

A Setter's Balanced Attack Requires a Balanced Back

Learning Objectives:

- Objectively evaluate the setter's ability to flex and extend their trunk with balanced rotation on an "extended" pelvis or hip.
- Identify biomechanical issues such as multifidus, abdominal oblique and serratus weakness, hallux limitus, foot pronation, and quadricep or gastroc-soleus tightness that imbalance the setter's sagittal trunk musculature.
- Integrate technical and mental drills and exercises in the setter's training program that insure balanced thoracic-lumbar rotational movement during successive alternating assisting, serving and attacking.

Key Points:

- Rotation correlations at the setter's thoracic-lumbar, lumbar-sacral and acetabular-femoral joints:

- 1) A good and safe setter requires rotation from the pelvis segment on the femur (acetabular-femoral rotation) and the thoracic-lumbar segments on the sacral base (lumbar-sacral rotation).



- 2) Anterior pelvic rotation decreases femoral-acetabular external rotation (FA ER) and increases acetabular-femoral internal rotation (AF IR). This same position decreases the setter's ability to rotate through the hip and increases stress on the extensors of the back for trunk rotational demands.



Pelvis anteriorly rotated on the left since right FA ER is greater than left FA ER



- 3) To improve rotational function through the hips, thoracic-lumbar flexion is necessary.



Good Example

Bad Example

- Musculature that is affected by poor balance of range of motion between the thoracic lumbar spine and the hips during rotational effort:
 - 1) Multifidi and paravertebrals
 - Multifidi and paravertebrals are being asked to rotate the thoracic lumbar spine in an extended state resulting in 'back stiffness' and 'tightness'.
 - 2) Abdominal obliques
 - Abdominal obliques become weaker with thoracic flexion and reaching and stronger in rotation.
 - 3) Serratus anterior
 - Serratus Anterior is overactive as a scapular protractor resulting in upper mid-back or inter-scapular pain and upper trap tightness/overuse.
 - 4) Quadriceps, hip flexors and gastroc-soleus (calf)
 - Quadriceps, hip flexors, and gastroc-soleus (calf) muscles become overworked and tight because of 'extension' pattern resulting in forefoot overuse, forward center of gravity eliminating ability to reach forward without falling and tensor fascia latae pain.
 - 5) Peroneals, plantar flexors, anterior and posterior tibialis
 - Peroneals, plantar flexors, anterior and posterior tibialis muscles become hyperactive during foot pronation resulting in hallux limitus, inability to keep heels down, and dorsiflexion of ankles.

- Goal – Balance setter rotational demands between the thoracic-lumbar spine and the hip joints with a training program that incorporates:

1) Unilateral forward knee movement during thoracic-lumbar flexion



2) Unilateral posterior hip shifting during thoracic-lumbar flexion



3) Left trunk rotation with abdominals and left hip internal rotators verses use of right psoas that hyper-extends back and deactivates hip rotation and vice versa



Good Example

Bad

- 4) Single leg support during contralateral trunk rotation and thoracic-lumbar flexion



