



REHAB 2 PERFORMANCE

2022 Symposium

Diagnostic Specificity in an Active Care Model

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Diagnosis

A hand holding a blue marker is shown underlining the word 'Diagnosis' written in blue cursive on a whiteboard. The background is a blurred image of a person in a white lab coat.

The biggest problem is we don't know or can't agree on what the biggest problem is.

Our Goals

Principles Led Approach to Diagnostics

Determining the PA, FA, DDx via the NBA

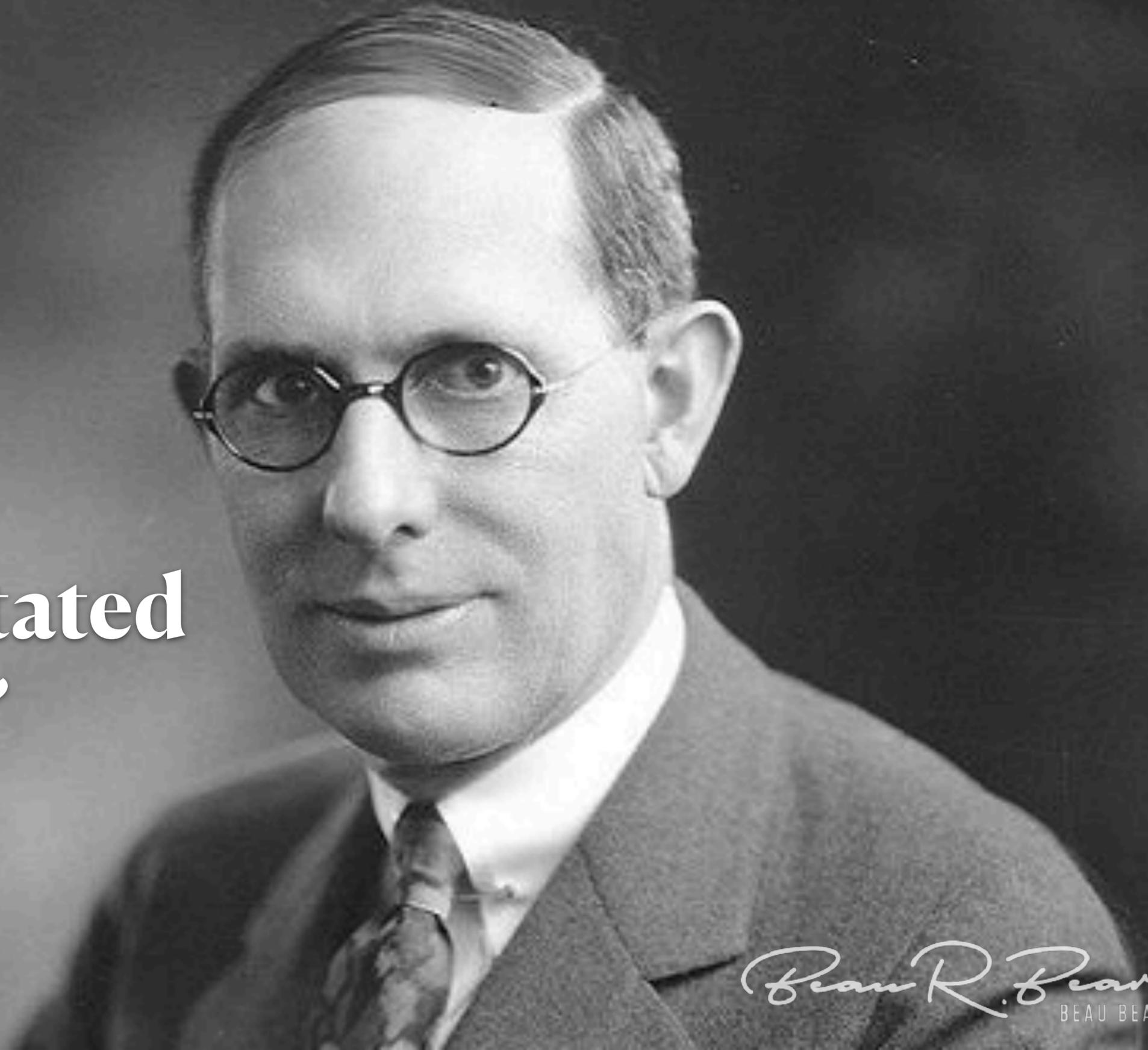
The Power of Treatment Does Not Lie in Technique Mastery



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**“A problem well-stated
is half solved.”**

- Charles Kettering



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**“THEREFORE, THE STUDY OF
PAIN *AND* MOVEMENT, ALTHOUGH EXISTENT IN
THE LITERATURE, IS THE EXCEPTION AND NOT
THE NORM.”**

- TOWARD A TRANSFORMED UNDERSTANDING: FROM PAIN AND MOVEMENT TO PAIN *WITH* MOVEMENT

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...however, a paucity of high-quality evidence precludes a definitive understanding of this relationship.”

“A relationship between changes in movement and changes in pain or activity limitation was infrequently observed at the individual level...*however, a paucity of high-quality evidence precludes a definitive understanding of this relationship.*”

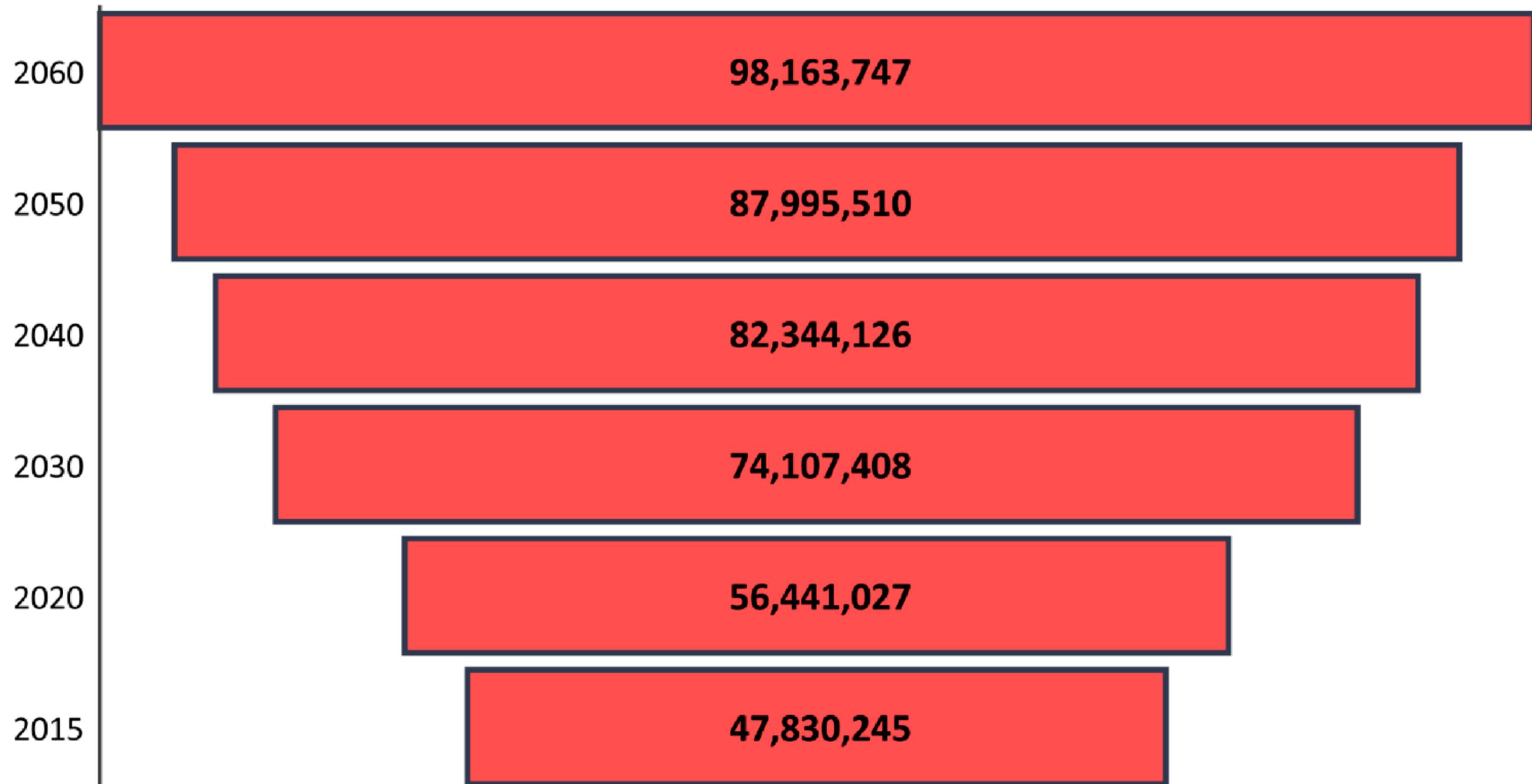
“Movement-based interventions were infrequently effective for changing observable movement patterns. A relationship between changes in movement patterns and improvement in pain or activity limitation was also infrequently observed.

No independent studies confirm any observed relationships.”



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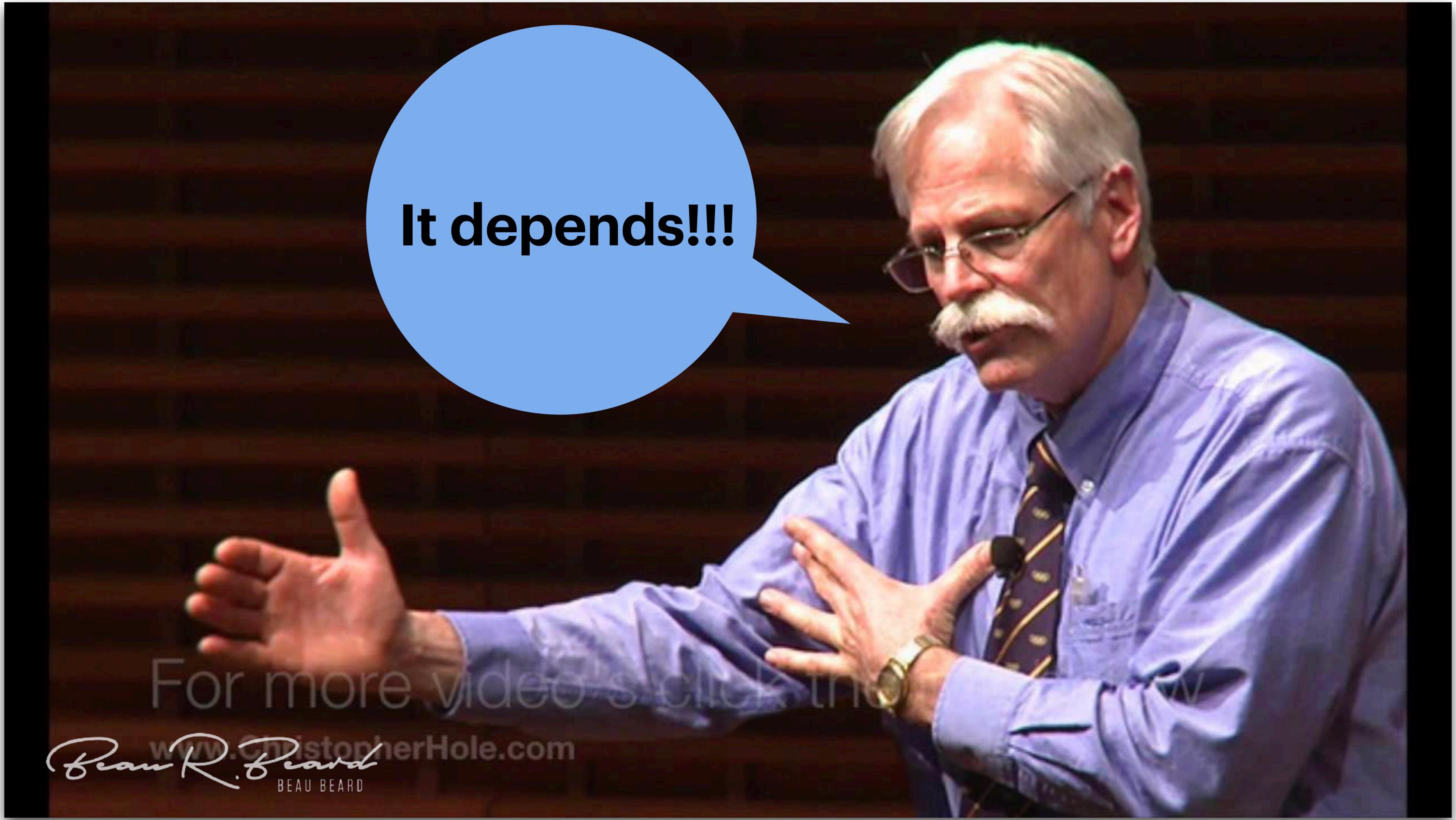
Projected Population Age 65 and Over, United States 2015 to 2060



Source: United States Census. 2014 National Population Projections: Downloadable Files.
<http://www.census.gov/population/projections/data/national/2014/downloadablefiles.html>
Accessed August 15, 2016.

