UNIVERSITY OF MICHIGAN HEALTH
MICHIGAN MEDICINE

MedSport Return to Sport (RTS) Testing

How do I prepare for my Return to Sport Testing?

Part of your surgeon's post-surgery plan is a **functional movement analysis** (also called a functional screen). This is done to establish your readiness and risk for returning to your previous sporting activity. Your performance on this functional screen will provide your surgeon with data to determine your capacity to return to your desired activity. All anterior cruciate ligament (ACL) reconstruction patients should complete this evaluation as part of the clearance for return to full activity.

If you are planning to return to any sport or activities that involve the activities below, your surgeon may require this evaluation to clear you for return to full/unrestricted activity:

- Cutting
- Pivoting
- Change of direction
- Jumping (e.g., basketball, football, soccer, volleyball)

What areas are tested during a functional movement analysis?

The functional movement analysis is a test on both knees to ensure you have **quantitative and qualitative symmetry**. This means you have the same strength, endurance, power, and knee control in both the surgical and non-surgical knee.

- **Quantitative** means strength, distance, height, reps, time.
- **Qualitative** means shock absorption, dynamic knee control, pelvic/trunk alignment, and knee bending depth.

Phases of functional movement analysis

Over the course of your post-surgery rehabilitation, you will progress through the following Phases:

- Phase I (0-6 weeks) decrease swelling and increase knee motion
- Phase II (6-12 weeks) increase core, quad and hamstring strength
- Phase III (3-6 months) walking and jogging, balance, controlled dynamic strengthening
- Phase IV (6-9 months) increase activities specific to impact sports, speed, change of direction, cutting, pivoting and first RTS test.
- Phase V (9+ months) second RTS test and discussions or decisions for return to play

Your therapist will provide you with techniques on quality lower body control during these activities. It is very important to make these habits to reduce your risk of new or re-injury when you return to sport. Lower body control will also be evaluated during the functional movement analysis.

Return to sport testing day

Expect the movement analysis and post-test review to take approximately 90-120 minutes

1. The evaluation will start with a leg press test to establish that you are able to single leg press your **body weight at least 15 times**.
2. After successfully completing the leg press test you will perform a video jumping test that will evaluate your landing technique and control.
3. After completing the jump test you will have tests that focus on single leg power, core endurance, single leg hop distance, hamstring strength, single leg squat control, and agility (ability to move quickly and easily).
4. After the test you will be asked to complete a knee confidence questionnaire.

5. Finally, the quantitative and qualitative results of this test will be provided to your surgeon as another measurement to assess your capacity to return to your desired sporting activity.
6. Please bring a blank USB drive so we can give you a copy of your videos. You will also receive a printed copy of your results.

Results/scoring/interpretation

Your surgical team decides what you are cleared to return to. The goals for successful completion of the functional movement analysis are:

- The surgical leg must show **quantitative** symmetry (as described above). This means it is more than 95% as strong as the non-surgical leg on all tests. If the non-surgical leg does not demonstrate quantitative symmetry, research has shown the risk of re-injury with return to sport can be up to 38%.
- The surgical leg must show **qualitative** symmetry (as described above) to be more than 80% on all tests.
- Perform single leg press strength symmetry of 1-1.5 times body weight for at least 15 reps.
- Show hamstring and hip abduction (away from the body) using handheld dynamometry (a tool to measure strength/endurance) symmetry of more than 95%.
- Show single leg squat knee bending depth of at least 45 degrees and control while performing more than 20 repetitions in 60 seconds.
- Show controlled acceleration/deceleration dynamic knee **valgus control** (avoiding knee collapse inwards or towards midline) with multi-directional agility and impact activities.

Follow-up/maintenance

- If you are asked to perform the RTS again we will set-up another RTP movement test in 6-8 weeks

    - We will tell you areas that need improvement to show better readiness to return to your sport and you will receive exercise handouts with things to work on.
- If you are cleared by the surgical and rehabilitative staff you will receive exercises to help maintain your current accomplishments and how to continue to improve your symmetry.

How much does RTS testing cost?

RTS testing is 1-time patient cost of $250 to be paid in full upon arrival day of testing.

- Active MedSport patients may have the opportunity to use billable therapy visits for this testing. (Tell your clinician to try and save 2 visits).
- Let us know if you have a special financial situation. We meet this cost based on need.

Definitions:

- Knee valgus/Varus: assessing the ability to control and prevent the knee from collapsing inward (valgus) and outward (varus) of the toebox during dynamic movements
- Hip Stability: assessing the ability to control knee valgus within the width of the toe-box by controlling the femur against extra uncontrolled femur internal rotation and adduction.
- Pelvic Stability: assessing the ability to maintain a neutral pelvis which is keeping hip points at equal height when the femur is rotating outwards at different angles.
- Trunk Stability: assessing the ability to maintain an upright neutral spine position in all planes of motion. How well can you can maintain shoulder, hip, knee, and ankle alignment.

- Shock Absorption: assessing the ability to control the bend in the knee and hip with take-off, landing during impact, and agility movements. How well you can move while bending your knee and hip with impact.