



British Heart  
Foundation  
Cymru

# Heart Screening Factsheet



[bhf.org.uk](https://www.bhf.org.uk)

# What is heart screening?

The UK National Screening Committee (UK NSC) explains screening as a process of identifying healthy people to assess if they have a particular condition.<sup>1</sup> Therefore, heart screening would be the process of identifying apparently healthy people to ascertain if they have an undiagnosed heart condition. However, with current technology, this is not yet completely accurate and heart screening in the general population is not recommended anywhere in the UK.

## Heart screening is too inaccurate

Sudden death in the population from undetected heart conditions has a devastating impact on families and communities. It is therefore understandable that people believe screening is key in avoiding such a tragedy. However, it is important to recognise that screening is not yet at a scientific level of precision whereby all people at risk of sudden cardiac death can be accurately predicted. The 2019 report from the UK NSC on screening for cardiac conditions concluded that there is currently guidance on possible genetic testing family members at risk of sudden cardiac death. **However, conditions thought to be associated with sudden cardiac death do not meet the prevalence criterion for justifying a population screening programme for this condition.**<sup>2</sup>

**In 2016, the British Medical Journal (BMJ) found that up to 5% of healthy people aged between 14–35 could be incorrectly suspected of having cardiac disease after screening whilst 25% of people with a condition would not be identified.**<sup>3</sup>

Research from JAMA Internal Medicine studied 6861 middle-aged participants to examine whether echocardiographic (echo) screening in the general population improves long-term survival or reduces the risk of cardiovascular disease. The study ultimately concluded that screening did not reduce the risk of death.<sup>4</sup>

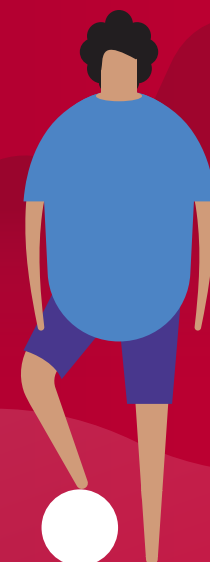
The UK National Screening Committee have concluded that several proposed ways of screening, such as electrocardiography (ECG), physical examination, family history analysis or a combination of approaches, on a large scale in the general population for cardiovascular disease, does not comply with the internationally recognised implementation criteria for screening programmes.<sup>5</sup>

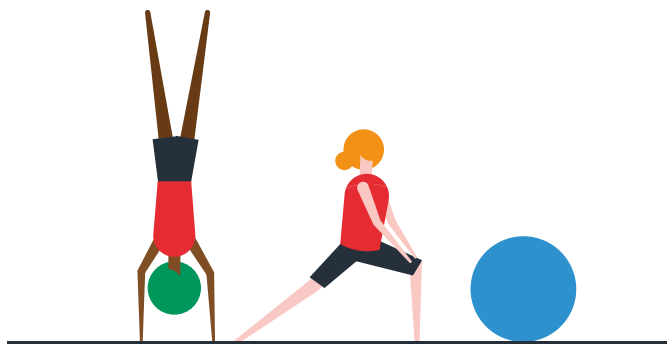
## Case Study: The risks of heart screening in athletes

In young athletes, standard cardiovascular screening does not currently pick up most of the conditions that cause sudden cardiac death. Whilst signs of underlying risk of sudden death can be picked up by an echocardiogram (echo) or an electrocardiogram (ECG), this can be difficult to interpret, especially with young athletes who undergo different physiological changes that non athletes.<sup>6</sup>

Whilst sudden cardiac death is undoubtedly a tragic occurrence, it is necessary to understand the prevalence of the condition, which is one of the many factors considered in screening guidelines. The BMJ reported that only 4 out of 115 (3%) athletes that suffered from a sudden cardiac death and had a pre-participation medical evaluation were suspected of having a heart disease.<sup>7</sup>

**A 26-year study in Minnesota by the Heart Rhythm Society found that in around 4.5 million athletes there were 13 incidences of sudden death and only 4 of these were attributable to disease that could be detectable by pre-participation screening.**<sup>8</sup>





## Heart screening can result in false positives which can ruin lives

The number of false positives related with screening tests such as the ECG is worryingly high. The 2019 report from the UK NSC found that screening for conditions associated with sudden cardiac death would cause many individuals to be incorrectly told they have a heart problem.<sup>9</sup> This would ultimately lead to false positives in the UK population for cardiac conditions.

