

# Chill out, chubby: ultrasound and freezing to end yo-yo diets

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GET ready to zap the frustrations of yo-yo dieting. Scientists have developed a technique that could make weight loss permanent by using ultrasound to destroy fat cells.

The treatment, along with another that involves freezing fat cells, has been identified in international studies as having the potential to achieve weight loss without surgery.

Conventional dieting techniques are prone to failure because they cannot overcome the tendency of overweight people to develop more cells that are capable of storing fat. So even when they lose weight they may regain it quickly because their higher number of fat cells provides ready storage for unused calories.

The ultrasound and freezing techniques, while not designed for grossly obese patients, will give new hope to dieters who never manage to shed the last spare pounds from their stomachs, hips and thighs, allowing them to sculpt their shape.

Mark Whiteley, a senior vascular surgeon from Guildford, Surrey, who specialises in weight loss, last week told a meeting of the Royal Society of

Medicine on "interventional cosmetics" that the idea for the freezing technique had come from observations that American children addicted to iced lollies developed a condition called "popsicle" panniculitis. This gave their cheeks a hollow appearance because fat cells that had been frozen by the lollies and died as a result of ice crystals forming inside them had not been replaced.

Evidence for the high-intensity focused ultrasound (HIFU) killing fat cells has come from

years of research to identify the precise frequency that effectively kills fat cells, known as adipocytes, while leaving other cell groups unscathed.

Trials have shown that the resulting debris from the dead fat cell is disposed of by the body within three to four months, taking "spare tyres" off the waist and hips.

Whiteley, who has contributed results from treating 23 people to a so-far unpublished study of the effectiveness of HIFU, which costs £1,500-£2,000,

said the technique would be effective for destroying smaller chunks of stubborn fat.

"Our results have been very good and, from the previously published studies, it appears that HIFU and cryolipolysis — or fat freezing — are the only two methods of non-surgical fat removal that show any promise," he said.

"Other techniques using lasers or other types of ultrasound don't work because they only damage fat cells, rather than destroying them, so the cells simply grow back."

Until now, the only permanent way of removing fat has been liposuction, a painful procedure whereby fatty tissue is surgically sucked out but which sometimes leaves a lumpy effect under the skin.

However, Stephen O'Rahilly, professor of clinical biochemistry at Cambridge University and an expert on fat and weight gain, warned: "As a cosmetic treatment this would be fine. But if you kill off the fat cells on someone's stomach and they start to regain weight, you would run the risk of the fat being stored in the heart or liver, where it could be very dangerous and cause real organ damage."

## Fat zapper

- 1** Dieting shrinks fat cells but does not destroy them, making it easy to put on weight again
- 2** Scientists have found that fat cells are highly sensitive to certain ultrasound frequencies, absorbing them strongly
- 3** They used high-intensity 'blasts' of ultrasound to destroy the cells, reducing risk of future weight gain

