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The Association between BMI, Diabetes, Heart Disease, Hip Fractures and Arthritis in a Very Old Population in the Australian Community

Kaye Brock, Jane Kellet, Maria Fitarone-Singh, Anita Bundy, Robert Cumming, Larry Liang, Lindy Clemson
Faculty of Health Sciences, University of Sydney, Australia

Purpose:

Both being obese and underweight has consequences for chronic diseases in the very old. Recently these factors have been debated in the literature, especially being overweight and underweight in the very old. We investigated chronic disease associations with being obese, over-weight and under-weight in a free living community of elderly (mean age 83±4.3) living in Sydney, Australia.

Methods:

In 2006-8 a falls prevention randomized controlled trial was conducted in a volunteer sample of 317 community-dwelling elderly. Anthropometric data was individually measured including height and weight. Self- reported baseline data included demography (age, gender, marriage status, socio-economic status), medical conditions (including hip fracture, falls, diabetes, coronary heart disease (CHD), arthritis, current medications). Respondents were classified into BMI categories underweight =BMI 22Kg/m²; overweight =BMI 27Kg/m²: obese = BMI 30Kg/m² and very obese = BMI 32Kg/m².

Results:

In this population 15 % were underweight 40% overweight 18% obese and 10 % very-obese. High-BMI was associated with younger age, less education and being female. When these factors were taken into account the very obese group had a significantly higher risk of CHD, diabetes and knee arthritis risks associated with CHD. Contrary to expectations there was no association with CHD in the obese group and no association with chronic diseases in the overweight group.

Risk OR(95%CI)	Underweight	Overweight	Obese	Very Obese
CHD	0.8 (0.4-1.6)	1.1 (0.7-1.7)	0.7 (0.4-1.2)	2.7 (1.2-6.3)*
Diabetes	1.0 (0.3-3.2)	1.8 (0.9-3.6)	2.3 (1.1-5.0)*	3.5 (1.4-8.4)*
Knee Arthritis	0.3 (0.1-0.6)*	1.5 (0.9-2.4)	2.5 (1.3-4.5)*	3.6 (1.6-8.2)*
Falls (≥2)	0.6 (0.2-1.4)	1.1 (0.7-1.9)	1.6 (0.9-3.0)	1.7 (0.8-3.8)
>4HipFractures	3.7 (1.2-11.3)*	2.1 (0.7-6.6)	1.8 (0.4-7.9)	1.3 (0.3-5.9)

Conclusion:

In conclusion, these data pinpoint a need to further evaluate the real and important risks of being overweight or obese in the elderly.