

**DIFFERENTIAL
DIAGNOSIS
& REHABILITATION
OF
POSTURE & BALANCE
WITH MOTOR CONTROL
EXERCISE STRONGPOSTURE®
CONCEPTS FOR PAIN RELIEF,
PERFORMANCE & ACTIVE AGING**

*6 HOURS PRESENTED FOR THE NEUROMUSCULOSKELETAL
MEDICINE PROGRAM, UNIVERSITY OF BRIDGEPORT*

BY STEVEN P. WEINIGER, DC

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DIFFERENTIAL DIAGNOSIS & REHABILITATION OF POSTURE & BALANCE

with Motor Control Exercise

StrongPosture® Concepts for Pain Relief, Performance & Active Aging

For the **Neuromusculoskeletal Medicine Program**
University of Bridgeport

Presented by **Steven P. Weiniger DC**
DrWeiniger@BodyZone.com

Thank you to **PERFORMANCE HEALTH**

POSTURE

CORE TO HEALTH



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The Blue Ocean 21st Century Opportunity

The Posture Movement

From Awareness to Consciousness

& Chiropractic Adjustment is:

- intelligent
- bio-mechanical
- anti-aging LifeHabit

to Move, Feel & Be Well

Posture: A 21st Century Message

Sitting is the new Smoking

Slumping, the 21st century posture

From Text-neck to Computer-slouch



Sitting is the new Smoking | © 2003-2013 BodyZone Posture. All Rights Reserved

Is "Sitting the New Smoking"

True or False?



SPORTS: Sports Sitting Will Kill Us All

PERSONAL JOURNAL: The Row to Recovery

Home Deaths Gain Support in New U.K. Findings

The Toll of Sitting All Day

Good posture can help you age better


HEARD ON THE FIELD: When a Spot in the Olympics

47 STUDY META-STUDY (ANNAL INTERNAL MEDICINE, 2015)

SITTING IS THE NEW SMOKING

Prolonged sitting affects mortality from all causes
EVEN IF YOU EXERCISE!

- 6-12 hrs sitting --> / 91% incr risk of Type 2 Diabetes
- Increase overall mortality risk- 24%
- Heart disease mortality: Up 18%
- Cancer mortality +17% / Developing +13%



Biswas, A., Oh, P.L., et al (2015). Sedentary time and its association with risk for disease incidence, mortality, and hospitalization in adults: A systematic review and meta-analysis. *Annals of Internal Medicine*, 162(2), 123-32. doi:10.7326/M14-1651.

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SITTING IS THE NEW SMOKING

Biswas: Prolonged sitting affects mortality from all causes... EVEN IF YOU EXERCISE!

EDITORIAL
FROM EDITORS OF ANNALS OF INT MED

“The potential for innovative approaches to reduce health risks of too much sitting, particularly for primary prevention, is considerable”

Lynch, B. M., & Queen, N. (2015). Too much sitting and chronic disease risk: Steps to move the science forward. Annals of Internal Medicine, 162(2), 146-7. doi:10.7326/M14-2552

EDITORIAL
Annals of Internal Medicine
Too Much Sitting and Chronic Disease Risk: Steps to Move the Science Forward

The association between sitting and chronic disease risk is well established. The health consequences of sitting are similar to those of smoking. The health consequences of sitting are similar to those of smoking. The health consequences of sitting are similar to those of smoking.

Sitting is the New Smoking

a composite meme

I. Activity v. Inactivity

II Flexed vs Aligned Structure

Sitting is the New Smoking

a composite meme

I. Activity v. Inactivity

I. ACTIVITY V. INACTIVITY NIH 2012 1/2

Life Expectancy Gains from Physical Activity

Percentage of HHS Guidelines Met	Years of Life Gained
50%	~2.0
100%	~3.5
200%	~4.5
300%	~4.8

National Institutes of Health: in 650,000 adults Exercise extends life expectancy 4.5 years

12/12 PLoS Leisure Time Physical Activity of Moderate to Vigorous Intensity and Mortality: A Large Pooled Cohort Analysis Steven C. Moore <http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1001335>

I. ACTIVITY V. INACTIVITY NIH 2012 2/2

Effect of Body Weight & Physical Activity on Life Expectancy

Weight Category	Physical Activity Level	Years of Life Gained
Normal Weight	Meet Guidelines	~2.0
	met 1/2	~1.5
	inactive 1/2	~1.0
Overweight	Meet Guidelines	~2.0
	met 1/2	~1.5
	inactive 1/2	~1.0
Obese I	Meet Guidelines	~2.0
	met 1/2	~1.5
	inactive 1/2	~1.0
Obese II	Meet Guidelines	~2.0
	met 1/2	~1.5
	inactive 1/2	~1.0

Effects of 2.5hr/ wk of physical activity relatively universal across different subgroups

Obese class I = BMI 30-34.9 Obese class II = BMI 35+

12/12 PLoS Leisure Time Physical Activity of Moderate to Vigorous Intensity and Mortality: A Large Pooled Cohort Analysis Steven C. Moore <http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1001335>

Sitting is the New Smoking

a composite meme

II Flexed vs Aligned Structure

...the other 70%!

Sitting can increase risk of chronic diseases

EVEN if you get your daily dose of exercise!



"EVERYBODY KNOWS" POSTURE CAUSES BACK PAIN

"89%+ OF PRIMARY CARE PHYSICIANS CONSIDER BIO-MECHANICAL RISK FACTORS LIKE POSTURE TO BE THE SINGLE MOST IMPORTANT SHORT-TERM TRIGGER FOR SUDDEN ONSET LBP"

Clinicians' views on factors that trigger a sudden onset of low back pain
Steffens, Maher, Ferreira, Hancock, Glass, Latimer, Eur Spine J, November 2013
DOI 10.1007/s00586-013-3120-y http://link.springer.com/article/10.1007/s00586-013-3120-y

World Health Organization

WARNING: Over-medicalizing LBP Management a Health Risk

June 5, 2019

- 6 major international clinical guidelines released since 2016
- ALL** prioritized non-medical approaches for patients with low back pain
- WHO criticized overuse of:
 - pharmaceuticals
 - spinal surgery
 - injections
 - diagnostic imaging

©2019 All rights reserved. Dr Steven Weinger
Trangy, A. C., Buchbinder, R., Eshaghi, A. G., Croft, P. R., & Maher, C. G. (2019). Care for low back pain: can health systems deliver. Bulletin of the World Health Organization, 97(6).

NEW ACP BACK PAIN

American College of Physicians 2/14/17>>>> WSJ, NYT, Medscape, Wash Post, etc

Acute & sub-acute LBP

chronic LBP

The opportunity for Posture Specialists

ACP American College of Physicians
CLINICAL GUIDELINE
Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians
Ann Owen, MD, PhD, MPH, Timothy J. Wilt, MD, MPH, Robert M. McLean, MD, and Mary Ann Faria, MD, for the Clinical Guidelines Committee of the American College of Physicians

Disagnosis: The American College of Physicians (ACP) developed this guideline to present the evidence and provide clinical recommendations on noninvasive treatment of low back pain.

Methods: Using the ACP grading system, the committee based these recommendations on a systematic review of randomized, controlled trials and systematic reviews published through April 2015 on noninvasive pharmacologic and nonpharmacologic treatments for low back pain. Included studies were performed through November 2015. Clinical outcomes evaluated included reduction or elimination of low back pain, improvement in back-specific and overall function, improvement in health-related quality of life, reduction in work disability and return to work, patient satisfaction, patient self-efficacy, and adverse effects.

Target Audience and Patient Population: The target audience for this guideline includes all clinicians, and the target patient population includes adults with acute, subacute, or chronic low back pain.

Recommendations: To **Class 1** (strongest evidence) that for patients with acute or subacute low back pain, clinicians should consider nonpharmacologic treatment as first-line therapy, with or without NSAIDs, acetaminophen, or muscle relaxants (moderate-quality evidence). (Grade: strong recommendation)

To **Class 2** (moderate evidence) that for patients with chronic low back pain, clinicians and patients should consider nonpharmacologic treatment with or without NSAIDs, acetaminophen, or muscle relaxants as first-line therapy, with or without an antidepressant (moderate-quality evidence). (Grade: strong recommendation)

To **Class 2** (moderate evidence) that for patients with chronic low back pain who have had an inadequate response to nonpharmacologic therapy, clinicians and patients should consider pharmacologic treatment with controlled-release tramadol as first-line therapy, or tramadol or duloxetine as second-line therapy. Clinicians should only consider opioids as an option in patients who have failed the aforementioned therapy, require additional therapy, or report moderate-to-severe pain (moderate-quality evidence). (Grade: strong recommendation)

To **Class 2** (moderate evidence) that for patients with chronic low back pain who have had an inadequate response to nonpharmacologic therapy, clinicians and patients should consider pharmacologic treatment with controlled-release tramadol as first-line therapy, or tramadol or duloxetine as second-line therapy. Clinicians should only consider opioids as an option in patients who have failed the aforementioned therapy, require additional therapy, or report moderate-to-severe pain (moderate-quality evidence). (Grade: strong recommendation)

Annals of Internal Medicine 2017;166(10):729-741
doi:10.12691/2167-1237

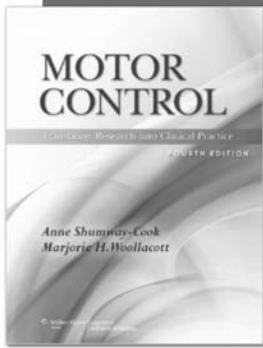
NEW ACP BACK PAIN

American College of Physicians 2/14/17>>>> WSJ, NYT, Medscape, Wash Post, etc

OUT: Rx & OTC Drugs NSAIDS, TYLENOL, OPIOIDS

Passive >>> IN: Chiropractic Massage

ACTIVE >>> IN: Tai-Chi, Yoga, Motor Control Exercise (MCE) - ie StrongPosture®



WHAT IS MOTOR CONTROL?