This is also true within other populations, according to the American Heart Association (AHA) the prevalence of sudden cardiac death in the USA population is low therefore heart screening will generate more false positives than true positives.<sup>10</sup>

The impacts of misdiagnoses can be huge. False positives associated with heart screening can result in secondary testing, meaning possible inappropriate medical treatment and psychological trauma. Other consequences include reduced employment opportunities, increased demand on secondary services and an impact on insurability.<sup>11</sup>

## The UK NSC does not recommend heart screening

Recommendations from the UK NSC on whether to screen for a condition are based on internationally recognised criteria and a rigorous evidence review process.<sup>12</sup>

The 2014 UK NSC *Screening for cardiac conditions associated with sudden cardiac death in the young* report did not recommend the screening of people under the age of 40 as it showed uncertainties surrounding number of people who have been gravely impacted by sudden cardiac death annually. The report concluded that there is currently no evidence to show that screening reduces the chance of a sudden cardiac death in the wider general population.<sup>13</sup>

The UK NSC considered new evidence in 2019 and once again recommended against screening of people for the detection of heart conditions. The report also demonstrates that such tests are not yet accurate enough to use on people to reduce the chance of sudden cardiac death.

The report also notes that both the American Heart Association and European Society of Cardiology do not currently support screening of the general population for sudden cardiac death.<sup>14</sup>

## Recommendation

Welsh Government should continue to follow the guidance of the UK NSC relating to heart screening. The UK NSC currently states that there is guidance on genetic testing family members of people at risk of sudden cardiac death. Effective implementation of this guidance through a targeted screening programme may help prevent sudden cardiac death in some groups of people who are at high risk.<sup>15</sup>



# References

1. UK NSC. (2022). *Evidence Review Process*. (website) <https://www.gov.uk/government/publications/uk-nsc-evidence-review-process/uk-nsc-evidence-review-process>.
2. UK NSC. (2019). *Screening for cardiac conditions associated with sudden cardiac death in the young*. (pdf) <https://view-health-screening-recommendations.service.gov.uk/sudden-cardiac-death/>.
3. Van Brabandt, H. Desomer, A. Gerkens, S. Neyt, M. (2016). *Harms and benefits of screening young people to prevent sudden cardiac death*. British Medical Journal. (website) <https://www.bmj.com/content/353/bmj.i1156.long>.
4. Lindekleiv, H. et al. (2013). *Echocardiographic screening of the general population and long-term survival: a randomized clinical study*. JAMA internal medicine. (website) <https://pubmed.ncbi.nlm.nih.gov/23877591/>.
5. UK NSC. (2022). *Criteria for a population screening criterion*. (website) <https://www.gov.uk/government/publications/evidence-review-criteria-national-screening-programmes/criteria-for-appraising-the-viability-effectiveness-and-appropriateness-of-a-screening-programme#implementation-criteria>.
6. Sharma, S. (2013). *Cardiac Screening Before Participation in Sports*. New England Journal of Medicine. (website) <https://www.nejm.org/doi/full/10.1056/NEJMclde1311642>.
7. Van Brabandt, H. Desomer, A. Gerkens, S. Neyt, M. (2016). *Harms and benefits of screening young people to prevent sudden cardiac death*. British Medical Journal. (website) <https://www.bmj.com/content/353/bmj.i1156.long>.
8. Maron, B.J. Haas, T.S. Ahluwalia, A. and Rutten-Ramos, S.C. (2013). *Incidence of cardiovascular sudden deaths in Minnesota high school athletes*. Heart Rhythm. (website) <https://pubmed.ncbi.nlm.nih.gov/24583295/>.
9. UK NSC. (2019). *Screening for cardiac conditions associated with sudden cardiac death in the young*. (pdf) <https://view-health-screening-recommendations.service.gov.uk/sudden-cardiac-death/>.
10. Ibid.
11. Ibid.
12. UK Government. (2015). *Evidence and recommendations on NHS population screening*. (website) <https://www.gov.uk/guidance/evidence-and-recommendations-nhs-population-screening>.
13. UK NSC. (2019). *Screening for cardiac conditions associated with sudden cardiac death in the young*. (pdf) <https://view-health-screening-recommendations.service.gov.uk/sudden-cardiac-death/>.
14. Ibid.
15. Ibid.



**British Heart  
Foundation  
Cymru**

**Contact:**  
Hannah Peeler  
peelerh@bhf.org.uk

© British Heart Foundation 2023, registered charity in England and Wales (225971) and in Scotland (SC039426)