File: bmus_e4_G1.0.1.png

**Doesn't matter
load that sh*!**

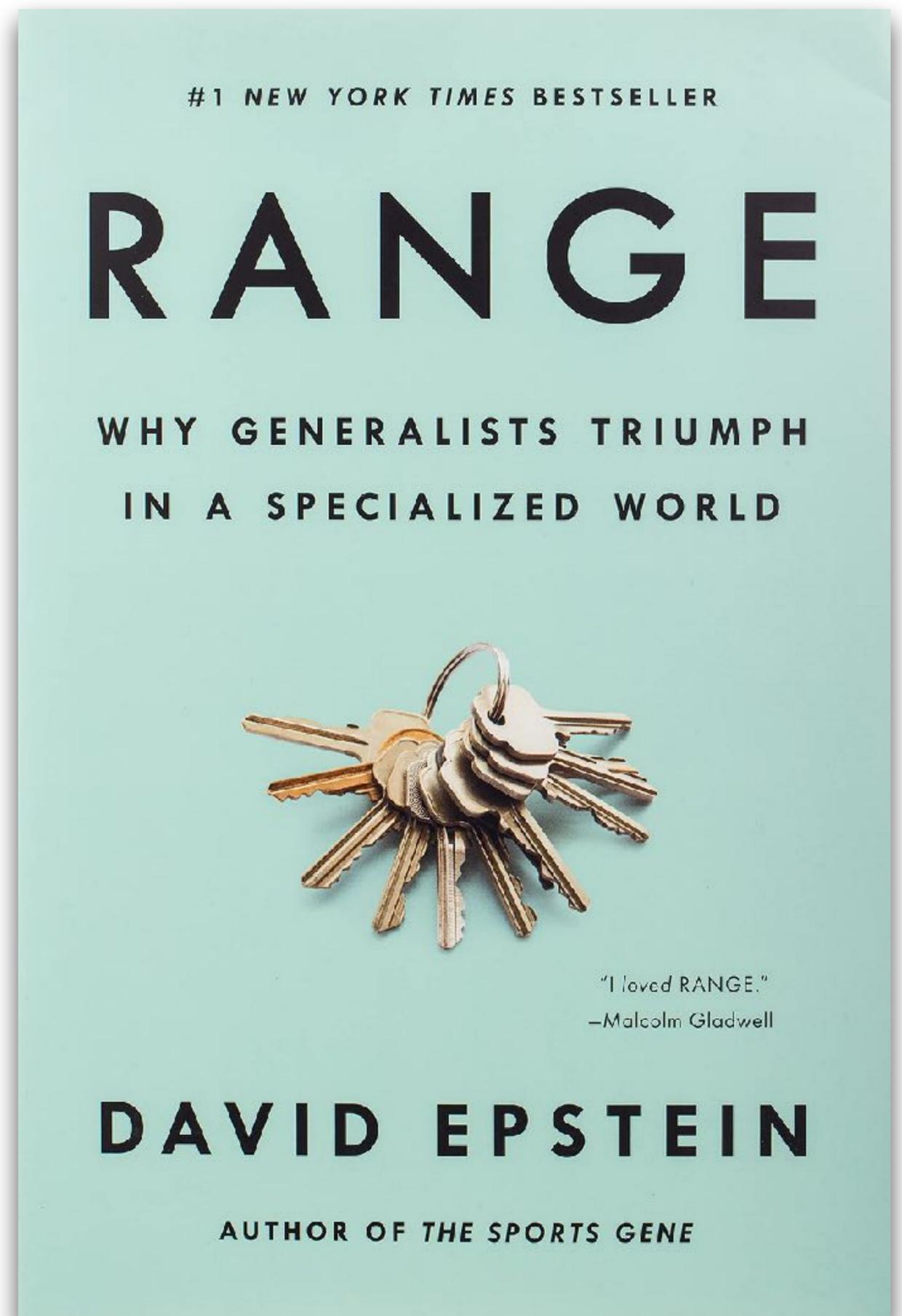


It depends!!!

For more videos click the [link](#)

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www.ChristopherHole.com

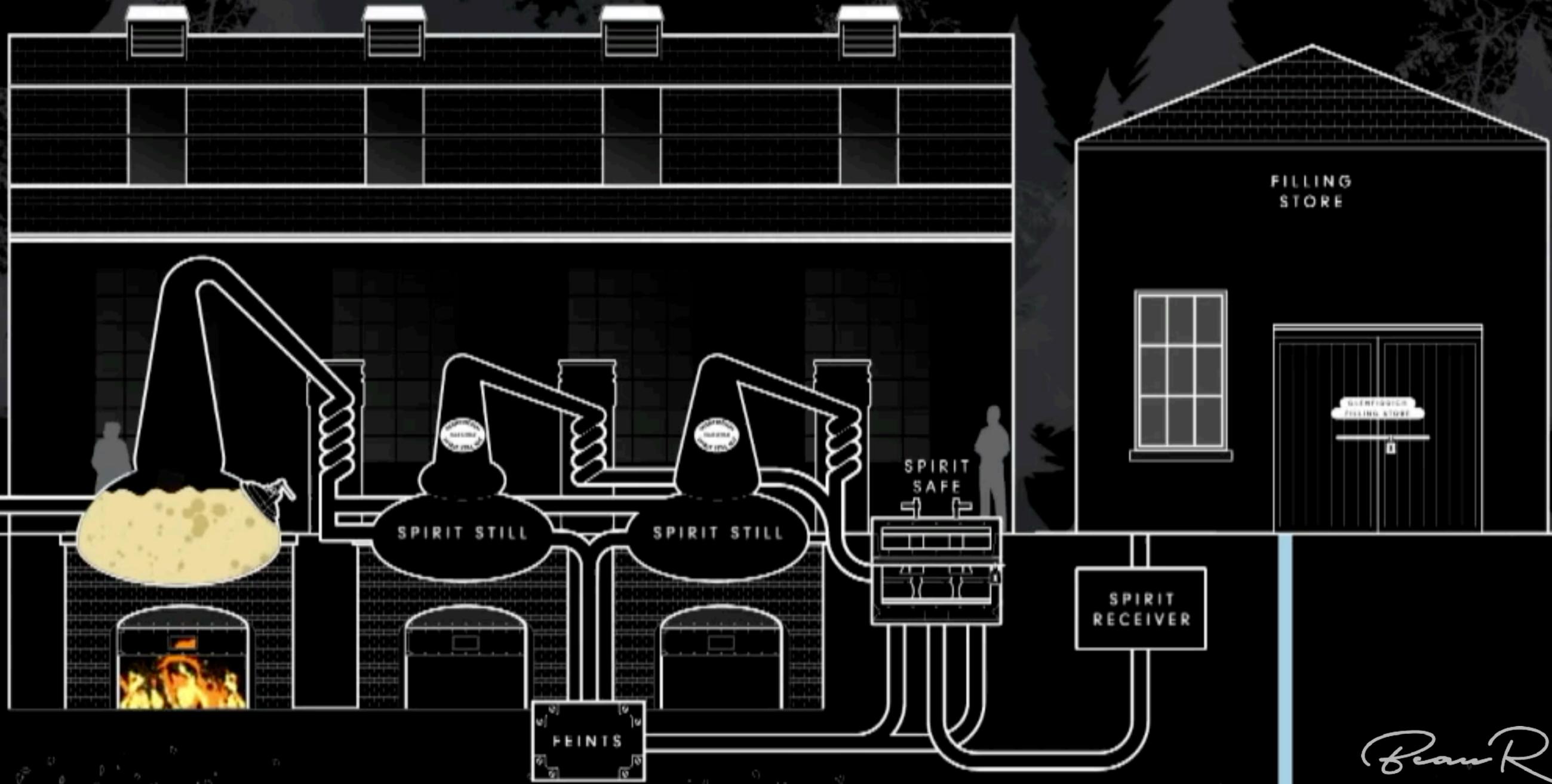
“I dove into work showing that highly credentialed experts can become so narrow-minded the they actually get worse with experience, even while becoming more confident —a dangerous combination.”



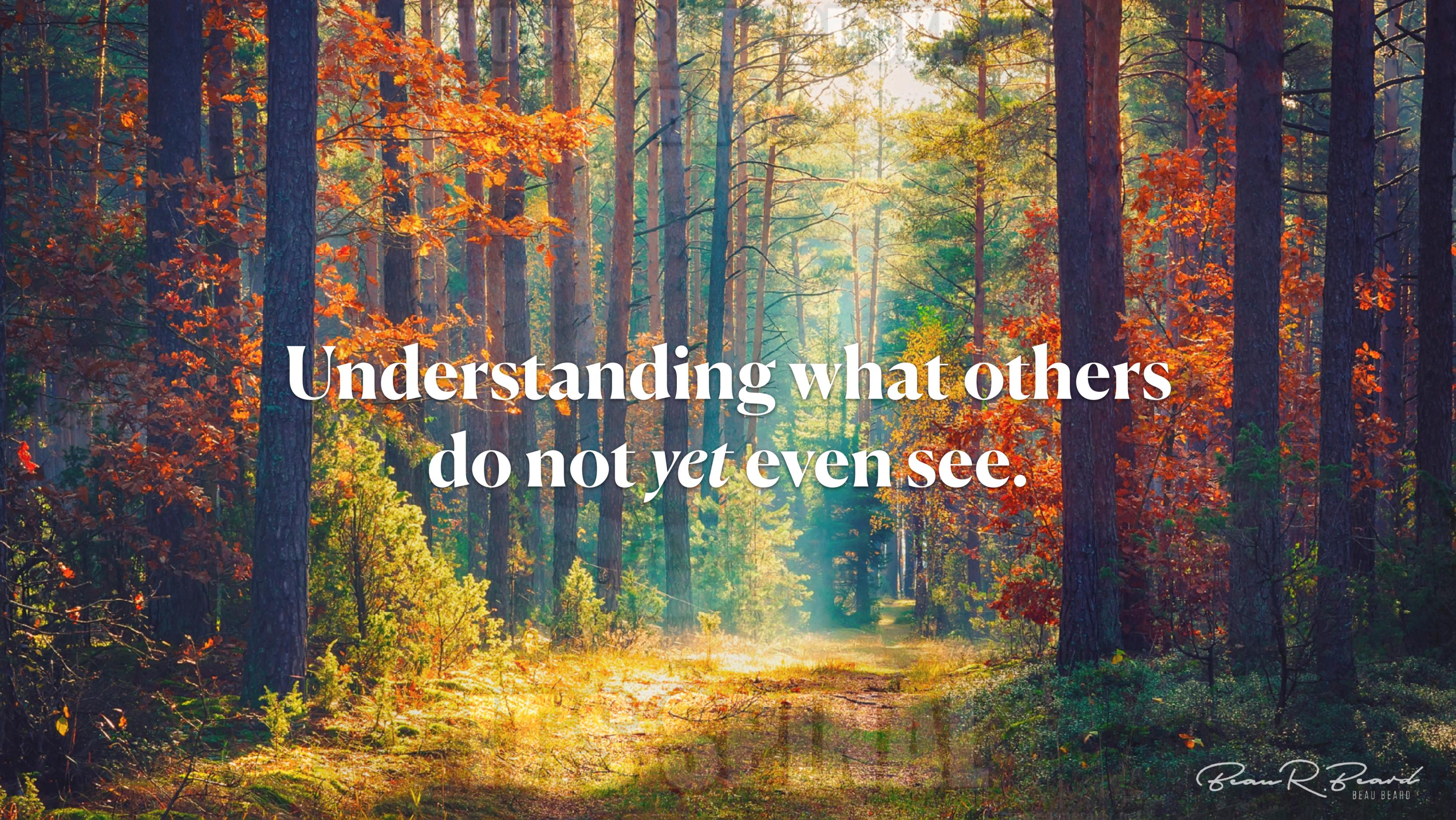


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DISTILLATION



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A photograph of a forest during autumn. Tall, thin trees with green and yellowing leaves are visible. Sunlight filters through the trees, creating a warm, golden glow. A path or clearing leads into the distance. The text is overlaid in the center.

Understanding what others
do not *yet* even see.

I WOULD BUT I BROKE MY
BACK

Understanding what others
do not *yet* even see.

IT'S SPINAL

Beau R. Beard
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**I WOULD BUT I BROKE MY
BACK**

IT'S SPINAL

memegenerator.net

Table 1. Differential Diagnosis of Chronic Low Back Pain

Nonspecific or idiopathic (70 percent)	Referred pain (2 percent)	Nonmechanical (1 percent)
Lumbar sprain or strain	Aortic aneurysm	Neoplasia
Mechanical (27 percent)	Diseases of the pelvic organs	Multiple myeloma
Degenerative processes of disks and facets	Prostatitis	Metastatic carcinoma
Herniated disk	Endometriosis	Lymphoma and leukemia
Osteoporotic fracture*	Chronic pelvic inflammatory disease	Spinal cord tumors
Spinal stenosis	Gastrointestinal disease	Retroperitoneal tumors
Traumatic fracture*	Pancreatitis	Primary vertebral tumors
Congenital disease	Cholecystitis	Inflammatory arthritis, often associated with human leukocyte antigen-B27
Severe kyphosis	Penetrating ulcer	Ankylosing spondylitis
Severe scoliosis	Renal disease	Psoriatic spondylitis
Transitional vertebrae	Nephrolithiasis	Reiter syndrome
Spondylosis	Pyelonephritis*	Inflammatory bowel disease
Internal disk disruption or discogenic pain	Perinephric abscess*	Infection*
Presumed instability		Osteomyelitis
		Septic diskitis
		Paraspinal abscess
		Epidural abscess
		Shingles
		Scheuermann disease (osteochondrosis)
		Paget disease of bone