- “how the central nervous system >organizes muscles into coordinated movements”
- “>how sensory information is used to select and control movement, and
- >how our movement patterns are influenced by our perceptions.”

Shumway-Cook A, Woollacott MH. *Motor Control: Translating Research into Clinical Practice, 4th ed*: Lippincott; 2012.

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REHAB: MUSCLE OR MOTION



36 year long study

Spine, 2015: Physical activity might be of greater importance for good spinal control than if you have had pain or not: A longitudinal study.

- Throughout life **Pain or No Pain**— physical activity is essential to move well

Asa, U., Lundell, S., Asa, B., & Westerståhl, M. (2015). Physical activity might be of greater importance for good spinal control than if you have had pain or not: A longitudinal study. *Spine*, 40(24), 1926-1933.

Move Well To Age Well

- Effective rehab means strengthening motor control...of the whole body

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Manual physical therapy for chronic pain: The complex whole is greater than the sum of its parts

Manual therapies at a Crossroad

- Traditional** Correct technique & precise implementation
- “primary driver of a successful outcome”

1. Bialosky JE, Simon CB, Bialhop MD, et al. Basis for spinal manipulative therapy: a physical therapist perspective. *J Electromyogr Kinesiol.* 2012;22(5):643–647.10.1016/j.jelekin.2011.11.014
2. Henderson CN. The basis for spinal manipulation: chiropractic perspective of indications and theory. *J Electromyogr Kinesiol.* 2012;22(5):632–642.10.1016/j.jelekin.2012.03.008

- Updated Paradigm** Complex therapeutic experience with varying contextual elements

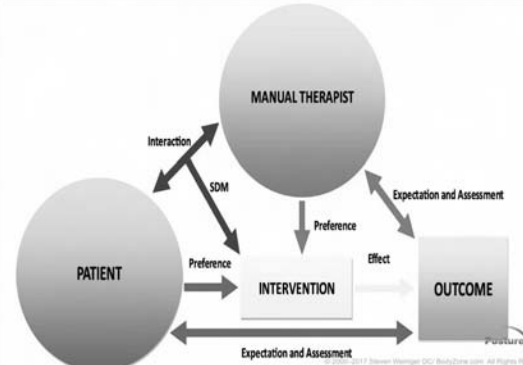
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Manual physical therapy for chronic pain: The complex whole is greater than the sum of its parts

A comprehensive approach to manual physical therapy effectiveness accounting for interactions between patient, therapist, & intervention factors. Examples of factors include preferences, expectations, outcome assessment, and shared decision-making (SDM).



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Manual physical therapy for chronic pain: The complex whole is greater than the sum of its parts



Chronic NMS pain includes:

- **Maladaptive neuroplastic changes**—> central sensitization (Pain hypersensitivity) Courtney CA, Fernandez-de-Las Penas C, Bond S. Mechanisms of chronic pain – key considerations for appropriate physical therapy management. *J Man Manip Ther.* 2017;25(3):118–127.
- **Bio-psycho-social factors**—> combat negative attitude & outlook (ie meditation, attentional focus and other training like mindfulness-based stress reduction(MBSR) for influencing psychosocial distress, done by non-psychologist clinicians for high risk patients in a manual therapy practice) Hill RJ, McKernan L, Wang L, et al. Changes in psychosocial well-being after mindfulness-based stress reduction: a prospective cohort study. *J Man Manip Ther.* 2017;25(3):128–136.
- **Bio-mechanic issues** —> Manual therapy
- **Empowerment issues:** Traditional clinical decision-making process w/ one in which the provider is authoritative “the Doctor” vs collaborative, interactive “shared decision-making” (SDM). Toussignant-Lafamme Y, Christopher S, Clewley D, et al. Does shared decision making result in better health related outcomes for individuals with painful musculoskeletal disorders? *J Man Manip Ther.* 2017;25(3):144–150.
- **Body perception issues:** 3d augmented reality mirror visual feedback therapy applied to the treatment of persistent, unilateral upper extremity neuropathic pain Mouraux D, Brassine E, Sobczak S, et al. 3d augmented reality mirror visual feedback therapy applied to the treatment of persistent, unilateral upper extremity neuropathic pain: a preliminary study. *J Man Manip Ther.* 2017;25(3):137–143.
- **Placebo Effect** Bialosky JE, Robinson ME. Placebo disclosure does not result in negative changes in mood or attitudes towards healthcare or the provider. *J Man Manip Ther.* 2017;25(3):151–159.
- **Patient education on pain neuroscience to influence treatment effectiveness** Louw A, Puenteadura EJ, Nijs J. A clinical perspective on a pain neuroscience education approach to manual therapy. *J Man Manip Ther.* 2017;25(3):160–168.

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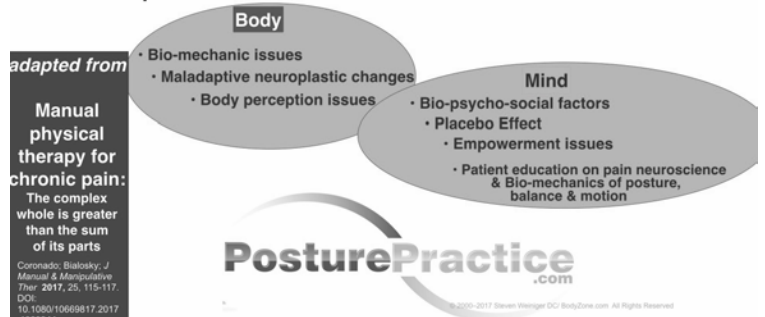
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StrongPosture® Rehab Philosophy

It's not one thing- it's how it all works together

Chronic NMS pain should address



adapted from Manual physical therapy for chronic pain: The complex whole is greater than the sum of its parts

Coronado, Bialosky, J Manual & Manipulative Ther 2017, 25, 115-117, DOI: 10.1080/10669817.2017.1309344

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PosturePractice StrongPosture® Communications

"Fixing Posture" & "Perfect Posture" are myths

"To fully address & functionally strengthen posture, look at movement & motion, not just muscles"

S. Weinger DC




PosturePractice

Your body thinks in **WHOLE** motions, not individual muscles.

Irwin Korr

"The test is the exercise; The exercise is the test"



Vladimir Janda

STRONGPOSTURE®
MOTOR CONTROL EXERCISE

Attentional focus towards a goal
+ Awareness of accuracy & errors
+ Proprioceptive feedback
=
Motor Control retraining towards reality
Along progressive tracks for
Balance | Alignment | Motion
BAM




Demo
Motor Reality

On an overall bio-mechanical basis...

What is Posture?

On an overall bio-mechanical basis...

What is Posture? A FUNCTIONAL DEFINITION

How the body is:

Balancing body's mass

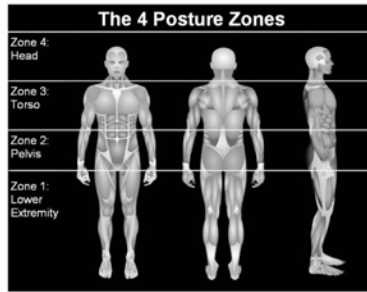
-Aligning structure (4PZ)

Manage mechanical stress

-Moving its parts

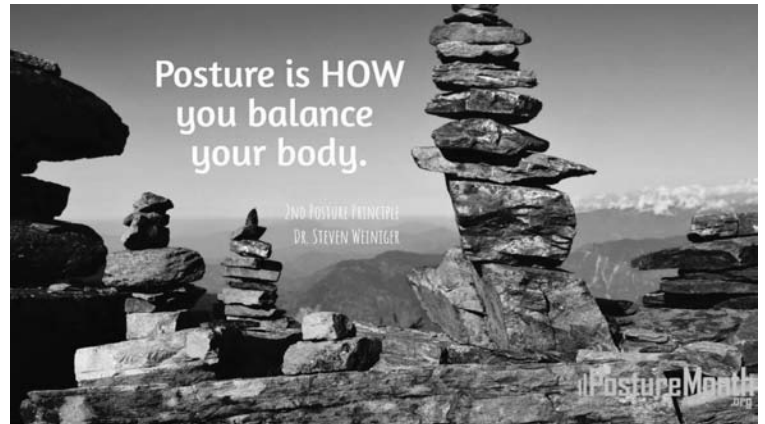
BAM

Coordinate structure to function for optimal performance / avoid pain



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Lab One Leg Balance test

- Functional strength of balance is
- how well you know, &
- can control where your body is in space.



Challenging Posture

Control

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One Leg Balance test

Control

Challenging Balance =
Challenging Posture

- Alignment Test
- Perception vs Reality

- Stability =
- Correct activation sequence +
- speed of activation Vladimar Janda

- Therefore, Reducing Stability requires increased Co-contraction



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LAB I Leg Balance Tx

Build AWARENESS
Observe Posture &
Communicate Posture

Don't Pathologize Posture

From AWARENESS
to CONSCIOUSNESS

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-Be AWARE

A PICTURE IS WORTH A THOUSAND WORDS

- Showing a picture is REAL- not "just words"
- ...especially it connects to the cause of their pain

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Instruction:
Stand Tall & Relax

Observe:
Sensorimotor error between perceived posture & observed reality

Measure Posture to ENGAGE with Posture

Head: 0.3' left
Torso: 9.4'/8.7'
Pelvis: 9.9'/9.1'

PostureZone® Assessment
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Freestanding (grid or regular background)

POSTURE PICTURE PROTOCOL

SHOW ME Stand TALL with best Strong POSTURE

GOAL: Self-aware documentation of perceived best StrongPosture®

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PosturePractice

Control Consciousness StrongPosture Concepts

MAKING PROGRESS gets people excited

& is Key to ENGAGING the Patient

STRUCTURE BUCKLES & ZIG-ZAGS IN COMPENSATION & ADAPTATION...

