

## The Bare Bones:

The NDS/C



<https://youtu.be/ZG51PLXw1hA>

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## INTENT

**Provide the minimal didactic information for you to begin implementing principles and concepts from the NDS/C into patient care.**

**CEU's will be provided –upon completion of a quiz and course review- by Outlaw Movement Systems, LLC (OMS).**

**This does NOT:**

- Provide the technical skills

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Objectives; at the conclusion of this lecture, attendees will be able to...

- Describe what the NDS is.
- Analyze movement based upon the principles of the NDS.

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## NDS Version evolution

**FUNDAMENTAL LEVEL**    **TRANSITIONAL LEVEL**    **FUNCTIONAL LEVEL**

**THE POSTURES**

**THE PATTERNS**

**THE POSTURES**

**THE PATTERNS**

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## Language...

**Sequence:** a set of things next to each other in a set order; a series.

**Continuum:** a continuous series or whole, no part of which is noticeably different from its adjacent parts, although the ends or extremes of it are very different from each other

**Neuro:** forming compound words relating to nerves, nerve tissue, or the nervous system.

**Development:** related to development

**ND:** of or pertaining to the development of neurological pathways in the brain

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## The goal of the NDS

- 1. Overcome gravity and move away from the ground**
  - More sensory information
  - Change in perspective
- 2. Develop a functioning adult that can interact with and adapt to the environment around it**
  - Mature CNS
  - Large BOS to small BOS
  - Mature Movement
- 3. Balance Order and Chaos**

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## Operating Definitions:

- **NDS** – a progressive sequence of events that fully develops the neurological pathways to, in, and from the brain that at the same time further develops the musculoskeletal system; a sequence that results in a mature CNS and a mature movement profile.
- **NDC** – a continuum of principles based upon the NDS that can serve as the framework for restoring and rejuvenating movement in a structurally mature individual.

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## THE POSTURES

**SUPINE**    **PRONE**    **QUADRUPED**    **SITTING**    **KNEELING**    **STANCE**

- Large Base of support
- Minimal visual input of surroundings
- Minimal Strength

- Smaller BOS
- Better visual input of surroundings
- Increased Strength
- Conscious control of free hands
- Moving towards vertical

- Small BOS
- Long Lever arms
- Wiggly parts

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## Patterns

**Static-ish**

Breathing  
Head Control  
Pushing Down

**Dynamic**

Weight Shifts  
Perturbations  
Dissociation

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## The Elephant in the room.....

...the goal of the first 2 years of life is to create a fully developed CNS and mature movement.

**Adults and Babies are structurally very different, which changes the movement experience.**

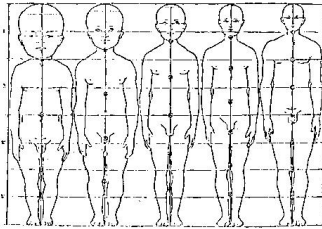
## NDC

- Draw on principles of the NDS to restore and rejuvenate movement
- Aged tissue
- Injuries
- Surgeries
- Vascular issues
- Habits/lifestyle
- Allostasis
- Co-morbidities



## NDC

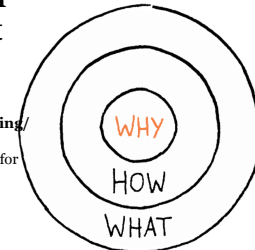
- Head to body ratio
  - CoG location
- Limb ratio
- Ossification
- Tibial shape/structure
- Spinal curves
- Primitive reflexes
- Rib cage shape



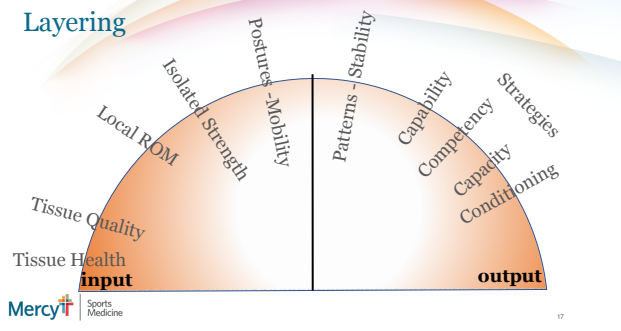
## Clinically "Why"?

