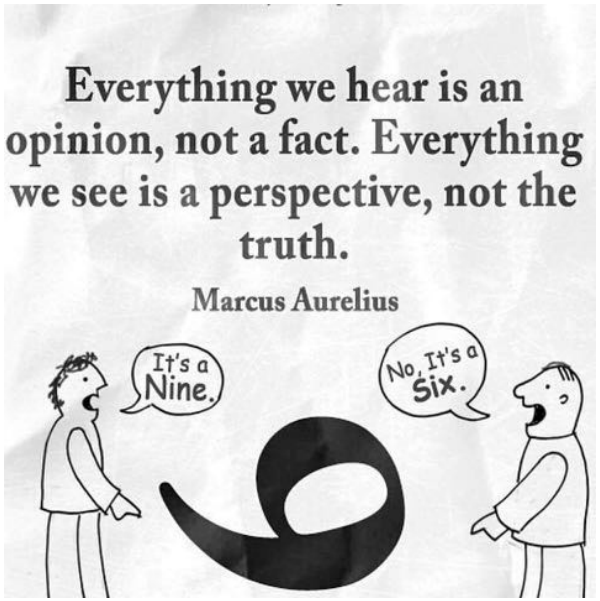
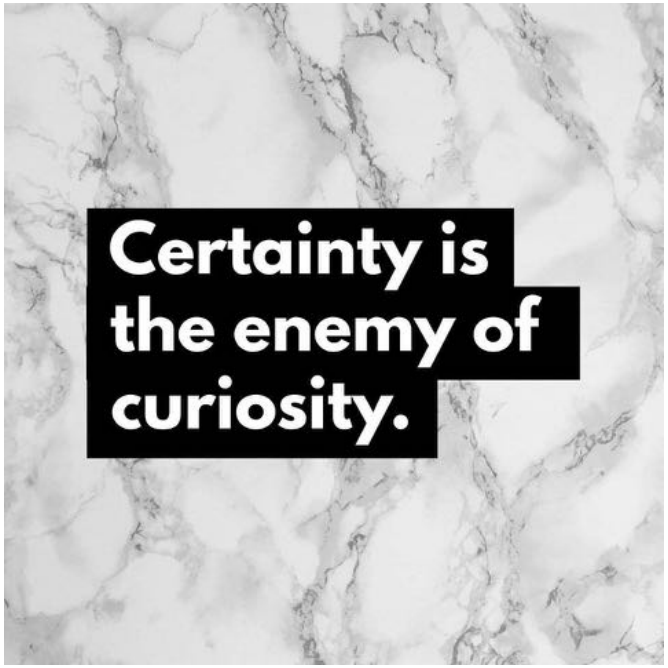
FAGLIG KONGRES 2018
EFTERUDDANNELSE NETVÆRK VIDEN
KIROPRAKTIKKENS STÅSTEDER
8.-10. NOVEMBER • ODEON, ODENSE

Function Function Function

Ulrik Sandstrøm

Disclaimers






I DON'T KNOW HOW TO PUT THIS BUT...
...I DON'T TREAT CONDITIONS...

What does the evidence say?

- That we're really good at what we do
- There's never been a better time to be a chiropractor
- We need to stop using drugs and surgery for LBP
- Bio - Psycho - Social
- A package of care
  - Manual therapy
  - Education (pain science)
  - Exercise

Low back pain 1

What low back pain is and why we need to pay attention

Jan Hartvigsen*, Mark J Hancock*, Alice Kongsted, Quinette Louw, Manuela L Ferreira, Stéphane Genevay, Damian Hoy, Jaro Karppinen, Glenn Pransky, Joachim Sieper, Rob J Smeets, Martin Underwood, on behalf of the Lancet Low Back Pain Series Working Group†

Low back pain is a very common symptom. It occurs in high-income, middle-income, and low-income countries and all age groups from children to the elderly population. Globally, years lived with disability caused by low back pain increased by 54% between 1990 and 2015, mainly because of population increase and ageing, with the biggest increase seen in low-income and middle-income countries. Low back pain is now the leading cause of disability worldwide. For nearly all people with low back pain, it is not possible to identify a specific nociceptive cause. Only a small proportion of people have a well understood pathological cause—eg, a vertebral fracture, malignancy, or infection. People with physically demanding jobs, physical and mental comorbidities, smokers, and obese individuals are at greatest risk of reporting low back pain. Disabling low back pain is over-represented among people with low socioeconomic status. Most people with new episodes of low back pain recover quickly, however, recurrence is common and in a small proportion of people, low back pain becomes persistent and disabling. Initial high pain intensity, psychological distress, and accompanying pain at multiple body sites increases the risk of persistent disabling low back pain. Increasing evidence shows that central pain-modulating mechanisms and pain cognitions have important roles in the development of persistent disabling low back pain. Cost, health-care use, and disability from low back pain vary substantially between countries and are influenced by local culture and social systems, as well as by beliefs about cause and effect. Disability and costs attributed to low back pain are projected to increase in coming decades, in particular in low-income and middle-income countries, where health and other systems are often fragile and not equipped to cope with this growing burden. Intensified research efforts and global initiatives are clearly needed to address the burden of low back pain as a public health problem.

Introduction

Low back pain is an extremely common symptom experienced by people of all ages.[1,2] In 2015, the global point prevalence of activity-limiting low back pain was 7·3%, implying that 540 million people were affected at any one time. Low back pain is now the number one cause of disability globally.[3] The largest increases in disability caused by low back pain in the past few decades have occurred in low-income and middle-income countries, including in Asia, Africa, and the Middle East,[2] where health and social systems are poorly equipped to deal with this growing burden in addition to other priorities such as infectious diseases.