Deviation from gravity line &/or adjacent body mass increases energy required to BALANCE

ATTENTIONAL FOCUS ON A SINGLE MUST IMPERATIVE (BY POSTUREZONE®) TO RETRAIN PATTERNS OF BALANCE

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The PostureZone Model® & App

The HEAD (PostureZone® 4)

The TORSO (PostureZone® 3) w/ upper Extremity

The PELVIS (PostureZone® 2)

Lower Extremity (PostureZone® 1)

Controlled actively by muscles
Constrained passively by muscles, ligaments & joint architecture

PostureZone® Model

Which is Most Important to PEOPLE? to PROs?

PostureZone® Model

Increased PostureZone angle variance over feet = Quantitative measure of zigzag

Observe Accuracy of Self-aware Postural Alignment & Symmetry

Measure HOW 4 PostureZones® Balance

- HEAD over
- TORSO over
- PELVIS over
- FEET Lower Extremity/CoP

StrongPosture® Communications

THE POSTURE PRINCIPLES

1. MOTION
2. BALANCE
3. PATTERNS
4. COMPENSATION
5. ADAPTATION

Motion:
The Body is Designed to Move

Your body moves in a kinetic chain...
...but a chain is only as strong as it's weakest link

ACE Posture Control

You exercise as you move

Every movement starts with Posture
Every movement ends with Posture

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on direction of IDEAL Posture

Spinal Control: The Rehabilitation of Back Pain: State of the art and science
Hodges & Cholewicki Churchill Livingstone; 1st ed, August 19, 2013. ISBN-13: 978-0702043567

per Hodges & Cholewicki

"The basis for selecting a specific posture as 'ideal' involves a blend between
(i) the posture that **relieves symptoms** and
(ii) the posture that is argued in a specific approach to: **optimize the load distribution on the spine;** "

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on direction of IDEAL Posture

Spinal Control: The Rehabilitation of Back Pain: State of the art and science
 Hodges & Cholewicki Churchill Livingstone; 1st ed, August 19,
 2013, ISBN-13: 978-0702043567



per **Richardson** (Richardson et al. 2004; Claus et al. 2009a);
 towards **“minimal muscle activation or
 a more optimal muscle activation
 pattern”**

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on direction of IDEAL Posture

Spinal Control: The Rehabilitation of Back Pain: State of the art and science
 Hodges & Cholewicki Churchill Livingstone; 1st ed, August 19,
 2013, ISBN-13: 978-0702043567



per **McGill** (2007)

**“optimize the load distribution on the spine;
 optimize the orientation of muscle anatomy
 to resist motion, control load & movement”**

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on CORRECTING posture

**"We may need to
 reconceptualize the
 research framework
 in the field of
 low back pain"**

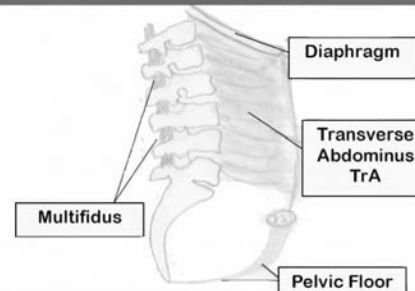


• Spinal Control: The Rehabilitation of Back Pain: State of the art and science Paul W. Hodges, Jacek

*People with different bodies & histories have different
 pains*

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POSTURE & BALANCE CONTROL SYSTEM:



**The
 Inner
 Core
 Muscles**

Stabilization begins with the core

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ALL EXERCISE IS NOT CREATED EQUAL

Specific, controlled patterns of motion
 show dramatic difference
 16 study metastudy of motor control exercises (MCE)

**"In patients with chronic and
 recurrent low back pain, MCE
 seem to be superior to several
 other treatments", including
 general exercise & SMT"**

THE CORE DIFFERENCE



How Motion Control Posture Exercise Works with Spinal Manipulation

StrongPosture® BAM Formula:
Restore Motion, then
 Retrain Muscles with
attentional focus to
 Reprogram Perceptions &
 control towards accuracy

Training core=Aligning load bearing



STRONGPOSTURE B.A.M. EXERCISE PROTOCOLS

Integrating Postural Awareness & Motor Control

"The strength of your balance is how well you know, and can control, where your body is in space."

Stand Taller-Live Longer:
An Anti-aging Strategy
S. Weiniger
2008 ISBN 9780979713606

All StrongPosture™ B.A.M. Exercises

#1 Must

-Pain-free
-Functional range

+

Attentional focus on **MUSTS** by PostureZone

Must vs Try

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StrongPosture™ Balance: 1.0

STORK

StrongPosture® with Strong Balance

Goal: ALIGN PERCEPTION & REALITY to strengthen sensori-motor integration & function

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CONSCIOUS Posture CONTROL

with ATTENTIONAL FOCUS

OBSERVE: "Dial-in"

Strengthening the Alignment between Perception & Reality

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StrongPosture® CUEING TIPS

"Stand Tall~Stand Strong"

OBSERVE SYMMETRY (or asymmetry) of ALIGNMENT & MOTION in order to BALANCE

The Strategy: Observing sensorimotor errors and correcting with specific cueing (active)...or therapy (passive)

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Posture & Balance Control System: The Inner Core Muscles

Lab

Motion Begins with the CORE
Stabilization Begins with the CORE

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**MULTIFIDUS
(THE CHIROPRACTIC MUSCLE)
QL & TRA**

✦ The multifidus is weak in most acute LBP and atrophied on MRI's of patients with a history of low back problems, even in the absence of active symptoms

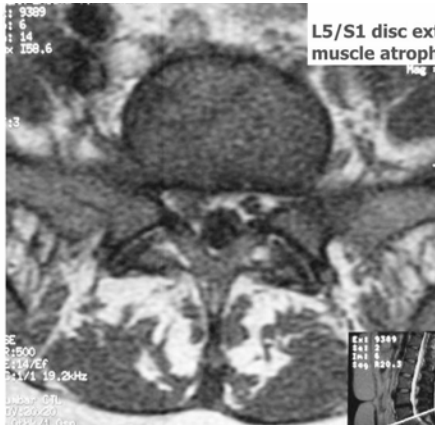
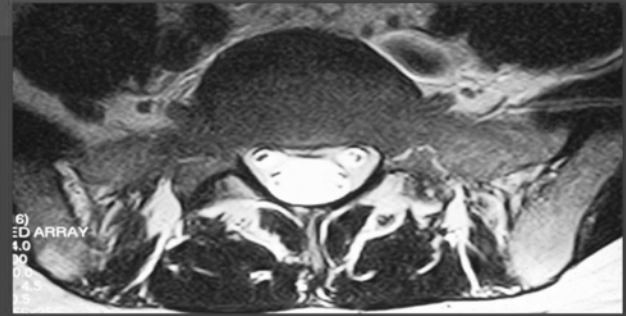
✦ Specific exercises performed for 4 weeks resulted in half the recurrence of LBP over the next 2-3 years.

Hides JA. Multifidus Muscle Recovery in Acute Low Back Pain Patients. University of Queensland, 1996

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MRI - Normal



L5/S1 disc extrusion w/paraspinal muscle atrophy



L5/S1 disc extrusion w/paraspinal muscle atrophy

**MULTIFIDUS
(THE CHIROPRACTIC MUSCLE)
QL & TRA**

- ✦ Is it ONLY Multifidus firing FULLY
- OR
- ✦ Progressive fractional control of Multifidus synchronized in patterns with QL, TrA and other muscles?

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Clinical improvement following SMT associated with increased thickening of the Multifidus



Patients improved with SMT showed mechanical changes
No improvement= No Changes

Association Between Changes in Abdominal and Lumbar Multifidus Muscle Thickness and Clinical Improvement After Spinal Manipulation Journal of orthopaedic & sports physical therapy, v 41, # 6, June 2011, p 389 SHANE L. KOPPENHAVER, PT, PhD • JULIE M. FRITZ, PT, PhD • JEFFREY J. HEBERT, PhD, DC • GREG N. KAWCHUK, PhD, DCL • JOHN D. CHILDS, PT, PhD5 • ERIC C. PARENT, PT, PhD6 • NORMAN W. GILL, PT, DS • DEYDRE S. TEYHEN, PT, PhD5

RESEARCH REPORT

Association Between Changes in Abdominal and Lumbar Multifidus Muscle Thickness and Clinical Improvement After Spinal Manipulation

Spinal manipulation therapy (SMT) has been used for many years for the treatment and reduction of the most commonly used musculoskeletal disorder, low back pain (LBP). The objective of this study was to investigate the effectiveness of SMT on the multifidus muscle thickness and clinical improvement. The study included 20 participants with LBP who were randomized to either SMT or a control group. The results showed that SMT led to significant increases in multifidus muscle thickness and clinical improvement compared to the control group.

CONCLUSION: SMT is an effective treatment for LBP, leading to increased multifidus muscle thickness and clinical improvement.

Clinical improvement following SMT associated with increased thickening of the Multifidus 44

"IMPLICATION: Manipulative providers often target improved spinal alignment and range of motion and select cointerventions accordingly."

"The benefits of SMT may be partially mediated by improved LM muscle thickening, and suggest that choose cointerventions that further target LM recruitment may result in better clinical outcomes"

All exercise is not created equal
re: Perception & chronic Low Back Pain (cLBP)

Clinical Journal of Pain, Mislocalization of sensory information in people with chronic low back pain: a preliminary investigation Wand, Keeves, Bourgoin, George, Smith, O'Connell, Moseley, 2013 Aug;29(8):737-43. doi: 10.1097/AJP.0b013e318274b320.

Conclusion: " a growing body of evidence suggest(s) that disturbed self-perception is a feature of CLBP."

"...altered self-perception is maladaptive and contributes to the maintenance of the problem and may represent a target of treatment for cLBP."

