

# Modest Weight Gain in Young Adulthood Hikes Chronic Disease Risk

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Even moderate weight gain in early and middle adulthood is associated with an increased risk of a range of major chronic diseases in later life, as well as a reduced likelihood of healthy aging, an analysis of two major datasets reveals.

The findings in more than 90,000 women and 25,000 men showed that a weight gain of between just 2.5 kg (5.5 pounds) and 10 kg (22.0 pounds) between early adulthood (18–21 years of age) and 55 years of age increased the risk of type 2 diabetes, hypertension, cardiovascular disease, obesity-related cancers, and death in both men and women.

The research, which was [published online](#) in *JAMA* on July 18, 2017, also showed that such moderate weight gain was linked to a decreased odds of having a life free of chronic disease and cognitive and physical impairment.

Frank B Hu, MD, PhD, of the departments of nutrition and epidemiology, Harvard T H Chan School of Public Health, Boston, Massachusetts, and colleagues write: "These findings may help counsel patients regarding the risks of weight gain."

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## Young Adulthood: A Neglected Period That Requires Attention

In an accompanying editorial, William H Dietz, MD, PhD, from the Redstone Global Center for Prevention and Wellness, Milken Institute School of Public Health, George Washington University, Washington, DC, says that efforts to prevent obesity have focused on children and adolescents, and "young adulthood has been a neglected period of study in the development of obesity."

Yet this is the time when ethnic disparities in the prevalence of obesity appear to increase further, with little change thereafter, and other life course transitions often have the most impact, for example childbirth among young women.

Now these new data show "the increased morbidity and mortality associated with excessive weight gain," and they indicate that efforts to prevent and control obesity in young adults "should be accorded a high priority."

But "the challenge will be that any individuals, particularly men between the ages of 20 and 39 years, feel healthy and have no medical problems that precipitate a visit to a physician," he notes.

While calling for longitudinal studies to highlight the most appropriate timing and targets for obesity and weight gain prevention, Dr Dietz also points out that obesity "spreads along social and family networks," and so young adult women may offer a focus for family-based interventions.

"Reducing and preventing obesity and excessive weight gain in young adults provide a new target, and one that could offer an effective transgenerational approach for prevention," he writes.

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## Minimal or No Weight Gain Ups Odds of Healthy Aging

To examine the impact of weight gain from early to middle adulthood on health outcomes, the researchers gathered data from the Nurses' Health Study, which began in 1976, and the Health Professionals Follow-up Study, which started in 1986, for US women and men, respectively.

The participants recalled weight at age 18 years in women and 21 years in men and reported current weight at age 55 years. From age 55 years, they were followed up to the occurrence of a range of disease outcomes, with cardiovascular disease, cancer, or death confirmed using medical records from the National Data Index.

A total of 92,837 women, who gained a mean 12.6 kg (27.8 pounds) over 37 years, and 25,303 men, who gained a mean 9.7 kg (21.4 pounds) over 34 years, were included in the analysis.

During a mean follow-up of 1,516,919 person-years among women and 343,951 person-years among men, there were 9419 incident cases of type 2 diabetes, 39,585 cases of hypertension, 9399 of cardiovascular disease, 9767 of obesity-related cancer, 9545 of cholelithiasis, 3090 of severe osteoarthritis requiring hip replacement, 41,600 cataract extractions, and 32,422 deaths.

In addition, 10,919 women (21%) and 6041 men (34%) had a composite healthy aging outcome in 2010, defined as being free of 11 chronic diseases and major cognitive or physical impairment, at which point the mean age was 76.5 years in women and 70.9 years in men.

Compared with participants who had maintained a stable weight (weight loss  $\leq$  2.5 kg or gain  $<$  2.5 kg), those with moderate weight gain ( $\geq$  2.5 kg to  $<$  10 kg) had a higher incidence of type 2 diabetes, with an incident rate ratio (IRR) of 1.89 in women and 1.75 in men.

There was a similar pattern for hypertension, with an IRR of 1.24 in women and 1.21 in men, and for cardiovascular disease, with an IRR of 1.25 in women and 1.13 in men.

While moderate weight gain was associated with an increased incidence of obesity-related cancer, at an IRR of 1.09 in women and 1.26 in men, there was no significant association with overall cancer incidence.

There were also associations between moderate weight gain and the incidence of cholelithiasis and severe osteoarthritis in women, but not in men. There was no association between moderate weight gain and the incidence of cataracts.

On multivariate analysis, moderate weight gain was associated with an odds ratio of achieving the composite health aging outcome of 0.78 in women and 0.88 in men compared with participants who maintained a stable weight.

Furthermore, researchers calculated in a meta-analysis of the female and male data that the pooled IRR per 5-kg weight gain was 1.31 for type 2 diabetes, 1.14 for hypertension, 1.08 for cardiovascular disease, 1.06 for obesity-related cancer, 1.05 for overall mortality, and 1.08 for mortality among never smokers.

For the composite healthy aging outcome, the pooled odds ratio was 0.83 per 5-kg weight gain.

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*Dr Dietz reported serving on a scientific advisory board for Weight Watchers, serving as a consultant to RTI, and receiving grant support from Bridgespan.*

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