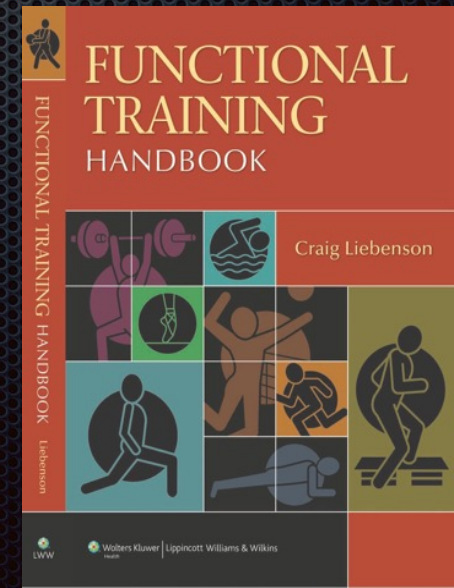


Prague School to Athletic Development CORE

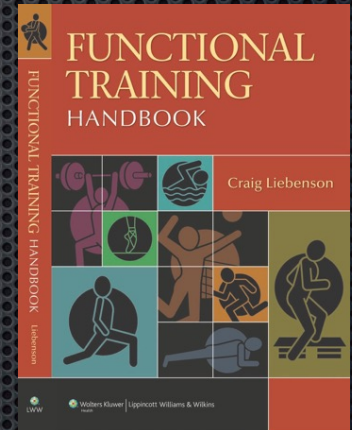
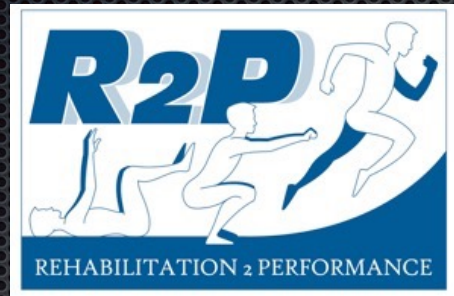
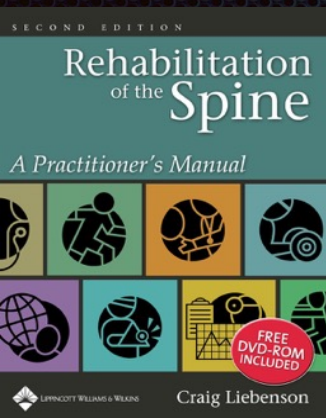
Craig Liebenson, D.C.
L.A. Sports and Spine
Los Angeles, CA

www.craigliebenson.com

craigliebensondc@gmail.com

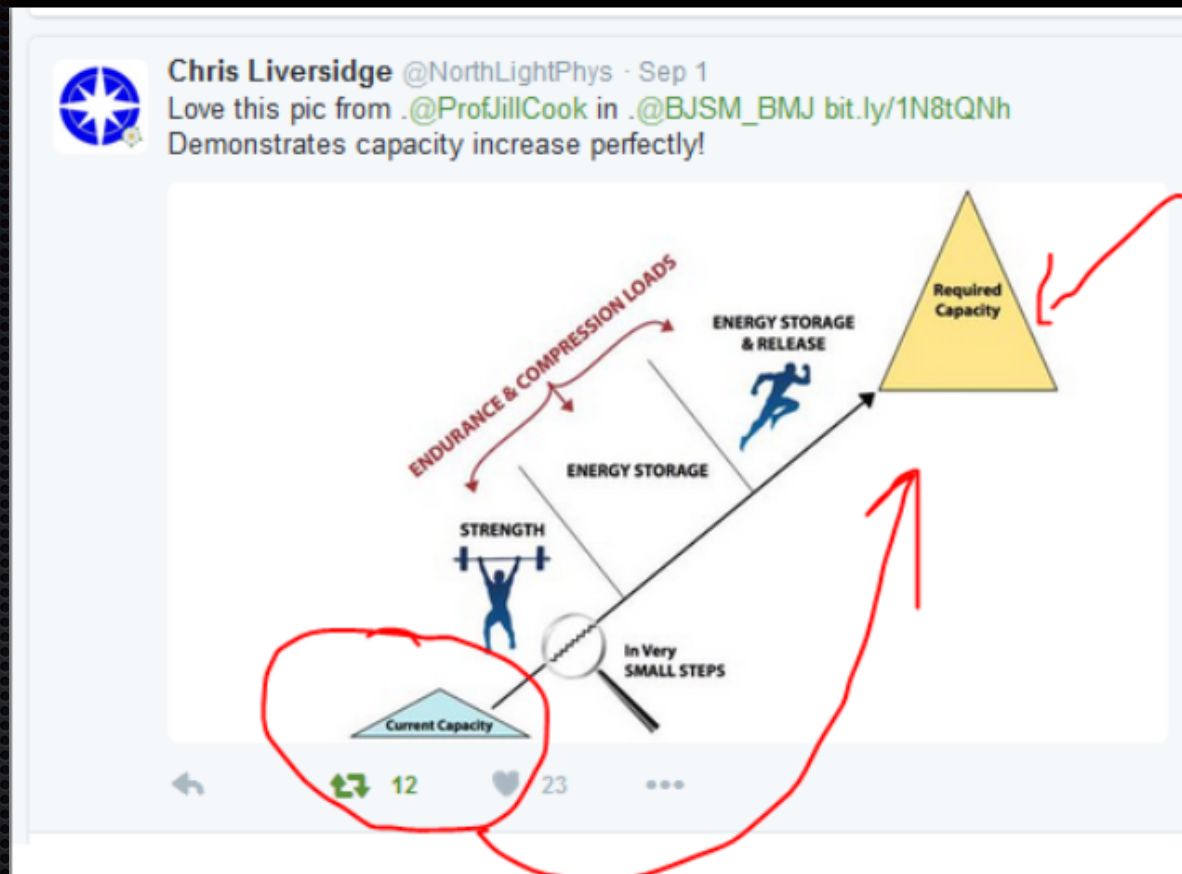


I) BRIDGE THE GAP



- A. Mind as Healer, Mind as Slayer**
- B. Inactivity Crisis**
- C. Exercise is Medicine**
- D. Traditional Structural & Symptomatic Approach**
- E. New Functional Paradigm**
- F. The Pillars**

Bridge the Gap



Demands > Capacity = Injury

Steve Jobs

- Challenge the “Status Quo”
- Question beliefs that people THINK are “correct”

Think Different



WORKSHOP #1

Assessment: Range of Motion - ROM



Pre - Mag 7

MYTH #1

- ✧ Focus on Pathology





“The first and fundamental task in classification, and hence also in diagnosis, is whether we have to deal (mainly) with pathology or dysfunction.”

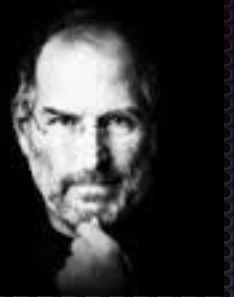
-Lewit '94



Emergency



Think Different



Triage =

- Analyze the demands
- Assess the capabilities to meet those demands
- Intervene to improve

Simone de Carmo

Indications for Radiography

Suggestive of Systemic Disease, Pathology or Trauma

Back Pain Plus:

- Fever
- Unexplained weight loss
- History of cancer
- Neurologic deficit
- Alcohol or injection drug abuse
- Age over 50
- Significant trauma
- Failure to improve with usual care.



Does Structural Pathology Correlate w/ Symptoms?





“ So, in the face of
overwhelming odds,
I'm left with only one
option. I'm gonna
have to **science the
shit out of this.** ”

The Martian

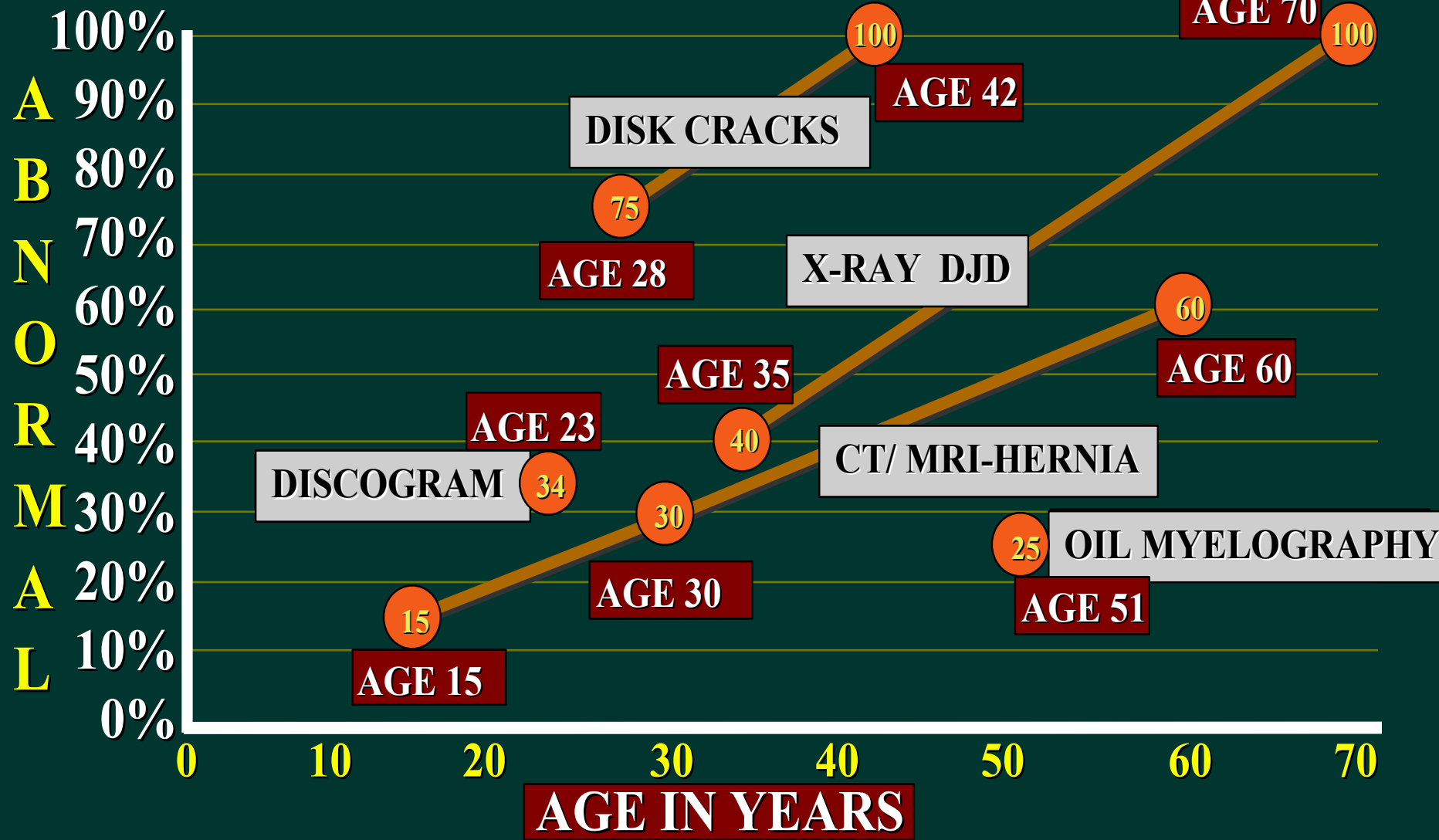
MORE IMAGING CENTERS A GOOD THING?



- Researchers at Stanford University found (Baras):
 - The more imaging centers
 - The more MRI's ordered
 - The more Surgeries Performed



DISC FINDINGS IN NORMAL SUBJECTS



Find your age on the Age in Years line then look up the chance of a findings being present before your symptoms begin.



So called Experts who have no “skin in the game” make us fragile

Is Bed Rest the Answer?

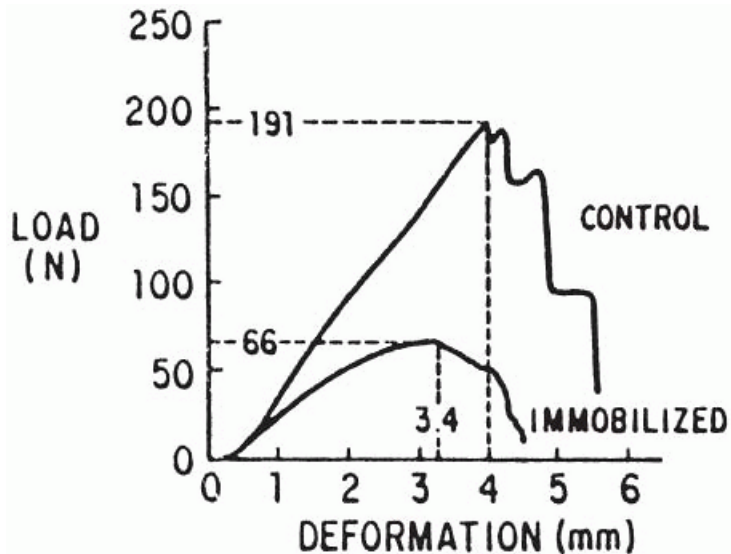
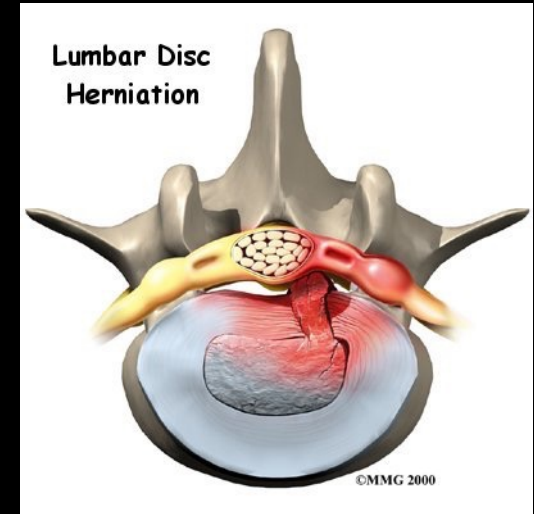


Figure 1.12 The strength of rested tissue deteriorates dramatically compared to normal tissue. In this medial collateral ligament of a rabbit knee that rested for 9 weeks, two-thirds of the strength has been lost. From Mooney V. The subacute patient: To operate or not to operate. In: Mayer TG, Mooney V, Gatchel RJ, eds. Contemporary Conservative Care for Painful Spinal Disorders. Baltimore: Lippincott, Williams & Wilkins, 1997.



LUMBAR DISC HERNIATION

- Disc herniation often regresses over time without the need for surgery



Benson RT, Tavares SP, Robertson SC, et al.
Conservatively treated massive prolapsed discs: a
7-year follow-up. Ann R Coll Surg Engl
2010;92:147-153.

SCIATICA



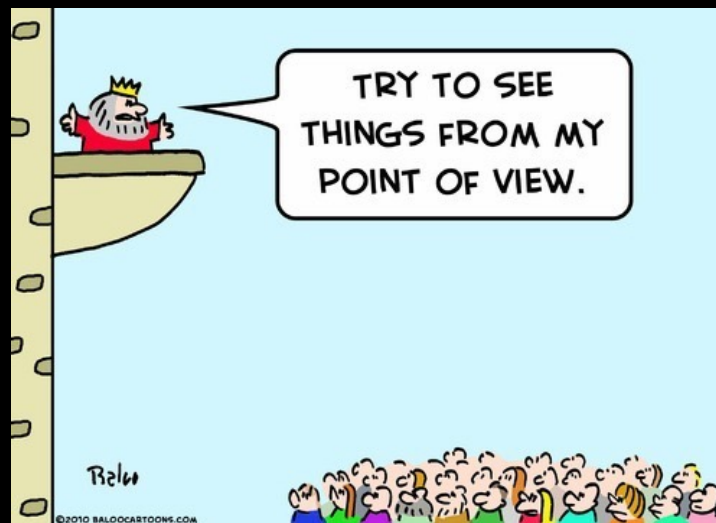
- Passive conservative treatment modalities not effective
- Results for surgery are conflicting
- Active conservative treatment effective
- *Albert HB, Manniche C. The efficacy of systematic conservative treatment for patients with severe sciatica. Spine 2012;37:531-542.*

Eugene Carragee, MD

Editor, Spine Journal

Dean Neurosurgery Stanford University

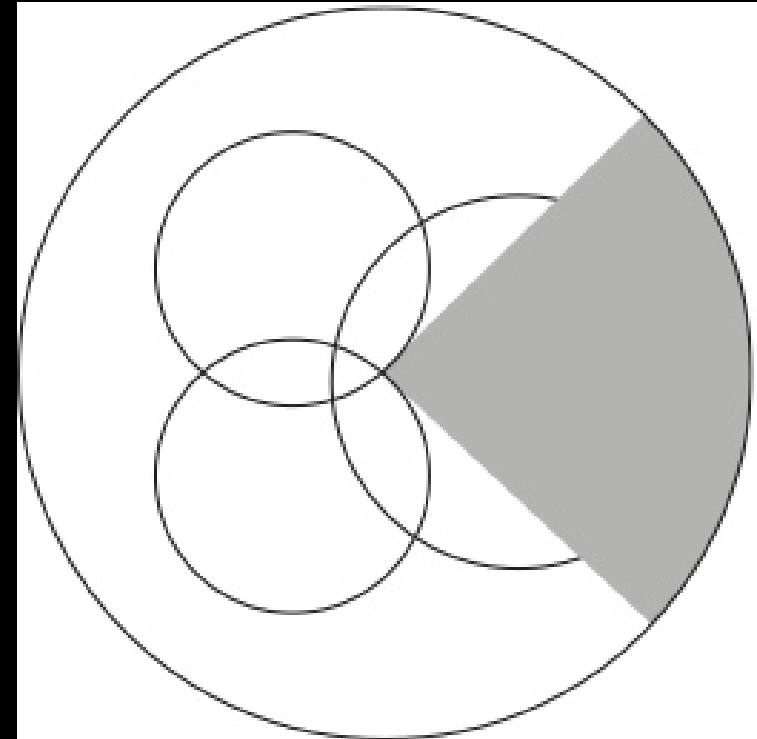
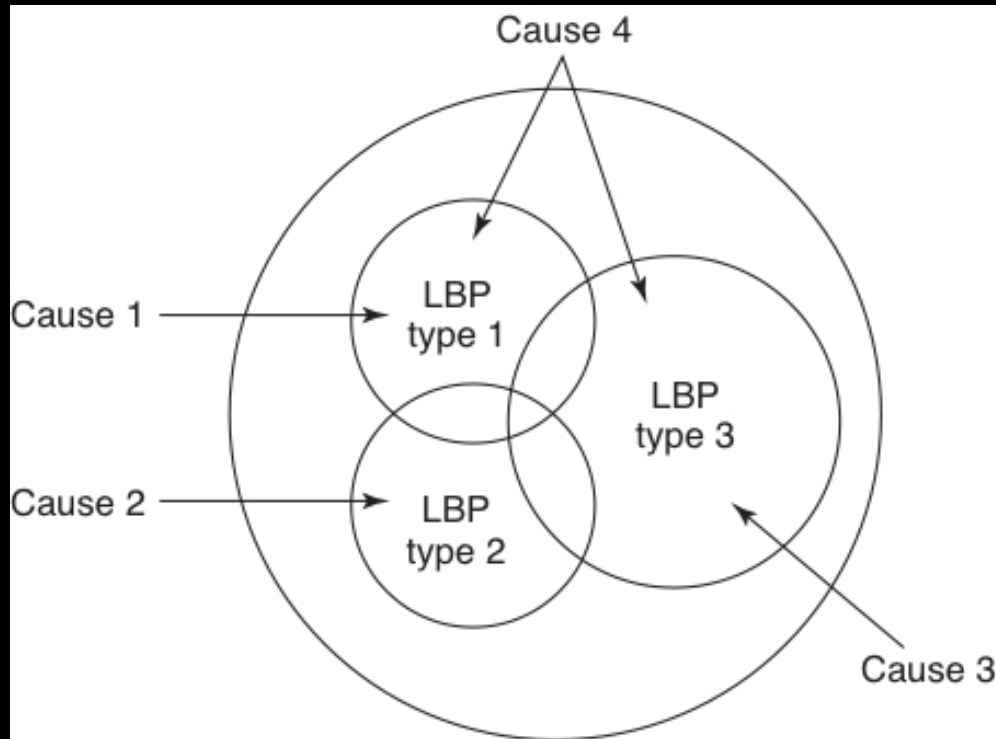
- ✦ “Common clinical practice is to consider decompression when paresis is functionally disabling, but few data support this approach.”
- ✦ JAMA, 296:20 - 2485



- New technologies lack evidence
- Evidence-based guidelines -
- no benefit of lumbar fusion over intensive **rehabilitation for nonradicular LBP**

POINT OF VIEW
DEYO R. SPINE 2012;37:77

ONE SIZE FITS ALL STRATEGY?



- Suboptimal due to heterogenous patient population

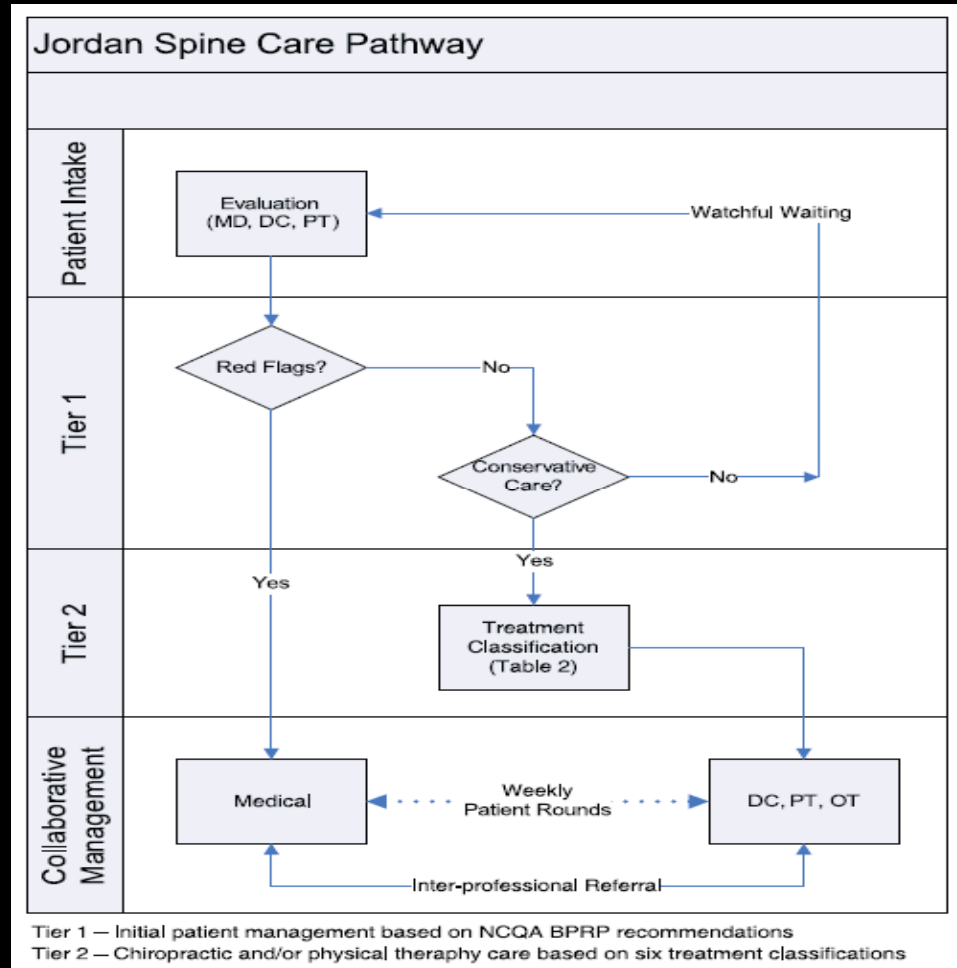
Matched treatment superior to evidence-based tx

- Non-specific LBP pts are heterogenous
 - Directional Preference Exercise – e.g. McKenzie
 - Manipulation
 - Stabilization Exercise

Laboeuf-Yde, Fritz, Brennan



STRATIFIED LBP ALGORITHM

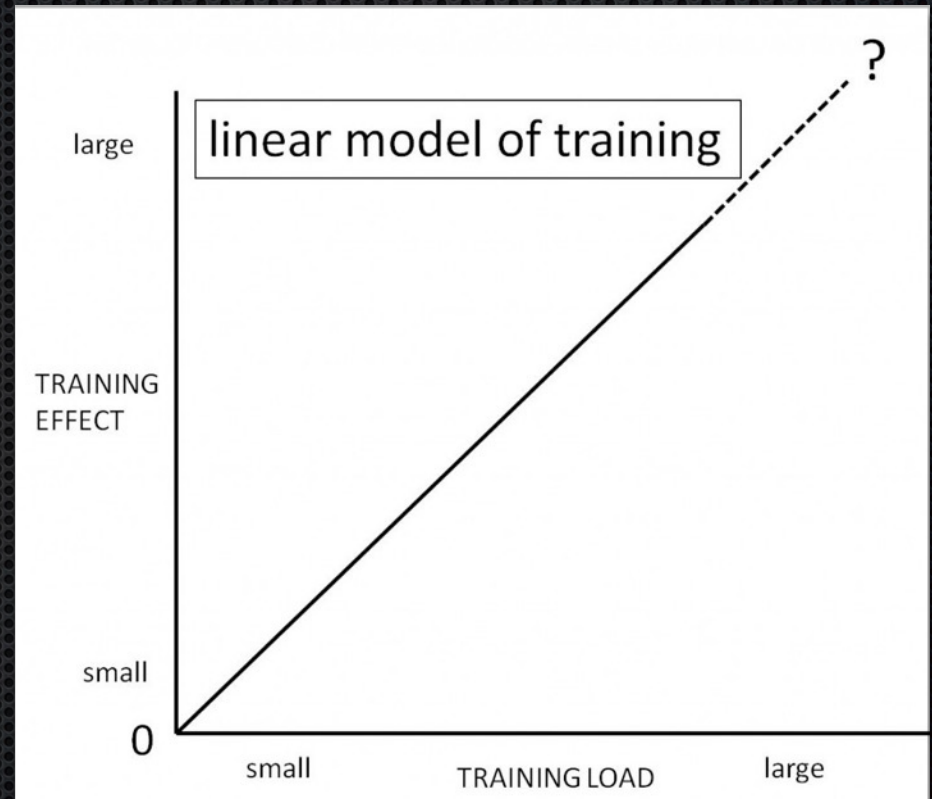


MYTH #2

- In Training is More Better?



The Sacred Cow



✦ Henk Kraaijenhof

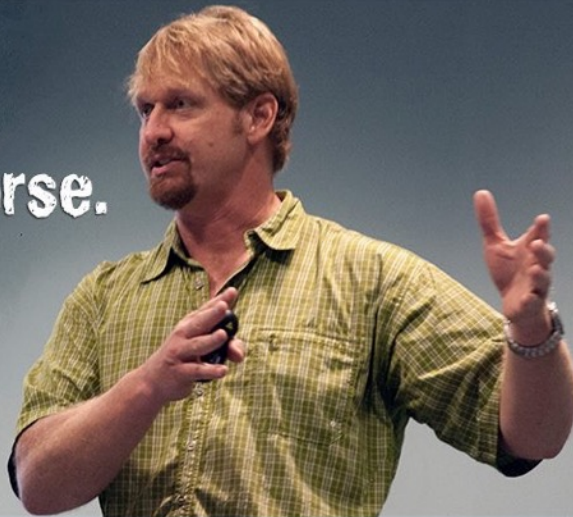


Traditional Training Trap

Is more better?

If you load a dysfunction...

it gets worse.



GRAY COOK

GAINS DO NOT COME FROM
COMPLEX ROUTINES;
THEY COME FROM SIMPLE ONES
THAT PAY ATTENTION TO DETAIL
-PAVEL

#LASPORTSANDSPINE



Most gym exercises tighten us



“Think of working out in the gym. All the movements are about folding inwards. Between curls, crunches and squats we’re always tightening and closing ourselves up.”

Laird Hamilton

"Usually, working out is about aesthetics — six-pack abs and biceps and pecs — instead of true functionality. True function has a different aesthetic appeal."

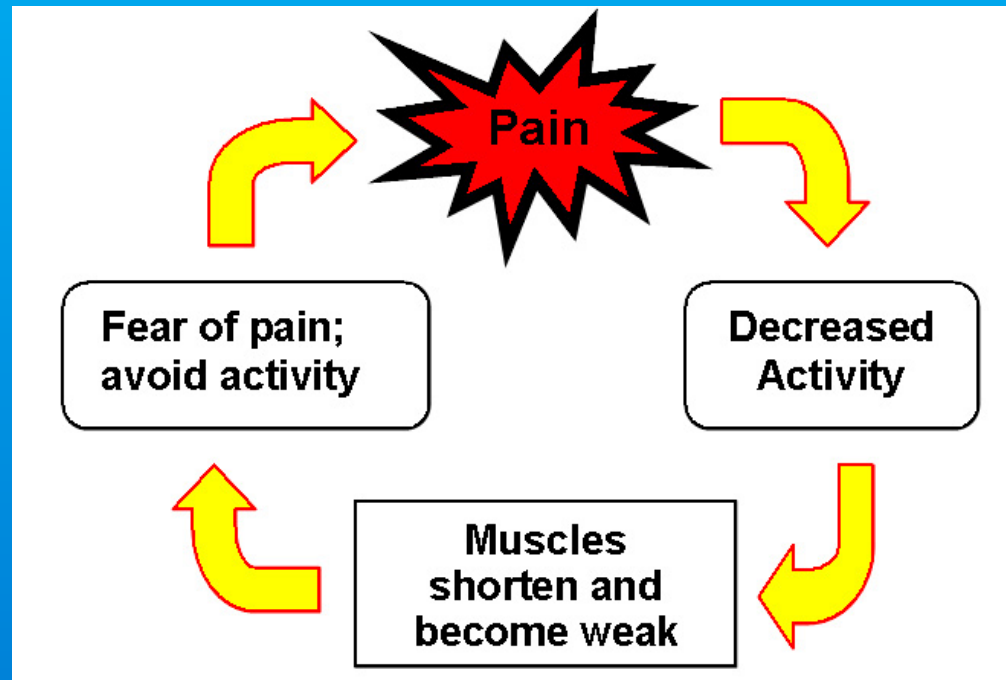


PROCESS IS KING

- WHY
- HOW
- WHAT

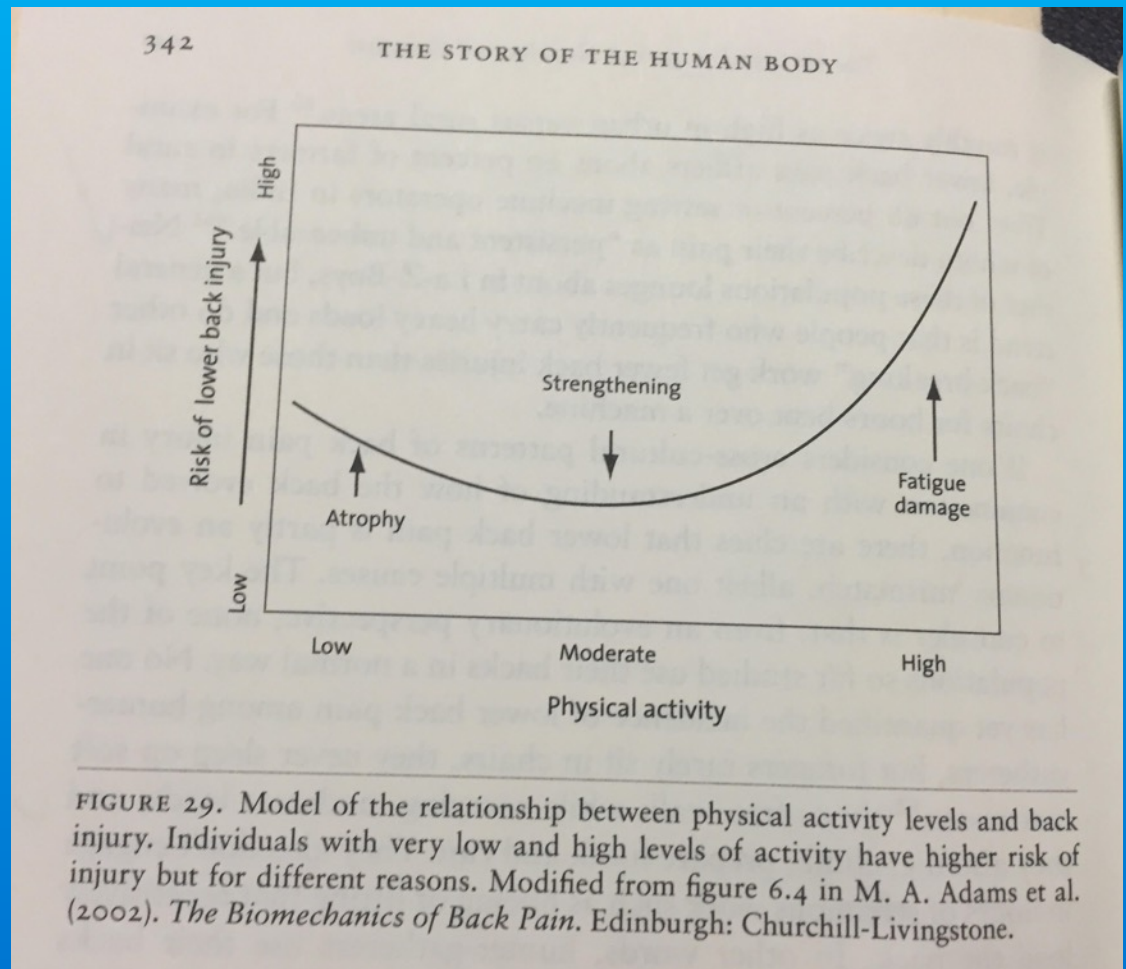
THE WHY

- VISIT 1 -
- WHY is patient seeking care
 - ***Pain***
 - ***Activity Goal/Concern/Intolerance***



THE HOW

- A) How did this happen?
 - **too little or too much**



Damacles Sword: The Paradox of the Talented



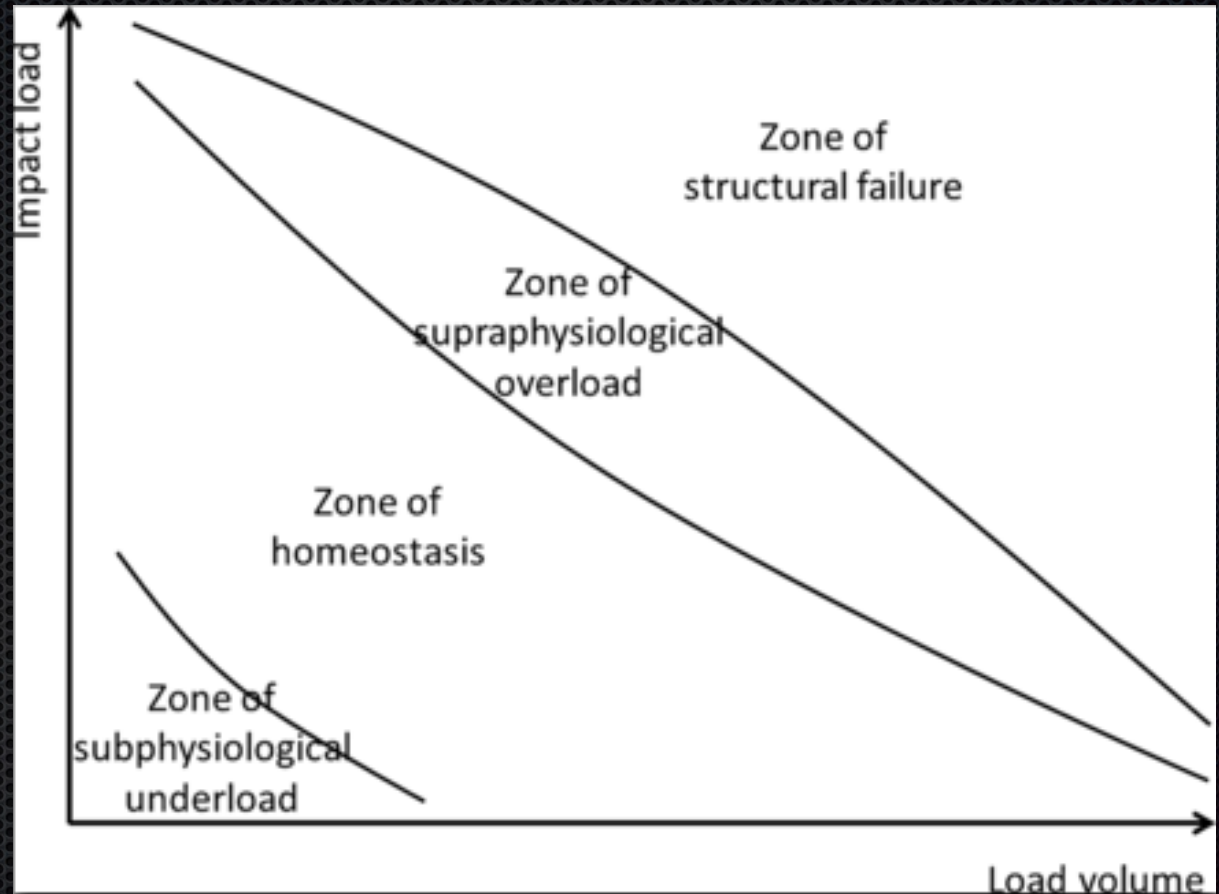
Charlie Francis

- 90% of my time is spent holding an athlete back to prevent overtraining, and only 10% is spent motivating them to do more work.”



Relationship between structural adaptation and load (Dye 2005)

IMPACT LOAD:
throwing speed,
jump height or
other measures of
joint load



LOAD VOLUME: training volume (frequency, duration, intensity), match frequency, etc.



MINDSET

Too Little or Too Much

The problem is not the problem; the problem is your attitude about the problem

-CAPTAIN JACK SPARROW

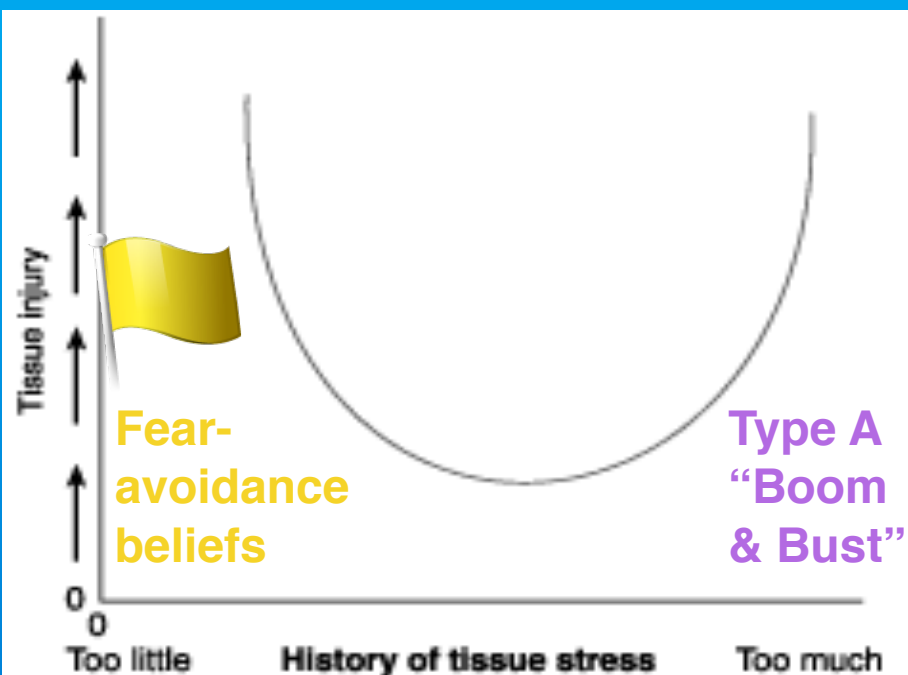
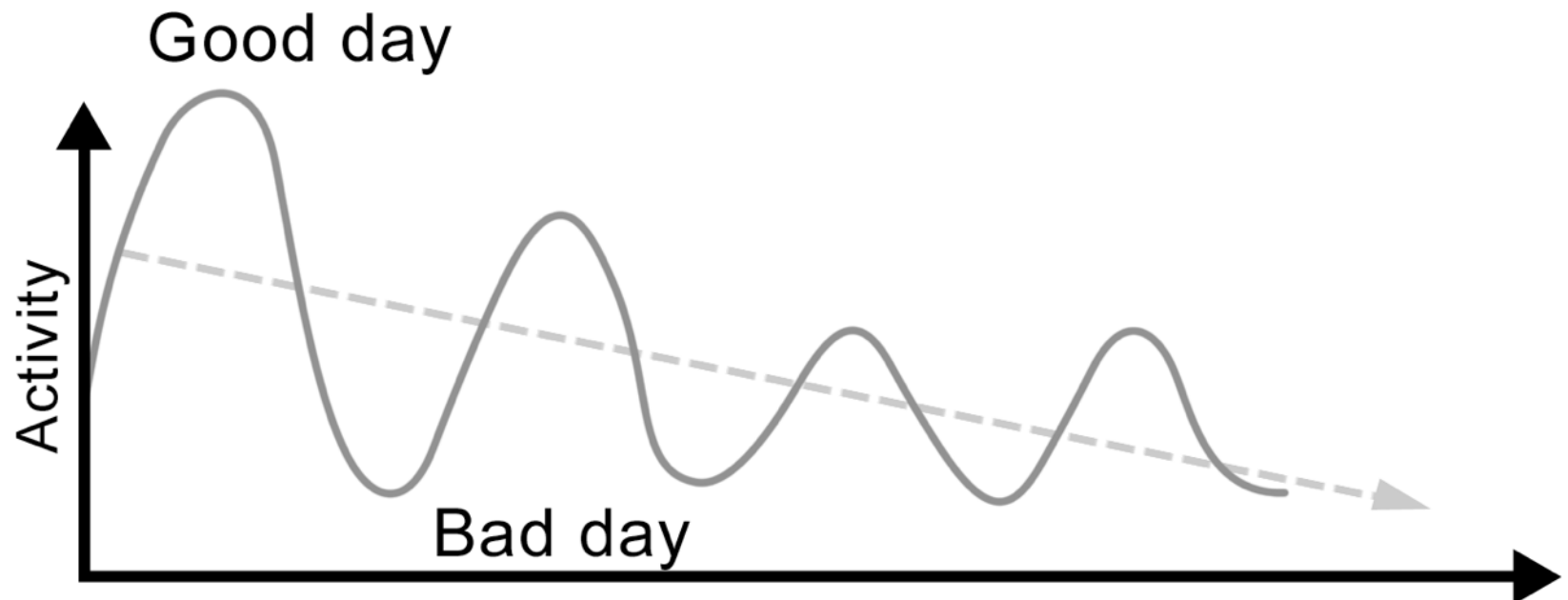
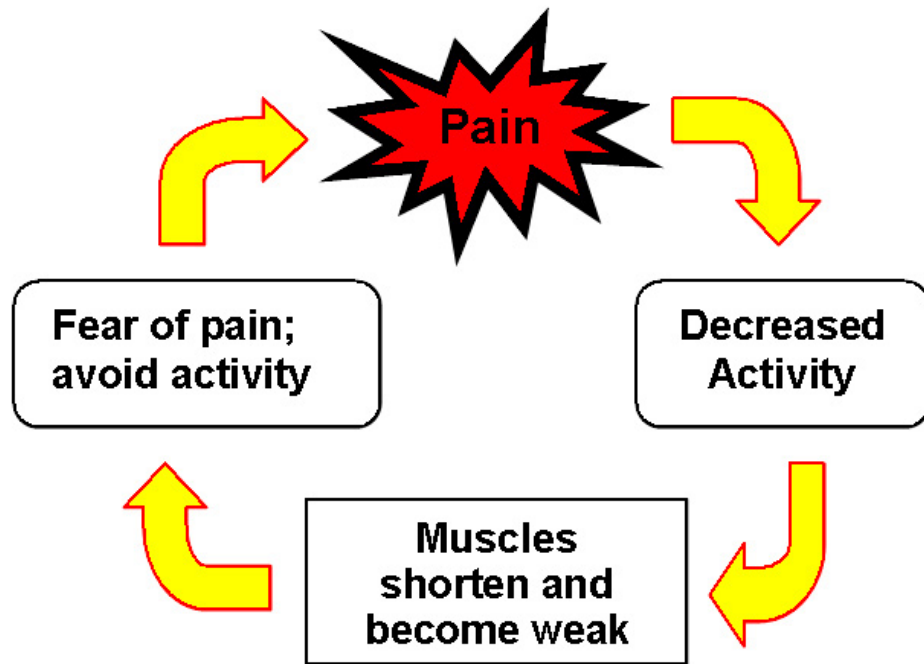
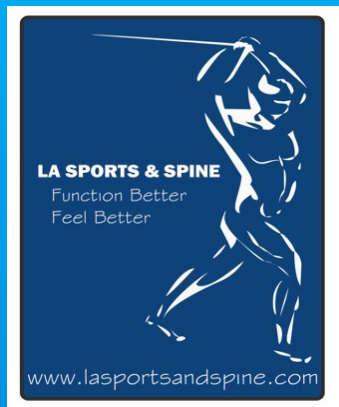


Figure 1: Relationship of injury to history of spinal load (after McGill, 1999).

