



How can UL Contribute?

*HSE Framework for Action on Obesity 2008 – 2012

*Source: Dr Nazih Eldin, 'Tackling Obesity in Ireland', Sligo, August 2011

HSE National Steering Group on Obesity translated the recommendations of the Taskforce Report into a 5 y action plan with the following strategic priorities :-

Contribution #1

1. To enhance the effectiveness **in surveillance, research, monitoring and evaluation of obesity.**
2. To develop a quality uniform approach to the **detection and management** of obesity.

Priorities 2011-2012

Contribution #2

- A National **data base of height, weight & BMI**
 - validation of novel, field-based measures of fat mass;
 - inform the debate on site-specific adiposity.



Headline

'38% of Irish adults are overweight and 23% are obese (SLAN 2007)'

'37% overweight (♂ 44%, ♀ 31%) and 24% obese (♂ 26%, ♀ 21%) (IUNA, 2011)'

What are overweight and obesity?



Overweight and obesity are defined ***as abnormal or excessive fat accumulation*** that may impair health.

Body mass index (BMI) is a simple index of a person's weight in kilograms divided by the square of his height in meters (kg/m^2) commonly used to classify overweight and obesity in adults . The WHO classification is:

a BMI greater than or equal to 25 is *overweight*

a BMI greater than or equal to 30 is *obesity*.

BMI provides the most useful **population-level** measure of overweight and obesity as it is the same for both sexes and for all ages of adults. ***However, it should be considered a rough guide because it may not correspond to the same degree of fatness in different individuals.***

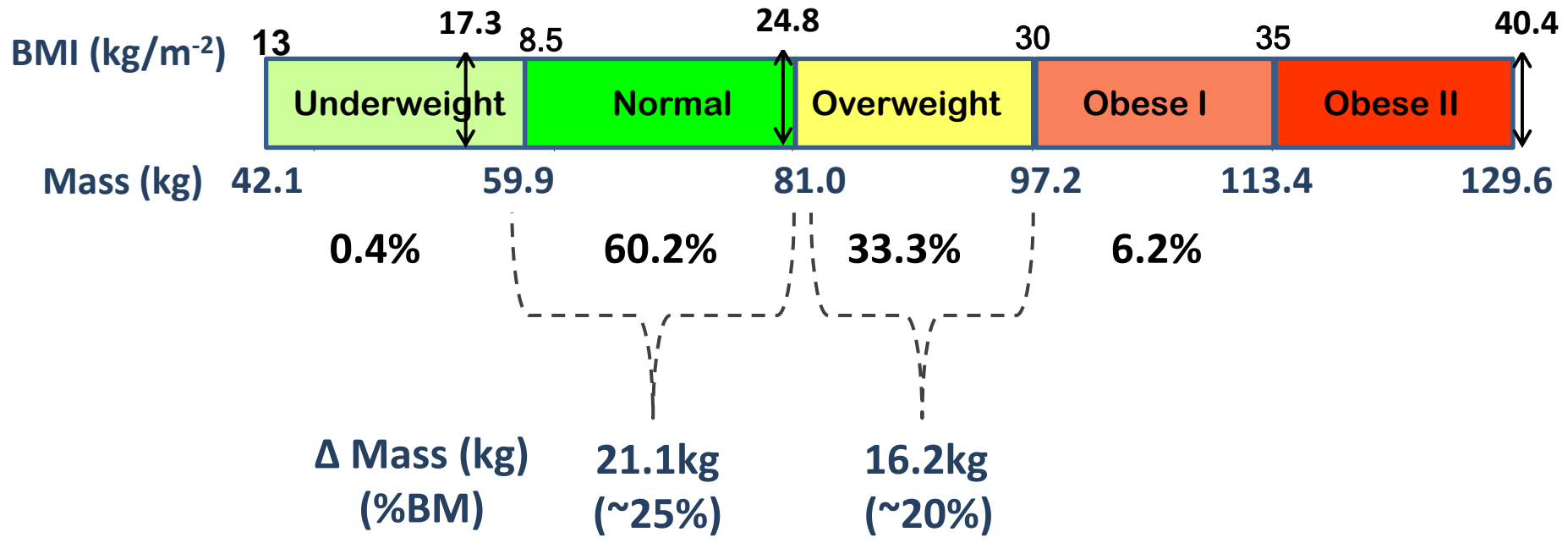
Source: <http://www.who.int/mediacentre/factsheets/fs311/en/index.html>



