# Elevated blood sugar in healthy teens linked to deadly heart failure risk



New research from the University of Eastern Finland has identified a worrying risk of deadly heart failure among millions of seemingly healthy teenagers, linked to poor dietary habits and lack of exercise. The study focuses on elevated blood sugar levels and their impact on heart health in young people.

The research team analysed 1,595 volunteers aged 17 to 24 from the University of Bristol’s Children of the 90s cohort, a comprehensive longitudinal study that has tracked the health of thousands born in the early 1990s. Their investigation centred on whether raised blood glucose could lead to metabolic changes that cause detrimental alterations in the structure of the heart, specifically left ventricular hypertrophy—a condition characterised by an enlargement of the heart's left ventricle.

Left ventricular hypertrophy can weaken the heart’s capacity to pump blood effectively and significantly increase the chances of fatal cardiac arrest. While this condition often presents no symptoms initially, it may eventually lead to chest pain, shortness of breath, heart palpitations, and abnormal heart rhythms, culminating in sudden cardiac death if left untreated.

Crucially, the study discovered that teenagers and young adults with persistent fasting blood sugar levels of 5.6mmol/L or higher—levels still beneath the NHS threshold for diabetes diagnosis—had a 46% higher risk of developing left ventricular hypertrophy. This finding highlights potential cardiac damage beginning even before diabetes is diagnosed, pointing to early lifestyle factors as key contributors.

Professor Andrew Agbaje from the University of Eastern Finland commented on the findings, saying, "We found even healthy-looking teens and young adults of normal weight may still be at risk." He added, "The findings further confirm that even healthy-looking adolescents and young adults who are mostly normal weight may be on a path towards cardiovascular diseases, if they have high blood glucose and insulin resistance."

Interestingly, the research also revealed sex differences in the impact of elevated blood sugar on heart health. Professor Agbaje noted, "Surprisingly, we observed that high blood sugar may aggressively damage females' hearts five times faster than males’—therefore, special attention should be paid to girls in terms of prevention."

Other heart health factors such as family history of cardiovascular disease, smoking habits, and physical activity levels were accounted for in the study, reinforcing the complexity of risks influencing cardiac conditions in youth.

The backdrop to this research is the rising prevalence of type 2 diabetes—once considered a disease of middle and older age—in younger populations. In the UK, approximately 168,000 people under 40 currently live with type 2 diabetes, a condition that not only increases risk for heart disease but can also lead to kidney failure, strokes, and blindness. Alarmingly, the number of young people living with type 2 diabetes rose by 40% between 2016 and 2023. Additionally, nearly 850,000 people in the UK have undiagnosed diabetes, increasing the risk of complications through lack of treatment.

The NHS recommends maintaining a balanced diet with limited sugary foods, managing stress, and engaging in regular physical exercise as preventative measures to keep blood sugar levels in check.

The Daily Mail is reporting the findings, which emphasise the importance of early lifestyle interventions for young people to reduce long-term cardiovascular risks and highlight how elevated blood sugar can silently affect heart health well before a diabetes diagnosis is made.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.uef.fi/en/article/arterial-stiffness-may-cause-and-worsen-heart-damage-among-adolescents-by-increasing-blood-pressure> - This article discusses how arterial stiffness can lead to heart damage in adolescents by increasing blood pressure and insulin resistance, supporting the claim that elevated blood sugar levels impact heart health in young people.
2. <https://www.uef.fi/en/article/arterial-stiffness-may-cause-metabolic-syndrome-in-adolescents-via-an-increase-in-fasting-insulin> - This study indicates that arterial stiffness may be a novel risk factor for metabolic syndrome in adolescents, linking elevated blood sugar levels to metabolic changes that affect heart health.
3. <https://www.uef.fi/en/article/arterial-stiffness-raises-blood-pressure-in-adolescents-via-insulin-resistance> - This research shows that arterial stiffness raises blood pressure in adolescents through increased insulin resistance, highlighting the impact of elevated blood sugar on heart health.
4. <https://www.uef.fi/en/article/elevated-cholesterol-in-adolescence-causes-premature-heart-damage-in-a-seven-year-follow-up> - This article reports that elevated cholesterol levels in adolescence can lead to premature heart damage, supporting the claim that metabolic changes in young people can affect heart health.
5. <https://www.uef.fi/en/article/insulin-resistance-linked-to-aortic-stenosis-finding-could-open-doors-for-new-treatments> - This study links insulin resistance to aortic stenosis, a heart valve disease, indicating that metabolic issues in young people can lead to heart health problems.
6. <https://www.uef.fi/en/article/increasing-vigorous-exercise-decreases-risk-of-type-2-diabetes-and-cardiovascular-disease-already-in> - This research shows that increasing vigorous exercise in children can decrease the risk of type 2 diabetes and cardiovascular disease, emphasizing the importance of early lifestyle interventions to reduce long-term cardiovascular risks.
7. <https://www.dailymail.co.uk/health/article-14659017/teenagers-heart-problem-diet-mistake.html?ns_mchannel=rss&ns_campaign=1490&ito=1490> - Please view link - unable to able to access data