

Squat and Deadlift: Breakout

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Objectives

- Review specific pre-requisites and assessment techniques required in order to safely perform the deadlift and squat exercise
- Discuss integration of squat and deadlift corrective techniques into clinical practice
- Discuss regressions and/or lateralizations of each movement for various diagnoses and body types

Deadlift: Pre-requisites for performance

- Mobility
 - Posterior chain extensibility
 - Multi-segmental flexion (“toe touch”)
 - Active Straight Leg Raise
- Stability
 - 2/3 TSPU

Deadlift: Pattern Correctives

Pattern	Mobility Corrective	Stability Corrective	Pattern Re-training
ASLR or “Toe Touch”	<ul style="list-style-type: none"> • Breathing Pattern re-training • Manual Therapy techniques • Contract-relax SLR • Tactical Frog Rocking (for hip flexion dysfunction) • Supported ASLR • Toe Touch Progression 	<ul style="list-style-type: none"> • ASLR assisted with core pre-activation • SL bridge ASLR into band • Unsupported Leg Lowering • Tall and ½ kneeling chops/lifts 	<ul style="list-style-type: none"> • Hip Hinge patterning with dowel resisted hinge and assisted standing to no assistance or resistance • KB deadlift with foam roll external cue restriction

Deadlift: Set-up and Performance

- Don't show people how to deadlift
 - Avoid overloading them with “rules”
- Have them “feel” the position and tension
- Spend time on the start position!!
- Basic principle set-up:
 - Set Posture
 - “Packed Neck” – look about 5 feet in front on the ground
 - “Butt back into wall”
 - “Pack shoulder blades into back pocket”
 - It is a static stability exercise for the upper body! Do not forget that this is not JUST a hip and back exercise
 - “Crush the Handle”
 - Produce isometric tension
 - “Let me see your shirt across the room”
 - “Drive hard through heels”
 - Lift with the hips while maintaining stable shoulder and spinal positions

Deadlift: Variations

- Cable Column (patterning movements)
 - Resisted/Assisted Dowel Hinge
 - Towel Pull-through
- Kettlebell
 - Double Leg
 - Single Leg
- Barbell
 - Conventional
 - Most hip dominant
 - Sumo
 - Increased adductor involvement; less range required to move weight
- Hex or Trap Bar
 - Knee or “squat”-dominant
- KB Swing
 - Explosive hinge

Squat: Pre-requisites for Performance

- Mobility
 - Ankle DF
 - ½ kneeling or standing DF testing
 - Knee flexion and bent knee hip flexion, pelvic range of motion
 - Supine DKTC
 - Hands on shins / Hands behind knee
 - Quadruped rocking
 - Spinal/pelvic mobility
 - Assessment to determine appropriate squat stance width and depth
- Stability and Motor Control
 - Thoracic spine extension/shoulder mobility and motor pattern control
 - 2/3 FMS overhead deep squat

“Cliff Notes” Version

- Foot – Stability
 - Train to maintain a short foot position to avoid over-pronation and collapse
- Ankle – Mobility
 - Mobilize in all planes – especially DF
- Knee – Stability
 - Keep knees over the toes when squatting
- Hips – Mobility and Stability
 - Active and Passive mobility into hip ER and flexion
- Lumbar Spine – Stability
 - Learn to move from the hips and keep the spine flat during squats
- Thoracic Spine – Mobility
 - Mobilize it into extension and strengthen it so it doesn't flex (round) during squats
- Shoulders – Stability and Mobility
 - Scapular stability for a solid foundation and GH mobility for flexion/ER

Squat: Pattern Correctives

Pattern	Mobility Corrective	Stability Corrective	Pattern Re-training
Deep Squat	<ul style="list-style-type: none"> • Breathing • Soft tissue and joint mobilization for ankle, knee, hip, spine, shoulders • Tactical Frog • Ankle DF self-mobilization 	<ul style="list-style-type: none"> • Supine end-range triple flexion isometric • Tall Kneeling Chops/Lifts 	<ul style="list-style-type: none"> • Resisted supine triple flexion • Hip hinge patterning • Squat pattern with RNT cues for UE or LE • Goblet Squat

Squat: Set-up and Performance

- Feet shoulder width apart
- Toes should be turned out comfortably – not excessively
- Knees should track over the feet
- Pelvis should fall between heels
- 3 rules to look for:
 - Heels stay on ground
 - No excessive knee valgus or varus
 - No excessive lumbar flexion or “butt wink”

Squat: Variations

- Squat Variations
 - “Natural” Bodyweight PRI Squat
 - Neutral rib and pelvic positioning
 - Goblet Squat
 - Balance squat; chest up cueing
 - Counter-balance Squat
 - Hip dominant squat
 - Barbell Back Squat
 - High Bar = more knee dominant squat
 - Low Bar = more hip dominant squat
 - Barbell Front Squat
 - Knee-dominant squat pattern (“safer” on the back and hips)
 - Box Squat
 - Hip dominant (“safer” for the knees); more vertical shin
 - Split Squat
 - Exposes unilateral differences; best IMO for performance gains
- UE limitations
 - Safety Bar Squat
 - Belt Squat

Clinical Implementation

- Deadlift and Hinge prior to squatting
- Insure proper mobility then stability prior to performance
- Dynamic movement patterning prior to performance
- Insure proper technique prior to loading
- How do I periodize pushing and pulling in treatment?