

 **Precision**Matters



Top-Down Ultrasonic Wound Debridement Means Better Outcomes

- The only device that combines aspiration with ultrasonic debridement
- Preservation of healthy tissue and vital structures
- Effectively lyses and removes bacteria and biofilms
- Consistently maximizes wound bed preparation
- Reduces blood loss

 **sonicone®O.R.**
Ultrasonic Debridement System

Introducing  **sonicVac®**

MISONIX®
BETTER MATTERS™

Top-Down Wound Debridement Means Better Outcomes

SonicOne® O.R. utilizes ultrasonic technology in the form of a debridement modality which provides safe and effective removal of all nonviable tissue while safely preserving healthy structures. Sharp and other debridement techniques often result in inadvertent resection of viable tissue planes. The precision available with the SonicOne OR allows for surgical debridement layer by layer from superficial to deep while protecting underlying viable tissues.



Top-down debridement by utilizing SonicOne.

SonicOne O.R. with SonicVac is the Only Wound Debridement Device that Combines Aspiration with Ultrasonic Debridement



SonicVac combines the advantages of vacuum aspiration with the precision and power of ultrasonic debridement for better outcomes.

- Significantly reduces spray dispersion¹
- Captures used irrigate in addition to other fluids from the wound site¹
- Removes disrupted debris from the field¹

1. "The clinical implications of a new wound debridement device that combines low frequency direct contact ultrasound and vacuum aspiration."
Mark S. Granick M.D., Michael Baruch M.D., Wayne J. Caputo M.D., Paul M. Glat M.D.

Preservation of Healthy Tissue and Vital Structures

The SonicOne O.R. provides surgeons a safe and effective means of surgical soft and hard tissue management. Utilizing low frequency, high intensity ultrasound, the SonicOne O.R. titanium tips vibrate at 22.5 kHz. This precise vibration creates mechanical energy that is transferred to tissue, causing molecules to oscillate. Micro-sized gas bubbles created in tissue and surrounding fluids create bubbles that collapse (implode), which results in destruction of tissue close to the bubbles. This transient cavitation emulsifies devitalized tissue while the membranes of healthy tissue simply move with the oscillation.



Pre-debridement of foot.



Post-debridement using SonicOne with SonicVac.

Effectively Lyses and Removes Bacteria and Biofilms

Due to the ultrasonics phenomenon of transient cavitation, the gas-filled bubbles created by the SonicOne O.R. undergo rapid expansion followed by collapse. The turbulence created by the imploding gas bubbles may be one mechanism by which destruction of bacteria and biofilm occurs.

"Post-treatment a log 5 reduction in bacterial count was seen as a result of the low frequency ultrasonic debridement. Three of the five samples post-treatment showed a bacterial count of zero. The cultures and quantitative bacterial cultures indicate the ability for SonicOne ultrasonic debridement to reduce bacterial load in a variety of wound types and with a broad spectrum of bacteria present."¹



Pre-debridement of tibia.



Post-debridement using SonicOne with SonicVac.

1. "Surgical Debridement with SonicOne; an initial look at the bacterial load pre and post low frequency direct contact ultrasound." Daria Abolghasemi, D.O., Karen D. Szymanski, D.O., Michael Baruch M.D., Jamshed Zuberi M.D.

Consistently Maximizes Wound Bed Preparation

The therapeutic effects of low frequency ultrasound on wound bed preparation and healing is well documented in the literature. Acoustic micro-streaming and cavitation are the principal effects that drive the cascade of healing activity. Acoustic streaming has been shown to alter cell membrane permeability and second messenger activity, which in turn may result in increased protein synthesis, degranulation of mast cells, and increased production of growth factors. It has been shown that patients within a study treated with SonicOne Ultrasound for recipient site wound bed preparation with subsequent skin graft have a 90% take of split thickness skin graft.¹



Pre-debridement of foot ulcer.



Post debridement pre graft application.



Post graft placement.

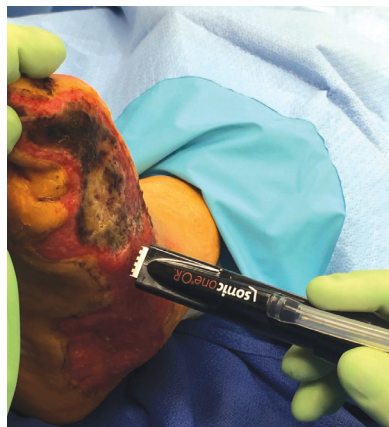
1 "Split Thickness Skin Graft Incorporation after Ultrasonic Debridement for Wound Bed Preparation in Diabetic Foot Wounds."
Sean M. Betesh, DPM, Michael I. Gazes, DPM, MPH, Peter Blume, DPM, FACFAS.

