

The Philips logo is displayed in a white speech bubble shape.

MR systems

Sonalleve MR-HIFU



# A real alternative

Magnetic Resonance guided High Intensity Focused Ultrasound (HIFU) for uterine fibroid ablation therapy

## Key advantages

Innovative patient-friendly, non-invasive therapy with easy planning and real-time temperature feedback

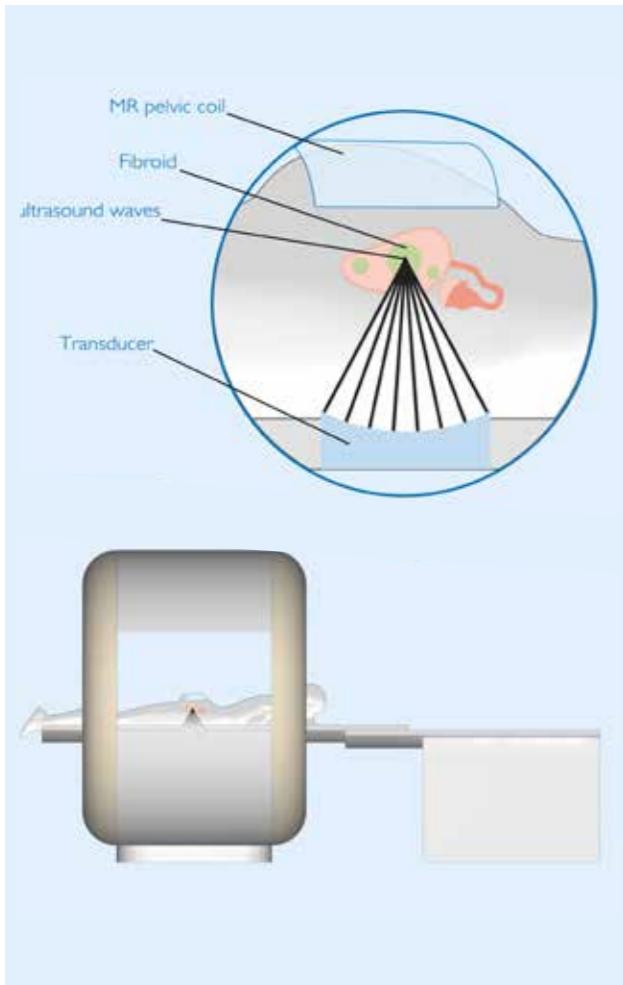
Fast out-patient procedure that speeds recovery and helps reduce hospital costs

New service to attract new patients and referrals

Sonalleve MR-HIFU from Philips is an exciting, innovative therapy platform that offers important advantages to clinicians and patients while supporting healthcare institutions in expanding their therapy portfolio. In contrast to surgical treatments of uterine fibroids, Philips Sonalleve MR-HIFU is quicker and more comfortable for patients. The procedure can be performed on an out-patient basis enhancing patient comfort with fast recovery. Non-invasive, patient friendly and fast, Sonalleve MR-HIFU offers a real alternative for uterine fibroid ablation.

# A new patient-friendly, non-surgical treatment

Uterine fibroids occur in 20% to 50% of women of childbearing age. They can cause pain, strong menstrual bleeding and many other unpleasant symptoms, and they may compromise fertility. Many women suffer from uterine fibroids, but don't want to undergo surgery. Instead, they continue to endure the condition in silence.



The Sonal leve MR-HIFU system provides you with a patient-friendly, non-invasive therapy option for uterine fibroids. For the patient, the technique is much more convenient and comfortable than surgical procedures, such as hysterectomy or myomectomy. These require hospital admission as an in-patient and sometimes weeks of recovery. In contrast, with Sonal leve fibroid therapy, patients can be treated as an out-patient, discharged the same day and almost fully recovered within a few days. With Philips Sonal leve MR-HIFU on your Philips MR scanner, you can extend your clinical reach into non-invasive interventions. Offer your patients a non-surgical solution to their medical condition, helping them return to a normal life within a short time.

## A non-invasive out-patient procedure

The patient lays face down on the Sonal leve MR-HIFU table and is given a mild sedative to help her keep still and calm during the procedure. She is fully awake and alert and holds an emergency stop button. This gives her control over the procedure, enabling her to stop it immediately at any time. Afterwards, she rests for a few hours and can return home the same day, with full recovery within the next day or two. Most importantly, almost all patients report an improvement in their condition, enabling them to return to a normal life.

The HIFU system and coil elements are integrated in the Sonal leve patient table. During the therapy, the ultrasound energy beam passes through the skin and soft tissue and ablates the focus area, leaving the skin and intermediate tissue unharmed. Real-time monitoring via temperature-sensitive MR imaging is used to obtain uniform temperature distribution.



## 1. Therapy planning:

The procedure is planned on the Sonal leve therapy console based on previously acquired 3D MR images. Planning includes determination of the geometry of the ablation volume and heating patterns as well as the position of monitoring slices to safeguard the procedure.

