MAGIC VS. SCIENCE Interdeck, DPT, CSCS

1



2



OBJECTIVES

Evaluate unique neurological concepts to apply to orthopedic rehab

Application of exercise to preserve spinal integrity

 Understand implementation of dynamic balance progressions

4



"Thinking like a scientist involves more than just reacting with an open mind...It requires searching for reasons why we might be wrong—not for reasons why we must be right—and **revising our views** based on what we learn."

- Adam Grant, Think Again

""Half of what we are going to teach you is wrong, and half of it is right. Our problem is that **we don't know which half is which.**"

- Charles Sidney Burwell, Harvard

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CLINICAL DECISION MAKING







Unique Concepts











WHY CAN'T YOU LIFT 2X MORE?

SL RDL

2 X 50# Powerblocks = 100# 147# + 100# = **247# per leg**

19

3 reps – fairly easy

WHY CAN'T YOU LIFT 2X MORE? DL RDL Patient A weighs 175# 2 legs = 32% = 56# Essentially lifting 119#

20

























































CONCEPT #3 CROSS TRANSFER PRINCIPLE

CROSS WHAT?

Unilateral resistance training produces strength **gains** in the **untrained** homologous muscle group;

An effect termed "cross-education."

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Topics In Stroke Rehabilitation

 Review
 > Top Stroke Rehabil. 2016 Apr;23(2):126-35. doi: 10.1080/10749357.2015.1112062.

 Epub 2016 Feb 24.

Cross-education of strength has a positive impact on post-stroke rehabilitation: a systematic literature review

Monika Ehrensberger ¹, Daniel Simpson ¹, Patrick Broderick ¹, Kenneth Monaghan ¹

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Med Sci Sports Exerc. 1997 Jan;29(1):107-12. doi: 10.1097/00005768-199701000-00015.
 Greater cross education following training with muscle lengthening than shortening
 T Hortobágyi ^T, N J Lambert, J P Hill

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Strength training the free limb attenuates strength loss during unilateral immobilization

Jonathan P Farthing ¹, Joel R Krentz, Charlene R A Magnus









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PRMF

Stand.

Right Arm Full Shoulder Flexion. Assess. Left Arm Full Shoulder Flexion. Assess. Take BETTER ARM and Oscillate at end range. 3x3. Repeat Worse ARM end range flexion. Assess.

















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What does this have to do with the nervous system?







How?

Muscle contractions

- Ankle pumps
- Squeeze ball
- Electrical stimulation



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New Acronyms **MEAT** • Movement • Exercise • Analgesics • Treatment

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Flexion Movement Moment









KNOWLEDGE

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IMAGE HYPERLINKS
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