Less sugary drinks during childhood may cut disease risk

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Symptoms of heart disease and diabetes usually seen in adults are increasingly being found in adolescents according to a longitudinal study, which suggests that reducing the intake of sugar-sweetened beverages during childhood may lessen the risk of chronic disease in later life.

"Research on obesity and associated problems such as hypertension and type-2 diabetes has largely dealt with adults," says Alison Ventura, doctoral candidate at Penn State's Center for Childhood Obesity Research. "But with increasing rates of obesity in children, we are seeing these problems at much younger ages."

Ventura and her colleagues Eric Loken, assistant professor of human development and family studies, and Leann Birch, professor of human development and family studies, are studying the clustering of traits such as insulin resistance, abdominal obesity, hypertension, and high triglycerides combined with low HDL – good cholesterol – that are thought to be related to cardiovascular disease and diabetes in adults.

The clustering of these traits, otherwise known as metabolic syndrome, is a strong indicator for chronic disease, and is being diagnosed in an increasing number of U.S adults and adolescents.

"Researchers think insulin resistance is the underlying trait that leads to the other metabolic abnormalities," says Ventura. "It is now thought that obesity may be a trigger for insulin resistance, thus creating a cascade of risk."

However, the Penn State researcher adds there is little data on the prevalence of metabolic syndrome in children since they are not routinely screened. Her team is trying to find a risk profile for later disease among children having the symptoms for metabolic syndrome.

The current study, funded by the National Institutes of Health, looked at different traits such as blood pressure, waist circumference, and levels of HDL cholesterol, triglycerides, and glucose in 154 white non-Hispanic 13-year-old girls and their parents, from central Pennsylvania. This study also had data on the girls and their parents' dietary, activity and lifestyle patterns starting from when the girls were five-years-old.

"We first looked for different profiles for the indicators of metabolic syndrome when the girls were 13, then worked backwards to see what was causing them in the first place," says Ventura, whose findings appear this month (December) in the Journal of American Academy of Pediatrics.

The study found statistical support was the greatest for the presence of four different groups within the sample: These groups included girls with higher blood pressure and waist circumference values; girls with higher levels of triglycerides and lower levels of HDL cholesterol; girls with more desirable values on all of the metabolic syndrome indicators, and girls with more undesirable values on all of the indicators.

"We wanted to see if we could find higher and lower risk profiles in the sample," explains Ventura. "Next we wanted to see if there were certain characteristics across ages 5 to 11 that predicted having a higher or lower risk profile."

Results from the study further suggest that girls within the risk groups for hypertension and metabolic syndrome also had significantly greater increases in weight and fat mass between the ages of 5 and 13 compared

to the other two groups. Those at higher risk for metabolic syndrome were also found to be consuming significantly more servings of sugary beverages between the ages of 5 and 9 compared to the other three groups.

The Penn State researcher , however, cautions on making general interpretations from the study.

"We do not have future data on these girls and so we can only speculate that girls in the high risk group might develop metabolic syndrome, heart disease or type-2 diabetes," she adds.

Though the study cannot definitely pinpoint which children will develop chronic diseases, Ventura says the results show evidence for metabolic syndrome in early adolescence. They also illustrate several possible disease trajectories that may be avoided by certain measures during early childhood. The researchers also point out that only girls were included in the study.

"Family history does play a role, but it appears that we can prevent the development of metabolic syndrome in children by taking certain actions in early life. Controlling weight gain and the intake of sugar-sweetened drinks may prevent a child from the risk of disease later in life," Ventura adds.

Source: Penn State