StrongPosture® BAM Motor Control Exercise Protocols

MUST vs TRY Cueing

Alignment Track:

- Align PostureZones to Objective Vertical
- Correlate Somatic perception with attentional focus to external reality

BALANCE
 Posture is HOW you balance your body

ALIGNMENT
 Posture is HOW you balance your body

FOCUSED PELVIC TILT

STAND TALL
Engage Core

Core Motion

EXPLORE the Arch

PRESS the tuck

Strengthen core Engagement

Strengthen full & subtle core motion

StrongPosture™ Alignment: 1.0

Pelvic Wall Tilts

Must IMPERATIVES

- 1 • Knees locked & facing forward
- 2 • Pelvis pressed to wall
- 3 • Shoulders pressed to wall
- 4 • Head LEVEL

Feet Parallel

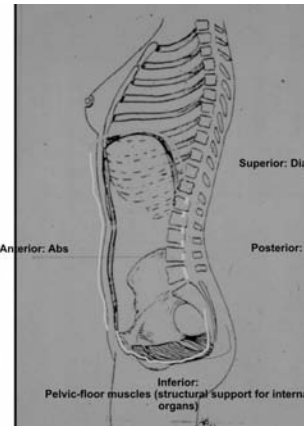
"You have to keep moving well as you age... to keep moving well as you age"

Folded Torso-Pelvis Posture Affects

- Bio-mechanic Balance (pain, performance, aging)



- +
- Breathing
 - GI
 - Cortisol levels
 - Attitude
 - BodyMind



PostureZone 2: Torso-Pelvis aka The Core

Folds in a sitting position

Segmental Motion Pattern Buckles

Be K., and Sherburn M PHYS THER 2005;85:269-282

73

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StrongPosture® MOTION track

CONSCIOUS StrongPosture® CONTROL

with ATTENTIONAL FOCUS aka Mindfulness / "Dial-in"

Strengthen Alignment between Perception of "Good Posture"... & Reality

75

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StrongPosture® MOTION track

1.0 BallSit

Strong vs Weak BallSit

- Balls are a tool to become conscious of and improve posture by helping you feel the difference between
 - where you think your body is in space, &
 - where your body really is.

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StrongPosture® MOTION track

1.0 BallSit

AWARE POSITION:

Sit with conscious control of StrongPosture®

Must IMPERATIVES

- Sit forward of top of ball
- Knees & Hips at 90 degree angles
- Head, shoulders and hips aligned

StrongPosture™ Tip
Pull in lower abs slightly to engage TrA

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"WE HELP PEOPLE STRENGTHEN THEIR

- Remove Restrictions
- Restore Control &
- Retrain Patterns

with
Chiropractic

with
StrongPosture® MCE

TOWARDS SYMMETRY, TOWARDS ACCURACY

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POSTURE CARE

From Clinical Management to LifeHabits for Everyone



ACUTE Care
Pain relief
MSK-NMS
MOVE PAIN FREE



REHAB Care
Functional Improvement & Restoration
MOVE WELL



WELLNESS Care
Optimizing how you feel, perform and age with intelligent posture
LifeHabits™
BE WELL



PUBLIC HEALTH
StrongPosture® Habits for Everyone
Intelligent Strategies for Posture Awareness, Control & Environment (ACE)

Man's mind, once stretched by a new idea, never regains its original dimensions.

~Oliver Wendell Holmes







Public Health Messages

1930's



2019



LANCET REPORT ON LBP

A Call To Action March 21, 2018

Viewpoint

Low back pain: a call for action

Prof Rachelle Buchbinder, PhD, Prof Maurits van Tulder, PhD, Prof Birgitta Öberg, PhD, Luciola Menezes Costa PhD, Prof Anthony Woolf, FRCP, Mark Schoene, BS, Prof Peter Croft, MD on behalf of the LANCET Low Back Pain Series Working Group¹

¹ Collaborators listed at the end of the Viewpoint

Published: 23 March 2018

“Low back pain is the leading cause of years lost to disability and it’s burden is growing alongside the increasing & aging population”

NEW REPORT WARNS OF WIDESPREAD INEFFECTIVENESS OF LOWER BACK PAIN TREATMENTS

OTHER TREATMENTS FOR BACK PAIN

- SUPERFICIAL HEAT
- SPINAL MANIPULATION
- MASSAGE/ ACCUPUNCTURE
- NSAID MEDICATION

GMA LIVE ON GMA

HEALTH ALERT NEW RESEARCH ON LOWER BACK PAIN ARE MILLIONS OF SUFFERERS GETTING INEFFECTIVE TREATMENT?



THE POSTURE BRIDGE FROM BACK PAIN TO CULTURAL RELEVANCE

“A POSITIVE HEALTH CONCEPT” IS NEEDED TO PREVENT LOW BACK DISABILITIES




“The LANCET”

Global Call to Action on Low Back Pain 3/21/18

Clark S, Horton R. Low back pain: a major global challenge. The Lancet. [https://doi.org/10.1016/S0140-6736\(18\)30725](https://doi.org/10.1016/S0140-6736(18)30725)

Steven's Chiro Q's



Integration into an MD's referral network requires they have a framework to understand your practice that's easy to communicate to their patients as well as other physicians.

Posture & MCE Rehab Exercise: A referral framework for DCs to communicate with MDs... & the Public

Posturepractice.com/images/stories/pdfs/Dynamic-Chiropractic-Oct14.pdf



3 Keys to Boost MD Referrals

1. **Credibility** *(Evidence supported)*
2. **Communications** *(Bio-mechanics)*
Specific to patient
General to clinical triage
3. **Positioning**
What's your BRAND?

POSTURE CARE WITH MOTOR CONTROL IS A BRAND FOR DCS

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StrongPosture® Communications

2 THE POSTURE PRINCIPLES

1. MOTION 2. BALANCE 3. PATTERNS 4. COMPENSATION 5. ADAPTATION

Balance:
Posture is How You Balance Your Body

Q: Who has balanced posture?

TRY THIS: One Leg Balance

1. Stand up straight, lift up left leg and count to 25.
2. Stop the first time you have to put your feet down to balance.

StrongPosture® CONCEPTS

Body Motion
begins with
Posture

POSTURE IS

HOW

YOU BALANCE YOUR BODY

A: EVERYONE!
Think about it- If you don't balance, you fall down. Symmetry and balance are not the same. If someone is leaning up, even if their feet are level, they're not balanced. They are physically balanced. **POSTURE IS HOW THE BODY BALANCES.**

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StrongPosture® Communications

Janda + Yoga + clinical Common-sense

Balance:

Compensation: The body compensates to keep the balance.

Adaptation: Change in posture and posture over time to keep the balance.

Stand Taller Live Longer
by Dr. Steven Weiniger

V. Janda D. Simons S. Weiniger

Standing phase muscles Pull Forward & Shifting phase muscles Push Back

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StrongPosture® Communication

THE POSTURE PRINCIPLES

1. MOTION 2. BALANCE 3. PATTERNS 4. COMPENSATION 5. ADAPTATION

Motion:
The Body is Designed to Move

Your body moves in a kinetic chain...

...but a chain is only as strong as it's weakest link

Stand Taller- Live Longer p62

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StrongPosture® Communication

THE POSTURE PRINCIPLES

1. MOTION 2. BALANCE 3. PATTERNS 4. COMPENSATION 5. ADAPTATION

Motion:
The Body is Designed to Move

Your body moves in a kinetic chain...

...& loose links move first

...while stiff/locked links move last ...if at all

90

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3 THE POSTURE PRINCIPLES
 1. MOTION 2. BALANCE 3. PATTERNS 4. COMPENSATION 5. ADAPTATION

Patterns: The Body's Chain of Motion Follows the Path of Least Resistance

A Chain Is No Stronger Than Its Weakest Link

The body moves in space as a whole unit or holistically, in what is called a **Pattern**. The body's chain of motion follows the path of least resistance.

The body moves in Patterns of motion which follow the Path of least resistance

Dr. Steven Weinger, Author of *Stand Taller Live Longer*

Patterns of motion
 Emerge from interaction of kinetic chains

OPEN CHAINS & Closed Chains

Deep & Superficial
 muscles, joints & ligaments

& follow the Path of least resistance

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4 COMPENSATION the Functional **5 ADAPTATION the Structural**

Motion: The Body is Designed to Move
 Motion Sub-Systems: All 3 sub-systems must work together to move well.

Balance: Posture is How You Balance Your Body
 Who has better balance? (Illustration of two people)

Patterns: The Body's Chain of Motion Follows the Path of Least Resistance
 A Chain Is No Stronger Than Its Weakest Link

Compensation: The Body Learns to Move in the Patterns You Teach It

Adaptation: Changes in Posture and Motion Cause the Body to Change

MOTION breaks The Pain Cycle

Weak Posture Creates Pain Cycles

Poor POSTURE → **Adaptive MOTION**

StrongPosture® CONCEPTS

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Posture Breakdown

MOTION DEGENERATION
 STRUCTURE
 Contracting Muscle & Connecting Joints
 CONTROL
 Motor & Sensory

Balance Degeneration

Did You Do Your POSTURE EXERCISE Today?

chiropractic economics | Your Online Chiropractic Community

HOME CURRENT ISSUE NEWS WEBINARS CHIROPRACTIC RESEARCH ST

The connection between poor posture and risk of falls

Steven Weinger July 24, 2018



FALLS occur from Motion errors (sensori-motor)

The 65+ Fall Epidemic

- 95% of hip fractures >65y
- 1 in 5 of those people die within a year
- M > F mortality
- F fracture risk 2x M
- Deaths (leading cause among 65+)
- One every 29 minutes
- Higher probability of needing LTC

American Academy of Aging 2011

Your perception loses to reality

Falls: A Growing epidemic

2005
per CDC
13,700
fatalities, 1.8
million to ER
projected 25,000
fatalities by 2040:

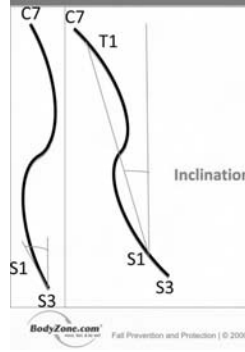


2016
29,668
fatalities
3 million ER
to ER

<https://www.cdc.gov/mmwr/volumes/67/wr/mm6718a1.htm>

Forward body lean correlates with loss of independence

Even after adjusting for things like age, sex, back pain, and stiffness,



People with more forward lean when younger were nearly 3.5 times more likely to require assistance with routine activities (ADLs) such as bathing, feeding, bathroom, dressing, and transferring to/from a chair.

