



*Return to Horseback and Rough Stock Riding:
Suggested Activity Progressions for Post-Operative and Non-Operative Hip Injuries*

Introduction and Background:

This protocol was developed as a return to activity guide for equestrian and rough stock athletes of all levels with both operative and non-operative hip and pelvic injuries. Riding of all kinds requires significant strength throughout the lower quarters, controlled mobility throughout the trunk and hips, and proprioception demands that should be addressed with a rehabilitation or injury prevention program. As patients progress with activity, it is important to address all different aspects of riding including mounting, riding, jumping, and dismounting to ensure proper function throughout the kinetic chain leading to efficient and pain free movement execution.

In the initial phases, core muscle activation and pelvic control along with functional gluteal strength must be established in order to improve stability. Research shows orientation of the acetabulum and therefore pelvis can affect hip joint stability.¹ Pelvic control is key. As Vladimir Janda describes in the Lower-Crossed Syndrome, tight hip flexors, lumbar paraspinals, and lower thoracic paraspinals often coincide with weak abdominals, weak core musculature, and weak gluteals leading to faulty pelvic positioning. The Lower-Crossed Syndrome often leads to lumbar pain which is also common among riders. According to a study by Kraft et al in 2009, “Neither the riding discipline, being overweight, nor an over proportionally long trunk compared with leg length has an effect on the development of [disc degeneration] in riders. The predominant reason for back pain in the rider may therefore be functional, as attributed to muscular disbalance.”² This reinforces the importance of an all-inclusive rehabilitation program. From an activity standpoint, riders must maintain pelvic stability with varying seat and saddle positions along with navigating constantly changing load demands.

It is also important to progress strength and coordinated movement patterns across the midline. Often referred to as a faulty lateral or oblique sling, decreased trunk and hip mobility is often seen with contralateral gluteal, adductor, and core weakness. It is common for mobility to be limited throughout the left trunk and hip as a compensation to strength deficits throughout the right lower extremity since the right leg is more often than not the driving force needed to control the animal. Decreased internal rotation of the left hip can also be problematic for dismounting techniques used for some rodeo events. As progression continues and post-operative milestones are met, landing mechanics and plyometric training are also important in preparation for mounting and dismounting and to encourage safe fall techniques. Exercises should incorporate varying loads and unstable surfaces to prepare for the stability demands required to ride an unpredictable animal on unstable terrain. Proprioception and reactivity should be challenged throughout the entire rehab process. Functional exercises should address the specific demands of the patient’s riding style, techniques, and requirements.

Our clinicians have broken down common riding situations into multiple components in order to address isolated weaknesses. This protocol refers to common strength and mobility exercises as well as riding related exercises utilizing varying challenges to improve strength and control of each desired muscle group or segment to build efficient complex multi-segment movement patterns.

1. Dumont, G. Hip Instability: Current Concepts and Treatment Options. *Clin Sports Med* 2016; 35:435-447.
2. Kraft C, Pennekamp P, Becker U, Young M, Diedrich O, Luring C. Magnetic resonance imaging findings of the lumbar spine in elite horseback riders. *Amer J Sports Med.* 2009; 37: 2205-2213.



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Weeks 1-4: Focus on core control and basic hip strengthening.

- General post operative protocol if applicable
- Pelvic tilts in varying postures with adduction and abduction isometrics
- Straight plane glut and adductor strengthening
- Core activation within post op/injury protocol limitations
- Hip and thoracic mobility within post op/injury protocol limitations
- Hamstring strengthening within protocol limitations

Weeks 4-6: Focus on weight bearing transitions and proprioception.

- Stacked posture balance activities with dynamic challenges
 - Pelvic tilts in tall kneeling and standing
 - Calf raises on flat ground, steps, and unstable surfaces. Both straight and bent knees.
 - Tibialis anterior strengthening and endurance work
 - Bear pose, bird dog, and dead bug progressions
 - Single leg balance activities on stable and unstable surfaces. Include upper extremity and thoracic strengthening with functional exercises replicating rein control and/or grip hand control.
- *Perturbations can be used with all exercises

Weeks 6-8: Non loaded rotation for deep rotator activation and motion progression.

- Coretex controlled IR/ER, flexion/extension and abduction/adduction
- Prone, quadruped, and AAROM IR/ER with assistance and resistance
- Continue core progressions in functional positions
- Clams/reverse clams with resistance. Add speed component when able to maintain good form and isometric holds to improve endurance
- Eccentric abduction and adduction strengthening
- AAROM abduction with focus on maintaining core control- with and without resistance
- Crawling progression
- Dorsiflexion/plantarflexion strengthening in varying degrees of internal and external rotation as tolerated

Weeks 8-10: Initiate functional activities in varying positions.