## 2. Non-invasive therapy:

High intensity ultrasound focused on the volume of interest causes localized heating and coagulation of the tissue. This process is monitored and controlled using real-time MR temperature-sensitive imaging, providing feedback to optimize the procedure.

## 3. Therapy verification:

After the procedure, contrast enhanced MR images are acquired to visualize the ablated, non-perfused volume. These images can be used to assess the lesion while the patient is still on the table.

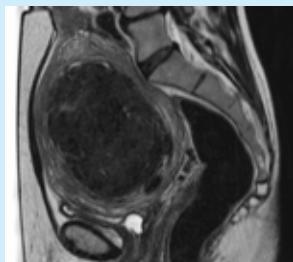
"With Sonal leve MR-HIFU we have a technique to remove the uterine fibroids without surgery. I think Sonal leve MR-HIFU is a very promising technique because it can be done as an out-patient treatment. This makes good financial sense and patients tolerate it very well. Sonal leve MR-HIFU is a new technique putting only little stress on the patient. With this we have found a good way to remove uterine fibroids."

Prof. Dr. med. Klaus Diedrich, Director of the Clinic for Obstetrics and Gynecology University Hospital Schleswig-Holstein Lübeck, Germany

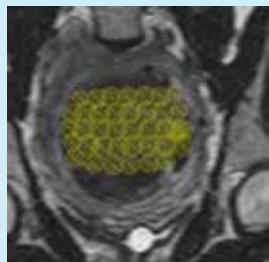
# Uterine fibroid ablation

Volumetric ablation with feedback, Direct Skin Cooling and Dual Mode Thermometry for high efficiency treatments

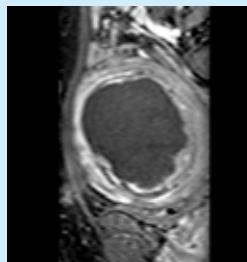
## Case 1 Treatment workflow and temperature monitoring



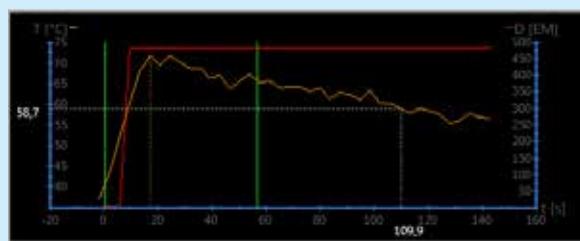
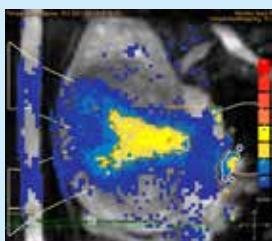
Sag T1 weighted image, shows 455 mL hypointense fibroid



Cor T2 weighted planning image, showing planned treatment cells

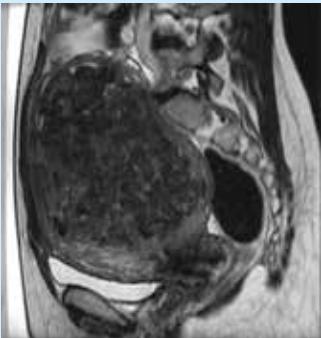


Sag T1 weighted image, post therapy, post contrast, 82% of fibroid ablated

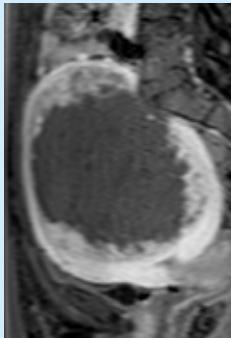


Thermal map (left) and temperature –time curve (right) of 14 mm treatment cell. Max temperature 71.4°C in 56 sec. and a dose volume of 7.3 mL

## Case 2 DISC and DMT: Very large uterine fibroid treated in reasonable time

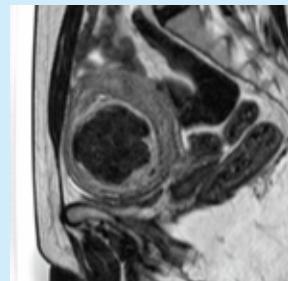


Sag T2 weighted planning image, 815 mL hypointense fibroid, slightly inhomogeneous.

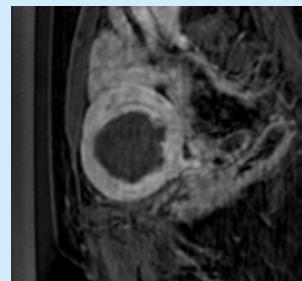


Sag T1 weighted image post treatment, post contrast, 540 mL ablated volume, 3:09h sonication time, ablation speed 170 mL/h

## Case 3 DISC and DMT: Uterine fibroid therapy in 2 hours



Sag T2 weighted planning image, 60 mL hypointense fibroid.



Sag T1 weighted image post treatment, post contrast, 90% ablated volume, 1:58h sonication time

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

Clinical images courtesy: Univ. Medical Center Utrecht, the Netherlands

The Philips Sonalieve MR-HIFU therapy system or some of its applications are not for sale in certain countries.

To determine availability in your area, please contact your local Philips representative.

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