

At Issue: “Hip labral reconstruction: Is the optimal method of Hip Labral Reconstruction Segmental or Circumferential?”

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Most debates on this issue in which I have participated have focused on labral reconstruction vs. repair or debridement. Therefore, I see this opportunity to discuss the advantages of complete labral reconstruction vs. segmental grafting as a sign of progress. Labral reconstruction, in general, offers clear advantages over repair. In the presence of chronic FAI, the torn labrum is inherently degenerative and damaged. The conventional repair technique involves exposure of the acetabular rim for anchor placement and compromises its vital blood supply. These factors make it challenging for the repaired labrum to truly heal, maintain its seal function and not be painful. Labral reconstruction offers obvious advantages. The painful labral tissue is removed, the acetabulum can be optimally shaped, and the new labral graft can confer all of the biomechanical advantages of the native labrum, but it should remain aneural as it incorporates. As a result of this, labral reconstruction provides more consistent pain relief than labral repair.

Segmental grafting is typically performed in the anterosuperior (AS) quadrant of the acetabulum where the labrum is typically the most significantly damaged. This area is also in the thickest aspect of the acetabular rim and anchor placement in this zone is easier. Clearly, it is a simpler procedure to perform than complete reconstruction, but it is fundamentally limited. Its most significant limitation is that the native labrum that remains and is not replaced is rendered weaker as it has lost its circular structure and thereby its hoop fiber strength. There is no effective way to fix adjacent native labral tissue to the graft, and the tissue is therefore weakened and more vulnerable to tearing in the future. Many of my early segmental grafts failed as a consequence of tearing of the antero-inferior native labral remnant.

The longer graft is more complete and creates a stronger construct to re-establish a seal with the femoral head and reproduce normal hip biomechanics. Complete reconstructions span from the origin of the anterior transverse acetabular ligament to the postero-inferior acetabulum. These allow for a more thorough correction of the pincer and for a more effective treatment of all posterior labral pathology. A longer graft more closely represents a circle and, although it is not complete in this regard, it is stronger than a shorter graft. Its length more closely re-establishes the normal hoop fibers of the native labrum. The construct of a complete labral reconstruction is like a suspension bridge in that graft material is positioned both in front of and behind the AS quadrant of the acetabulum, giving added strength to the graft in this high stress region. In contrast, the segmental graft placed exclusively in this zone is not afforded any surrounding strength and support of its construct. Complete allograft labral reconstructions have been well validated in the literature. Within my 2016 revision study, we sub-analyzed longer grafts vs. segmental grafts and found a statistically lower failure rate with the longer grafts.

Segmental grafting is part of an evolutionary process. As surgeons gain experience and the ability to comfortably work around the entire acetabulum, it is only logical that graft length will increase just as it did in my hands. Anyone who is interested in expanding his or her zone of labral reconstruction is welcome to visit me and learn more.