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**Excess Coronary Heart Disease (CHD) Incidence Associated with Obesity is Explained by Blood Pressure, Diabetes, Lipids and Inflammatory Markers**  
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Obesity is a major risk factor for CHD, and abdominal adiposity may confer a particularly high risk. We tested the extent to which the excess risk of CHD associated with obesity is explained by traditional CHD risk factors and inflammatory markers.

**Methods:** Survival analysis of CHD incidence among 13,541 Atherosclerosis Risk in Communities (ARIC) study participants free of cardiovascular disease at baseline. Sex-specific quartiles of baseline body mass index (BMI men Q1<24.7 and Q4>29.6 kg/m<sup>2</sup>; women Q1<23.3 and Q4>31.1 kg/m<sup>2</sup>) and waist-hip ratio (WHR men Q1<0.93 and Q4>1.01; women Q1<0.83 and Q4>0.95) were analyzed.

**Results:** Compared with the lowest quartile, participants in the highest quartile of BMI and WHR were older, more likely to have diabetes and had higher LDL-C, triglycerides, blood pressure, and inflammatory markers and lower HDL-C (all p<0.001). Relative hazard (RH; 95% CI, p-trend) of CHD was elevated in the highest versus lowest quartiles of BMI in women (RH: 2.58; 1.9-3.6, p<0.001) and men (RH: 1.47; 1.2-1.8, p<0.001) after adjustment for age, race, and smoking. For WHR this association was also stronger in women (RH: 3.92; 2.7-5.7, p<0.001) than men (RH: 1.93; 1.5-2.4, p<0.001). Further adjustment for blood pressure, diabetes and lipids attenuated these relative hazards substantially (0.94 for BMI among women, 0.88 for BMI among men, 1.48 for WHR among women, and 1.15 for WHR among men, p=NS for all). Although addition of inflammatory markers (fibrinogen, white blood cell count, albumin, von Willebrand factor, and Factor VIII activity) to the minimally adjusted model reduced relative hazards by about one-third (1.95 for BMI among women, 1.35 for BMI among men, 3.12 for WHR among women, and 1.66 for WHR among men, p<0.05 for all), it had minimal impact when added to models already including standard CHD risk factors.

**Conclusion:** Obesity assessed by high BMI or WHR was associated with significantly increased risk of CHD. These associations were stronger for WHR than BMI, and stronger among women than men. Diabetes, lipids and blood pressure explained nearly all of the excess CHD risk while inflammatory markers had little independent impact, perhaps because these risk factors are related to obesity through inflammatory mechanisms.