“Boom & Bust”



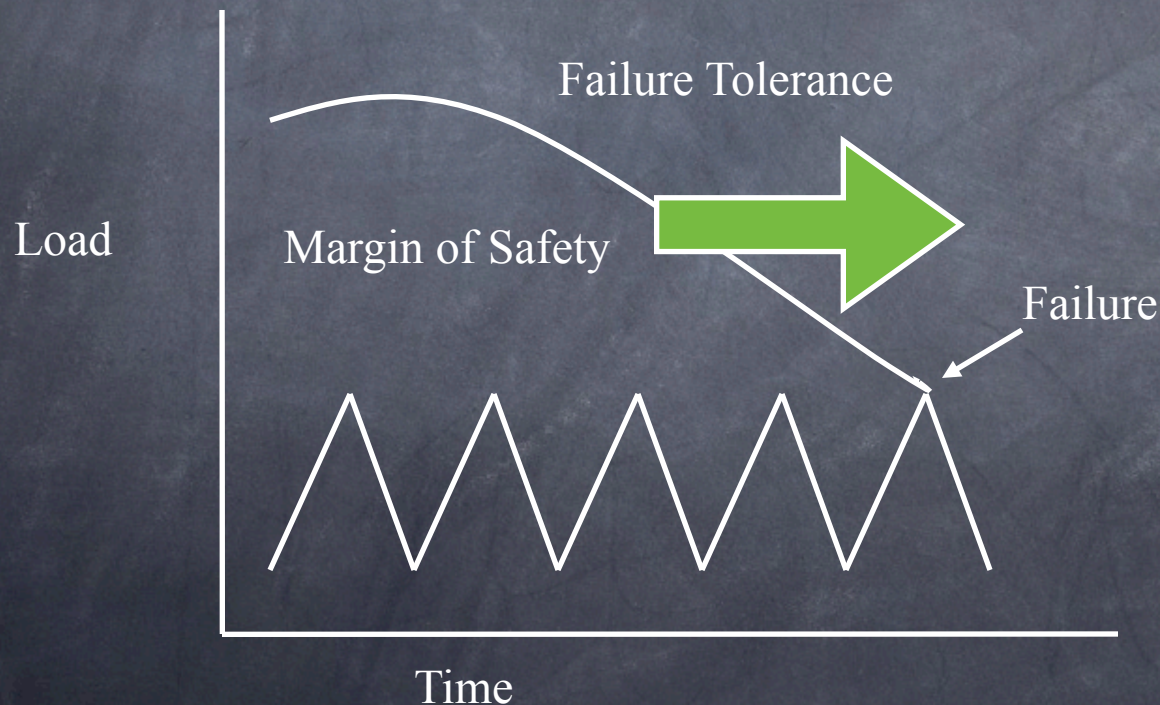
THE HOW



B) Find the “weak link”

Do you have Sufficient Functional Capacity to Handle Demands?

Silent Killer



Derived from:
McGill S. Lower Back Disorders: Evidence-Based Prevention and Rehabilitation.
2002, Human Kinetics, Champaign, IL

Pain vs. Dysfunction

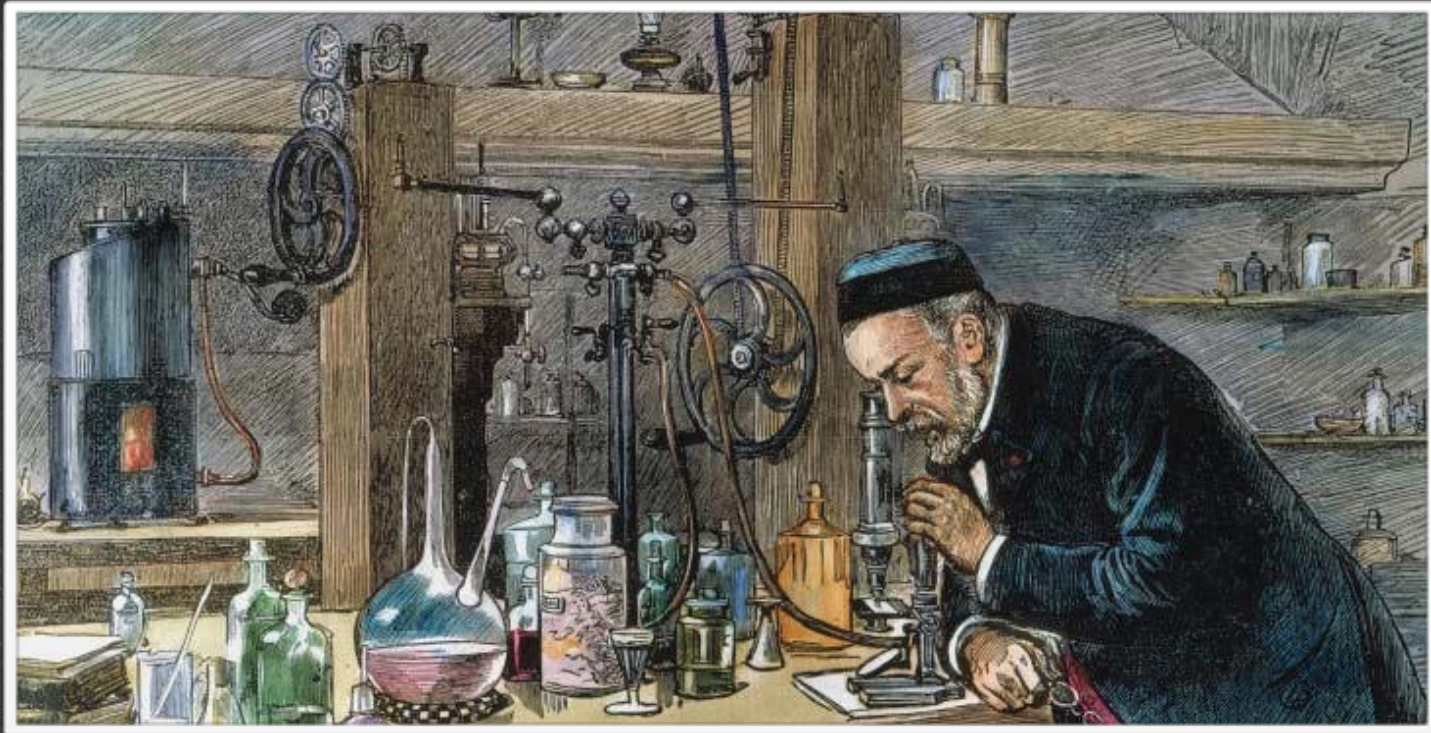
“pain & dysfunction, regardless of their origin, alter motor control. That is why initially we focus on **training the most dysfunctional, non-painful pattern.**”



Silent Killer



LOUIS PASTEUR



“In the field of observation, chance favours only the prepared mind”

Faulty Biomechanical Movement Pattern - Landing a Jump



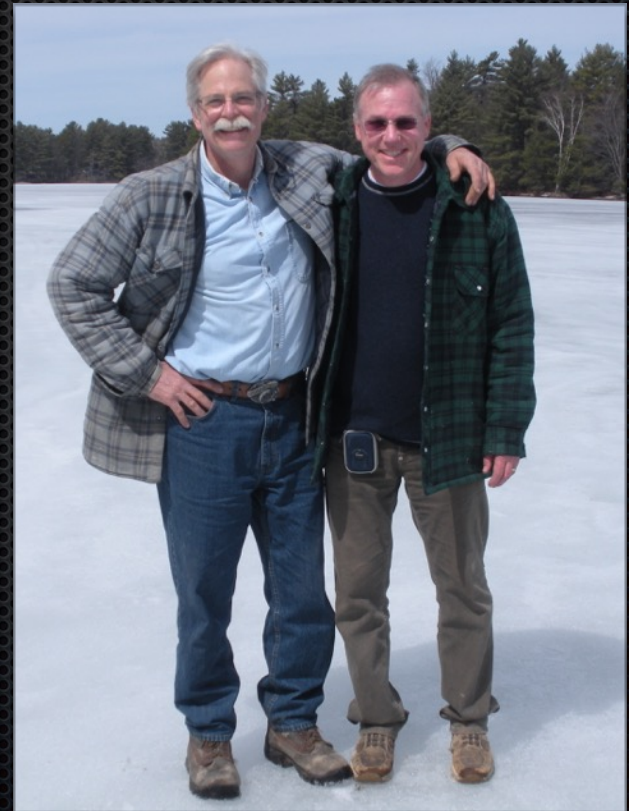
Dan Pfaff

- ✦ C) "Proper movement produces proper healing."
- ✦ **& PREVENTS INJURY!!!**



Stuart McGill, Ph.D.

“The objective of **injury prevention strategies** is to ensure that **tissue adaptation** stimulated from exposure to **load** keeps pace with, and ideally **exceeds the accumulated tissue damage.**”



THE HOW

Graded Exposures to
Feared Stimuli -
Fear-Avoidance Beliefs

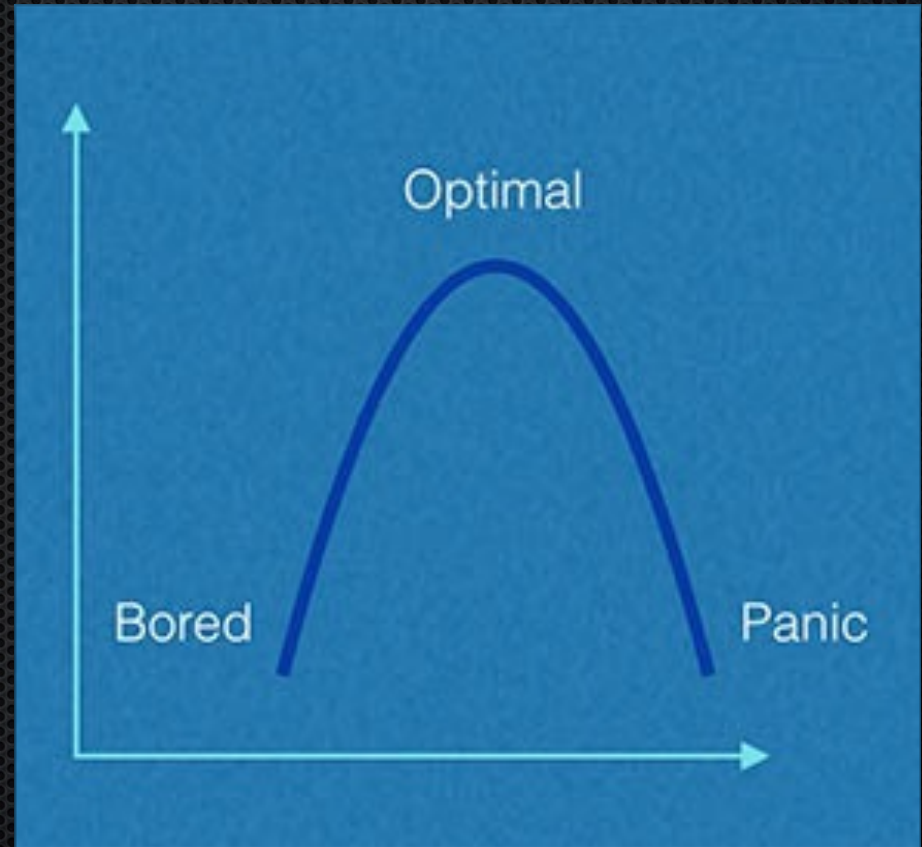
Pacing -
Type A's



Residual Adaptation

Keys:

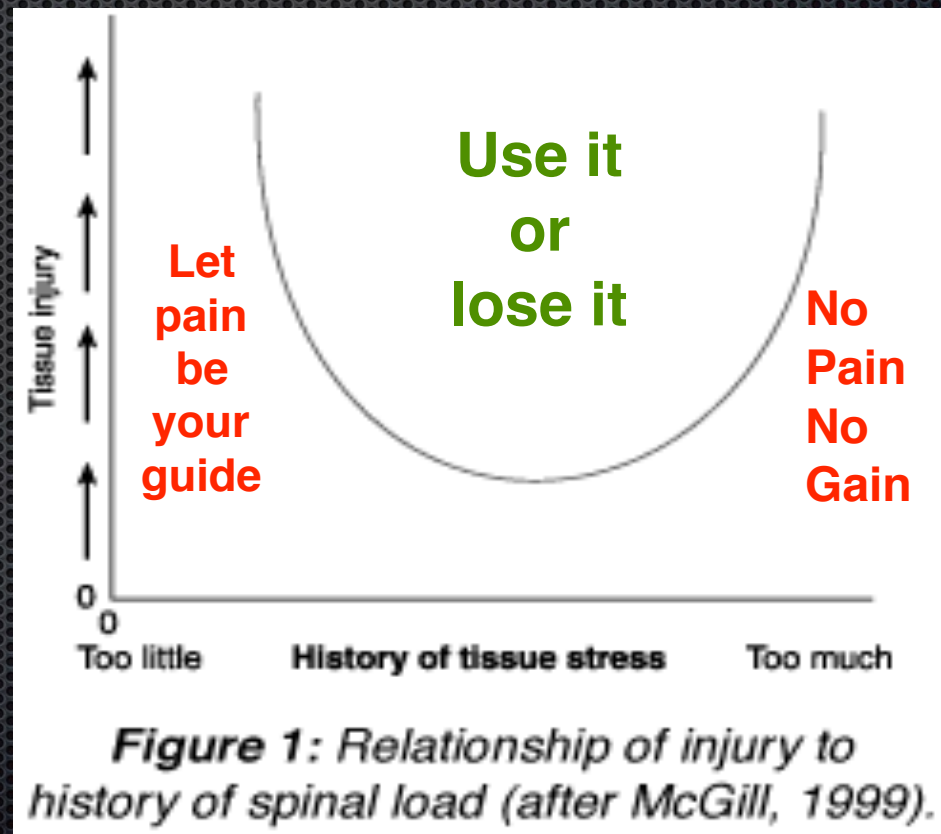
- Variability (novelty) in training
- **Intensity** of training (threshold, overload principle)
- Ecological validity



Fine line between building & breaking



★ “Million-dollar question”

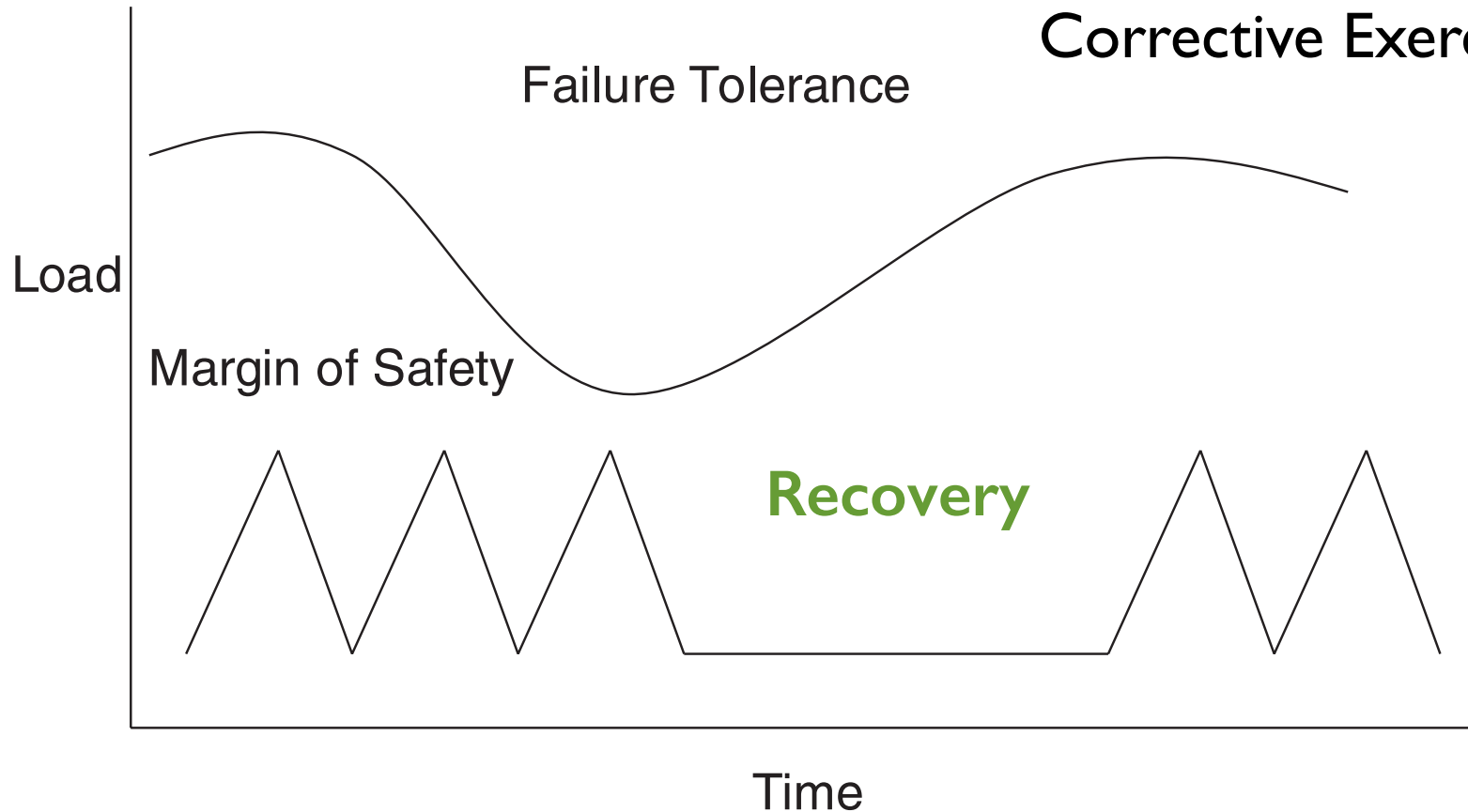


DON'T BEAT YOURSELF UP - TRAINING
FOR LIFE - TRAIN IN A SUSTAINABLE WAY
- LEARN FROM YOUR INJURIES & PAST



Derived from:
McGill S, Lower Back Disorders: Evidence-Based Prevention and Rehabilitation.
2002, Human Kinetics, Champaign, IL

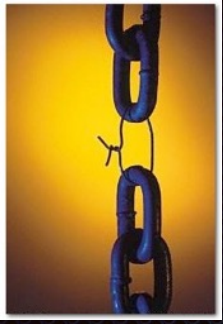
Recovery:
Sleep/Rest
Diet (anti-inflam)
Manual Therapy
Corrective Exercise



TRAIN SO WHEN YOU'RE DONE PLAYING YOU
CAN DO WHATEVER YOU WANT TO DO
ACCEPT & FIND YOUR WEAKNESSES
(KRYPTONITE) & WORK ON THEM



60 is the new 40



Karel Lewit, MD



- ✦ “Because changes in **function** are reversible in nature it can be expected that, if they are adequately treated...the effect is immediate, giving the impression of a “miracle cure”, which however is quite predictable”



The goal is the goal

- Dan John

- ✦ Transfer from Rehab Floor to Activities
- ✦ Transfer from



Our definition in the gym &
clinic of strength is

"making the hard easy"

What enhances performance prevents injury



THE WHAT



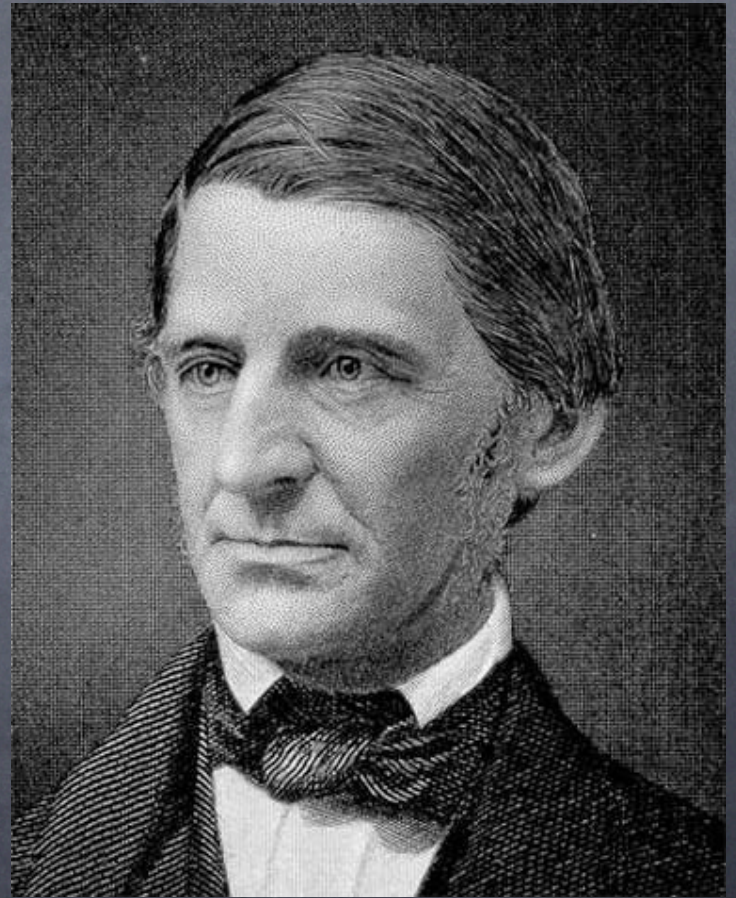
“The methods should serve the goal” - K Lewit



Principles

- "As to methods there may be a million and then some, but principles are few. The man who grasps principles can successfully select his own methods. The man who tries methods, ignoring principles, is sure to have trouble."

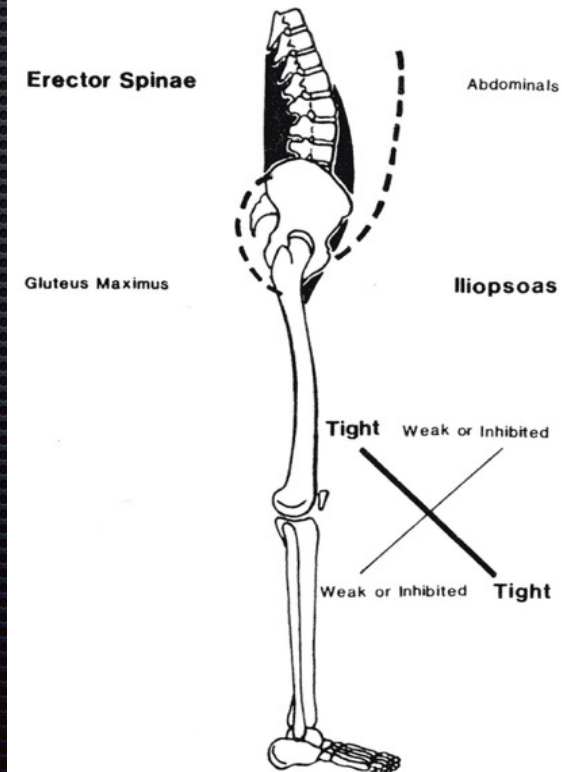
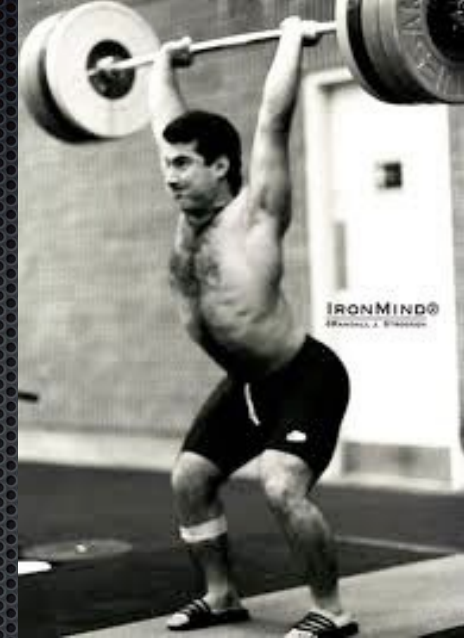
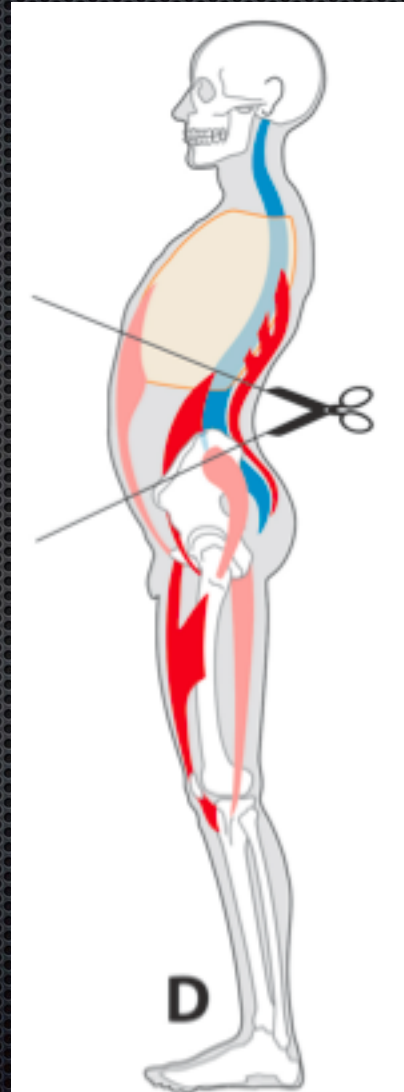
– Ralph Waldo Emerson



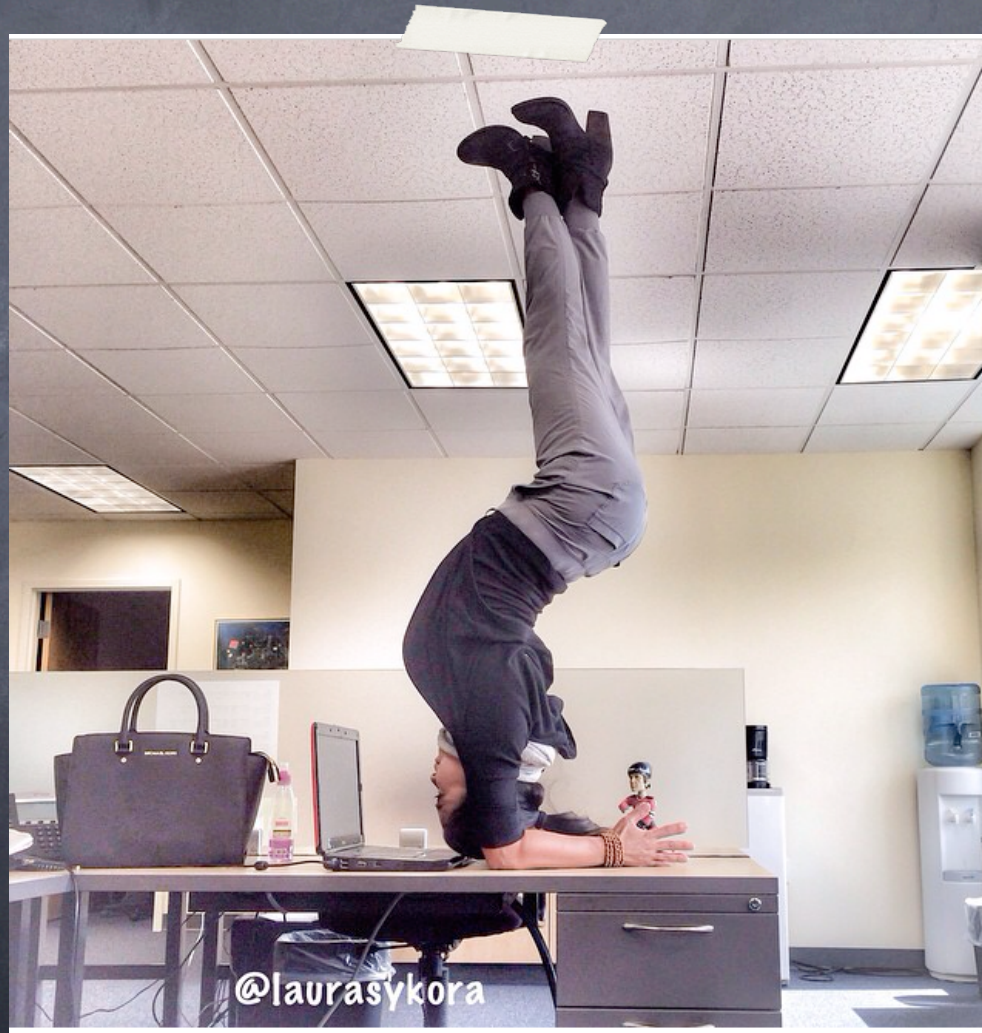
Scissors

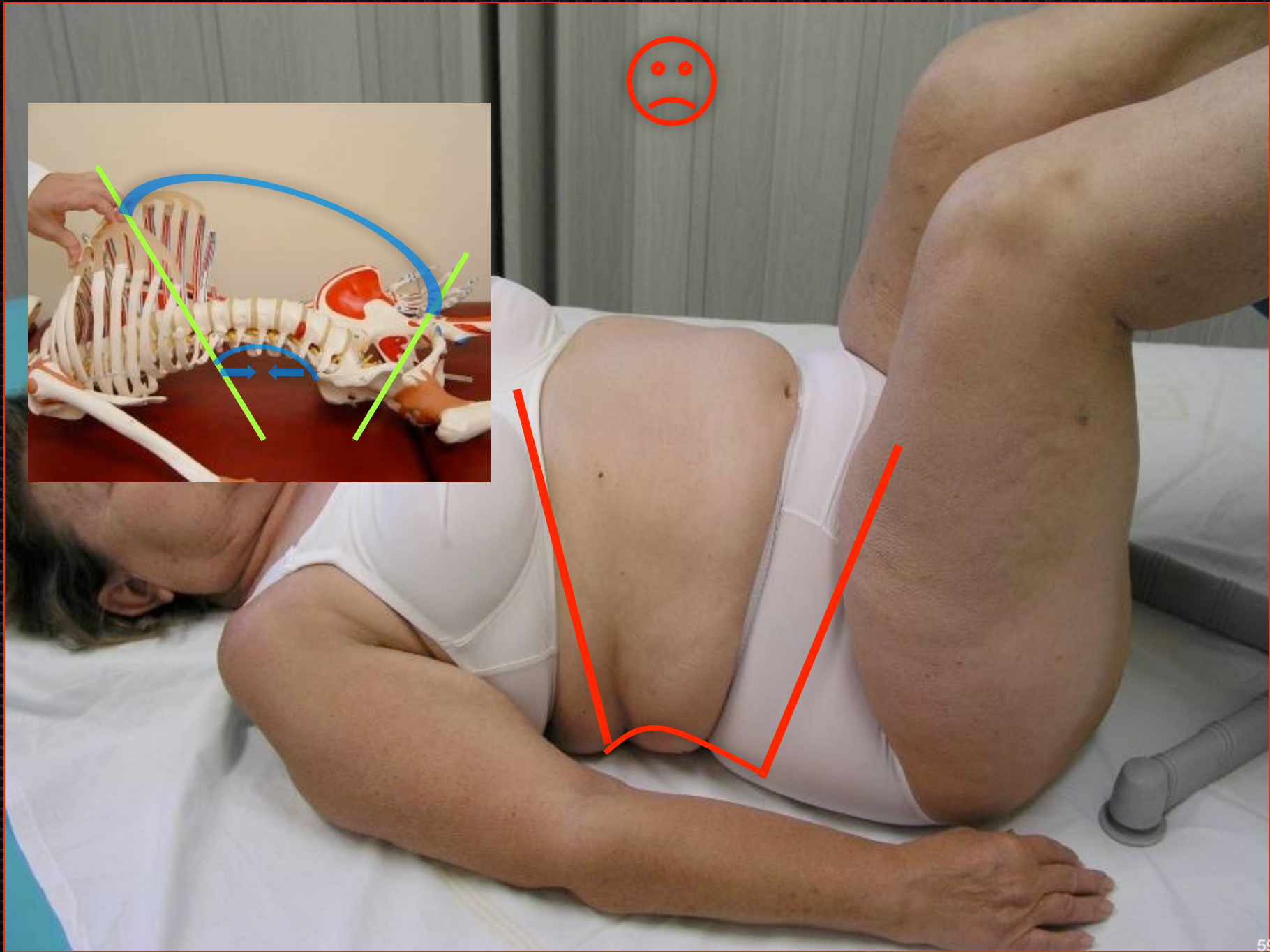
- ✦ Oblique diaphragm
- ✦ Failure of oblique abdominal muscle slings
- ✦ T/L overload
- ✦ Hyperlordosis

Lower Cross Syndrome (Janda)



Lower Cross/Open Scissors?





The Back Squat: A Proposed Assessment of Functional Deficits and Technical Factors That Limit Performance

Gregory D. Myer, PhD, CSCS*D,^{1,2,3,4} Adam M. Kushner, BS, CSCS,¹ Jensen L. Brent, BS, CSCS,⁵
Brad J. Schoenfeld, PhD, CSCS, FNSCA,⁶ Jason Hugentobler, PT, DPT, CSCS,^{1,7}
Rhodri S. Lloyd, PhD, CSCS*D,⁸ Al Vermeil, MS, RSCC*E,^{9,10} Donald A. Chu, PhD, PT, ATC, CSCS, FNSCA,^{10,11,12}
Jason Harbin, MS,¹³ and Stuart M. McGill, PhD¹⁴

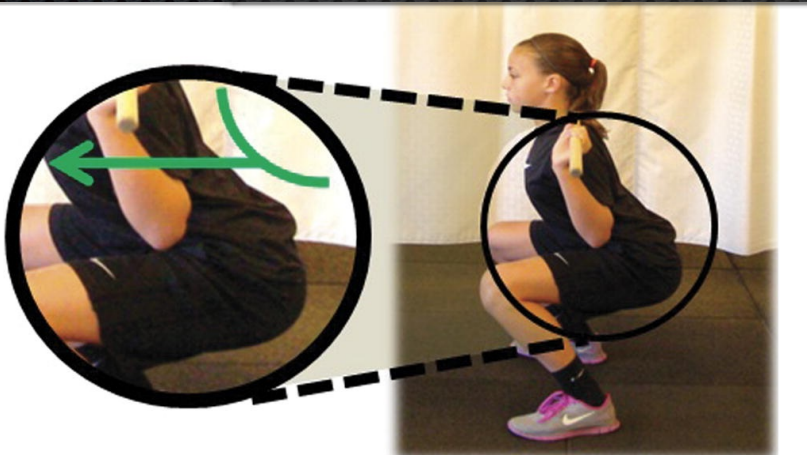


Figure 7. Correct trunk position.

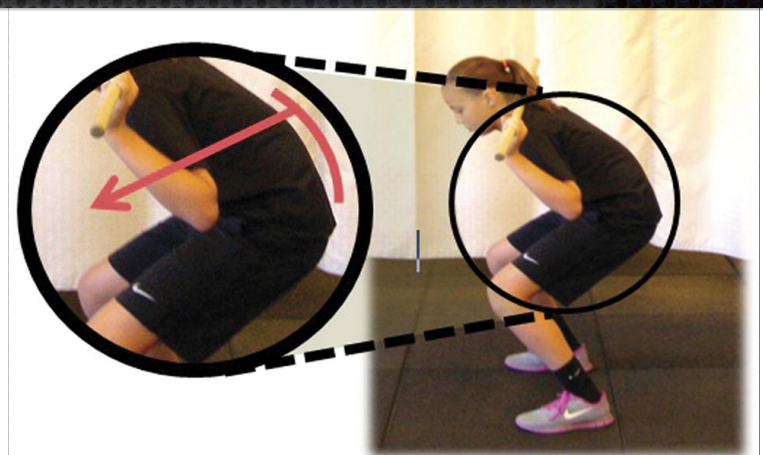


Figure 8. Incorrect torso position.

Functional Movement Screen

THE MOVEMENT TESTS

Overhead Squat

Hurdle Step

In-line Lunge

Shoulder Mobility

Active Straight Leg Raise

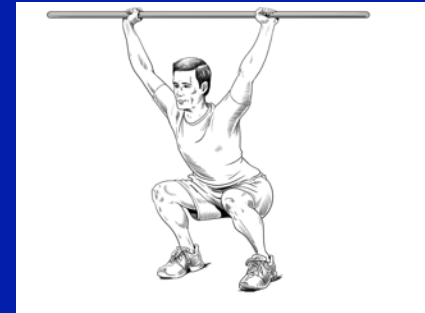
Trunk Stability Push-up

Rotary Stability

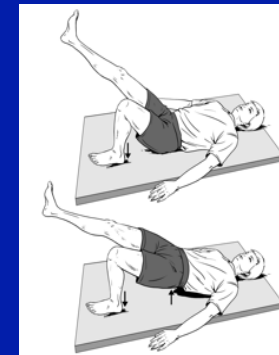
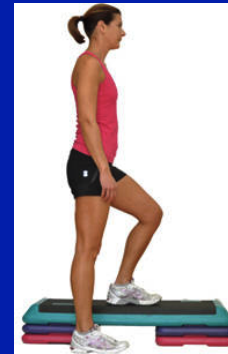


Mag 7 - BASIC FUNCTIONS

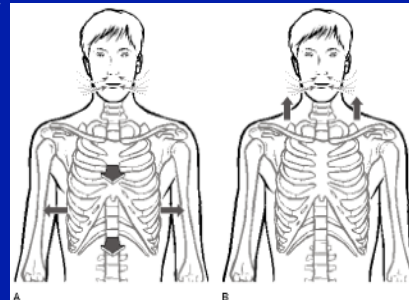
- *Upright Posture*



- *Single Leg*



- *Respiration/Core*

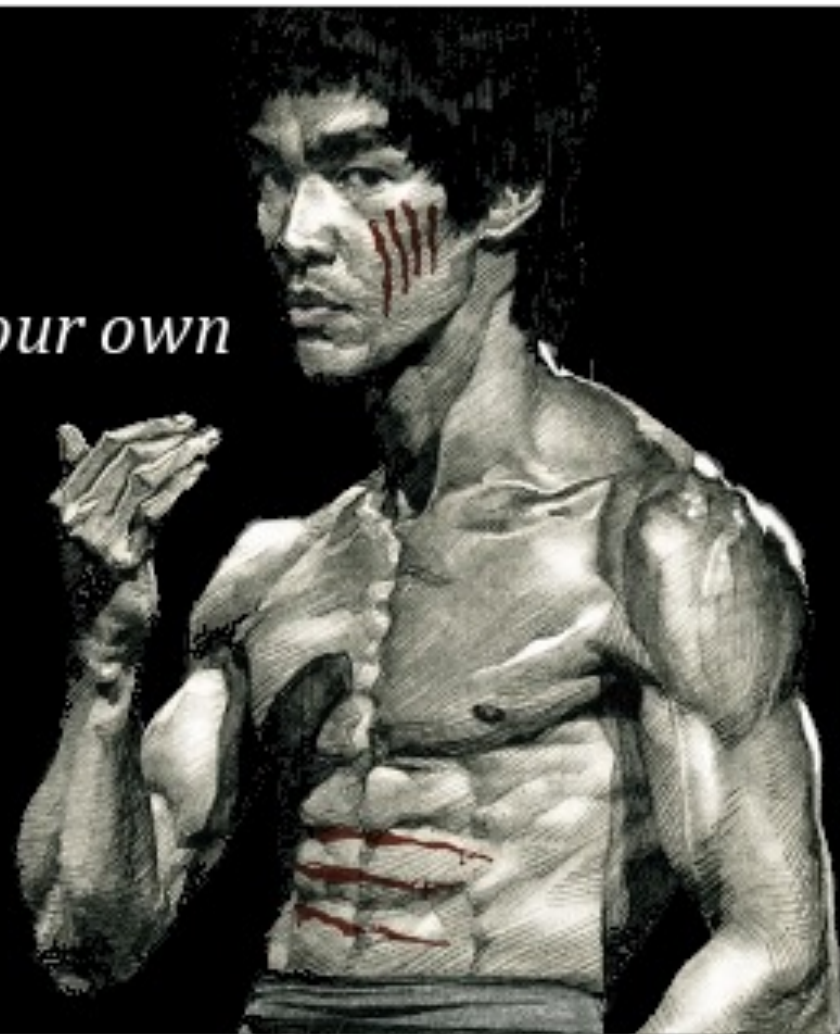


Faulty Biomechanical Movement Pattern - Landing a Jump



*Absorb what is useful
Discard what is not
Add what is uniquely your own*

- Bruce Lee



Stay in Touch

Handles

Blog:

www.craigliebenson.com

www.lasportsandspine.com

FB:

Craig Liebenson

LA Sports & Spine

Twitter:

craigliebenson

Instagram:

cliebenson

lasportsandspine

LinkedIn:

Craig Liebenson

Email:

craigliebensoncdc@gmail.com

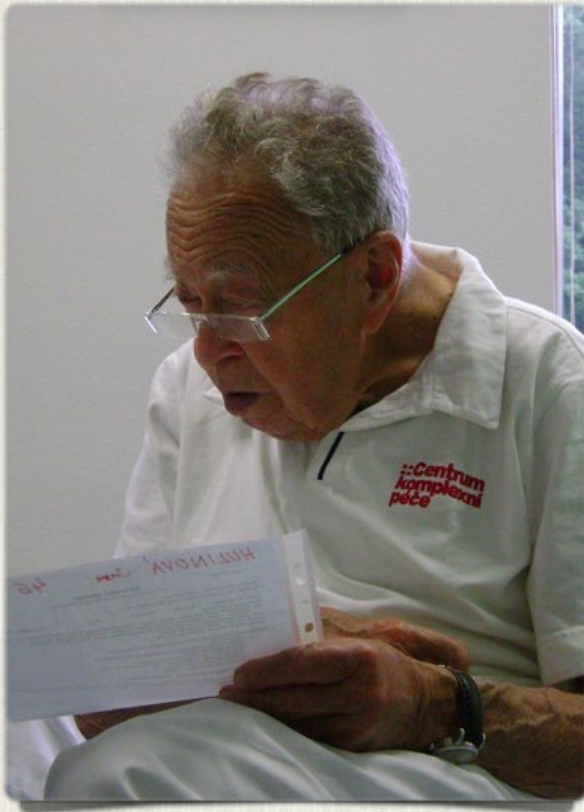
WORKSHOP #2

- ✦ Orthopaedic Evaluation - ROM & Ortho Tests for Pain Triggers
- ✦ Provocative Maneuvres which reproduce pain

Assessment: Range of Motion - ROM



Pre - Mag 7



“The 1st treatment is to teach the patient to avoid what harms him”



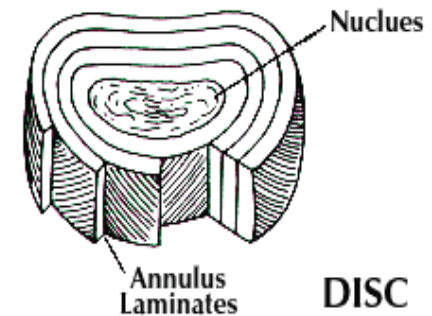
Why is sitting a
pain in the butt?