Research Source: Nitz & Low Choy balance-strategy training programme for preventing falls among older people: a pilot randomised controlled trial, *Age and Ageing* 2004; 33: 52-58, 2004, British Geriatrics Society

The ability to balance on one leg for five seconds can predict which elderly people are most at risk for injury from a fall.

Vellas, Bruno J. *Journal of the American Geriatrics Society* (1997;45:735-738)

- 3 year study of 300 people over 60
- 70% of healthy older persons had at least one fall



“Those unable to balance on one leg had 2.1 times the risk injury from a fall”



” No link between the number of medications the elderly people were on at the beginning of the trial and their risk for falling

Posture CONCEPTS Stand Taller ~ Live Longer:

How old is this man?



Daily Posture Exercise
An Anti-Aging Strategy



Loss of Height=Loss of years?

RESEARCH STUDIES

- 20 year study - 1985-2005
University of London, *Archives Internal Medicine*,
- 4213 men measured
-40-59 yrs old
- Precisely measured after 20 years
-Men now 60 - 79 yrs old/760 deaths



“Strong correlation between losing height & mortality”

Height Loss in Older Men- Associations With Total Mortality and Incidence of Cardiovascular Disease S. Goya Wannamethee, PhD Gerald Shaper, FRCP; Lucy Lennon, MSc; Peter H. Whincup, FRCP, PhD, *Arch Intern Med.* 2006;166:2546-2552.



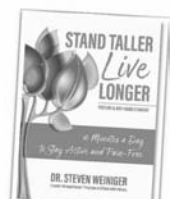
Get Shorter~Live Shorter!

RESEARCH STUDIES

- 4 groups: <1cm; 1-2, 2-3, >3cm loss>
- Over 3cm height loss --->
 - increased risk of mortality & heart disease
 - 43% increased risk of coronary events (eg heart attacks) even in men with no CV HX
 - 3cm in height -> 64% more likely to die than those who lost less than 1cm.

• Authors speculation:

“slumping over postures caused physical restriction of breathing, which significantly increased risk of cardiovascular disease, stroke and respiratory mortality.”



CHRONIC LBP PATIENTS MOVE DIFFERENTLY I/II

Hypothesis: Injury/degeneration of spine require trunk mm compensation for stability-motor control system guides

- Therefore: Sequence & timing of muscle activation necessary to stabilize the spine
- 43 Chronic Low Back cases vs 39 asymptomatic controls observed with command **LIFT ARM**.
 - EMG electrodes bilaterally @ internal oblique (IO), external oblique (EO), rectus abdominus (RA), erector spinae (ES) & lumbar multifidus

Asymmetrical activation of trunk muscles following unpredictable loading of an outstretched arm Klugarvuth, Mullington, Catley, RESPONSE OF TRUNK MUSCLES IN PATIENTS WITH CHRONIC MECHANICAL LOW BACK Rupal Mehta, Sheri P Sillies, Drexel Univ Research, 2006 <http://www.research.drexel.edu/relib/rslobback.pdf>



CHRONIC LBP PATIENTS MOVE DIFFERENTLY I/II

Hypothesis: Injury/degeneration of spine require trunk mm compensation for stability-motor control system guides

- Results: Deltoid reaction time same, but trunk significantly delayed in LBP group
- Delayed onset between ipsilateral IO & ES/contralateral EO, RA, ES and LM
- Conclusion: "Delayed onset of specific trunk muscles indicates motor control deficit & inefficient muscular stabilization"

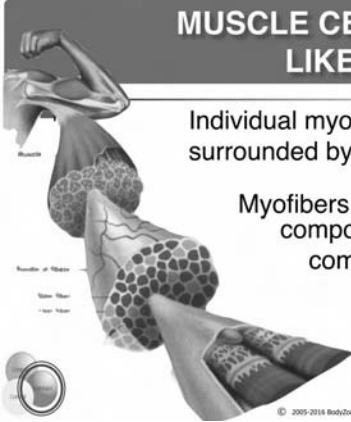
Asymmetrical activation of trunk muscles following unpredictable loading of an outstretched arm Klugarvuth, Mullington, Catley, RESPONSE OF TRUNK MUSCLES IN PATIENTS WITH CHRONIC MECHANICAL LOW BACK Rupal Mehta, Sheri P Sillies, Drexel Univ Research, 2006 <http://www.research.drexel.edu/relib/rslobback.pdf>



MUSCLE CELLS SHORTEN LIKE ROPES

Individual myofibers (muscle cells) are surrounded by endomysium.

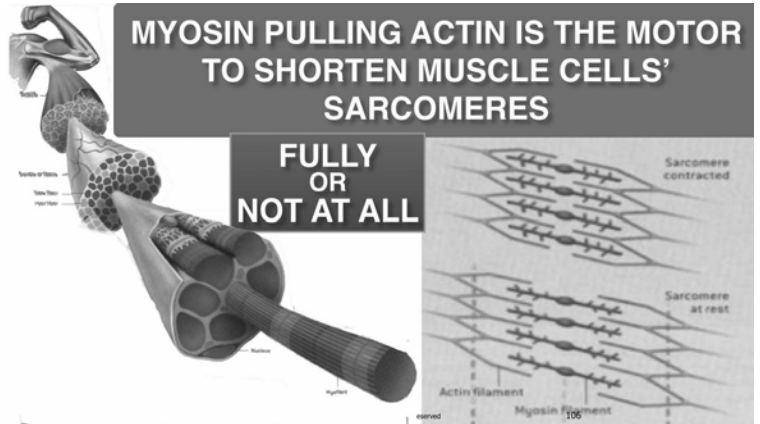
Myofibers are composed of myofibrils composed of actin & myosin proteins



Scientific American June, 2004

MYOSIN PULLING ACTIN IS THE MOTOR TO SHORTEN MUSCLE CELLS' SARCOMERES

FULLY OR NOT AT ALL



"SELF-REPORTED POSTURAL AWARENESS IS ASSOCIATED WITH CLINICAL SYMPTOMS IN CHRONIC PAIN PATIENTS"

Psycho-Social & Habitual Bio-Mechanical & Clinical

"IMPROVEMENTS IN POSTURAL AWARENESS ARE LONGITUDINALLY ASSOCIATED W/ REDUCED PAIN IN PATIENTS W/ SPINAL/SHOULDER PAIN"

"Postural Awareness and Its Relation to Pain: Validation of An Innovative Instrument Measuring Awareness of Body Posture in Patients with Chronic Pain." Wolf, Saha, Dobos & Lauche BMC musculoskeletal disorders 19, no. 1 2018 doi:10.1186/s12891-018-2031-9

"Tech Neck" strains neck and back muscles.



BodyZone.com® sitting is the new Smoking | © 2006-2015 BodyZone Posture, All Rights Reserved

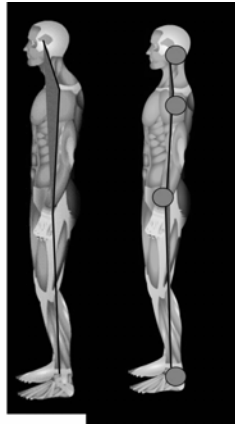
Forward Head Posture



4 year study (women over 65 years old)

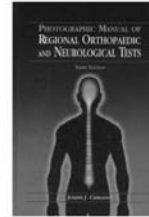
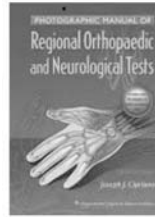
Putting forward head posture had nearly half again the risk of dying