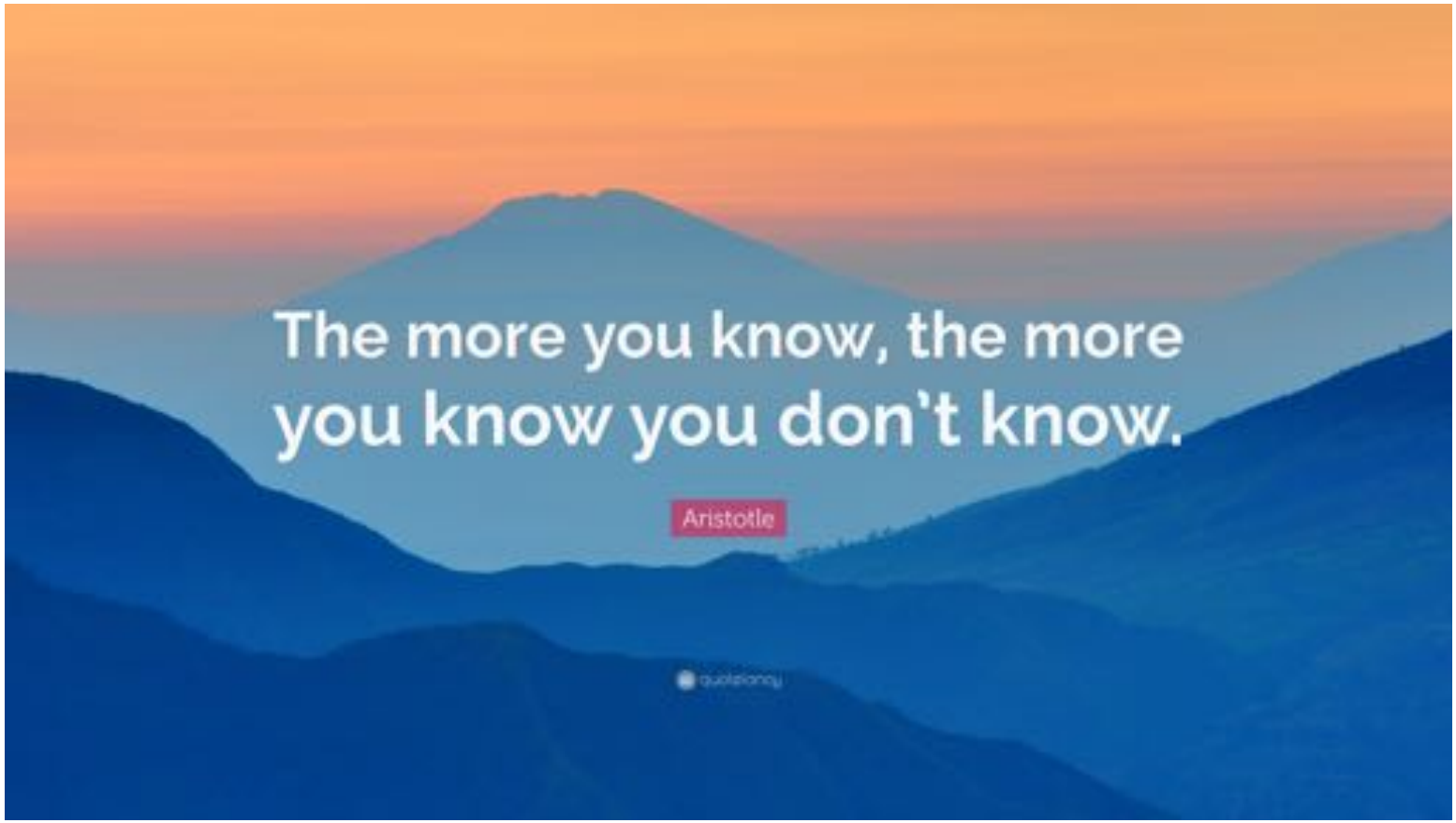
Rarely can a specific cause of low back pain be identified; thus, most low back pain is termed non-specific. Low back pain is characterised by a range of biophysical, psychological, and social dimensions that impair function, societal participation, and personal financial prosperity. The financial impact of low back pain is cross-sectoral because it increases costs in both health-care and social supports systems.[4] Disability attributed to low back pain varies substantially among countries, and is influenced by social norms, local health-care approaches, and legislation.[5] In low-income and middle-income countries, formal and informal social-support systems are negatively affected. While in high-income countries, the concern is that the prevalent health-care approaches for low back pain contribute to the overall burden and cost rather than reducing it.[6] Spreading high-cost health-care models to

Key messages

- Low back pain is an extremely common symptom in populations worldwide; occurs in all age groups, from children to the elderly population
- Low back pain was responsible for 60·1 million disability-adjusted life-years in 2015, an increase of 54% since 1990, with the biggest increase seen in low-income and middle-income countries
- Disability from low back pain is highest in working age groups worldwide, especially concerning in low-income and middle-income countries where employment is common and possibilities for job modification are limited
- Most episodes of low back pain are short-lasting with little or no consequences; recurrent episodes are common and low back pain is increasingly understood as a long-lasting condition with a variable course rather than episodes of unrelated occurrences
- Low back pain is a complex condition with multiple contributors to both the pain and associated disability, including psychological factors, social factors, biophysical factors, comorbidities, and pain-processing mechanisms
- For the vast majority of people with low back pain, it is currently not possible to accurately identify the specific nociceptive source
- Lifestyle factors, such as smoking, obesity, and low levels of physical activity, that relate to poorer general health, are also associated with occurrence of low back pain episodes
- Costs associated with health care and work disability attributed to low back pain vary considerably between countries, and are influenced by social norms, health-care approaches, and legislation
- The global burden of low back pain is projected to increase even further in coming decades, particularly in low-income and middle-income countries

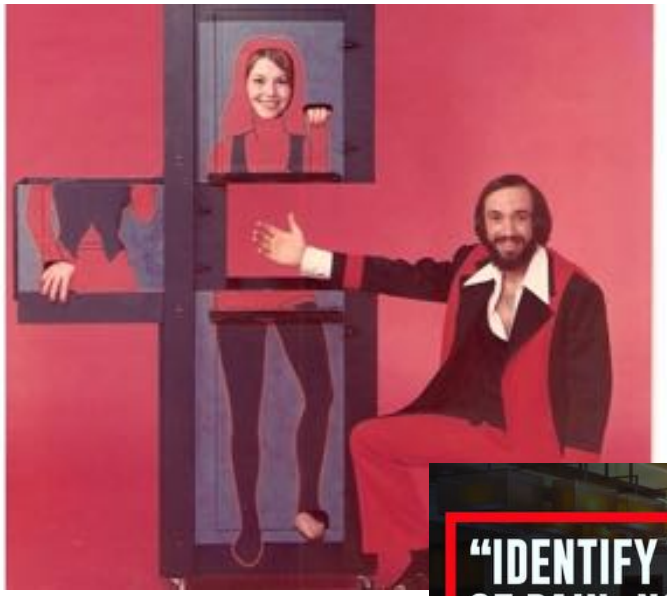
www.thelancet.com Published online March 21, 2018 http://dx.doi.org/10.1016/S0140-6736(18)30480-X

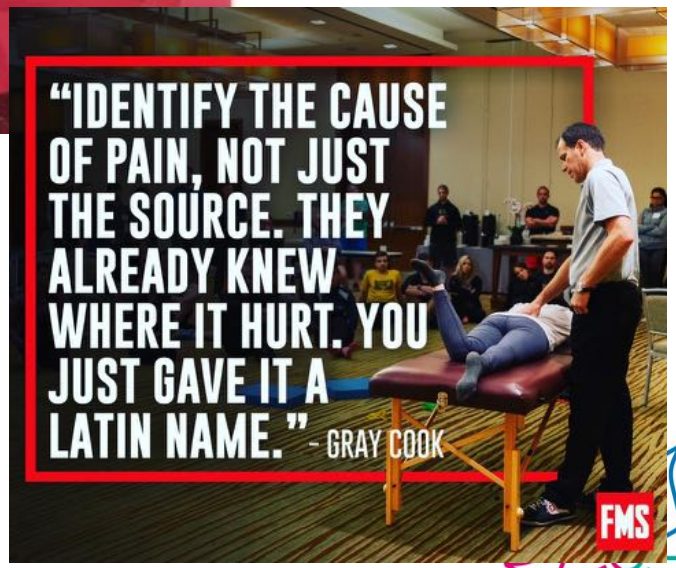
How & Why?

