



QUESTION |Should my patient wear a knee brace when returning to sport after an ACL reconstruction?

ANSWER | ACL reconstruction improves knee kinematics, hopefully reduces the likelihood of progression of degenerative changes and allows people to return to sport without the sensation of instability in their knee. The risk of re-injury is much higher if the patient returns to sport within a year post surgery because the graft has not fully matured and they have not properly restored proprioceptive function to the knee.

Salmon et al: Incidence and risk factors for graft rupture and contralateral rupture after anterior cruciate ligament reconstruction. Arthroscopy 2005;21(8):948–957 (Level IV study)

Having any type of brace (not necessarily a functional brace) on the knee may improve patient confidence and perhaps sensory feedback by having something touching the skin around the knee.

A recent meta analysis in the Journal of the American Academy of Orthopaedic Surgeons (*March 2017, Vol 25, No 3*) looked at 15 studies comparing subjective and objective variables between bracing and non bracing after ACL reconstruction. A significant number of these studies were in patients having had middle third patella tendon grafts which are stiffer than hamstring grafts and seem to have a different re-injury pattern. There were also reports of findings which were only seen in a single study, often with small patient numbers.

Advantages:

- Decreased AP translation force
- Decreased tibial rotation
- Increased peak knee abduction moment
- Perhaps less injuries skiing if you have persistent joint laxity
- Joint angle sense improved (but also with simple non functional brace)
- Faster return to work

These was not found in every study

Disadvantages:

- Decreased peak knee extension and flexion torque
- Prolonged brace usage decreased quadriceps muscle strength at 60 degrees of flexion
- Increased quadriceps atrophy from 3 months of wearing the brace
- Advantages diminish with increasing levels of activity
- Cost \$1600

No Difference

- Knee stability
- Hop test
- Range of motion
- Isokinetic strength testing
- Running speed
- Agility

- Jumping and landing accuracy
- Joint laxity or range of motion
- Joint position sense
- Balance testing
- IKDC
- Tegner
- Cincinnati, Knee Injury and Osteoarthritis Out-come Score
- Visual analog scale scores
- Varus/Valgus asymmetry (but improved in one study)

The differences seen in knee kinematics with brace use imply that there might be a protective benefit to reduce the rotation and translational stresses associated with ACL injury. This is only a theory and is not supported by clinical data and unfortunately there are no epidemiological studies showing that improved rotation and translation stresses will result in a lower injury rate. If the patient does wear a brace they must redouble their efforts to increase muscle bulk and avoid wasting. With no differences in almost all the other parameters, the very high cost of the brace and also the potential harm associated with muscle wasting using a brace I currently do not routinely suggest use of a brace when returning to sport after an ACL reconstruction.

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