

Ultrasonic-Assisted Wound Debridement (UAW):
promotes wound healing



→ For chronic and acute wounds: **disrupting of biofilms and effective removal of non-viable tissue**

UAW is a recognized procedure for wound debridement and the cleansing of wounds. The targeted use of ultrasonic effects enables debridement that, while convincingly effective, does not damage healthy tissue. This effect makes its use particularly attractive, for instance, for wound areas that are difficult to reach. If fibrin tissue or biofilms form

anew in chronic wounds, these can be regularly and completely removed with UAW during the course of periodic wound cleansing. Thorough biofilm detachment makes the procedure highly attractive for use in various medical fields, i.a. for the treatment of infected wounds or the preparation of split-skin grafts.

Convincing in clinical application:

- *highly effective at removing devitalized tissue* ¹⁻⁴
- *breaks up bacterial biofilms* ⁵
- *significantly reduces bacterial load in the wound* ^{2,4}
- *preserves healthy granulation tissue* ¹⁻⁴
- *stimulates cell proliferation & promotes wound healing* ²
- *fast and safe handling* ¹⁻⁴

Indicated for a large number of wounds, such as:

- | | |
|-------------------------------|--------------------------------|
| chronic wounds | acute wounds |
| • <i>leg ulcers</i> | • <i>infected wounds</i> |
| • <i>diabetic foot ulcers</i> | • <i>trauma wounds</i> |
| • <i>pressure ulcers</i> | • <i>burns</i> |
| | • <i>post-operative wounds</i> |

Case example:



Wound prior to UAW⁶



Wound after UAW⁶

UAW – impressive in its application:

„In our clinic, Ultrasonic-Assisted Wound Debridement is a standardized debridement procedure that we have used successfully for many years. We achieve excellent results, especially on patients with slow-healing, stagnating wounds.“

Anke Bültemann, wound expert at AK Hamburg, Germany

Precise, reliable technology from Söring: for wound debridement

SONOCA 185: **practical and compact**

- compact generator specifically designed for wound debridement
- integrated irrigation system for fluid control
- simple, safe operation
- presetting of power parameters
- 25 kHz working frequency



UAW-instruments: **versatility for a range of wounds**

- ergonomic design for precise control and reduced practitioner hand fatigue
- durable and easily-reprocessed
- available in different tip configurations



Double-ball sonotrode:
debridement of wound pockets



Hoof sonotrode:
ideal for superficial wounds



Spatula sonotrode:
for difficult-to-reach intermediate spaces, such as between the toes

„In our study of 114 UAW procedures, we were able to demonstrate how effective and safe UAW is in daily clinical practice. We performed UAW exclusively outside the operating room with our team of specialized wound care experts.“

Terry Swanson, NP Wound Management, Warrnambool, Australia

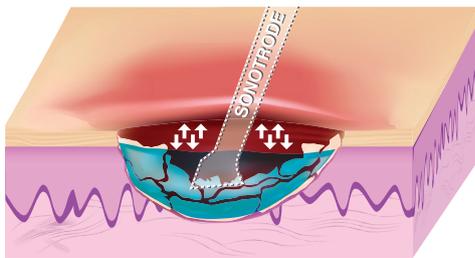
Ultrasonic-Assisted Wound Debridement – use of the cavitation effect for debridement and the cleansing of wounds

Ultrasonic-Assisted Wound Debridement (UAW) uses the effects of cavitation to selectively debride wounds. Cavitation is caused by the vibrations of the UAW instrument at an ultrasonic frequency of 25 kHz in an irrigation solution (see figure). The vibrations of the UAW instrument are generated by the use of an ultrasonic generator and piezo electronics in the UAW instrument. The required irrigation is incorporated into the UAW instrument. Cavitation effects occur beneath the sonotrode of

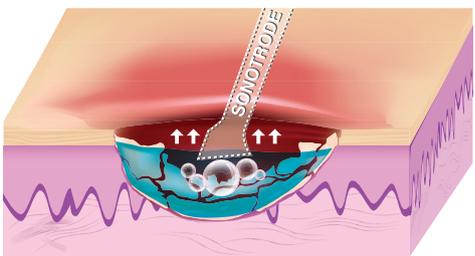
the UAW instrument. Devitalized tissue and foreign bodies are removed from the wound bed and biofilms disrupted, while trauma to the surrounding vital tissue is minimized.

These effects make ultrasonic debridement highly beneficial in cleansing of wounds in preparation for adjunct therapies, like the utilization of negative pressure wound therapy, or in the preparation of skin graft recipient sites.

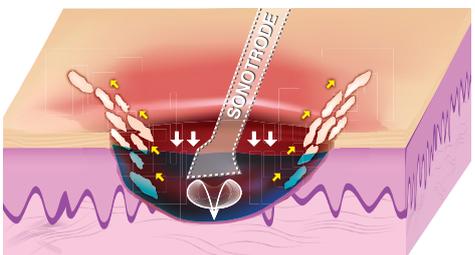
Quick, effective, thorough – UAW, in simple terms:



During UAW, the sonotrode vibrates back and forth 25,000 times a second.