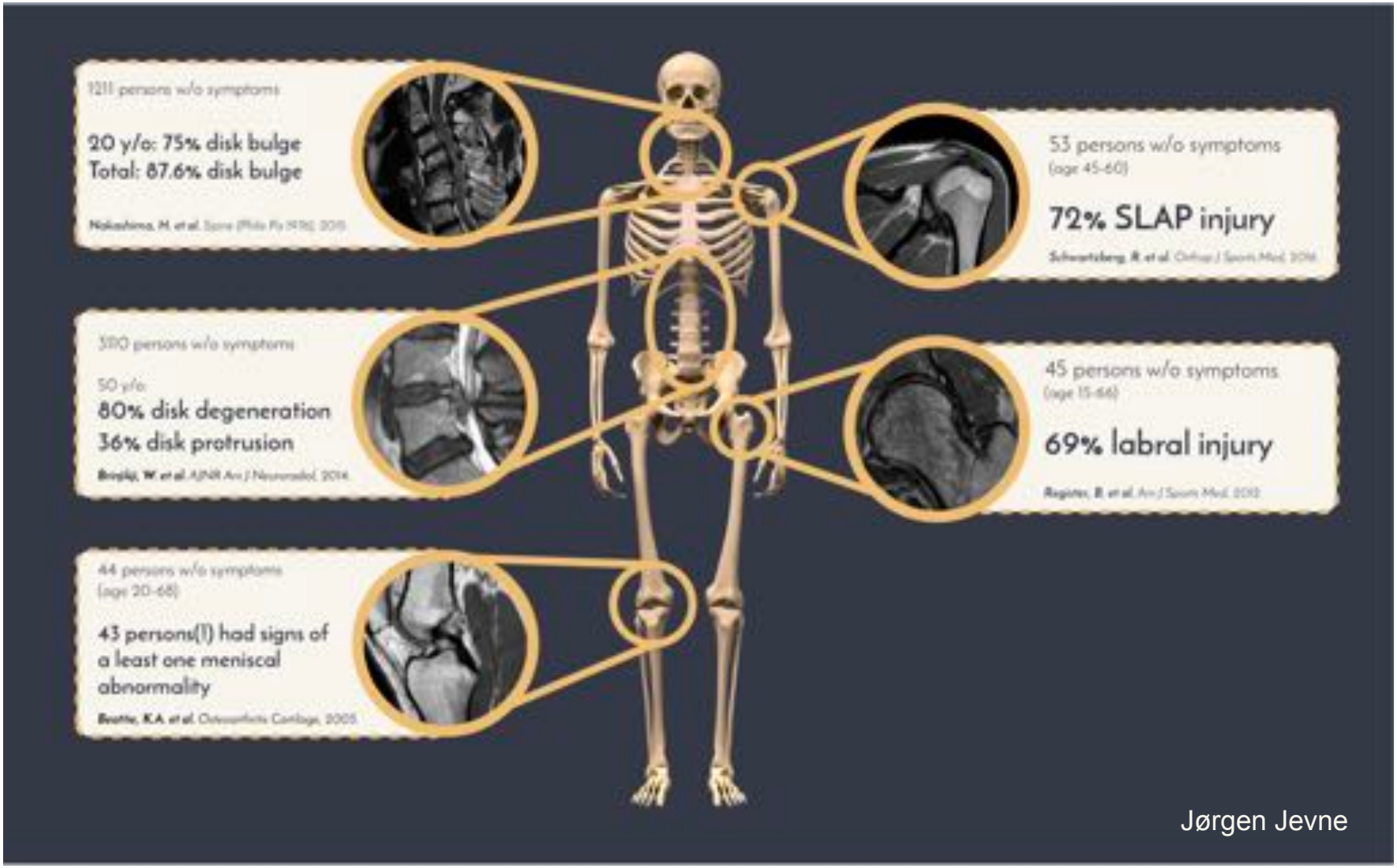


The Diagnosis Illusion

- Facet syndrome
- Disc herniation
- Degenerative disc disease
- SI syndrome
- Category II
- Subluxation
- Scoliosis
- Short leg
- Foot pronation
- Etc etc etc






1211 persons w/o symptoms
20 y/o: 75% disk bulge
Total: 87.6% disk bulge
53 persons w/o symptoms
(age 45-60)
72% SLAP injury
330 persons w/o symptoms
50 y/o
80% disk degeneration
36% disk protrusion
45 persons w/o symptoms
69% labral injury
44 persons w/o symptoms
(age 20-68)
43 persons(!) had signs of
a least one meniscal
abnormality
Jørgen Jevne

What we don't know

- What we're actually treating
- How it works
- Why it works
- Which bit work
- And which bit don't

So does it matter?

- Let's just be honest about it to ourselves and our patients?

According to the evidence...


FEED ME
A STORY

Whatever stories you tell yourself…

- ….make sure the one you tell your patients is:
  - Reasonable
  - Relevant
  - Encompasses the contextual effects of your encounter

Ganoderma

Contextual effects

- Includes all factors of the patient experience
- Driven by the patient's current state of mind
  - Fears, hopes, aspirations, expectations, social situation, work stress, family, values etc etc
- Words matter!!
- What you say, how you say it, what you do and how you do it
- 'Placebo' vs 'nocebo'
- Well researched
- The more we understand the more important we know it to be
- Works even if the patient is aware of it!

- Unique identity
- Expert status
- Confidence & Certainty
- Value in my degree and experience
- My clinical toolbox
- Cultural authority
- My quest for evidence base

– vs –

- Care
- Hope
- Plan

Let's all unite....

- Access Seminars
- Activator Methods
- Active Release Therapy
- Advanced BioStructural Correction
- Advanced Muscle Palpation
- Alphabiotics
- Alternative Chiropractic Adjustments
- Applied Chiropractic Distortion Analysis
- Applied Kinesiology
- Applied Spinal Biomechanical Engineering
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- Arnholzt Muscle Adjusting
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- Nimmo Receptor Tonus Technique
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- Webster Technique
- Whitcomb technique
- Zimmerman Technique
- Zindler Reflex Technique

Let's all unite under...

FUNCTION

Function

- We can test it
- We can treat it
- It's what patients want
- It's an outcome measure
- It's relevant
- It changes lives

Dys-Function

- Pain is potentially dysfunction
- Stiffness is dysfunction
- Patients present with a life dysfunction
  - ADL vs RADL
  - Activities of Daily Living vs Restricted Activities of Daily Living

Why???

Why???

The Holy Grail

- Non-traumatic Insidious Onset Injury
  - Sudden onset
  - Slow onset
  - No external trauma
  - Often doing trivial or regular task
  - ‘I was only…’
  - Is this not what we see in clinic all the time?

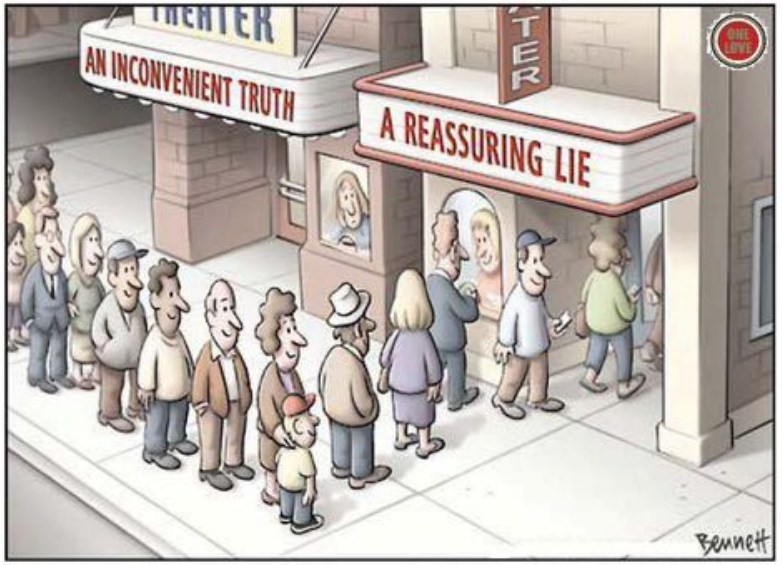
Why?

