Muscle Energy Techniques

By

Martin Meyer

Sports Physiotherapist
Muscle Energy

- Used to correct-
  - pubic dysfunction
  - Ilio-sacral dysfunction
  - Sacro-iliac dysfunction
  - Lx spine dysfunction
Definitions

- **Agonist muscle** - a muscle that causes movement to occur. It creates the normal range of movement in a joint by contracting.

- **Antagonist muscle** - a muscle that acts in opposition to the movement generated by the agonist and is responsible for returning a limb to its initial position.

- Ie for knee extension range -
  - Quad is agonist
  - Ham is antagonist
Rationale
Components of neuromuscular system

- **Muscle spindle**
  - Found within muscle fibres
  - Sensitive to passive or active stretch. Can control dynamic length of muscle through stretch reflex
  - Excitatory
- **Golgi tendon**
  - Found in tendons of muscle
  - Detects tension within muscle
  - Stimulation causes inhibition of muscle via flexor reflex loop
  - Inverse stretch reflex
Inhibitions

- Reciprocal Inhibition
  - Stimulation of the agonist leads to relaxation of the antagonist
  - Use of stretch reflex
  - 20-40% MVC
  - Contracting quads at end H/S length to improve h/s length
Autogenic Inhibition

- Stimulation of the antagonist leads inhibition of the antagonist
- Stimulation of Golgi tendon
- MVC contraction
- Contracting h/s at end range h/s length to improve h/s length
How does MET work?

- Using muscle contractions to stimulate the inhibitions to relax/lengthen muscle
- Using muscle contractions to pull on muscle attachments to re-align bones/joints
Assessment

- Integrate MEAx into normal assessment of Lx spine and pelvis
- Systematic approach to looking at pelvis
- Understand subjective asterix points relevant to SIJ
Crucial Anatomical Landmarks

- ASIS
- Pubic Crest
- PSIS
- Sacrotuberous Lig
- Ischial Tuberosity
- Spine of S2
Functional assessment tests

- Gillet (Stork) test
- Forward flexion test
- Squish test
- Seated flexion test
Gillet (Stork) Test

- Palpate
  - PSIS and Spine of S2
- Patient Movement
  - Hip flexion to horizontal
- Normal
  - PSIS moves down relative to S2
- Abnormal
  - PSIS moves up as sticks on sacrum
Forward flexion test

- Palpate
  - PSIS Left and right
- Patient Movement
  - Forward flexion
- Normal
  - Both PSIS move equally
- Abnormal
  - One PSIS moves up as sticks on sacrum
Squish test

- **Palpate**
  - Ilium

- **Therapist Movement**
  - Move hand down in in J shape along glide of SIJ joint

- **Normal**
  - Ilium glides smoothly into movement, unrestricted.

- **Abnormal**
  - Feel for boggy vs bony end feel
Functional tests don’t tell you *what* is wrong.

They identify which is the problematic side.
Need to decide....

- The type of pelvic dysfunction is based on palpation of landmarks..
Palpation

- **ASIS**
  - up or down
  - Outflare or inflare

- **Pubic crest**
  - Up or down

- **PSIS**
  - Up or down

- **Ischial tuberosity**
  - Up or down

- **Sacrotuberous Ligament**
  - Tight or loose
ANTERIOR ROTATED

POSTERIOR ROTATED
<table>
<thead>
<tr>
<th>Interpretation of Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>upslip</td>
</tr>
<tr>
<td>downslip</td>
</tr>
<tr>
<td>Anterior rot</td>
</tr>
<tr>
<td>Posterior rot</td>
</tr>
<tr>
<td>Outflare</td>
</tr>
<tr>
<td>Inflare</td>
</tr>
<tr>
<td>Elevated / decend pubes</td>
</tr>
</tbody>
</table>