*PICO: In middle-aged individuals status post anterior cruciate ligament reconstruction (ACL-R), does an allograft or autograft lead to better return to premorbid activity levels?*

 Anterior cruciate ligament (ACL) ruptures are one of the most common injuries in active and athletic populations.1-3 While operative management has been considered standard for younger populations, treatment for older individuals with ACL-deficient knees has been controversial.2,5-7 Middle-aged individuals are staying active and becoming increasingly unwilling to compromise or modify their activity levels after sustaining an ACL injury.5,8 Early surgical stabilization is recommended to restore knee joint function. Both autograft and allograft tissues have distinct advantages and disadvantages. Briefly, autograft tissue has advantages of no risk of disease transmission and faster incorporation and healing11; disadvantages include donor site morbidity11 and unpredictability in graft sizes and quality.9 Allograft tissue has advantages of absence of donor site morbidity and greater availability and predictability of graft sizes11; disadvantages include risk of disease transmission, delayed incorporation time, and variability in mechanical strength due to secondary sterilization techniques.10 Thus, it is important to know the surgical options available and how this might impact the ability to return to desired activity levels.

 Joint laxity is a common objective measurement taken after ACL-R, with frequent use of Lachman testing or KT-1000 arthrometer measurements. Barrett et al. and Gorschewsky et al. directly compared middle-aged autograft and allograft groups in their studies.2,15 Both sets of authors reported more laxity in their allograft group, with significance only being reached in the latter study.15 The investigators stated allograft tissue takes longer to incorporate into the body than does autograft tissue2, but Gorschewsky et al. observed significant re-rupture rates in their allograft group, hypothetically due to employment of a particular sterilization technique.15 Other studies did not find significant laxity differences when comparing auto- or allograft groups to younger patients with the same surgical tissue.7,8,16,17 Conclusively, it appears allograft tissue has the propensity for delayed incorporation, which may result in increased laxity in the ACL-R of middle-aged individuals. More direct comparison studies between allograft and autograft ACL-R in this population are needed to ascertain this statement.

 When examining selected outcome measures and return to activity across studies, an assortment of measures are used including the Lysholm Knee Scoring Scale, Tegner Activity Scale, and International Knee Documentation Committee evaluation form (IKDC). Barrett et al. found no significant differences between groups in postoperative Lysholm or Tegner scores at each follow-up, and IKDC scores showed 88% and 84% of the allo- and autograft group returned to normal levels of activity, respectively.2 Across other studies, return to normal knee function and previous levels of activity was noted regardless of graft selection.7,16 A small percentage of subjects reported a reduction in their activity level, opting to participate in safer, lower level activities postoperatively.16 Other authors have compared autograft and allograft tissue between middle-aged and younger patients, ultimately finding comparable results in subjective and objective function.5,8,17

 The present review of evidence cannot detect a superior graft choice; both seem to restore adequate function and joint stability in the middle-aged population. Additionally, operative treatment proves better than nonoperative treatment in restoring stability and function and is comparable to results in younger patients. However, the delayed incorporation of allograft tissue and the general decreased healing ability of middle-aged individuals can prolong recovery time. Although this review was a comparison of surgical interventions, PTs need to be aware of graft choice and how the ligamentization process may impact rehab, recovery time, and return to premorbid activity levels.References:

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