- His short leg?
- His foot pronation?
- Recruiting his contralateral paraspinals before his glutes?
- His restricted R SI?
- All of the above?
- What do we tell our patients?
- Do we believe it?
- Can we prove it?

The fall of the postural–structural–biomechanical model in manual and physical therapies: Exemplified by lower back pain

Eyal Lederman* 2010

- Summary and conclusion points
  - PSB asymmetries and imperfections are normal variations– not a pathology
  - Neuromuscular and motor control variations are also normal
  - The body has surplus capacity to tolerate such variation without loss to normal function or development of symptomatic conditions
  - Pathomechanics do not determine symptomatology
  - There is no relationship between the pre-existing PSB factors and back pain
  - Correcting all PSB factors is not clinically attainable and is unlikely to change the future course of a lower back condition



Adaptive Range

...a function of Function

- Optimal neuro-musculo-skeletal performance
- Different patients require different levels of adaptive performance
- Athletes vs couch potatoes

Adaptation

- Structures and systems coping with demand - how our body deals with 'load'
- Adjusting to external forces and changes in our environment
- Fast adaptation protects us from injury

Adaptive Range

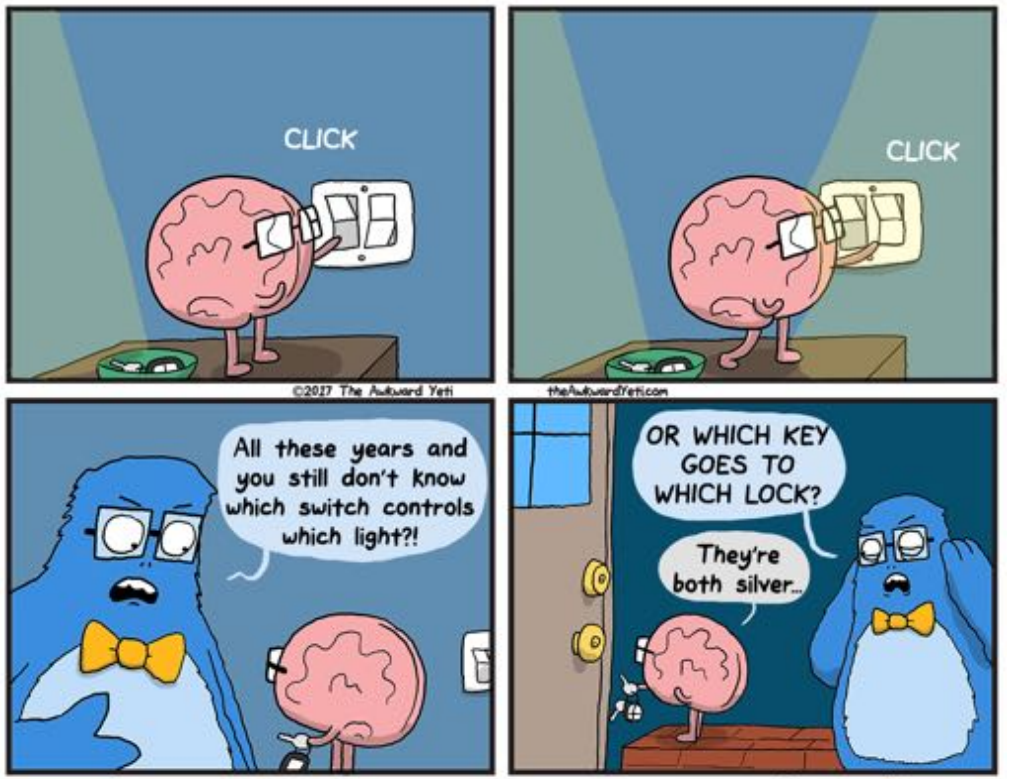
- Our job is to improve your adaptive range to make your body cope with what you're throwing at it!
- Function, function, function
- Whatever I do and whatever you do should be moving us towards improved adaptive range

Your functional battles

- Improve joint function
- Improve tissue glide (myofascial, tendinous, ligamentous, neural)
- Improve neuromuscular control
- All 3 are closely related

How are we treating

- Think!
- Educated guessing
- Experience
- Trial and error
- n=1!



Treatments - take your pick

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- Activator Methods
- Active Release Therapy
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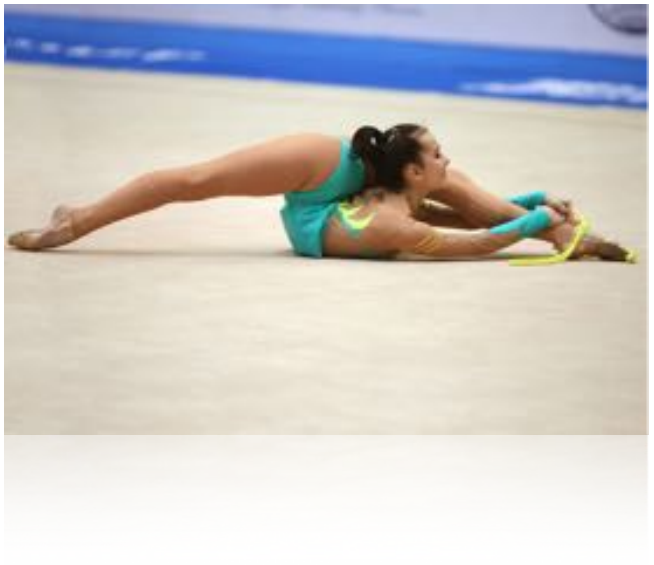
Pre- and post-testing

- You can argue about technique - but not results
- Most of what we do - especially adjusting - has a massive immediate functional effect. But if you don't test and re-test - you don't know.
- Improve patient compliance
- Improve Dr confidence in
  - Dx
  - Treatment choice
  - Treatment efficacy
- Test - pick your battle - pick your weapon - retest
- Make a difference - now
- Improve chance of successful outcome by 350%

