Overview: Patients facing ACL reconstruction have a decision to make regarding graft options. Reconstruction of a torn ACL involves using grafted tissue that the body then utilizes to incorporate over time into a functioning ACL. It is important to weight the pros and cons of each graft and make an informed decision based on your specific injury as to which graft is the optimal choice. The benefits of each graft can be discussed with the surgeon prior to surgical reconstruction and an optimal choice will be selected. Things to consider when weighing choices include: age, activity level, and commitment to rehabilitation. However, the surgical technique and rehabilitation programs for each graft are similar. Most importantly, the end goal for each patient after ACL reconstruction, regardless of graft choice, is a strong functioning ACL.

Allograft: The first decision to make regarding graft choice is to choose between allograft and autograft. An allograft uses cadaver tissue from a donor while an autograft is the patient’s own tissue that is obtained at the time of surgery. Allografts are typically done using a patella tendon graft. An allograft avoids any complications and added pain associated with harvesting and utilizing one’s own tissue. Initial recovery from allograft ACL reconstruction has the fastest return to daily activities, but these grafts take the longest time to incorporate into a functioning ACL. Because of this prolonged healing time, return to sports and cutting activities takes longer and in some instances are associated with a higher failure rate than autografts. As with any transplanted tissue, there is also a very minimal risk of disease transmission. An allograft is optimal for patients not returning to high-risk activities, adult patients, patients who need multiple ligaments repaired, and patients having ACL revision surgery.

Patellar Autograft: A patellar autograft uses the middle 1/3 portion of the patient’s patella tendon, which is the tendon that connects the patella (kneecap) to the tibia (shinbone). Patella tendon autografts involve a vertical incision along the patella, while allografts only require smaller incisions. The patella tendon is harvested with two bone plugs on either end that are used to attach the graft in the right position. Historically, this graft choice has been considered the gold standard for ACL reconstruction and is the most popular graft choice among Division I athletes. However, this surgery is the most painful initially and can be associated with increased loss of quadriceps muscle and patellar tendonitis throughout the rehab process. Patellar autografts have the strongest initial fixation and the shortest graft incorporation time allowing the fastest safe return to athletics given proper rehab.

Hamstring Autograft: The hamstring complex is made up of a series of four muscles with their attaching tendons. A hamstring autograft for ACL reconstruction consists of two hamstring tendons: semitendinosus and gracilis. The tissue is folded into a bundle and attached to the bone with screws and washers. Hamstring autografts involve an incision on the inside of your tibia below the knee. This graft is associated with less postoperative pain and less quadriceps muscle weakness as compared to a patellar autograft. It can be considered the middle ground between allograft and patellar autograft in terms of initial fixation strength and length of time before return to sports.

For more information, visit my website at drk.com or email us at DrK.MA@wosm.com