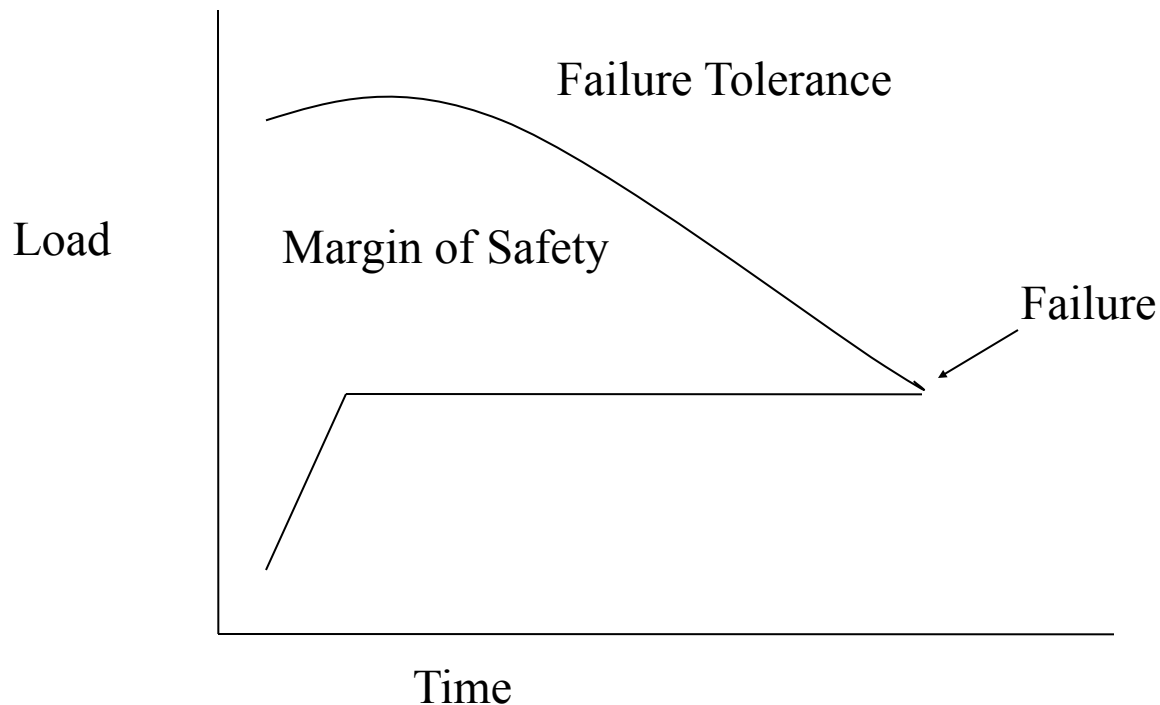
DISC

- “Herniation is more consistently produced under many cycles of combined compression, flexion and torsional loading and tends to occur in younger specimens with no visible gross signs of “degeneration”.”

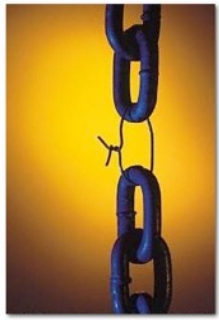
*McGill SM. Resource Manual - 3rd Edition.
Williams & Wilkins, Baltimore, 1998.*



Prolonged end range loading



Derived from:
McGill S, Lower Back Disorders:
Evidence-Based Prevention and
Rehabilitation.
2002, Human Kinetics, Champaign, IL

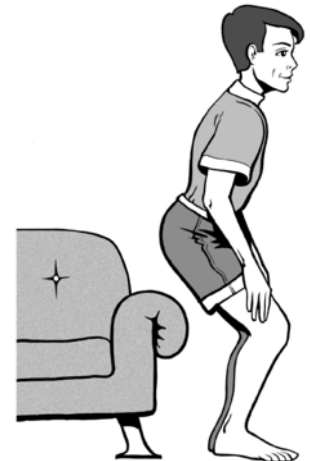
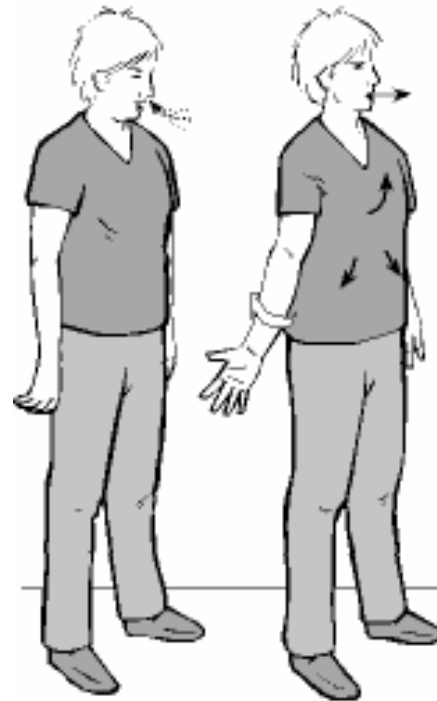


MICRO-BREAK

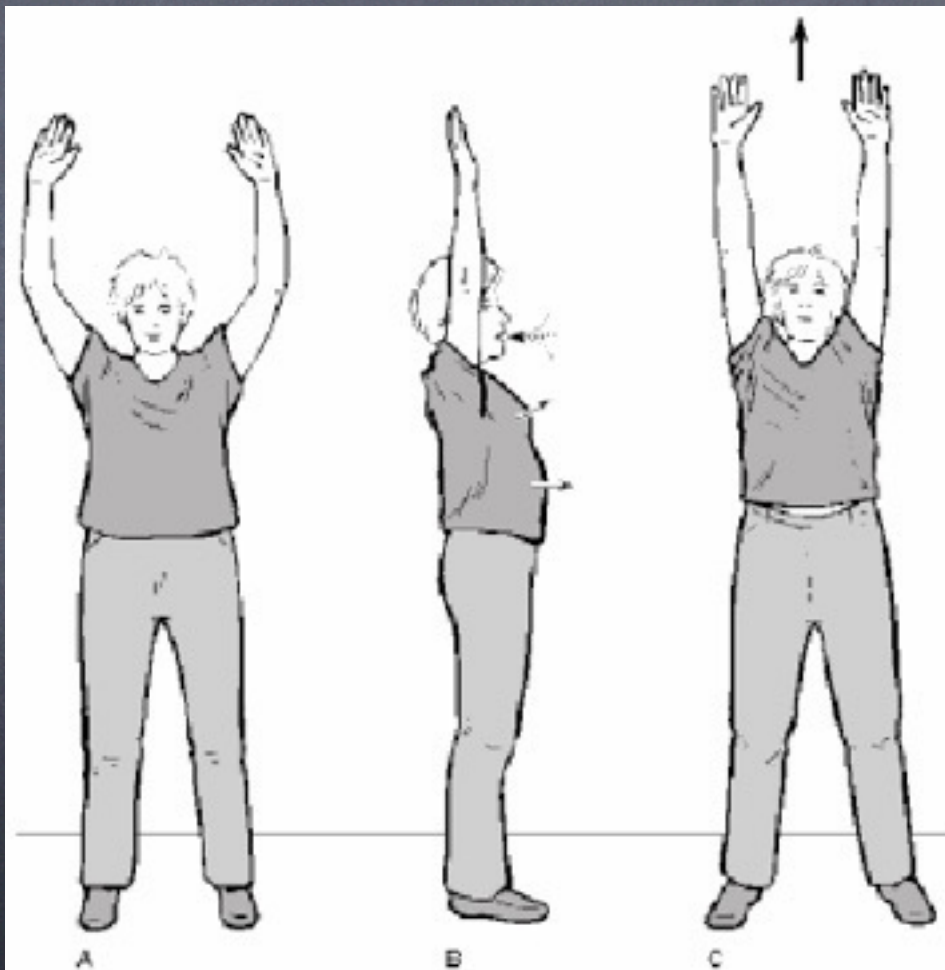
****“the first treatment is to teach the patient to avoid what harms him.” ****

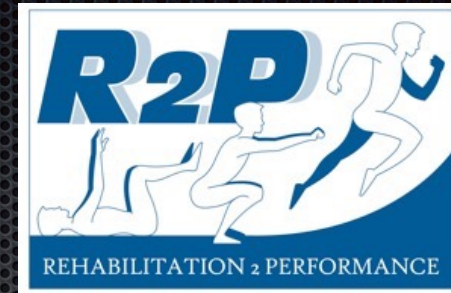
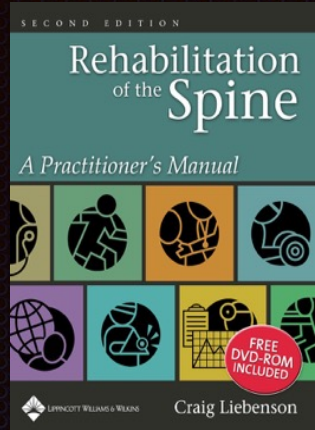
Karel Lewit

- Examples:

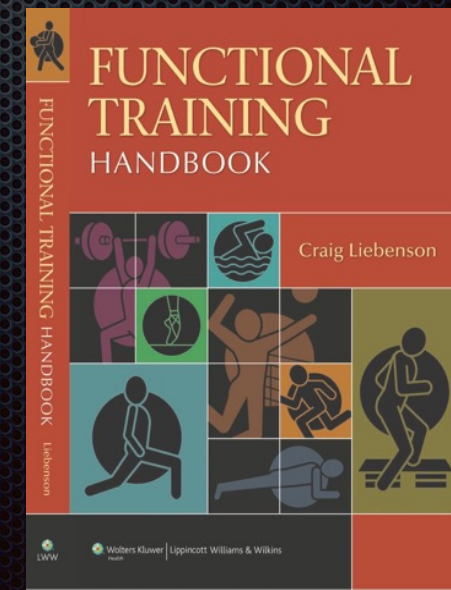


McGill's Overhead Arm Reach – p303





A. MIND AS HEALER, MIND AS SLAYER



RESILENCY

- **Phoenix**
 - Bounces back
 - Springs back
 - *Norman Gemenzy - U Minn*
 - Study of
“protective factors”



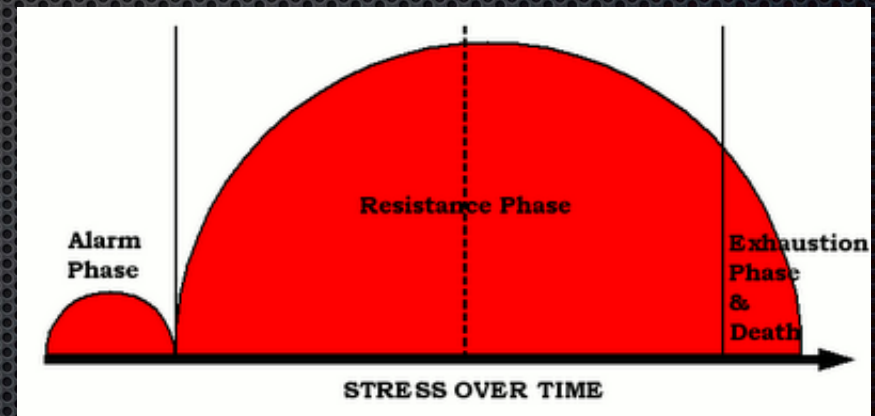
HAWAII -Emmy Werner -

- ✦ 32 year study of “at risk” children
- ✦ 2/3 of the “at risk” developed serious learning or behavior problems
- ✦ 1/3 did not - WHY?

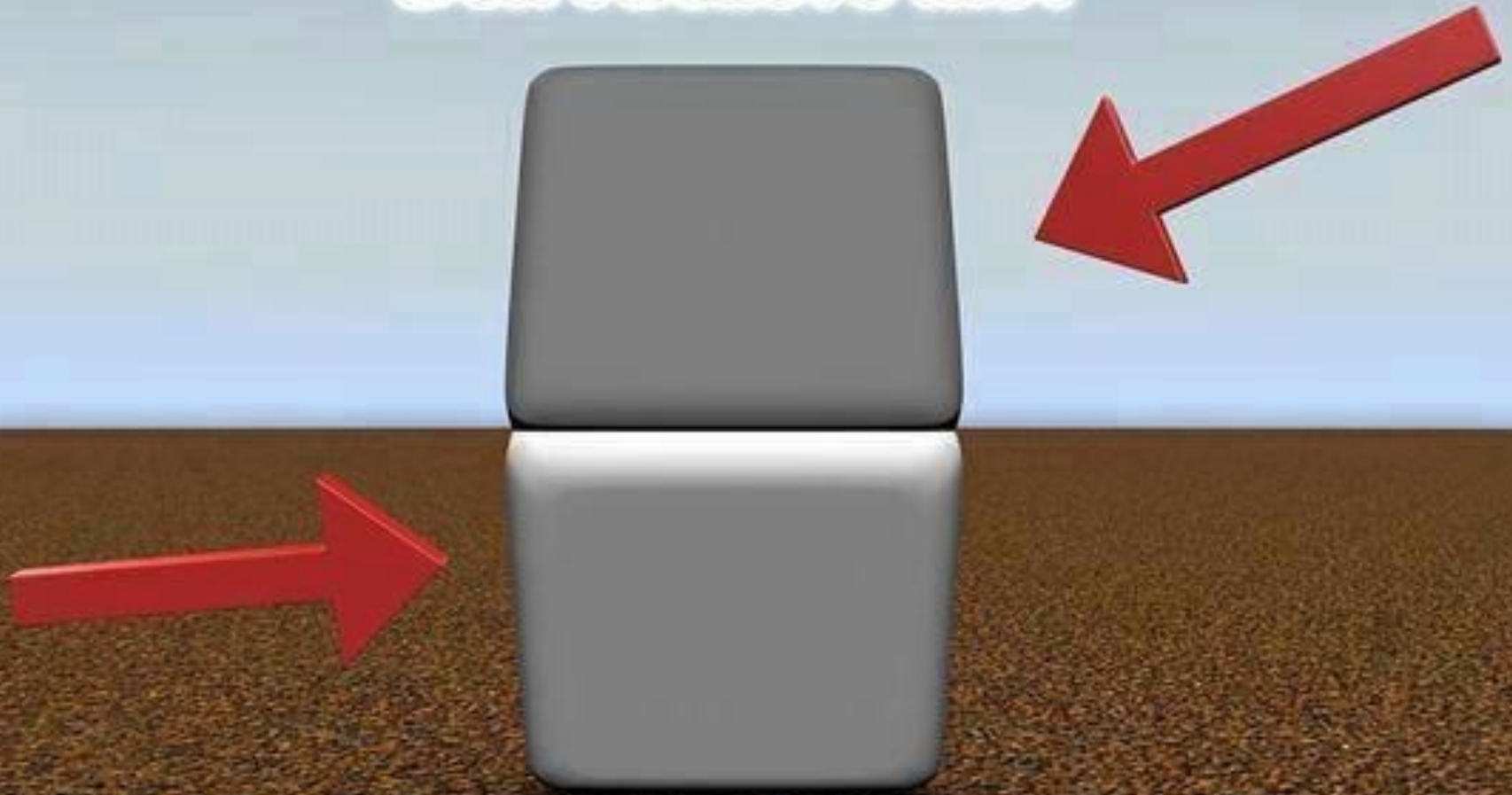
George Bonanno - Columbia

Loss, Trauma & Emotion Lab

- ✧ We all have a fundamental stress-response system
- ✧ Central element of resilience is **PERCEPTION**



The Boxes are the same color.
Don't believe me?



PUT A FINGER ACROSS THE MIDDLE OF THE PAGE
AND SEE FOR YOURSELF.

STRESS



- **Perceived** danger/
threat increases
cortisol

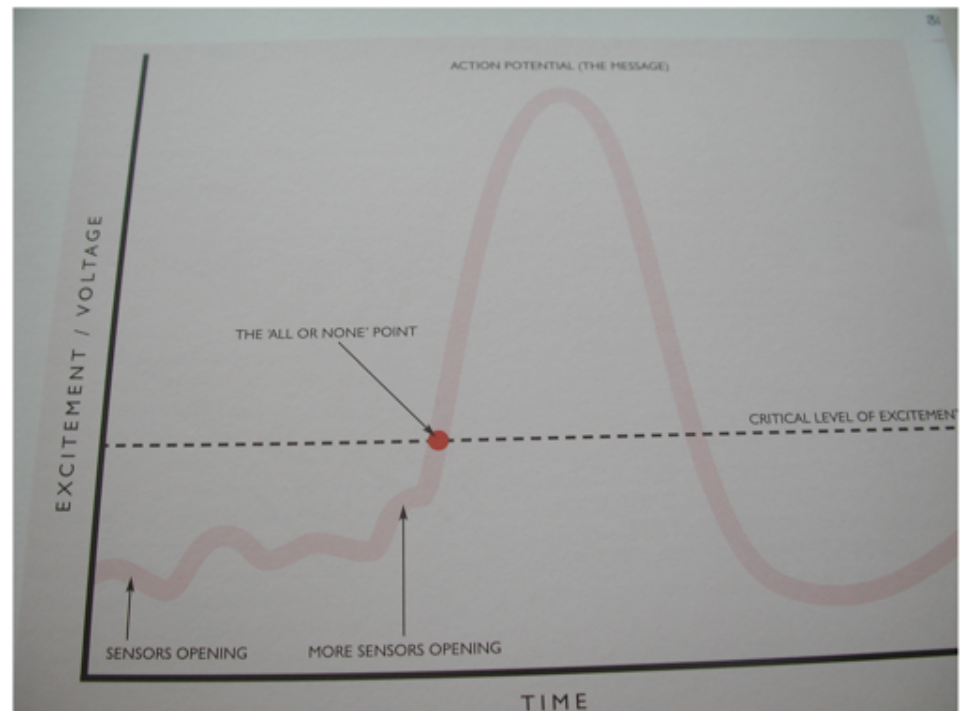




What Happens?

**Wind-Up is in CNS
from perceived threat**

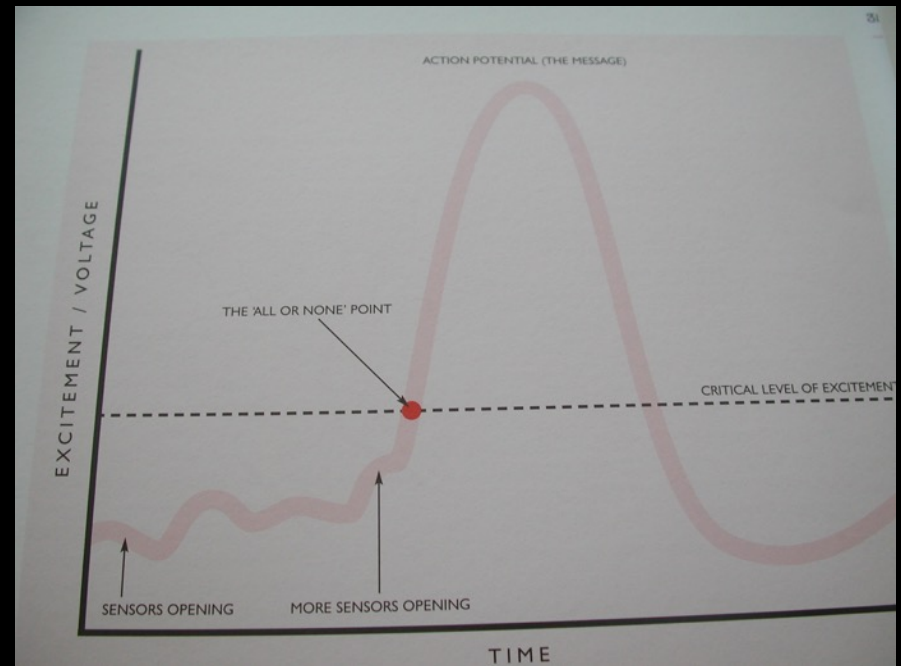
- **Allodynia:** Pain to non-noxious stimuli (e.g. lower threshold)



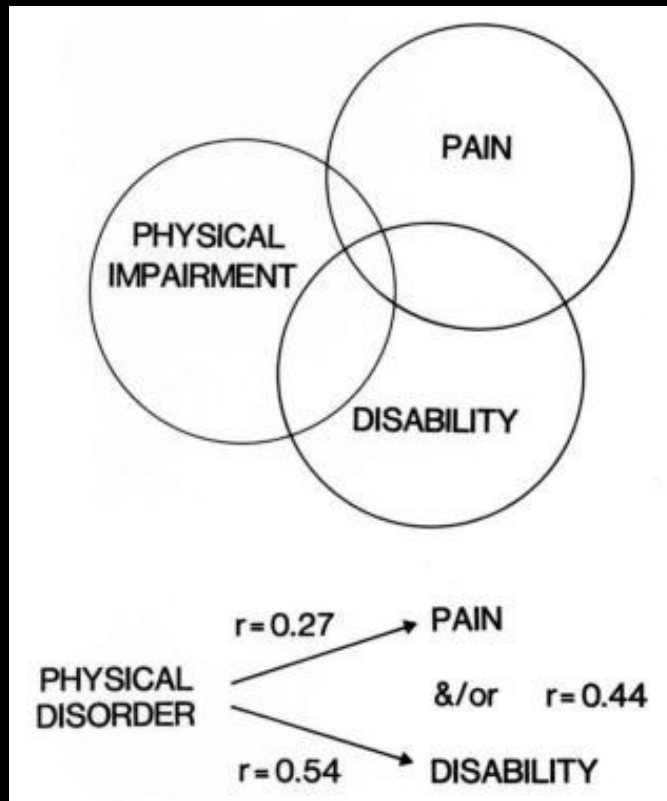
PERCEPTION

- ✦ Do you conceptualize an event as traumatic, or as an opportunity to grow?
- ✦ Experiences are NOT traumatic unless we experience them as such
- ✦ **PTE - Potentially Traumatic Event**

- We all have a breaking or tipping point
- Pain threshold

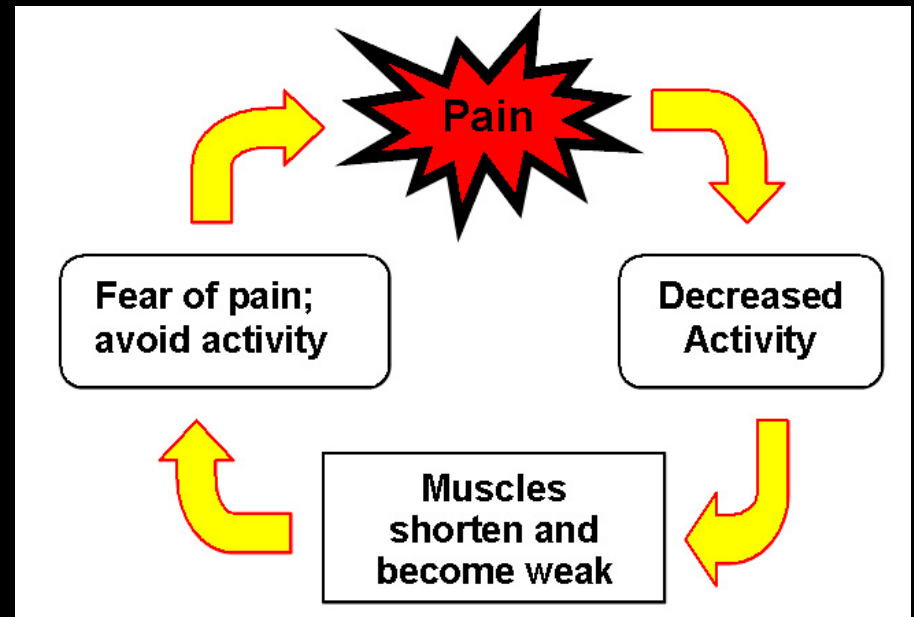


HIGH FALSE + RATE LEADS TO LABELLING



"THE HURT THAT YOU FEEL BECOMES THE FEELING THAT YOU HURT"

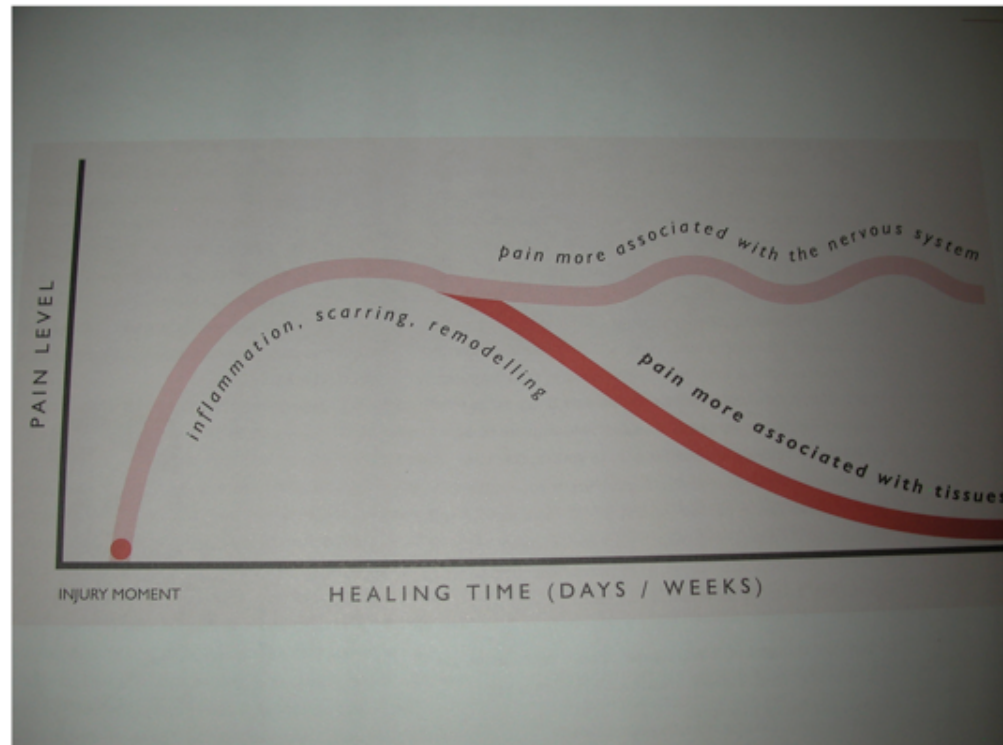
- **Neuro Signature or NeuroTag**
- Subconscious avoidance of threat occurs





Central Sensitization

“wind-up” from perceived threat



Stressful or Traumatic Events

- ✧ ARE NOT PREDICTIVE
- ✧ *“The prospective epidemiological data shows that exposure to PTEs does not predict later functioning”*

We can make ourselves less vulnerable

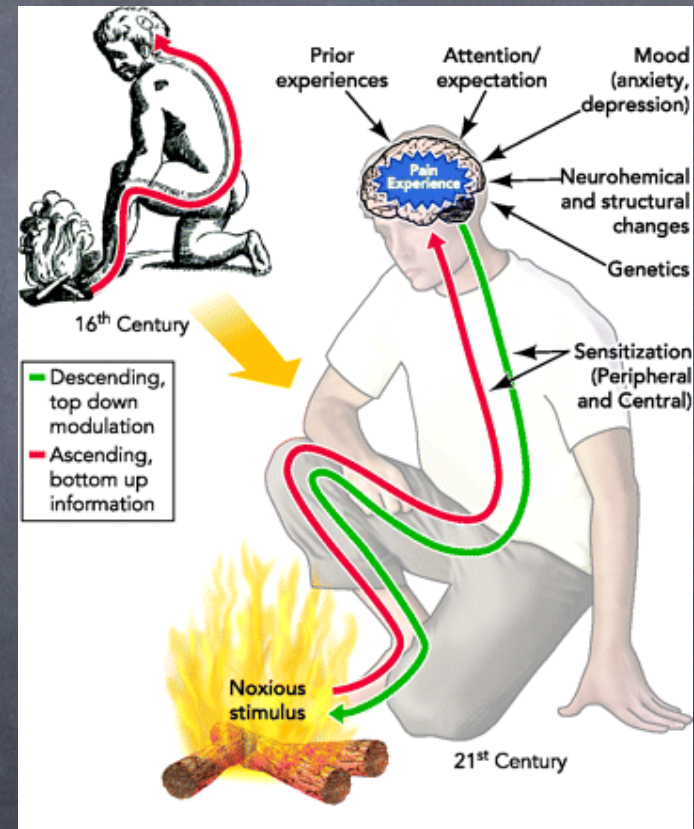
- ✦ Columbia Neuroscientist - Kevin Oscher
- ✦ Reframe stimuli in positive terms changes HOW people EXPERIENCE & REACT to stimulus

You can train people to regulate their emotions

- ✦ You can train people & it has lasting effects
- ✦ Martin Seligman - UPenn - **Learned Optimism**
- ✦ **Changing from external locus of control to internal**
- ✦ “Resilience is a set of skills that can be taught”

Pain Neuro-Matrix

● Up & Down-regulation



Albus Dumbledore

- ✧ "It is our choices, Harry, that show what we truly are, far more than our abilities."



?



Cultural Downregulation of Movement

- “If you want your body to feel better, feel your body move better”

D Jacobs, PT





“Between stimulus and response, there is a space.
In that space lies our freedom and power to choose
our response. In our response lies our growth and
freedom.”

—Viktor Frankl

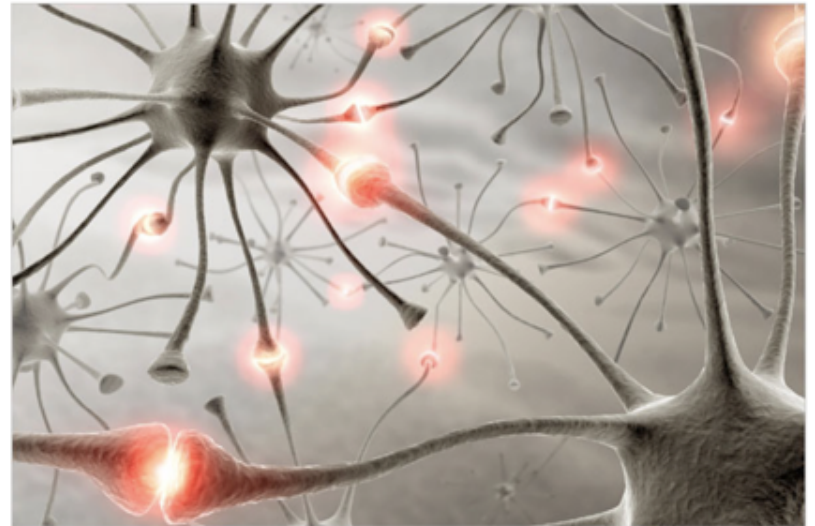
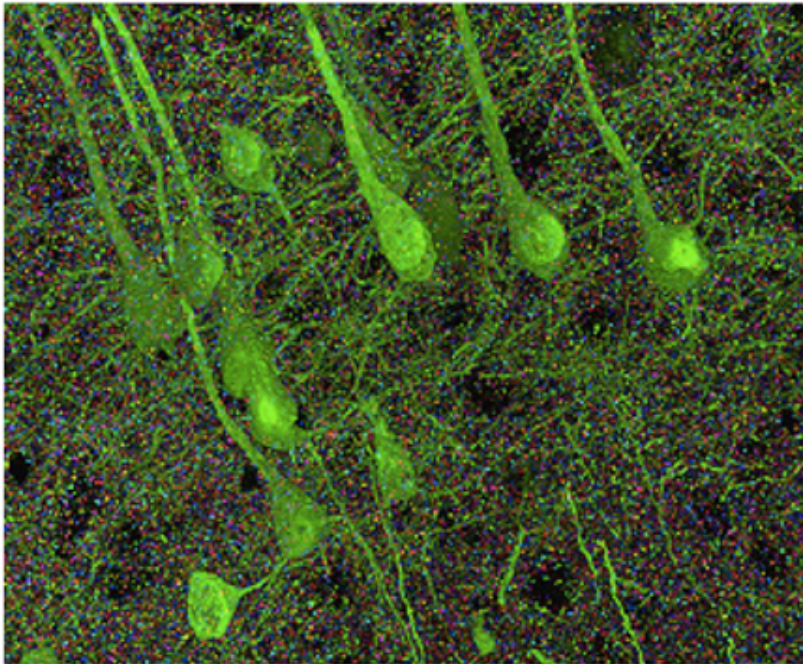
www.facebook.com/yoga9v

Pattalos, A. (2010). *Prisoners of our thoughts*. San Francisco: Berrett-Koehler.



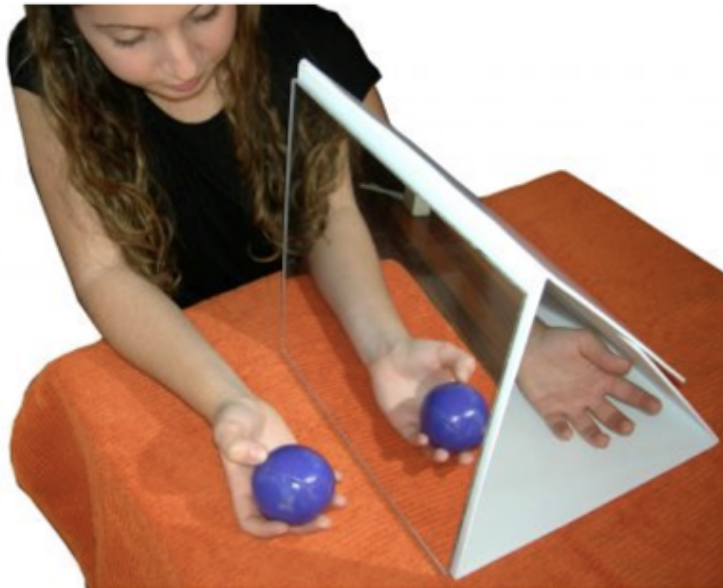
Myelinate Nerve Pathways

- Reduce the threat value of pain





Neural Adaptation- Myelination Workshops



**POWER IS NOTHING
WITHOUT CONTROL.**

*Patients w/ pain
need the right kind
and amount of
movement!*

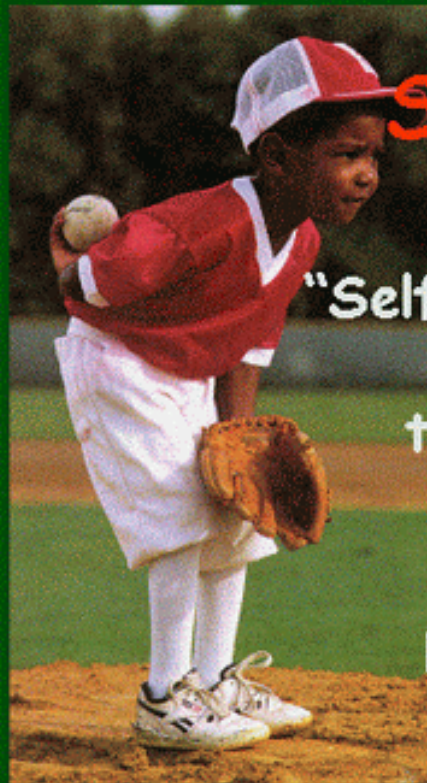
Declaration of Independence

"To increase confidence, patients need to attempt something previously feared, achieve it, and recognize it as their own achievement."

"Independence and control are fostered by teaching patients to self-reinforce and to attribute their gains to themselves"

•Harding V, Simmonds B, 1995

THE HOW



SELF-EFFICACY

"Self-efficacy is the *belief* in one's capabilities to organize and execute the sources of action required to manage prospective situations."

Bandura, 1986

HOW CAN I BE BETTER TOMORROW?



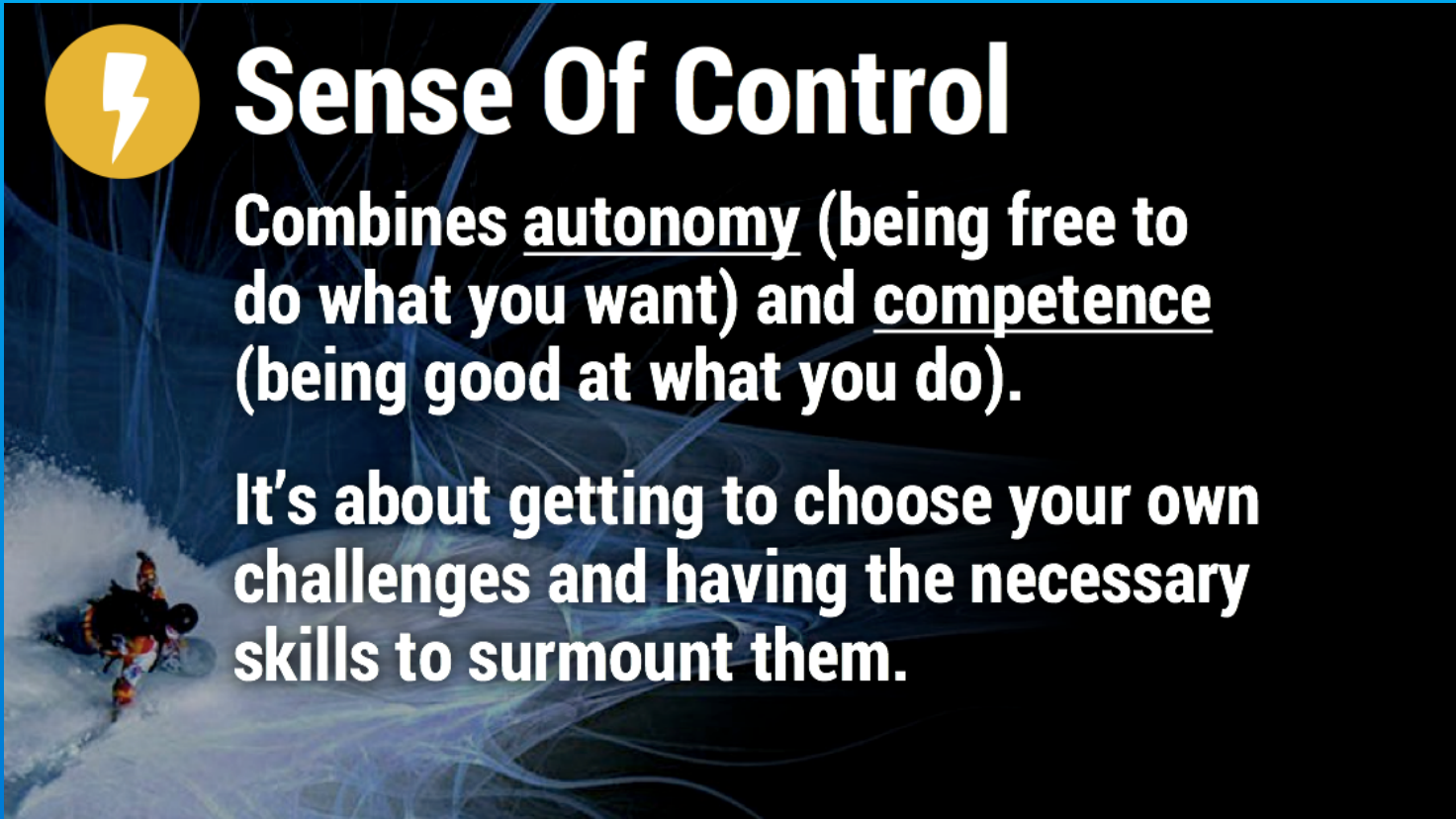
THE HOW

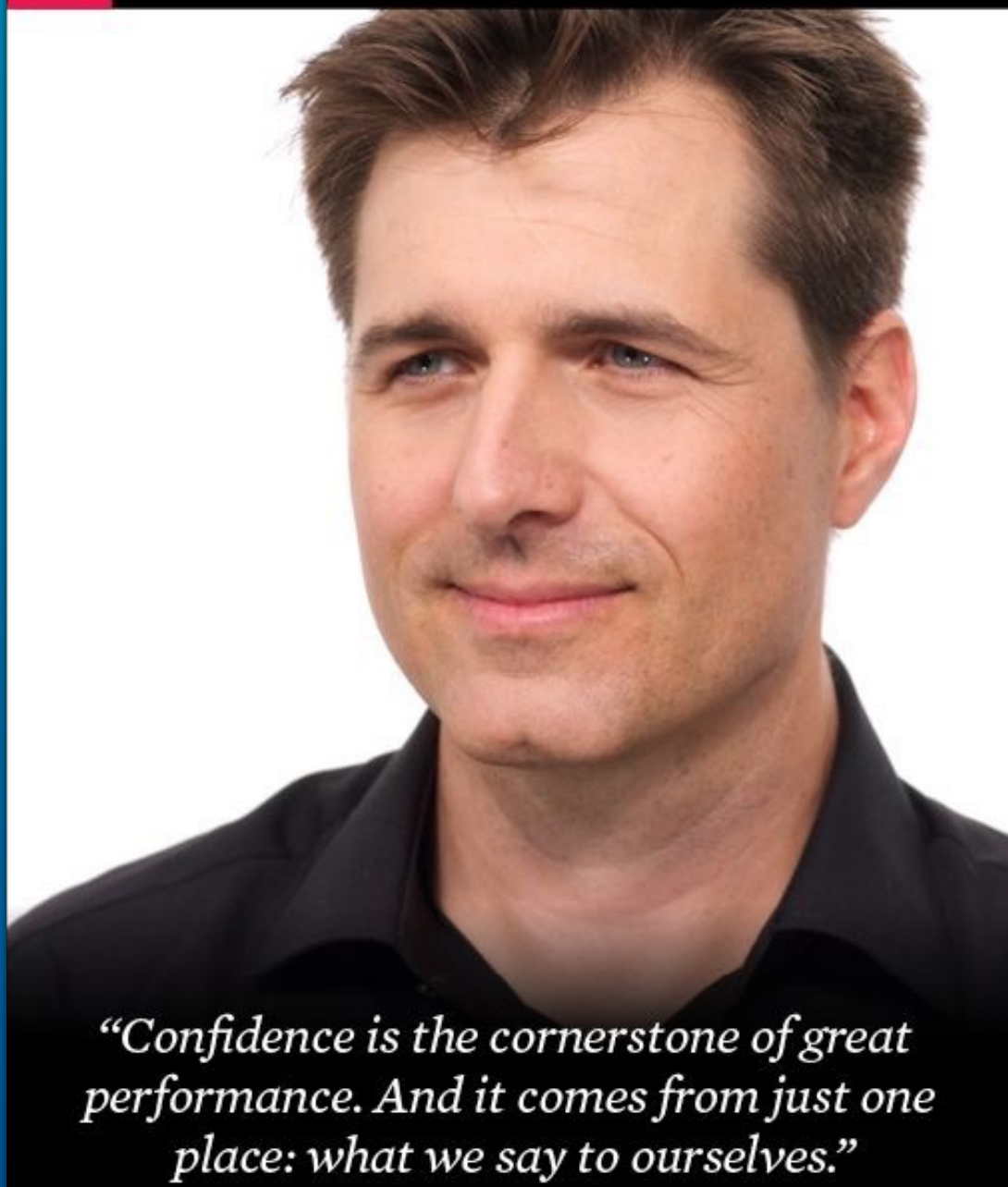


Sense Of Control

Combines autonomy (being free to do what you want) and competence (being good at what you do).

