATE & JOURNAL: J PHYS THER SCI . 2020 SEP.

Abstract

[Purpose] To systematically review controlled trial evidence for the use of lumbar extension traction by Chiropractic BioPhysics® methods for the purpose of increasing lumbar lordosis in those with hypolordosis and low back disorders.

[Results] Four articles detailing 2 randomized and 1 non-randomized trial were located. Trials demonstrated increases in radiographic measured lordosis of 7-11°, over 10-12 weeks, after 30-36 treatment sessions. Randomized trials demonstrated traction treated groups mostly maintained lordosis correction, pain relief, and disability after 6-months follow-up. The non-randomized trial showed lordosis and pain intensity were maintained with periodic maintenance care for 1.5 years. Importantly, control/comparison groups had no increase in lumbar lordosis. Randomized trials showed comparison groups receiving physiotherapy-less the traction, had temporary pain reduction during treatment that regressed towards baseline levels as early as 3-months after treatment.

[Conclusion] Limited but good quality evidence substantiates that the use of extension traction methods in rehabilitation programs definitively increases lumbar hypolordosis. Preliminarily, these studies indicate these methods provide longer-term relief to patients with low back disorders versus conventional rehabilitation approaches tested.

Oakley PA, Ehsani NN, Moustafa IM, Harrison DE. Restoring lumbar lordosis: a systematic review of controlled trials utilizing Chiropractic Bio Physics® (CBP®) non-surgical approach to increasing lumbar lordosis in the treatment of low back disorders. J Ph

TREATMENT OF PATIENTS WITH LOW BACK PAIN: A COMPARISON OF PHYSICAL THERAPY AND CHIROPRACTIC MANIPULATION.

DATE & JOURNAL: HEALTHCARE (BASEL) . 2020 FEB 24.

Abstract

Low back pain (LBP) is a pandemic and costly musculoskeletal condition in the United States (U.S.). Patients with LBP may endure surgery, injections, and expensive visits to emergency departments. Some suggest that using physical therapy (PT) or chiropractic in the earlier stage of LBP reduces the utilization of expensive health services and lowers the treatment costs. Given that there are costs and benefits with each of these treatments, the remaining question is in a short period of time which of these treatments is optimal. The purpose of this study was to investigate the cost-effectiveness of chiropractic versus PT in the U.S. A decision tree analytic model was used for estimating the economic outcomes. The findings showed that the total average cost in the chiropractic group was $48.56 lower than the PT group. The findings also showed that the daily adjusted life years (DALY) in the chiropractic group was 0.0043 higher than the PT group. Chiropractic care was shown to be a cost-effective alternative compared with PT for adults with at least three weeks of LBP over six months.

Khodakarami N. Treatment of Patients with Low Back Pain: A Comparison of Physical Therapy and Chiropractic Manipulation. Healthcare (Basel). 2020 Feb 24;8(1):44. doi: 10.3390/healthcare8010044. PMID: 32102417; PMCID: PMC7151187.

Thank you, Docs!

A brief evaluation survey will be emailed to you in the coming days.
Please fill out the evaluation ASAP & press “submit”.

Hope you enjoyed the seminar and I thank you for your continued support!
We really appreciate all of you!

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