Good Example



Bad Example

- 5) Unilateral hip extension with contralateral thoracic-lumbar trunk rotation



Good Example



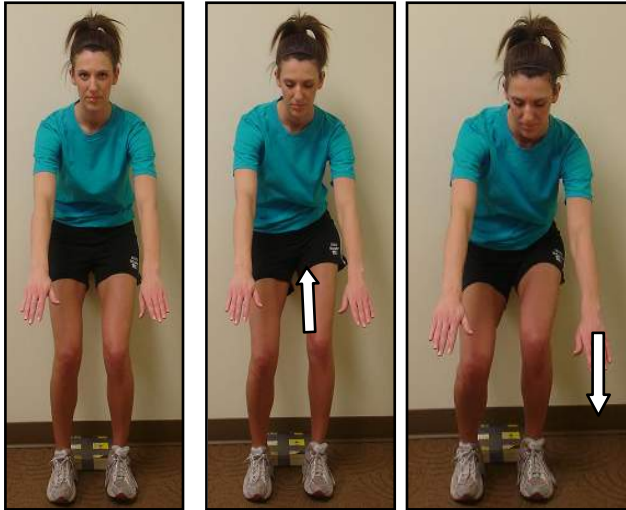
Bad Example

- 6) Hip extension with concomitant thoracic-lumbar flexion

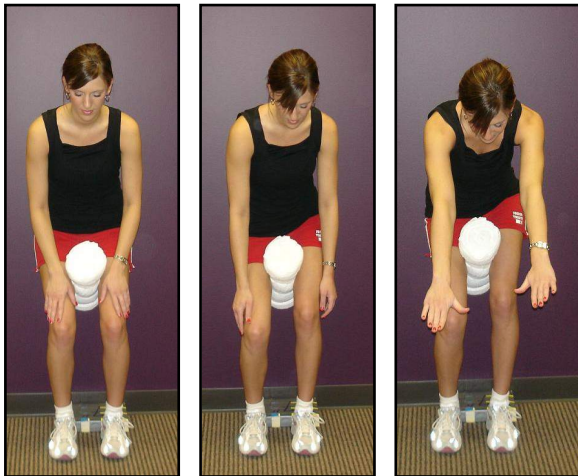


■ Accompanying setter techniques / drills reflecting each goal:

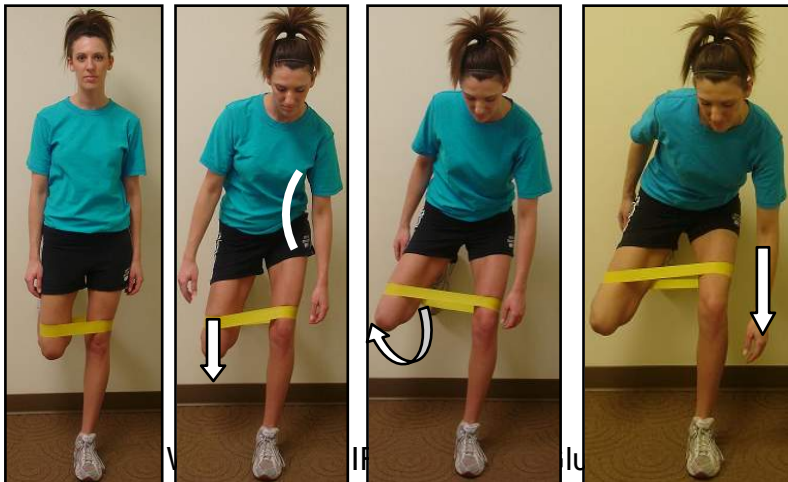
1) Standing Supported Left AF IR, Bilateral Squat Un-Resisted Wall Reach