Pre- and post-testing

- The triad
  - Pain
  - ROM
  - Strength/control



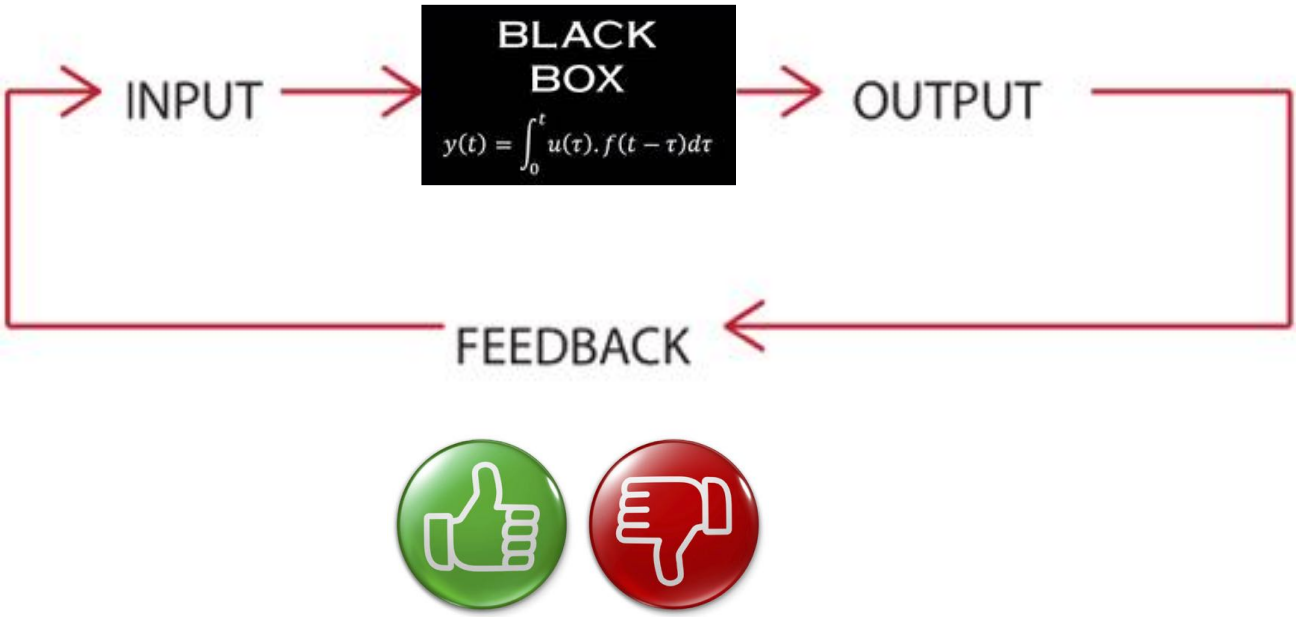
- "Show me what you can't do"
- Treatment outcomes are a constant feedback to your Dx and clinical thinking

Does your treatment do this?

Or this

What do we know

- About adhesions
- About tightness
- About fixations
- About inhibition



- Actually very little….

Adaptive Failure

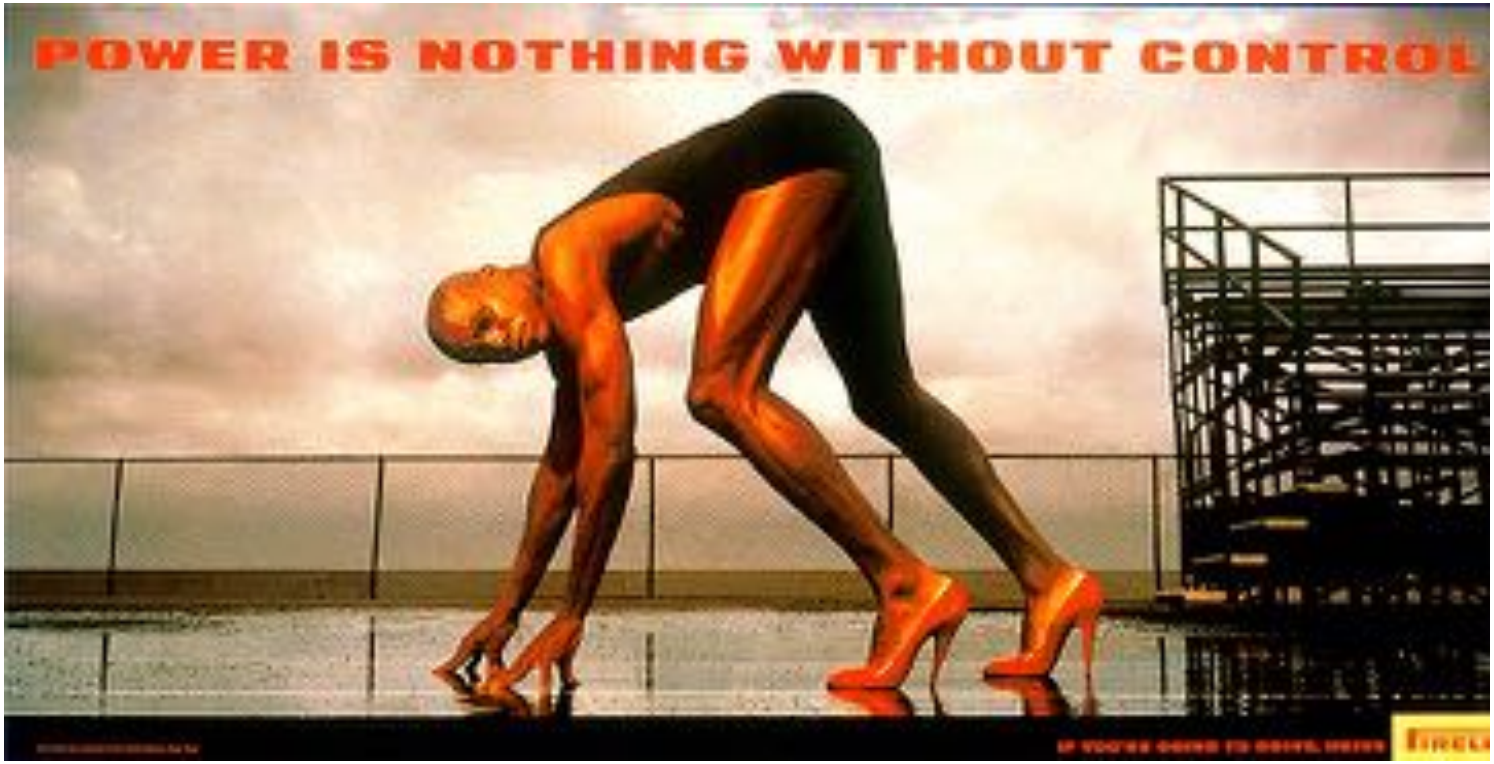
- Regardless of what tissue we injure - we injure because the external force was to big or fast for our body to adapt and react.
- This can be appropriate - large external force
- Or inappropriate - trivial or routine external force
- Which tissue protects us by providing fast and immediate response to change?

It's all about the Muscles!

