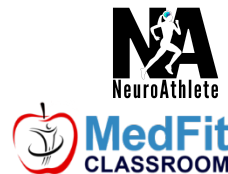




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Dr. Grove Higgins & Master Trainer Pat Marques

Joint Replacement Fitness Specialist



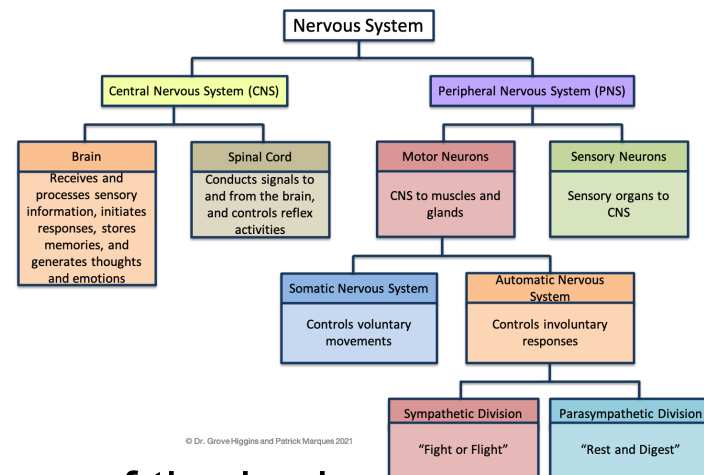
Module 6 (Epilogue)

- Putting it all together – the “Neuro-Centric” Approach to Joint Replacement Fitness:
 - Sensory
 - Motor Control
 - Isometric strength training
 - Dynamic strength training
- Recommended Resources
 - Assessments & forms
 - Tools / Equipment
 - Courses
 - Reading

The “Neuro-Centric” Approach

- **Why use a “neuro-centric” approach to training?**

- The fastest system in the body
- The nervous system is very orderly
- Neuroanatomy has rules

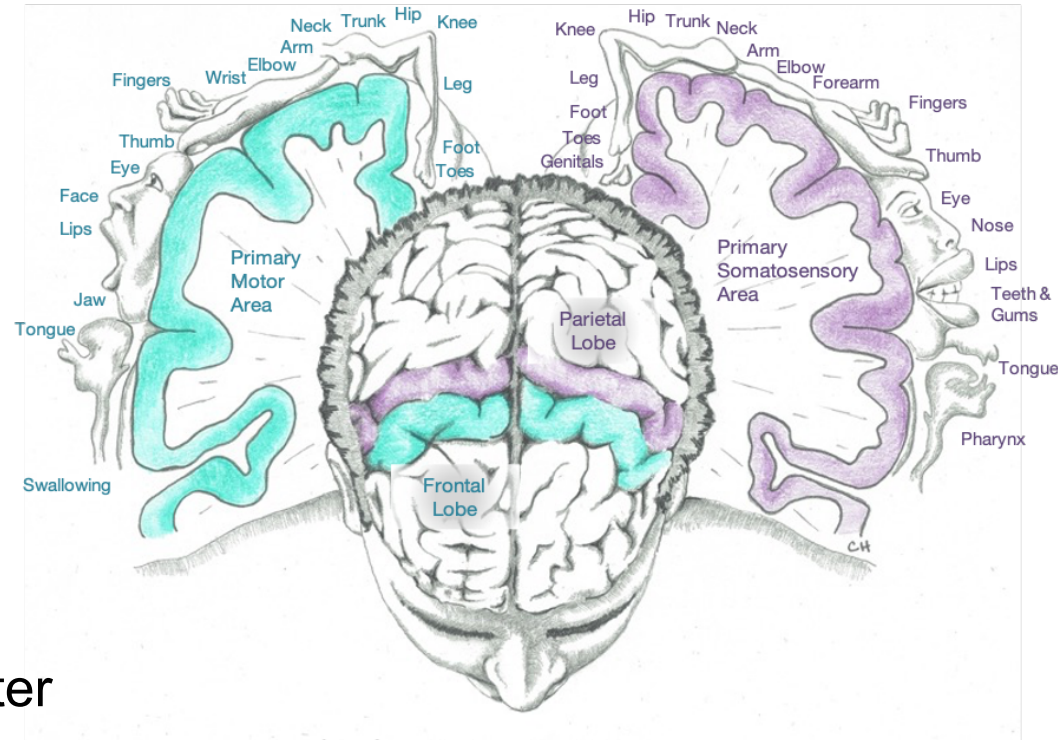


- **The “Big Three” Concepts**

1. The nervous system is the governing system of the body
2. The brain’s #1 job is survival
3. The input to the brain determines the output

