

# The metabolic syndrome and risk of colorectal cancer

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Colorectal cancer is the 3rd most common incident cancer and the 3rd leading cause of cancer mortality.

Markers of insulin resistance (hypertriglyceridemia/hyperglycemia), diabetes, obesity, and other factors associated with obesity, such as elevated levels of inflammatory factors, growth hormones, and gender hormones, all have been hypothesized to increase the risk of colorectal cancer.

Associations between colorectal cancer and individual components of the metabolic syndrome have not been studied extensively.

This study tested the hypothesis that the metabolic syndrome is a risk factor for colorectal cancer and that individual components of the metabolic syndrome altered colorectal cancer risk.

Data were collected between 1987 and 1989 from the 15,792 men and women, ages 45 to 64 years, from the ARIC study (Atherosclerosis Risk in Communities – a multicenter prospective investigation).

Participants were categorized by the number of metabolic syndrome components present at baseline and were classified with the metabolic syndrome if they had at least 3 components:

1) high blood pressure (130 mmHg systolic or 85 mmHg diastolic), 2) central obesity (waist circumference 102 cm in men or 88 cm in

women), 3) high triglyceride level (>150 mg/dL), 4) low HDL cholesterol (<35 mg/dL in men or <45 mg/dL in women) and 5) diabetes/hyperglycemia

The results showed that metabolic syndrome (3 components vs. 0 components) had a positive association with age-adjusted and gender-adjusted colorectal cancer incidence. The incidence rate of colorectal cancer was 1.5-fold higher in men than in women and increased 4-fold with age. There was a dose-response association between colorectal cancer incidence and the number of metabolic syndrome components present at baseline ( $P = 0.006$ )

Individual components of the metabolic syndrome were weakly associated with colorectal cancer.

In the ARIC Study, colorectal cancer increased 1.5-fold to 2-fold across quartiles of BMI, WHR, and waist circumference for men but not for women.

Low HDL and elevated triglyceride were not associated with a significant increased risk of colorectal cancer.

**In summary,** the metabolic syndrome had a modest, positive association with colorectal cancer incidence among men, but not among women; a dose response according to the number of components was present.

*Comment on the paper:*

Ahmed RL, Schmitz KH, Anderson KE, Rosamond WD, Folsom AR – The metabolic syndrome and risk of incident colorectal cancer. *Cancer* 2006, 107:28-36