Focused Ultrasound

FAQs

1

Is ultrasound only used for imaging?

Ultrasound is widely recognised for its role in medical imaging. However, when sound waves are delivered at specific intensities and frequencies, they can also be used therapeutically to non-invasively destroy targeted tissue, including tumours and other disease-causing cells.

2

Why is it described as a non-invasive therapy?

Focused ultrasound is non-invasive because it delivers treatment without incisions or instruments entering the body. Sound waves pass harmlessly through the skin and surrounding tissue and converge at a precise target inside the body, where they produce a therapeutic effect—often heat—while sparing healthy tissue.

3

Is focused ultrasound available in the UK?

Focused ultrasound is available through the NHS for the treatment of prostate cancer, essential tremor, uterine fibroids and liver cancer; although access is currently limited to select hospitals. It is also available privately for essential tremor, prostate cancer, Parkinson's related tremor and varicose veins.

4

For which conditions is it being researched?

Researchers worldwide are studying focused ultrasound across more than 180 medical conditions, including a range of cancers, neurodegenerative diseases and mental health conditions. Areas of investigation in the UK, being funded by the Foundation, include pancreatic cancer, brain tumours, sarcoma, and dementia.

5

Is focused ultrasound the same thing as HIFU?

High-intensity focused ultrasound (HIFU) is one form of focused ultrasound, typically used to destroy targeted tissue. At lower intensities, the technology can modulate or stimulate specific regions of the brain without tissue damage, a technique often referred to as low-intensity focused ultrasound (LIFU) or neuromodulation.

6

What is histotripsy?

Histotripsy is a non-invasive focused ultrasound technique that mechanically destroys tissue with a high degree of precision. Short, high-intensity pulses generate cavities or microbubbles in the targeted tissue and, as these bubbles collapse, they produce shockwaves that mechanically disrupt cell membranes and effectively liquify the tissue.

UK Focused Ultrasound Foundation

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