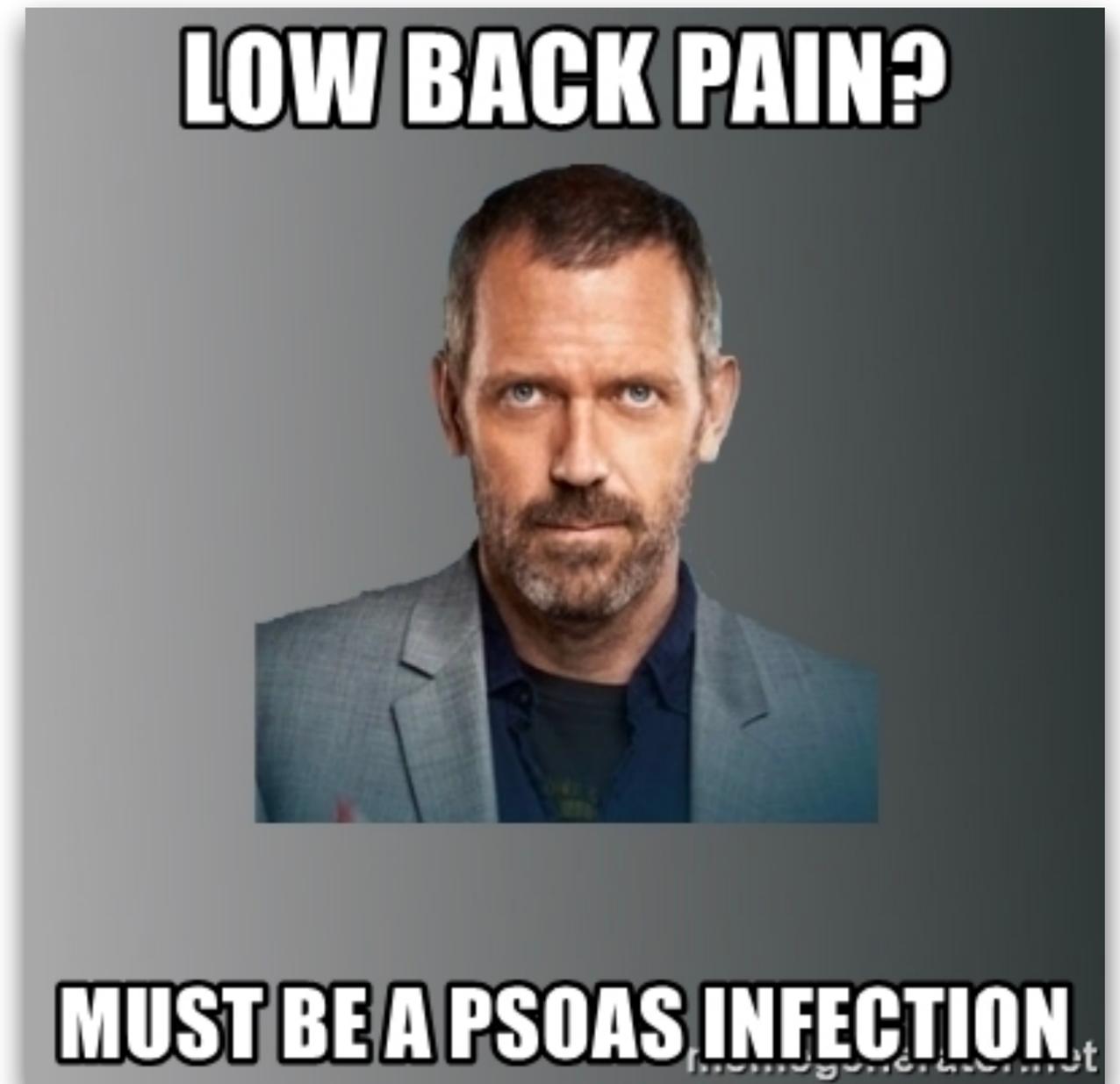
*—Indicates conditions more likely to present as acute low back pain.

Adapted with permission from Deyo RA, Weinstein JN. Low back pain. N Engl J Med. 2001;344(5):365.

Last AR, Hulbert K. Chronic low back pain: evaluation and management. Am Fam Physician 2009 Jun 15;79(12):1067-74.

What We Actually See

- **Trigger Points**
- **Lumbar disc/joint complex derangements**
- **Central & peripheral sensitization**
- **Fear avoidance behaviors**
- **Referral from other joints/complexes**



