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# Children who fail to meet UK dietary guidelines have worse cardiometabolic health as young adults

Dr Genevieve Buckland, Dr Caroline M. Taylor, Dr Pauline M. Emmett and Professor Kate Northstone (University of Bristol)

In the UK, heart and circulatory diseases contribute to a quarter of all deaths, and almost a third of these are classed as premature. Unhealthy diets are a key modifiable risk factor involved in the development of cardiovascular disease (CVD).

## About the research

UK dietary guidelines aim to improve the well-being and long-term health of the population, including reducing the development of heart and circulatory disease.

The Eatwell Guide (EWG), a government policy tool, has been part of nutrition education in the UK since 2016. It is designed to help inform the public on how to eat healthily and achieve a balanced diet.

Assessing the proportion of a population who fail to meet the recommended dietary targets can help identify important gaps between actual and recommended intakes, and how to address them.

At the same time, it's important to provide robust scientific evidence for the health benefits of following the dietary guidelines.

This study assessed how well UK school-age children complied to key UK Government dietary recommendations and then analysed the relationship between meeting these dietary recommendations during childhood and future heart and circulatory health.

Meeting at least 3 of the dietary guidelines, compared to not meeting any, was associated with lower risk markers of developing heart and circulatory disease in adulthood, indicating a clear health advantage.

This research comes as the UK government develops its Major Conditions Strategy, designed to improve the health of the nation, including prevention of heart disease.

Our results can help inform future policies in this area and strategies to reduce emergence of CVD risk factors early in life.

## Policy implications

- Failing to meet UK dietary recommendations in childhood is linked to changes in heart and circulatory markers, which are risk factors for CVD. Life-long dietary habits are acquired in childhood, so establishing healthy dietary habits early in life is crucial.
- Public health nutrition strategies should focus on school-age children: increasing consumption of fruit and vegetables, fish and fibre, and reducing saturated fat, free sugars and salt intakes.
- Establishing healthy early dietary habits requires a joined up approach to public health e.g. availability and affordability of healthy food options, food marketing and advertising, front of pack nutrition labelling and nutrition education.
- The Office for Health Improvement and Disparities (OHID) should develop regulations to ensure that the food served in UK schools meets the School Food Standards. School meals can play a crucial role in helping school-age children meet dietary recommendations.
- The UK Government should continue to work with industry to improve the nutritional content of foods and drinks, such as the national salt reduction programme.
- The UK Government should build on the success of the Soft Drinks Industry Levy and extend this type of policy to other processed products high in sugar (e.g. confectionery) to help the Government come closer to its still unmet target of a 20% reduction in sugar intake by 2020.
- Additional public health strategies need to focus on improving diet quality of children and their families living in more deprived areas of the UK. This will help break the intergenerational cycle of poor diet quality and poor health in later life.

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## Key findings

The analysis is based on data from a birth cohort study, the Avon Longitudinal Study of Parents and Children (ALSPAC), and looks at the health of approximately 2,700 children born in 1991-1992 in the Bristol area.

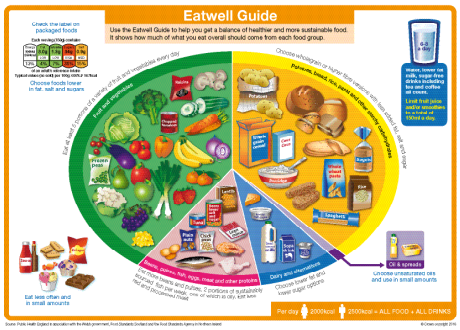
An Eatwell Guide score (C-EWG score) was calculated when the participants were 7, 10 and 13 years old, to assess how well their habitual diet met nine dietary recommendations represented within the Eatwell Guide.

Most children did not eat enough of the recommended foods, particularly fruits & vegetables, fish and fibre.

- Only 10-15% consumed 5 portions/day of fruits and vegetables.
- Hardly any (6%) consumed 2 portions/week of fish (with one being oily fish).
- Fewer than 1 in 5 children met the recommended intake of fibre, from whole grains, fruits and vegetables.

The majority consumed too much salt, free sugar and saturated fat.

- Almost every child (99%) consumed too many free sugars (i.e. sugar added to food at the table, in cooking, manufacturing, and in soft drinks).
- Approximately 8 in 10 children (70-90%) consumed too much salt, mainly in manufactured foods.
- Almost 9 in 10 (80-90%) consumed too much saturated fat (mainly from animal fat).




Overall, 15% did not meet any of the core Eatwell Guide recommendations, while approximately 1 in 3 children only met one recommendation.

Children from lower socio-economic backgrounds and/or with overweight/obese mothers were more likely to meet fewer UK dietary recommendations.

Heart and circulatory health markers were evaluated when the participants were 17 and 24 years old, by using a cardiometabolic risk score, which took into account their blood levels of certain fats, their blood pressure, insulin resistance and body fat.

- Children who met 3 or more dietary recommendations at age 7, compared to none, had lower risk markers of developing heart disease aged 24. Meeting more dietary recommendations at age 10 was also related to better cardiometabolic health aged 24.
- The link between meeting dietary recommendations and markers of better heart health was largely driven by lower levels of body fat, cholesterol, blood pressure and insulin resistance.

## Further information

Buckland G, Taylor CM, Emmett PM, Northstone K. Prospective association between adherence to UK dietary guidelines in school-age children and cardiometabolic risk markers in adolescence/early adulthood in the Avon Longitudinal Study of Parents and Children (ALSPAC) cohort. Br J Nutr. 2023. doi: 10.1017/S0007114523000685

Buckland G, Northstone K, Emmett PM, Taylor CM. Adherence to UK dietary guidelines in school-aged children from the Avon Longitudinal Study of Parents and Children (ALSPAC) cohort. Br J Nutr. 2022. doi: 10.1017/S0007114522003336

## Contact the researchers

Dr Genevieve Buckland, University of Bristol: g.buckland@bristol.ac.uk

## Acknowledgements

ALSPAC study: The Avon Longitudinal Study of Parents and Children (ALSPAC), also known as Children of the 90s, is a world-leading birth cohort study, charting the health of 14,500 families in the Bristol area. Find out more at: http://www.bristol.ac.uk/alspac/

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