Journal of the American Geriatrics Society, 10/2004

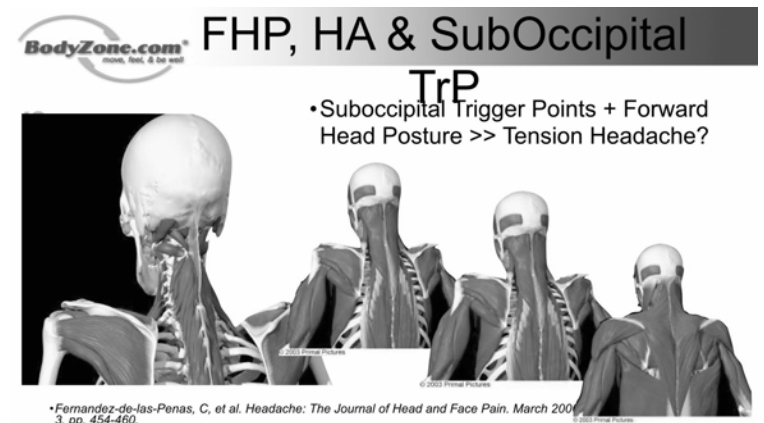
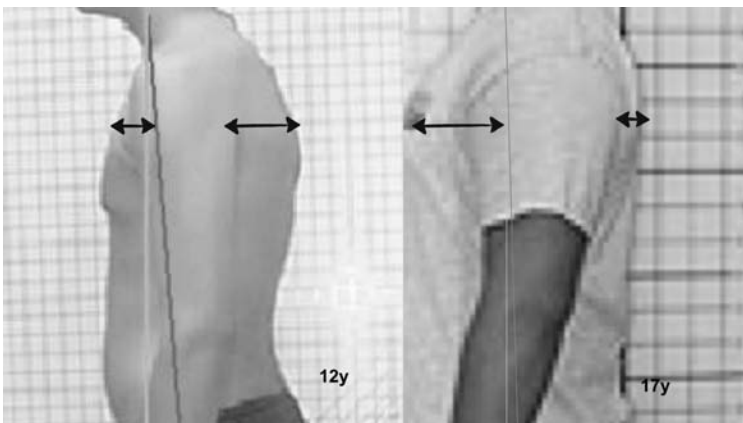
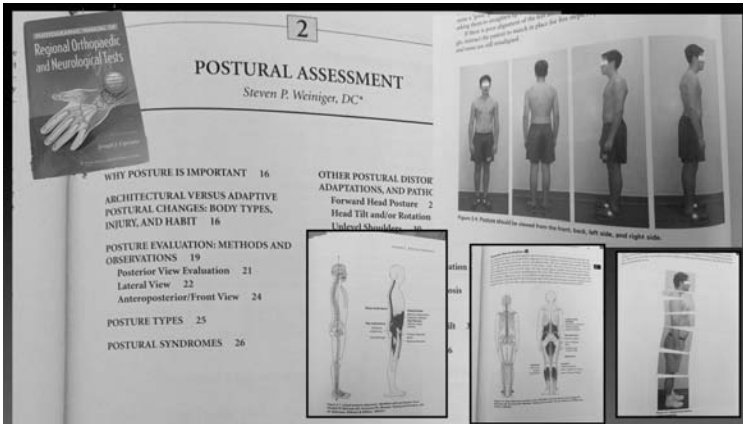
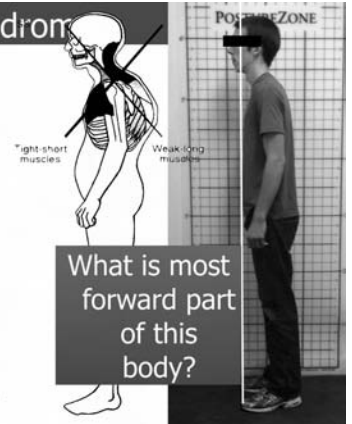


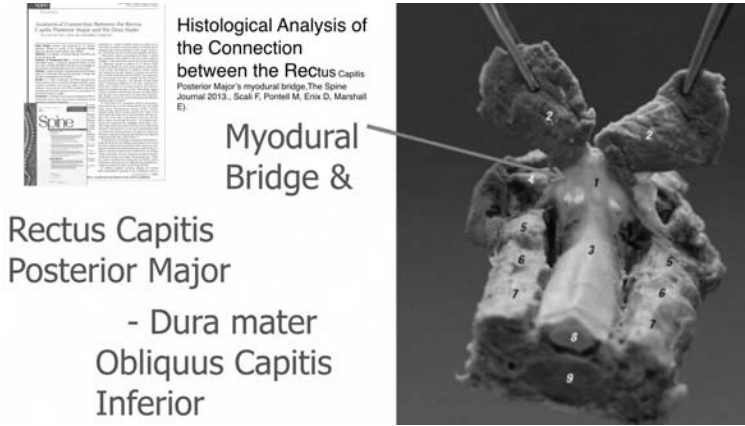
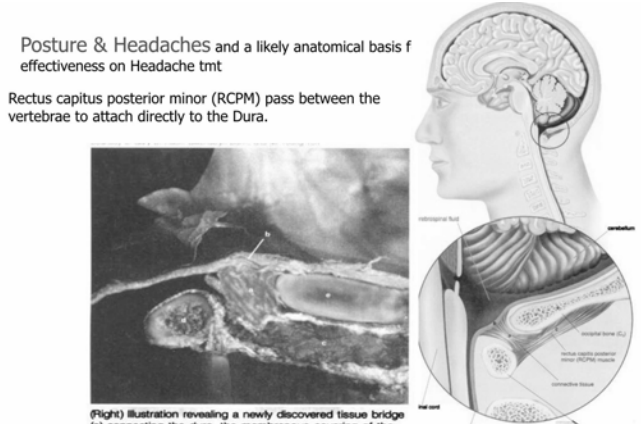
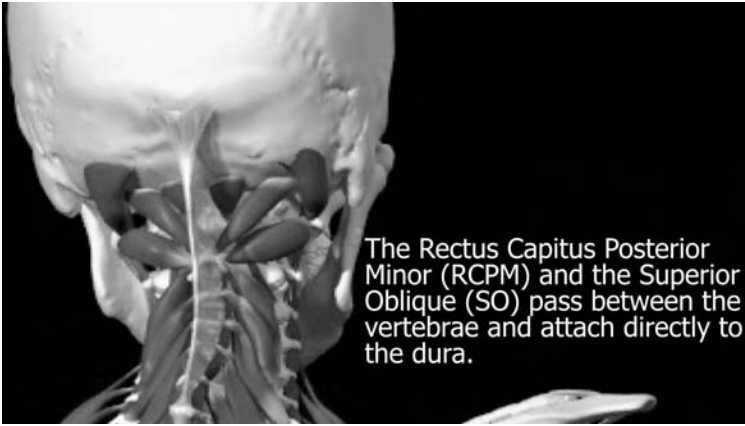
Upper Crossed Posture Syndrome

- Neck pain
- Tight shoulder muscles
- Upper back pain



Courtesy Lippincott, Williams and Wilkins, From Weiniger, in Cipriano, Regional Atlas of Orthopedic & Neurologic tests, 2002, 2007, 2010





STRONGPOSTURE® EXERCISE PROTOCOLS **MUST** VS **TRY:**

Attentional focus +
Breath control +
Control of granular motion *towards symmetry*

MUST HEAD LEVEL

TRY: HEAD ALIGNED OVER TORSO / touching wall

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MUST TRY: HEAD LEVEL Functional range

ALIGNMENT 2.0 StrongPosture® Neck Retractions

STEP 2: PROTRACT **STEP 3: RETRACT**

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MUST TRY: HEAD LEVEL Functional range

ALIGNMENT 2.0 StrongPosture® Neck Retractions

STEP 2: PROTRACT **STEP 3: RETRACT**

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Head Retraction Exercises



Head Retraction Exercise + Chiropractic

Spinal Manipulation, Medication, or Home Exercise With Advice for Acute and Subacute Neck Pain A Randomized Trial Gert Bronfort, DC, PhD; Roni Evans, DC, MS; Alfred V. Anderson, DC, MD; Kenneth H. Svendsen, MS; Yisach Bracha, MS; and Richard H. Grimm, MD, MPH, PhD Ann Intern Med. 2012;156:1-10.

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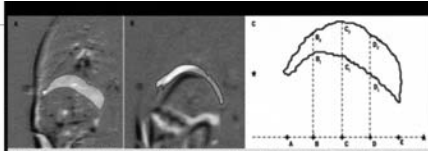


Lab

[RESEARCH REPORT]

Postural Function of the Diaphragm in Persons With and Without Chronic Low Back Pain

Despite the high prevalence of low back pain in the population, there is limited evidence regarding effective treatment strategies and the underlying mechanisms. "Think modification and prevent trunk motion may play an important role in the etiology of low back pain." To test the function of the diaphragm and prevent trunk motion, especially during postural activity, various studies have shown that the diaphragm and trunk are an interrelated unit and...



...reduced diaphragm movement in patients with chronic low back pain compared to healthy controls...

Abnormal postural activation of the diaphragm...may serve as one underlying mechanism of chronic low back pain

CONCLUSION: Patients with chronic low back pain appear to have both abnormal position and a steeper slope of the diaphragm, which may contribute to the etiology of the disorder. *J Orthop Sports Phys Ther* 2012;42(4):352-362, Epub 21 December 2011. doi:10.2519/jospt.2012.3830

Diaphragm & Low back pain



Janssens, L., Brumagne, S., McConnell, A. K., Hermans, G., Troosters, T., & Gayan-Ramirez, G. (2013). Greater diaphragm fatigability in individuals with recurrent low back pain. *Respiratory physiology & neurobiology*, 188(2), 119-123.

- "Increasing the work of the inspiratory muscles can induce fatigue of the diaphragm,"
- "recently shown that an increased demand on one of its functions (an inspiratory loading task) will inevitably abolish the other function, in terms of impaired balance control (Janssens et al., 2010).
- The results of this study showed that failure of the diaphragm to potentiate is more common in individuals with LBP compared to healthy controls.
- lifting task, it appears that individuals with LBP may compensate for a high diaphragm position and greater fatigability, by increasing their lung volume, thereby providing an adequate increase in intra-abdominal pressure (Hagins & Lamberg, 2011).
- **CONCLUSION:** "fatigability of the diaphragm may be a potential underlying mechanism in the etiology of recurrent non-specific LBP."

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Five Breaths: Conscious Breathing

ATTENTIONAL FOCUS
Connecting Internal with External cues

STRONG POSTURE EXERCISE ALIGNMENT: BAND BREATHING

1. Stand with feet hip-width apart, arms at your sides, and head, neck, and spine in a vertical line. Breathe in and out for 10 breaths. Feel the ground under your feet and the ceiling above your head. Notice the space between your ears and the space between your shoulders. Breathe in and out for 10 breaths. Feel the ground under your feet and the ceiling above your head. Notice the space between your ears and the space between your shoulders. Breathe in and out for 10 breaths. Feel the ground under your feet and the ceiling above your head. Notice the space between your ears and the space between your shoulders.

BREATHING

ATTENTIONAL FOCUS
Connecting Internal with External cues

STRONG POSTURE EXERCISE ALIGNMENT: BAND BREATHING

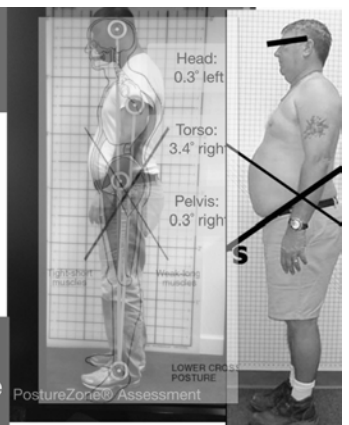
1. Stand with feet hip-width apart, arms at your sides, and head, neck, and spine in a vertical line. Breathe in and out for 10 breaths. Feel the ground under your feet and the ceiling above your head. Notice the space between your ears and the space between your shoulders. Breathe in and out for 10 breaths. Feel the ground under your feet and the ceiling above your head. Notice the space between your ears and the space between your shoulders. Breathe in and out for 10 breaths. Feel the ground under your feet and the ceiling above your head. Notice the space between your ears and the space between your shoulders.

