Articular cartilage covers the ends of the bones in a joint. It cushions the bone, prevents wear of the bone and is very slippery when lubricated with normal joint fluid allowing for pain free joint function. Many common knee injuries, some even seemingly minor, can result in damage to this tissue. Alternatively, excessive stress over time may also cause it to become thin and worn. This damaged cartilage may result in knee pain, swelling, tenderness, clicking, popping or grinding in the knee, as well as limited motion of the joint. Unfortunately, the body cannot repair articular cartilage. The OrthoIndy Cartilage Restoration Center has been pursuing both standard and investigational methods for surgical repair/restoration of these lesions for over ten years.

One of these current investigations is based on earlier work performed by Dr. Jack Farr, an OrthoIndy and IOH surgeon, and other colleagues. The pilot study of 29 patients (19 of which were performed by Dr. Farr) demonstrated positive results during 4 years of follow up and was recently published in the June 2011 issue of the prestigious American Journal of Sports Medicine (Vol. 39, No. 6 ppg. 1170-1179).

The FDA has approved a large pivotal study (enrolling over 300 patients) of this new technique that will be able to statistically prove (or disprove) the favorable trends of the smaller first study. “This pivotal study will further document the safety and allow a more complete evaluation of the effectiveness of the Cartilage Autograft Implantation System or CAIS,” said Dr. Farr. He is one of two lead investigators the a multi-centered study with 27 participating surgeons located across the US.

"Cartilage fragments are combined with an absorbable scaffold material and fixed into the cartilage defect after it has been cleared of debris, as in preparation for microfracture."
The CAIS procedure begins with the surgeon obtaining a amount of healthy cartilage from a non-weight or low-weight bearing area of a patient’s knee. The tissue is then processed into small pieces. These cartilage fragments are glued onto a bio-absorbable scaffold and fixed into the cartilage defect after it has been cleared of debris. Patients will be randomized between this new procedure and a current standard cartilage procedure: microfracture.

The standard microfracture technique involves clearing the base and walls of the cartilage lesion the same as with CAIS—establishing a clean bone base and vertical walls of the surrounding healthy cartilage. Small holes are made in the bony base using an arthroscopic awl that resembles an ice pick. Blood, carrying pluripotent cells, from the underlying cancellous bone flows from these holes and forms a clot. Over time, with early protected motion the clot forms tissue ranging from fibrous cartilage to hyaline-like cartilage.

To date, there have been 17 participants enrolled in the current pivotal study. All participants must be between the ages of 18 and 55, and have knee pain caused by cartilage damage. To see more details regarding the study, please visit www.clinicaltrials.gov or the study area of the OrthoIndy Web site.

To learn more about this study, please contact Andi Clifford or Vicki Snodgrass Miller at (317) 884-5265.

Jack Farr II, MD

As a leader in US cartilage restoration advances, Dr. Farr participates in several ongoing articular and meniscal cartilage clinical trials. He also designed and received a patent for a Meniscal Allograft Transplant System. For patients with knee changes too far advanced for restoration, Dr. Farr worked as a design surgeon for a new partial knee replacement system.

Ranked one of the 70 best knee surgeons in America.