## Surgeon Develops Device to Help **Preserve Injured Tissue**

Compartment syndrome can develop quickly in the limbs of patients with broken bones or crush-type injuries. The pressure of the swelling within the muscle compartment can increase enough to cut off the blood supply.

*Orthopaedic surgeon Bruce Steinberg, MD, invented a new device that may soon benefit patients with compartment syndrome.*

Tissue death can occur within just six hours. The patient may permanently lose muscle function and even require amputation.

Bruce Steinberg, MD, orthopaedic surgeon with Jacksonville Orthopaedic Institute, has spent the last 20 years developing an innovative tool to help physicians, nurses and other medical personnel quickly screen whether a patient may have dangerous pressure elevation. The goal is to detect the rising pressure early enough to open the compartment and preserve the patient's tissue.

"In orthopaedics, compartment syndrome is a devastating problem if not detected and treated promptly," Dr. Steinberg said.

Physicians currently have two methods to make a diagnosis. They feel the area to determine its hardness (the area may feel swollen and tight, like it's going to explode), and a painful invasive test that involves placing a needle in the muscle compartment.

Dr. Steinberg created and patented a noninvasive tool in which a spring-loaded plate is fitted around a 4-mm metal probe. The probe palpates against the muscle, and the force of the pressure pushes the metal plate away, allowing the muscle hardness to be measured.

"It gives a quantitative measurement of palpation, from soft as a pillow to hard as a rock," Dr. Steinberg said.

The device is now in the testing stage. University of Florida (UF) residents used the device, along with other existing tools, to evaluate compartment syndrome in patients. Data on its usefulness has been presented at three national meetings.

Most recently, Dr. Steinberg co-authored a paper about research on the device in collaboration with UF residents under the direction of orthopaedic surgeon Hudson Berry, MD. The research was published by the peer-reviewed international journal, *Physiological Measurement*, titled "Quantitative Muscle Hardness as a Noninvasive Means for Detecting Patients at Risk for Compartment Syndromes." (April 2011, Vol. 32, No. 4, pp 433-434).

A large clinical trial is now underway at Orlando Regional Medical Center where the device and technique are being tested on multi-trauma patients.

## Orthopaedic Surgeon Releases **Dupuytren's Contracture** in the Hand Nonsurgically

*Garry S. Kitay, MD*

Orthopaedic surgeon Garry S. Kitay, MD, is the first physician in Jacksonville to use an injectable medication to treat Dupuytren's contracture of the hand. While this condition is generally treated with invasive surgery to remove the abnormal tissue that causes the contracture, a new medication, collagenase, is now available that essentially dissolves this tissue.

Dr. Kitay is a hand, elbow and shoulder specialist with Jacksonville Orthopaedic Institute (JOI). In addition to using advanced arthroscopic techniques in these extremeties, he is the first orthopaedist in Northeast Florida to use the newest technique for the treatment of this disabling condition of the hand. Dupuytren's is a disease where tissue beneath the skin in the palm and fingers shortens and hardens to a rope-like structure that curls the finger, preventing the hand from fully opening. This is a genetic condition that tends to occur in individuals of Northern European