

Innovative surgery by MSU veterinarian provides new lease on life to dogs

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Jake, an 11-year-old yellow Labrador Retriever, underwent surgery at Michigan State University's Veterinary Teaching Hospital last April for a cementless elbow prosthesis. Here, Jake traverses an obstacle course to measure his stride. Credit: Jason Cody

Only six months after undergoing a unique and innovative surgery at Michigan State University, Jake – part dog and now part machine – spends his time working out on an underwater treadmill, traversing obstacle courses and prancing around pain free.

Jake, an 11-year-old yellow Labrador retriever, was the first dog in the Midwest and only the 11th in the world to undergo surgery for a new, cementless elbow prosthesis last April. The procedure, done at MSU's Veterinary Teaching Hospital by veterinary orthopedic surgeon Loic DeJardin, has left Jake pain free from elbow arthritis.

Without the surgery, Jake would have dealt with severe pain for the rest of his life.

Dejardin has helped MSU's hospital become one of the first four institutions in the country to offer this elbow prosthesis, which has potential applications for human joint replacements as well.

"Jake's case has been an absolute success," said Dejardin, who has performed three more elbow prosthetic surgeries and is preparing for another this week. "The work we are doing here is transforming veterinary care."

Jake was referred to MSU by veterinarian Sarah Shull of Grand Rapids' Family Friends Veterinary Hospital and Pet Care Center, where he now undergoes intensive physical rehabilitation under the guidance of Kim Selbee. Dan and Sue Falk of Grand Rapids are Jake's owners.

"We were told originally there was nothing that could be done for the pain Jake was in," Sue Falk said. "But after talking with Dr. Dejardin, we were so impressed and wanted to try the surgery. It is so exciting to be part of such amazing work.

"Jake is running around just like he did when he was younger."

The technology for the prosthetic elbow came to MSU through the work of Randy Acker, a veterinarian from Idaho, and Greg Van Der Meulen, an engineer now working with BioMedtrix, a New Jersey company and leader in joint replacement design.

Cementless prostheses have many potential advantages over the currently used cemented model, including reduced risk of infection and reduced rate of implant wear, both of which are regarded as leading causes of post-surgery morbidity and implant failure. The surgery also is

performed as a minimally invasive procedure, which drastically cuts the risk of catastrophic complications, fractures and dislocations.

"Clinical results have been very positive, and we believe there is potential for this system to mimic total hip replacement in aspects of operating time, post-op function and patient recovery," DeJardin said.

Van Der Meulen said the design of the implant virtually guarantees proper alignment of the joint surfaces, as opposed to other designs which leave greater room for surgical error.

"With this surgical technique and instrumentation, we are able to prepare the bones of the elbow simultaneously, practically guaranteeing alignment," he said. "Depending on the joint, this could have potential for use in human joint replacement as well."

Source: Michigan State University

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