INJURIES FOR DUMMIES®

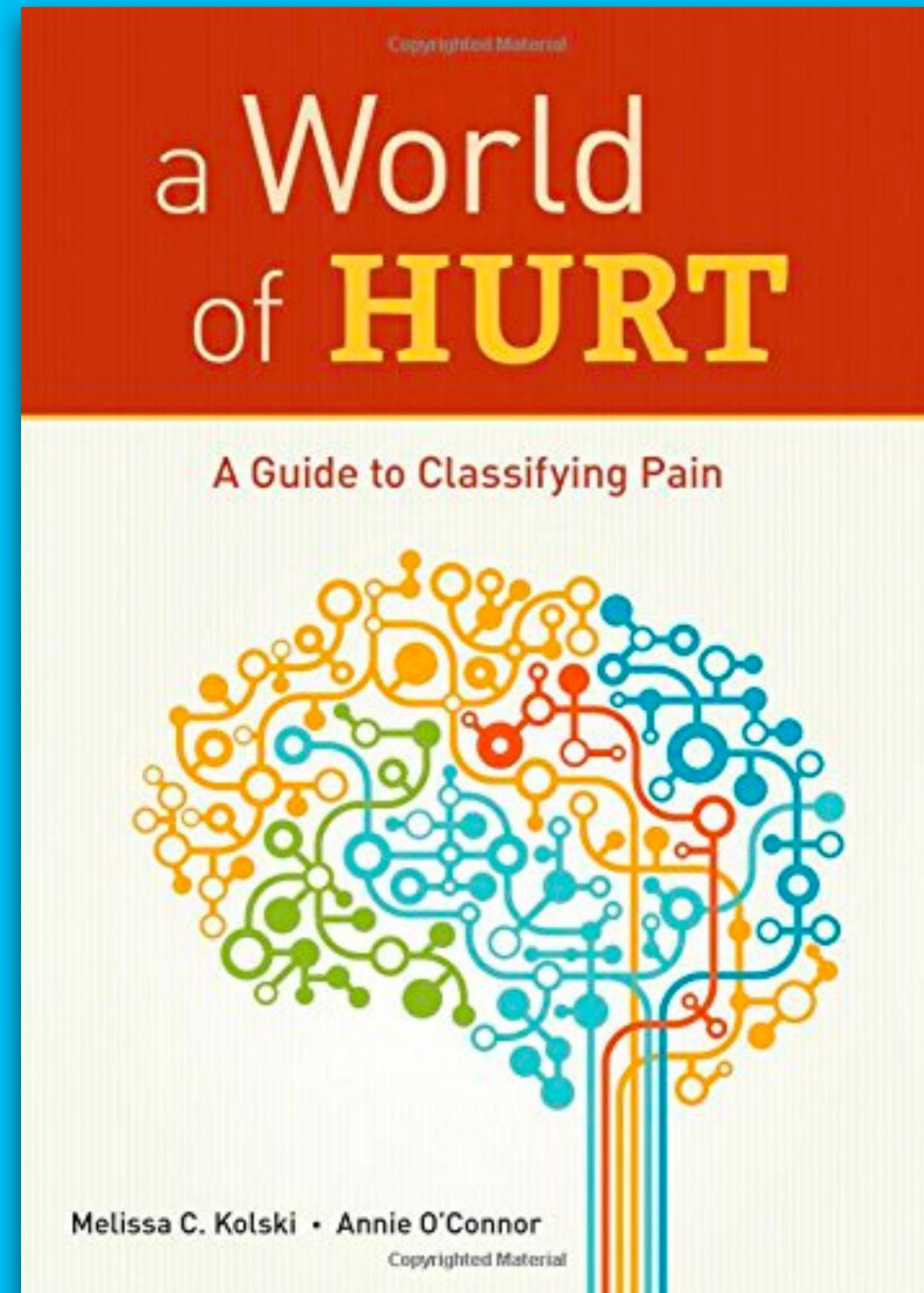
Learn to: Bridge the Gap

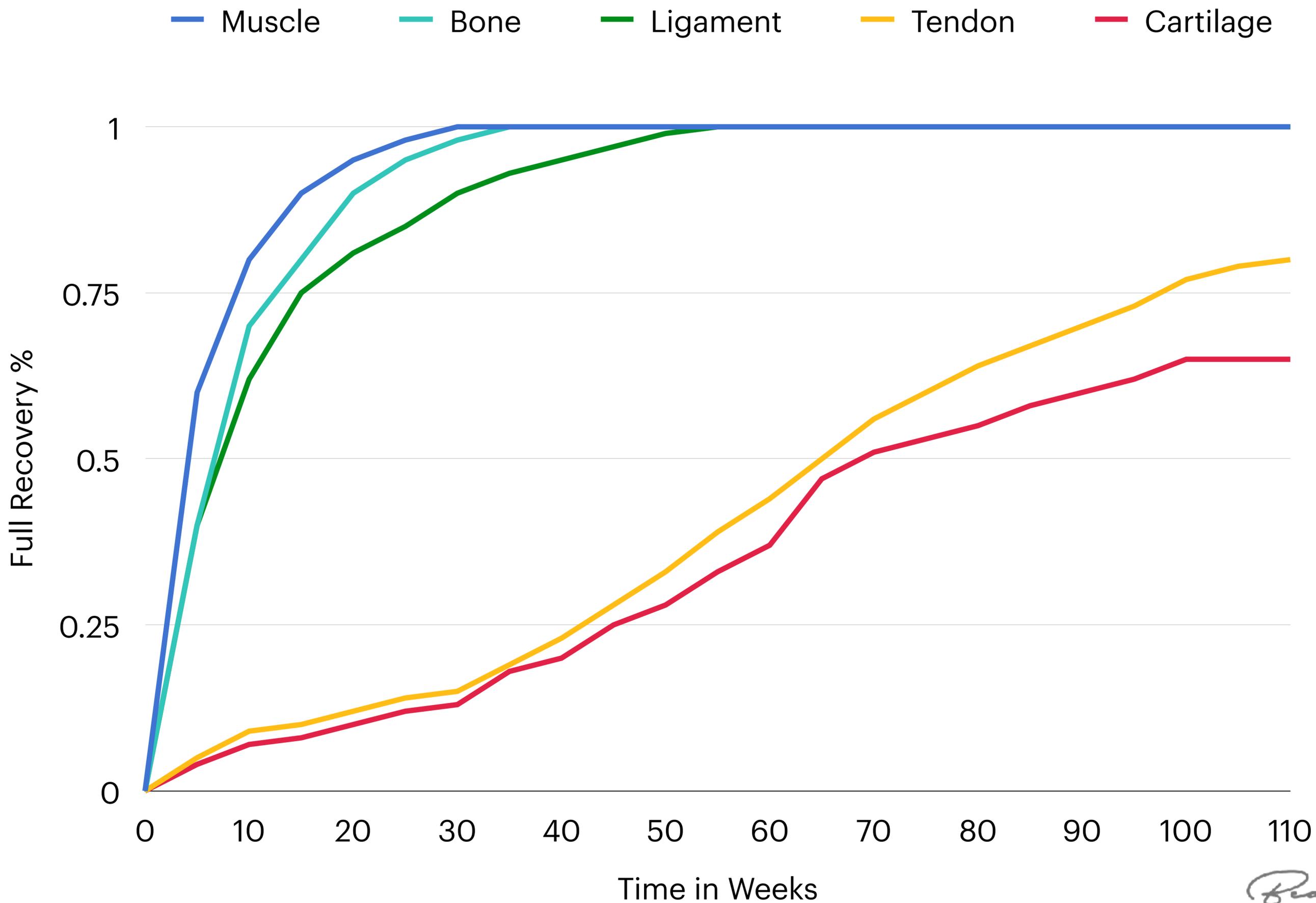
**Acute
Overuse
(Chronic)**

ANNIE O'CONNOR & MELISSA KOLSKI

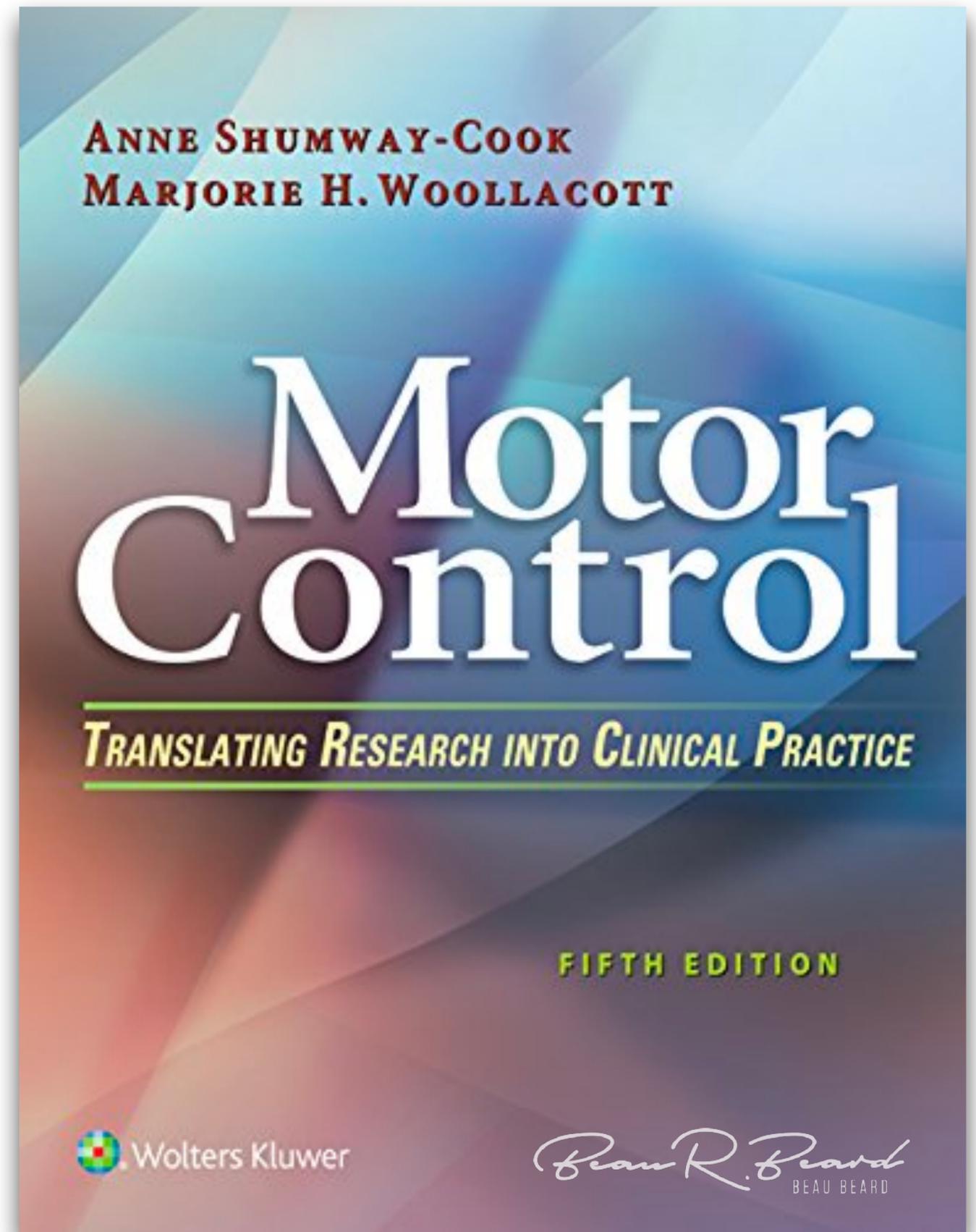
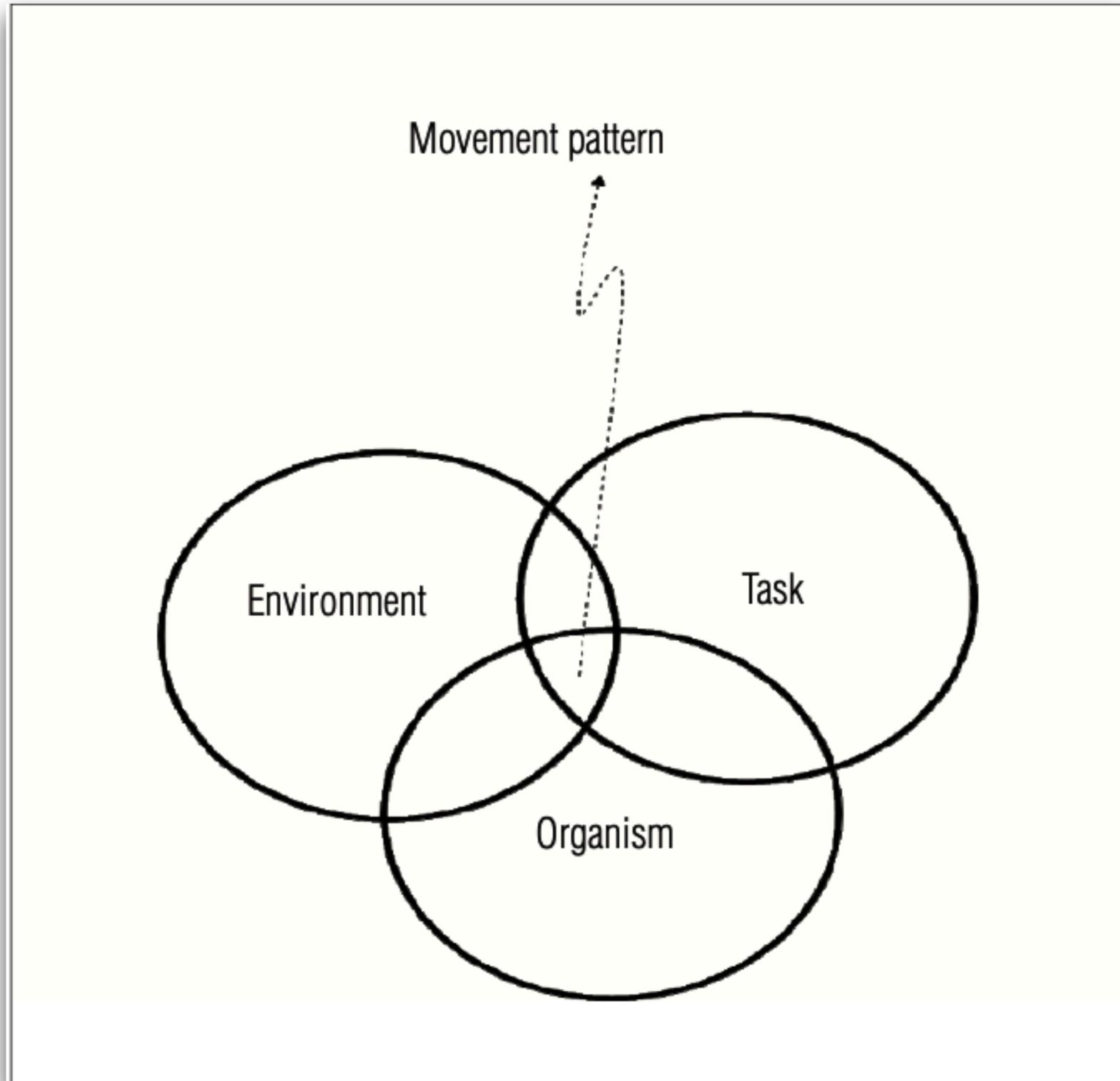
A WOLD OF HURT

- Nociceptive: inflammatory
- Nociceptive: ischemia
- Peripheral neurogenic
- Central sensitization
- Affective
- Motor/autonomic





Tissue	Ideal Loading
Bone	Longitudinal Compression(1) and Tension(2, Eccentric)
Muscle	Tensile Force
Ligament	Tensile Force
Tendon	Tensile Force without Compression
Cartilage	Compression



STRATEGY

STABILITY

MOBILITY

STRENGTH



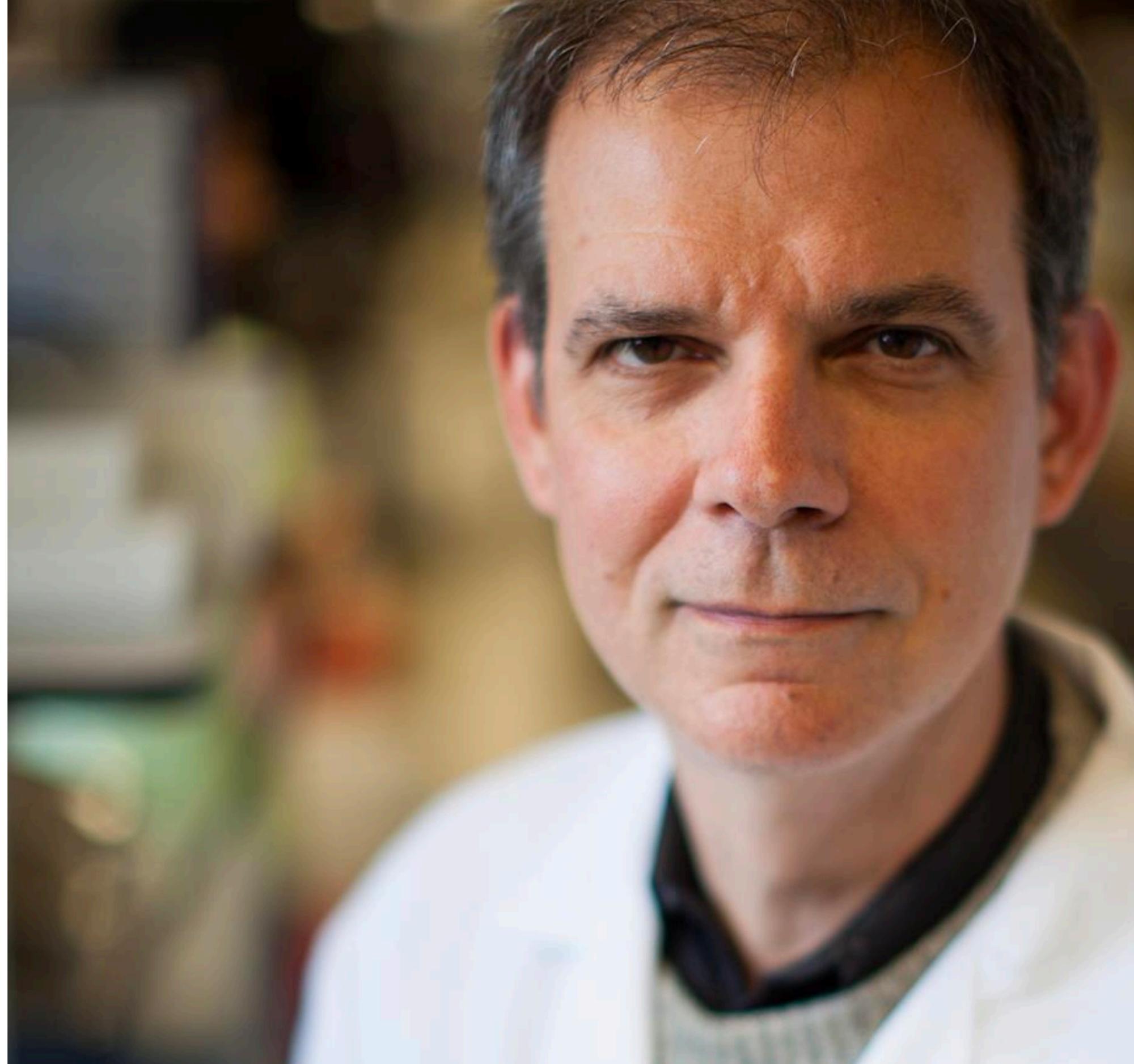
STRATEGY STABILITY MOBILITY

STRENGTH

Aerobic Capacity

**“Doctors and
scientists
frequently are not
even trained in the
basic underlying
logic of their own
tools.”**

- Arturo Casadevall, M.D., Ph.D, M.S



Diagnostic Toolbox

- **Listening**
- **Watching**
- **Palpating**
- **Testing**
 - **Orthopedic, neurologic, functional, sport/activity specific...**
- **Imaging/Labs**
- **TREATMENT**





If we are going to bridge the 'gap'
we better be able to identify *it* first.



Needs Based Assessment

Needs Based Assessment

- The process of comparing a desired goal state with existing conditions.
 - **Injured, functional adaptation, performance deficit.**
 - **Eliminate pain, prevent injuries, improve performance.**
- Data is fundamental to all decision making.
 - **Collect it all, use only what is necessary.**
- Needs analysis involves identifying *gaps* or *deficiencies*.
 - **What does your Working NBA determine you should be focused on?**
- Needs assessment requires considerable *preplanning*.
 - **Ensuring we are applying first principles to the findings.**
- Learning needs can be described as *internal forces* that motivate the *learner* to pursue a goal that *bridges the gap* between one's present level of competence and the desired level of performance.
 - **Can you effectively communicate, motivate and create action in your patient/athlete.**

Pain Audit

Functional Audit

Differential Diagnosis

Differential Dx

vs.

NBA

Insurance/Peers Communication

vs.

What the hell is actually going on!

Pain Audit vs. Functional Audit

- **Should know within 90% confidence interval what's going on in 1st visit.**
- **99% CI 2-3 visit or it's time to start thinking about reworking strategy, imaging or referral.**
- **Try to separate site of PA vs. FA**
- **PA & FA will be same when;**
 - **Joint Derangement is present at PA**
 - **Acute trauma**



**“He who treats
the site of pain is
lost.”**

- Karel Lewit, MD, DSC

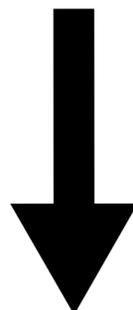
What is the pain generator? - **Pain Audit**



Is it damaged or sensitized?



Does it need load managed or rest?