- The ultimate protector:
  - Strength
  - Flexibility
  - Control
  - Stability

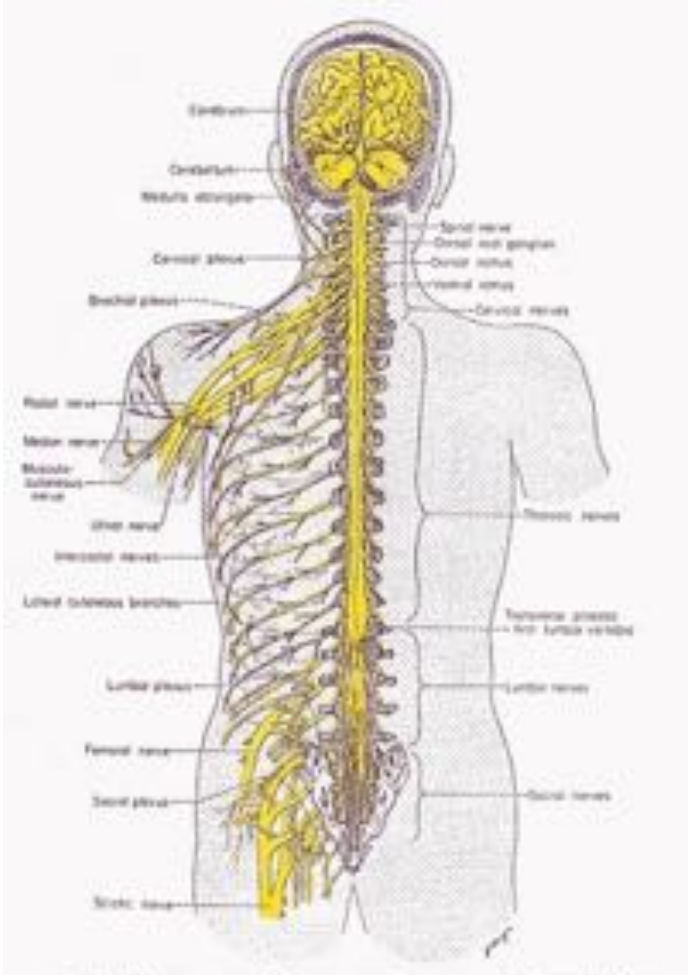
So why do muscles fail to protect us under trivial load

- Loss of Strength?
- Loss of Flexibility?
- Loss of Control?
  - Muscle can not work without proper neurological control
  - Any disturbance to normal efferent nervous system firing can significantly reduce optimal adaptation


POWER IS NOTHING WITHOUT CONTROL

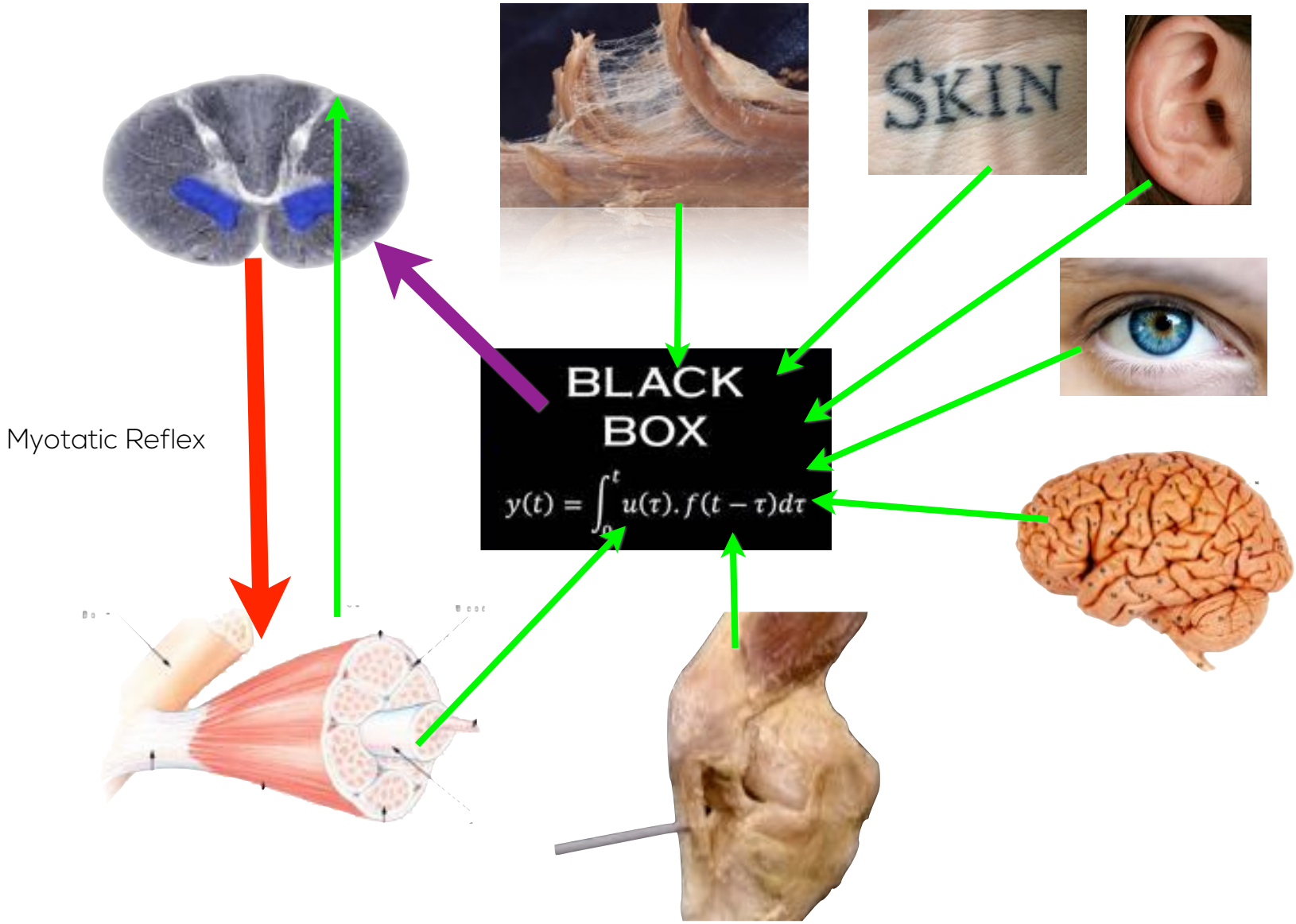
It's All About the Nervous System!!

- Adaptive Range depends on Control
- Most of our movement happens with no conscious control
- A series of spinal cord and cerebellar pathways and reflexes coordinate extremely complex movements

