

# Clinical and Functional Outcomes of Trans-Septal Remnant-Preserving versus Conventional Posterior Cruciate Ligament Reconstruction in Competitive Athletes

Supplementary file

## RETURN-TO-PLAY QUESTIONNAIRE AND EVALUATION

### SECTION 1: ASSESSMENT OF SYMPTOMS

- Do you experience any swelling or pain in any activity, including playing, in the last 7 days? (Yes / No)
- Do you feel episodes of giving way or instability in the knee? (Never / Rarely / Sometimes / Often)
- Do you experience posterior knee discomfort with deceleration, downhill walking, or stair descent? (Never / Occasionally / Frequently)
- Can you fully straighten the knee compared to the other side? (Yes / Almost / No)
- Can you fully bend the knee to at least 120° without pain? (Yes / Almost / No)

### SECTION 2: FUNCTIONAL ASSESSMENT

- Rate your current ability compared to pre-injury level (0–100%, where 100% = pre-injury level)

- Activities of daily living (ADL):
  - Walking on level ground: \_\_\_ %
  - Climbing stairs: \_\_\_\_\_ %
  - Descending stairs: \_\_\_\_\_ %
  - Prolonged standing (>30 min): \_\_\_\_\_ %

- Assessment of strength (subjective)
  - Rate each activity compared with the non-injured leg (0–100%).
    - Rising from a chair without using hands: \_\_\_ %
    - Single-leg squat on surgical leg (~60° knee flexion): \_\_\_ %
    - Single-leg heel raises (repetitions compared with other leg): \_\_\_ %
- Dynamic functional assessment
  - For each task, indicate whether you can perform it and rate symmetry compared with the non-injured leg.

Task	Can perform (Yes/No)	Symmetry (0–100%)
Single-leg hop for distance	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____ %
Triple hop for distance	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____ %
Crossover hop	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____ %
6-m timed hop	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____ %

- Y-balance test (YBT) performed during rehabilitation:
  - Not performed  No side-to-side asymmetry  Asymmetry present

### SECTION 3: ASSESSMENT OF SPORTS-SPECIFIC FITNESS

- Running and linear activities assessment:
  - Can you jog on level ground for 20 minutes without pain or swelling? (Yes / No)
  - Can you sprint at ≥80% of maximal speed (of pre-injury level) without pain/instability? (Yes / No)
  - Any symptoms with sudden deceleration or stopping? (None / Mild / Moderate / Severe)
- Cutting, pivoting, and contact assessment
  - For your main sport, rate your current ability (0–10; 0 = unable; 10 = pre-injury):
    - Straight-line running: \_\_\_/10
    - Side-shuffling / lateral movements: \_\_\_/10
    - 45°–90° cutting: \_\_\_\_\_/10
    - Jumping and landing (bilateral): \_\_\_\_\_/10
    - Single-leg landing on surgical leg: \_\_\_\_\_/10

- Sport-specific drills (e.g., tackling, heading, jumping for rebounds—specify).
- c. Endurance and load tolerance testing
- (i) Ability to complete a full training session at normal intensity:
- Yes  Partially  No
- (ii) Increase in symptoms the day after full training or match play:
- None  Mild  Moderate  Severe

**SECTION 4: PSYCHOLOGICAL ASSESSMENT FOR RETURN-TO-PLAY**

Rate your agreement with each statement (0 = strongly disagree, 10 = strongly agree).

- a. Assessment of confidence and fear
- I trust my knee during sport-specific movements (cutting, landing, contact). \_\_\_\_/10
  - I am confident I can play without my knee giving way. \_\_\_\_/10
  - I am not afraid of re-injuring my knee. \_\_\_\_/10
  - Thinking about returning to full play makes me anxious. \_\_\_\_/10 (reverse-scored)

- b. Perceived performance and motivation assessment
- I believe I can perform at or near my pre-injury level. \_\_\_\_/10
  - My knee limits my ability to perform key skills for my sport. \_\_\_\_/10 (reverse-scored)
  - I am motivated to complete the final phase of rehabilitation and conditioning. \_\_\_\_/10
  - Overall, I feel ready to return to full competition. \_\_\_\_/10

**SECTION 5: OBJECTIVE CLEARANCE CRITERIA (DONE BY THE CLINICIAN AS CLEAR/ NOT CLEAR)**

- a. Symptoms and strength assessment
- No effusion or posterior knee tenderness limiting activity:  Yes  No
  - Knee range of motion: full or  $\leq 5^\circ$  deficit vs contralateral side:  Yes  No
  - Posterior laxity (manual/instrumented): no progression,  $\leq 2$  mm difference:  Yes  No
  - Quadriceps strength  $\geq 90\%$  of contralateral limb:  Yes  No

- Hamstring strength  $\geq 100-110\%$  of contralateral limb
  - H/Q ratio  $\geq 70-80\%$ :  Yes  No
- b. Functional threshold assessment
- Hop test Limb Symmetry Index  $\geq 90-95\%$  on all tests used:  Yes  No
  - Y-Balance test (YBT) within acceptable symmetry:  Yes  No
  - Movement quality (single-leg squat, landing, cutting) without valgus collapse or protective gait:  Yes  No
- c. Global return-to-play assessment
- Symptom items mostly “None/Mild”.
  - Functional capacity items  $\geq 90\%$  of pre-injury.
  - Psychological readiness items majority  $\geq 7/10$  with minimal fear/anxiety.

Athlete and surgeon/physiologist in agreement to progress to:

Non-contact training only

Full training

Match / competitive play

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