

# Skimming the fat from milk with sound waves

March 6 2014, by Meghan Lodwick

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Sound waves may be key to creating the perfect cheese, as research into a new milk separation process looks to revolutionise Australia's dairy industry.

Swinburne University of Technology together with CSIRO are researching different skimming technologies through a \$1.2M project supported by the Australian Research Council's (ARC) Linkage Projects scheme, a Geoffrey Gardiner Dairy Foundation grant and university and CSIRO funds.

Swinburne's Associate Professor Richard Manasseh and team are working with electrical and food process engineers from CSIRO, as well as [dairy industry](#) members to examine how ultrasonic waves can be used to skim [milk](#).

Associate Professor Manasseh says skimming, or separating the [fat](#) from the whey is the key component of milk processing and ultrasound has the ability to separate out fat particles by size, leading to a more precise output.

"We already knew that when you introduce a sound wave through fluid it causes particles to cluster; sound creates expansion and contraction of the fluid causing the particles to collect in vertical bands a half-wavelength apart. But it hadn't been tried on milk.

"Milk fat [particles](#) are tiny, you could fit 50–100 on the width of a

human hair, and they are formed like biological cells in that they have a membrane that holds some of the nutritional and textural value of whole milk," Associate Professor Manasseh said.

Small and large fat globules have different properties, imparting smoothness or creaminess, and therefore if they can be separated, it may create better tastes and textures for new [dairy](#) products – or re-create traditional products that are currently uneconomical with current technology.

The research team is also examining the optimal frequency for separation – too high a frequency and the ultrasound gets absorbed by the milk and doesn't travel far enough for a result, too low and it might break up the membranes.

Smaller dairies as well as specialist cheese producers may benefit from this process in the short term as ultrasound skimming is very gentle, making it ideal for traditional products such as parmesan.

**More information:** [www.swinburne.edu.au/magazine/ ... e-fat-from-the-milk/](http://www.swinburne.edu.au/magazine/...e-fat-from-the-milk/)

Provided by Swinburne University of Technology

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