



## MISONIX BONESCAPEL™: THE ULTRASONIC INSTRUMENT THAT IS REVOLUTIONIZING SPINE SURGERY

*Ultrasonic Osteotome Enables Shorter, Safer, More Cost-Effective Surgeries And Significant Reductions in Patient Blood Loss*

**A**claimed by surgeons as one of the most important recent advancements in instruments designed for spine surgery, the Misonix BoneScapel™ enables precision osteotomies and has been predicted to become a preferred surgical tool for the next decade and beyond.

This ultrasonic osteotomy system by Misonix includes a console and piezoelectric handpiece connected to a blade that imperceptibly oscillates, enabling bone dissection right next to nerve structures and delicate tissue. Compensating for thermal effects, a patented liquid pathway irrigates the blade-tissue interface and mitigates bone necrosis. With the BoneScapel, loss of viable bone and bleeding are minimal, and the surgical site is cleaner.

Eric J. Woodard, MD, Chief of Neurosurgery at New England Baptist Hospital in Boston, MA, has the longest experience with the BoneScapel. His team has used it to perform about 1,000 cases, and has systematically collected evidence about the BoneScapel's effectiveness: "We have used the BoneScapel two and a half years now, and we have largely replaced the use of drills in favor of the BoneScapel, essentially using the BoneScapel in 90% of applications where a drill was formerly used. The most tangible advantage is that there is an even swap in terms of the disposable bit for the drill and the disposable blade for the BoneScapel, so it's really very cost-effective."

Dr. Sean Molloy, MBBS, MSc, FRCS of the Royal National Orthopaedic Hospital in Stanmore, UK, has had experience with the BoneScapel that



*Misonix BoneScapel™*

includes about 400 cases. Using the BoneScapel, he has performed very advanced tumor resections and deformity corrections in which he has seen significant reductions in blood loss.

"Initially I started using the BoneScapel about 18 months ago," Dr. Molloy reports. "In the particular kinds of cases I handle, I am striving all the time to get an edge, a better outcome for the patient, with less blood loss. When I perform an adult deformity correction, for instance, my patient will now lose on average about 750 mL of blood, whereas in the past it was at least twice that. The BoneScapel has absolutely transformed my practice."

### **Shorter, Safer, More Cost-Effective Surgeries**

Specializing in spinal pathologies, Dr. Molloy performs the following procedures regularly as a spinal surgeon at Stanmore: microdiscectomy for disc prolapse, spinal decompression for stenosis, spinal fusion (cervical and lumbar) for neurogenic pain, complex spinal trauma and tumor stabilization, vertebroplasty/kyphoplasty

for spinal tumor/osteoporotic fracture and fusion for scoliosis/kyphosis. He states: "I use the Misonix bone-cutting system for all my bony resection, and it has speeded up my surgeries to a significant degree. It is the best bit of equipment I have in my armamentarium."

Multiple blade designs for the BoneScalpel allow for multifunctional surgical use and a choice of cutting directions, including front, side and undercutting. Cutting and shaving tips are available with extended reach for approaches to deep body cavities or applications in microscopic and minimally invasive spine surgery.

"The general advantages of the BoneScalpel are numerous," states Dr. Woodard. "We now use it essentially on every spine patient, and we have found in our practice that it significantly reduces operative time, decreases blood loss, and markedly increases the amount of residual local bone available for grafting. In so doing, it significantly reduces overall O.R. time and O.R. cost."

Dr. Woodard continues, "We recently performed an extensive review of our use of the BoneScalpel in both cervical and lumbar cases compared to a consecutive control group in preparation for a peer-reviewed manuscript. We have seen statistically significant differences between drill use and BoneScalpel use in the areas of blood loss, operative time and overall O.R. cost in favor of the BoneScalpel. The results will be published in the next few months, so we are very excited about the potential."

### Reduction of Inadvertent Durotomy

One of the most valuable aspects of the BoneScalpel is its safety with soft tissues. "We do not have hard data on this, but anecdotally, the



BoneScalpel use has reduced our inadvertent durotomy," reports Dr. Woodard. "The incidence of durotomy has dropped with our BoneScalpel use to rare occasions at this point. We are also seeing values of about a 15 to 20 percent reduction in average blood loss with the BoneScalpel, so the safety factor that the BoneScalpel brings to spine surgery is significant."

With regard to safety issues, Dr. Molloy reports: "In 18 months and about 400 cases with all my tumor resection and deformity work, I have had no neurological injuries related to the use of the BoneScalpel."

### A Revolution in Spine Surgery

The use of the BoneScalpel also significantly reduces physician fatigue. "With the repetitive motion involved using Kerrison punches and Rongeurs, surgeons are at risk for repetitive hand injury such as carpal tunnel," states Dr. Woodard. "The BoneScalpel eliminates that risk, because it is a very low stress type of technique. It has revolutionized how we do spine surgery."

Giving an example, Dr. Woodard explains, "With an osteotomy, we used to assess whether to do one, two or even three with a complex deformity. It gives you pause when you know that each osteotomy is going to add 20 to 30 or even 40 minutes of operative time, as well as the increased blood loss and

the increased potential risk. But now with the BoneScalpel, we can finish in a matter of 2 minutes, essentially bloodlessly, and it significantly improves the ability to vary our approach in a controlled fashion to achieve and perform a correction. The facility with which you are able to make changes with the BoneScalpel really alters the way in which you think about the surgery and the strategy with which you approach the case."

The use of the BoneScalpel is straightforward. When the BoneScalpel blade comes in contact with rigid, crystalline bone, the recurring impacts at 22,500 times per second diminish the bone's integrity, allowing a controlled, dissecting split. When soft tissue comes in contact with the blade, however, the tissue moves, deforms and vibrates. Tissue response to the ultrasound action differs by tissue density, collagen content, blade pressure and length of exposure.

"There is a slight learning curve and there are some minor technique caveats that people have to be taught when they first use the BoneScalpel, but these techniques can be easily learned by a seasoned spine surgeon within one or two cases," suggests Dr. Woodard. ♦

For more information about the Misonix BoneScalpel™ please call Misonix Customer Service at 1-800-694-9612, or visit our website at [www.misonix.com](http://www.misonix.com).