What's the driver? - **Functional Audit (Objective)**



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Low Back Pain

Flexion Intolerant Low Back Pain

**Flexion Intolerant Low
Back Pain with
Unilateral Referral to
Left Posterior Thigh**

**Flexion Intolerant Low Back
Pain with Unilateral Referral
to Left Posterior Thigh.
Extension Responder
(centralization) with T/L
Junction Restriction - Ext. | B/
L Rotation**

**Flexion Intolerant Low Back
Pain with Unilateral Referral to
Left Posterior Thigh. Extension
Responder with T/L Junction
Restriction - Ext. | B/L Rotation.
Inadequate IAP in supine with
altered breathing mechanics.**

**Flexion Intolerant Low Back Pain
with Unilateral Referral to Left
Posterior Thigh. Extension
Responder with T/L Junction
Restriction - Ext. | B/L Rotation.
Inadequate IAP in supine with
altered breathing mechanics. Hip
hinge pattern dominated by
lumbar flexion.**

**Functional Audit:
T/L Junction Joint Play**

**Pain Audit:
MS Flexion/Slump**

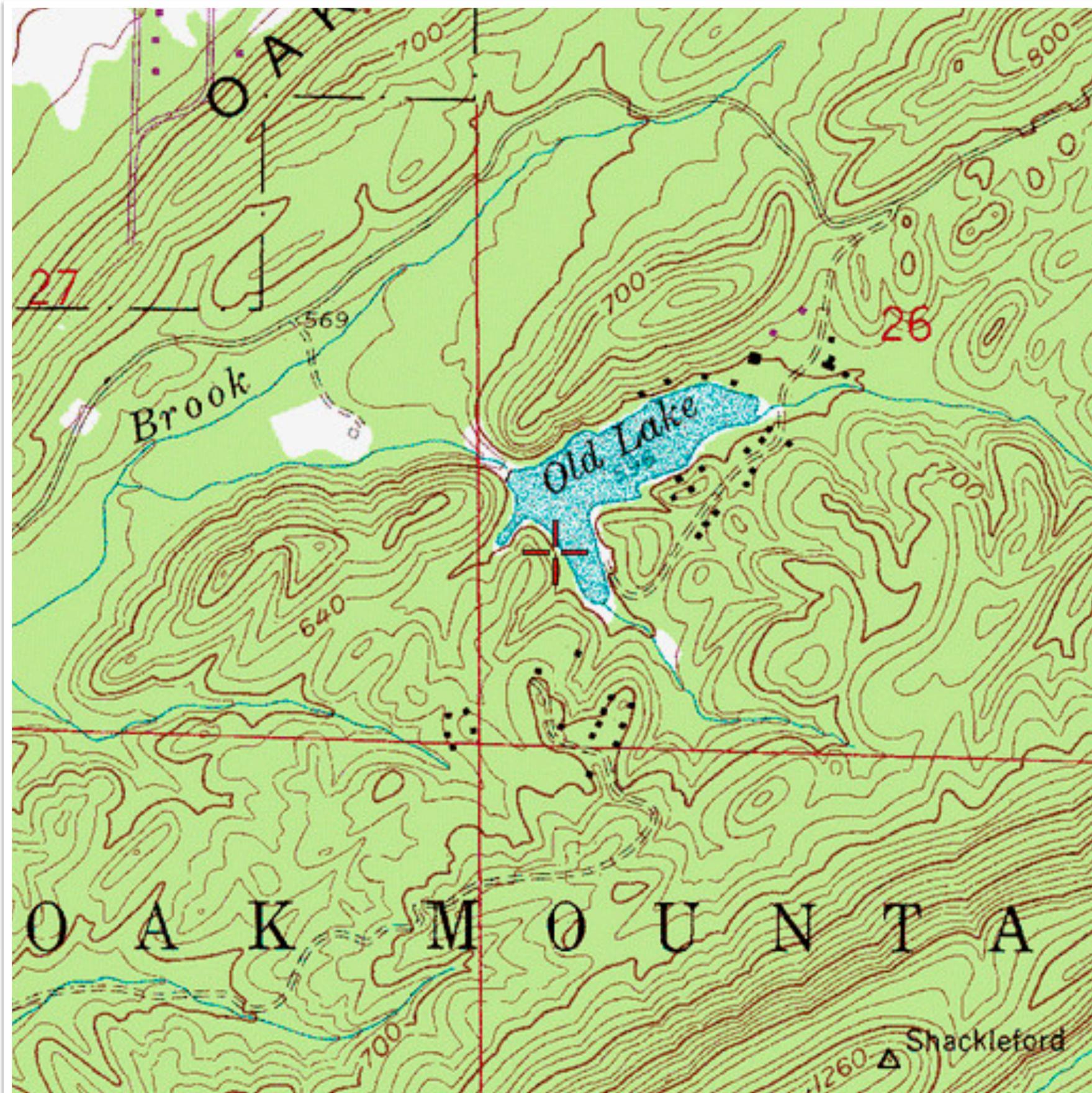
**Diff Dx:
Lumbar disc
derangement w/
radiculopathy**



**Functional Audit:
T/L Junction Joint Play**

**Pain Audit:
MS Flexion/Slump**

**Diff Dx:
Lumbar disc derangement w/
radiculopathy**



Diagnostic Toolbox

- Listening
- Watching
- Palpating
- Testing
 - Orthopedic, neurologic, functional, sport/activity specific...
- Imaging/Labs
- **TREATMENT**





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The 5 Whys

Define the Problem



Why is it happening?



Why is that?



Why is that?



Why is that?



Why is that?

Root Cause

Spinal source of pain based on MDT assessment

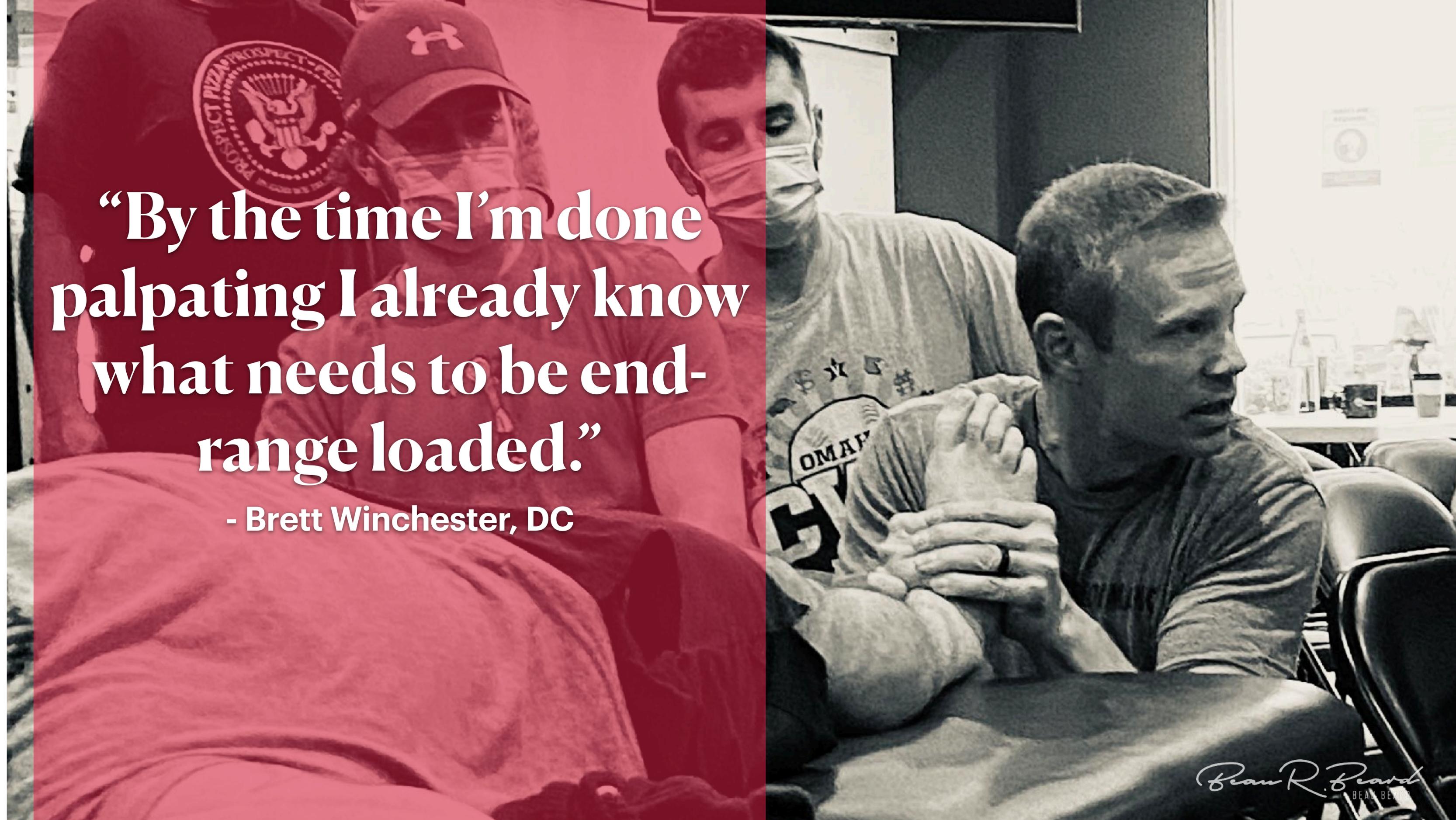


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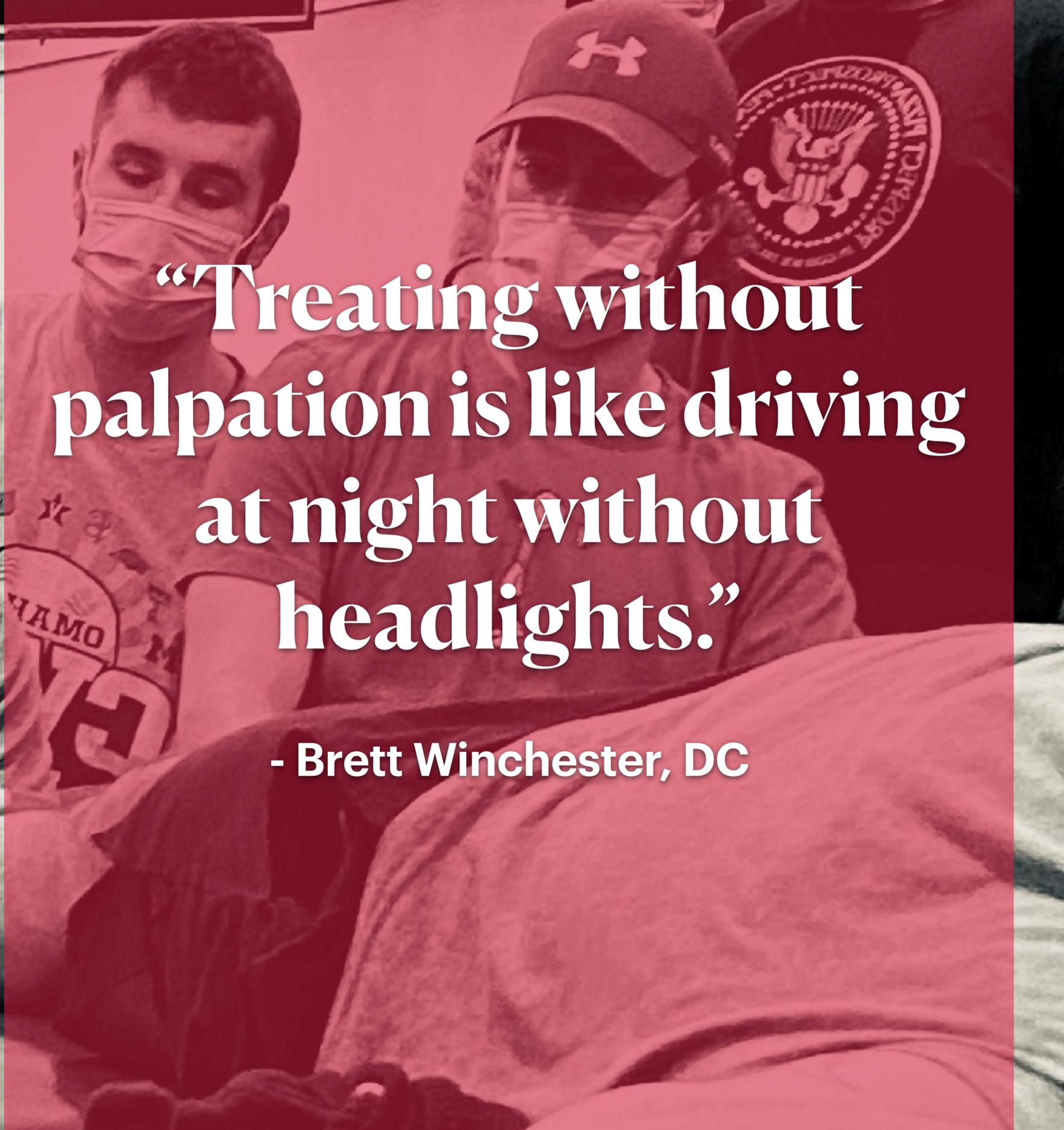
“You can listen to what people say, sure. But you will be far more effective if you listen to what people do.”

- Seth Godin



**“By the time I’m done
palpating I already know
what needs to be end-
range loaded.”**

- Brett Winchester, DC



“Treating without palpation is like driving at night without headlights.”