Priority 2011-12 : *'A National data base of height, weight & BMI'*

BMI Classification of Young Adult Men (18-29y)*

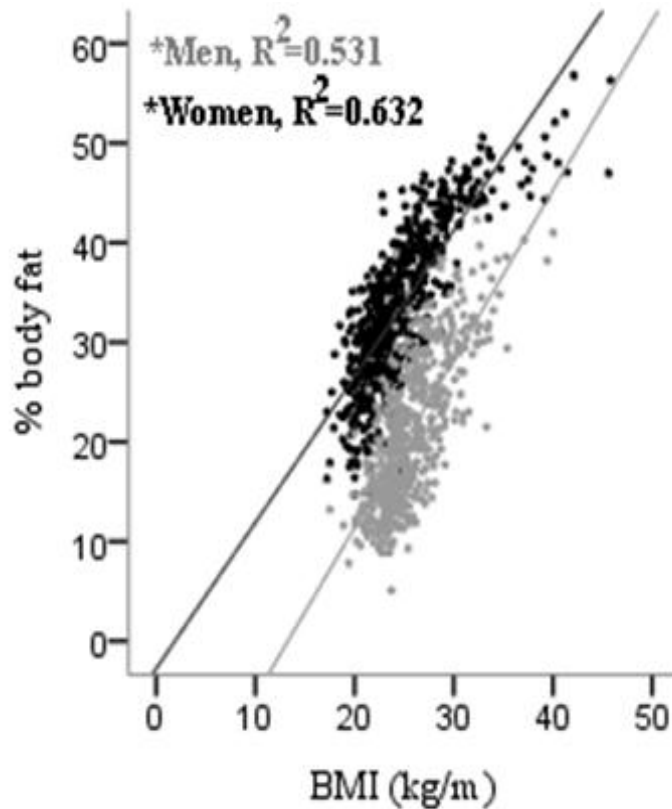
Men (n=502) Average Height 1.80m; Mass 80.6kg



*Source: <http://www.ul.ie/bodycompositionstudy>



'To enhance the effectiveness in surveillance, research, monitoring and evaluation of obesity'.

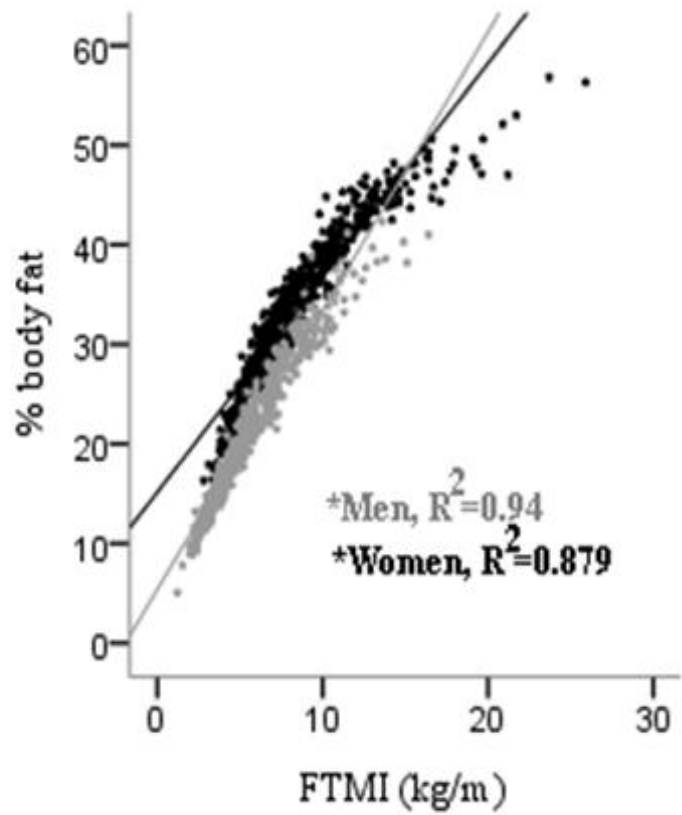
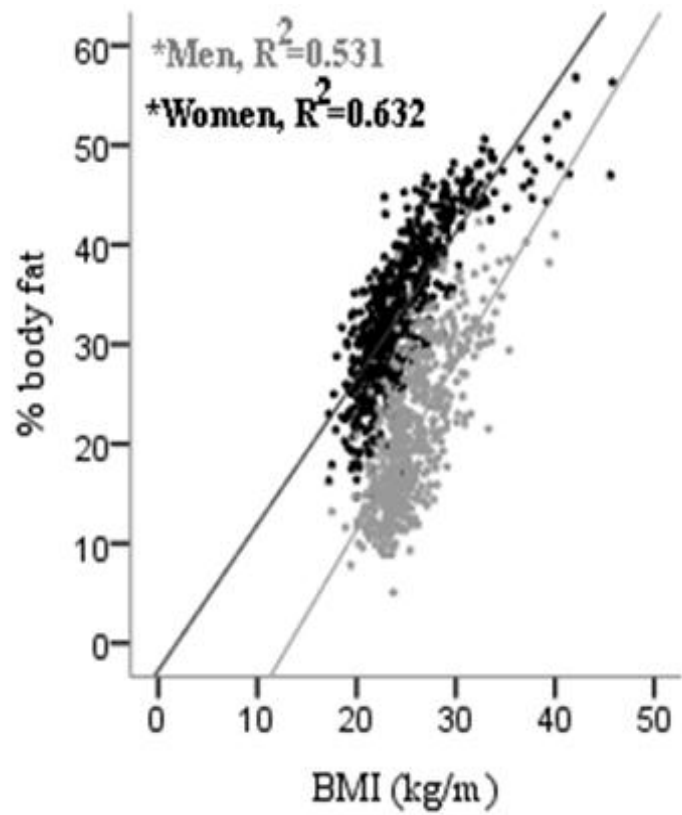