When the sonotrode moves back, pressure bubbles arise in the irrigation solution (cavitation bubbles).



When the sonotrode moves forward again, the bubbles implode and generate sonic waves which removes devitalized tissue and biofilms from the wound bed.

„Wound cleansing with UAW prior to split-skin grafting brings significant advantages in my opinion: The time period up to grafting is shortened and, in many cases, I am able to observe strong stimulation of the granulation tissue formation, which has resulted in the faster and better growing of mesh grafts.“ Dr. med. Nils Haustedt, Schön Clinic Hamburg Eilbek, Germany

Consensus statements and clinical studies: **UAW offers many advantages for patients with hard-to-heal wounds**

CONSENSUS STATEMENT ¹

Ultrasonic-assisted wound debridement: report from a closed panel meeting

Swanson T, Lázaro-Martínez JL, Braumann C, Kirchhoff J-B; Gächter B, van Acker K

Experts participating at a round table discussion agreed there is sufficient evidence that UAW debridement can promote wound healing through wound bed preparation, without harming healthy tissue. It can remove barriers to healing, such as microorganisms, unhealthy tissue and senescent cells, and promote granulation tissue formation, collagen production and neo-angiogenesis. UAW debridement can be considered as the method of choice for cases where surgical debridement cannot be performed, the patient is medically unstable or serial debridement is required.

RANDOMIZED CLINICAL TRIAL ²

Cellular Proliferation, Dermal Repair, and Microbiological Effectiveness of Ultrasound-Assisted Wound Debridement (UAW) Versus Standard Wound Treatment in Complicated Diabetic Foot Ulcers (DFU): An Open-Label Randomized Controlled Trial

Lázaro-Martínez JL, Álvaro-Afonso FJ, Sevillano-Fernández D, García-Álvarez Y, Sanz-Corbalan I, García-Morales E

Compared to surgical debridement, the following advantages of Ultrasound-Assisted Wound Debridement (UAW) could be demonstrated with statistical significance:

- *improved cellular proliferation*
- *shorter wound healing time*
- *significantly lower bacterial load*

CLINICAL SERIES ³

The influence of technique and type of sonotrode on debridement and patient experience using a low frequency ultrasound contact debridement device; a case series

Swanson T, Hirst C, Salzman S, Frescos N

In this clinical case series, 114 ultrasound-assisted wound debridements were documented in daily clinical practice. Very good results were achieved with all the sonotrodes, as well as the different application techniques:

- *removal of non-viable tissue and fibrin within minutes (average debridement time 5.3 minutes, average wound area of 13.4 cm²)*
- *proportion of granulation tissue increased on average by 36.9% after debridement, healthy tissue was therefore kept intact*
- *debridement was well tolerated by patients*

At a glance:

UAW product overview

UAW instrument, double-ball



Article no. 97-102

UAW instrument, double-ball, long



Article no. 97-112

Foot switch, single

Article no. 770S0013

Disposable tube set

Single packed, Article no. 700S0309

Double packed, Article no. 700S0310

UAW instrument, hoof



Article no. 97-103

UAW instrument, spatula



Article no. 97-104

Generator SONOCA 185

Article no. S185-000

SI cart

Article no. 700K0097

References

- ¹ Ref: Swanson T, Lázaro-Martínez JL, Braumann C, Kirchoff JB, Gächter B, van Acker K. Ultrasonic-assisted wound debridement: report from a closed panel meeting. J Wound Care. 2020 Feb 2;29(2):128-135.
- ² Ref: Lázaro-Martínez JL, Álvaro-Afonso FJ, Sevillano-Fernández D, García-Álvarez Y, Sanz-Corbalán I, García-Morales E. Cellular Proliferation, Dermal Repair, and Microbiological Effectiveness of Ultrasound-Assisted Wound Debridement (UAW) Versus Standard Wound Treatment in Complicated Diabetic Foot Ulcers (DFU): An Open-Label Randomized Controlled Trial. J Clin Med. 2020 Dec 13;9(12):4032.
- ³ Ref: Swanson T et al. The influence of technique and type of sonotrode on debridement and patient experience using a low frequency ultrasound contact debridement device; a case series. Wound Practice and Research 2022; 30(X):To be assigned to an issue.
- ⁴ Ref: Lázaro-Martínez JL, Álvaro-Afonso FJ, García-Álvarez Y, Molines-Barroso RJ, García-Morales E, Sevillano-Fernández D. Ultrasound-assisted debridement of neuroischaemic diabetic foot ulcers, clinical and microbiological effects: a case series. J Wound Care. 2018 May 2;27(5):278-286.
- ⁵ Ref: Geisler Crone, S., Garde, C., Bjarnsholt, T., Alhede, M.: A novel in vitro wound biofilm model used to evaluate low-frequency ultrasonic-assisted wound debridement. Journal of Wound Care 2015; 24:2, 64-72.
- ⁶ Quelle: Südharz Klinikum Nordhausen, Nordhausen, Deutschland

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