The 4x4 Matrix

Your guide to addressing Stability/Motor Control Dysfunction through progressive postures, loads, and reflex activation.
Functional Movement Systems
Motor control is unpredictable when pain is on board

- Muscles ‘inhibited’ or ‘delayed’ – Hodges TA studies
- Motor control was unpredictable and may be task specific – Kiesel et al, Experimentally induced pain alters the EMG activity of the lumbar multifidus in asymptomatic subjects. Manual Therapy 2012.
SFMA breakouts lead to:
- **Mobility Dysfunction (Joint Mobility and/or Tissue Extensibility)**
  - Manual Therapy, ROM, Stretching, PNF, etc.
- **Stability/Motor Control Dysfunction**
  - Mobility is adequate in the pattern (unloaded)
  - Stability/Motor control lacking
  - Follow the 4x4 matrix

**Mobility or Stability/Motor Control Dysfunction?**
• Multi-Segmental Flexion Pattern
  ◦ Unable to perform the toe touch pattern in standing but is able to in sitting
  ◦ Unable to perform an Active Straight Leg Raise to 70 degrees, but passively is able to achieve 80+ degrees.

Stability/Motor Control Example
Postures for Stability/Motor Control Exercises

- Fundamental
  - Prone/Supine

- Transitional
  - Quadruped, Tall or Half Kneeling

- Functional
  - Standing – symmetrical, asymmetrical, or single leg stance
The role of RNT

- RNT ‘feeds the mistake’ with proprioceptive input
- Reflex correction is the ultimate goal
- Considered ‘Assistance’
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<tbody>
<tr>
<td>1. Supine/Prone</td>
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<td>2. Quadruped</td>
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<td>3. Tall/Half Kneeling</td>
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<td>4. Standing</td>
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Diaphragmatic Breathing Progression
Example 1: the Bird Dog
Example 2: Half Kneeling
• Prone Cervical Retraction (Capital Ext.) + Extension (1:1 or 1:2 – need activation?)
• Prone Elbows (1:1 or 1:2)
- Quadruped (2:1)
- ½ or Tall Kneeling to Standing
Rolling Patterns

SFMA-Weight Bearing Hip/Spine Stability/Motor Control Dysfunction
• Quadruped – Bird Dog

SFMA – Weight Bearing Hip/Spine
SMCD
• Tall and ½ Kneeling Options

SFMA – Weight Bearing Hip/Spine
SMCD
Bilateral Stance – Toe Touch Progression (4:1)
Asymmetrical Stance - Split Stance Lift (4:4)
Single Leg Stance with Core Activation (4:1)
• Rolling Patterns
• Supported leg lowering (1:1) to unsupported leg lowering (1:2)

FMS Example: Active Straight Leg Raise
• Check quadruped (bird dog) – if needing rotary work especially
• Half Kneeling Stance to Chops/Lifts
• Split Stance to Split Stance Chops/Lifts

FMS Example: Active Straight Leg Raise
• SL Reach w/core activation or RNT
• SL DL w/RNT to progressing to no assist
THANK YOU!