

# In the News - Sonny Bal, MD - University of Missouri

## Dr. Bal in the News

### Research team produces biological joints

*The Columbia Daily Tribune*

By Janese Silvey

Friday, December 31, 2010

University of Missouri researchers are continuing to find ways to create biological joints they hope will one day replace the need for artificial metal joints.

James Cook, a researcher in the University of Missouri College of Veterinary Medicine and Department of Orthopaedic Surgery, participated on a team that created new cartilage in rabbits using a biological scaffold in the animals' joints. The study, published this fall in *The Lancet*, was led by Jeremy Mao of Columbia University in New York.

The surgery works by implanting scaffold structures into animals with the same technique now used in human shoulder replacements — by replacing the entire humeral head, the ball area that connects to the socket in shoulder joints. In this study, researchers inserted the scaffolds into rabbits, then infused the structures with a growth factor that encouraged the animals' own cells to become cartilage and bones.

Rabbits infused with the scaffolds were able to put weight on their limbs and use them faster and more consistently than rabbits treated without the scaffolds. After four months, researchers found that cartilage had formed in the scaffolds, creating a cartilage surface for the humeral head. The rabbits did not show any signs of complications or negative side effects.

“The device was designed with both biological and mechanical factors in mind,” Cook said in a statement. “It is unique in design and composition and in how it stimulates the body's own cells. This is the first time we have seen cartilage regeneration using this type of scaffold.”

Unlike previous biological joint research, this technique eliminated the need to harvest and implant stem cells, which requires multiple surgeries.

Cook also was involved in research at MU that used lab-grown cartilage in the past to mold new knees and hips for dogs, working alongside Sonny Bal, associate professor of orthopedic surgery in the MU School of Medicine.

“We are continuing our concerted efforts in this arena,” Cook said. “Our goal at Mizzou’s Comparative Orthopaedic Laboratory is to do away with metal and plastic joints, and instead, regenerate a fully functional biologic joint for everyone who needs one. We think this is the future of orthopedics, and we hope that future is starting here and now.”

*This article was published on page A12 of the Friday, December 31, 2010 edition of The Columbia Daily Tribune.*