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what is required, therefore, is a fat tissue mass index

'To enhance the effectiveness in surveillance, research, monitoring and evaluation of obesity'.



which requires an accurate measurement of body fat



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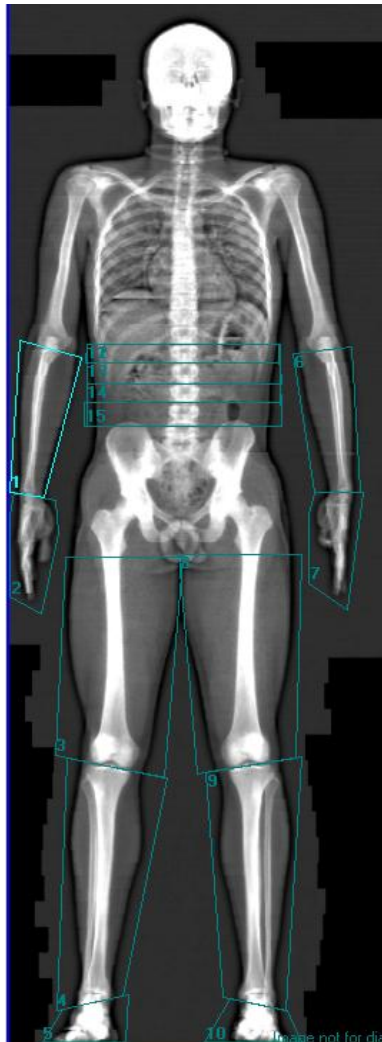


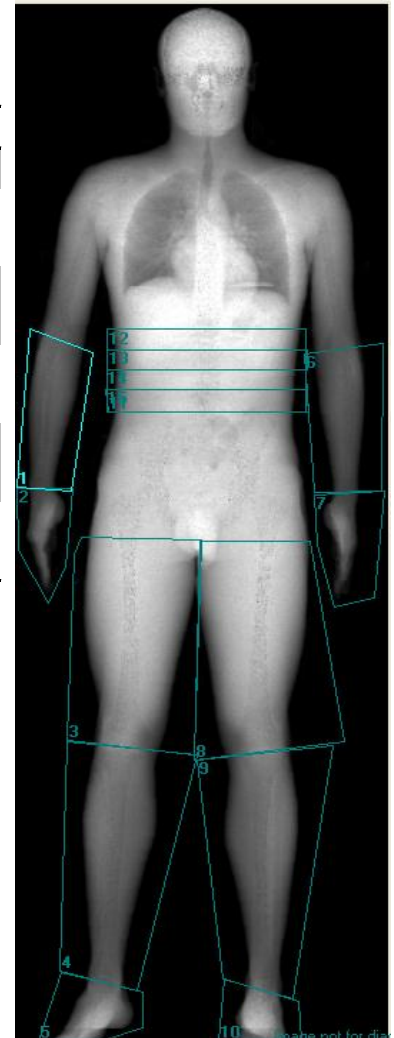
Table 1. Body composition characteristics of the study cohort (n = 402)

