Bye bye BMI?

*WITH SCIENTISTS AND WEIGHT SPECIALISTS SAYING THE BODY MASS INDEX (BMI) CAN BE DANGEROUSLY INACCURATE, WHAT'S THE ALTERNATIVE? **ALEX GAZZOLA** REPORTS ON THE BODY VOLUME INDEX (BVI) AND WHAT IT MEANS FOR WOMEN AND THEIR WEIGHT

★ For 180 years, the Body Mass Index (BMI) has been the internationally preferred measurement standard in weight management and obesity healthcare – a figure that many women watching their weight will know. Providing an indication of weight in relation to height, the Index became fully absorbed into the public's consciousness in the Eighties when concerns about obesity were rising in the West, yet in recent years, it has come under fire from medical professionals for its inaccuracy.

A new measure
In March 2007, a global research project called the Body Benchmark Study was launched in London with the long-term aim of creating an effective replacement for the BMI, the Body Volume Index (BVI). A collaboration between healthcare

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facilities, hospitals and professionals worldwide, the study, now roughly halfway through its two to three-year data gathering and trial period, aims to record and measure the body composition, fat distribution, shape and volume of tens of thousands of volunteers using a computer-linked 3D walk-in body imaging scanner. Results, expected in late 2009, will help benchmark BVI values for eventual use in healthcare assessment.

Project director Richard Barnes says data gathering is the 'easy' part. 'Far more complex is determining the particular health risks associated with all those individual body shape aspects and other variables,' he points out.

'What healthcare professionals need is an accurate indicator to the likelihood a patient has of developing insulin resistance, diabetes or cardiovascular disease,

The BVI could save thousands of lives, as well as being a handy motivational tool for weight-loss

A motivational tool
Pre-launch trials have suggested the technology has potential as a motivational tool. When women, for instance, embark on weight-loss programmes of healthy diet and exercise, their bodyfat is replaced by lean muscle. But because fat weighs less than muscle, this effect is rarely noticed on the scales – which demoralises many.

'Seeing numerical results is a positive enforcement on dieters, and no change in weight or BMI is depressing,' says clinical obesity specialist Dr Marjon Monfared. 'With BVI, their scores will drop, and fat-loss can be measured, recorded and shown to women. This is a huge motivational factor for them, and will encourage them to stick to their healthier plans.'

She adds that the light beams used are not as intrusive as tape measurements and weighing scales, which some patients may find uncomfortable: 'People are more likely to take heed of a machine and a computer reading pointing out an increased health risk, than an individual telling them they're obese – even if that individual is a doctor.'

Independent diet experts welcome the change. 'We know fat carried around the middle is an indicator of greater health risk for diabetes, CV disease, high cholesterol and high blood pressure than fat carried around the hips,' says dietitian Doctor Frankie Phillips.

'The scanner could allow us to see precisely where fat lies, and tailor a recommended dietary plan accordingly. For example, if the scans and BVI predict an increased risk of raised cholesterol, a diet including soya and oats can be devised. If diabetes is a future risk, lower-GI foods such as wholegrains can be recommended.'

With bodies across the globe involved, the potential for an international database of information is a long-term possibility.

'There's the opportunity of trading and sharing of data between nations, perhaps administered by the WHO,' says Barnes. 'For instance, the healthcare provider of a Thai woman living in the UK or a French patient based in Ireland could exploit a globally-linked system to "tap in" to Thai or French data, in order to give the patient a more accurate diagnosis of her health status and risks based on her ethnic background. With widespread ethnic migration, this would be of immense value.'