- Shuttle press progressions in parallel and turned in and out with and without adduction/abduction isometric
- Multi planar lunges in parallel and varying degrees of internal and external rotation
- Incorporate trunk mobility and strength: open books and half kneeling thoracic rotation; Half kneeling chops and lifts
- Multi-vector training with thoracic rotation and stability components
- Posting and half seat work with time and repetition progression to build endurance
- Anterior and posterior chain strengthening with both balanced and offset loads
- Eccentric hamstring strengthening



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Weeks 10-12: Progress functional strength and endurance. Incorporate hip flexion activities. Progress balance activities.

- Continue functional core strengthening: ie plank progressions, anti-rotations, core challenges in varying postures
- Squats with assistance to varying depths with varying degrees of internal and external rotation with and without adduction isometrics.
- Progress speed and power work throughout core and lower extremities for spurring
- Concentric and eccentric hip flexor strengthening.
- Seated balance activities with varying proprioceptive challenges

Weeks 12-16: Progress loaded rotary strength and tolerance. Progress plyometrics for power and landing mechanics.

- Loaded rotational activities (may initiate prior to 12 weeks if non op)
- Introduce plyometrics – double leg and single leg
- Landing mechanics; mounting and dismounting techniques
- Initiate work on barrel/spur board if tolerated

Suggested Timeline for Returning to Riding (competitively)

Horseback Riding:

Easy flatwork on level terrain at 12 weeks with time increased incrementally

Posting and trotting/jogging starting between 12-14 weeks

Cantering/loping at 14 weeks

Jumps at 16 weeks with return to full competition between 4-6 months

Rough Stock Riding:

Practice barrel and/or spur board at 12 weeks post op

Training bull at 14-16 weeks

Full competition between 4 and 6 months

**Progression requires full and pain free motion, full hip and core strength, adequate pelvic control. Monitor pain and compensatory tightness during and after activity. Utilize incremental time and activity progressions to ensure adequate endurance throughout all components and musculature. All post-operative restrictions must be followed.



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Exercise Suggestions

Pelvic Tilts (Anterior/Posterior, Lateral, Rotation)

Supine with and without adductor squeeze

Quadruped

Seated on physioball

Tall kneeling with adductor ball squeeze

Standing against wall/ with lateral resistance/anti rotation

Seated with physioball between knees with progressions to ball tosses and proprioceptive challenges and upper extremity/trunk strengthening

Hip Flexion Activities/Progressions

Planks and reverse planks with varying lower extremity challenges

Side plank with physioball on wall flexion/abduction

Tall kneeling flexion/abduction completing partial and full ROM with and without TRX assistance

Standing lift overs

Eccentric hip flexion with resistance

Bridge with resisted knee drive

Tall kneeling Nordic quad extensions with and without adduction isometric

Short to tall kneeling with band resistance at hips

Posterior Chain Strengthening

Single leg bench bridges

Eccentric hamstring sliders – double and single leg with speed component when able

Nordic hamstring curls

Good mornings

Lateral step downs- with and without weight, balanced and offset

Mermaid tails on physioball/BOSU maintaining external rotation and heel squeeze

Bent over kick backs

Cone taps

Single leg RDLs with varying assistance/resistance

Bridges on unstable surface

Lunges in all planes

Hip Hinging mechanics

Kettle bell swings



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Bear Pose Progressions

Bear pose isometric
Bear pose with adductor squeeze
Bear pose with pelvic tilt
Bear pose with alternating extremity lift off
Bear pose with shoulder taps
Bear pose with resisted shoulder horizontal abduction and/or trunk rotation
Crawling progressions forward, backward, and laterally

Supported Core Progressions

90/90 adductor squeeze
90/90 adductor squeeze with ball overhead
Reverse crunch with adductor squeeze
Hollow hold variations on unstable surface; with ball overhead; with chop
Segmental rolling upper extremity and lower extremity flexion and extension based patterns
Copenhagen Planks

Rotational Strengthening

Supine resisted IR with adduction isometric with 90 degrees hip and knee flexion
Prone resisted IR
Quadruped resisted IR
Segmental rolling with resisted internal rotation
Quadruped pelvic control
Standing rotary control
Eccentric IR seated on physioball
Clam progressions in supine, side lying, quadruped, and standing

Functional Riding Exercises

Combined upper extremity and lower extremity challenges in varying riding positions and postures with reaction and proprioceptive components