Variable	Males	Females
	Mean ± SD	Mean ± SD
Weight (kg)	80.72 ± 10.48 (61.4 - 135.4)	63.5 ± 8.1 (44.5 - 84.9)
Body Fat (%)	19 ± 6 (9 - 42)	31 ± 6 (15 - 48)
Total Fat Mass (g)	14950 ± 6759 (6264 - 51926)	19203 ± 5792 (9004 - 39406)
L1-L4 Regional Fat Mass (g)	1593 ± 1164 (388 - 9377)	1666 ± 862 (381 - 5247)
Upper Arm Fat Mass (g)	543 ± 288 (181 - 2127)	758 ± 250 (337 - 1731)

Data Presented as Mean ± SD (ranges in parenthesis)

Outcome from skinfolds:

1. *Generalised prediction equations for men and women with SEE <3% and 95% LoA -4.8 to + 4.9*
2. *Normative data for body fatness in relation to BMI (British Journal of Nutrition, In Press)*



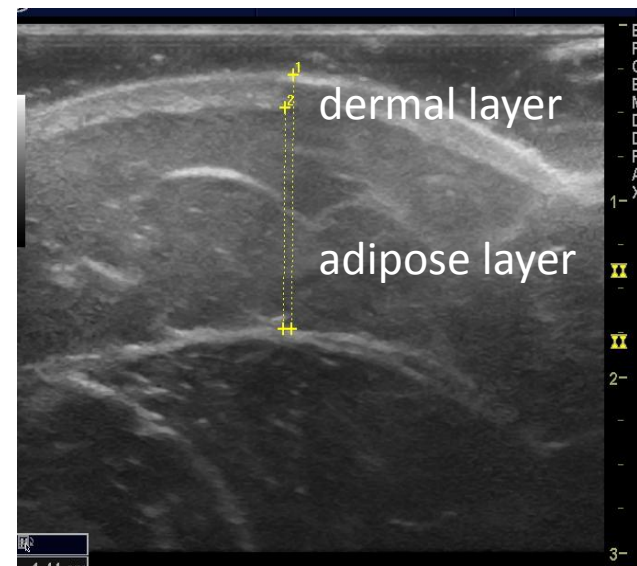
'To enhance the effectiveness in surveillance, research, monitoring and evaluation of obesity'.

2-site Ultrasound Measurement of SAT Accurately Predicts % Body Fat

Skinfold thickness as measured by caliper **does not** measure the thickness of subcutaneous adipose tissue (SAT) ¹;

SAT thickness at the abdomen and thigh accurately predicts % body fat in men (SEE=1.9%, LoA;-3.6% to +3.8%) ²;

SAT thickness at the abdomen and medial calf accurately predicts % body fat in women (SEE=3.0%, LoA;-6.5% to +5.4%)².

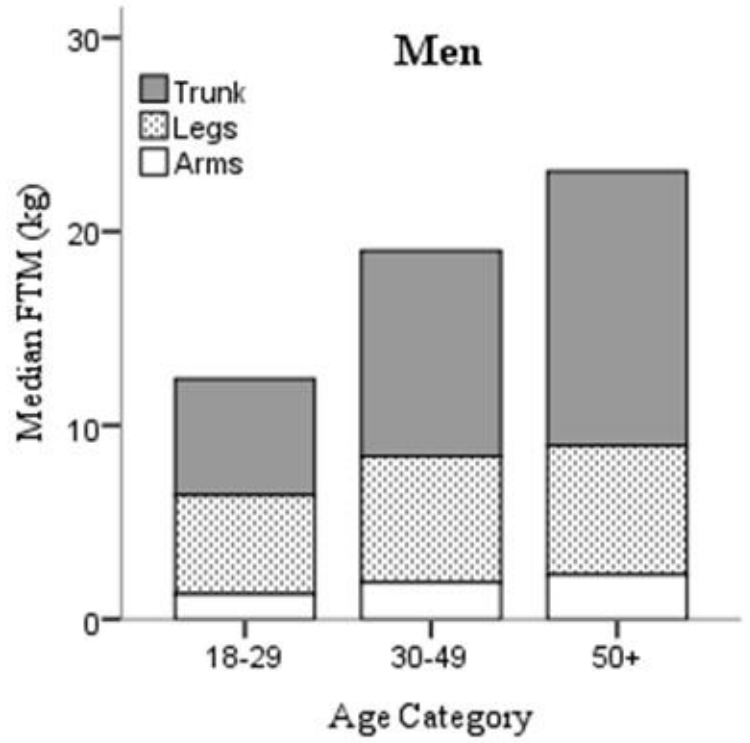


Transverse Tricep Ultrasound Image.

Source: ¹Toomey C *et al* **Ultrasound** 2011; 19: 91–96. DOI: 10.1258/ult.2011.010057;

²Leahy S *et al* **Ultrasound in Biology and Medicine** ;2011 *Accepted for publication*.