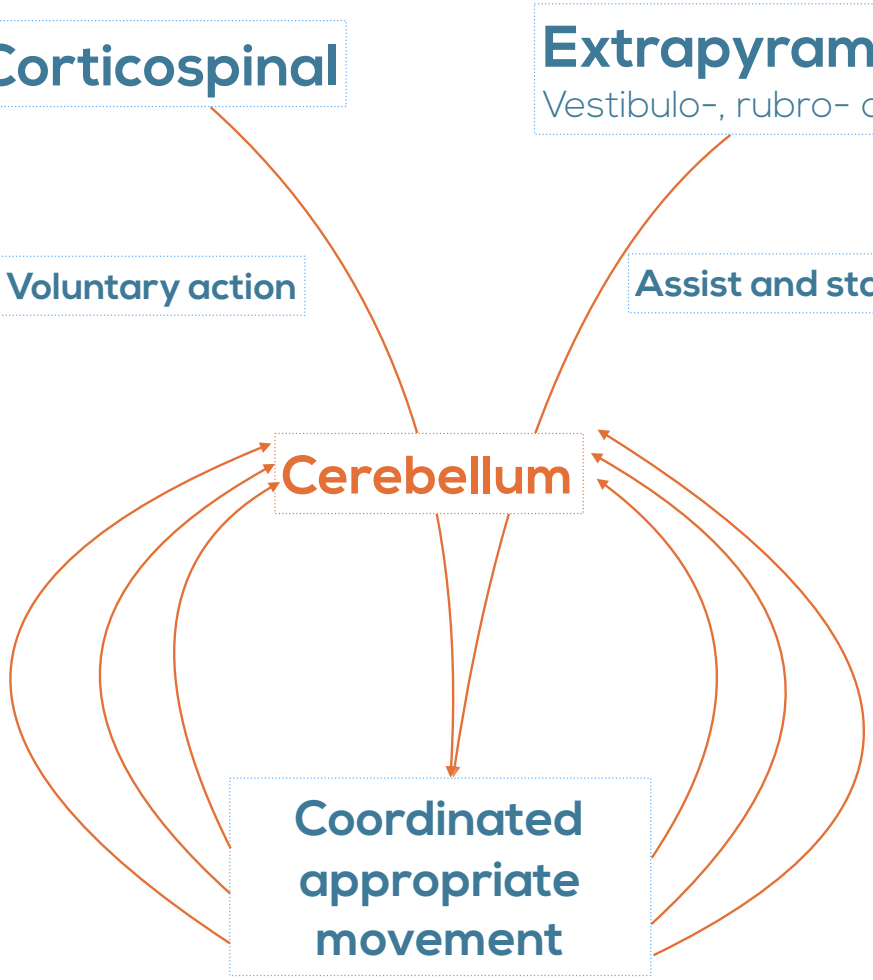


How does the nervous system coordinate movement?

- Proprioceptive feedback
  - Joints
  - Ligaments
  - Muscle
  - Skin
  - Eyes
  - Ears (sound and balance)

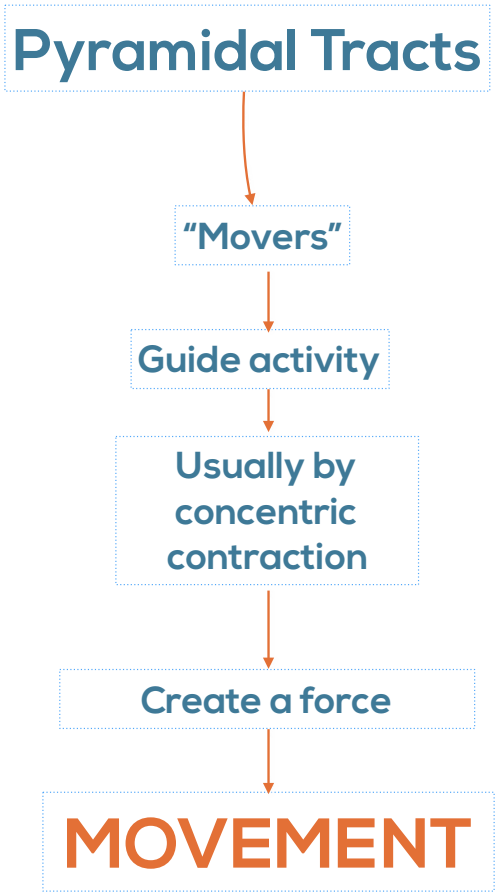

SKIN
BLACK
BOX
$y(t) = \int_0^t u(\tau).f(t-\tau)d\tau$
Myotatic Reflex

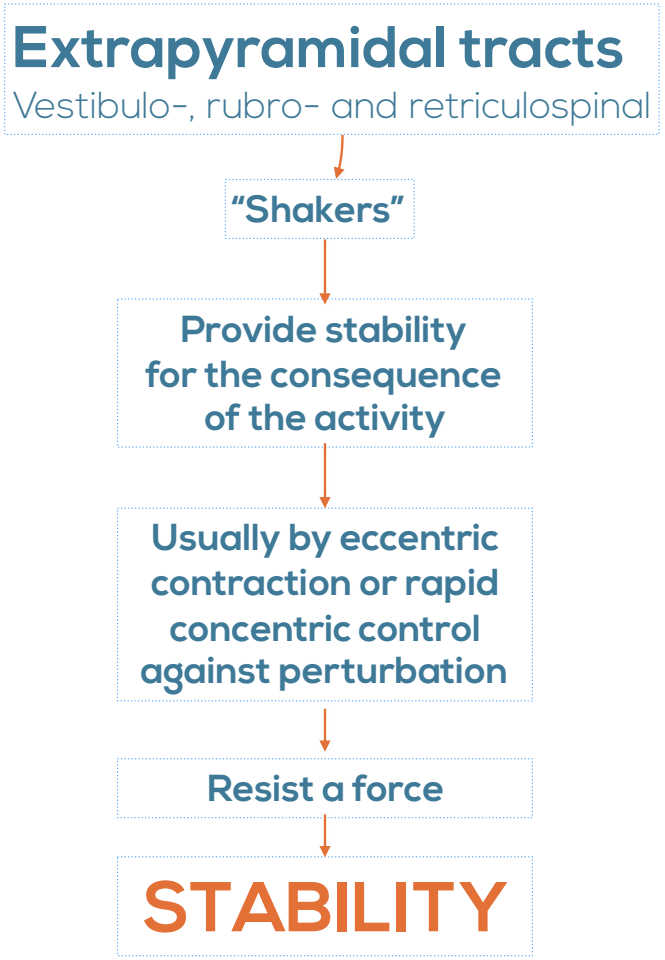
Neurology of movement made (very!) simple



Thanks to Nicole Oliver

Movers and Shakers





Stability

- Is key!
- Is provided by appropriate and coordinated contraction of muscles
- Usually under eccentric loading
- Eccentric control failure -> loss of stability -> Injury

The Bad News

- The nervous system is so complex and the exact mechanisms and pathways of coordination are very poorly understood
- Trying to predict what causes the weakness you see is virtually impossible

The Good News

- We have a reliable window to the nervous system via muscle testing
- Relevant - as it's the failure of muscle control we are trying to assess

An introduction to Functional Muscle Testing

- A Concept not just a Technique
- Answers to problems you see every day
- A model of injury and pain that makes sense to your patients
- A diagnostic tool to check your diagnosis - immediately
- Show your patient the effect of your treatment - immediately
- Improved patient compliance and retention
- Integration with your existing paradigm
- Examine asymptomatic patients with a view to improve performance and reduce injury risk
- Individualised treatment

Summary

- So - if we can find weak/inhibited muscles, we have an indicator that the patient has a problem with neurological control
- Even in asymptomatic patients
- If our therapeutic intervention clears the weakness, we have a good indication that our diagnosis and treatment plan is effective

Cheating with your testing is optional...

What are we testing

- An Action - not a Muscle
- Muscles never work alone
- The intricate interlinking of fascia is so com
  that we can never claim to test a single mu
- Specificity is not important!

Muscle Testing

- It's vitally important to test the muscle whilst it relies heavily on afferent input/ feedback
- A Maximal Voluntary Contraction (MVC) is very easy for the nervous system to do and relies little on afferent feedback
- Eccentric control is massively reliant on afferent feedback - particularly when the muscle is firing hard already
- This shapes our muscle testing technique

Weakness is Common

- But Abnormal!
- If you don't test - you don't know
- And neither does your patient, the coach or S&C

Is it relevant??

- We are asking a very simple question of our NMS system
- It should control easily
- Failure is Abnormal
- What if a patient suddenly relies on that particular action for control?

What it looks like

What does that mean?

