

## Body mass index: is it an appropriate measure of obesity in Polynesians?

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The body mass index (BMI) is commonly used as an estimate of obesity with 20-25 kg/m<sup>2</sup> being considered normal. Polynesians, as individuals and populations, are often described as overweight or obese based on BMI criteria. We derived body fat measurements by bioimpedance methods in 129 adult Cook Island Polynesians and a representative sample of 505 adult Caucasian Australians using the same equation (Lukaski). As a group, the Cook Islanders were heavier (91.5 ± 2.5 kg for men, 78.9 ± 2 kg for women) compared to the Caucasians (80.7 ± 1 kg for men, 66.4 ± 1 kg for women;  $p < 0.0001$  for both). Heights were similar and therefore the BMI values (kg/m<sup>2</sup>) were also higher in the Cook Islanders (29.6 ± 0.7 and 29.8 ± 0.7 versus 26.4 ± 0.2 and 25.3 ± 0.2;  $p < 0.0001$ ). Body fat, however, was lower in Cook Island men (22.0 ± 1.0% versus 25.2 ± 0.4%;  $p < 0.01$ ) and similar in Cook Island women (31.2 ± 1.0% versus 33.0 ± 0.3%). The following table of body fat

estimations at equivalent BMI values shows that across the range Polynesians are leaner on a weight for weight basis:

At BMI	Body fat (%) for males		Body fat (%) for females	
	Polynesian	Caucasian	Polynesian	Caucasian
20 kg/m <sup>2</sup>	4.9	7.1	15.9	25.9
25 kg/m <sup>2</sup>	13.7	21.4	23.7	32.5
30 kg/m <sup>2</sup>	22.5	35.7	31.6	39.2
40 kg/m <sup>2</sup>	40	64.2	47.2	52.5

In conclusion, at any given BMI Polynesian men and women are leaner than Caucasians. If these data are confirmed with more definitive body composition studies, the BMI definitions may need to be altered for Polynesians, in which case a BMI of up to about 30 kg/m<sup>2</sup> could be considered normal.