- Brett Winchester, DC

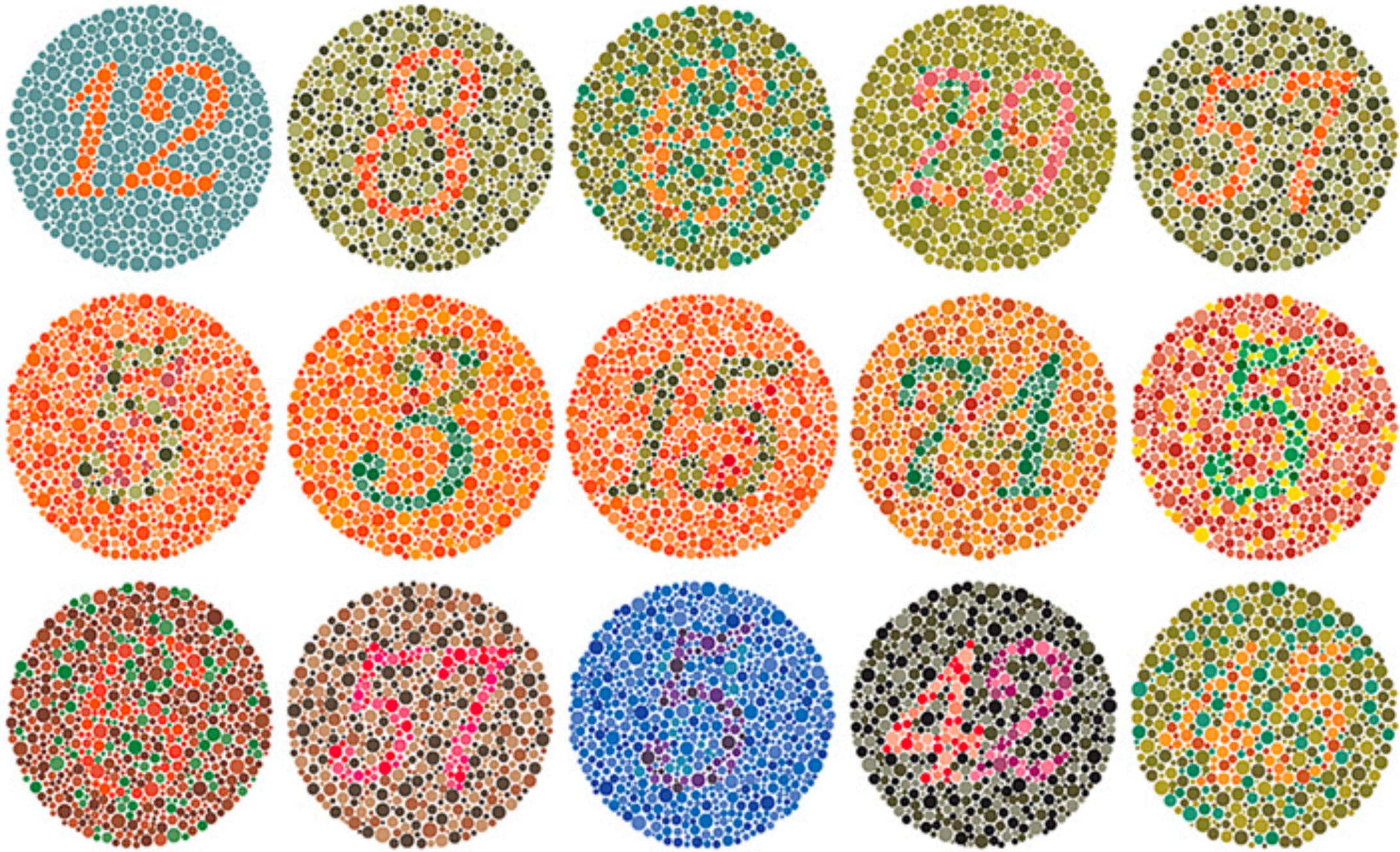
History Led Examination





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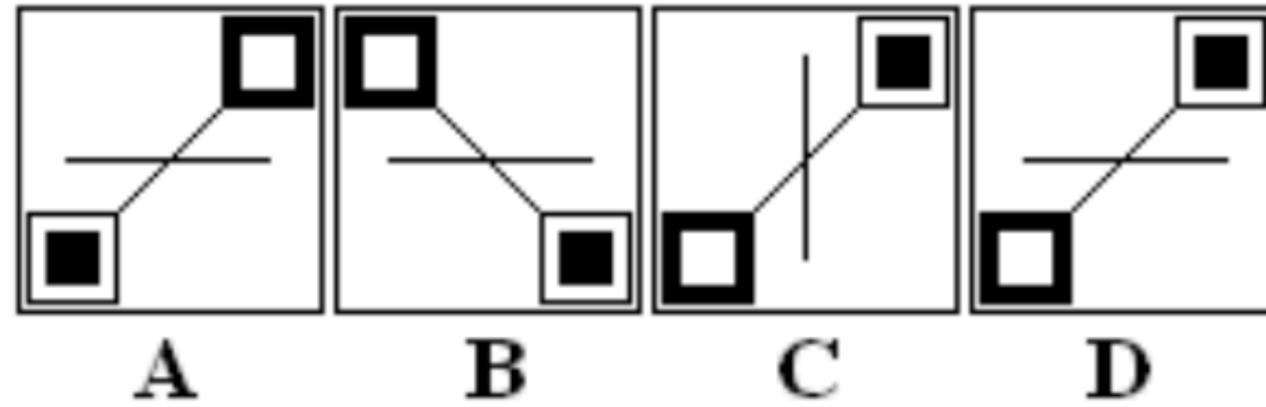
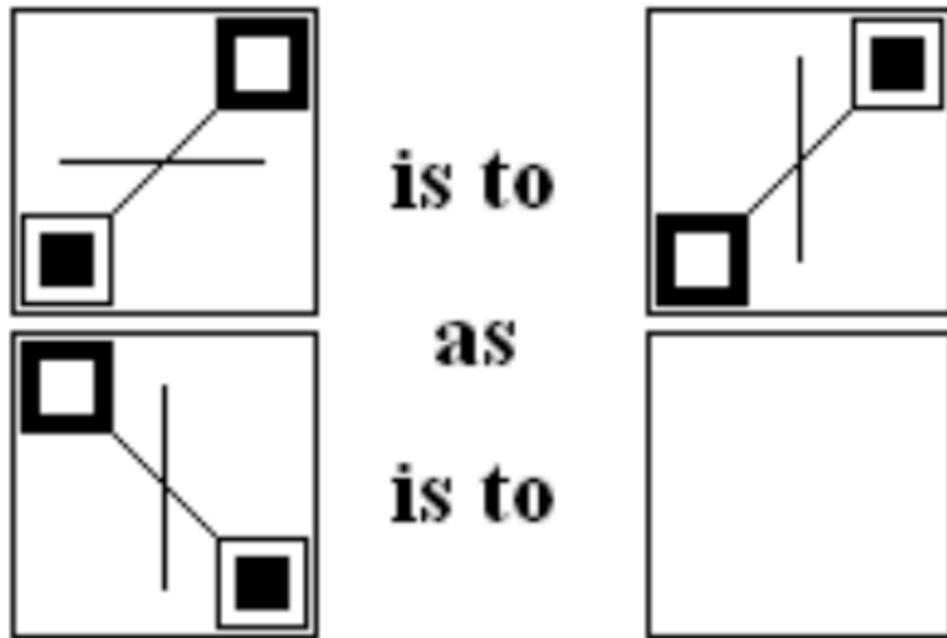






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6) Which figure completes the statement?