It's about getting to choose your own challenges and having the necessary skills to surmount them.

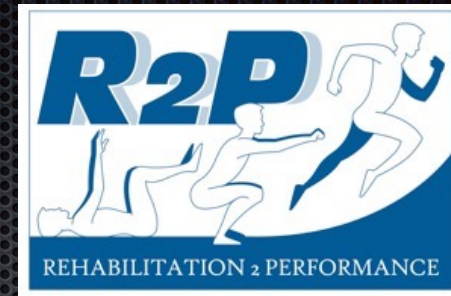
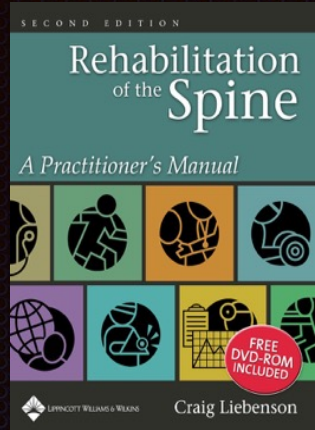




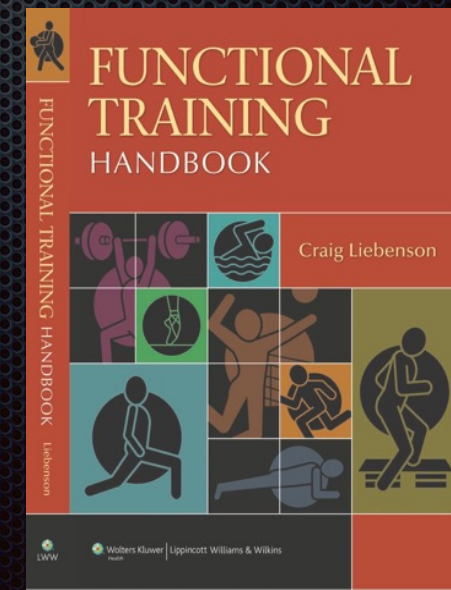
“Confidence is the cornerstone of great performance. And it comes from just one place: what we say to ourselves.”

WORKSHOP #3

- ✦ **Progressive Isometric Core Workout**
 - ✦ Body Weight
 - ✦ External Load
 - ✦ Core Stability Distal Athleticism



B. INACTIVITY CRISIS



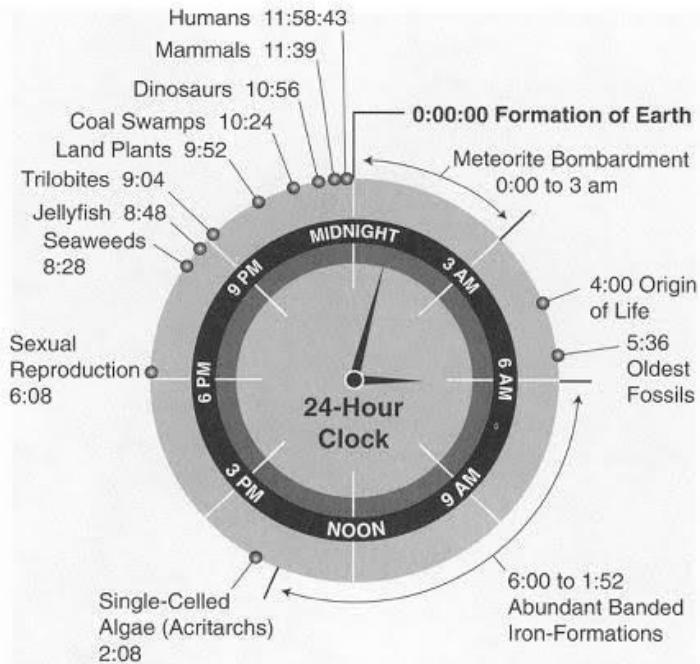
Inactivity Crisis

DESIGNED TO MOVE

A Physical Activity Action Agenda



The History of Earth As A Clock

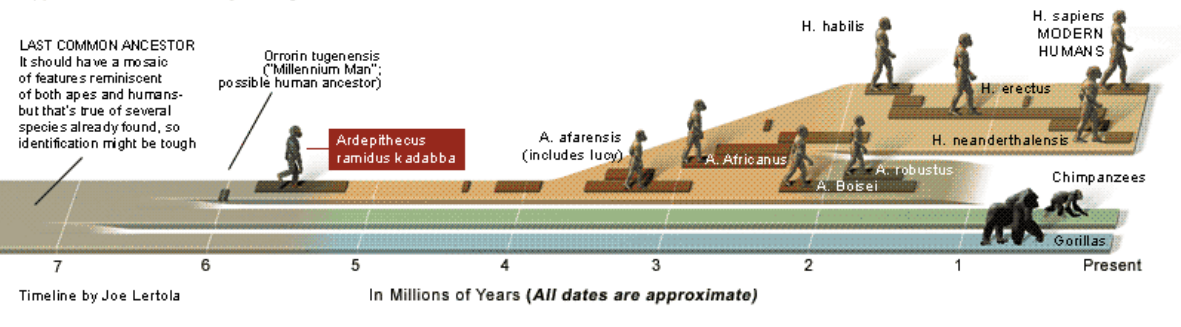


Source: [UW-Geoscience](#)

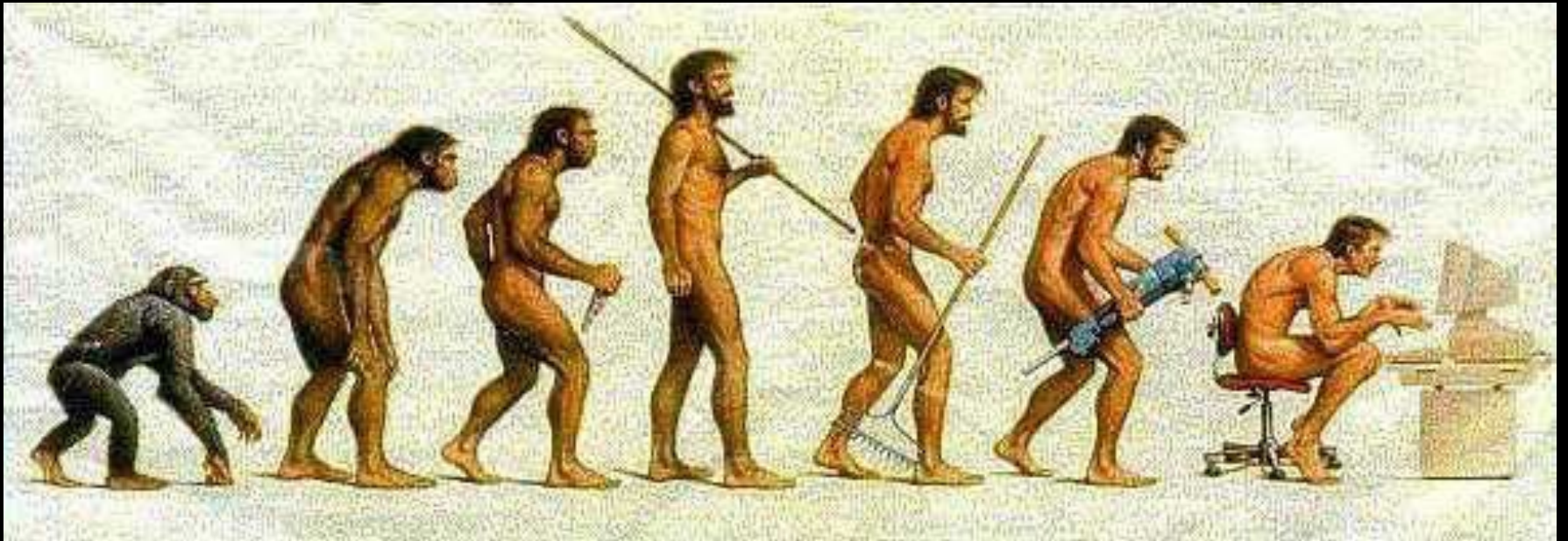
- 1st Life - 3 billion years
- Last Common Ancestor - > 7 million years
- Human - 200,000 years

A WALK THROUGH HUMAN EVOLUTION

The newest fossils have brought scientists tantalizingly close to the time when humans first walked upright—splitting off from the chimpanzees. Their best guess now is that it happened at least 6 million years ago [Click here to read the cover story >>](#)



Homosedentarius



Hunter Gatherer - Subsistence Farmer

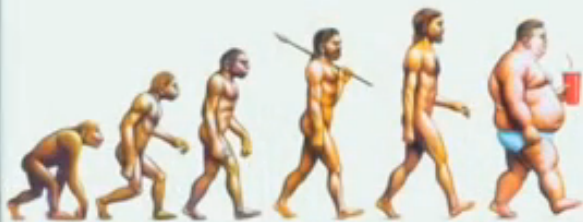
THE WORLD HAS STOPPED MOVING

JUST A FEW GENERATIONS AGO, PHYSICAL ACTIVITY WAS A CONSTANT PART OF DAILY LIFE. NOW WE'VE DONE AWAY WITH IT SO THOROUGHLY, PHYSICAL INACTIVITY ACTUALLY SEEMS NORMAL. THE SOCIAL AND ECONOMIC COSTS AND CONSEQUENCES ARE UNSUSTAINABLE.

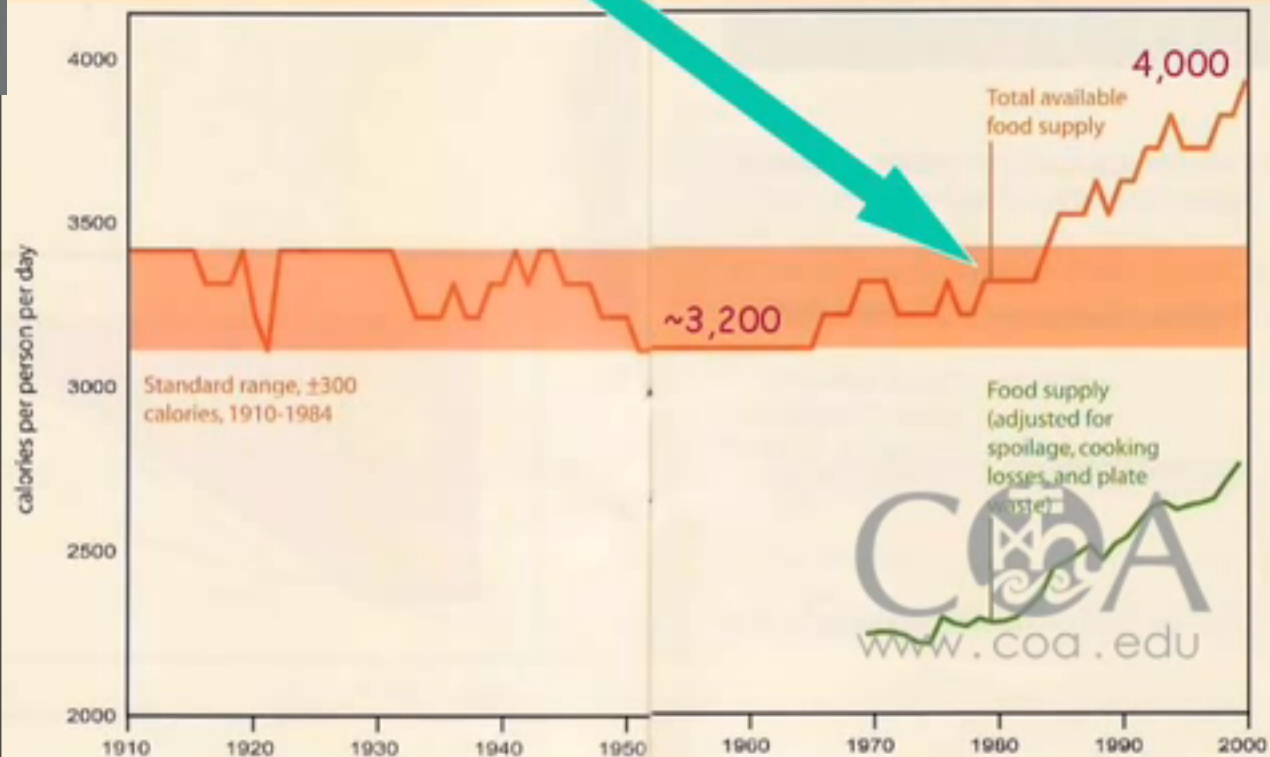
<http://designedtomove.org/>

Designed to Move

The shape of things to come



Available calories per person per day, 1909-2009



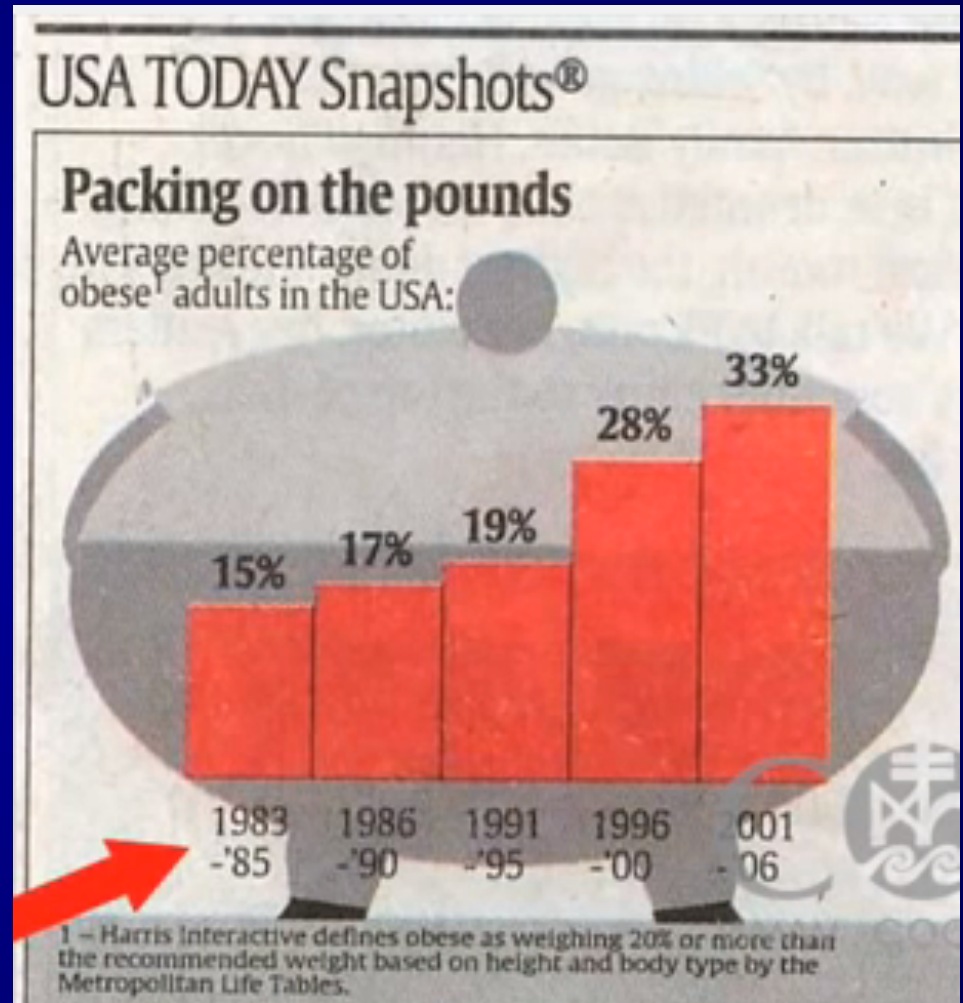
American Adults

2/3 overweight

1/2 are obese

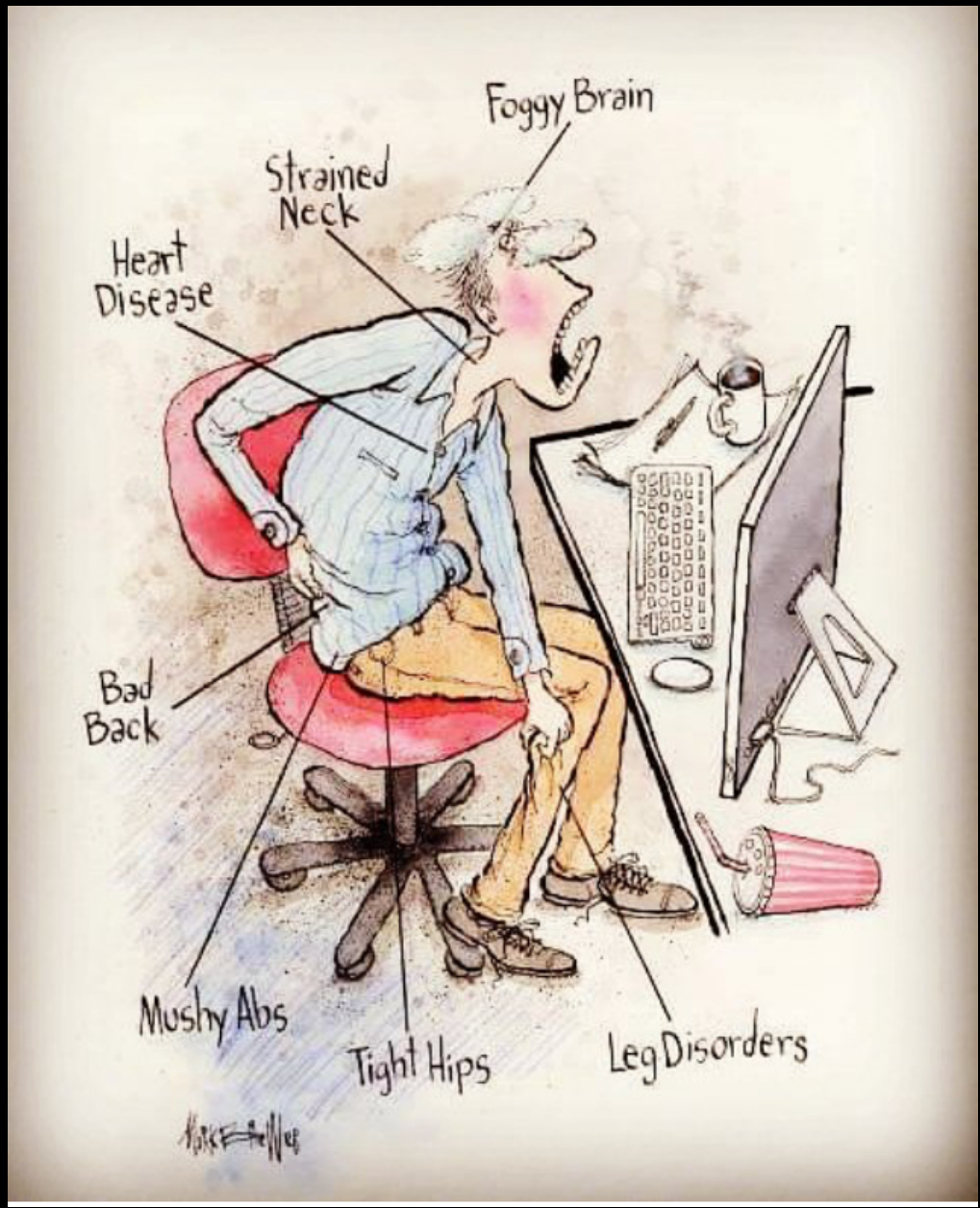
*Walter C. Willett, M.D.,
D.P.H.*

*School of Public Health,
Harvard University*

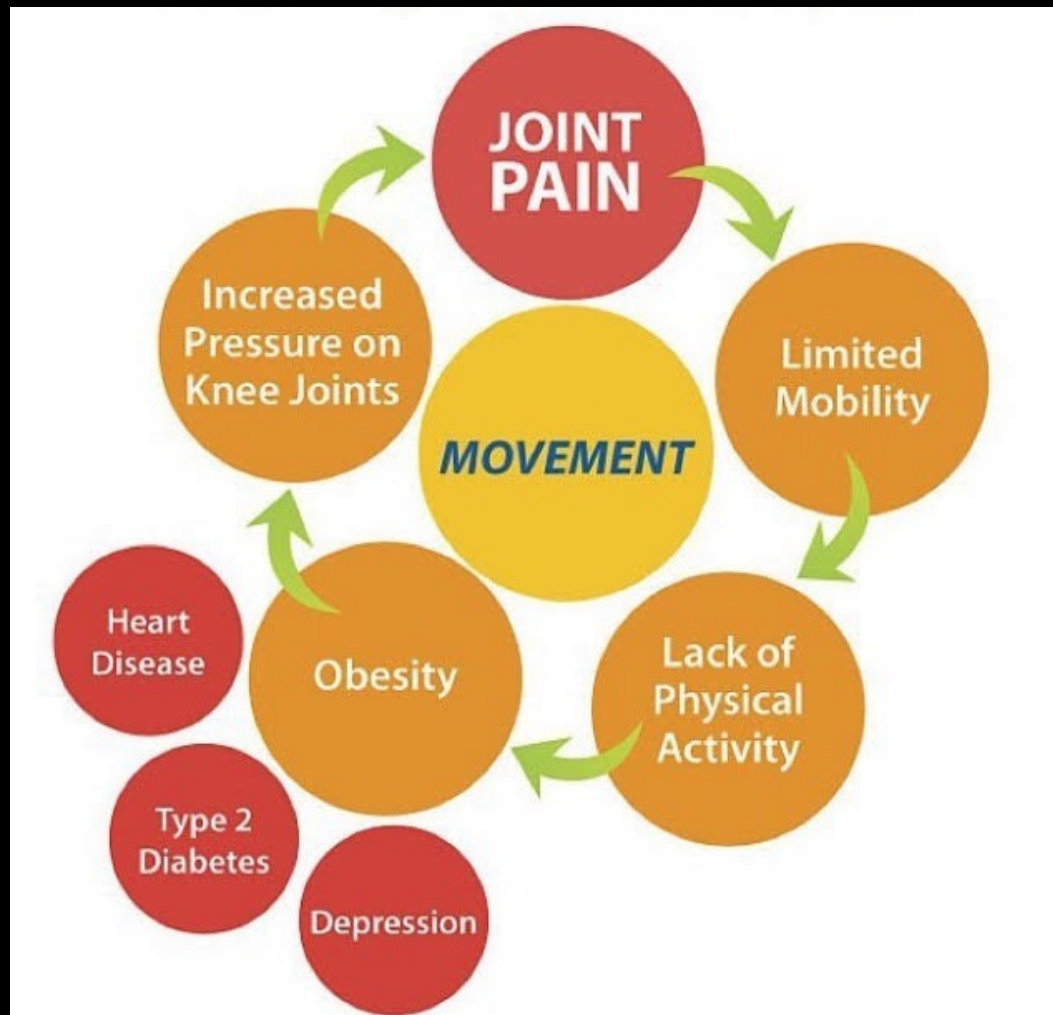


"In the last 50 years, the extent of processing has increased so much that prepared breakfast cereals **even without added sugar** act exactly like sugar itself," says pediatrics specialist David Ludwig.

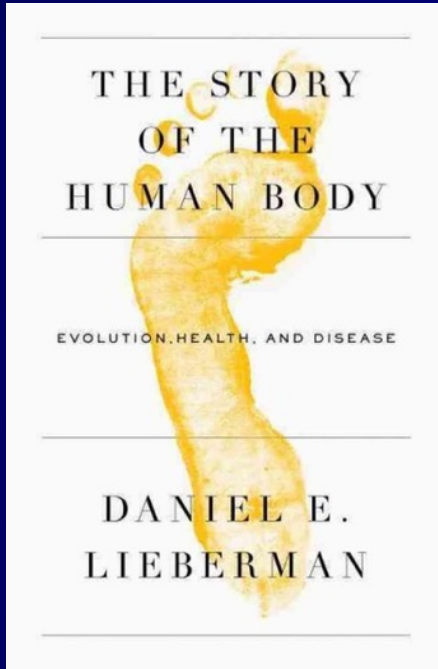




Getty Images



Mismatch Diseases & Cultural De-evolution



- **DOUBLE WHAMMY**
- Increased low quality calories &
- Insufficient activity lead to
 - **Heart Disease**
 - **Back pain**
 - **Type 2 Diabetes**
- **UNHEALTHY AGING!**



Physical activity is decreasing worldwide

- U.S. 32% in 44 years
- China 45% in 18 years
- European 15 year olds are 50% as active as when they were 9
- U.S. kids have a 75% drop
- Chinese children are 1/2 as active as their parents

DESIGNED TO MOVE

A Physical Activity Action Agenda

Global Burden of Disease 2010 Report

Key results - General



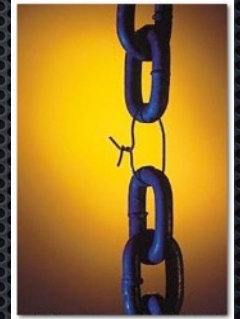
- Shifted away from communicable to non-communicable diseases
- From premature death to years lived with disability
- In 2010: 54% of Disability-adjusted life years (DALYs) worldwide were from non-communicable diseases
 - WHO
 - University of Queensland School of Population Health
 - Harvard School of Public Health
 - Johns Hopkins Bloomberg School of Public Health
 - University of Tokyo
 - Imperial College London
- Funding: Bill & Melinda Gates Foundation



WORKSHOP #4

- ✧ Progressions/Regressions
- ✧ Tracks/Groves

REACTIVATION GROVES

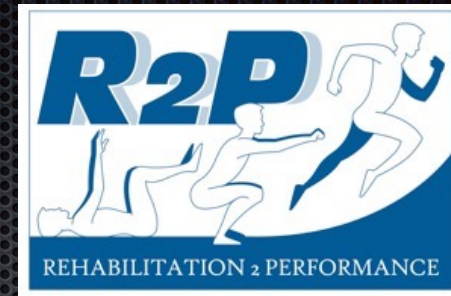
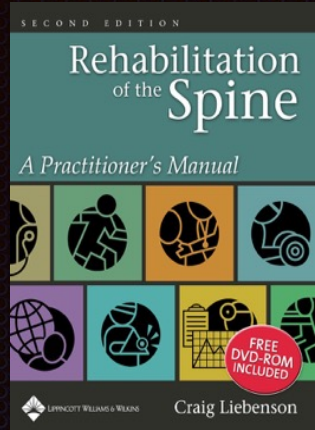


DEEP SQUAT: SUMO ASSESSMENT

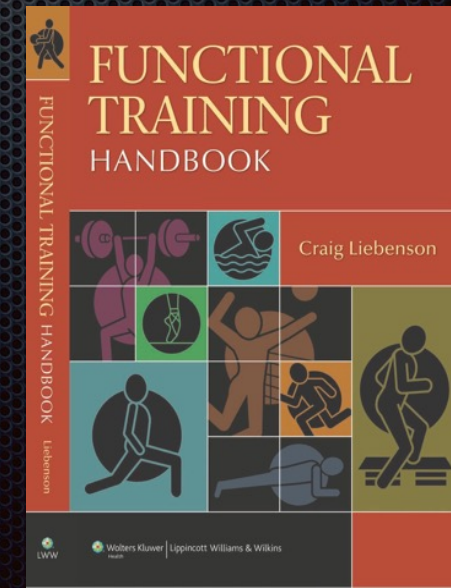


PERFORMANCE/MOBILITY/ RELAXATION





C. EXERCISE IS MEDICINE



"You are *already* your own doctor."

Tom Ferguson, M.D., 1985

Our interactions with
the healthcare system are
only the tip of the iceberg.



Self-care

is and has always been
our predominant
form of health care.

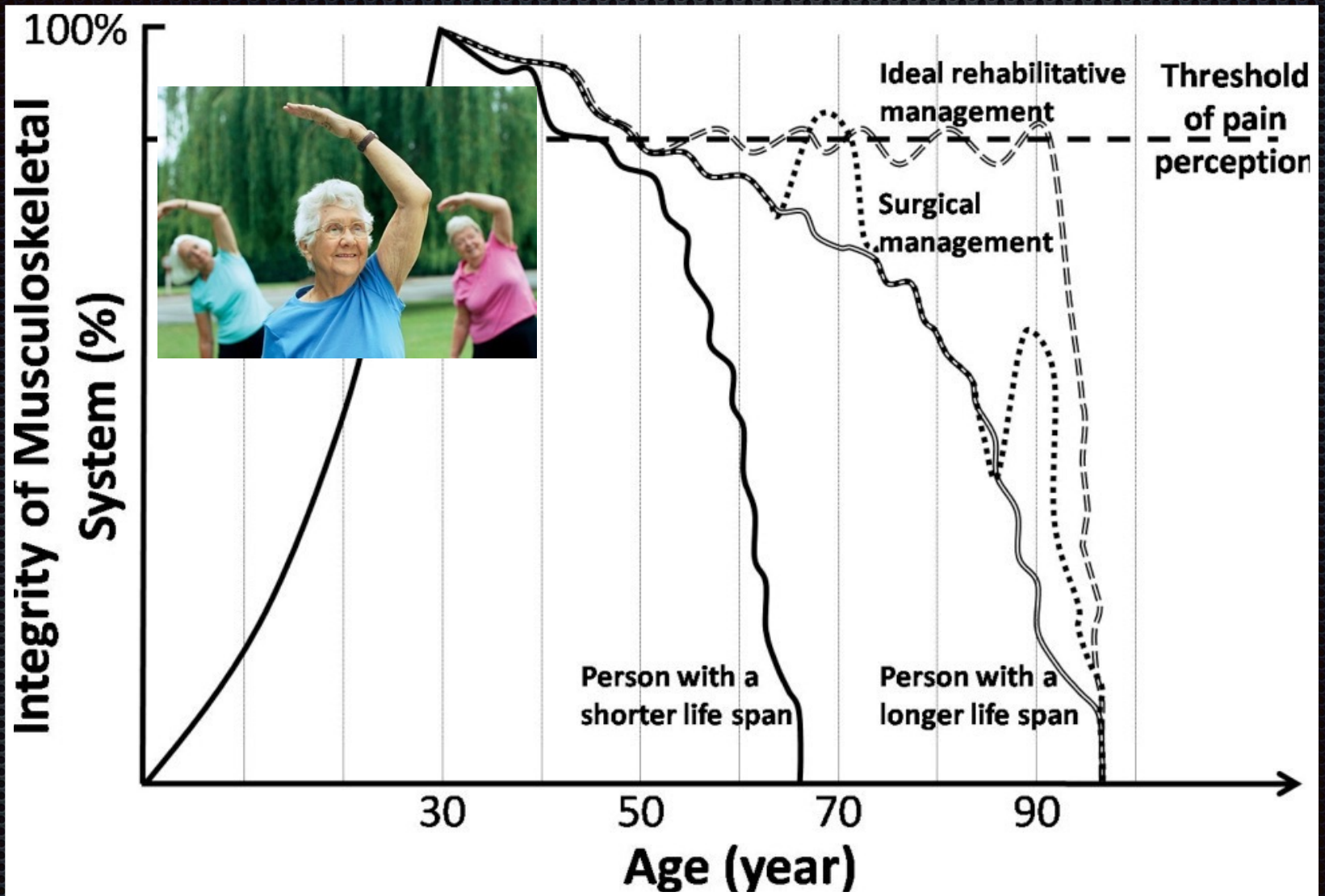
Exercise is Medicine:

ACSM

- Mother Nature requires a bargain.
 "Use it or lose it"
 "No strain, no gain"

"Exercise is Medicine"

- Susrat - 600 BC rec. exercise to 1/2 of capacity



Chung SG. What Is on the Horizon? Adding a New Item to Our List: Mechanical Connective Soft Tissue. PM&R

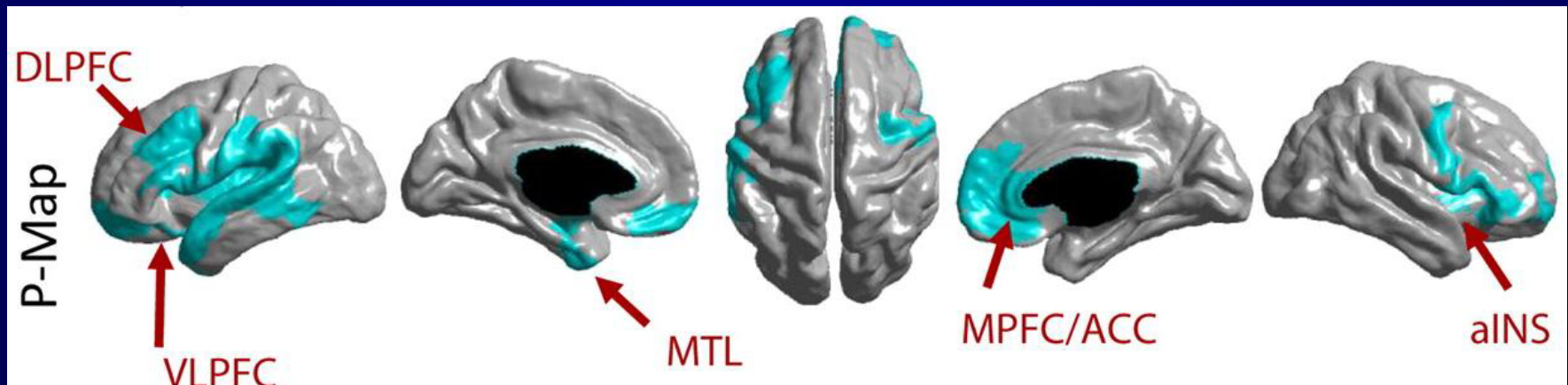
2012;4:247-251(1012)(DOI:10.1016/j.pmrj.2012.03.001)

Cortical thickness decreases in back pain patients

Seminowicz D A et al. J. Neurosci. 2011.

Tracey I, Bushnell MC. J Pain. 2009 Nov;10(11): 1113-20

Emerson, N., Zeidan, F., Lobanov, O., Hadsel, M., Martucci, K., Quevedo, A., Starr, C., et al. (2014). Pain sensitivity is inversely related to grey matter in the brain. PAIN, 155(3): 566-73.



Reversal of GM changes when pain resolves

-
- The lack of morphometric anomalies in subjects with past pain suggests that pain-related grey matter changes are reversible after cessation of pain
 - Ruscheweyh R. Pain. 2011;152(4):904-11. Pain is associated with regional grey matter reduction in the general population.
 - MRIs, 6 weeks and 4 months after total hip replacement surgery.
 - Gray matter increase in the DLPFC, ACC, amygdala, & brainstem
 - Rodriguez-Raecke R et al. J Neurosci. 2009;13746-50. Brain gray matter decrease in chronic pain is the consequence and not the cause of pain.

THE MORE THEY **BURN** THE BETTER THEY **LEARN**



YOUR
CHILD

AMOUNT OF
ACTIVITY

VARIOUS
ACTIVITIES

ACADEMIC
ACHIEVEMENT

**Did you know that
kids who are
physically active
get better grades?**

Research shows that students who earn mostly **A**s are almost twice as likely to get regular physical activity than students who receive mostly **D**s and **F**s.

Physical activity can help students focus, improve behavior and boost positive attitudes. Do what you can to help your child be physically active, be it running, biking or swimming. Any type of physical activity is good, and 60 minutes a day is best. Their grades will thank you!



SOURCES

CDC. Physical Inactivity and Unhealthy Dietary Behaviors and Academic Achievement.

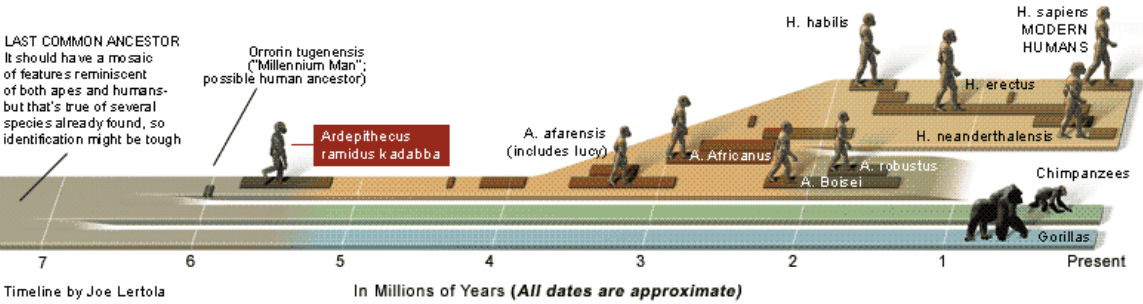
CDC. The association between school-based physical activity, including physical education, and academic performance. Atlanta, GA: U.S. DHHS; 2003.

FOR MORE INFORMATION, VISIT
MakingHealthEasier.org/Burn2Learn

A WALK THROUGH HUMAN EVOLUTION

The newest fossils have brought scientists tantalizingly close to the time when humans first walked upright—splitting off from the chimpanzees. Their best guess now is that it happened at least 6 million years ago [Click here to read the cover story >>](#)

LAST COMMON ANCESTOR
It should have a mosaic of features reminiscent of both apes and humans—but that's true of several species already found, so identification might be tough



WALK

YOUR WAY TO BETTER HEALTH

Anatomy of Walking

BOOSTS ENDORPHINS
EASING STRESS, TENSION, ANGER, FATIGUE, AND CONFUSION IN TEN MINUTES

REDUCES GLAUCOMA RISK

HALVES ALZHEIMER'S DISEASE RISK OVER 5 YEARS

LIMITS SICKNESS
BY HALVING ODDS OF CATCHING A COLD

IMPROVES HEART HEALTH
BY INCREASING HEART RATE AND CIRCULATION

WORKS ARM & SHOULDER MUSCLES

ENGAGES AB MUSCLES

IMPROVES BLOOD PRESSURE
BY FIVE POINTS

BUILDS BONE MASS,
REDUCING RISK OF OSTEOPOROSIS

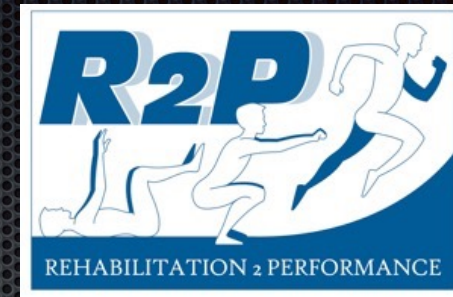
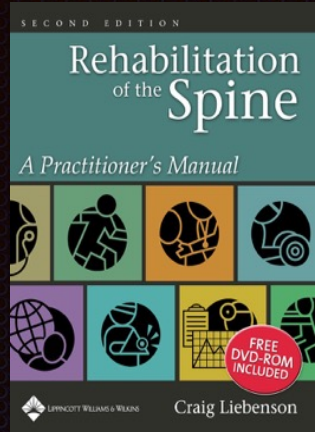
LIMITS COLON CANCER
BY 31% FOR WOMEN

STRENGTHENS LEGS,
INCLUDING QUADRICEPS, HIP FLEXORS, AND HAMSTRINGS

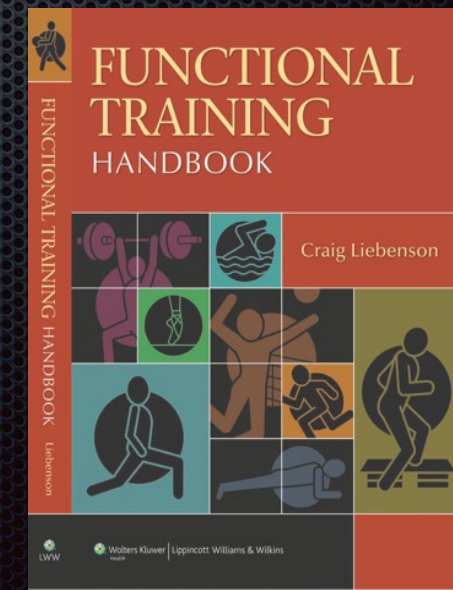
IMPROVES BALANCE

BURNS MORE FAT
THAN JOGGING

ONLY 30 MINUTES A DAY,
5 TIMES A WEEK CAN MAKE YOU
HEALTHIER AND HAPPIER.



D. TRADITIONAL STRUCTURAL & SYMPTOMATIC APPROACH

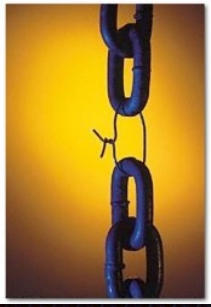


WHAT IS THE STANDARD IN WESTERN MEDICINE?