- Something, somewhere may be causing aberrant afferent input to the nervous system resulting in reduced AMN firing
- The patient's Adaptive Range is compromised
- The weak muscle is an Indicator
- 'Houston.....we have a problem'

What is doesn't tell us

- What it is
- Where it is
- How to fix it
- If there are one or many problems
- If there are one or many solutions

The Workflow

- Find the weakness
- Find the cause
- Fix it
- Re-test
- (repeat if necessary)

Treatment

- Whatever your preferred method
- Depends on your paradigm and toolkit
- No right or wrong way - as long as you end up with a strong muscle
- Multi-level
  - Hopefully your first intervention will clear most if not all weakness
  - If not all clear then re-test - and go through workflow again to fix the remaining weakness
  - Aim is to leave pt fully strong, but this doesn't always happen

My personal treatment priority

- Adjust (Manipulate/Mobilise)
  - Spine
  - Peripheral jts
- STW
  - TrPs (eg DNT, Nimmo)
  - Fascia (eg FAKTR, Graston, ART, Tape)
  - Hypertonicity (eg PNF, Tape)
- Non-mechanical causes (cranial, scars, piercings, fillings/crowns, metal etc)

Diagnosis

CATEGORY	POSSIBLE FINDINGS
Structural Adaptations	Chondromalacia, PFJ arthrosis
Functional/Biomechanical Adaptations	Patellar tracking issue, hip weakness, trunk lean, excessive PFJ joint loading activities
Pain Characteristics	Peripheral nociceptors, central tendencies, pain beliefs
Systemic/Medical Contributors	Diabetes, smoking, inflammatory arthritides, hormones, diurnal variations etc.
Other Diagnostic Considerations	Other regionally dependent injuries, psychosocial confounders, state-variability

- Patrick Welsh BSc DC
  Athletic Movement Assessment

It's not just about the back pain

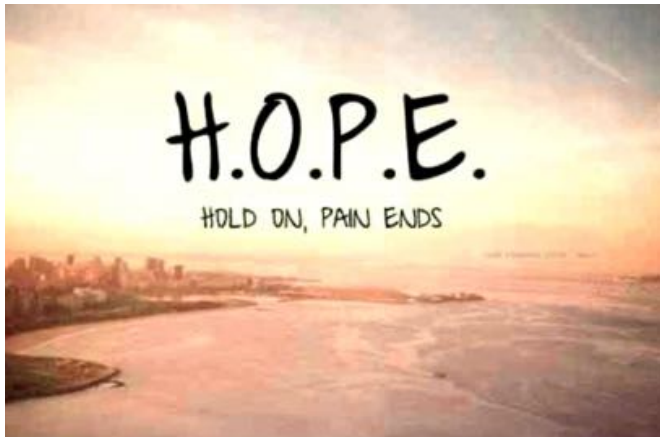
- Changing pain, function and beliefs has consequences far beyond MSK conditions
- Enabling patients to live active lives will improve their overall physical and mental health
- Often far beyond what conventional medicine has any chance of doing


You may unwittingly
- through your choice of communication -
prevent another human being from
fulfilling their life potential
Ulrik Sandstrøm


SHIT JUST GOT SERIOUS

Report of Findings

- C
- Hope
- A Plan




No one cares how
you know, until they
uch you care.
heodore Roosevelt

People don't care how much you know until
they know how much you care.
~ Mark Twain

"People don't care about how much you know
until they know how much you care."
-John C. Maxwell

ROF: Prompts for Care

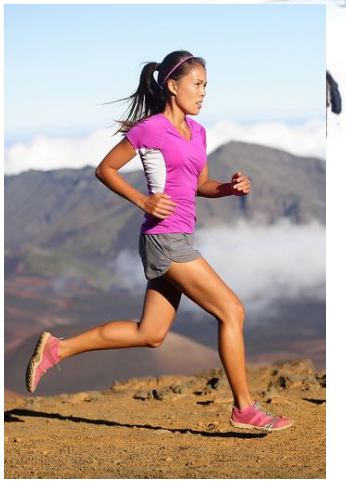
- These can be used during the Hx and/or ROF
- "I understand how frustrating that would be"
- "I'd guess you also struggle with X,Y,Z"
- "Does it affect your mood, work or family life too?"
- "It gets a bit scary when you think you're never going to get better - or wonder how bad you'll be in another 5 years"


Listen…


JH

Hope

- Needs belief in you
  - You have to explain their problem and your solution in a way that makes sense to them - buy-in
- Goal setting
  - "What would you love to be able to do again?"
  - Push the envelope!
  - "In your wildest dreams"
  - "What would you do tomorrow if you had no pain and know you could do no damage?"


Plan plan plan

- Structured and based on Goals
- Timed & Assessed
- Offering objective & subjective change
- Phase 1: Return to Function (R2F)
- Phase 2: Return to Play (R2P)
- Phase 3: Maintain

Plan

- **Phase 1**: Return to Function (R2F)
  - 4-8 Rx/Wks 1-4
  - Mainly passive Rx
- **Phase 2**: Return to Play (R2P)
  - Wks 4-12-24-52 (depending on goal)
  - Shift to active Rx
- **Phase 3**: Maintain/Build
  - Patient lead goals and targets

Become their coach

The therapeutic triad

- **Manual therapy**
  - What you **do** to them
- **Rehab**
  - What you **show** them
- **Education**
  - What you **tell** them to program their mindset

Pain science

Has changed my understanding, outlook and advice on patients' pain, activity, tolerance and rehab

- Pain is the opinion of the brain
- You will experience no pain that your brain hasn't made a decision on
- Pain vs Damage vs Structure
- "Sensitivity" is a great concept and word
- Stop anatomical body and posture shaming!

Limiting beliefs in patients

- Age
- Wear and tear
- Imaging findings
- Discs/bone's are 'out'
- Arthritis
- Fragile
- Unstable
- Previous injury (30 years ago)

Positive messages

- Your body is constantly repairing and healing
- Pain does not mean damage (smoke alarm)
- My face doesn't look the same as it did 30 years ago - neither does my spine
- It's normal!
- Very poor relationship between imaging findings and symptoms

Load

- The body needs appropriate load to heal
- Load is good - overload is bad
- Load makes you stronger
- Load makes your tissues less sensitive

The Body perceives only Fear or Opportunity

Luke Khoury

Poke the bear

- ....but don't hump the shit out of it...
- 3/10 pain is fine
- Find something that hurts a bit - and keep pushing into it
- Relax your muscles and let go
- You will decrease sensitivity and increase tolerance

Great resources

- www.greglehman.ca
- NOI group
- Lots of good videos on youtube:
  - TED Talk: Lorimor Moseley - Why things hurt
  - Understanding pain in less than 5 minutes
  - Tame the beast

Summary

- We treat function not conditions
- Patients break because their load exceeds their Adaptive Range
- A Diagnosis should encompass the full Bio-Psycho-Social compass
- Pre and post testing gives you
  - insight into their clinical picture and your success in treating it
  - Improved patient compliance
- Functional Muscle Testing is great tool to check adaptive range and
- Pain science changes you and your patients attitudes to load, pain and activity

The human body and mind are naturally strong and resilient

-

Anything we do or say during a patient encounter, should be geared towards returning them to that state