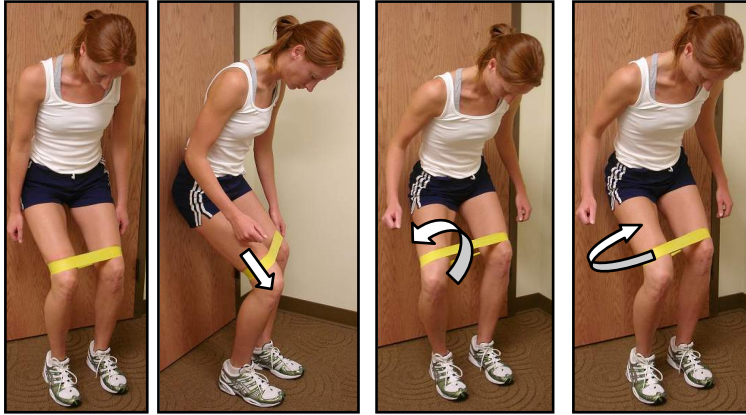


2) Standing Un-Resisted Wall Ischial Femoral Ligamentous Stretch



3) Standing Supported Left Squat with Right Glute Max

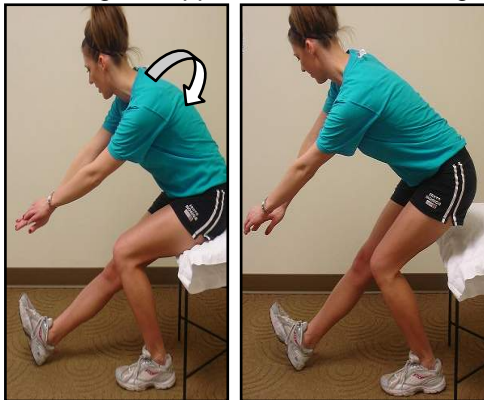




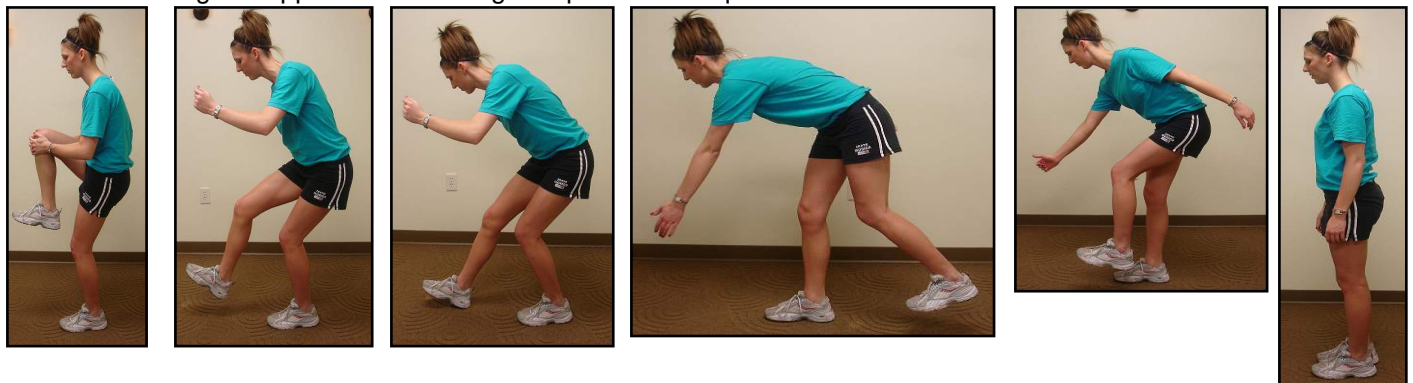
4) Standing Unsupported Left Squat with Resisted Trunk Around



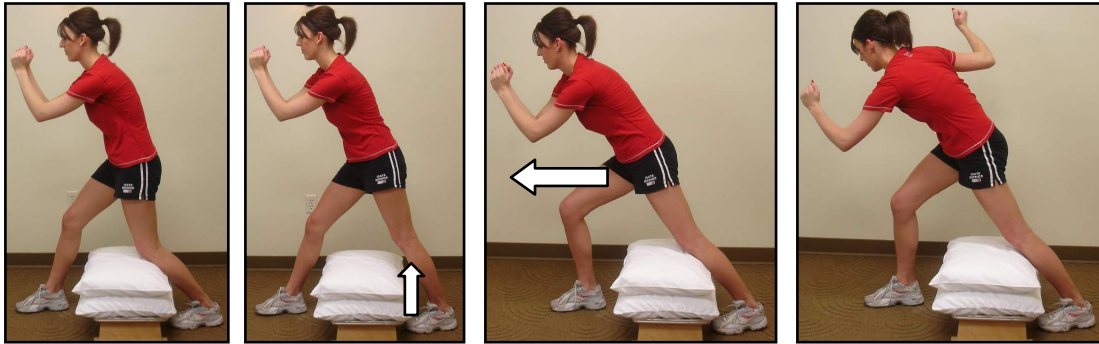
Standing Unsupported Left Lift with Right Trunk Rotation



Standing Unsupported Alternating Reciprocal PRI Squat



5) Standing Unsupported Right Lunge with Right Trunk Rotation in Medium or High Guard



Standing Unsupported Right Squat



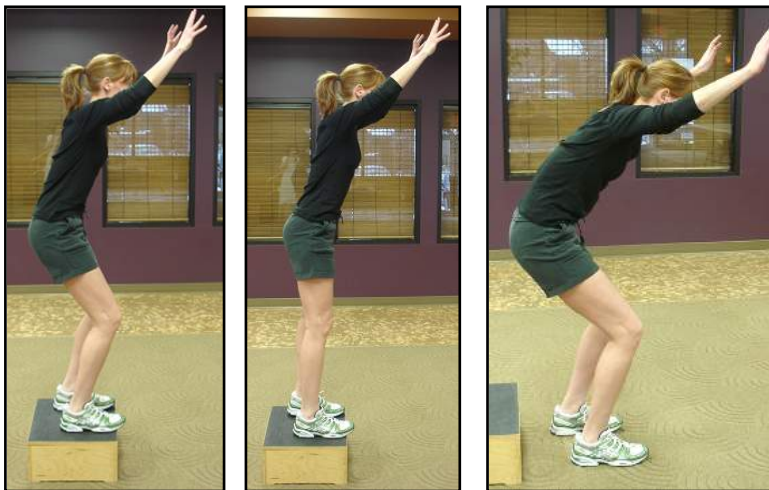
Standing Unsupported Left Lunge with Left Trunk Rotation in High Guard



- 6) Squat Jumps – standing jump raising both arms overhead, land in squatting position touching both hands to floor and alternate by keeping both arms overhead



Standing jump raising both arms overhead, land in squatting position touching both hands to floor.



Standing jump raising both arms overhead, land in squatting position keeping both arms overhead.

Decline Retro Walking