THE ORTHOPEADIC APPROACH





Karel Lewit



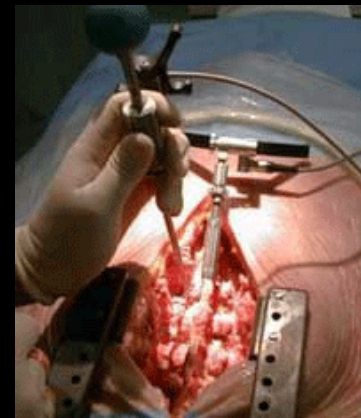
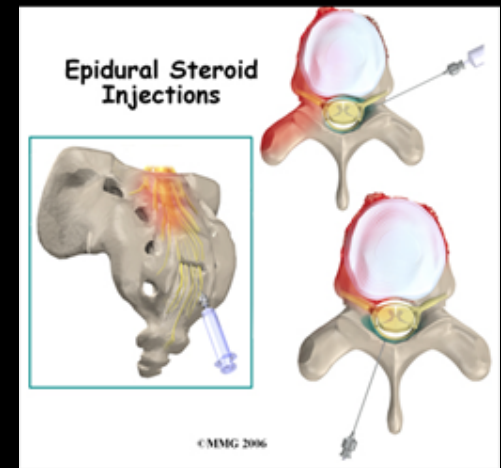
***"He who treats
the site of
pain is lost."***

- Dr. Karel Lewit

#LASPORTSANDSPINE

LBP COST EPIDEMIC

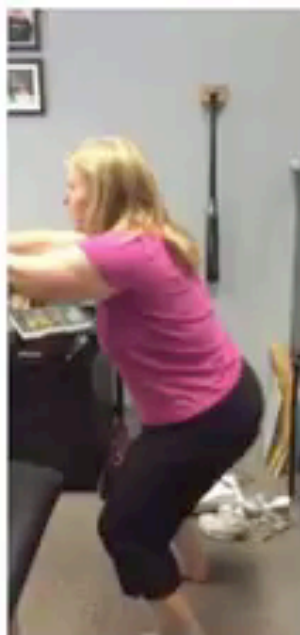
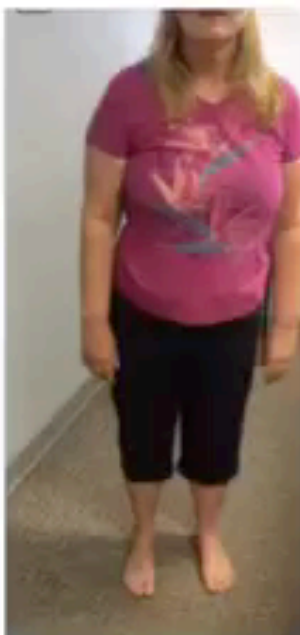
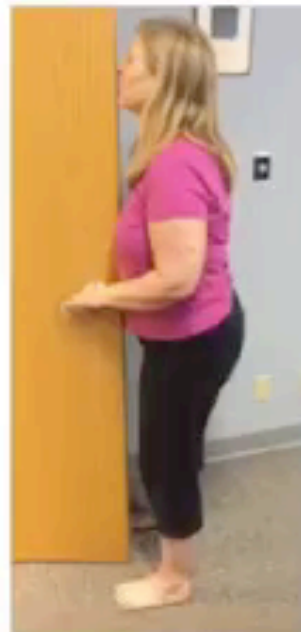
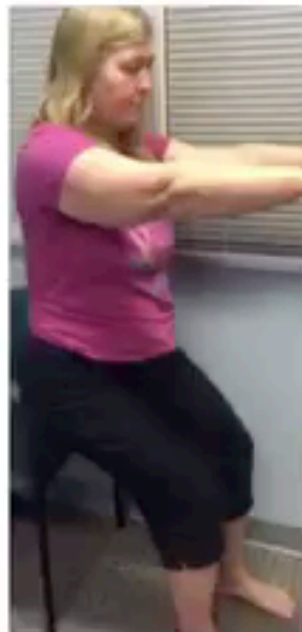
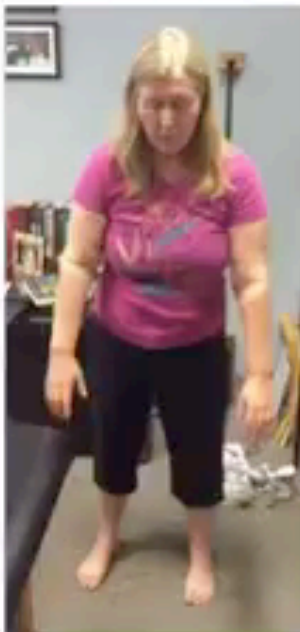
- Epidural Steroid Injections $\uparrow > 400\%$
- MRI - $\uparrow > 300\%$
- Lumbar Fusion Surgery - $\uparrow > 200\%$
- Opioid Use \uparrow

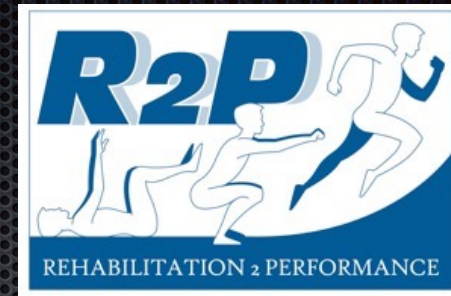
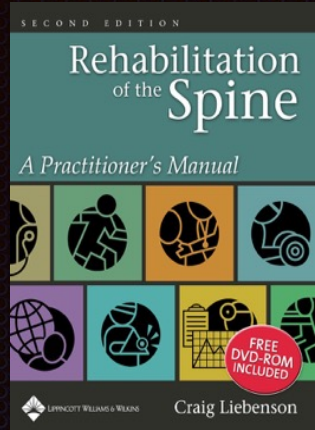


THE MYTH OF THE FRAGILE COLUMN

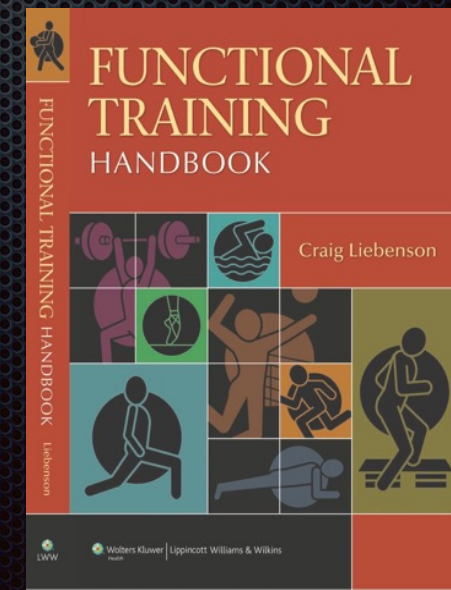
- Doesn't degeneration cause LBP?



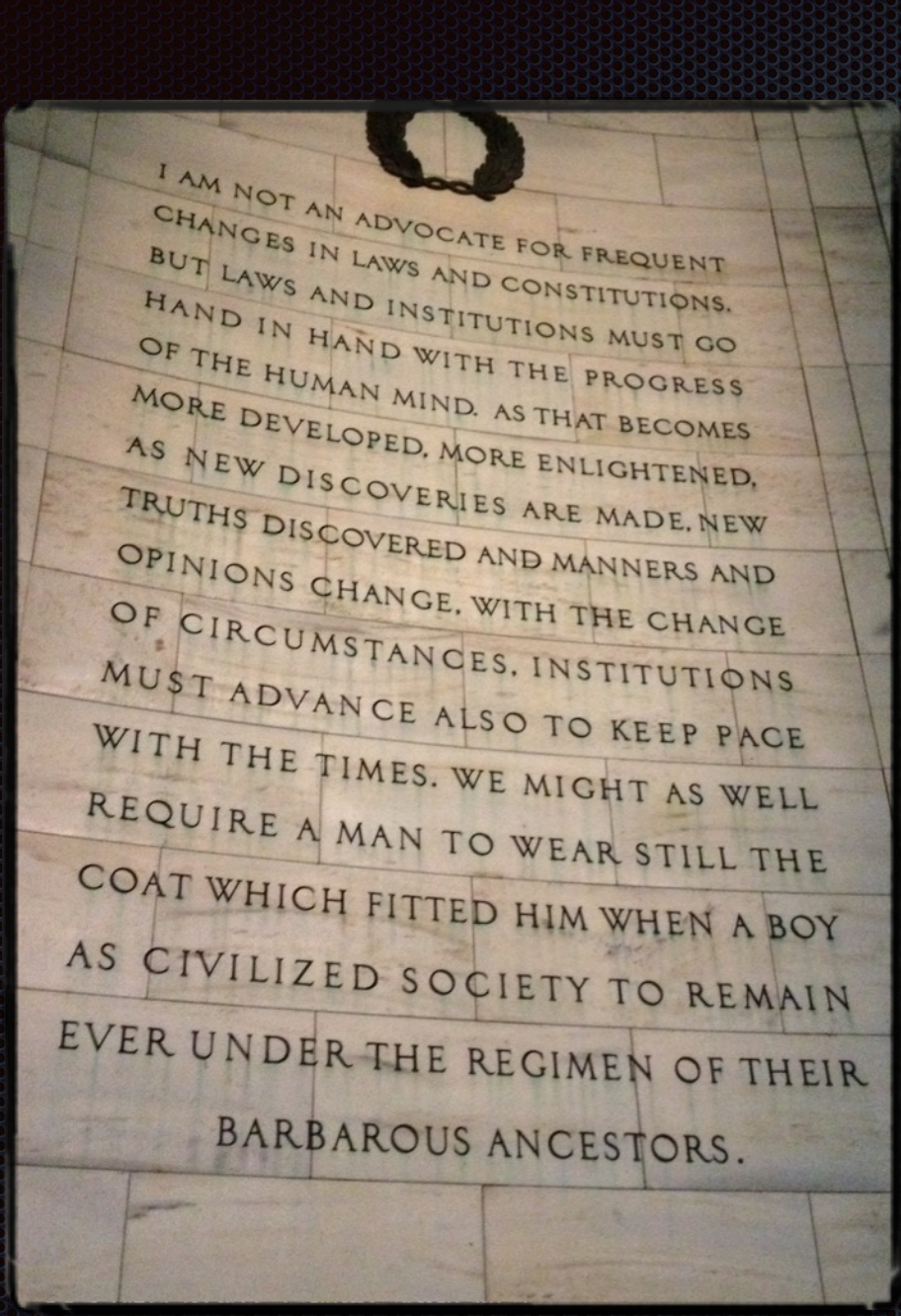




E. NEW FUNCTIONAL PARADIGM



THOMAS JEFFERSON

A photograph of a rectangular marble tablet with a dark, circular hole at the top center. The tablet is inscribed with a quote by Thomas Jefferson in capital letters. The text is arranged in approximately 15 lines, following the natural shape of the tablet. The background of the entire image is a dark, textured surface with a repeating pattern of small, light-colored dots.

I AM NOT AN ADVOCATE FOR FREQUENT
CHANGES IN LAWS AND CONSTITUTIONS.
BUT LAWS AND INSTITUTIONS MUST GO
HAND IN HAND WITH THE PROGRESS
OF THE HUMAN MIND. AS THAT BECOMES
MORE DEVELOPED, MORE ENLIGHTENED,
AS NEW DISCOVERIES ARE MADE, NEW
TRUTHS DISCOVERED AND MANNERS AND
OPINIONS CHANGE, WITH THE CHANGE
OF CIRCUMSTANCES, INSTITUTIONS
MUST ADVANCE ALSO TO KEEP PACE
WITH THE TIMES. WE MIGHT AS WELL
REQUIRE A MAN TO WEAR STILL THE
COAT WHICH FITTED HIM WHEN A BOY
AS CIVILIZED SOCIETY TO REMAIN
EVER UNDER THE REGIMEN OF THEIR
BARBAROUS ANCESTORS.

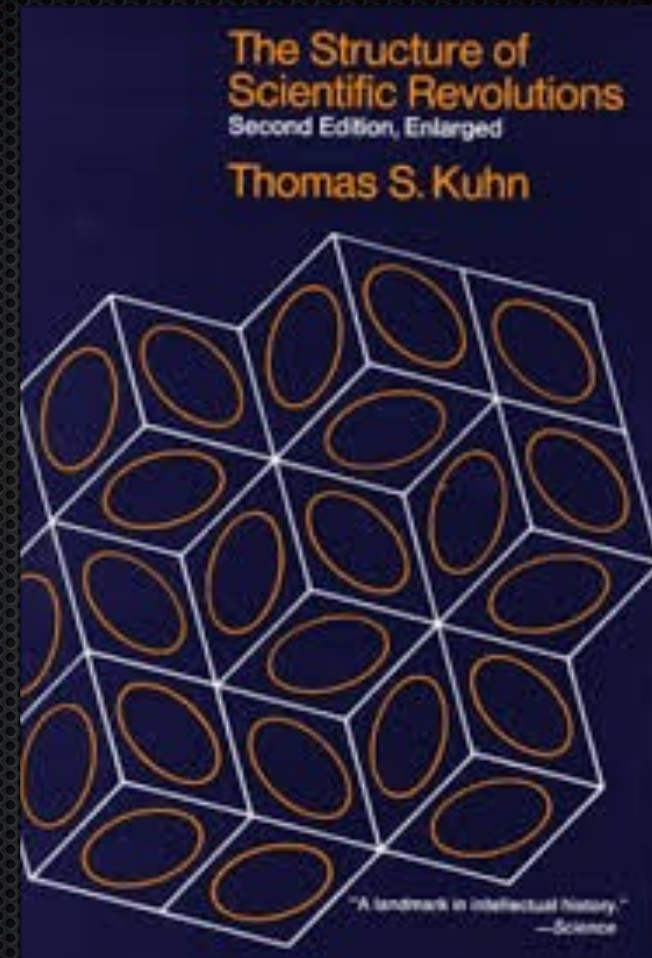
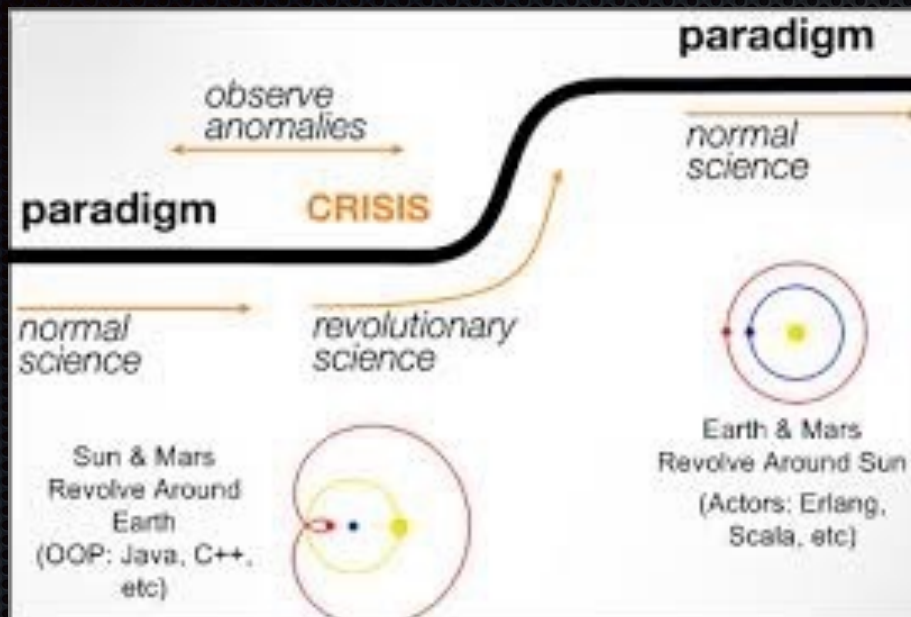
- ✦ As new discoveries are made, new truths discoveredinstitutions must advance also to keep pace with the times.”



- “The wise man is one who, knows, what he does not know.”

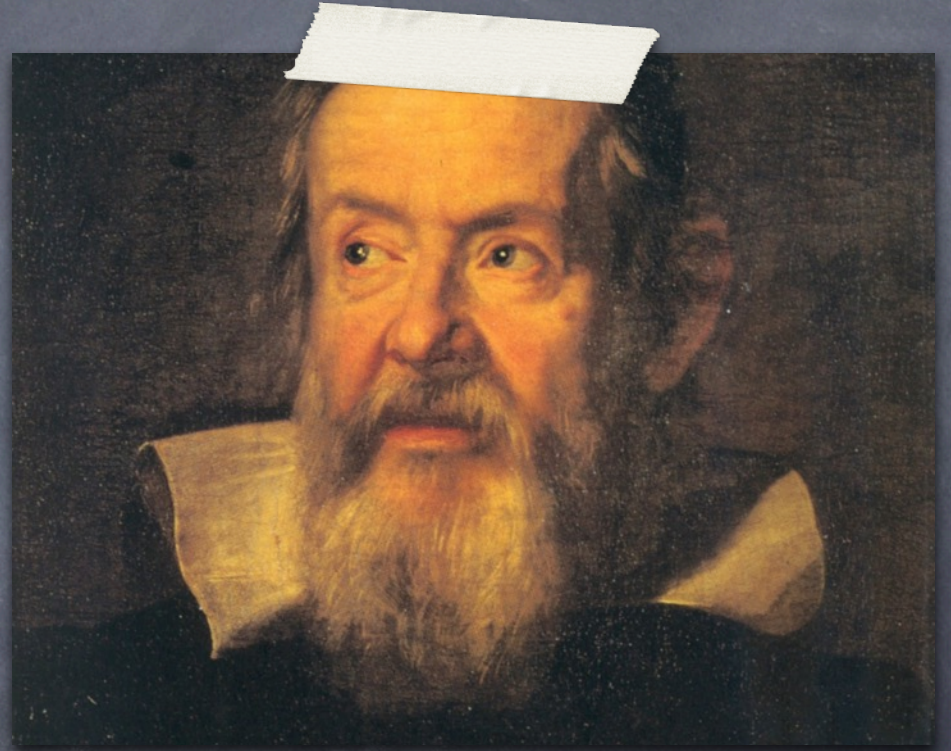
— Lao Tzu, Tao Te Ching





“The resolution of revolutions is selection by conflict within the scientific community of the fittest way to practice future science.”

**Galileo believed the
universe could be
understood through
observation and
reason.**



Like Lucretius "On the Nature of Things" the testimony of the senses over orthodox claims of authority

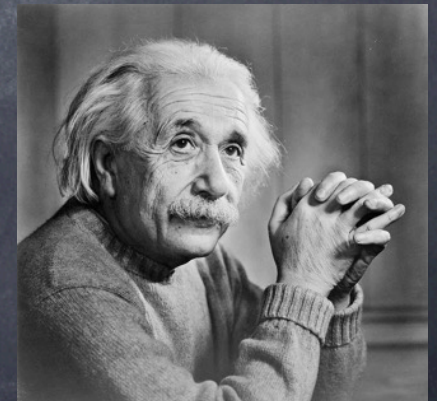
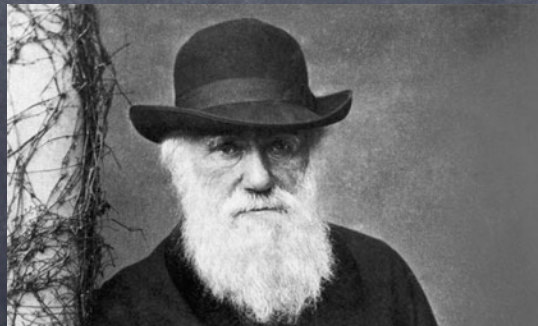
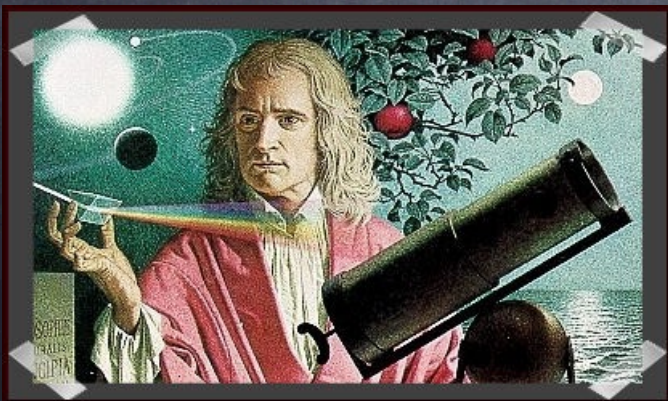
<http://www.youtube.com/watch?v=nSTkMYECxX4>



**Heresy to state that the earth rotated around the sun.
The earth does not move!**

Newton, Darwin, Einstein

- ❶ Countered the dogmatic views through science proving ancient philosophical tenets
- ❶ Newton “I am merely throwing pebbles at the seashore of knowledge”



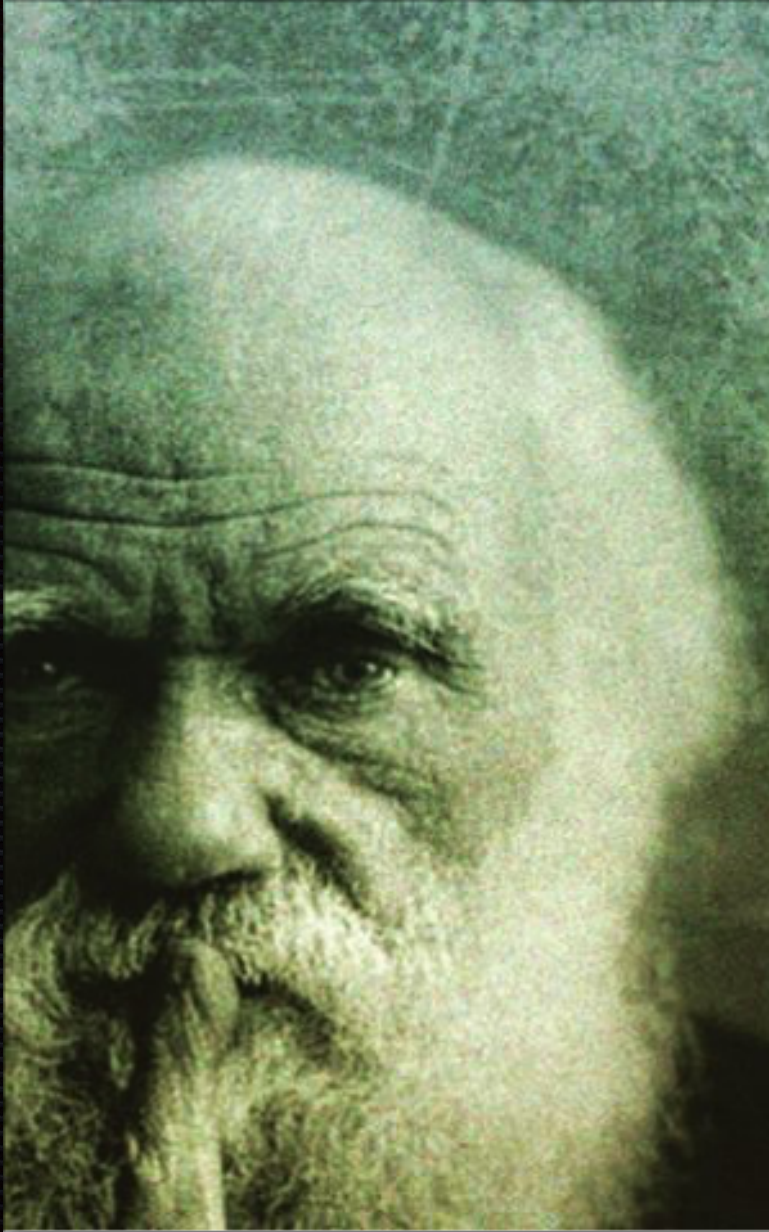
The Functional Approach

1. Treat Dysfunction not Pathology
2. Address the source of pain not the site of symptoms
3. Acute & Chronic pain are different
4. Don't add strength on top of dysfunction

New Paradigm



Pr Janda & Dr Lewit



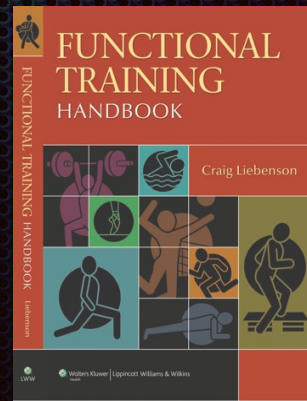
“It is not the
strongest of the
species that
survives, nor the
most intelligent,
but the one most
responsive to
change.”

~Charles Darwin, 1809

Functional Evaluation

- Is it PAINFUL?
- **Mechanical Sensitivity (MS)**
 - Does it reproduce or intensify the pts symptoms
- Is it DYSFUNCTIONAL?
- **Abnormal Motor Control (AMC)**
 - **Stability** (coordination) or **Mobility** - what the clinician sees
 - Felt in target tissue - what the patient feels
- *Is it specific to the patients activity goals or intolerances (home, sport, occupational)*
- *Is there normative data?*

You Can't Manage What You Can't Measure

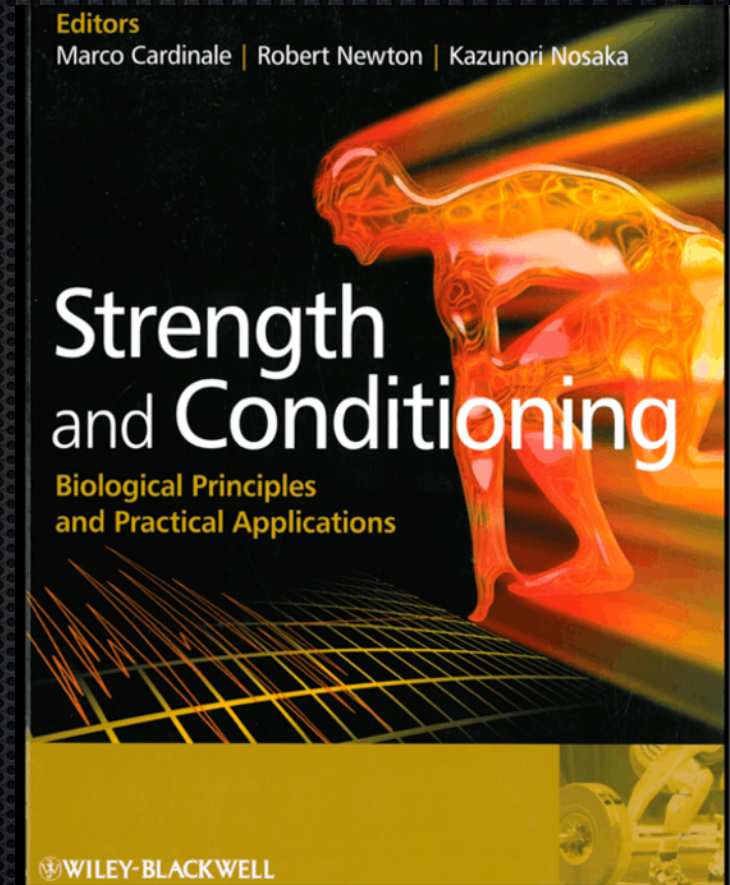


Robert Newton p255

"ongoing assessment....is essential to -

- optimizing training programme design
- reducing injury or illness risk
- increasing career longevity
- maximizing sports performance

The adage 'you can't manage what you can't measure' applies equally to athletes as



Functional Movement Screen

THE MOVEMENT TESTS

Overhead Squat

Hurdle Step

In-line Lunge

Shoulder Mobility

Active Straight Leg Raise

Trunk Stability Push-up

Rotary Stability





Assess/Assess/Assess

“Time spent in
assessment will save
time in treatment”

V Janda





*"I don't begin treatment until I have examined everything.
I must see a picture. The key link can be from a past
trauma, repetitive strain, or a dysfunctional key area."*

The Screen is the key to athlete satisfaction - Why?



Janda's Approach



Hip Abduction

Screens

FMS/SFMA

DNS

Janda

Sahrman

NASM

McGill



SILENT KILLERS

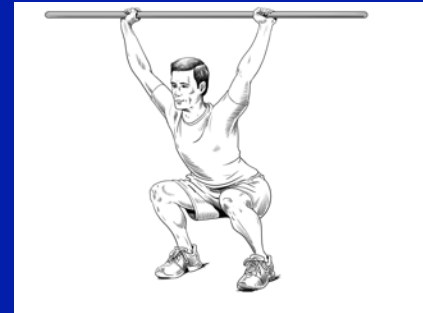
- "signs and symptoms of injury abate, but these functional deficits persist.... adaptive patterns develop secondary to the remaining functional deficits."

Herring SA, Rehabilitation of muscle injuries. Med Sci Sports Exer 1990;22:453-456.

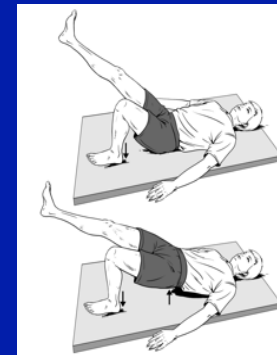
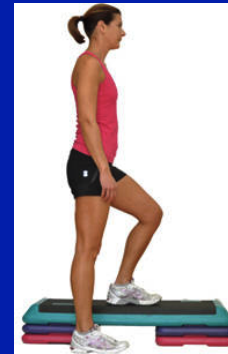


Mag 7 - BASIC FUNCTIONS

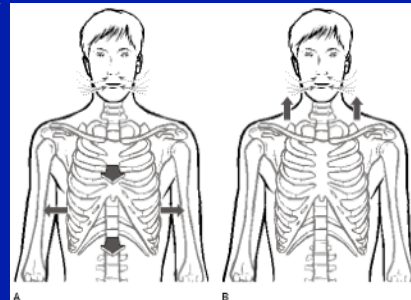
- *Upright Posture*



- *Single Leg*



- *Respiration/Core*



Gray Cook's Scoring - Functional Movement Screen

- ✦ 0 - pain - THE MARKER
- ✦ 1 - can't perform movement - THE GOAL
- ✦ 2 - performs movement w/ compensation (imperfect) - **THE MUD**
- ✦ 3 - movement performed w/out compensation (perfect)(Comfort zone)



WORKSHOP #5



1 Leg Balance Test – p248-249, 807-809

- Maribo T, Iverson E, Andresen N, Stengaard-Pedersen K, Schiottz-Christensen B. Intra-observer and interobserver reliability of one leg stand test as a measure of postural balance in low back pain patients. *Int Musc Med* 2009;31:172-177



Balance

- **Procedure**

- Instruction: Stand on 1 leg & look straight ahead (w/ arms folded)
- Person can choose preferred 1 leg stance position
- Perform eyes open (EO) 1st then, use this instruction
- Stand on 1 leg & look straight ahead, focusing on spot on the wall in front of you.
- Now, keep balancing & close your eyes (EC)
- Visualize the spot in front of you

- **Score**

- Patient gets up to 5 tries on each leg
- 1-2 EO trials/rest EC
- Max time 30s
- Record time when:
 - Hop
 - Move foot
 - Reach out & touch something with either hand

Scoring

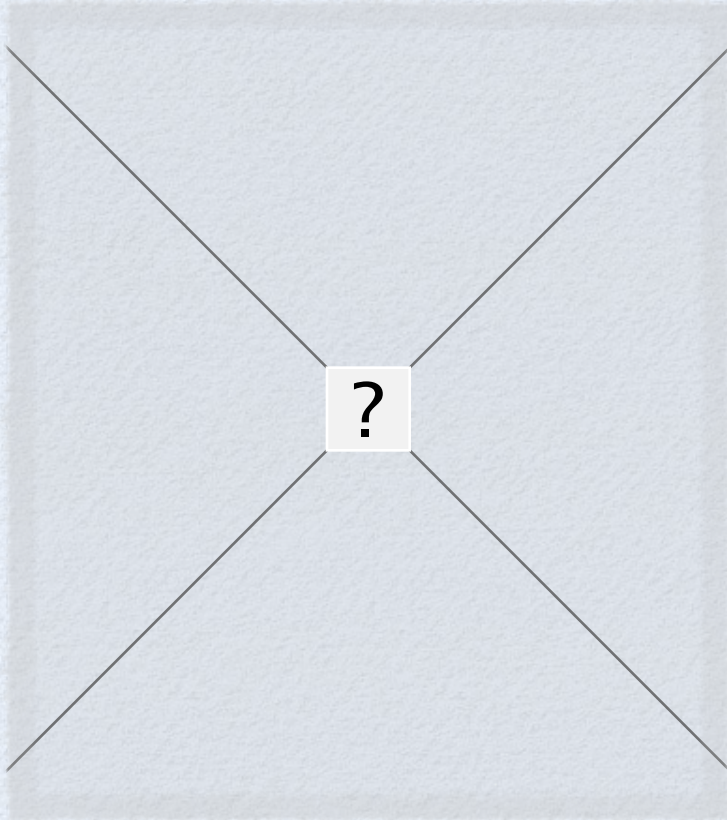
- 0 - pain
- 1 - can't perform movement
 - Less than 10s EO
 - Less than 5 s EC
- 2 - performs movement w/ compensation
 - Less than 30s EC
 - Less than 60s EO
 - Hyperpronation
 - Trendelenberg sign
 - Shoulder unleveling
- 3 - movement performed w/out compensation

Functional Problem Solving

- ANKLE SPRAIN/FALLS-ELDERLY
- Sensory input to sole of foot
- Single Leg Progressions/Regressions
- Split Stance
- 1/2 Kneeling



WALL LEAN CALF FLEXIBILITY/ DOWN DOG

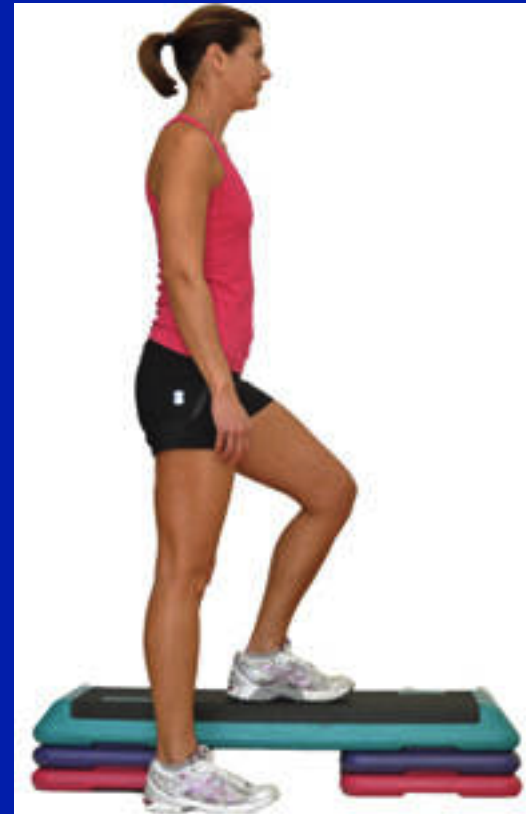


Single Leg Squat Test – p814-815

- Squat to approx 30 deg. Hip flexion
- Or, perform off step (8" or 20 cm high) w/ non-wt. bearing leg straight until heel touches floor



- 8" or 20 cm height

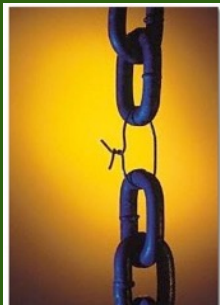


Scoring

- 0 - pain
- 1 - Can't perform movement to approx 30 deg knee flexion
 - Knee valgosity (knee passes medial to foot)
- 2 - performs movement w/ compensation
 - L/S flexion
 - Ant patellar shear
 - Trendelenberg
 - Hyperpronation
- 3 - movement performed w/out compensation

Functional Problem Solving

- KNEE/ANKLE/HIP
- See Balance
- Lateral Wall Lean/Squat
- 2/1 Leg Squat
 - Concentric (only) 1 Leg Squat up
 - Eccentric 2 Leg Squat down



Clinical Audit Process



Testing A
Hypothesis

Audit

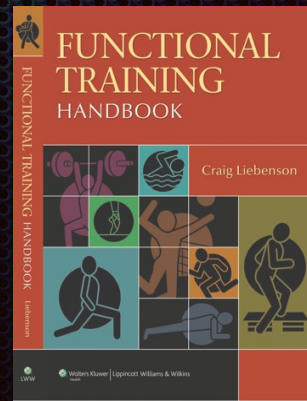
Niels Bohr

"Prediction is very difficult, especially about the future."

- Give yourself options
- Avoid iatrogenesis of interventionism



Grit vs Aptitude (talent)





GRIT:
A PERSONALITY FACTOR
REFLECTING PERSISTENCE IN
ACCOMPLISHING LONG TERM
GOALS

- ANGELA DUCKWORTH

#LASPORTSANDSPINE

<https://www.youtube.com/watch?v=hAwj1eGvDw>

“The ability to learn faster than your competitors may be the only sustainable competitive advantage.”

“Planning as learning”

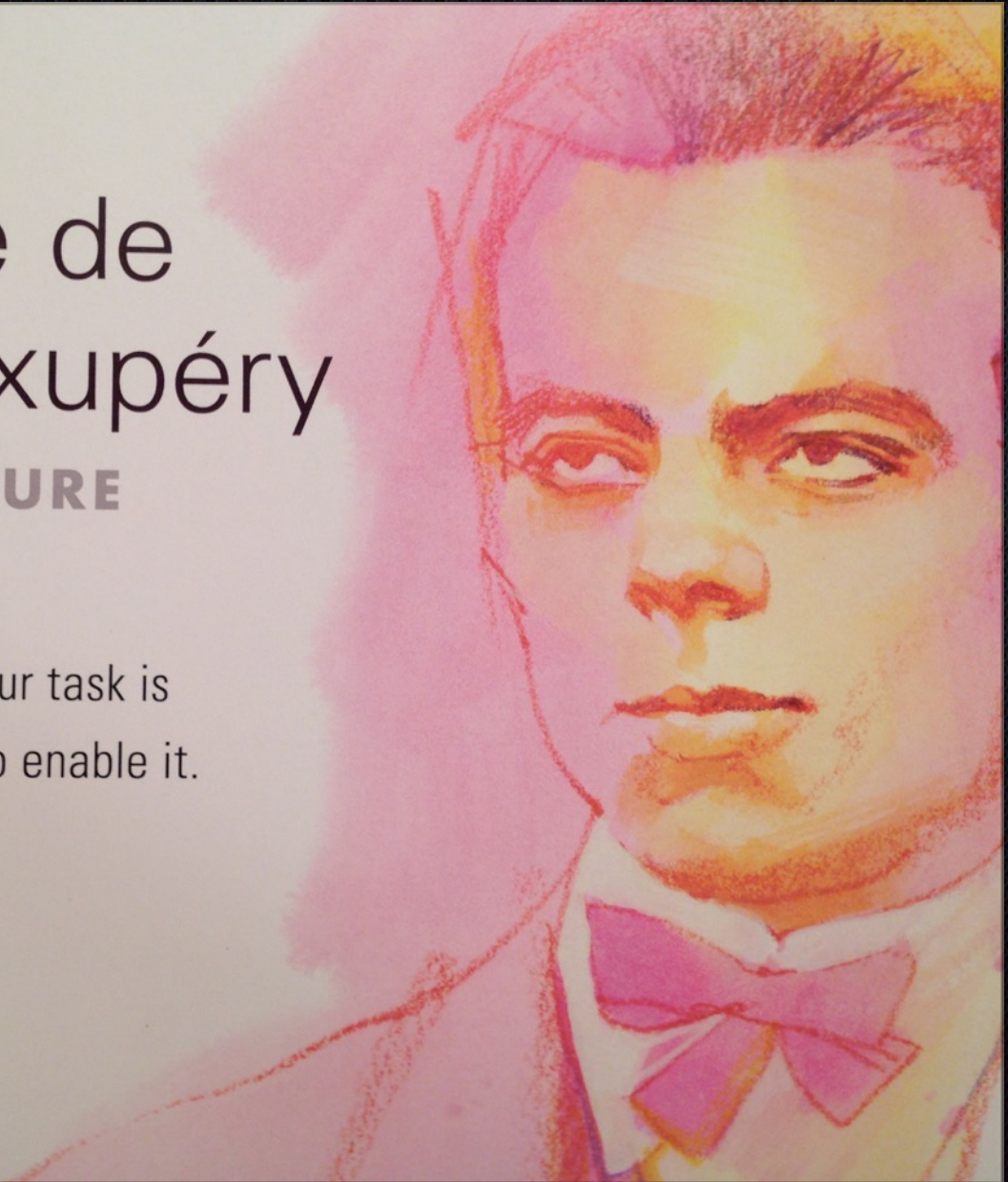
- ✦ Arie de Geus
- ✦ Royal Dutch Shell executive for 38 years



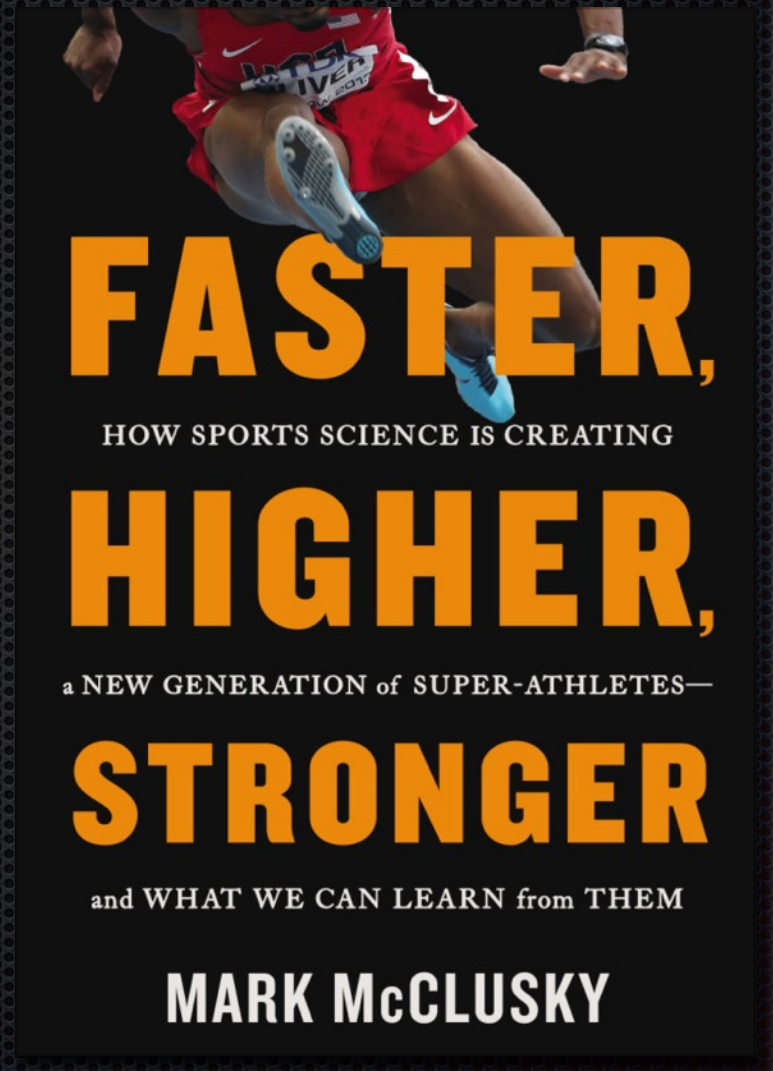
Antoine de Saint-Exupéry

ON THE FUTURE

As for the Future, your task is
not to foresee, but to enable it.



- ✦ “Aggregation of marginal gains”
- ✦ Dave Brailsford,
Performance Director British
Cycling



- ✦ “The marginal gains philosophy requires you to look at every single aspect of what you do so you can try to improve it.”



