MOVEMENT COMPENSATIONS

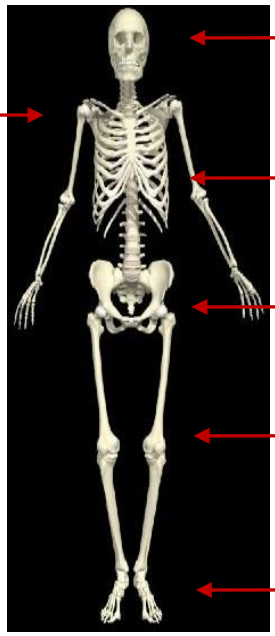
Movement compensations can be classified as any deviation from optimal movement patterns and recruitment strategies. These could be caused by a decrease or increase in muscle activation, limited joint mobility or stability, and/or inappropriate sequencing of a movement.

Why are movement compensations bad?

- Every part of the body is built in a way to optimally perform a primary function.
- When muscles are not following their primary roles, it causes other muscles to take over that role, even though they may not set up to efficiently perform that role.
- Essentially, causing muscles to play double duty and become overworked and stressed, leading to a decrease in performance and an increase potential for aches, pain, and injury.
- Example - If a Sailor is lacking full extension mobility at the hip joint, the body will steal that mobility from somewhere else – often the low back – forcing into extreme lumbar extension. This places excess stress on the spine and increases the chance for low back injuries.

Stages of compensation identification and correction:

- Recognition - Coaches are able to identify the movement as not optimal. However, they cannot identify the specific cause of the compensation and do not know what coaching cues to correct it.
- Trial and Error - A coach is able to identify the movement as not optimal and has a general understanding of the compensation. However, they use a variety of coaching cues inefficiently in a "Trial and Error" approach.
- Strategic Correction - A coach can identify the movement compensation quickly and apply coaching cues in a strategic and targeted method to efficiently correct the compensation.



WEIGHT SHIFTS

- Optimal pattern: In any standing position the weight should be centered on the arch of the weight bearing leg with the big toe engaged with the ground. In supine or prone positions the weight should be equally distributed on the toes or heels of the feet engaged with the ground.
- When there is a forward or backward weight shift, or an uneven weight distribution on the foot it can lead to movement sequencing issues up or down the chain, which in turn drives a variety of other compensations
- Common compensations
    - Forward weight shift
    - Backward weight shirt
    - Medial/Lateral weight shift

KNEE COLLAPSE

- Optimal pattern: Feet, knees, hips in line.
- Common compensations
    - One or both knees collapse towards the mid-line of the body
    - The feet may turnout laterally and the arch collapse medially
    - Tibia may rotate externally, and cause a collapse of the knees

PELVIC TILTS

- Optimal Pattern: The pelvis should be sitting neutral position relative to the spine.
- Common compensations
    - Anterior pelvic tilt
    - Posterior pelvic tilt
    - Lateral pelvic tilt

THORACIC HINGE

- Optimal Pattern: Neutral spine, with ribs pulled down
- Common compensations
    - Thoracic extension and rib flare
    - Slight cervical extension

HEAD POSITION

- Optimal Pattern: The head should be facing forward in a neutral position, without excessive extension/flexion of the neck.
- Common compensations
    - Mechanical compensations
    - Proprioceptive compensations

SCAPULAR DYSFUNCTION

- Optimal Pattern: With any upper body movement there should be a smooth and coordinated movement of the scapula and humerus.
- Common compensations
    - Biceps dominance
    - Upper trap dominance