

Fighting obesity with thermal imaging

July 18 2012

Scientists at The University of Nottingham believe they've found a way of fighting obesity — with a pioneering technique which uses thermal imaging. This heat-seeking technology is being used to trace our reserves of brown fat — the body's 'good fat' — which plays a key role in how quickly our body can burn calories as energy.

This special tissue known as [Brown Adipose Tissue](#), or [brown fat](#), produces 300 times more heat than any other tissue in the body. Potentially the more brown fat we have the less likely we are to lay down excess energy or food as white fat.

Michael Symonds, Professor of Developmental Physiology in the School of Clinical Sciences, led a team of scientists and doctors at The University of Nottingham who have pioneered the [thermal imaging](#) process so we can assess how much brown fat we've got and how much heat it is producing. Their research has just been published in the *Journal of Pediatrics*.

The University of Nottingham's Early Life Nutrition Research Unit is at the forefront of ground-breaking international research into managing brown adipose tissue using nutrition, exercise, and environmental and therapeutic interventions.

Thermogenic index for food labels

Professor Symonds said: "Potentially the more brown fat you have or the more active your brown fat is you produce more heat and as a result you

might be less likely to lay down excess energy or food as white fat.

"This completely non-invasive technique could play a crucial role in our fight against obesity. Potentially we could add a thermogenic index to food labels to show whether that product would increase or decrease heat production within brown fat. In other words whether it would speed up or slow down the amount of calories we burn."

The obesity threat

Obesity is one of the biggest challenges we face in Europe and America as our children grow older. It affects 155 million children worldwide. In the UK the number of overweight children doubled in the 1990s.

Dr Helen Budge, Clinical Associate Professor and Reader in Neonatology, said: "Babies have a larger amount of brown fat which they use up to keep warm soon after birth making our study's finding that this healthy fat can also generate heat in childhood and adolescence very exciting."

Professor Symonds and his team say their ground-breaking research could lead to a better understanding of how brown fat balances the energy from the food we eat with the energy our bodies actually use up.

Professor Symonds, together with Dr Budge and their team from the University's School of Clinical Sciences has shown that the neck region in healthy children produces heat. With the help of local school children they found that this region, which is known to contain brown adipose tissue, rapidly switches on to produce heat. This capacity is much greater in young children compared with adolescents and adults. The researchers are now using their findings to explore interventions designed to promote energy use as heat and, thus, prevent excess weight gain in both [children](#) and adults.

Non-invasive technology

Professor Symonds said: "Using our imaging technique we can locate brown fat and assess its capacity to produce [heat](#). It avoids harmful techniques which use radiation and enables detailed studies with larger groups of people. This may provide new insights into the role of brown fat in how we balance energy from the food we eat, with the [energy](#) our bodies use up.

Provided by University of Nottingham

Citation: Fighting obesity with thermal imaging (2012, July 18) retrieved 19 April 2024 from <https://medicalxpress.com/news/2012-07-obesity-thermal-imaging.html>

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