LOWER CROSSED SYNDROME

POSTUREZONE 1:2:3 COLLAPSE

Deviation from gravity line &/or adjacent PPZ takes more energy to maintain the posture imperative

>>> BALANCE <<<



StrongPosture® **MOTION** track

BallSit to BallTilt
Individualization of StrongPosture® Exercise

Motion-- BallProtocol
2.0 BallSit

Motion-- BallProtocol
2.1 BallTilt

Conscious MOTION
INDUCTION
First time
FOCUS
PROGRESSION
PEELBACKS

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StrongPosture® Alignment >>> MOTION

EXPLORE the Arch & PRESS the tuck

from WallTilt
ALIGNMENT

to
**BallTilt
MOTION**

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Strain from sitting like this

Is reversed with

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The NEW CHIROPRACTIC: 10 Step Plan for Healthcare Legitimacy
Along with a progressive identity that's pro public health (Steps 2&5)

STEP 3 "THE PROFESSION SHOULD DEVELOP A GENERALISED SPECIAL INTEREST"

Walker's suggestion:
"improved posture through motor control"

Bruce Walker Ed, Chiropractic & Manual Therapies,
6/29/2016 24(1), 1. doi:10.1186/s12998-016-0108-9

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ilPostureMonth.org

A.C.E.

Awareness
Control
Environment

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PROMOTE POSTURE AWARENESS

NMS
Mind
Breathing
Sports Injury
Prevention

Wall, Door, Portable & KidZ
PostureZone®
Grids

POSTUREZONE

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Effective Rehab with Postural Motor Control Exercise! StrongPosture® Protocol Rehab Program

MANUAL
to learn & train

HANDOUTS
to print

STAND TALLER
to communicate
public message

DVD video
Alignment Must
vs Try basic cues

INCLUDED:

133 NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

CE to Learn Posture, Rehab and Motor Control Exercise (MCE) Pain to Performance, Kids to Seniors

CEsoup.com
15 Hours in 5-3 hour modules

INCLUDED:

134 NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

CE to Learn Posture, Rehab and Motor Control Exercise (MCE) Pain to Performance, Kids to Seniors

CEsoup.com
15 Hours in 5-3 hour modules

INCLUDED:

135 NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

CE to Learn Posture, Rehab and Motor Control Exercise (MCE) Pain to Performance, Kids to Seniors

CEsoup.com
15 Hours in 5-3 hour modules

INCLUDED:

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Motor Control begins with Posture Control

STRONGPOSTURE BAK PROTOCOLS
Functionally strengthen postural control

CEsoup.com
15 Hours in 5-3 hour modules

INCLUDED:

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CPEP® Certification
Tools, Training, & Marketing for Mastery & Referrals

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CPEP® Certification

Online course + Tools, Training, & Marketing

PostureZone® App map listing

Posture Analysis
Annual assessment for an active, pain-free life

CPEP® Locator

Certified Posture Exercise Professional
NBC FOX CBS



PostureZone app

FIND A PRO
Global CPEP Directory

CERTIFIED POSTURE EXERCISE PROFESSIONAL
BodyZone.com

Measure Symmetry of Head-Torso-Pelvis

Pro Locator

Johns Creek
Duluth
Lawrenceville
Tucker
Buchanan Chiropractic
5124 N. Henry Blvd Stockbridge
GA 30281 US
Phone number - 770-474-6655

Stockbridge
Fayetteville
Hampton
Jacksonville

- PostureZone app
- PostureMonth.org
- StandTallerLiveLonger.com
- BodyZone.com
- PosturePractice.com

Never doubt that the work of a small group of thoughtful committed citizens can change the world. Indeed it is the only thing that ever has

Margaret Mead



CHIROPRACTIC
ADJUSTMENT
MOTION PAIN
BEST JOINTS
MOBILITY
move, feel, & be well

POSTURE EXERCISE
FOCUS
MOTION STABILITY
BALANCE HEALTH
CORE STRENGTH
move, feel, & be well

To Fix That Pain in Your Back, You Might Have to Change The Way You Sit



n p r

Aug 13, 2018

CHANGING MOTION PATTERNS REDUCES PAIN

"CONCLUSION: Immediate pain reduction can be achieved by altering muscle activation and movement patterns.

However, the combination for optimal success appears to be different for every individual."
Stu McGill

Spine: 6 August 2012 Can Altering Motions, Postures and Loads Provide Immediate Low Back Pain Relief: A Study of Four Cases Investigating Spine Load, Posture and Stability. Ikeda, Dianne M. MSc; McGill, Stuart M. PhD

Relieve pain & improve function by correcting sensorimotor error

StrongPosture® exercises retrain an individual's unique motion patterns by correlating subjective perceived position & motion with external objective reality along 3 integrated tracks:
Balance:Alignment:Motion

Orthopedics looks at gross function
Gross NMS disruptions

Chiro looks at subtleties of function
NMS (vertebral & extremities) & often nutritional

Rehab retrains regional motion & should retrain functional motion

StrongPosture® looks at where subtle motion begins



Conscious vs. Unconscious control of Posture and Stability

- Posture is controlled by motion programs working independent of conscious control
 - Posture and body motion is generally unconscious
- We can take control of these motion programs, but once an activity is learned we don't...
 - except when we focus attention on that activity**

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Abstract: There has been an increase in the prevalence of chronic low back pain (CLBP) worldwide. The most common cause of CLBP is muscle weakness. CLBP is a complex condition that can be caused by many factors, including poor posture, muscle weakness, and injury. The purpose of this literature review is to examine the effectiveness of various postural rehabilitation exercises in the treatment of CLBP. The review includes a search of the literature for studies published between 2000 and 2019. The search terms used were "chronic low back pain", "postural rehabilitation", and "exercise". The review found that there is a strong body of evidence supporting the use of postural rehabilitation exercises in the treatment of CLBP. The most effective exercises were found to be Pilates, Back School, McKenzie, Feldenkrais, Alexander, etc.

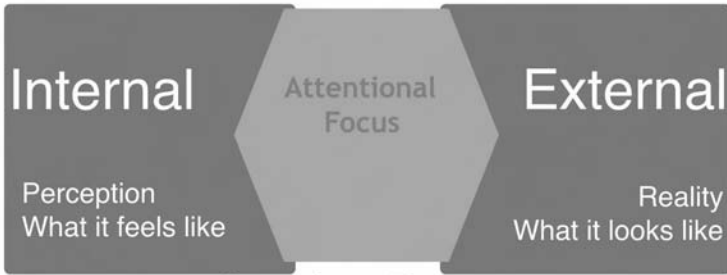
Introduction: Chronic low back pain (CLBP) is a global public health problem for most of the world. It is a major cause of disability and is a leading cause of work absence. CLBP is a complex condition that can be caused by many factors, including poor posture, muscle weakness, and injury. The purpose of this literature review is to examine the effectiveness of various postural rehabilitation exercises in the treatment of CLBP. The review includes a search of the literature for studies published between 2000 and 2019. The search terms used were "chronic low back pain", "postural rehabilitation", and "exercise". The review found that there is a strong body of evidence supporting the use of postural rehabilitation exercises in the treatment of CLBP. The most effective exercises were found to be Pilates, Back School, McKenzie, Feldenkrais, Alexander, etc.

Postural rehab exercise & Chronic low back pain in 2019

- 1st to compare various posture techniques
 - Pilates, Back School, McKenzie, Feldenkrais, Alexander, etc
- all "proved their efficacy with respect to control"
 - standard rehab exercise
- "great importance is given to the patients' breathing control..."
 - ...and therefore, to the diaphragm muscle"
- "behavioral or biopsychosocial approach offers the foundation for a better insight into persistent pain"

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Attentional Focus



Conscious Posture

Global postural stress can be measured by center of mass divergence from gravity line

The image shows two side-by-side photos of a person standing against a vertical grid labeled "POSTUREZONE". In the left photo, the person is standing with a slight lean, and a vertical line representing the gravity line is shown. In the right photo, the person is standing more upright, and the vertical line is shown. The text "Global postural stress can be measured by center of mass divergence from gravity line" is overlaid on the top photo.

Steven Weiniger



Chiropractic Spinal Manipulation (Adjustment)

DOES

- Unlock mechanical restrictions
- Stimulate Neural proprioception
- Normalize neural function

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Chiropractic Spinal Manipulation (Adjustment)

is a PASSIVE therapy &

DOESN'T

- RETRAIN MOTION PATTERNS
- Alter postural environment

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**"The test is the exercise;
The exercise is the test"**

↓ ↑

Vladimir Janda

STRONGPOSTURE® BAM PROTOCOLS
Functionally strengthen postural control of

Balance B Balance (equilibrium)
1 Leg StrongBalance™ Exercises

Alignment A Alignment-Stand Strong
Wall StrongPosture™ Exercises

Motion M Motion-Move Strong
Ball StrongPosture™ Exercises

- Optimize performance
- Minimize Injury
- Maximize durability
- Wellness

->MUST->>
SHOW ME, then progress

4 Active Motion Rehab Codes

97110	Therapeutic Exercise
97112	NM Re-education
97530	Therapeutic activities
97150	Group Therapeutic procedures

97110	97530	97150
97112		

- Indications: Pain/ Loss of function
- Document: As part of care plan
- Specific skilled treatments used
 - Functional loss,
 - Goals
 - Frequency/duration
- @ reassessment: Show progress -Moving towards goals

97110 97112	97530	97150
Whole body- regardless of the number of regions treated		
One-on-One		Group
therapist ok	no therapist	therapist ok
	Provider	

97110 97112	97530	97150
Time based 15 min increments (8 min guidelines)		Session based
- 59 modifier w SMT		

4 Rehab Code RVUs

2017 2019

97110	.89	.87	Therapeutic Exercise
97112	.93	.99	NM Re-education
97530	.95	1.13	Therapeutic activities
97150	.48	.52	Group Therapeutic procedures

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NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

THE NEW CHIROPRACTIC

Chiropractic & Manual Therapies, Bruce Walker (June 29, 2016) 24(1), 1. doi:10.1186/s12998-016-0108-9

"Step 2.

