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# Chronic Lameness and Extracorporeal Shockwave Therapy--Advanced Treatment Offered at ISU Vet Med

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# Chronic Lameness and Extracorporeal Shockwave Therapy--



## Advanced Treatment Offered at ISU Vet Med

SANDY ANDERSON\*

Chronic equine lameness plagues many owners, trainers, and veterinarians in the field today. It is always exciting to learn that a new technique is available to help heal chronically lame patients, but it is even more exciting to say that a new technique with so much promise is being utilized right here at our own institution! I am talking about Extracorporeal Shockwave Therapy or ESWT for acronym junkies. It is a noninvasive procedure used to treat certain forms of chronic equine lameness that have not been amenable to proper healing. First used on humans in the 1980s to treat kidney and gall stones and now approved by the FDA to treat orthopedic conditions such as heel spurs in humans, shock wave therapy is being utilized in veterinary medicine to treat equine orthopedic conditions

that cause lameness.

Dr. Scott McClure, a 1990 ISU veterinary medicine graduate and Assistant Professor in Veterinary Clinical Sciences at ISU, is currently utilizing shock wave therapy on equine referral patients at the veterinary teaching hospital in his clinically applied research. After doing his large animal surgery residency at Texas A & M and earning his PhD, he practiced equine medicine in Oklahoma before taking a position at the College of Veterinary Medicine at Purdue University. There he developed his interest in using ESWT in equine orthopedics, and as of August 2000, he is continuing his research here at ISU. His research includes bone histopathology studies done by his colleague at Purdue University, Dr. David VanSickle, a 1957 ISU veterinary medicine

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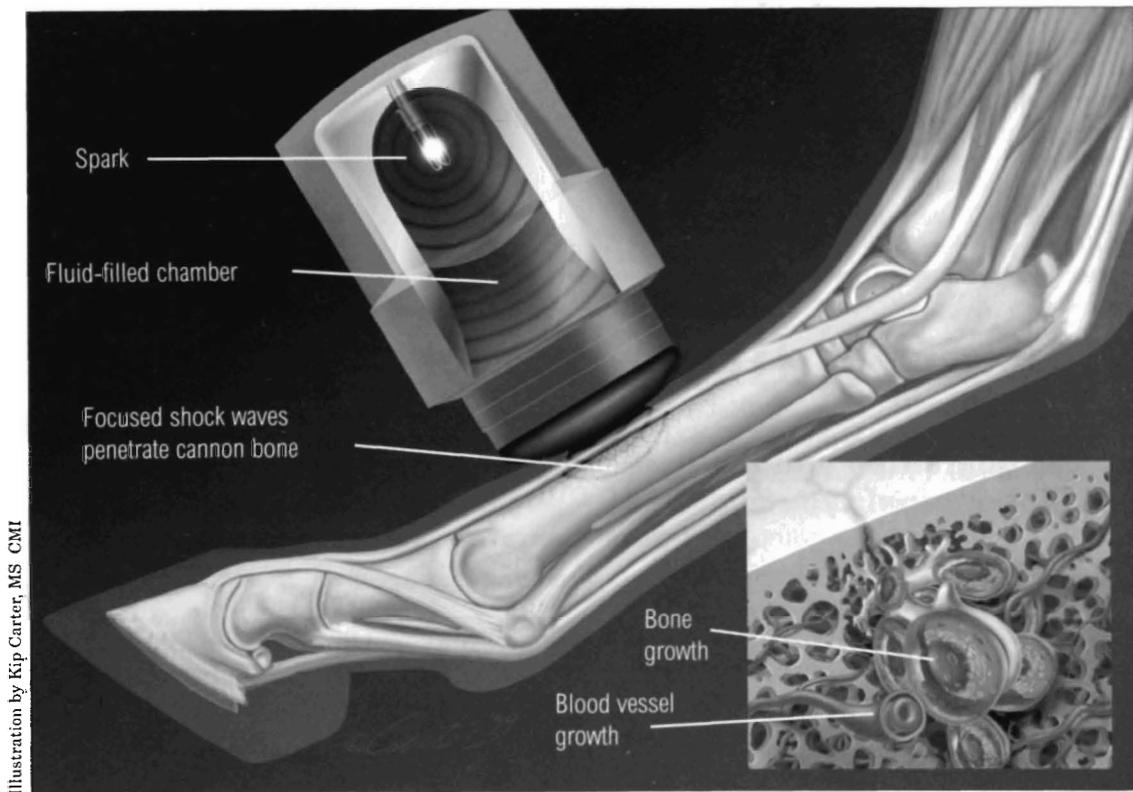
**Above: Dr. Scott McClure performs shockwave therapy on a standing, sedated horse for treatment of a suspensory ligament problem.**

graduate. So far, Dr. McClure has treated approximately 30 cases at ISU since August and plans to publish his research in the future. So what is it, how does it work, and when should you refer a patient to Dr. McClure for possible treatment? Let's investigate.

Extracorporeal shockwaves, essentially, are rapid pressure waves generated outside the body that travel through the tissue site of choice. Dr. McClure uses the electrohydraulic method of generating the shock waves, whereby a high voltage spark gap in a liquid medium initiates the pressure wave. Various treatment depths can be achieved, and with accurate focusing, only the target area is affected. The horse can be treated standing with sedation and analgesia, or treated under general anesthesia. Soft tissues surrounding the treatment site are not acutely damaged, according to Dr. McClure. Preliminary research for human medicine was done on dogs and it has now become an accepted treatment modality in humans, leading to the promising use of ESWT in

equine musculoskeletal disorders. Research has shown that shock waves stimulate osteogenesis. The actual mechanism of stimulation is not known, but there is evidence of increased blood flow to the site, increased cytokine production by cells, and increased BMP production by osteoblasts. All this apparent stimulation by ESWT can help the body heal its injury by itself. Multiple treatments may be necessary depending on the condition, but one average treatment for a suspensory ligament lasts about 17 minutes and delivers 1500-2000 shocks to the tissue. Stress fractures, bone spavin, navicular disease, and suspensory ligaments that never healed are the most common indications for use. Horses suffering from problems such as severe degenerative joint disease, laminitis, or lower neck and back problems are usually not considered good candidates for ESWT due to the nature of these diseases.

Currently there are only a handful of locations across the United States that offer ESWT treatment due to the exorbitant cost of the machinery. As an expert in the field,



**This diagram illustrates how the generation of a spark inside the machine transmits a shockwave to the problem area in a horse's leg to stimulate increased growth and healing.**



Scott McClure, DVM

**Shockwave therapy can be performed on the navicular bone with the horse in lateral recumbency and under general anesthesia.**

Dr. Scott McClure has given numerous presentations on ESWT in the United States and abroad, but still has the time to answer any student, practitioner, or owner questions that may arise about this advanced technique. Although more long-term research is necessary to make concrete conclusions about the benefits of ESWT in

equine species, the beginning results are very impressive. You can thank your human friends for providing twenty years of the necessary sound medical evidence and proven clinical performance that was needed to begin convincing veterinarians of ESWT's benefits. Now isn't that an ironic switch?!◆

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