**PROXIMAL HAMSTRING TENDON REPAIR PHYSICAL THERAPY PROTOCOL**

**Phase I: 1-6 weeks**

**Rehabilitation goals:** Protection of the repair tendon, pain control.

**Weightbearing protocol:** Use axillary crutches for up to 6 weeks. Postoperative weeks 0–2: Toe-touch weightbearing. Postoperative weeks 3–6: 15% - 40% bearing progression.

**Brace:** Hinged knee brace locked at 45 degrees at all times until postop week 6.

**Precautions:** Avoid hip flexion coupled with knee extension. Avoid unsafe surfaces environments to reduce risk of falling.

**Suggested therapeutic exercises**: Quad sets. Ankle pumps. Abdominal isometrics. Passive knee range of motion (ROM) with no hip flexion during knee extension.

Postoperative weeks 3–4: Begin pool walking drills (without hip flexion coupled with knee extension). Hip abduction, Hip extension and balance exercises.

Scar mobilization.

**Cardiovascular exercise**: Upper body circuit training her upper body ergometer (UBE)

**Progression criteria:** 6 weeks postoperative

**Phase II: (Begin after meeting phase I criteria, usually 6 weeks after surgery)**

**Rehabilitation goals:** Postoperative weeks 6–7: Unlocked hinged knee brace, weightbearing as tolerated with weaning off of crutches. Normalize gait. Good control and no pain with functional movements (including step up/step down, squat, partial lunge (do not exceed 60% of knee flexion).

**Precautions:** Avoid dynamic stretching. Avoid loading the hip at deep flexion angles. No impact or running

**Suggested therapeutic exercises:** Nonimpact balance and proprioceptive drills-beginning with double leg and gradually progressing to single leg movements.

Stationary bike. Gait training. Begin hamstring strengthening\_by avoidance of length and hamstring position ( i.e. hip flexion combined with knee extension) by working up extension and knee flexion movements separately. Began with isometric and concentric strengthening with hamstring sets, heel slides, double leg bridge, standing leg extensions, and physeal ball curls. Hip and core strengthening. Cardiovascular exercises: Upper body circuit training her upper body ergometer (UBE).

**Progression criteria:** Normalize gait on all surfaces. Ability to carry out functional movements without loading the affected leg. Demonstrating good control of single-leg balance greater than 15 seconds. Normal (5/5) hamstring strength in prone position with the knee in a position of at least 90 degrees knee flexion.

**Phase III: (Begin after meeting phase II criteria, usually 3 months after surgery)**

**Rehabilitation goals:** Good control and no pain with sports & specific demands, including impact movements.

**Precautions:** No pain during strength, flexibility, mobility training. Post activity soreness should resolve within 24 hours following activity.

**Suggested therapeutic exercises:**  Continue hamstring strengthening program–progress toward strengthening and lengthening hamstring positions; begin to incorporate eccentric strengthening with single-leg forward leans, single-leg bridge lowering, prone foot catches, and band assisted/modified range Nordic hamstring curls. Hip and core strengthening. Controlled impact exercises beginning with taking off from 2 feet landing onto feet progressing to take off from 1 foot and landing on contralateral foot, to take off on 1 foot landing on same foot. Movement control exercises beginning with low velocity/single-plane activities and progressing to higher velocity/multiplane activities. Initiate running drills, but no sprinting until phase IV.

Cardiovascular exercises: Cycling, Airdyne bike, elliptical machine, stairmaster, Versa Climber, swimming and deep water running.

**Progression criteria:** Dynamic neuromuscular control with multiplane activities at low to medium velocity without pain or swelling. Less than 25% deficit for side to side hamstring comparison on Biodex testing at 60 degrees and 240 degrees/sec.

**Phase IV: (Begin after meeting phase II criteria, usually 4-5 months after surgery)**

**Rehabilitation goals:** Good control and no pain with sport and work specific activities, including impact movements.

**Precautions:** No pain during strength, flexibility, mobility training. Post activity soreness should resolve within 24 hours following activity.

**Suggested therapeutic exercises:**  Continue hamstring strengthening program–progress toward toward higher velocity strengthening and reaction in length and position, including eccentric strengthening with single-leg forward leans with medicine ball, single-leg dead lifts with dumbbells/kettle bells, single-leg bridge curls on physeal ball, resisted running foot catches, and modified to full Nordic hamstring curls. Running and sprinting mechanic drills both on dryland and in the aquatic environment. Hip and core strengthening. Impact controlled exercises continuing with taking off from 2 feet landing onto feet progressing to take off from 1 foot and landing on contralateral foot, to take off on 1 foot landing on same foot. Movement control exercise beginning with low velocity, single-plane activities and progressing to high velocity/multiplane activities. Sport specific/work specific demands including balance and proprioceptive drills. Focus on patient specific muscle imbalances. Cardiovascular exercises: Continue to include cycling, Airdyne bike, elliptical machine, stairmaster, Versa Climber, swimming and deep water running, replicate sport and work specific energy demands.

Return to Sport/ Work criteria:

**Dynamic neuromuscular control with multiplane activities at high velocity without pain or swelling. Less than 10% deficit from side to side hamstring comparison on Biodex testing at 60 degrees and 240 degrees/sec. Less than 10% deficit on functional testing profile.**