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UH Mānoa Cancer Research Center of Hawai'i scientists report adulthood body size, weight gain associated with cancer risk Prostate cancer risk patterns vary by ethnicity

A team of scientists led by researcher Brenda Hernandez, Ph.D., M.P.H.—an assistant professor at the University of Hawai'i at Mānoa's Cancer Research Center of Hawai'i—has reported that body mass in younger and older adulthood, and weight gain between these life periods, may influence a man's risk for prostate cancer. This risk varies among different ethnic groups, according to findings reported in a study published in *Cancer Epidemiology, Biomarkers & Prevention*, a journal of the American Association for Cancer Research.

Dr. Hernandez and colleagues studied the relationship in a multiethnic population consisting of blacks, Japanese, Hispanics, Native Hawaiians and whites, and compared differences among age groups using the Multiethnic Cohort, a longitudinal study of men 45-75 years of age established in Hawai'i and California from 1993-1996. Of the 83,879 men who participated in the study, 5,554 developed prostate cancer. Overall, men who were overweight or obese by age 21 had a decreased risk of localized and low-grade prostate cancer, according to Dr. Hernandez.

Their results suggested that being overweight in older adulthood was associated with increased prostate cancer risk among white and Native Hawaiian men, but a decreased risk among Japanese men. While excessive weight gain between younger and older adulthood was observed to increase the risk of advanced and high-grade prostate cancers in white men and increase the risk of localized and low-grade disease in black men, it appeared to decrease the risk of localized prostate cancer in Japanese men.

Dr. Hernandez said, "The relationship of certain characteristics, such as body size, with cancer risk may vary across ethnic groups due to the combined influence of both genes and lifestyle."

Obesity is a known risk factor in other common cancers, including colorectal cancer and breast cancer in post-menopausal women. However, the relationship between body size and prostate cancer risk is not entirely understood.

Excess fat is associated with a number of conditions that contribute to cancer development including low-grade chronic inflammation, insulin resistance, metabolic abnormalities, and hormone imbalances. These conditions may in turn contribute to more aggressive prostate malignancies.

Ethnic differences in cancer risk may be explained by differences in the distribution of stored body fat that could have a differential effect on the development of prostate cancer. For example, in comparison to whites, Asian men and women tend to accumulate more fat in their upper bodies and less fat in their lower bodies (including legs and buttocks). These differences in the distribution of body fat may influence the specific way that excess fat influences cancer risk.

Elizabeth A. Platz, Sc.D., M.P.H., associated professor of epidemiology at the Johns Hopkins Bloomberg School of Public Health, Baltimore, and an editorial board member for *Cancer Epidemiology, Biomarkers & Prevention*, emphasized as a strength of this study, in spite of its inconsistency across racial/ethnic groups, that it was conducted prospectively and consisted of large numbers of men in most of the ethnic groups studied. An estimated 30 percent of prostate cancer cases occurred among Japanese men, 25 percent among white men, 27 percent among Hispanic men, 13 percent among black men, and seven percent among Native Hawaiian men.

According to Dr. Hernandez, their findings do not warrant a change in public health messages about obesity that all men of normal weight should be encouraged to avoid weight gain and those who are overweight or obese should be encouraged to lose weight to achieve good health.



The Cancer Research Center of Hawai'i is one of only 63 National Cancer Institute-designated cancer centers throughout the United States. As a research unit of the University of Hawai'i at Mānoa, it conducts cancer research, educational activities, and community outreach. Its research programs focus on: the possible causes of cancer and possible reasons for different cancer rates among Hawai'i's ethnic groups; reducing the incidence and impact of cancer in the Hawaiian population; and discovering new anti-cancer agents from local plants and marine

microorganisms. The Center is located at 1236 Lauhala Street in Honolulu. For general information on the Cancer Research Center of Hawai'i, please visit its website at www.crch.org.

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