



## Previously adult-only ills affect obese Hawaii kids

Obesity and being overweight have crept into lower age groups during the past couple of decades. As a consequence, so have obesity-related health problems. Previously considered to be adult conditions, metabolic syndrome and nonalcoholic fatty liver disease are both now showing up in children and adolescents. Associated with these conditions is a greatly increased risk of developing cardiovascular disease and diabetes.

**QUESTION:** What is metabolic syndrome?

**ANSWER:** Metabolic syndrome is diagnosed in an adult when they have any three of the following:

1) excess body fat, 2) high blood triglycerides, 3) low HDL cholesterol, 4) high blood pressure, and 5) increased fasting blood glucose. These criteria all have specific cut-off points to diagnose metabolic syndrome in adults.

In growing children and teens, there is less agreement about how to diagnose metabolic syndrome. However, when the elements of metabolic syndrome have adverse effects on the health of a child, the diagnosis makes sense. One of the more serious developments associated with metabolic syndrome is nonalcoholic fatty liver disease.

**Q:** What is nonalcoholic fatty liver disease?

**A:** When liver function is challenged in various ways, it can accumulate fat. Excess alcohol consumption is well known to cause a fatty liver. Although the causes of nonalcoholic fatty liver are quite different, the consequences can be similar. Initially, a fatty liver causes no symptoms or obvious complications. Over time, however, the fat that accumulates can cause inflammation and scarring in the liver. This more serious form of nonalcoholic fatty liver disease is sometimes called nonalcoholic steatohepatitis, which can eventually progress to liver failure.

**Q:** How significant is this problem in children in Hawaii?

**A:** There is reason for serious concern, according to new research conducted by David St. Jules, the first graduate of a new doctoral program in nutrition at the University of Hawaii at Manoa. Working with Corilee Watters in the Human Nutrition, Food and Animal Sciences Department, St. Jules studied liver disease among children in Hawaii who had been diagnosed with metabolic syndrome.

According to the Hawaii Youth Risk Behavior Survey, more than

25 percent of teens are overweight or obese, putting them at risk for metabolic syndrome and nonalcoholic fatty liver disease. After evaluating data relating to the liver status of 167 children with metabolic syndrome, St. Jules found that more than 60 percent already had indications of fatty liver disease.

**Q:** Which children are affected the most?

**A:** Pacific Islander children appeared to be at greater risk of nonalcoholic fatty liver disease than other ethnic groups. Although the numbers were limited, 14 out of 16, or 88 percent, of the Pacific Islander children in the study had elevated blood levels of a key liver enzyme that indicates a fatty liver.

**Q:** How is metabolic syndrome and fatty liver treated in children?

**A:** Generally, children need to "grow into their weight" by losing body fat (not necessarily body weight) through physical activity and a nutritionally adequate diet that is not excessively high in calories. Including fish and adequate protein in the diet (without excessive carbohydrate) appears to be helpful in adults, and likely benefits children as well.

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