He adds: 'We're in the 21st century, with modern computerised procedures in all other areas of healthcare. We need to move forward with obesity management too. Women's lives depend on it.' ✿

[Useful websites]
For further information visit:
www.bodybenchmark.org
www.bodyvolume.com
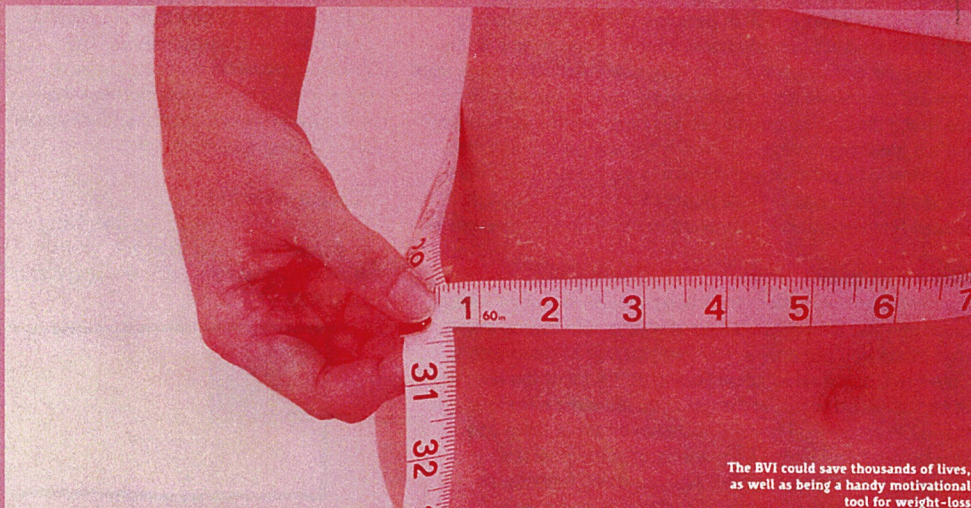
BVI
WHAT IS IT?

Touted as the 21st-century improvement on the BMI, the BVI takes into account body volume, fat distribution, weight, size, shape, age, ethnicity, sex and other factors. Benchmarking figures will be completed over the coming years, and final categories are expected to be more minutely defined than for the BMI. Numerical values are expected, but it is possible that letters or 'grades' will be used rather than figures – or even a combination of both – to place individuals in carefully partitioned categories for health assessment purposes. Measurements will be taken using the BVI Scanner, a five-foot square booth which uses 16 sensors and 32 cameras, programmed by computer, to create a 'virtual' body image, allowing for the extraction of hundreds of linear data measurements. Repeated scans will allow healthcare professionals to track patients' progress and compare results to national and international databases.

BMI
WHAT IS IT?

Invented in 1830 by Belgian statistician Adolphe Quetelet as a rough gauge of body shape and size for public health purposes, the BMI is calculated by dividing a patient's weight in kilograms by their height in metres squared. There are five broad categories: underweight (BMI under 18.5), normal weight (18.5 to 24.9), overweight (25 to 29.9), obese (30 to 39.9) and morbidly obese (40+). While it can give an approximate overview of the appropriateness of a person's weight in relation to their height, it overestimates bodyfat in lean, athletic individuals, and underestimates it in the elderly. In clinical practice, healthcare providers tend to use it in conjunction with other factors and measurements such as waist-hip ratios and waist circumference.

or of becoming anorexic or obese, for instance. BMI fails in this respect.'

BMI's drawbacks
In fairness, BMI was designed solely as a broad-based indicator of body shape for public health purposes and not as a diagnostic or predictive tool. Taking only weight and height into account, its limitations for use in health management are easy to see: healthy, muscular women (and men) are classified as 'overweight'; pregnant and breastfeeding women are inappropriately scored; and accuracy levels slip as patients reach middle age and beyond. Also, there is no distinction between men and women, whose fat-distribution patterns and associated health risks vary considerably.

BVI will consider much more than weight, height, shape and volume. Age, sex, ethnicity, medical history and individual genetic risks can all be incorporated into the computerised calculation. 'For example, if a patient's ethnic background is known to be associated with a ten per cent greater risk of Type 2 diabetes, this can be factored in,' says Barnes.