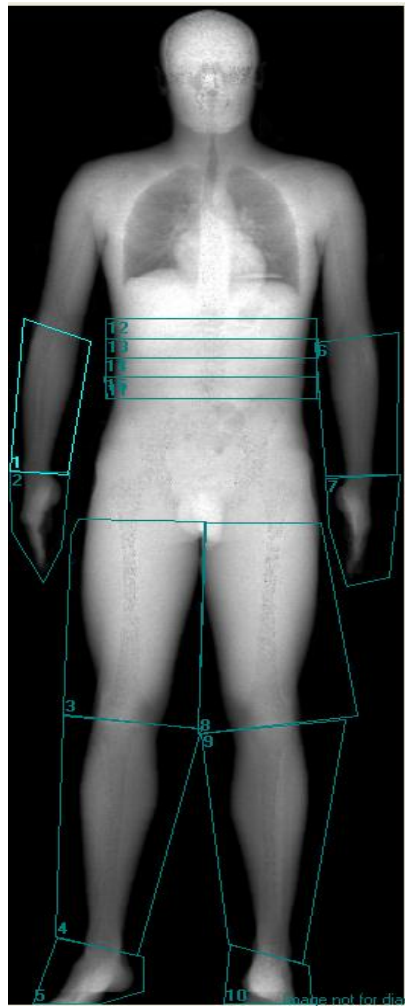
Age-Related Change in Site Specific Adiposity*



*Source: Leahy, S PhD Thesis, 2011

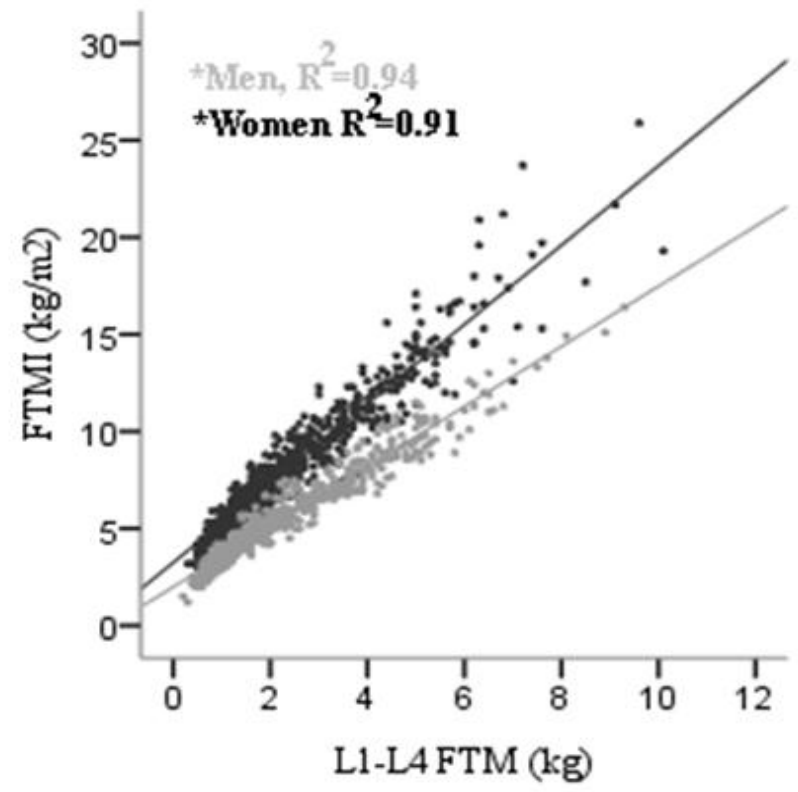


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Site Specific Adiposity

Whole Body vs Abdominal (L1-L4) Body Fat



Source: Raftery, P *et al* Proc Nutr Soc 2010



UL Contribution to HSE Framework for Action on Obesity 2008 – 2012?

1. Expand the National **data base of height, weight & BMI**

'38% of Irish adults are overweight and 23% are obese (SLAN 2007)'

'37% overweight (♂ 44%, ♀ 31%) and 24% obese (♂ 26%, ♀ 21%) (IUNA, 2011)'

'xx% overweight (♂ xx%, ♀ xx%) and yy% obese (♂ yy%, ♀ yy%) (ULBC, 2011)'

2. To enhance the **effectiveness in surveillance, research, monitoring and evaluation of obesity**

- validation of novel, field-based measures of fat mass;
- inform the debate on site-specific adiposity.

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