

# Athletes not spared from health risks of metabolic syndrome

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College-age football players who gain weight to add power to their blocks and tackles might also be setting themselves up for diabetes and heart disease later in life, a new study suggests.

Nearly half of a sample of collegiate offensive and defensive linemen who underwent a battery of tests for the study had metabolic syndrome. This means the players had at least three of five risk factors that indicate a person has higher chances of developing heart disease and diabetes than those without the risk factors.

Based on the results, standard health screening for these risk factors might be a good idea for all collegiate football players, said Jackie Buell, director of sports nutrition at Ohio State University and lead author of the study.

"The current health of the athlete is of obvious concern, but these results suggest more attention needs to be paid to preventing future health problems at the same time," Buell said.

Metabolic syndrome is characterized by a cluster of clinical symptoms that include excess fat in the abdominal area (as measured by waist circumference), borderline or high blood pressure, cholesterol problems that foster plaque buildup in arteries, insulin resistance or glucose intolerance indicating the body can't properly use insulin or blood sugar, and the presence of a protein in the blood that means inflammation is present.

If a male athlete's waist measurements and blood pressure exceed set points - a 40-inch waist and a blood pressure reading higher than 130 over 85 - he ideally should undergo a blood test to see if high cholesterol, glucose and triglyceride levels, too, indicate that he might benefit from nutrition counseling and other health guidance to prevent chronic disease down the road, Buell said.

"With screening, we could know what their propensities are and teach them how to reduce or eliminate these risk factors before they get out of college," said Buell, who is a registered dietitian.

The research is published in the current issue of the *Journal of Athletic Training*.

The American Heart Association estimates that more than 50 million Americans have metabolic syndrome.

Buell noted that the presence of these combined risk factors does not automatically mean the football players are destined for disease. But it does suggest a heightened risk that could be reduced with lifestyle modifications.

In the study, researchers tested a total of 70 football linemen from Division I, II and III college programs as defined by the National Collegiate Athletic Association.

Of those, 34 athletes had at least three risk factors indicating they had metabolic syndrome based on measures of waist circumference, glucose levels, high-density lipoprotein (HDL, or good cholesterol), blood pressure and triglycerides.

Of those 34, one athlete had all five risk factors, and eight had four risk factors.

Large waists and low HDL were characteristics shared by all but two of the 34 athletes qualifying for metabolic syndrome. Elevated blood pressure was reported in all but five of those 34 players.

Among the trends the researchers saw were generally low levels of HDL cholesterol, which affected the athletes' cholesterol ratio, a measurement that offers more health information than a total cholesterol reading. The ratio refers to how the total cholesterol measurement relates to HDL cholesterol, and is obtained by dividing the HDL cholesterol level into the total cholesterol. The heart association's goal is to keep the ratio below 5:1; the optimum ratio is 3.5:1. Thirty-two of the athletes studied had ratios higher than 5:1.

"We assume this doesn't happen in a young person," Buell said. "The point of this research is, if you don't do a study like this, you don't know. I think we all assume they don't have these health risks because they're athletes.

"What worries me is what happens when they stop participating in sports that are a positive influence physiologically - then what happens to them?"

Most research suggests that reducing abdominal fat is the best way to prevent disease in the long run. Buell and colleagues suggested that because weight loss during competitive years might not be considered desirable to the lineman, it might be best to help athletes after their sports careers have ended.

The researchers said the Therapeutic Lifestyle Changes Guidelines proposed by the National Cholesterol Education Program could function as a guide for athletes with numerous risk factors. The guidelines recommend that saturated fats constitute no more than 7 percent of total calories, fats should constitute 25 percent to 35 percent of daily calories,

and cholesterol consumption should not total more than 200 milligrams per day.

Though the researchers did not test the aerobic capacity of the athletes, they said prehypertension and low levels of HDL cholesterol suggest these football players could benefit from increased aerobic training.

"We understand these athletes want to be big, but they can't assume all their weight gain is lean mass just because they're lifting weights and taking protein supplements," Buell said. "The bottom line is we're seeing more and more abdominal obesity. And these findings show that athletes aren't necessarily off the hook when it comes to health risks."

Source: Ohio State University

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