Sensory Input

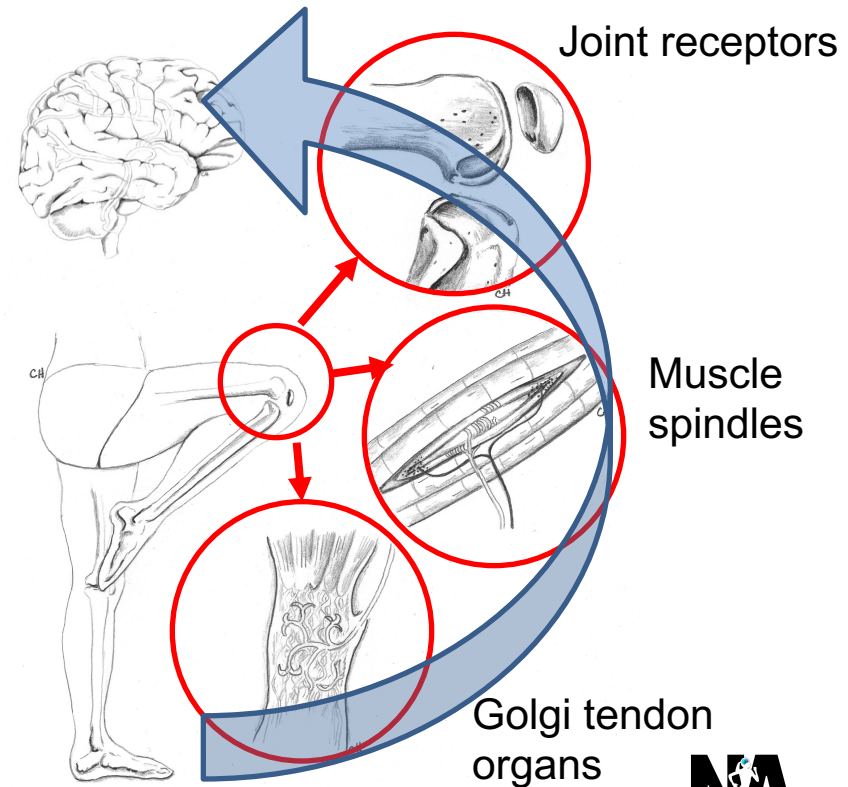
- **Goal:** Improve mapping
- **Areas activated:**
 - Primary somatosensory cortex
 - Spinal cord ascending pathways
- **Benefits:**
 - Brain “sees” the area better
 - Informs the *motor* cortex
 - Improves spatial orientation
 - Pain reduction



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Motor Control Training

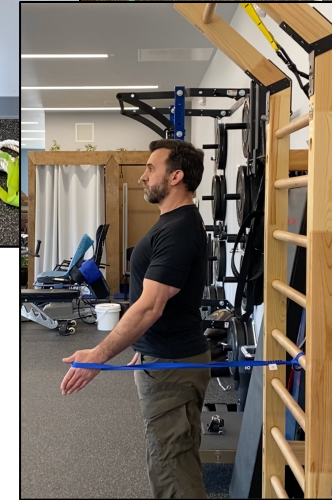
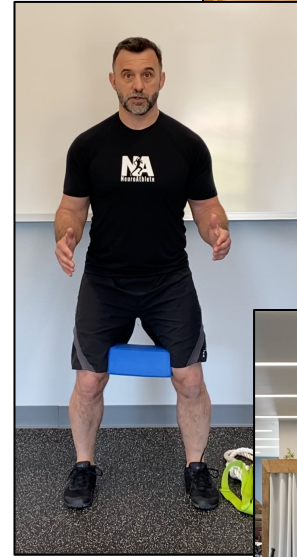
- **Goal:** Improve mapping
- **Areas activated:**
 - Primary motor & sensory cortices
 - Premotor & supplementary motor areas
 - Spinal cord descending & ascending pathways
- **Benefits:**
 - Brain “sees” the area better
 - Movement quality & coordination
 - Improves strength & flexibility
 - Pain reduction



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Isometric Strength Training

- **Goal:** Improve strength
- **Areas activated:**
 - *Premotor & supplementary motor areas*
 - Primary motor cortex
 - Spinal cord descending & ascending pathways
- **Benefits:**
 - Low neurological threat
 - Max force production / joint “packing”
 - Postural stability (standing / walking)
 - Pain reduction



Dynamic Strength Training

- **Goal:** Improve strength & coordination
- **Areas activated:**
 - *Occipital & parietal (control & memory of movements)*
 - Motor cortex (+ PM & SMA)
 - Spinal cord pathways
- **Benefits:**
 - Builds the “library of priors”
 - Associates vision with movement
 - Unilateral vs. Bilateral
 - Pain reduction



Recommendations

- Assessments & Forms
 - ROM, Muscle Testing, Sensory Input, & Movement Patterns
- Switched On Training app (switchedontrainingapp.com)
- Tools/Equipment:
 - Sensory Input devices:
 - Brushes for skin stimulation
 - Vibration devices
 - Heat pads/device & cold packs
 - Floss bands / wraps
 - Kinesiology Tape
 - Resistance Bands / TheraBands
 - Yoga blocks & straps



Recommendations

- Recommended courses:
 - Z-Health Performance Solutions:
 - R-Phase, I-Phase, T-Phase, & 9S Strength
 - www.zhealtheducation.com
 - MedFit Classroom:
 - Arthritis Fitness Specialist course
 - Joints of the Human Body course (webinar series)
 - RockTape FMT Basic & Advanced courses (kinesiology taping)
 - www.rocktape.com



Recommendations

- Recommended reading:
 - *The Brain That Changes Itself; Stories of Personal Triumph from the Frontiers of Brain Science* – Norman Doidge
 - *Therapeutic Stretching; Towards a Functional Approach* – Eyal Lederman
 - *Explain Pain* – David Butler & Lorimer Moseley
 - *Therapeutic Neuroscience Education; Teaching patients about pain* – Adriaan Louw & Emilio Puentedura

Thanks!

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