Reduces blood loss

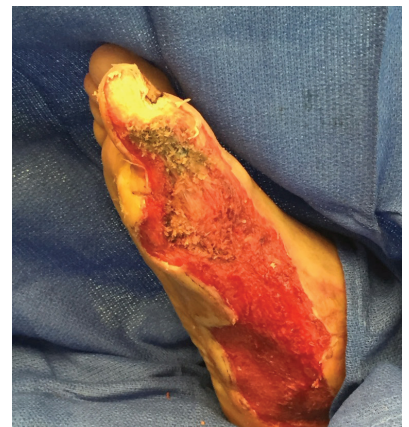
SonicOne has demonstrated reduced blood loss when compared to standard excision methods.²



Pre-debridement of fourth degree burn to right foot.



Debridement with SonicOne with SonicVac.



Post-debridement of fourth degree burn to right foot.

2. "Ultrasonic Tangential Burn Excision Reduces Blood Loss." Abraham P. Hough M.D., Sylvia J. Petrone M.D., Robin A. Lee M.D., Christina Lee M.D., Michael A. Marano M.D.

There is No Comparison

When compared to hydro-surgical and sharps debridement options, Low Frequency Direct Contact Ultrasound (LFDCU) debridement such as SonicOne O.R. offers several features and benefits.

	Sharps		Hydro-Surgical Devices		LFDCU	
Selective Debridement	No	Technique dependent		Technique dependent	Yes	Ultrasonic technology differentiates between viable and non-viable tissue ¹
Reduced Blood Loss	No	Vessels can be cut	No	Technique dependent	Yes	Vessels are not damaged with incidental contact ²
Hard Tissue Cutting Capabilities	No	Bone saw required	No	Bone saw required	Yes	Proven ultrasonic hard tissue cutting capabilities ³
Biofilm Disruption	No	N/A		Hydrosurgical incision and topical irrigation can dislodge	Yes	Ultrasonic cavitation is shown to cause destruction of bacteria and biofilm ^{4,5}
Multiple Tools for Various Applications	Limited	Scalpel, curette, scissors, and rongeurs	Limited	Has two handsets with different angles of tip and 8mm x 14mm window	Yes	Nine (9) different tips and 10 settings allow for a great variety of procedures including hard tissue
Safe for Patient and Staff	No	Risk of sharps injury	No	Risk of unintended cutting of healthy tissue	Yes	Tips can have incidental contact with no risk of injury ⁶

SonicOne O.R. is indicated for use in the fragmentation and aspiration of both soft and hard tissue.

1. "Ultrasonic Debridement An Effective and Superior Method of Wound Management." John M. Hiebert M.D. Abstract presented at SAWC 2013.
2. "Ultrasonic Tangential Burn Excision Reduces Blood Loss." Abraham P. Hough M.D., Sylvia J. Petrone M.D., Robin A. Lee M.D., Christina Lee M.D., Michael A. Marano M.D.
3. "Applications of the Ultrasonic Bone Cutter in Spinal Surgery - Our Preliminary Experience." Al-Mahfoudh R, Qattan E, Ellenbogen JR, Wilby M, Barrett C, Pigott T. *Br J Neurosurg*. 2013, Jul 10.
4. Melinda Bowlby, D.P.M., Peter Blume, D.P.M. "Can Ultrasound Debridement Facilitate Biofilm Removal from Diabetic Foot Ulcers?" *Podiatry Today*. Volume 27 - Issue 8 - August 2014.
5. "Surgical Debridement with SonicOne; an initial look at the bacterial load pre and post low frequency direct contact ultrasound." Daria Abolghasemi, D.O., Karen D. Szymanski, D.O., Michael Baruch M.D., Jamshed Zuberi M.D.
6. "An overview of factors maximizing successful split-thickness skin grafting in diabetic wounds." Ryan J. Donegan, D.P.M., Brian M. Schmidt, D.P.M., Peter A. Blume, D.P.M. *Diabetic Foot & Ankle*.

Clinical photography courtesy of: Dr. Mark S. Granick. Professor and Chief, Division of Plastic Surgery, University of Medicine and Dentistry of New Jersey, and Dr. Peter A. Blume, D.P.M., F.A.C.F.A.S. Assistant Clinical Professor of Surgery, Anesthesia and Orthopedics and Rehabilitation. Yale School of Medicine. Yale New Haven Hospital.

SonicOne® O.R. Ultrasonic Debridement System

The Top-Down Ultrasonic Debridement Approach to Better Wound Bed Preparation

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 - Effectively lyses and removes bacteria and biofilms
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MISONIX®
BETTER MATTERS™



SonicVac - Wide
Hatch Probe
MXC-X2-VAC



Hatch
Titanium Probe
MXC-X1



Cylindrical
Titanium Probe
MXC-R1



Curette Style
Titanium Probe
MXC-C1



SonicOne O.R.
Large Blade
MXC-BLADE-L



SonicOne O.R.
Large Blade,
Serrated
MXC-BLADE-LS



SonicOne O.R.
Large Blade,
25 mm blade
MXC-BLADE-XL



SonicOne O.R.
Micro Bone Shaver
MXC-SHAVER-S



SonicOne O.R. 360
Bone Shaver
MXC-SHAVER-360

If you would like further information or would like to evaluate the SonicOne O.R. please contact us at +1.631.694.9555