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## Ultrasound could kill cancer cells

'Invisible scalpels' burn away tumours

**Tim Radford**

**Monday February 16, 2004**

[The Guardian](#)

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Researchers have begun to treat cancer with the surgical equivalent of a bat's squeak. They have developed invisible scalpels of ultrasound that can roast a tumour a bit at a time in a series of two second bursts - without cutting any other tissue, and often without side effects.

The technique is already used in China. Ultrasound scalpels attached to rectal probes for prostate surgery have been developed and tested in France. And small-scale trials have begun with non-invasive Chinese and British versions in Oxford and London, Gail ter Haar of the Royal Marsden hospital told the American Association for the Advancement of Science meeting in Seattle.

"In the same way as a magnifying glass can be used in bright sunlight to set fire to dry tinder, sound energy can be focused and used to raise temperatures to the point at which the cells will die," she said. It can be done without damaging the intervening tissue.

"The cells in the ultrasound focus are killed primarily by heating. Temperatures above 60C (140F) held for longer than one second are known to kill cells instantaneously."

So far, 76 patients have been treated with the technique at the Royal Marsden, without any need for sedation. Twenty patients have been treated under anaesthetic in Oxford with an

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instrument imported from China. Altogether, around 3,000 patients have been treated at 20 centres in China.

"The results in China are really quite astounding. But that said, it is very difficult to pull out how much is just the ultrasound and how much is the effect of other treatments they give along side the ultrasound," Prof ter Haar said. "But they are not what we would call clean clinical trials."

The British trials so far have been concerned with safety. More systematic trials with larger numbers of patients have yet to begin.

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