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Obesity Is Tied to Increased Risk for Cancer Among the Young

April 9, 2018 | [Lillie's Corner \(expert-commentary/lillies-corner\)](#)



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Evidence from more than 100 research publications has shown that obesity increases the risk for 13 different cancers in young adults. This meta-analysis describes how obesity has shifted specific types of cancers to younger age groups, and intensified cellular mechanisms that promote the disease.

Although cancer is typically associated with adults older than age 50 years, cancers are now reported with increasing frequency in young adults. Of the 20 most common cancers in the United States, 9 are now reported in young adults. In 2016, nearly 1 in 10 new breast cancer cases and 1 in 4 new thyroid cancer cases were in young people aged 20 to 44 years, according to the review published in the journal *Obesity*. The data show that with obesity rising among younger demographics, cancer rates are increasing, too.

The new review integrates animal studies, clinical trials, and public health data to help explain rising cancer rates among young adults. It describes how the childhood obesity "pandemic" promotes cancer. It also offers approaches to better track—and hopefully mitigate—this public health crisis.

Young people with body mass indexes (BMIs) over 30 are more likely to experience aggressive malignancies, says author Nathan A. Berger, MD, Professor of Medicine, Biochemistry, Oncology, and Genetics at Case Western Reserve University School of Medicine, Cleveland, OH. According to his review, childhood obesity may have lasting effects that could lead to cancer early and late in life.

Obesity can permanently alter a young person's likelihood of developing cancer. Even after losing weight, cancer risk remains. "If you are obese, you are at a higher risk of cancer. If you lose weight, it improves the prognosis and may lower your risk, but it never goes away completely," says Berger. Obesity causes changes to a person's DNA that can add up over time. These changes include genetic flags and markers—epigenetic modifications—that increase cancer risk and may remain long after weight loss.

Data from clinical trials and animal obesity studies further link excess weight to cancer. Berger's review shows obesity accelerates cancer progression in several ways. It overactivates the immune system to produce growth factor and hormone imbalances that help cancer cells thrive. In the gut, obesity changes intestine microbiota such that tumor-promoting species dominate. Acid reflux in

obese individuals damages their swallowing tubes and heightens the risk for esophageal cancer. Berger's research confirms that obesity promotes cancer by multiple simultaneous pathways. "Even if one pathway is successfully blocked, obesity-induced cancer takes another path," he says.

Berger provides quantitative and anecdotal data supporting an association between early obesity and specific cancers. He cites a study of more than 1.1 million Israeli men tracked over time. Those who were overweight in adolescence (ages 16-19) had a 1.5-fold increased risk for developing colon cancer by age 48.

Another study asked adults to draw their adolescent body shapes. "Patients who drew a round body shape had a higher incidence of multiple myeloma," says Berger. Such anecdotal evidence hints at long-term effects of childhood obesity, which he supports with other analyses. Adults with a history of obesity are twice as likely to develop multiple myeloma. Berger says obesity can also shorten cancer timelines, in part by shrinking the period between benign and malignant cancer progression. This is likely another reason aggressive cancer rates are rising among young adults. Multiple myeloma is now reported in young adults aged under 45 years, while historically the peak incidence age held steady at 69 years for decades.

The review is a deep dive into 13 cancers previously identified by the International Agency for Research on Cancer as linked to excess body fat. But it is one of the first to specifically address how obesity promotes the progression of these cancers in young adults. It includes Berger's recommendations to disrupt the link between obesity and young adult cancers.

Part of obesity's link to cancers in young adults is its overactivation of the immune system to produce harmful byproducts like peroxide and oxygen radicals that mutate DNA. Obesity also alters a person's metabolism. According to Berger, documenting health data, including BMI, throughout a patient's life is critical. Many patients with cancer present after significant weight loss, which could cause doctors to overlook obesity-related factors. Berger said he hopes that increased use of electronic medical records will help build databases that can detect weight-loss patterns, even if the loss occurred decades prior or is compounded by other health issues. "By documenting characteristics like diet and environment of an obese person, we might be able to get an indication of a possible prognosis," Berger says.

Detailed information about a person's weight history could help, as could early cancer screening techniques tailored to young people. But, says Berger, "the most effective way to curtail development of this problem is to prevent the expansion of the obesity pandemic in both children and adults." Without this step, 110 million children and adolescents with obesity worldwide remain at risk for developing obesity-associated cancers.

"Though adults cannot change their body size they acquired and lived with in their youth, they can directly influence whether their children will follow in their footsteps and develop obesity as a youngster/preteen/teen/young adult. By promoting healthy lifestyle habits early, parents have the ability to reduce the risk of their children one day getting cancer. We as navigators need to get this word out." – Lillie D. Shockney

Sources

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