A B C D



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Positive Slump Test

Positive SLR

**T/L Jct. Ext.
Restriction**

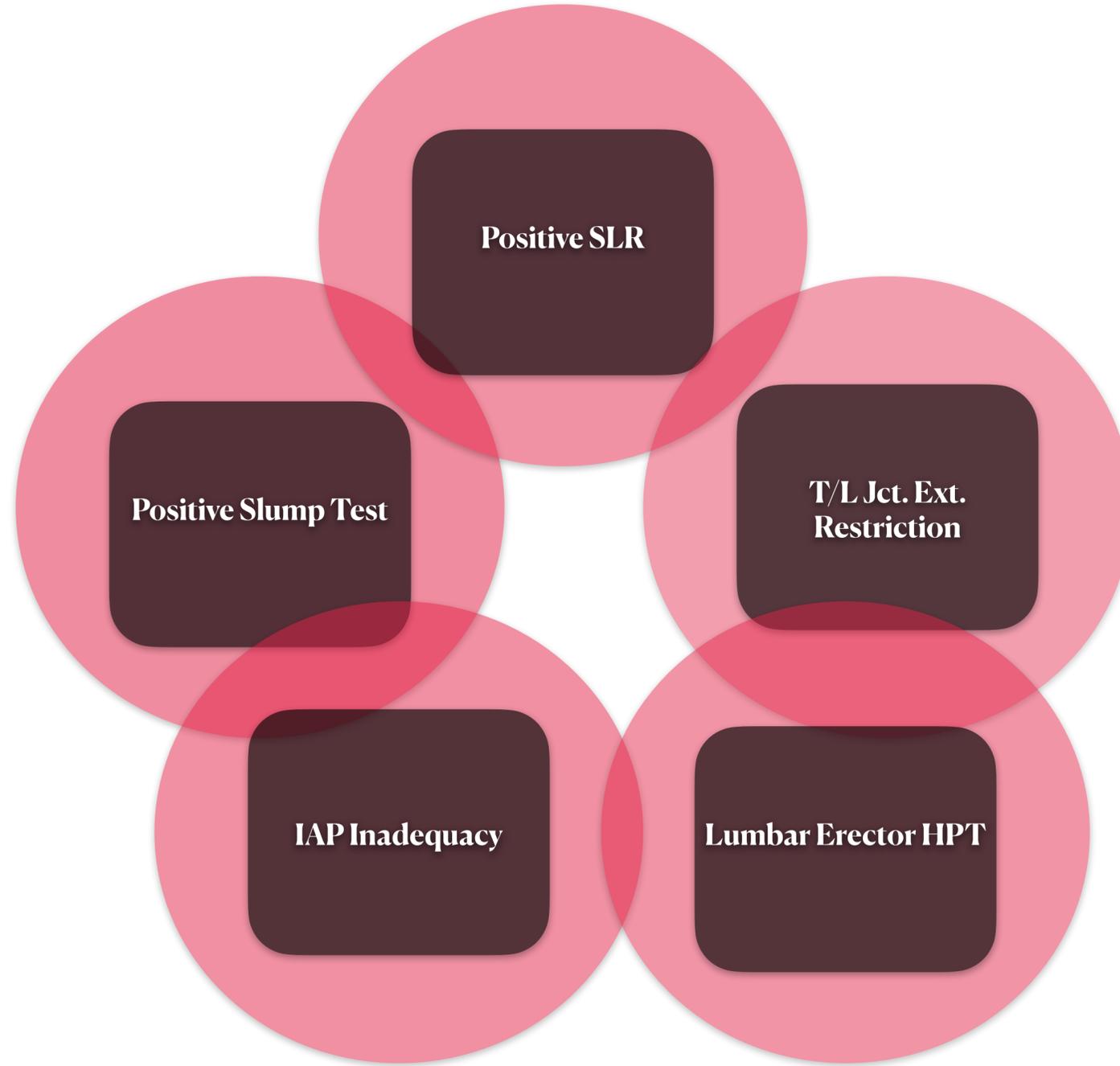
Kemp's Positive

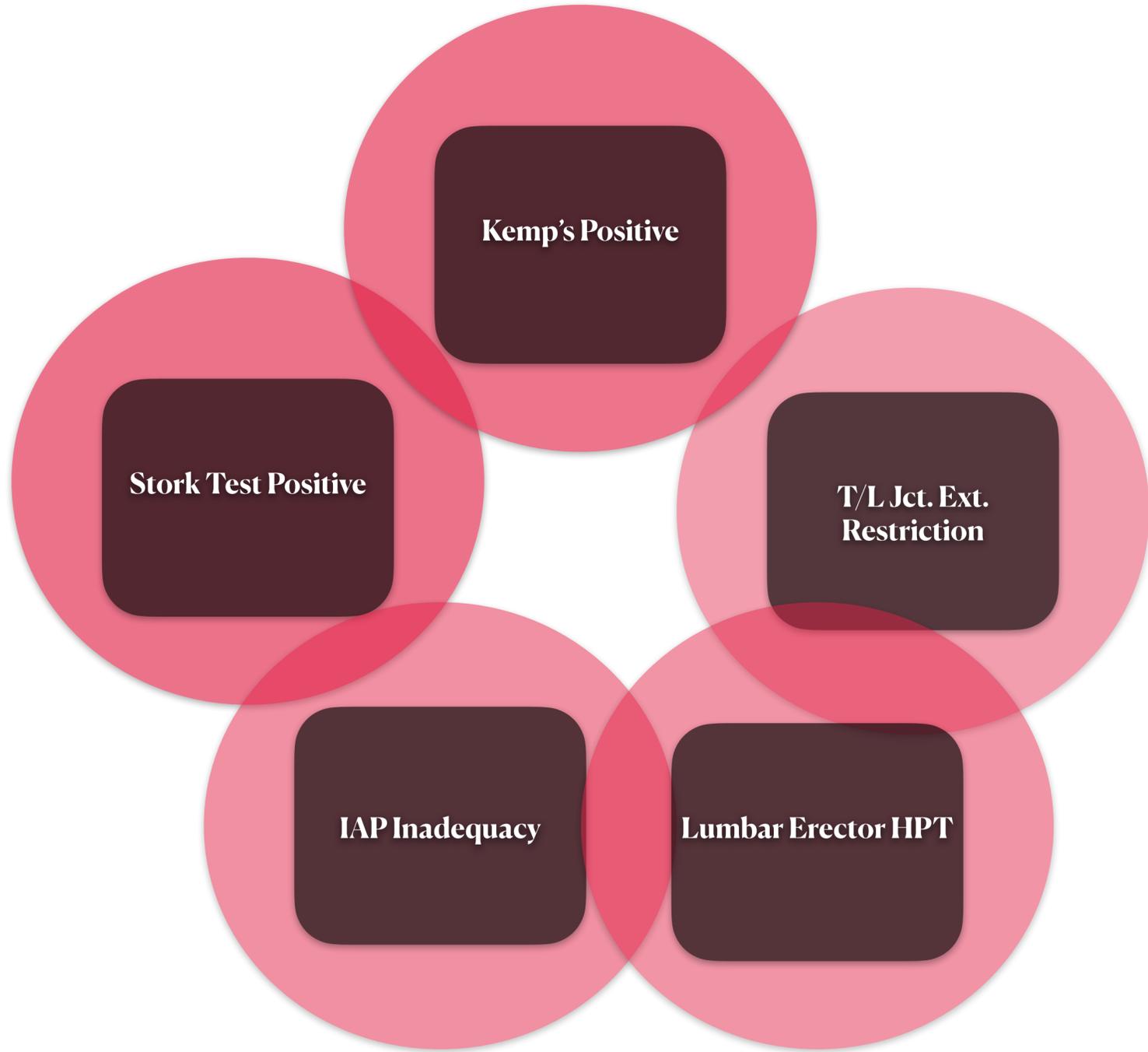
Stork Test Positive

ASLR Negative

IAP Inadequacy

Lumbar Erector HPT





Kemp's Positive

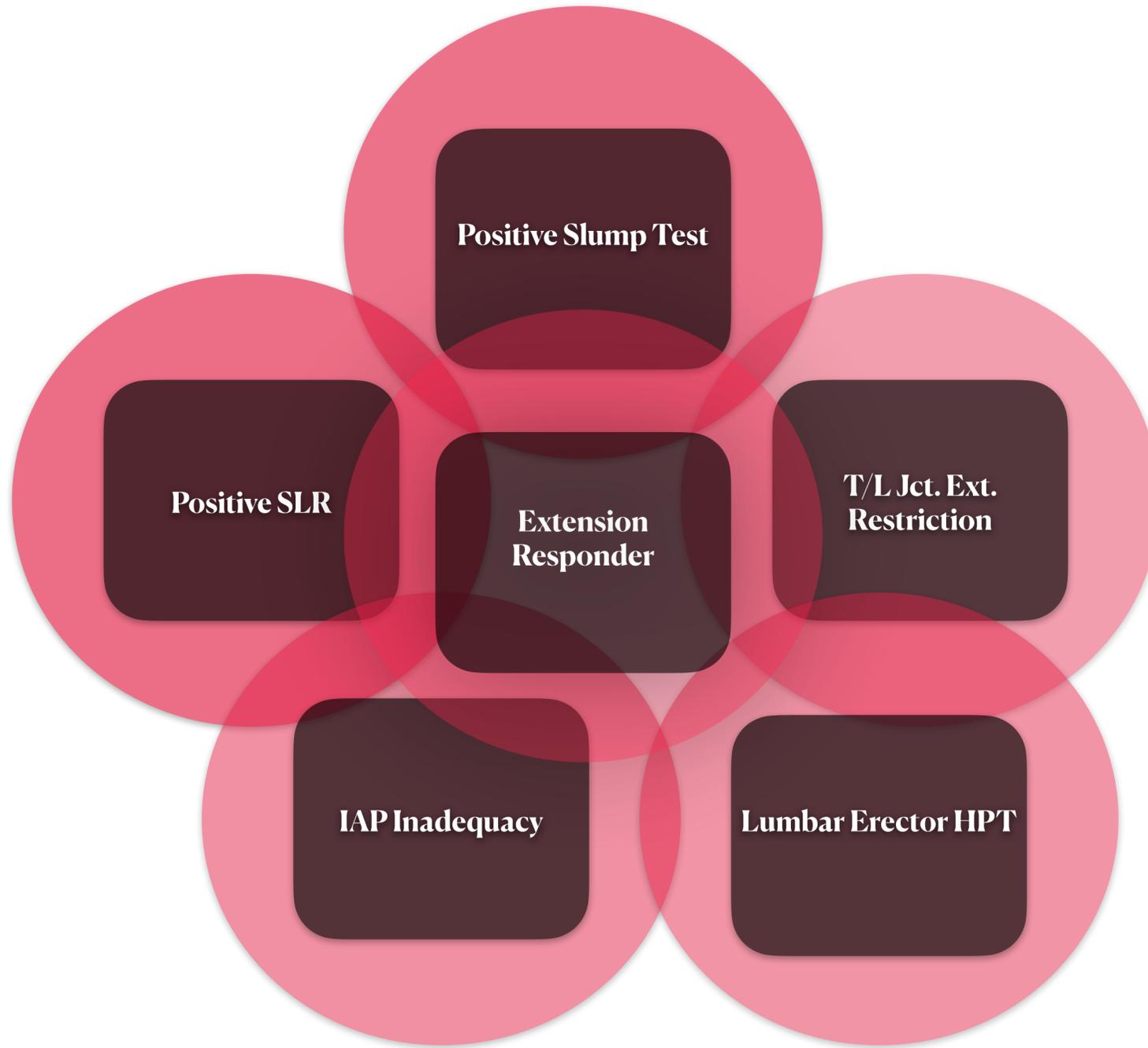
Stork Test Positive

T/L Jct. Ext. Restriction

IAP Inadequacy

Lumbar Erector HPT





Clinical Jazz

“The jazz musician is a creative artist, the classical musician is a re-creative artist.”

- Jack Cecchini



**“It is always humbling
to see the originator...
he is creating in the
moment, what he
believes in...that’s a
different kind of
magic.”**

- Robert Lardner, PT







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Diagnostic Specificity in an Active Care Model

Putting It Into Practice

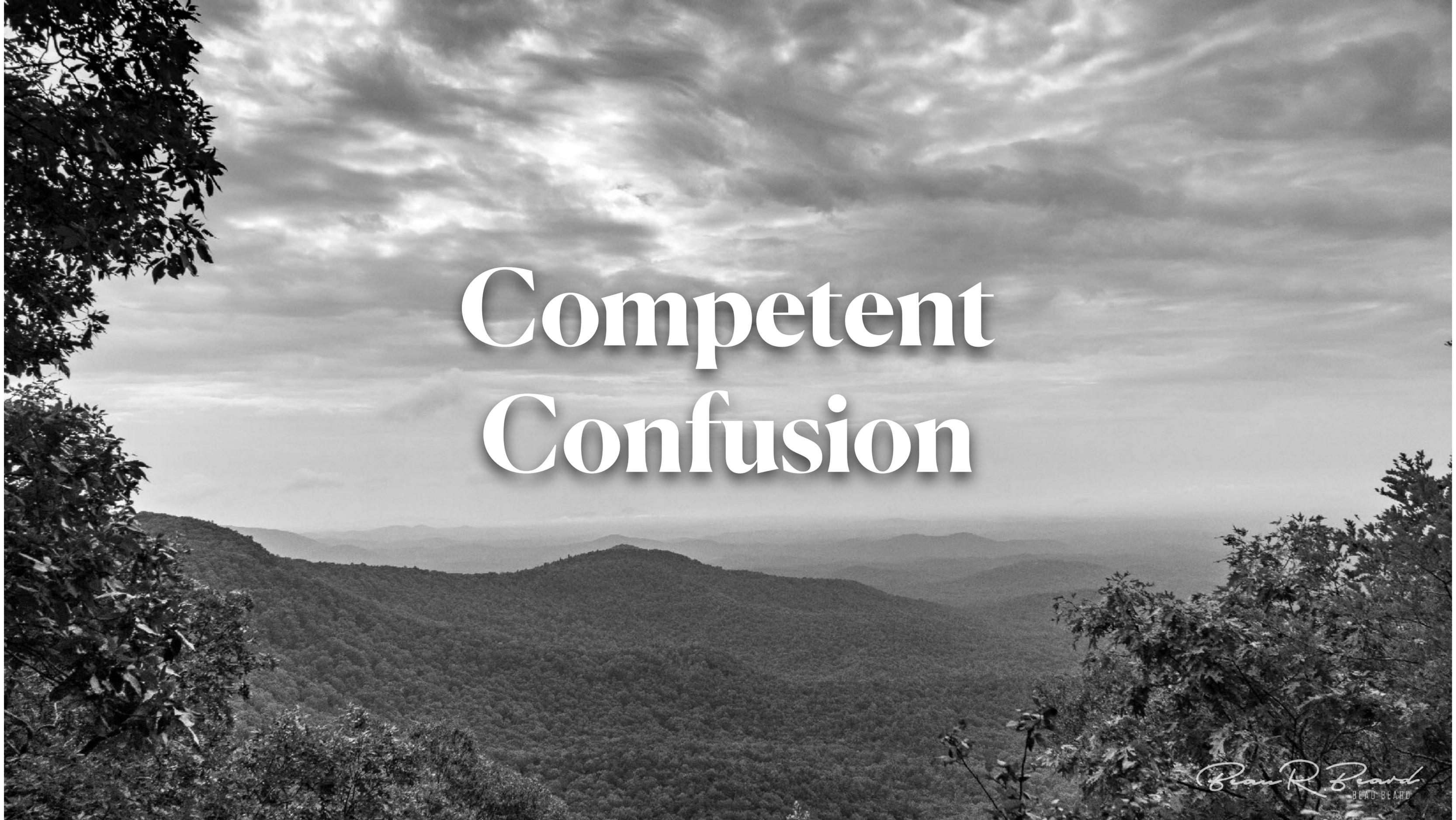
**“Time spent on assessment will save time on
management.”**

- Vladimir Janda

Pain Audit

Functional Audit

Differential Diagnosis



Competent Confusion

Lack of Confidence.

Learning.

Understanding.

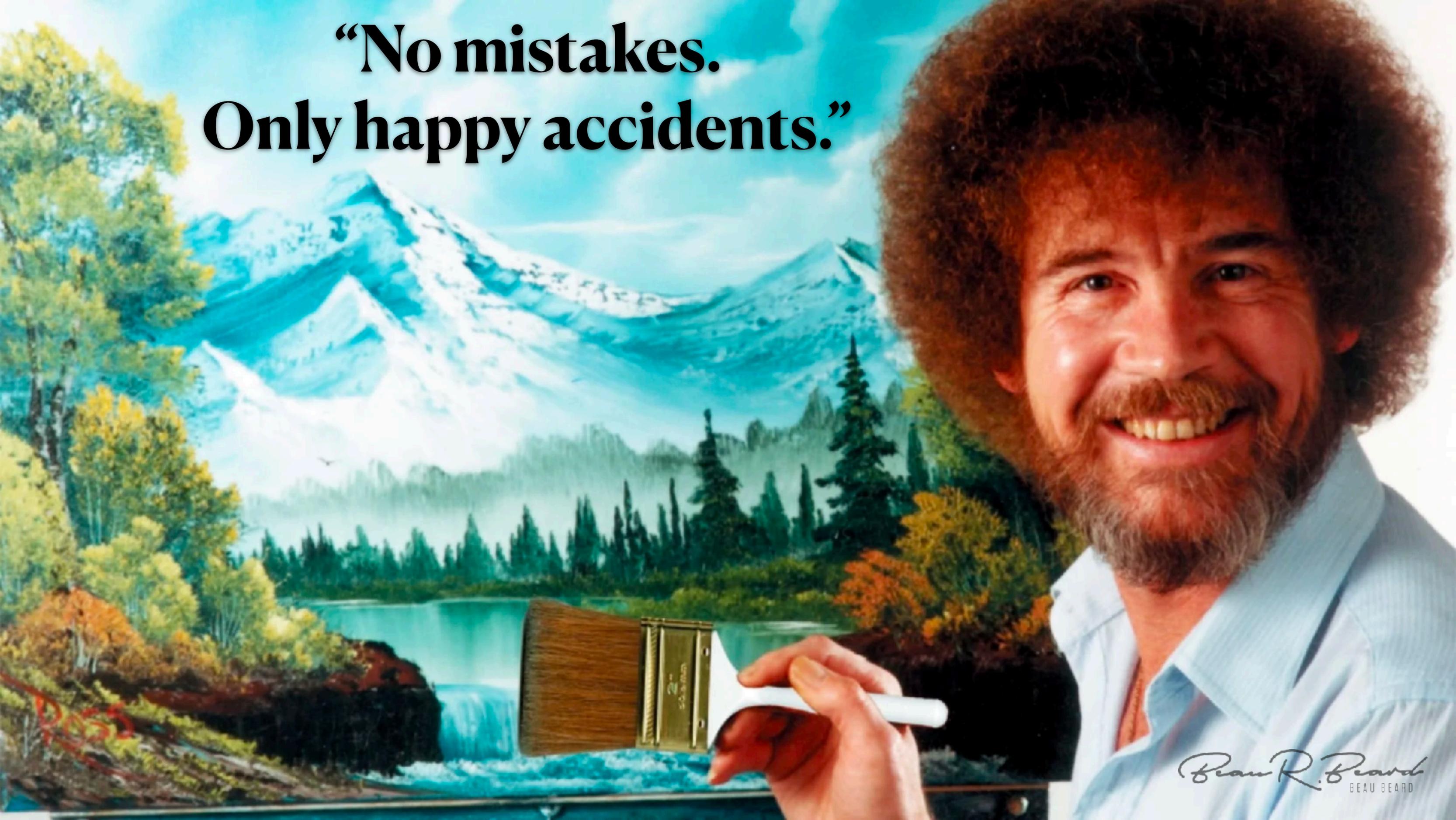
False Confidence.

Confusion.

True Confidence in Not Knowing.

Competent Confusion

**“No mistakes.
Only happy accidents.”**



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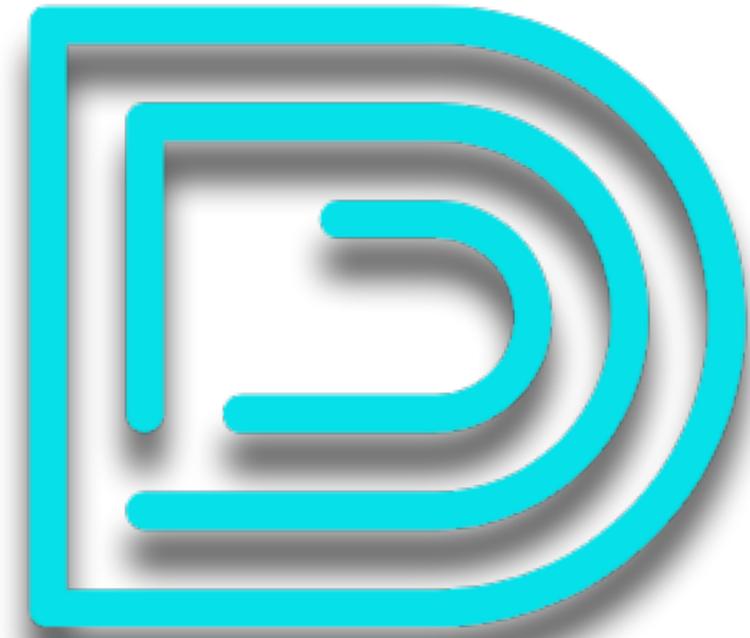
“Success has to do with deliberate *practice*. Practice must be focused, determined, and in an environment where there is feedback.”

