Medical Xpress

College football linemen take one for the team in terms of health

December 7 2009, by Emily Caldwell

The high-intensity exercise performed by college football linemen does not protect them from obesity, related health problems and the potential for cardiovascular disease later in life, new research suggests.

In an assessment of 90 collegiate football players from a single Division I team, only offensive and defensive linemen were deemed obese because they had 25 percent or more body fat.

Among the obese linemen, almost 60 percent were insulin resistant and 42 percent had metabolic syndrome, or 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.

The findings should raise awareness about how health risks can go hand-in-hand with an emphasis on size for all football players and especially linemen, researchers say.

"I think the perception out there is that football players, at every level, are getting bigger," said James Borchers, assistant professor of clinical family medicine at Ohio State University and lead author of the study. "But I think players need to recognize that as they get into unhealthy levels of body fat, there's a risk that comes along with that. And you're not protected from that risk just because you're active in football."

Borchers, a sports medicine specialist and Ohio State football team physician, said the medical staff counsels student athletes about nutrition

and overall health.

"Clinicians also really need to be paying attention when these guys are done playing," he said. "Many players will be done after college. What happens to their body weight then? Can we help decrease their risk for metabolic syndrome or insulin resistance, or even potential cardiovascular problems, with intervention and by keeping an eye on their natural progression once they're done playing? I think that's where we can make an impact."

The research is published in the current issue of the journal *Medicine & Science in Sports & Exercise*.

The study, conducted in 2007, involved 90 players from Ohio State's football team. The players were grouped for analysis on the basis of size and similarity of positions - offensive and defensive linemen; wide receivers and defensive backs; and tight ends, linebackers, quarterbacks, punters and kickers.

Researchers measured the athletes' blood pressure, blood sugar, insulin levels, cholesterol, triglycerides, height, weight, waist circumference and body fat percentage during a single study visit after the players had fasted for about 10 hours.

One in five of the players, all linemen, registered 25 percent or more body fat, a clinical definition of obesity. The researchers did not use body mass index, a ratio of weight to height, to determine obesity because it is not considered a valid measure for strength-trained athletes, Borchers said.

Nineteen of 29 linemen were obese. Of those 19, 11 showed signs of insulin resistance; overall, linemen accounted for 68 percent of the players meeting criteria for this condition. The odds for insulin

resistance in the obese group were 10.6 times the odds for insulin resistance in the nonobese group.

Insulin resistance means that the presence of insulin does not initiate the transfer of sugar, or glucose, from the blood into the tissues, where it is used for energy. It is associated with excess weight and low activity levels, and increases a person's chances of developing diabetes and heart disease.

Of those same 19 linemen, eight met the criteria for metabolic syndrome, and they were the only players in the study to have this cluster of risk factors.

People with metabolic syndrome have three or more of the following conditions: excess fat in the abdominal area based on a measure of waist circumference, borderline or high blood pressure, cholesterol problems that foster plaque buildup in arteries, insulin resistance or glucose intolerance, and a high level of triglycerides, a form of fat in the blood.

Among other players, 8 percent were considered overweight, with a body fat percentage of between 20 percent and 24.9 percent.

Borchers said the findings suggest athletes concerned about maintaining a large size should try to avoid obtaining fat mass as they work on bulking up.

"A risk associated with the emphasis on needing to be bigger is that some can't obtain that size with just lifting, so they're getting some of that body mass in an unhealthy fashion," Borchers said. "That's not to say they don't care about their health. They're very interested, just as professional athletes are, about their body composition, nutrition and overall health."

Source: The Ohio State University (news : web)