FDA approves knee-injury device for humans

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A new knee-surgery device investigated by University of Missouri-Columbia researchers that will help to repair meniscus tears, which were previously defined as irreparable, has been approved by the FDA for use in humans.

Previous treatment options forced surgeons to completely remove the damaged portion of the meniscus. Typically the removal of the meniscus leads to painful, debilitating arthritis in the knee. Herb Schwartz, president and CEO of Schwartz Biomedical, LLC, and James Cook, MU professor of veterinary medicine and surgery and William C. Allen Endowed Scholar for Orthopedic Research in MU's College of Veterinary Medicine, developed the BioDuct Meniscal Fixation Device. Schwartz and Cook believe that patients with meniscus tears will now be able to have their meniscus saved along with long-term knee function.

"In the past, when faced with meniscus injuries, surgeons were often forced to completely remove the torn meniscal cartilage, leaving a deficient knee that was doomed to develop arthritis," Cook said. "With the BioDuct Meniscal Fixation Device, surgeons will be able to repair torn menisci and induce healing. People with meniscus injuries now have a better future ahead."

The meniscus, a padding tissue that provides shock absorption and joint stability in the knee, is crucial for normal knee function. Surgeries for meniscus tears are common with approximately one million occurring in the United States each year. When meniscus function is deficient, bone rubs on bone and arthritis is likely to develop and progress. Because two-thirds of the meniscus is avascular (lacks a blood supply), a tear in that region will not repair itself. This new device will transport blood and cells from the vascular portion of the knee to the avascular portion of the meniscus. Supplied with blood and cells for healing, the previously untreatable meniscal tear now has the potential for allowing the knee joint to be saved.

Cook's research team performed the BioDuct surgery on 25 dogs that had worst-case scenario meniscal tears. With the BioDuct Meniscal Fixation Device, the meniscus in the dogs' knees had complete or partial repair after a few weeks in all cases.

"Currently, there are no other devices that can provide improved fixation over time," Schwartz said. "Therefore, the BioDuct device is set apart from the rest of the field."

In his research, Cook found that the device will significantly improve healing of avascular meniscal tears both biologically and biomechanically, which should lessen the long-term effects of meniscus injuries, including osteoarthritis. Cook's recent findings were published in the American Journal of Sports Medicine.

"The BioDuct device could impact the industry by improving repairs of the meniscus to such an extent that fewer patients develop arthritis that results from removing the meniscal tissue," Schwartz said. "Thus, with fewer patients developing arthritis, the result could be fewer total joint replacements or at least delaying the need for a total joint replacement."

Source: University of Missouri-Columbia