- Malcolm Gladwell



The Art of Diagnosis

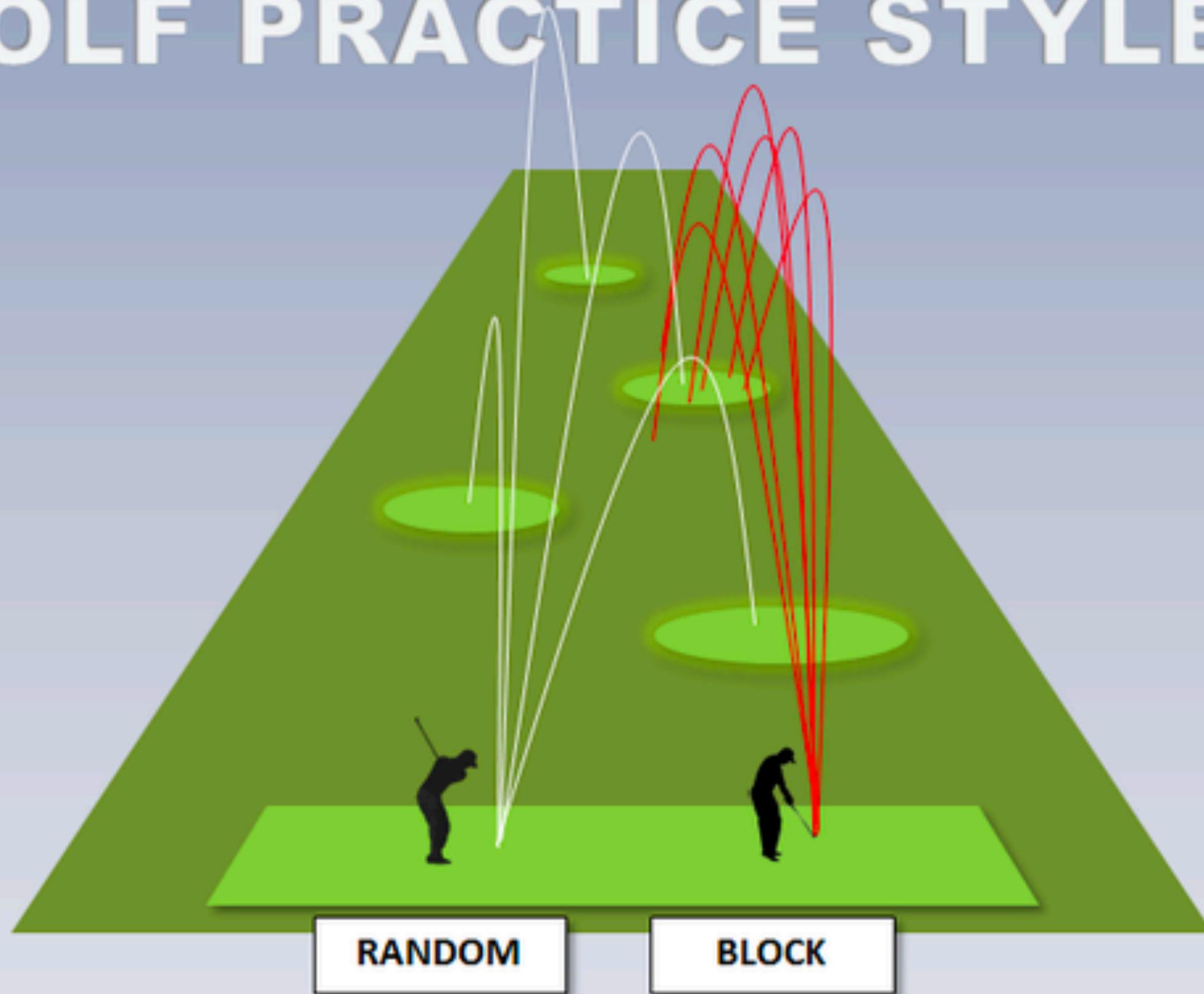
- Aggregation of groups of findings into patterns
- Selection of a “pivot” or key finding
- Generation of a cause list
- Pruning of the cause list
- Selection of diagnosis
- Validation of diagnosis



Art of Diagnosis

"A PROBLEM WELL DEFINED IS HALF-SOLVED."

GOLF PRACTICE STYLES



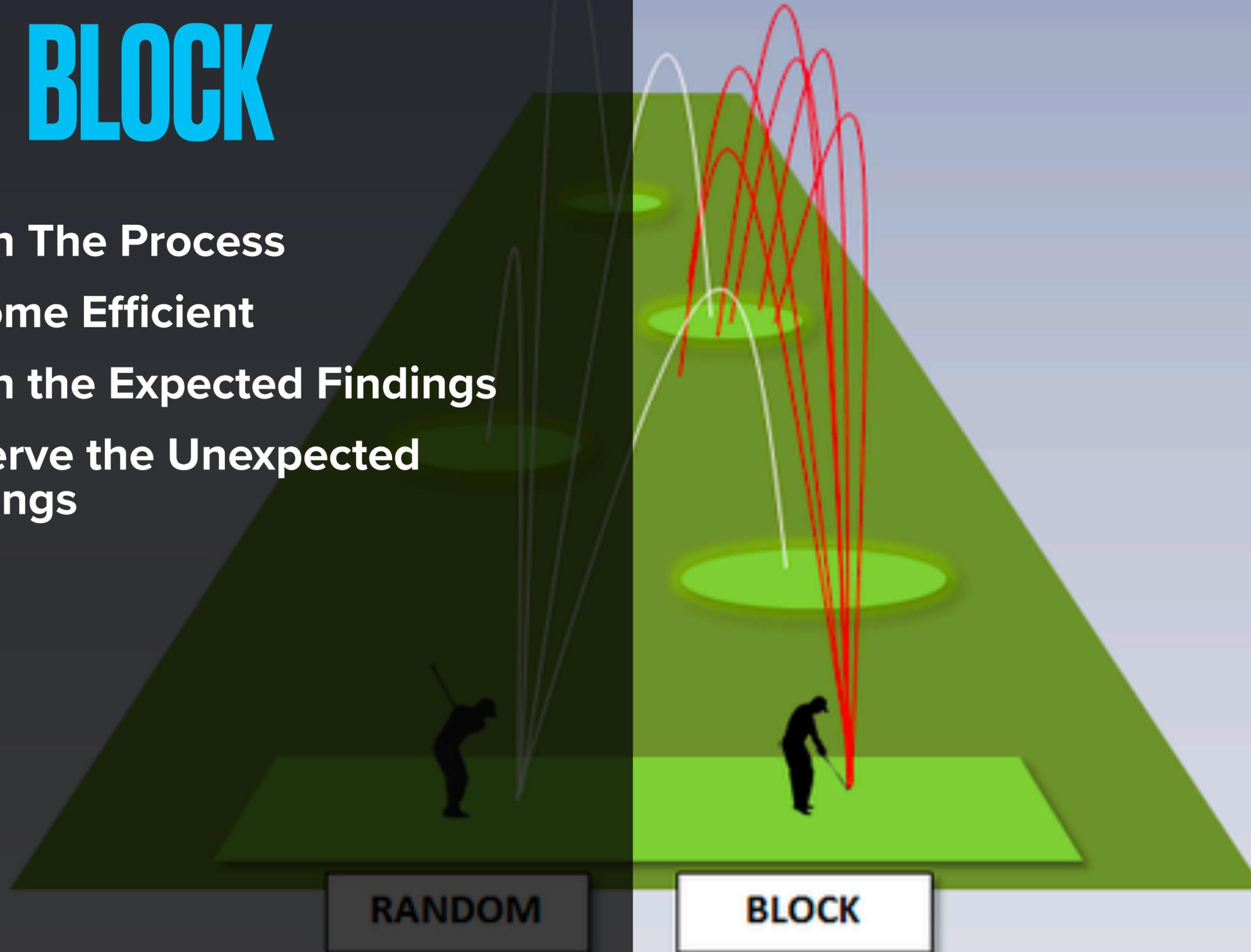
RANDOM

BLOCK

GOLF PRACTICE STYLES

BLOCK

- Learn The Process
- Become Efficient
- Learn the Expected Findings
- Observe the Unexpected Findings



RANDOM

BLOCK

“IN THOSE DOMAINS, WHICH INVOLVED HUMAN BEHAVIOR AND WHERE PATTERNS DID NOT CLEARLY REPEAT, REPETITION DID NOT CAUSE LEARNING.”

- DAVID EPSTEIN, *RANGE*

GOLF PRACTICE STYLES

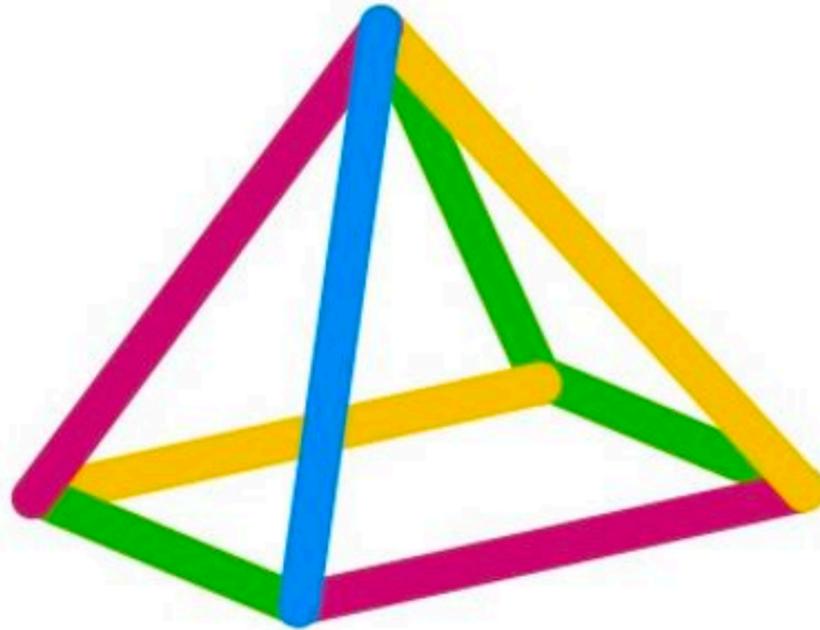
RANDOM

- Break Free of the Process
- Become Effective
- Expect the Expected Findings
- Try to Understand/Create Connections Within the Unexpected Findings

RANDOM

BLOCK

**WHICH ONE IS THE TOP VIEW
OF THIS PYRAMID?**



1



2



3



4

Brian Clegg

TEN
PATTERNS
THAT
EXPLAIN
THE
UNIVERSE



"Brian Clegg is the
master of accessible
science writing."
— Angela Saini

SECOND EDITION

WITH A NEW SECTION: "ON ROBUSTNESS & FRAGILITY"

NEW YORK TIMES BESTSELLER
THE
BLACK SWAN



The Impact of the
HIGHLY IMPROBABLE

"The most prophetic voice of all."

—GQ

Nassim Nicholas Taleb

“They think that intelligence is about noticing things are relevant (detecting patterns); in a complex world, intelligence consists in ignoring things that are irrelevant (avoiding false patterns)”

- Nassim Nicholas Taleb, *The Black Swan*



A BETTER PLACE IS HARD TO FIND

360 RIG

RODE

THE FIVE PRINCIPLES OF DELIBERATE PRACTICE



PUSH BEYOND

one's comfort
zone



Work toward
well-defined,
**SPECIFIC
GOALS**



FOCUS
intently on
practice
activities

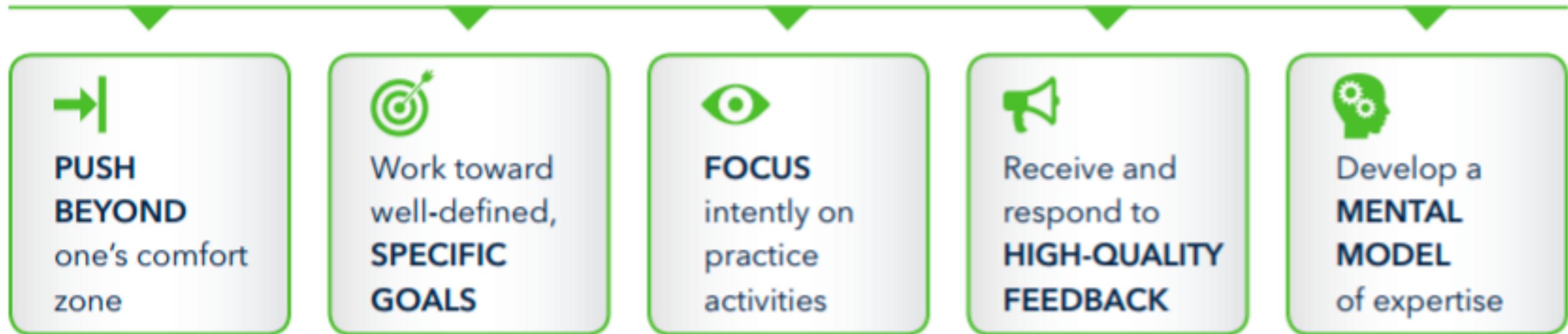


Receive and
respond to
**HIGH-QUALITY
FEEDBACK**



Develop a
**MENTAL
MODEL**
of expertise

THE FIVE PRINCIPLES OF DELIBERATE PRACTICE



Needs Based Assessment

**“Masters return to this
childlike state, their
works displaying
degrees of spontaneity
and access to the
unconscious, but at a
much higher level than
the child.”**

- Robert Greene, *Mastery*





**Knowledge
is only as
powerful as
the action it
inspires.**



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