Altus, Citius, Fortius

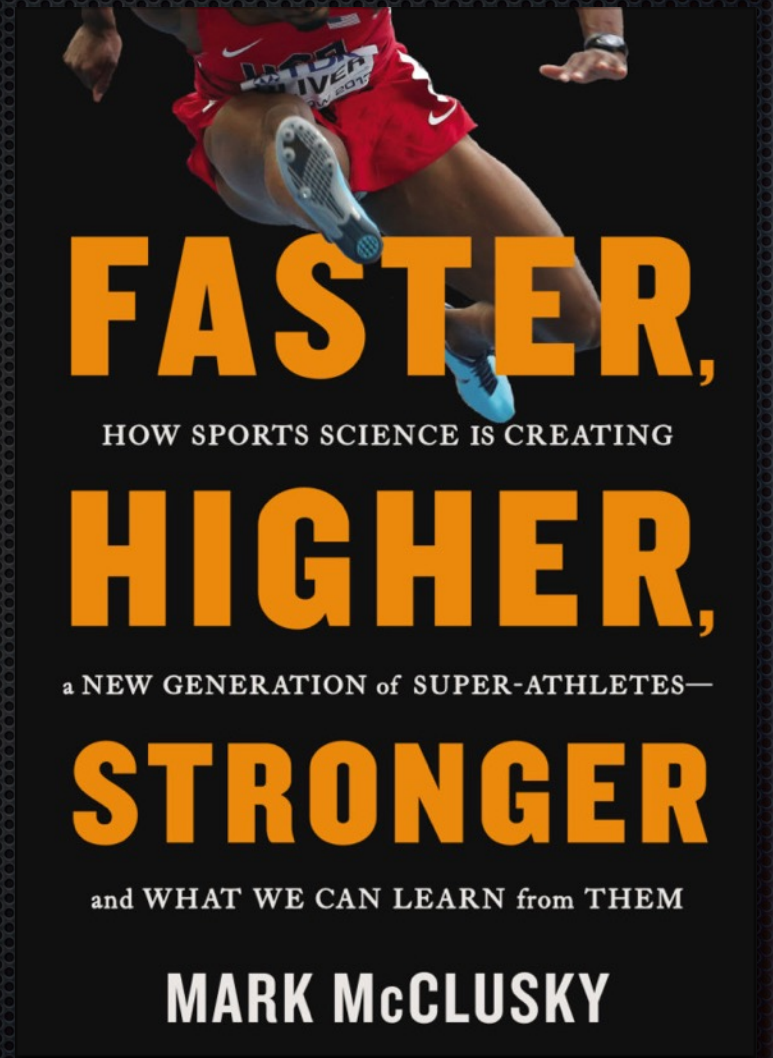
**Latin motto of the modern
Olympic games**

Higher, Faster, Stronger

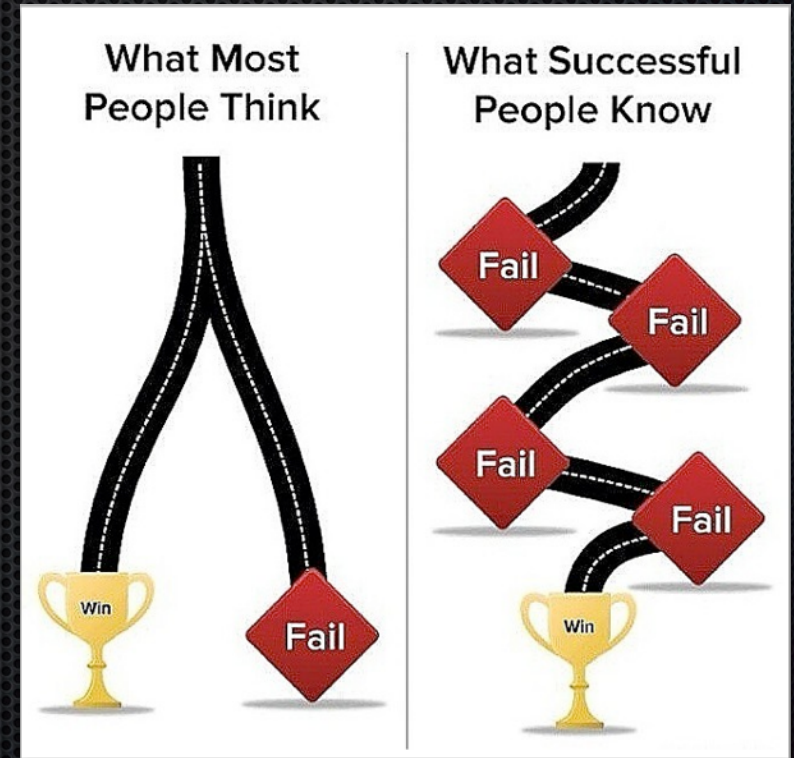
#LASPORTSANDSPINE

✦ “You can’t run out of marginal gains. The whole thing about them is that it is about continuous improvement. So there is no end point.”

✦ Dave Brailsford, Performance Director British Cycling



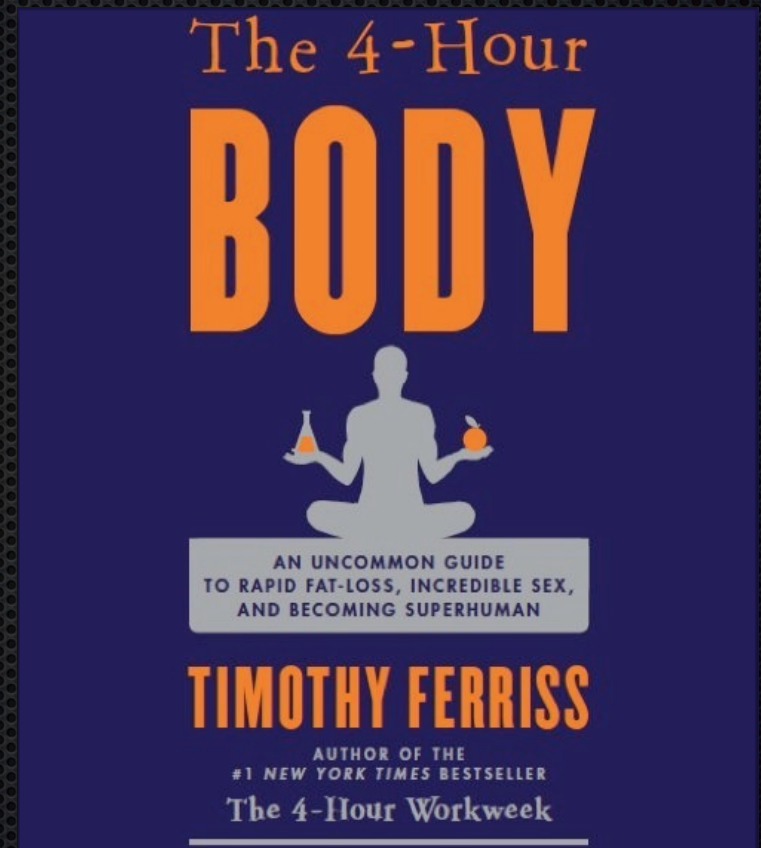
- ✧ “even if it doesn’t work, you can learn from it. It’s the willingness to engage in the process that’s most crucial.”



- ✦ *“We work at the level of acceptable uncertainty”*
- ✦ Not EBHC
- ✦ N=1
- ✦ Empirical/Not Expert
- ✦ Fiddle Factor/Grit

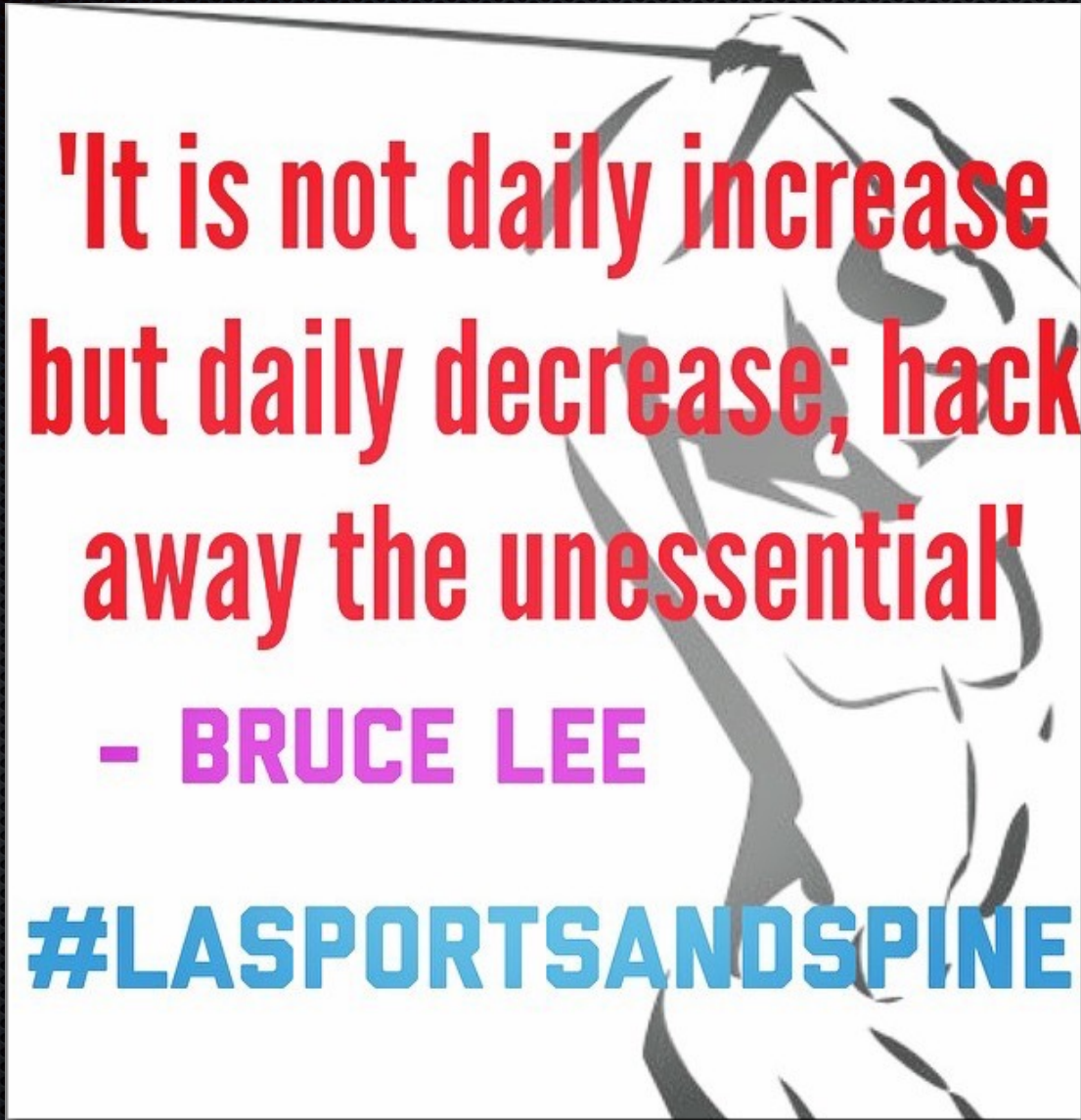


"Lack of time is lack of priority... **80% of positive outcome can be traced back to 20% of your efforts..** identify that 20%, free up some time, and do things that make you happy" –Timothy Ferriss



- Signal to Noise Ratio
- Test options that have minimal “downside risk”
- Empirically w/ grit find what works



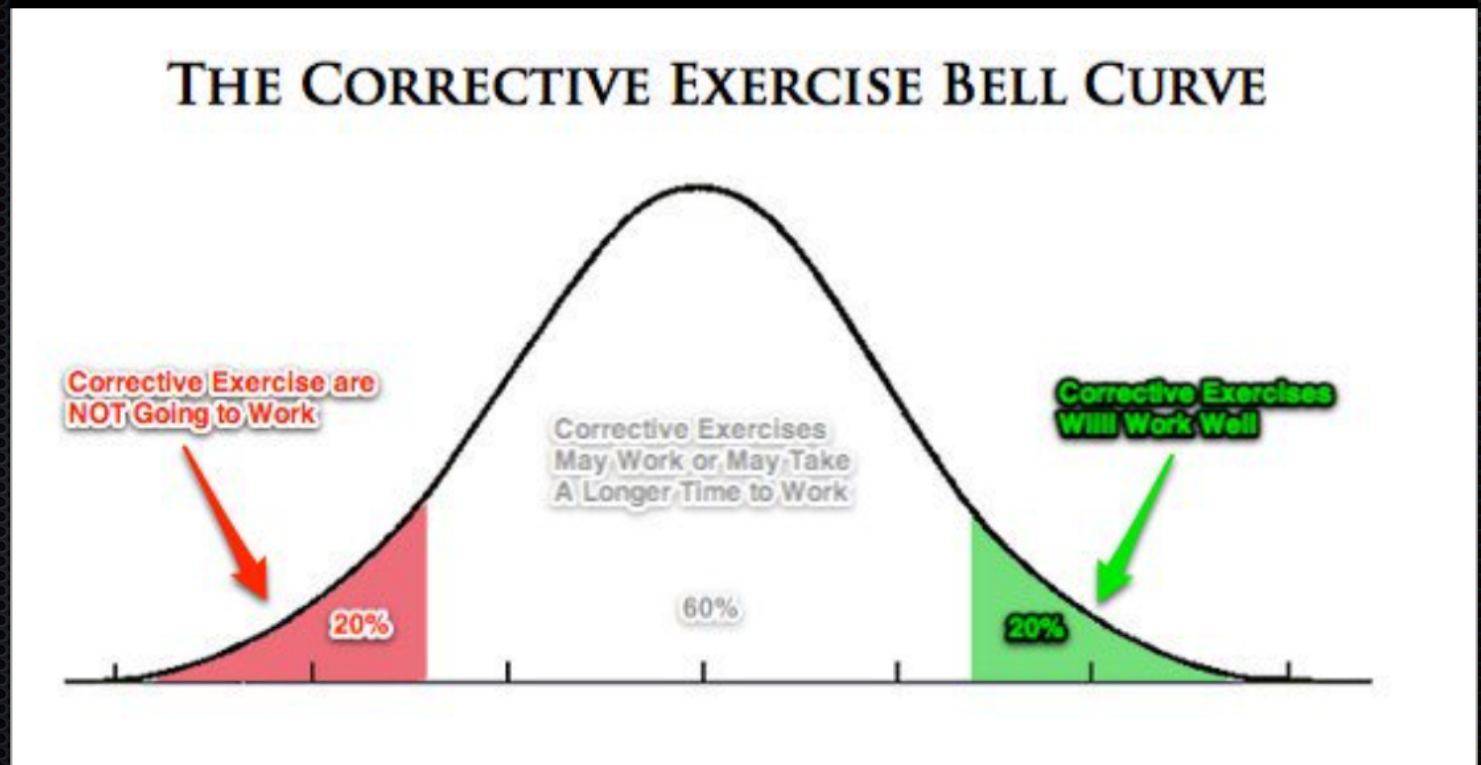


**'It is not daily increase
but daily decrease; hack
away the unessential'**

- BRUCE LEE

#LASPORTSANDSPINE

Are We Overcorrecting?



CAP

- Find marker/MS-0
- Find painless dysfunction/AMC-1
- Groove pattern/correct
- Reassess MS(0) & AMC(1)



Clinical Audit Process (CAP)

Find what works – the patient
should experience the results

- Within-session reassessment was shown to predict between-session improvement
- 3.5X

*Hahne A, Keating JL, Wilson S. Australian
Journal of Physiotherapy 2004;50:17-23.*



Unless you find the driver
of bad movement,
and find the thing that changes it

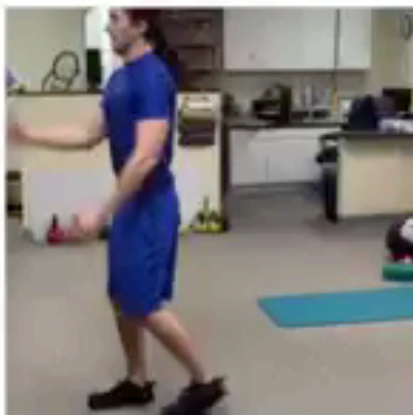
**YOU'RE
JUST
GUESSING**



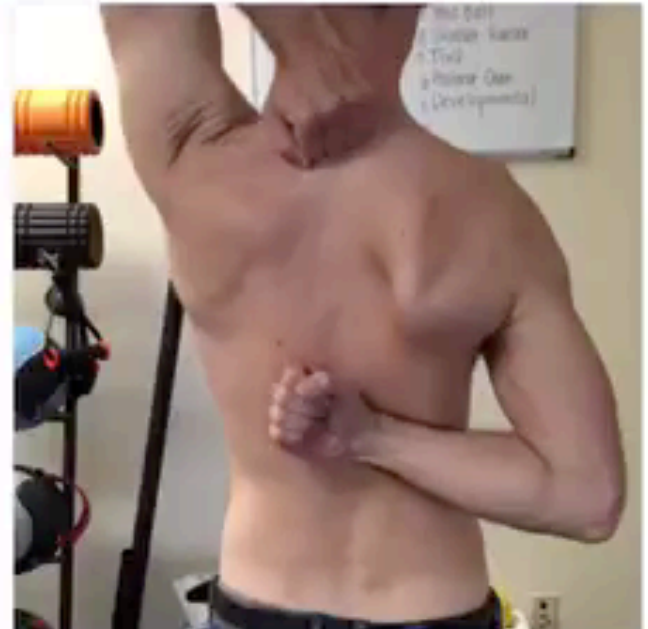
GRAY COOK
GRAYCOOK.COM

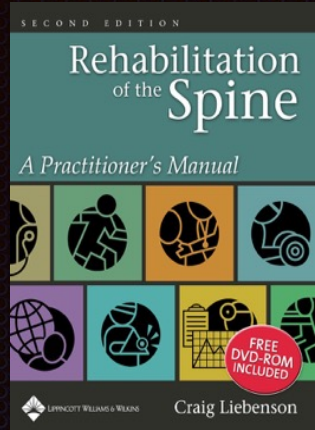
Clinical Audit Process



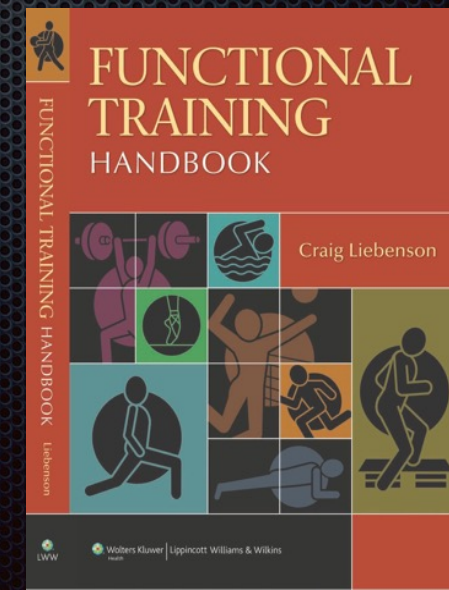


CAP





F. THE PILLARS





**There are no limits.
There are only plateaus,
and you must not stay there
you must go beyond them.**

- Bruce Lee

@MMAquote

The Pillars

Biomechanics -

Regional Interdependence -

Developmental Kinesiology -

Mind Set -

The Law

The Magic

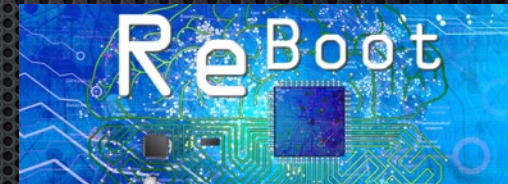
The Reboot

The Vision

The Roof

Performance -

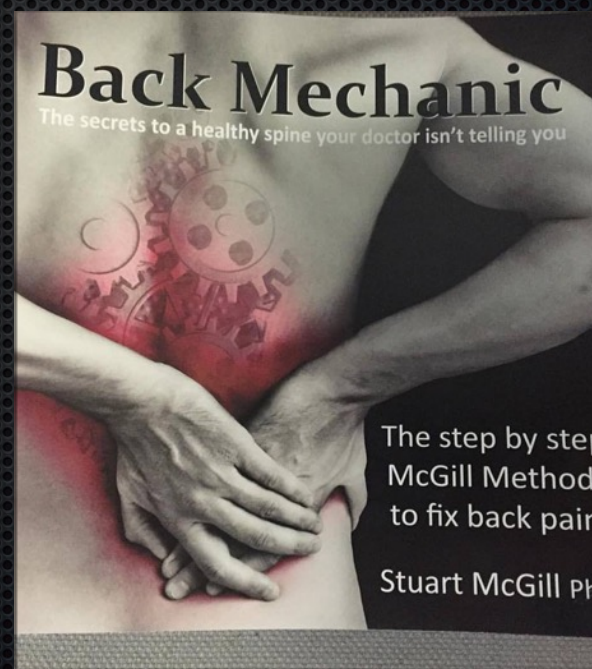
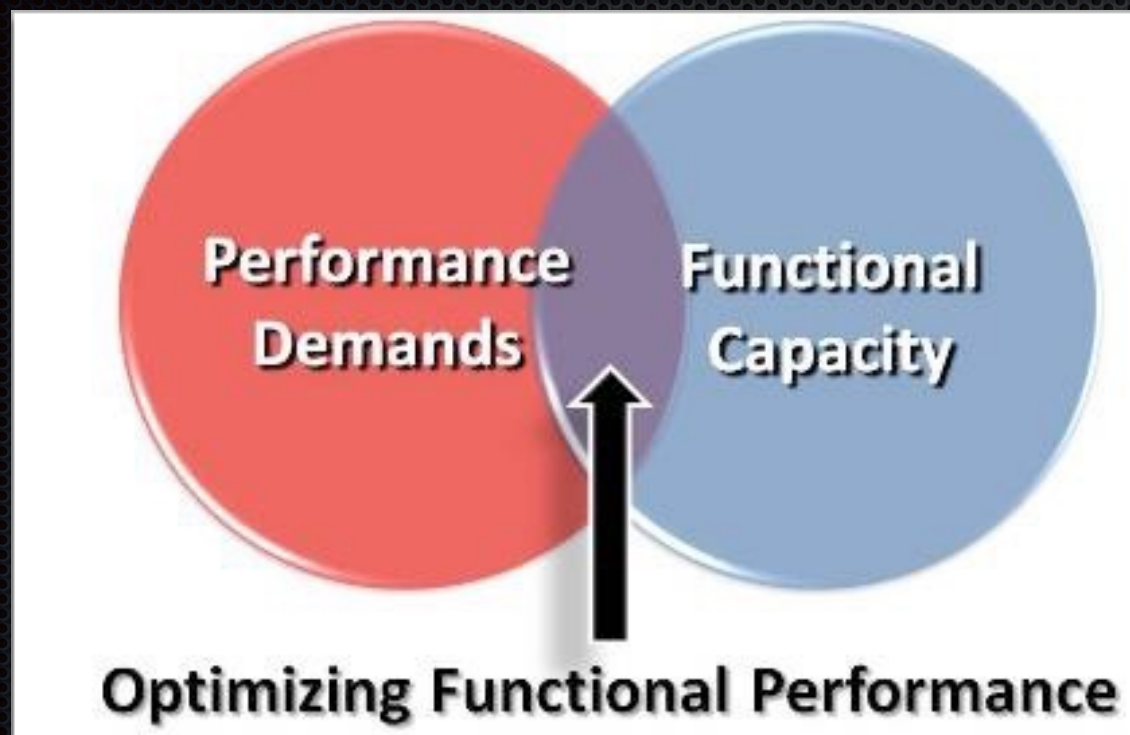
Fireworks



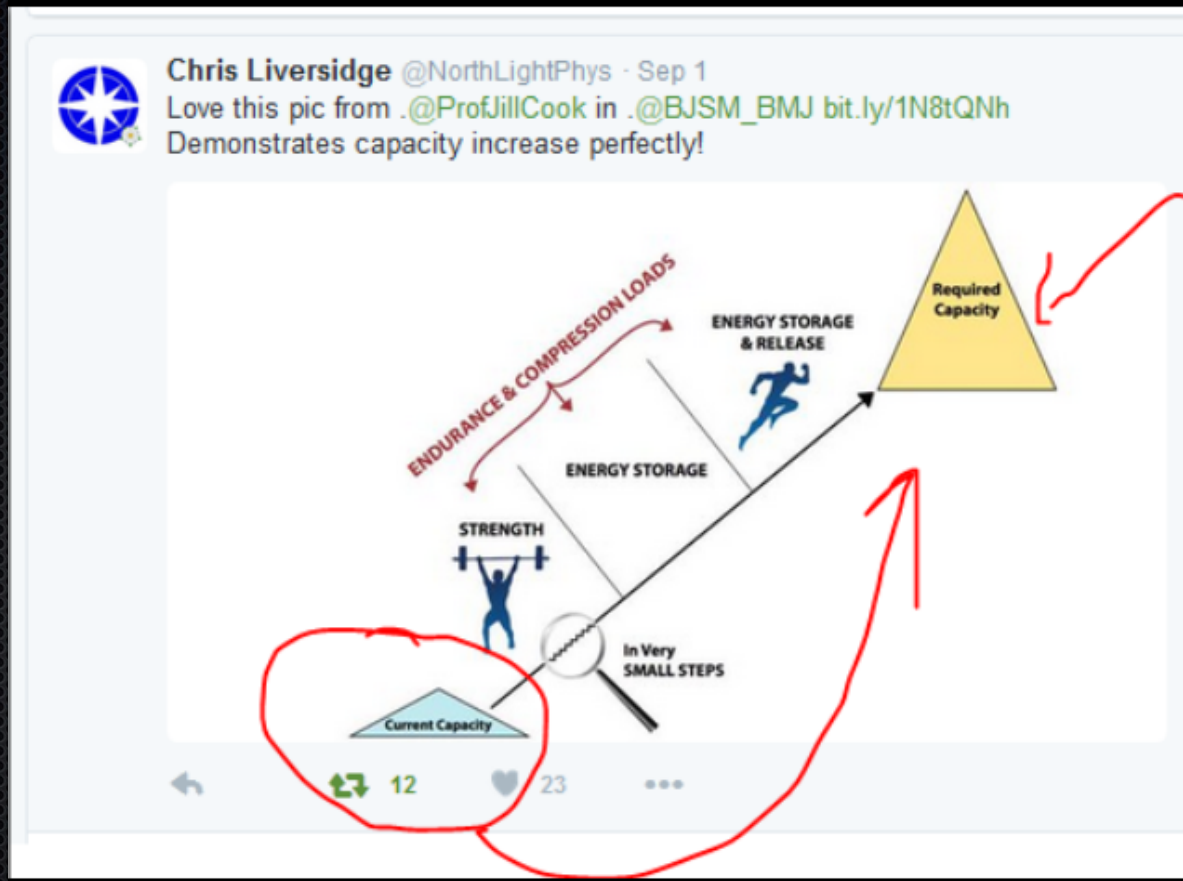


The Functional Approach:

1. Law of BIOMECHANICS



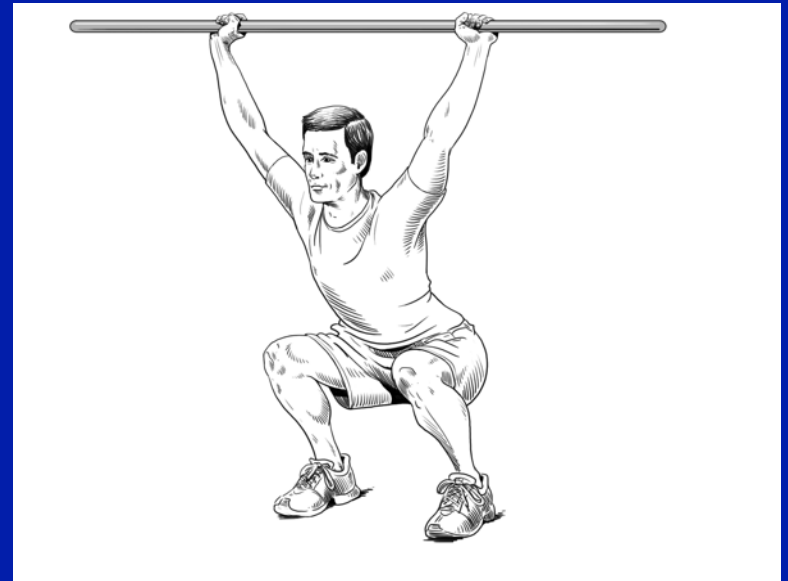
Goal: Bridge the Gap between Capacity Shortfall & Demands



WORKSHOP #6

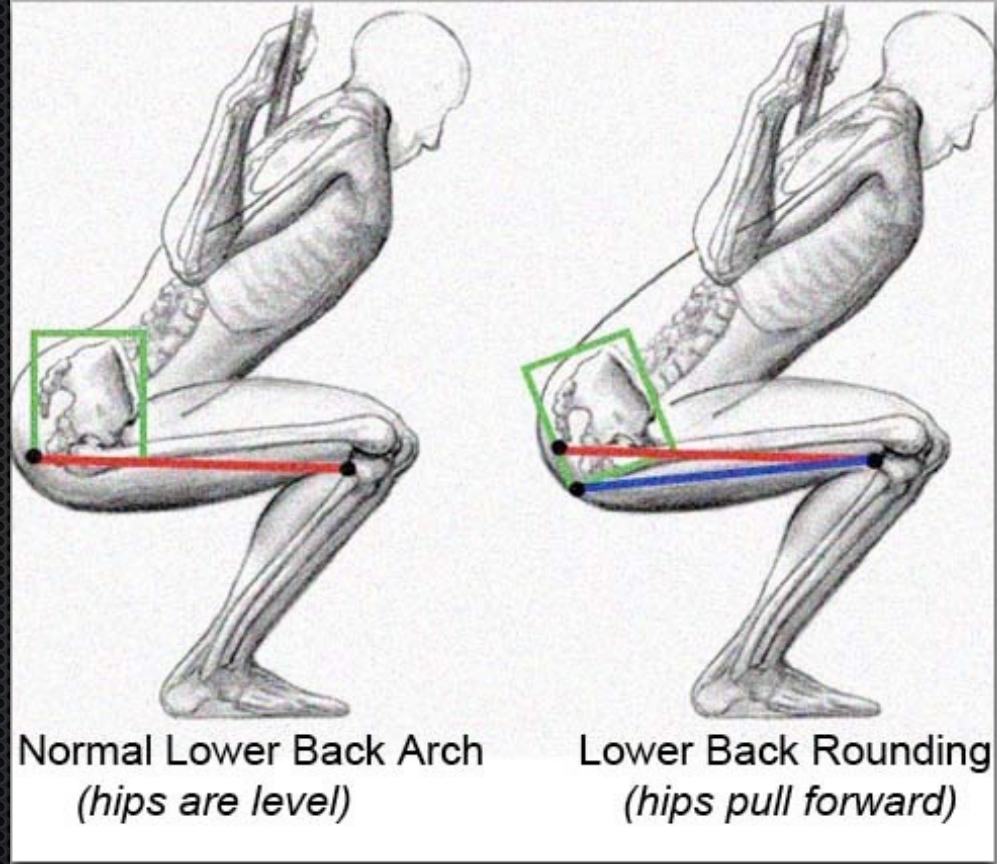
The Overhead Squat

- **Signs of Dysfunction** *What signs are looked for in your posture or during exercise?*



FMS - OH Squat

Integrate



Scoring

- 0 - pain
- 1 - can't perform movement
 - Hands forward of feet
 - Thighs don't reach past horizontal
 - W/out L/S flexion before thighs reach horiz.
 - W/out heels raising before thighs reach horiz.
- 2 - performs movement w/ compensation
 - Tibia & upper torso are not parallel
 - Ant patellar shear (knees forward of toes)
 - L/S flexion when thighs are horiz.
 - Knee valgosity
 - Hyperpronation
 - Chin poke/Neck not packed in

The Back Squat: A Proposed Assessment of Functional Deficits and Technical Factors That Limit Performance

Gregory D. Myer, PhD, CSCS*D,^{1,2,3,4} Adam M. Kushner, BS, CSCS,¹ Jensen L. Brent, BS, CSCS,⁵
Brad J. Schoenfeld, PhD, CSCS, FNSCA,⁶ Jason Hugentobler, PT, DPT, CSCS,^{1,7}
Rhodri S. Lloyd, PhD, CSCS*D,⁸ Al Vermeil, MS, RSCC*E,^{9,10} Donald A. Chu, PhD, PT, ATC, CSCS, FNSCA,^{10,11,12}
Jason Harbin, MS,¹³ and Stuart M. McGill, PhD¹⁴

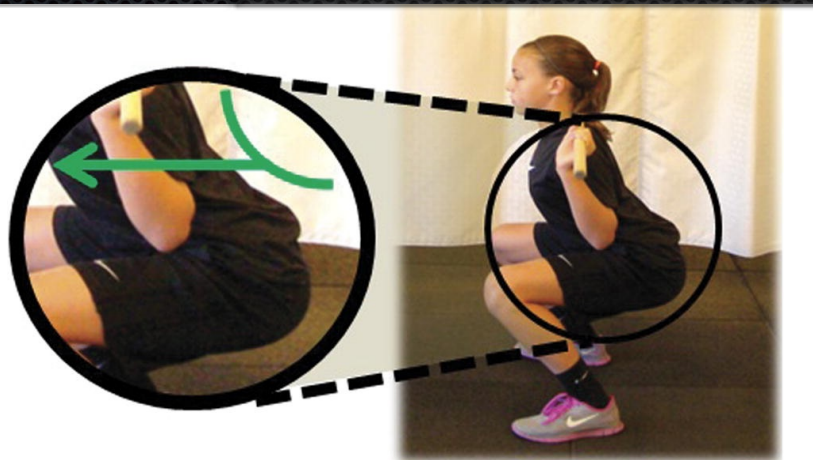


Figure 7. Correct trunk position.

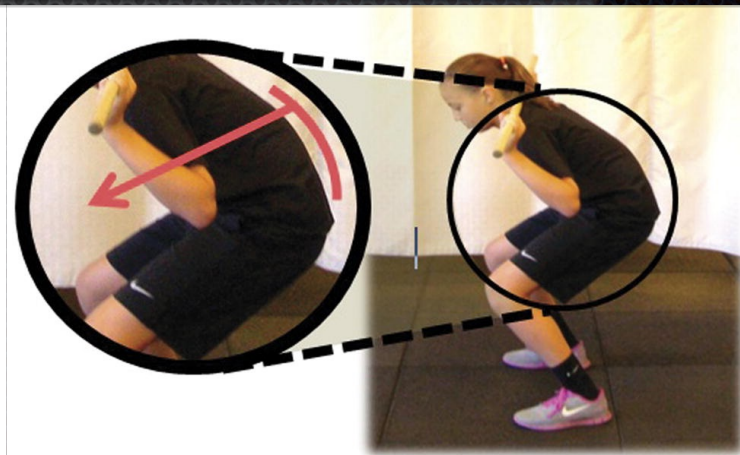
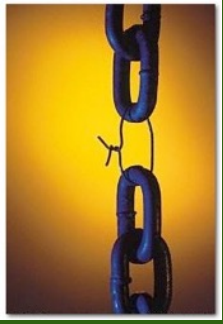


Figure 8. Incorrect torso position.



Functional Problem Solving

- BACK/KNEE/SHOULDER
- T4 & Shoulder mobility
- Ankle & Hip mobility
- Core stability
- Progressions/Regressions
 - ??

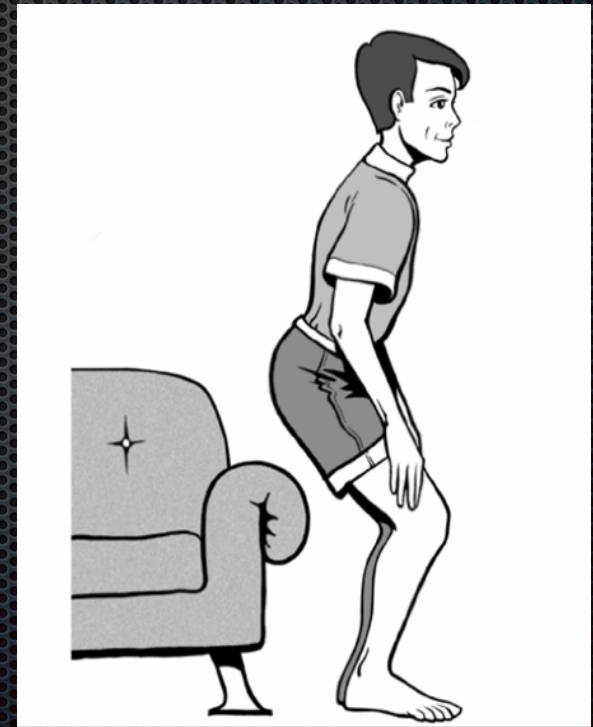


The Hip Hinge – p304, 645

Dowel



Arm Rest/Box Squat





Waiter's Bow

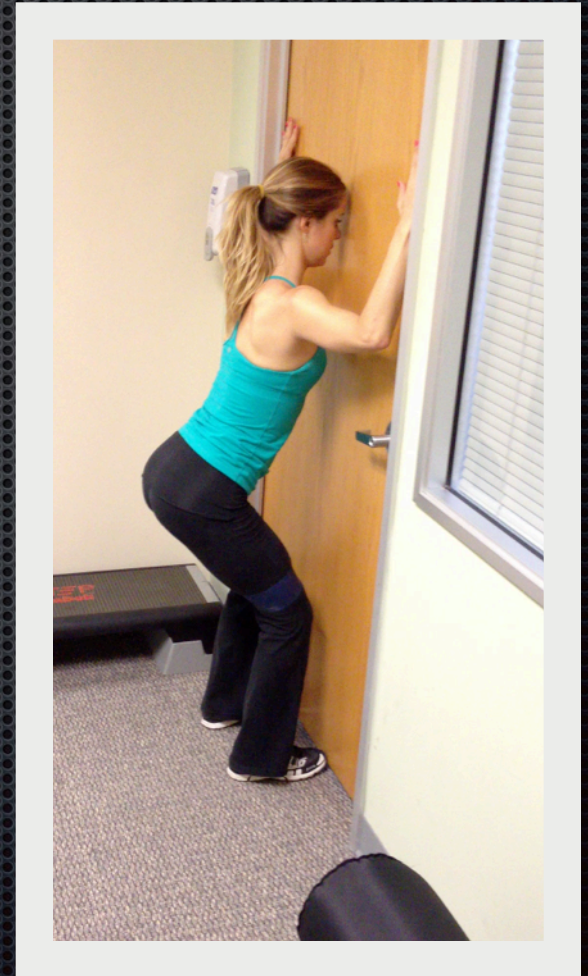
Strength Circuit as an Evaluation Tool

Exercise/ Position	Dysfunction	Solution
Hang/Good Morning & Bent Over Row	Lose posture on initial movement = neurological	Waiters Bow into hang with stick on their back



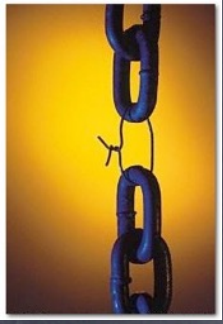
Reactive

- ✦ **Gray Cook-** "The best resistance is the one that causes the problem to correct itself without verbal or visual feedback."



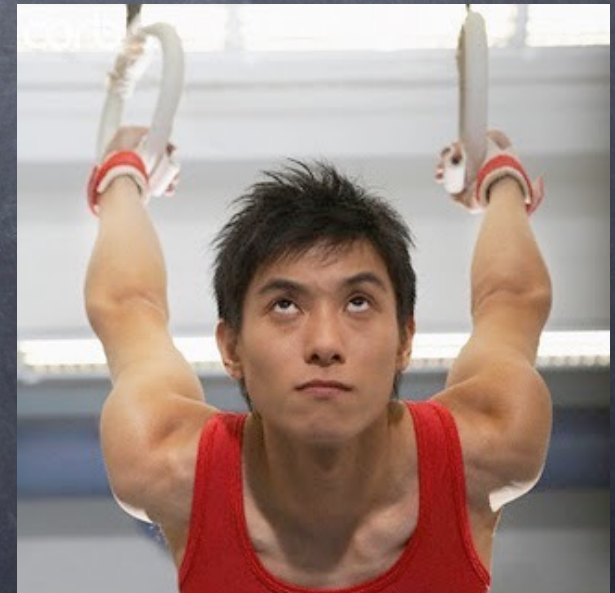
Tall Kneeling Hip Hinge





2. REGIONAL INTERDEPENDENCE

“This refers to the concept that seemingly unrelated impairments in a remote anatomical region may contribute to or be associated with the patient’s primary complaint.”





MOBILITY

Sub-O

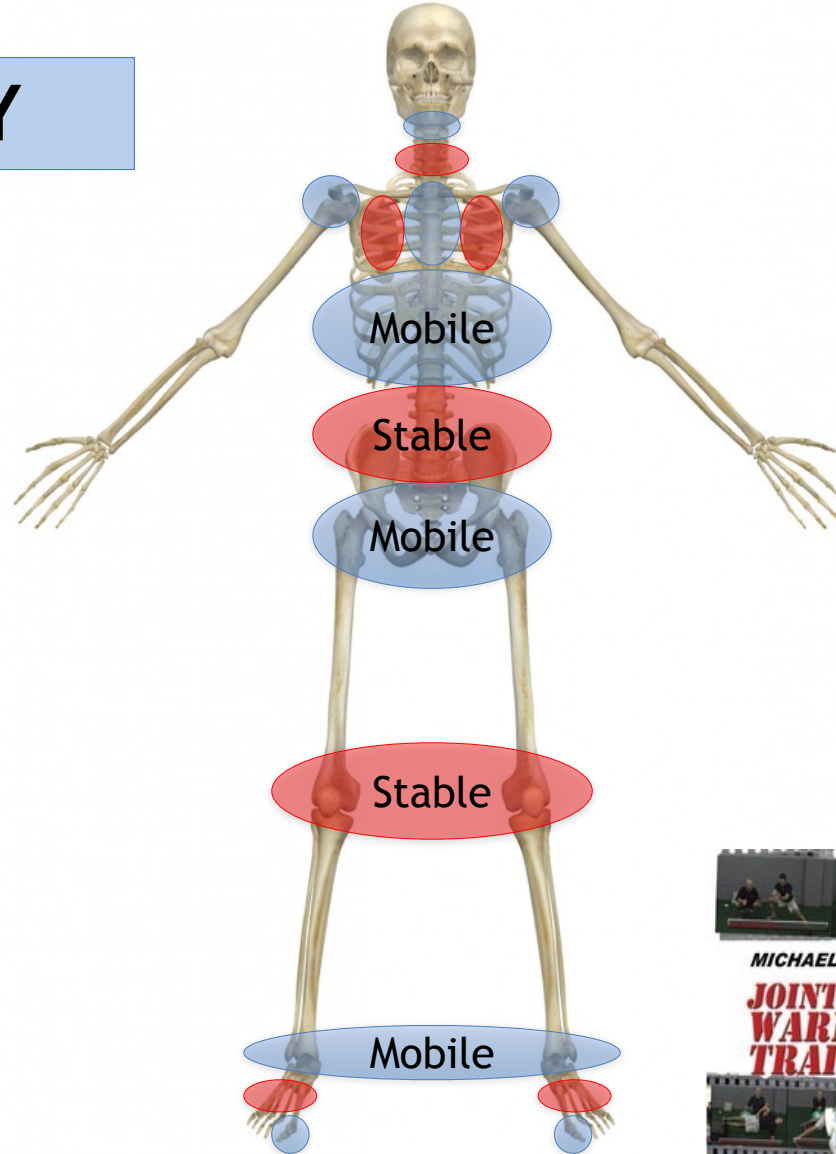
G-H

T/S

Hip

Ankle

1st MTP



STABILITY

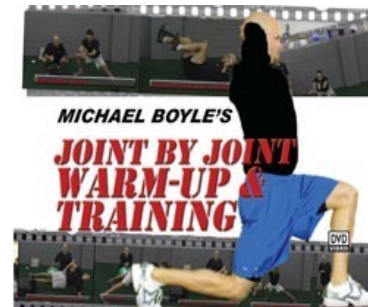
C/S

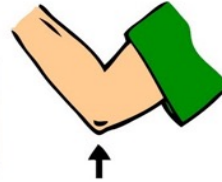
S-T

L/S

Knee

Foot (sole)





Joint by Joint FUNCTIONAL Approach

Layer Syndrome

Muscles which tend to inhibition

Lower stabilizers of the scapulae

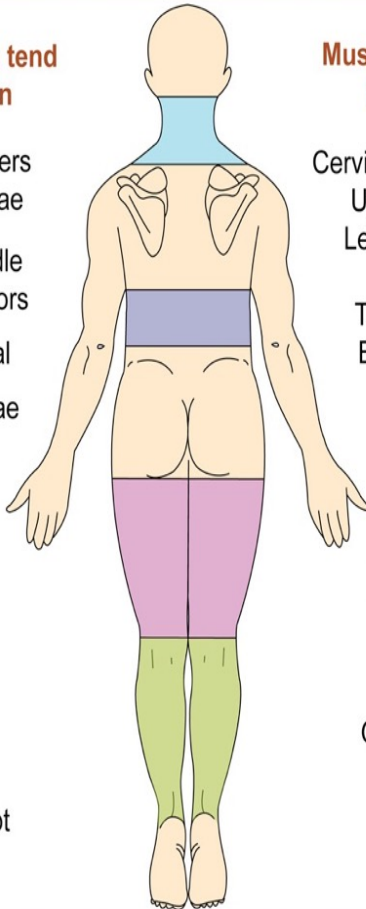
Shoulder girdle external rotators

Lumbosacral

Erector spinae

Gluteus maximus

sole of foot



Muscles which tend to tightness

Cervical erector spinae

Upper trapezius

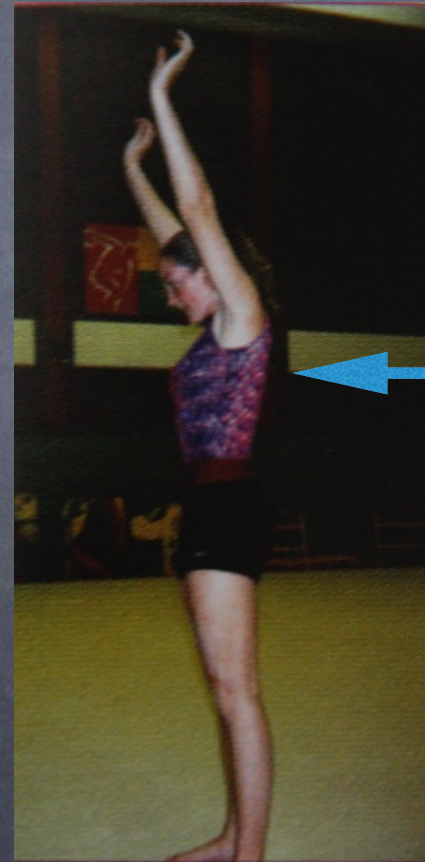
Levator scapulae

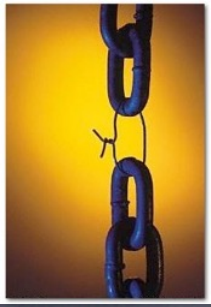
Thoracolumbar

Erector spinae

Hamstrings

Gastro-soleus





The Kinetic Chain

Arm and Shoulder

Scapula

**Thoracic and Lumbar
Spine**

Hips and Pelvis

Legs and Feet



Is the problem we see Hardware (structural) or Software (functional)?