There is a need to establish a progressive identity.

Step 5. The profession and individual practitioners should be pro public health.

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NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

THE NEW CHIROPRACTIC

Chiropractic & Manual Therapies, Bruce Walker (June 29, 2016) 24(1), 1. doi:10.1186/s12998-016-0108-9

"Step 3.

The profession should develop a generalised special interest."

such as

"improved posture through motor control".

Weiniger's Suggestion: **BE the**

POSTURE Specialist

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ACE your Posture

-Be & Become **AWARE**

-Take & Train **CONTROL**

-Engineer Ergonomic **ENVIRONMENTS**



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Empowering People to... SEE with...

PostureZone Awareness

STRENGTHEN with....

StrongPosture B.A.M.

Motor Control Rehab

...& UNDERSTAND to build an intelligent...

Environment with 5 Posture Principles

Bio-mechanics for the Posture Specialist

Patient rehab & wellness | Public Self-help & Wellness | Professional Referral



Empower towards accurate posture **AWARENESS** via symmetric motor **CONTROL** rehab training

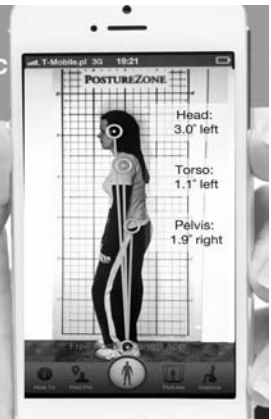
Measure & track **HOW** each Posture Zone Balances

HEAD over

TORSO over

PELVIS over

FEET Center of Pressure



161

NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

162

NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

PostureZone app

iPhone, iPad & Android

STEP I CAPTURE IMAGE

Move device to place person between brackets

Stand Tall, NOT STIFF

Rotate device to level-center line turns GREEN

Press camera button to take picture

Recommended by Certified Posture Exercise Professionals (CPEP®) and other StrongPosture® Exercise Pros

163 NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

PostureZone app

iPhone, iPad & Android

STEP II SELECT VIEW

SIDE or FRONT/BACK

Two views at right angles to each other provide a snapshot of HOW the person is balancing

164 NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

PostureZone app

iPhone, iPad & Android

STEP III BRACKET POSTUREZONES

Move and Resize each indicator to bracket PostureZones

Press button for PostureZone® assessment

Double tap to Zoom in on image (PRO version)

165 NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

PostureZone app

iPhone, iPad & Android

STEP IV CHECK YOUR POSTURE

Regular pictures build personal posture awareness

Measure Symmetry of Head-Torso-Pelvis

166 NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

PostureZone app

NEED POSTURE HELP? FIND A PRO

Global CPEP Directory

CERTIFIED POSTURE EXERCISE PROFESSIONAL

Pro Locator

Johns Creek
Duluth
Lawrenceville
Buckhead
Tucker
Buckhead
5124 N. Henry Blvd Stockbridge
GA 30281 US
Phone number - 770-474-6688

DIRECTIONS

Stockbridge
Fayetteville
Hampton
Jacksonville

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THE POSTURE PRINCIPLES

1. MOTION 2. BALANCE 3. PATTERN 4. COMPLETION 5. ADAPTATION

B.A.M.

Balance:
Posture is How You Balance Your Body

StrongPosture® CONTROL begins with BALANCE,

THEN patterns of ALIGNMENT &

THEN building a progressive virtuous spiral of MOTION

168 NMSM PosturePractice 2019 WEINIGER notes.key - October 9, 2019

POSTUREZONE Consciousness

**AWARE
One Leg
Balance**

◊ Where you think you are
VS
◊ Where you are

POSTUREZONE Head: 3.0" left
Torso: 11.9"/4.8"
Pelvis: 14.1"/8.4"

POSTUREZONE Head: 1.1" right
Torso: 7.4"/3.6"
Pelvis: 10.3"/12.6"

**PostureZone®
One Leg
Balance
Symmetry
test**

PostureZone® Assessment

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**PostureZone®
One Leg
Balance
Symmetry
test
Report**

Date	Head	Torso	Pelvis	head/hip	head/pelvis	hand/height
JAN 2017	3.0" left	11.9"/4.8"	14.1"/8.4"	-	-	-
JAN 2017	1.1" right	7.4"/3.6"	10.3"/12.6"	-	-	-

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Posture in Society

1st Awareness > Public Health

Posture Pictures
Annual - Clinical - Sports performance

Track how you look... & how you're aging

PostureZone® app
iPhone/iPad/Android
measures deviations

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Posture in Society

Power Posture Ted Talk

Feet-on-the-desk Hawk

Move, Feel & Be Well

- High vs Low Power postures
- Saliva tested after 1 minute for
 - Testosterone &
 - Cortisol
 - SIGNIFICANT hormonal changes

Arvey, D. R., Cuddy, A. J., & Yap, A. J. (2019). Power posing: Brief nonverbal displays affect neuroendocrine levels and risk tolerance. *Psychological Science*, 27(10), 1363-8. doi:10.1177/0956797619836343

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ACE Your Sitting Posture

**Awareness
Control
Environment**

Create a StrongPosture®

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College students spend 8 to 10 hours a day on their phones

Baylor University Study
 Roberts, J. A., Yarb, L., & Marolis, C. (2014). The invisible addiction: Cell phone activities and addiction among male and female college students. *J Behav Addict*, 3(4), 254-63. doi:10.1556/JBA.3.2014.015Baylor

Marketers selling solutions to the rescue!

Create an Intelligent Sleeping Posture Environment

"MY BACK ACHES constantly..." "I'M TOO HOT..."
 "TIRED of being tired..." "Lots of TOSSEING AND TURNING..."
 "I just deal with the PAIN!"

Is this you?
 It's probably your mattress.

Grand Opening

OUR EXCLUSIVE
dream
 MATTRESS
 STUDIO

PosturePractice

Environment

Sleeping PostureZone Assessment

Sleep posture Environment

Training Head forward of Torso?

Design for StrongPosture®, not weak

StrongPosture® Communications

The Power of a Picture

from PERCEPTIONS to REALITY

Control

Training posture to move towards symmetry with control has a clinically important effect for chronic low back pain**

...ESPECIALLY when you exercise!

ACE

iPostureMonth.org

**Kawachi, B. T., Maher, C. B., Yamato, T. H., Cheng, L. C., Mendenhall, L. C., Chiu, K. W., & Marquis, L. G. (2019). Motor control training for specific low back pain. *Cochrane Database of Systematic Reviews* (2019), 1. DOI:10.1002/14651959.cd012644

Learning from the Extremes

What is the fastest human athletic movement ever measured in a Laboratory?

Posture is HOW you balance your body.

2ND POSTURE PRINCIPLE
DR. STEVEN WEINIGER

"The profession should develop a generalised special interest."

"Improved posture through motor control"

Concepts

THE NEW CHIROPRACTIC: Chiropractic & Manual Therapies, Bruce Walker (June 29, 2016), 24(1), 1-30. DOI: 10.5772/1057198-016-0108

Train Balance

- Challenging Balance to focus attention on PostureZone alignment
- Balance strength is how well you know & control body in space
- Correlating perception to reality

Train ALIGNMENT

TOWARDS external OBJECTIVE

BY PostureZone®

with StrongPosture®

Train MOTION

with Balance & Alignment

TOWARDS external OBJECTIVE

BY PostureZone®

with StrongPosture®

Strain from sitting like this

Is reversed with >>

if you engage core!!

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POSTURE CARE

From Clinical Management to LifeHabits for Everyone

ACUTE Care
Pain relief
MSK-NMS
MOVE PAIN FREE

REHAB Care
Functional Improvement &
Restoration
MOVE WELL

WELLNESS Care
Optimizing how you feel, perform
and age with Intelligent posture
LifeHabits™
BE WELL

CERTIFIED POSTURE EXERCISE PROFESSIONAL

PUBLIC HEALTH

StrongPosture® Habits for Everyone
Intelligent Strategies for Posture Awareness, Control & Environment (ACE)

POSTURE CARE
From Clinical Management to LifeHabits for Everyone

Move Pain-Free **Move Well** **Be Well**

PUBLIC HEALTH

StrongPosture® Habits for Everyone
Intelligent Strategies for Posture Awareness, Control & Environment

Improve Your Postur...

NBC segment with P...

IMPORTANCE OF GOOD POSTURE

FOX NEWS Reports o...

ABC News reports o...

AARP SHAPE

NBC

News-Talk RADIO WPHS

REAL SIMPLE

CBS

FOX NEWS

chiropractic economics

Health

WOOD

Revival of the Fittest

THE ULTIMATE HOLIDAY PLANNER

Women's Health

Law Girl!

StrongPosture® Media
PosturePractice.com

Choose Your Path- Fall Down or Stand Tall

Growing Old

Active Aging

BodyZone.com Fall Prevention and Protection | © 2000-2015 BodyZone Posture. All Rights Reserved

PosturePractice.com

Thank You

Join the **Strong Posture® Movement**

Dr. Steven Weiniger
DrW@BodyZone.com

" I can think of few important movements for reform in which success was won by any method other than an energetic minority presenting the indifferent majority with a fait accompli, which was then accepted"

Vera Brittain