### • Users' manual for movement

- Restore mobility
- **Universal stability progression**
- Reverse Engineer what is missing/broken
- Repeatable, reproducible blueprint for moving



## Layering



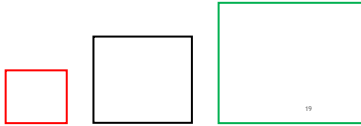
## Gen Pop patients

- Mortality is tied to the ability to get to and from the ground
- Strength
- Movement and strength develop together



## Contraindications:

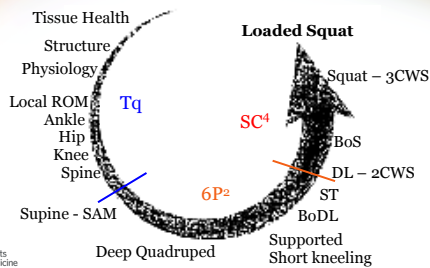
1. **NON-weightbearing status\***
2. **Acute Fracture**
3. **KNOWN ROM limitation**
4. **KNOWN EFFUSION**
5. **ACUTE Pain**
6. **Open wounds\*\***



## Benefits:

- Manipulate orientation of the body with gravity
  - Universal plan for stability
  - Changing motor abilities alter opportunities for learning
  - Return the mature human to the ground (rejuvenative effect)
- 
- *How do you build a squat for a post-op ACLR?*
  - *How do you get rid of a weight shift?*
  - *What is the purpose of movement?*

## Restoring a squat:



## Requisites:

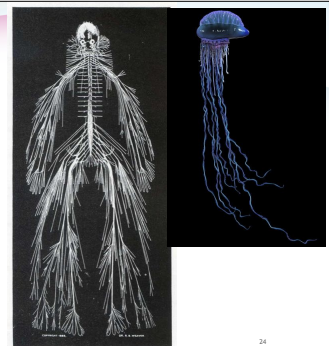
1. Understand your physician's limitations (ROM, Strengthening, Sling, etc.)
2. Understand the surgical procedure or injury.
3. Ability to get onto the ground
4. Enough ROM for the targeted postures
5. An integrated plan of tissue work, corrective exercise, and strengthening.

## Things we struggle with that this will work aid:

- *Overcoaching*
- Isolated Stability at a Joint
- Motor Control issues
- Restoring Hip Extension
- Teaching a shoulder to be a shoulder
- Restoring all knee extension
- Improving patient quality of life
- "Gait" Training
- Strength problems
- Building a deadlift
- Building a squat
- Beginning a decel program
- Return to running

## Keep in mind

- If there is a known ROM limitation, there will be a problem in the postures that require this ROM.
- Everything causes an adaptation.
- The NDS/C is about input to create an output
- Movement is a behavior
- The CNS craves complexity



## Documentation/Billing

### Documentation

- List posture
- List pattern
- List any variation
- “Quadruped perturbations”
- “half kneeling pushing down”
- “Quadruped to half kneeling transition”

### Billing

- **INTENT**
- **Neuro Re-Education 97112**
  - reeducation of movement, balance, coordination, kinesthetic sense, posture, and proprioception
- **Therapeutic Activity 97530**
  - Dynamic activities to improve functional performance
  - “ing” such as carrying, lifting, handling, reaching, transferring and transporting to improve overall function.
  - “Striking Progression”
- **Therapeutic Exercise 97110**
  - improve mobility, stretching, strengthening, coordination, control of extremities, dexterity, range of motion, or endurance as part of activities of daily living training, or re-education

## Next Steps:

### BEFORE APPLYING THIS TO YOUR PATIENTS:

- Understand it
- Get Wisdom

## To receive CEU’s step 1: quiz

- Follow this link using your camera app to take the quiz
- Enter your Name if you want to get a certificate AND the CEU’s



## To receive CEU’s step 2: eval

- Follow this link using your camera app to give your input on how epic or horrible this was
- ANONYMOUSE