Windows 2000 Advanced Options Menu
Please select an option:

Safe Mode

Safe Mode with Networking

Safe Mode with Command Prompt

Enable Boot Logging

Enable VGA Mode

Last Known Good Configuration

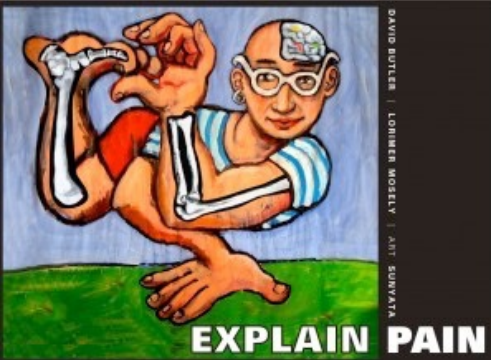
Directory Services Restore Mode (Windows 2000 d

Debugging Mode

Boot Normally

Use ↑ and ↓ to move the highlight to your choice.
Press Enter to choose.





WHY?

Guarding after an injury is normal

- *“after an injury tissues heal, but muscles learn, they readily develop habits of guarding that outlast the injury”*

Janet Travell, MD

White House Physician,
President John F Kennedy



Cook Interview

- ✦ Craig: “When you see a restriction in weight bearing & non-weight bearing positions as well as in both passive & active tests does this indicate that we should mobilize the tissue 1st?”
- ✦ Gray: *“The message is not the method...The overriding dictum is to show me you influenced mobility”*

WORKSHOP #7



T4 Mobility Screen

- Stand vs. wall w/ arms externally rotated/supinated & feet slightly forward
- Buttocks vs wall
- Back of head vs wall
- Hands vs wall
- Try to flatten back
- Record
 - Can back flatten at all?
 - Where does pt. feel tension (mid-back, left or right side, neck)



Scoring

- 0 - Pain
- 1 - Can't perform movement
 - Any chin poke
 - Back of head can't touch wall w/ horizontal face line (no C0-C1 hyperextension)
 - ∴ Shldr Ex Rot - Wrist >1 cm off wall
 - No anterior rib cage motion when flattening back against wall
 - All five fingers not touching the wall
- 2 - Performs movement w/ compensation
 - T/L lordosis > 1 cm from wall
 - ∴ Shldr Ex Rot (can't flatten wrist vs wall)
- 3 - movement performed w/out compensation

FMS - Shoulder Mobility

Integrate Wall Angel w/ FMS

“Hand Measurement”



“Gap Measurement”



FMS - Shoulder Mobility

Integrate Wall Angel w/ FMS

Functional Movement Screen : Shoulder Mobility

Frontal View



Score

3

2

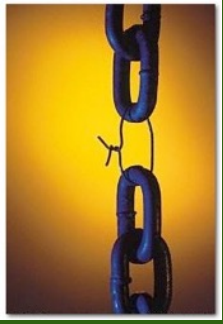
1

Criteria

•Fists are within one hand length

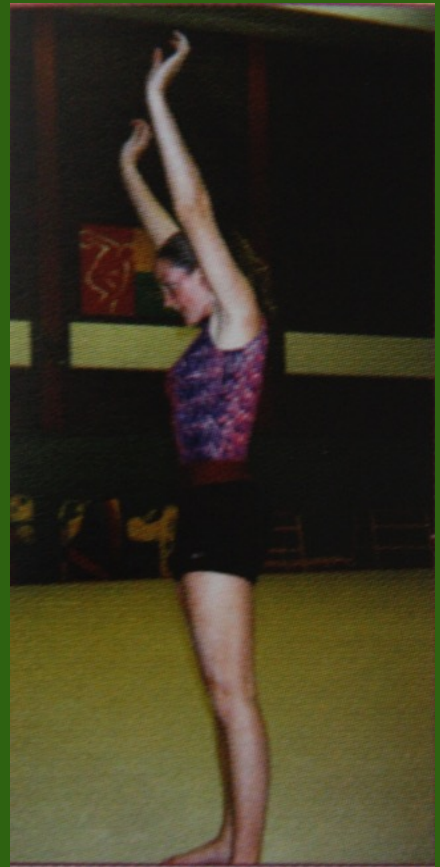
•Fists are within one and a half hand lengths

•Fists are not within one and a half hand lengths



Functional Problem Solving

- SHOULDER/NECK PAIN
- Thoracic Mobility Progressions/
Regressions
 - ??



3. DEVELOPMENTAL KINESIOLOGY - THE RE-BOOT

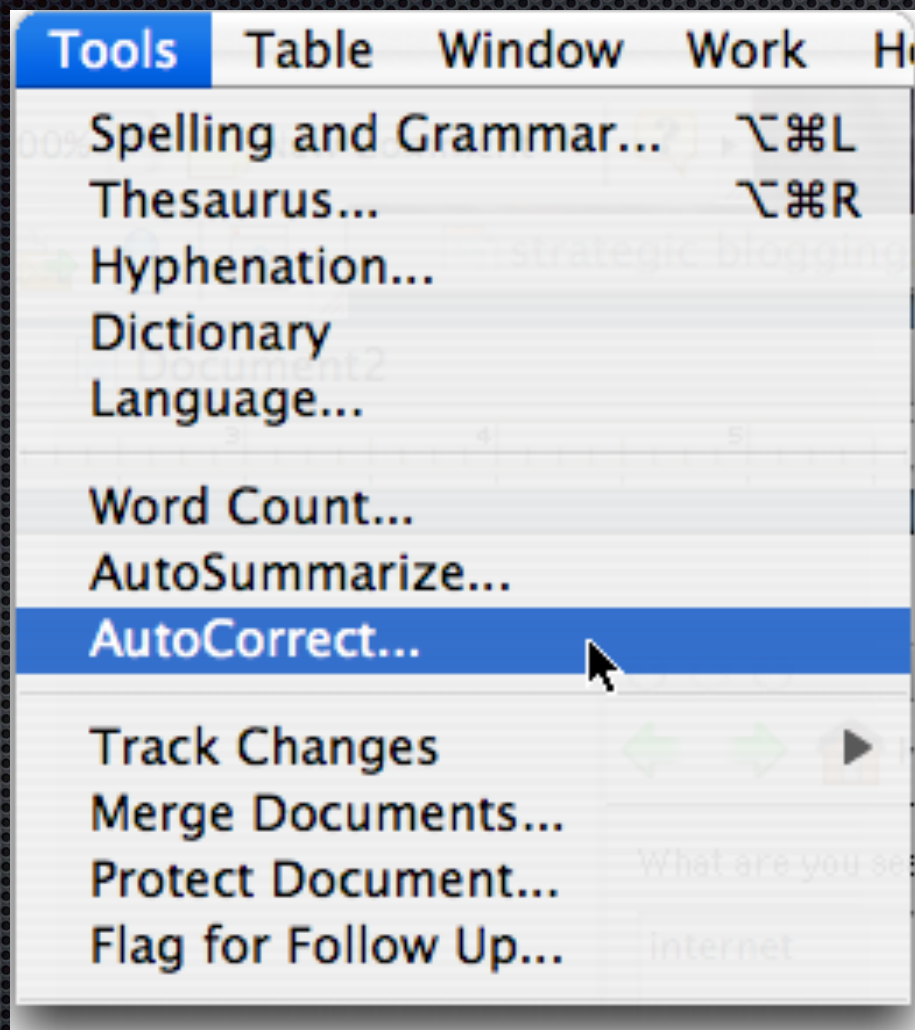
Train the Brain:

The ideal Movement
Prep

Magic of Neural
Adapation

?





4. The Functional Approach

What Role Does MINDSET play



- Client's Personality
- Trainer's Beliefs/ Labelling
 - Weight Loss
 - 6 Pack
 - Stronger

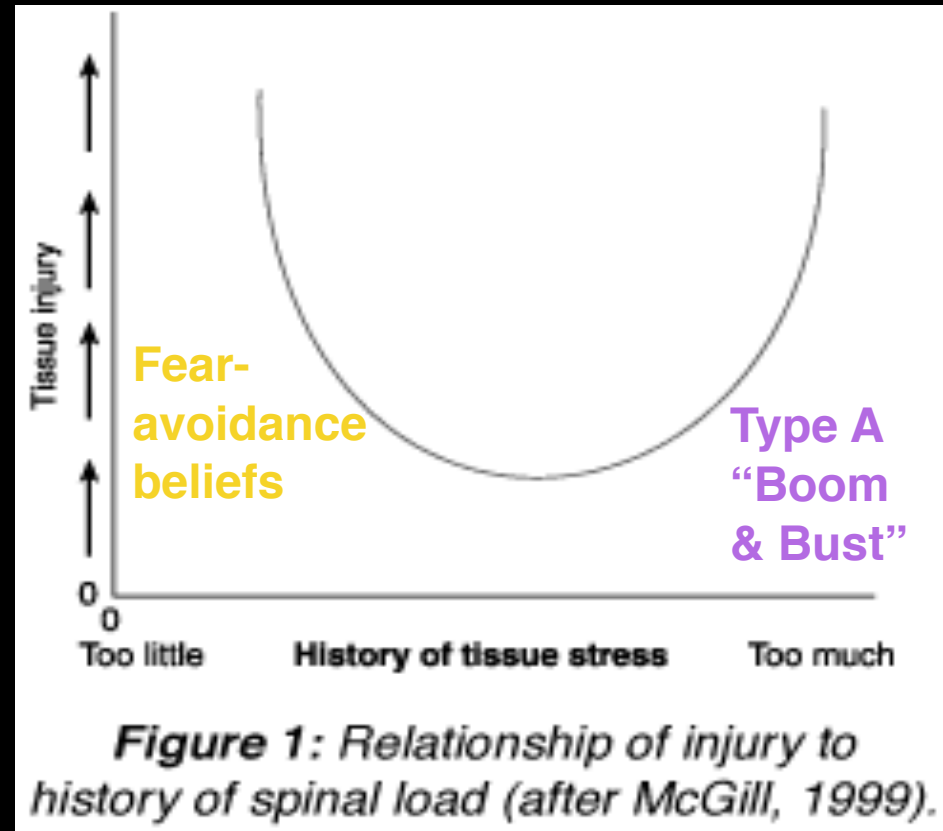


Figure 1: Relationship of injury to history of spinal load (after McGill, 1999).

Professional
intuition
is intense
familiarity,
blended w/
systematic
objectivity

change the way our brains work

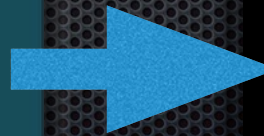


Paul Zak

Empathy, Neurochemistry,
and the Dramatic Arc

Distress
Empathy

Empathy



Oxytocin
Care, Connection, Empathy



KPI's - Key Performance Indicators

“fight for your KPI's” Dan Pfaff

- Key factors to denote before designing plans:
 - Athlete's Training Age
 - Athlete's Chronological Age
 - Period Factors of Training Year
 - Goals of the Training Year and Periods Within
 - KPI's
 - Injury and Therapy History



No Two Patients Are Alike

- Karel Lewit – International Musculoskeletal Medicine 2008
- A patient...has to be given a **systematic screening examination**
- **No two patients are alike** and the objective is **problem solving.**

The Goal is the Goal

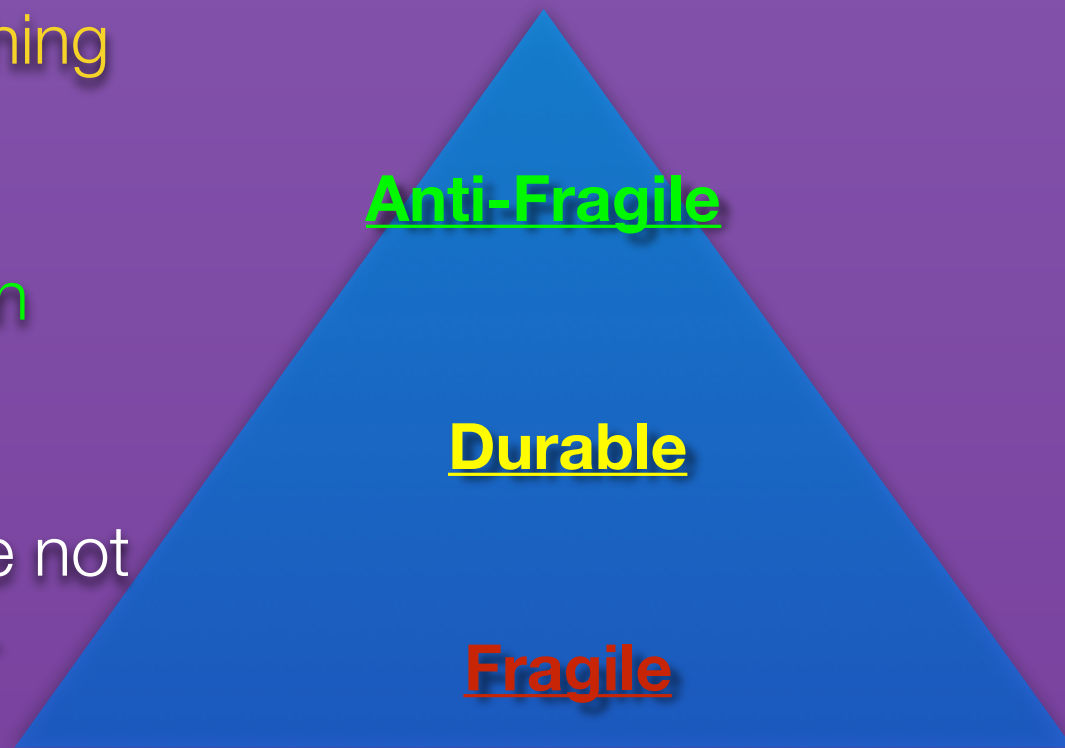
- Nicole Rodriguez of EXOS “real time intervention of RX in the training/sporting environment to improve motor control & permanence.”



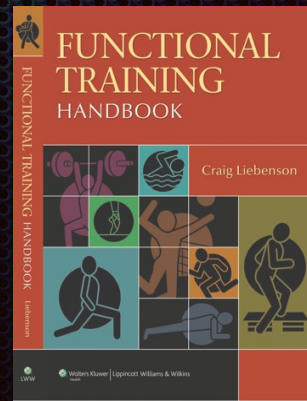


The goal should be to make the hard easy

- Stress should be something not just to withstand
- But, something to weaponize for success in athletic endeavors or competition
- When this occurs we are not merely durable, but anti-fragile



Learn the Craft So You Can Master the Art



Yoshikazu Ono - Sushi Master Chef

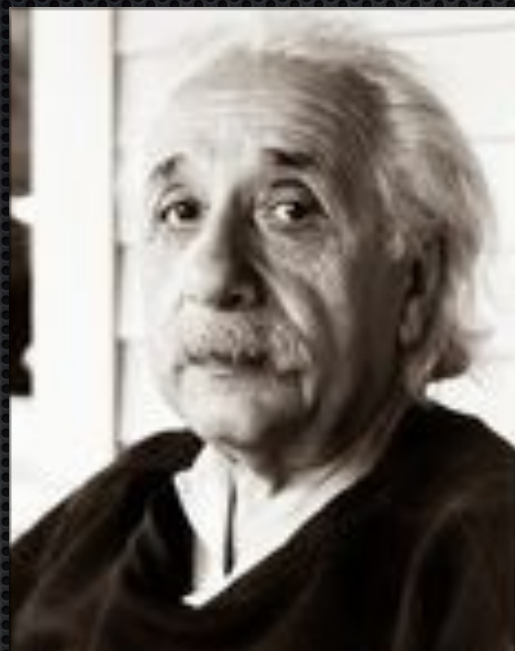


Always look ahead
and above yourself
Always try to
improve upon
yourself.

Always strive to
elevate your craft

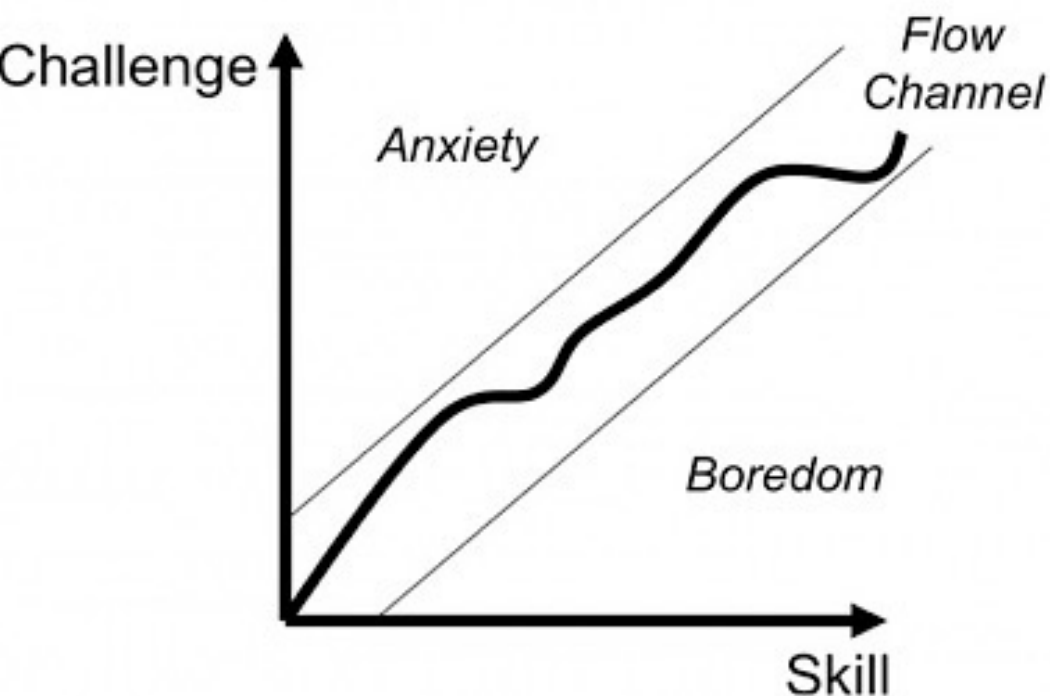
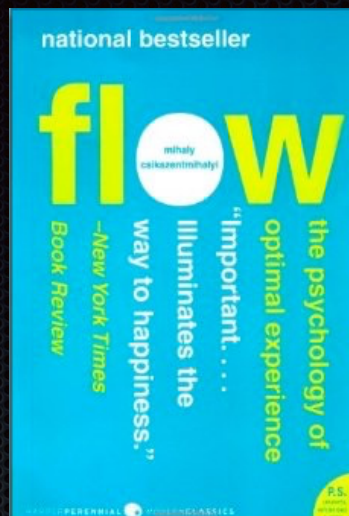
-Yoshikazu

#LASPORTSANDSPINE



"Only one who devotes himself to a cause with his whole strength and soul can be a true master. For this reason mastery demands all of a person."

Albert Einstein



Flow" concept by Mihaly Csikszentmihalyi. Drawn by Senia Maymin.

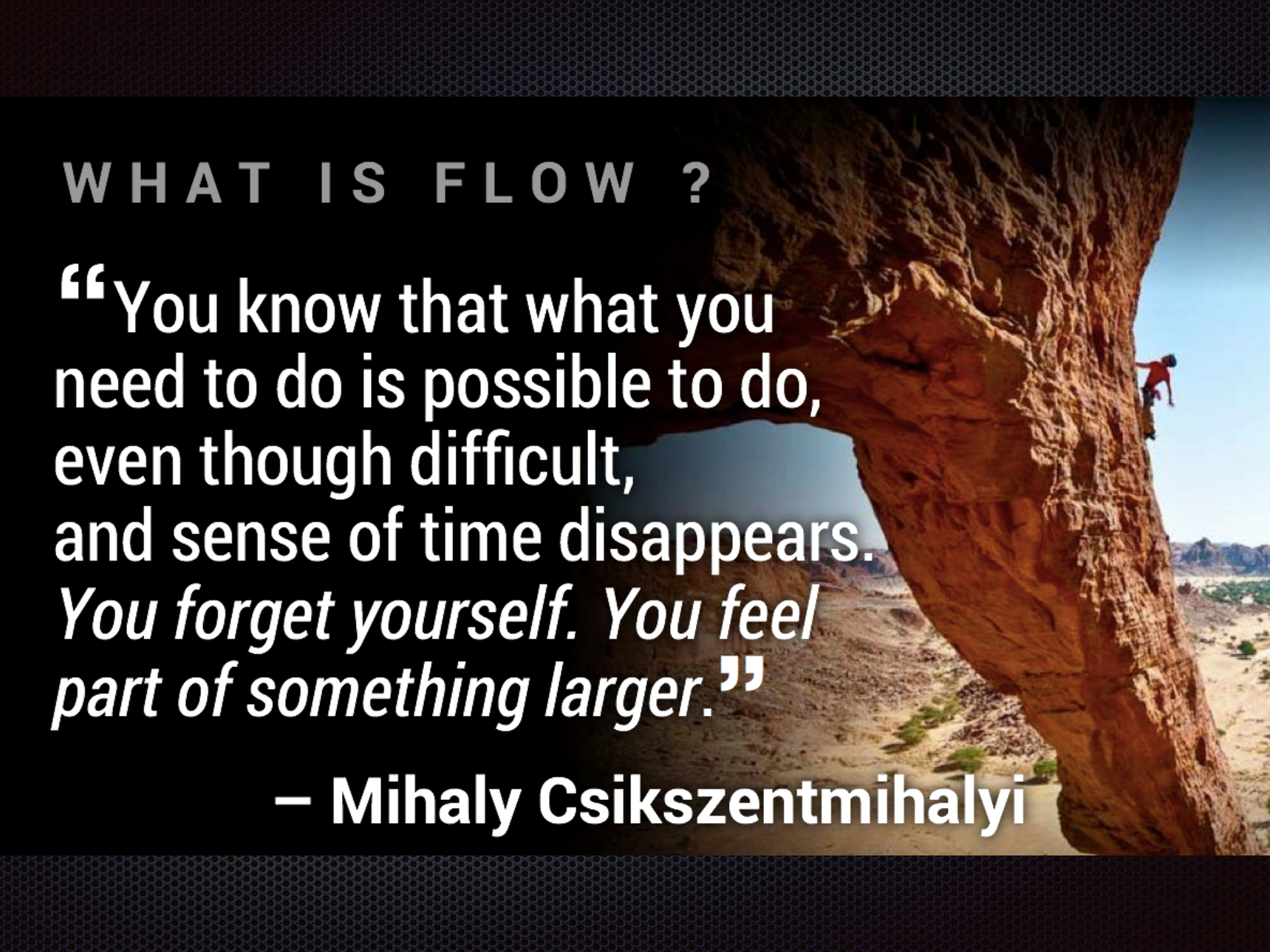
**"These periods of
struggling to overcome
challenges are what
people find the most
enjoyable
times of their lives"**

Flow
-Mihaly Csikszentmihalyi
#LASPORTSANDSPINE

WHAT IS FLOW ?

“You know that what you need to do is possible to do, even though difficult, and sense of time disappears. *You forget yourself. You feel part of something larger.*”

– Mihaly Csikszentmihalyi



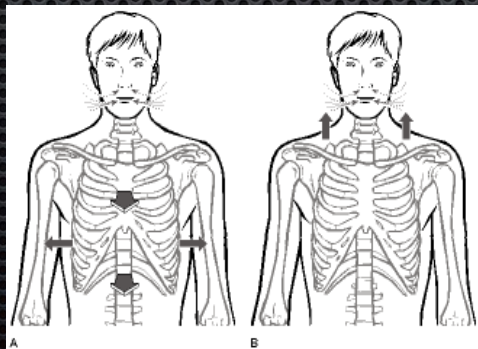
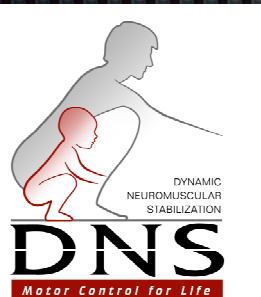
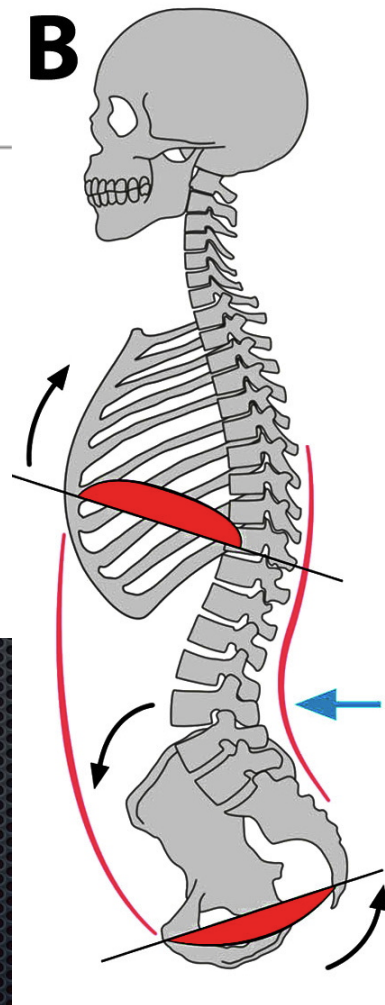
WORKSHOP #8

[RESEARCH REPORT]

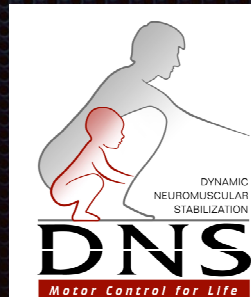
PAVEL KOLÁŘ, PaedDr, PhD¹ • JAN ŠULC, MD, PhD² • MARTIN KYNČL, MD³ • JAN ŠANDA, Ing³ • ONDŘEJ ČAKRT, MSc²
ROSS ANDEL, PhD⁴ • KATHRYN KUMAGAI, DPT⁵ • ALENA KOBESOVÁ, MD, PhD⁶

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

Conclusion: Patients with chronic LBP appear to have both abnormal position and a steeper slope of the diaphragm.
JOSPT 2012;42:352-362.



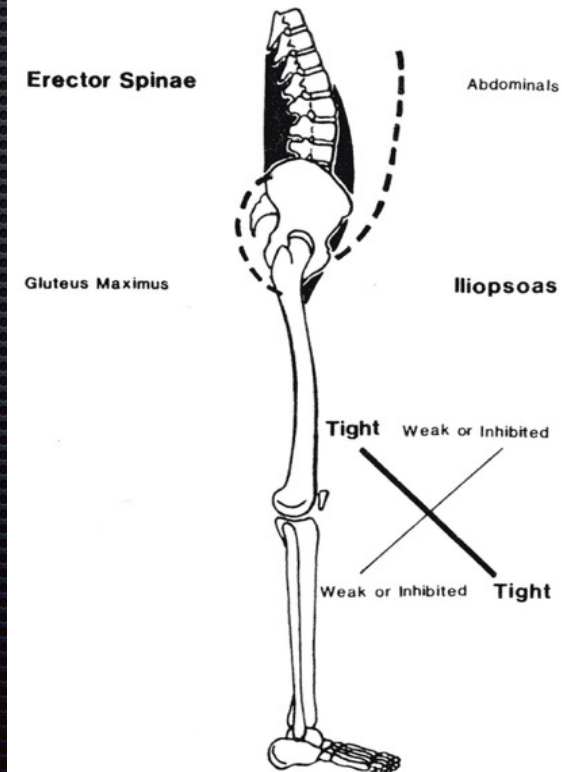
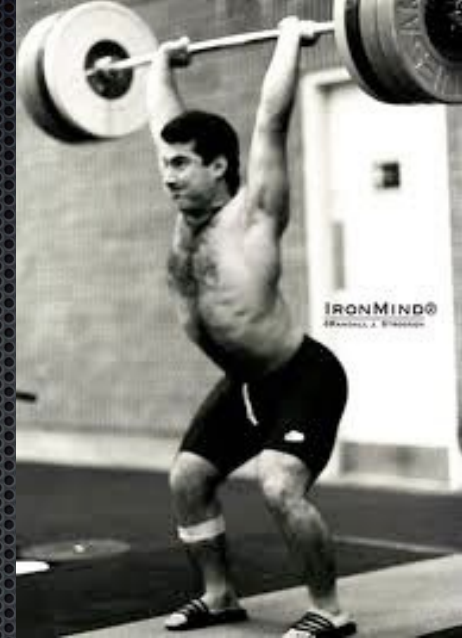
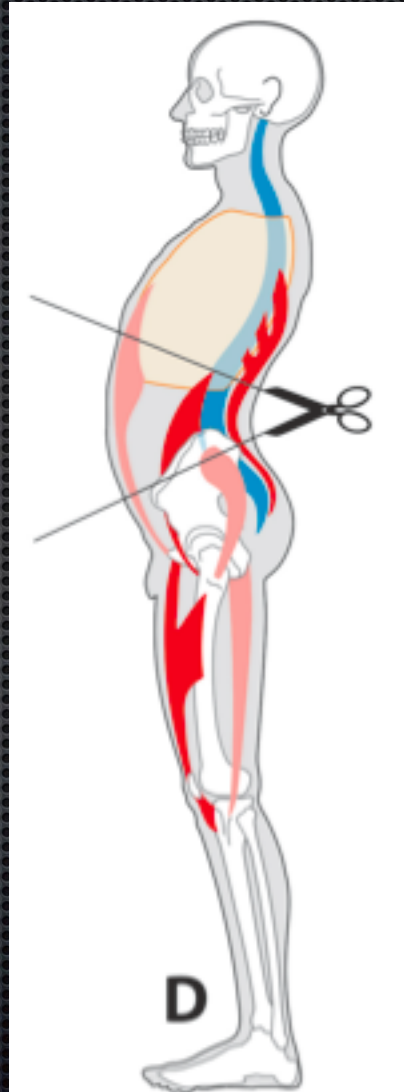
© 2003 Primal Pictures Ltd.

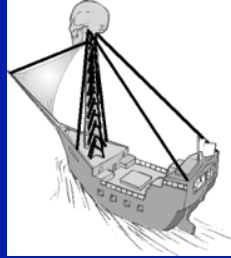


Scissors

- ✦ Oblique diaphragm
- ✦ Failure of oblique abdominal muscle slings
- ✦ T/L overload
- ✦ Hyperlordosis

Lower Cross Syndrome (Janda)





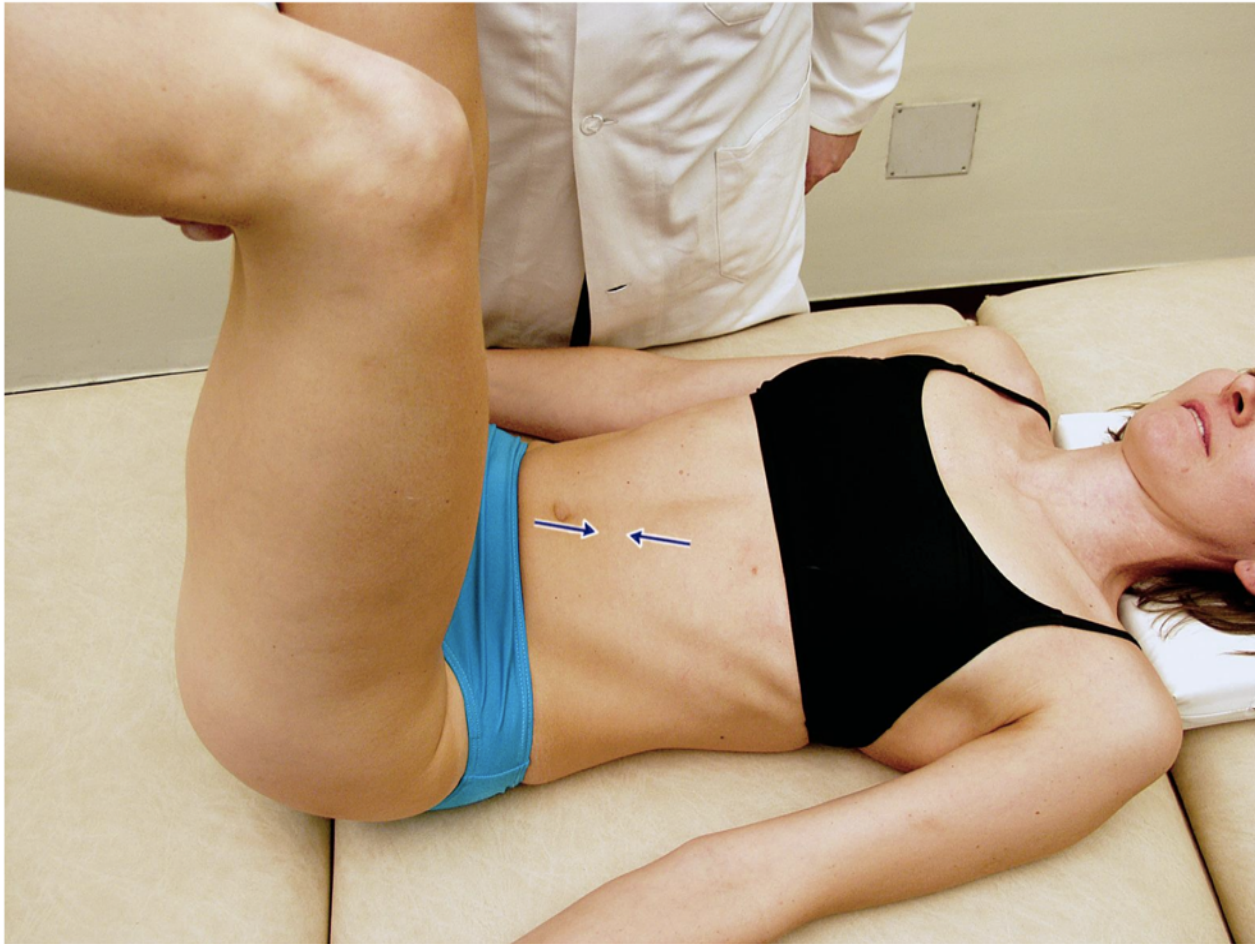
IAP Test ROS - p555-557

- Bring the chest passively into the caudal, expiratory position
- Then the support is removed from under the patient's legs
- The patients holds this position actively



Mag 7

Kolar's Intra-abdominal Pressure Test (p555)



Intra-abdominal pressure test

Initial position

- ✦ Patient supine
- ✦ Triple flexion of the legs
- ✦ The lower legs supported
- ✦ Hip abduction corresponds to the width of the shoulders, slight external rotation at the hips



Intra-abdominal pressure test

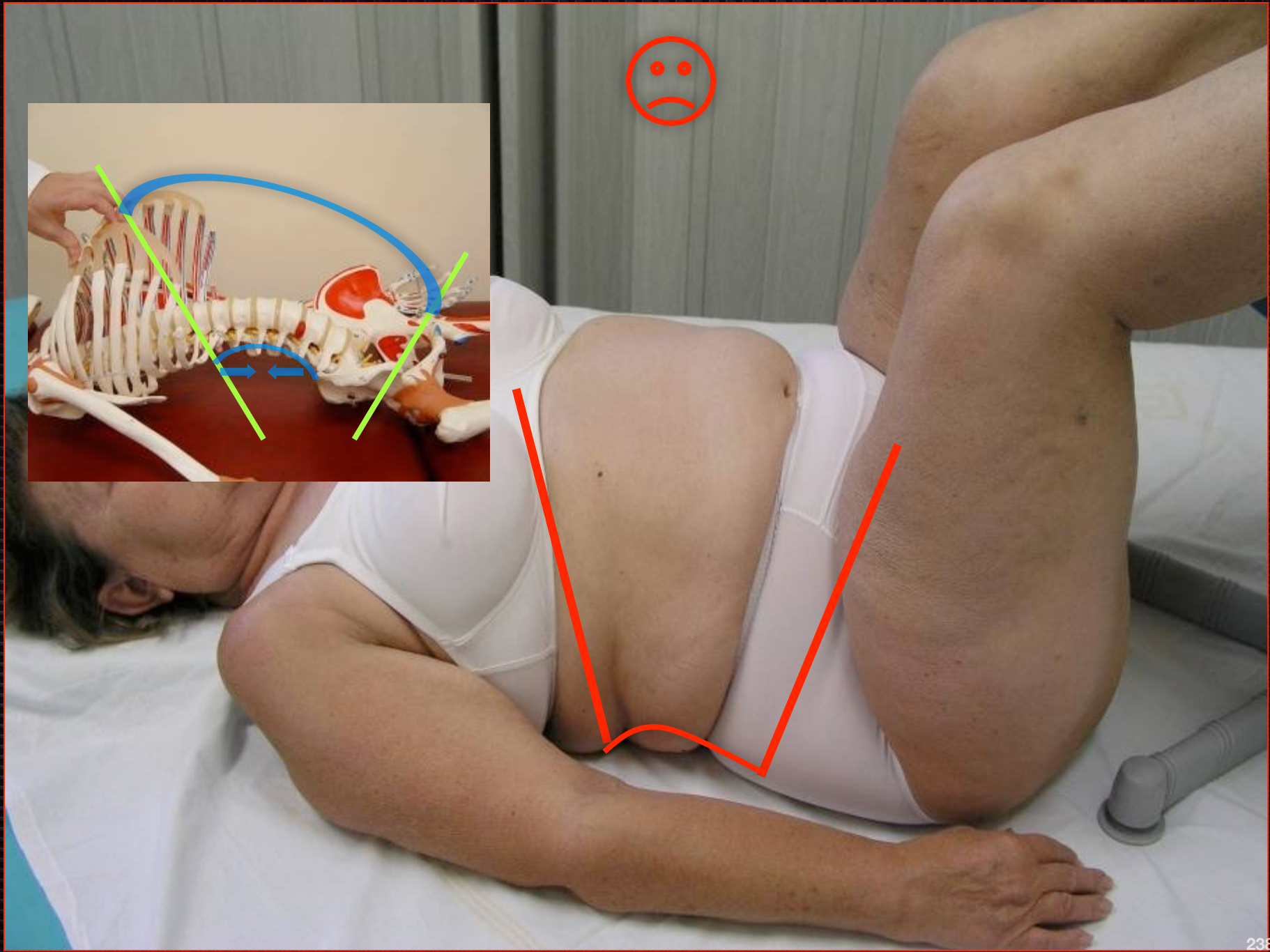
- ✦ Passively bring the patient's chest into the caudal, expiratory position
- ✦ Then remove the support under the patient's legs
- ✦ The patients holds this position actively



Poor activation

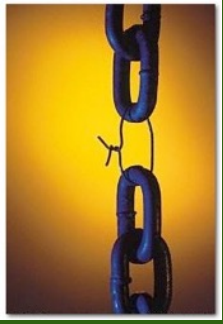
- ✦ Inspiratory position of the chest
- ✦ Umbilicus is pulled in a cranial direction
- ✦ Concavity of the abdominal wall above the level of the groin





Scoring

- 0 - Pain
- 1 - Can't perform movement
 - Cued Triple Flxn cephalad rib cage
 - Inability to push lateral obliques into fingers
- 2 - Performs movement w/ compensation
 - Uncued Triple Flxn cephalad rib cage
- 3 - Movement performed w/out compensation

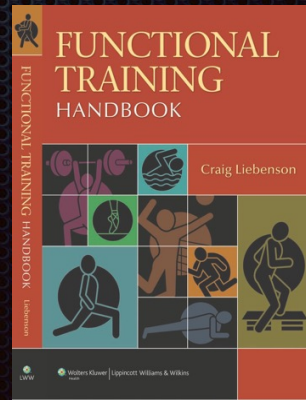


Functional Problem Solving

- LOW BACK/NECK
- Open Scissors/Janda' LCS
- Isometric Core Training
- Yoga/Breathing



Do Our Words Matter?



Reactive Training

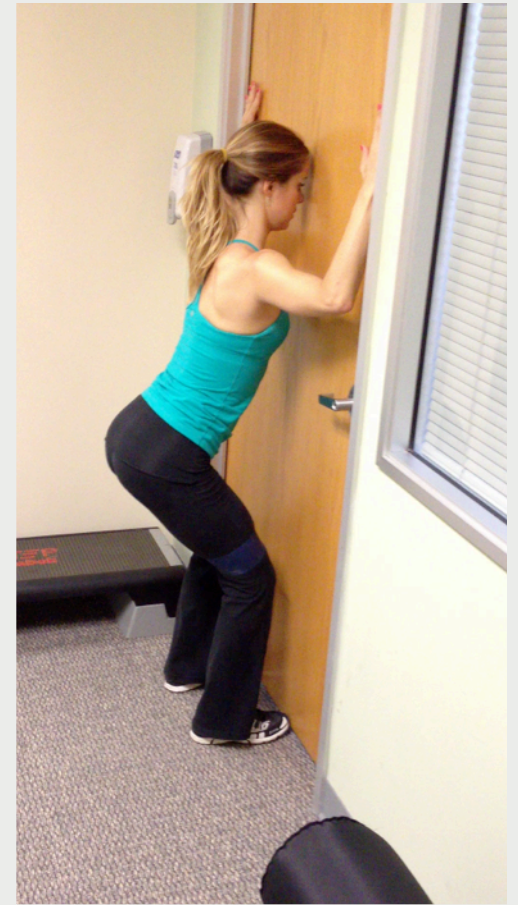
- ✦ Minimal or No Cueing



Quad RNT - Reactive Neuromuscular Training

Reactive

- ✦ **Gray Cook-** "The best resistance is the one that causes the problem to correct itself without verbal or visual feedback."



- Avoid Hypervigilance
- Minimize conscious awareness stage



Rehab Principle

Stages of Motor Learning

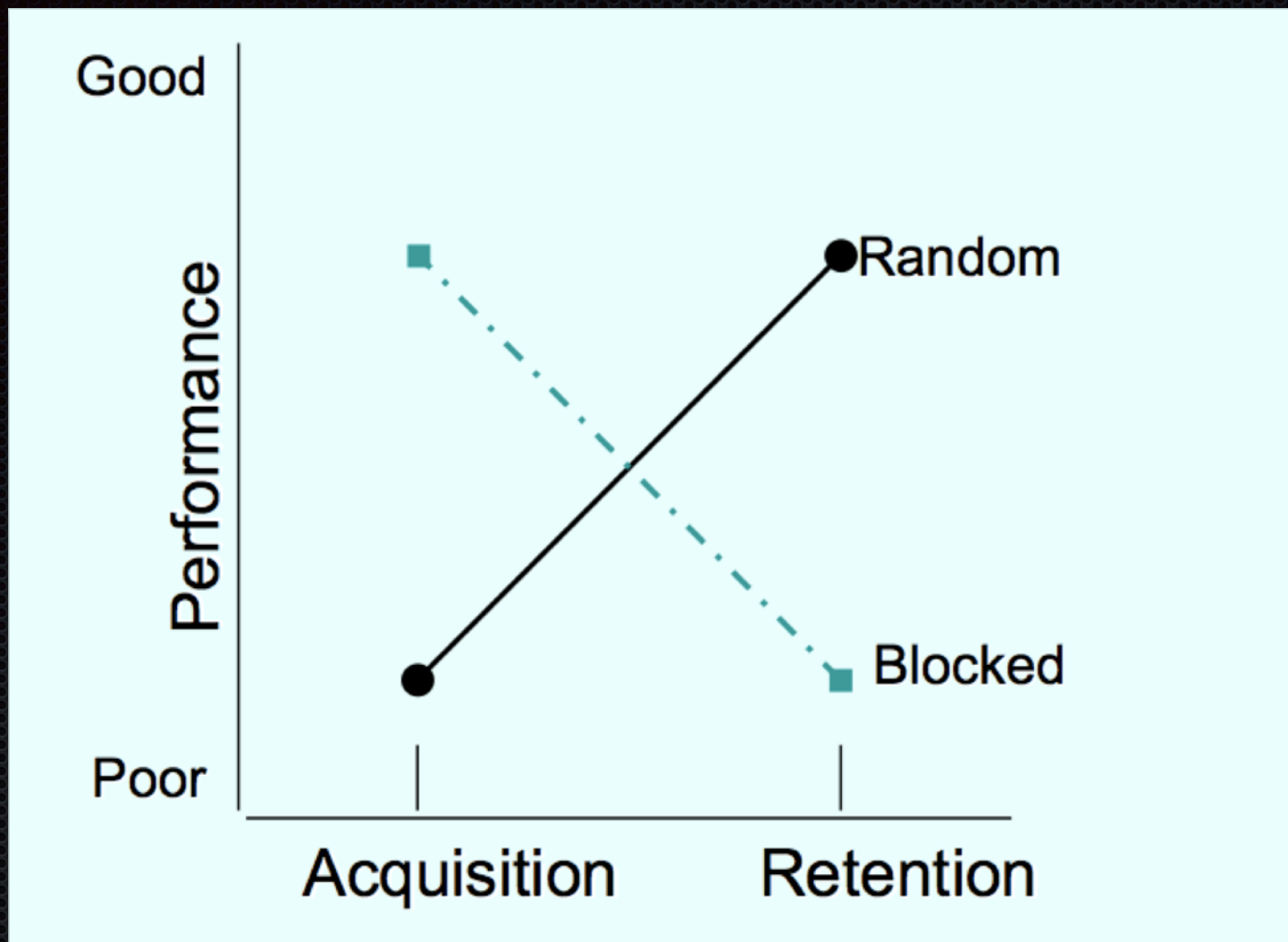
- Conscious awareness
- Associative
- Autonomous control
- **Janda** emphasized that patients don't comply well if they have to be hypervigilant
- Minimize the **Conscious Awareness** stage & find something which the patient automatically does well
- "**Attacking Success**"



Pr Janda

Purposeful Practice - What is the goal?

- “Why do we practice? Most people would say that we practice to get better. But get better when is the question? Are we practicing to get better in **practice**, or are we practicing to get better in **competition**?” Bain, McGown



Battig WF. The flexibility of human memory.

In: Cermak LS, Craik FIM, eds. Levels of Processing and Human Memory. Hillsdale, NJ: Lawrence Erlbaum Associates; 1979:2344.



**The More I Think
The More Confused I Get**

STAGES OF LEARNING

- Unconscious of dysfunction
- Conscious awareness of dysfunction
- Conscious awareness of correction - Cortical training
- Unconscious correction - Subcortical training - New movement engram formed

Reactive Training

✦ Minimal or No Cueing



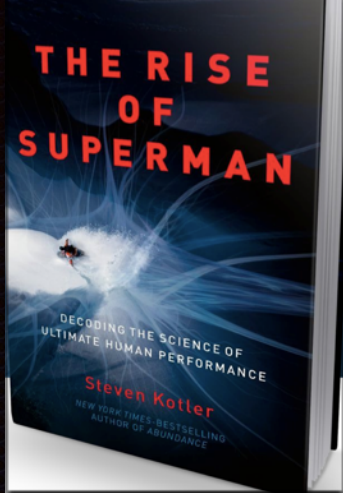
Reactive



- Avoid Hypervigilance
- Minimize conscious awareness stage

"play the things ...which please you, even if the teacher does not assign those. That is the way to learn the most...when you are doing something with such enjoyment that you don't notice that the time passes."

Albert Einstein

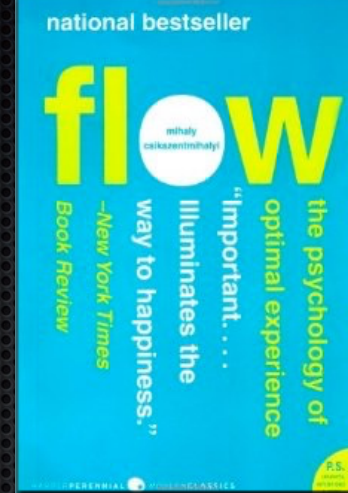


Flow exists between boredom & anxiety

Your comfort
zone is your
cage
It's a
beautiful
place, but
nothing ever
grows there

WE ALL HAVE CAGES OF COMFORT
THAT PROTECT US
BUT ALSO ISOLATE US FROM
DISCOVERING NOT ONLY WHAT LIES
OUTSIDE BUT ALSO WHAT LIES
WITHIN. -T.D. JAKES

#LASportsandSpine



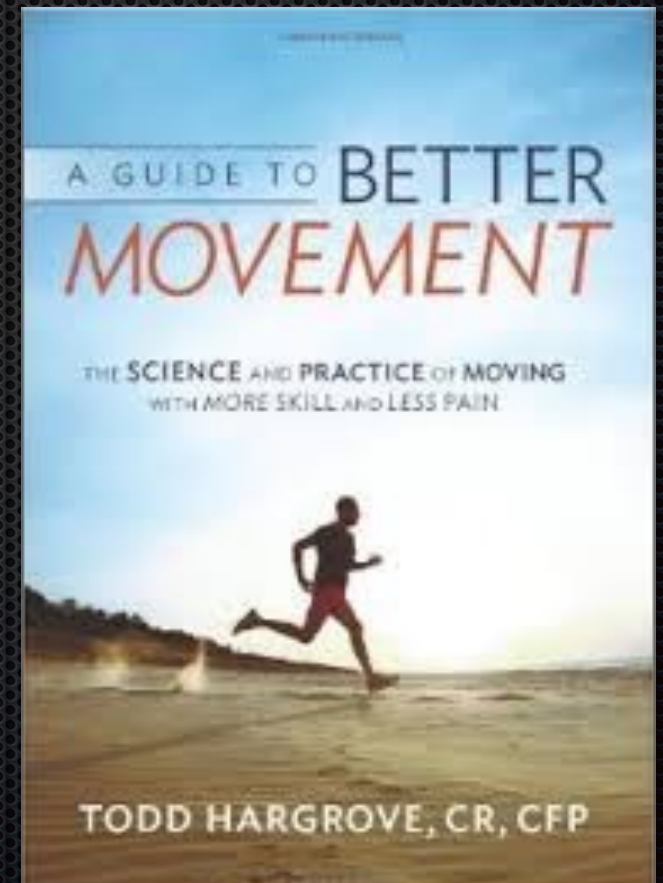
“It is incorrect to
correct”

-Feldenkrais

Goal is skill transfer
from rehab floor to
ADLs & gym to field



- ✦ “Movements are not “right” or “wrong”...it depends on the goal, the individual, the context”
- ✦ “Teach movement by giving more choices and awareness, NOT by telling people how to move”

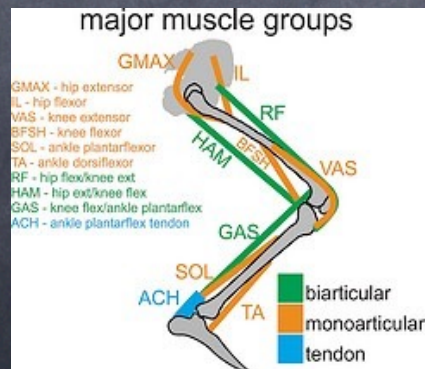
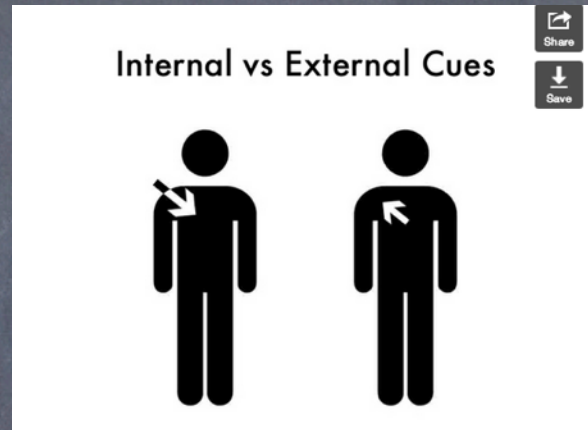


John Wooden - UCLA Basketball Coach



**“A coach is someone
who can give
correction without
causing resentment.”**

Does How We Say Things Matter?



Internal



External

Our First Teacher...

“The first *teacher* you meet is all around you-it is called the environment.”

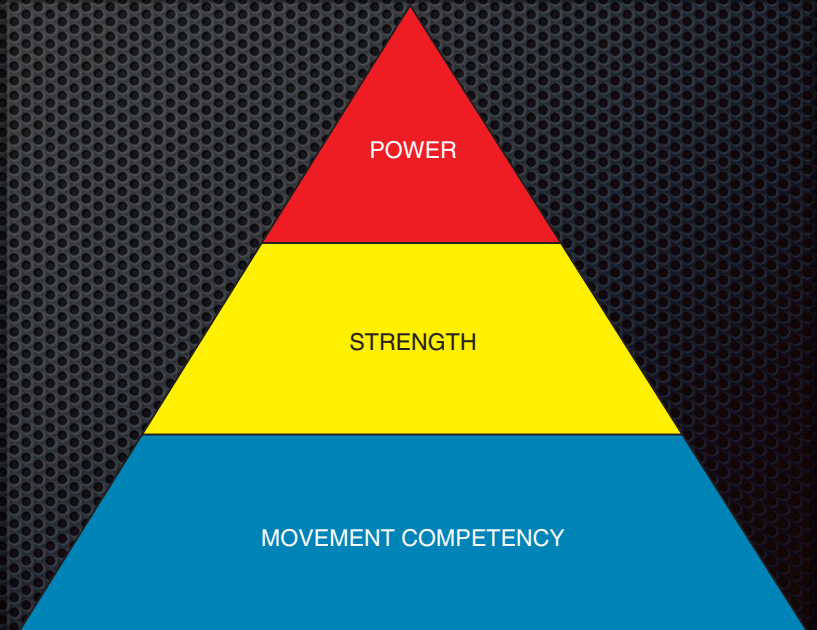
–Nick Winkelman, PhD



Create an environment which stimulates adaptation, in particular residual adaptation



- Without this foundation in movement literacy we risk adding strength on top of dysfunction



3 TYPES OF COACHING CUES

1 INTERNAL CUES

reference the body and movement process (e.g., extend your hip)

2 EXTERNAL CUES

reference the environment and movement outcome (e.g., push the ground away)

3 NEUTRAL CUES

provide no explicit focus (e.g., perform to the best of your ability)



EXOS®

"What We Say Matters"

The Truth About Cueing

Nick Winkelman, MSc, XPS, CSCS®D
Director of Movement and Education
NFL Combine Development Director

EXOS™



"Monday Morning Takeaways"

_Cueing = Words

_Words = Thoughts

_Thoughts = Images

_Images = Feelings

_Feelings = Actions

_Actions = Goals

Cues = Goals

“A main issue in my work is
not the output of training,
but rather the outcome!”

Kraaijenhof

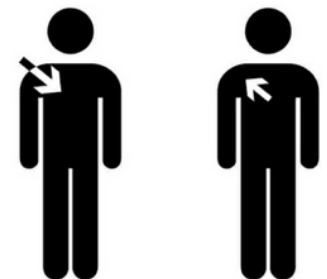


 wondershare™

Simple Reaction Exercises as
Warming-up

WALL DRILL

Internal vs External Cues



SUMMARY



EXAMINATION

Pain

HISTORY

Dysfunction

Faulty Movement
pattern

- Activities
- Past Injury History
- Fears
- Goals



No Two Patients Are Alike



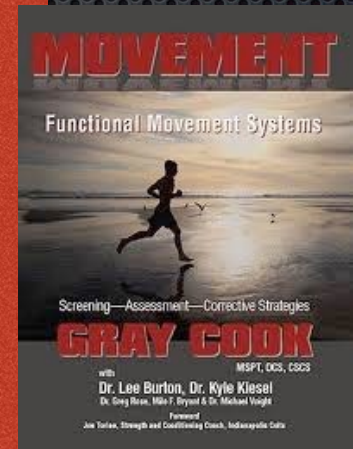
- After **examination**, there must be an **analysis** of what was found
- **Therapy starts with a lesion which is likely to be of key importance.**
- Then, **re-examination** to find out whether some or most of the signs have reacted or not

Assess/Correct/Re-assess

The system in a nutshell:

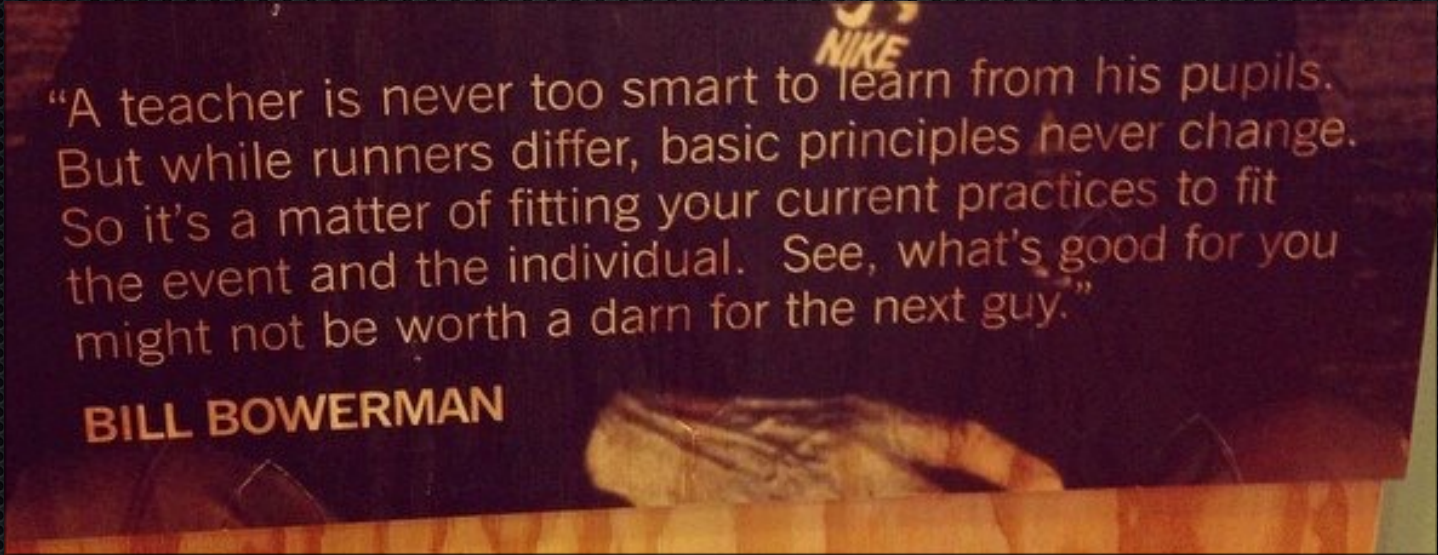
1. Set a movement path baseline
 - assess pain & dysfunction (0's & 1's)
2. Locate and observe the movement problem
 - ANALYZE/prioritize
3. Use corrective measures aimed at the problem
 - Train/treat
4. Revisit the baseline
 - Re-assess/audit

<http://www.craigliebenson.com/progressing-patients/>



Gray Cook
(p115)

Individualization

A photograph of a dark-colored Nike shoe box. The box is open, and a white Nike swoosh logo is visible on the inside of the lid. A quote by Bill Bowerman is printed on the inside of the lid in white text. The quote reads: "A teacher is never too smart to learn from his pupils. But while runners differ, basic principles never change. So it's a matter of fitting your current practices to fit the event and the individual. See, what's good for you might not be worth a darn for the next guy." The name "BILL BOWERMAN" is printed in white capital letters below the quote. The box is resting on a wooden surface.


"A teacher is never too smart to learn from his pupils. But while runners differ, basic principles never change. So it's a matter of fitting your current practices to fit the event and the individual. See, what's good for you might not be worth a darn for the next guy."

BILL BOWERMAN

No Two Patients Are Alike



- Even if the first treatment was successful, it would be wrong to think that this was the only way to treat the patient.



Humility forms
the basis of
honor, just as
the low ground
forms the
foundation
of a high
elevation

-Bruce Lee

No Patterns in Brain

Brain learns the process of
HOW to adapt via exposure
to novel situations



Motor neurons and locomotion: even more complex than we thought

Jan 14 · medicalnewstoday.com

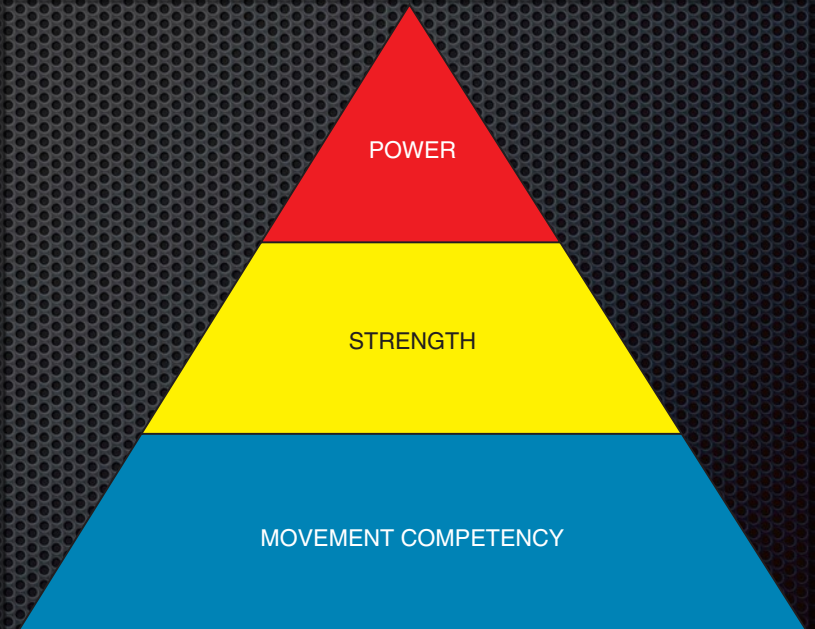
123

People
Talking

Locomotion in animals is a fascinatingly complex ability. The latest look at motor neurons' role in motion reveals a completely new layer of communication and intrigue.

Create an **environment** which stimulates neurological adaptation

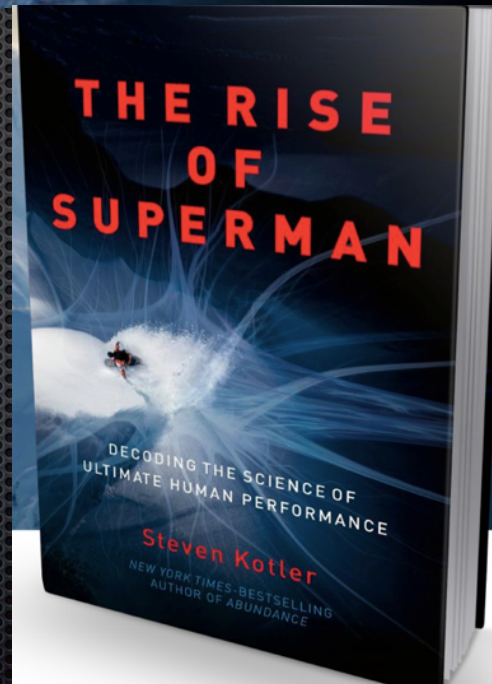
- ✦ Without this **foundation** in movement literacy we risk adding strength on top of dysfunction





Rich Environment

A rich environment means an environment with lots of novelty, unpredictability and complexity—three things that catch and focus our attention much like risk.





**MOVEMENT VARIABILITY
IS THE OIL OF THE C.N.S.**

**-GUIDO VAN RYSSEGEN
MS, ATC**

#LASPORTSANDSPINE

InstaQuote

REGIONAL INTERDEPENDENCE

- JANDA PROVED that ankle sprain causes faulty activation of the gluteus maximus on the injured side
- WHICH PERSISTS AFTER INJURY HAS HEALED

*Bullock-Saxton JE, Janda V, Bullock
MI: Int J Sports Med 15: 330-334,
1994*



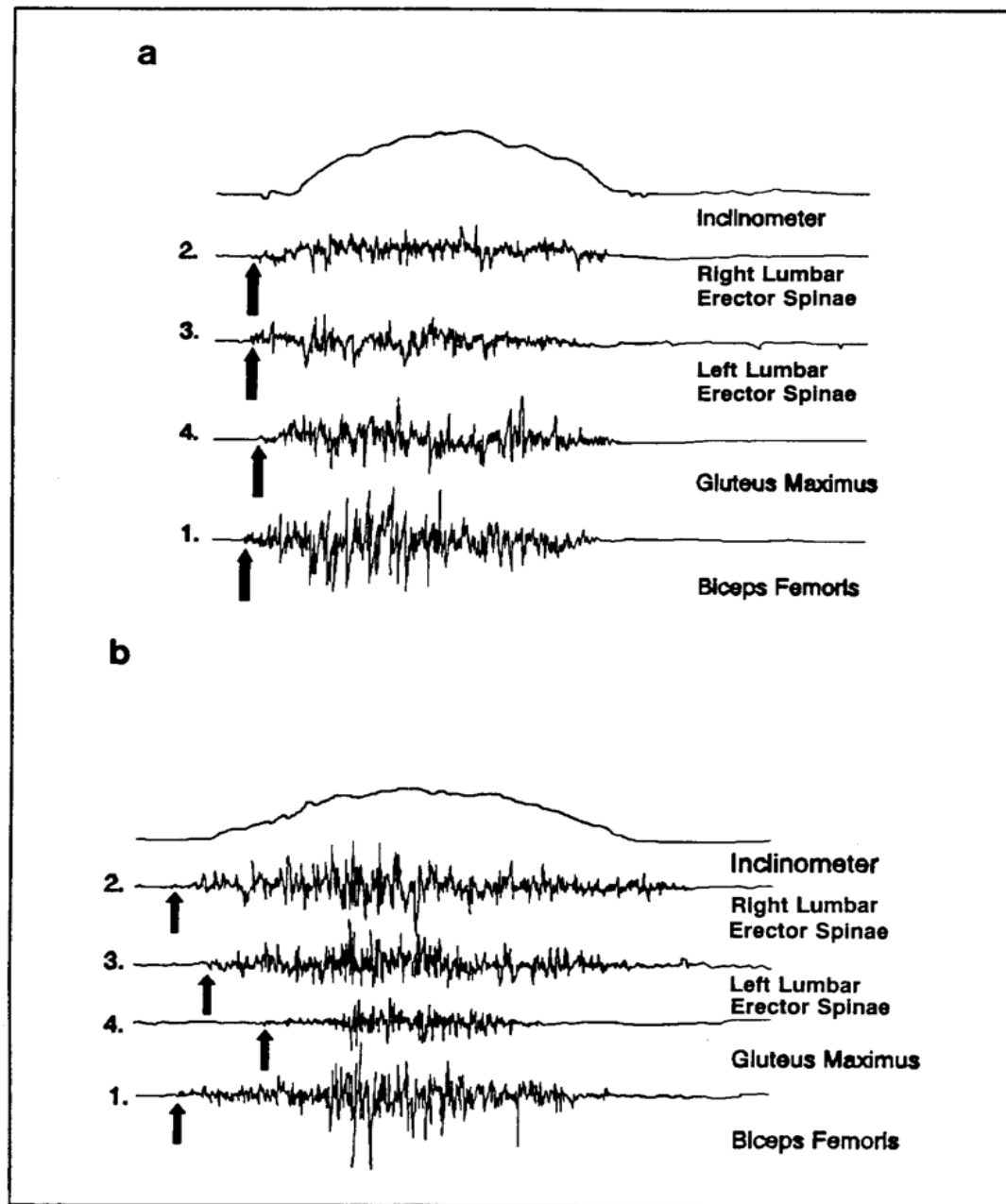
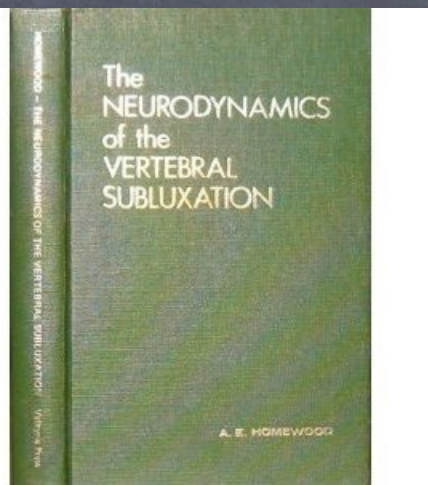


Figure 3. Graphic illustration of an electromyographic recording of a typical recruitment pattern of (a) a control group subject and (b) an injured group subject. (Arrows indicate onset of activation; numbers indicate the sequence of activation.)

Pr Janda



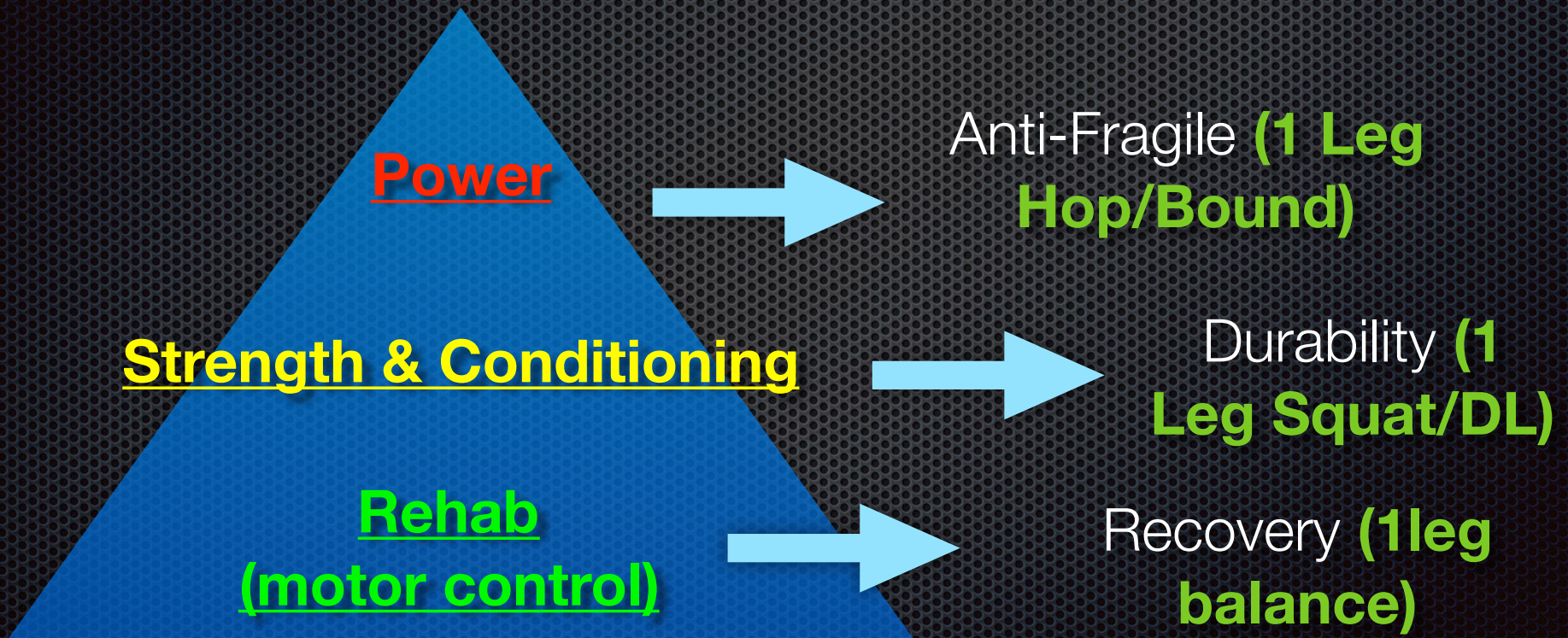


AE Homewood, D.C.

"We find things that are stuck and get them moving, and find things that are moving too much and tighten them."

Training Pyramid

Return to Sport/Play Criteria

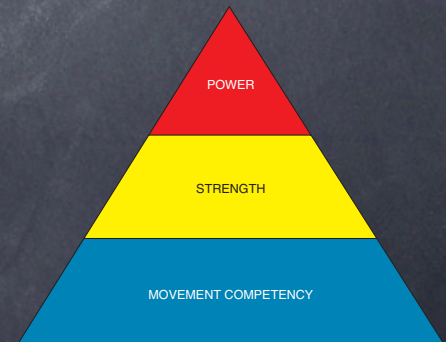




Developmental Kinesiology (Ontogenesis)



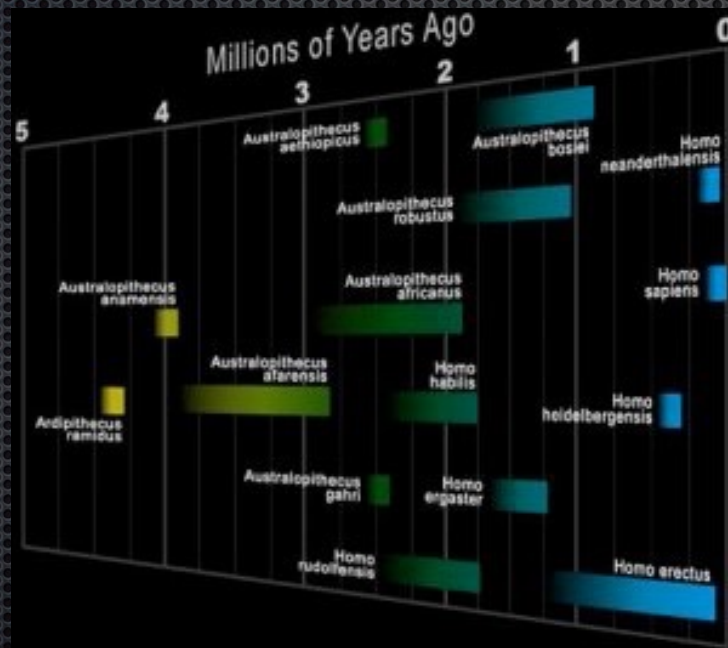
Co-contraction for sub-cortical activation



Cells have Genetically Programmed Instinct or Purpose

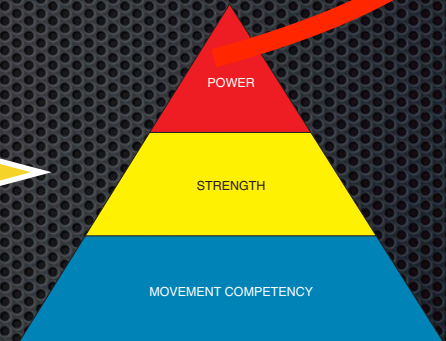
“Postural muscle activity is genetically pre-determined and occurs automatically in the course of CNS maturation....” (Kolár)

The Goal of Human Development is to become Upright





Strength



Functional Problem Solving

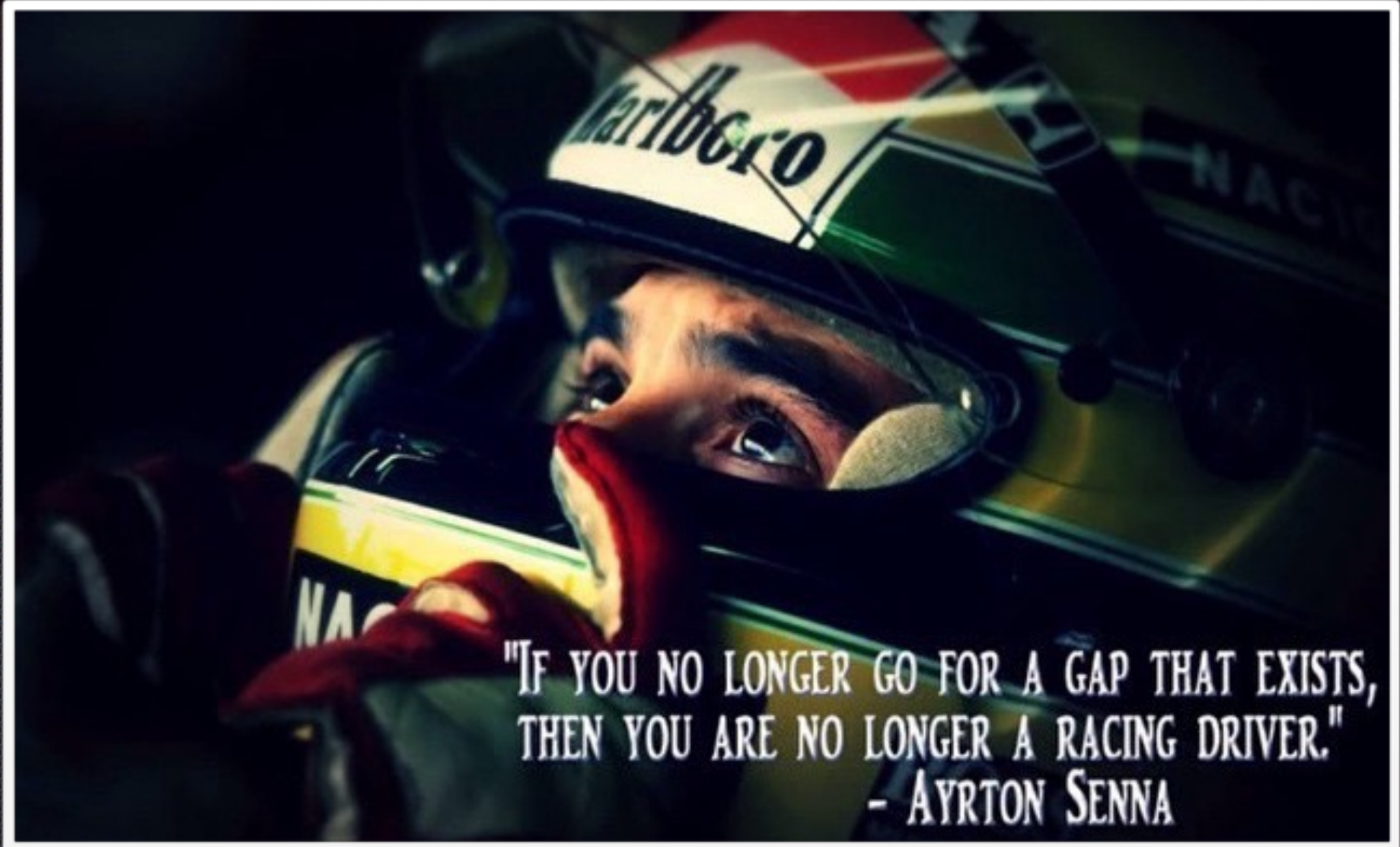
Sciatica

- McKenzie (centralization)
- Butler/Shacklock (neuromobilization/sliders)
- Sparing strategies (Hip Hinge)
- Stabilization (Core)

Functional Problem Solving

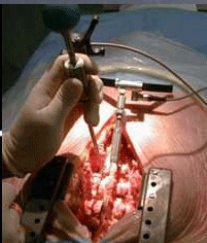
Low Back Pain

- Sparing strategies (Hip Hinge)
- Mobilization (T-spine extension)
- Stabilization (Core)
- Posterior Chain Training
- Sole of foot



"IF YOU NO LONGER GO FOR A GAP THAT EXISTS,
THEN YOU ARE NO LONGER A RACING DRIVER."
- AYRTON SENNA

Can We Bridge the Gap?



The Continuum of Care

(after Falsone)



PT, ATC, DC

S/C COACH

Diagnosis

Agility/Balance/Coordination

Pain Management

Strength/Endurance

Manual Therapy

Speed/Power

Stabilization

Motivation

Reassurance

Recovery



“I am the only one of the old boys who likes to steal from everyone. I am open to everyone.” - K. Lewit



GOOD THEFT	VS.	BAD THEFT
HONOR		DEGRADE
STUDY		SKIM
STEAL FROM MANY		STEAL FROM ONE
CREDIT		PLAGIARIZE
TRANSFORM		IMITATE
REMIX		RIP OFF

BENJAMIN FRANKLIN



“Originality is the art of concealing your sources.”



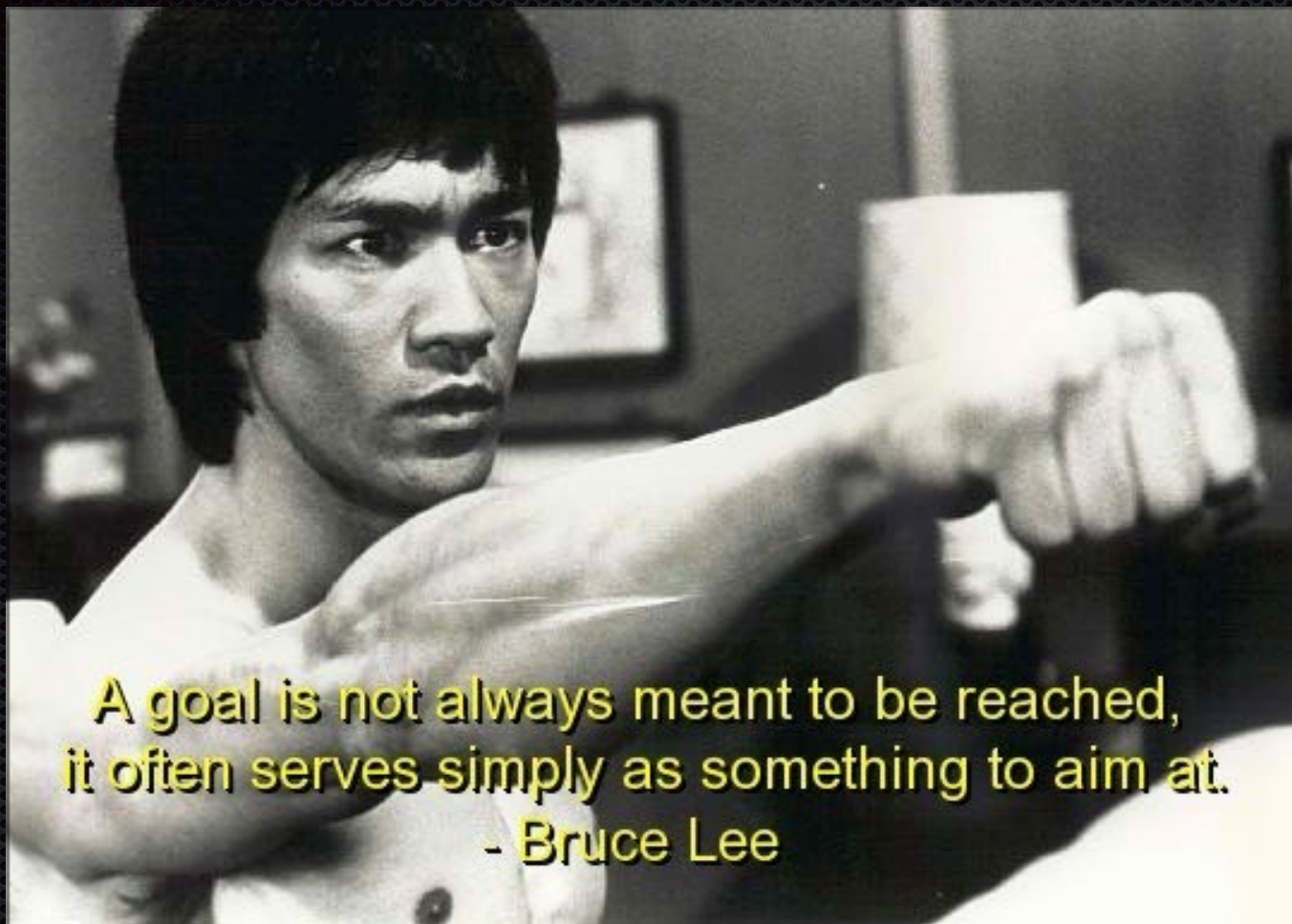
Chiropractic &
Osteopathic
College of
Australasia



We don't classify this stuff in terms of injury prevention; we classify it as enhancing performance. We show people that they're leaving performance on the table, and that's what really sets the hook.
- Kelly Starrett, PT "The Supple Leopard"

What enhances performance prevents injury





A goal is not always meant to be reached,
it often serves simply as something to aim at.
- Bruce Lee

“Learn the Skills, Master the Art”

R2P



REHABILITATION ₂ PERFORMANCE

www.rehab2performance.com