

# Getting to the heart of the problem

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Doctors working to cut the number of people in the UK who die from undiagnosed cardiac conditions each year will be presenting their research at this year's Royal Society Summer Science Exhibition which opens today (3 July). Every week 12 seemingly fit and healthy young people under the age of 35 die from these conditions.

Approximately 75 per cent of these 600 sudden cardiac deaths a year occur without any prior symptoms. The team based at St George's, University of London and funded by the charity Cardiac Risk in the Young (CRY) is particularly interested in exercise-related sudden

cardiac death. Many sports bodies now recommend or insist that young athletes are screened for disorders. One in 300 of the individuals tested are identified as having a potentially life threatening condition and one in 100 are identified with a less serious cardiac abnormality that may cause problems from the middle age.

Research from Italy, where cardiac screening is mandatory for people engaged in organised sport, shows that 90% of these deaths could have been prevented if cardiac evaluation using an ECG had been carried out.

Professor Sanjay Sharma, professor of inherited cardiac diseases and sports cardiology and his team will demonstrate to visitors the structural and electrical functioning of the heart and how it responds to exercise. Professor Sharma is the consultant cardiologist for CRY and works closely with the charity to promote and protect the cardiac health of young people by establishing good practice and screening facilities.

The team's research has identified the upper limits of left ventricular wall thickness and cavity size in adult and adolescent British athletes. This helps to distinguish between physiology (cardiac adaptation to exercise) and pathology (disease). This distinction can be challenging for cardiologists but is crucial when screening young athletes since incorrect interpretation has the potential for serious consequences.

The research programme has also been important for understanding what is normal. It has devised normal upper limits for cardiac dimensions in athletes and characterised ECG changes in athletes in a document that is now regarded as the blueprint for the European Society of Sport Cardiology.

Commenting on the research that will be presented at the Exhibition, Professor Sanjay Sharma said:

“This year the eyes of the sporting world will be on London as it hosts the Olympics and it’s great that just weeks before the event kicks off we’ll have an opportunity to speak to the public about an issue which is so crucial to athletes, especially those who compete professionally.

Fans watched in horror as Bolton footballer Fabrice Muamba collapsed on the pitch just months ago and sadly not long after Italian midfielder Piermario Morosini, just 25, suffered a fatal heart attack on the field – we want to prevent tragedies like this from occurring.

Together with CRY we already provide screening services for a number of professional sporting bodies including the English Institute of Sport, the Rugby Football Union, Lawn Tennis Association and a number of FA teams including Manchester City. Hopefully the Summer Science Exhibition will allow us to introduce this important research to a new part of the public.”

Apart from diagnostics, the research has also identified the prevalence of conditions such as hypertrophic cardiomyopathy (HCM) in athletes. This includes recently identifying conditions such as long QT syndrome as more common than HCM. The research team is also the first to have looked at cardiac adaptation for Caribbean athletes who differ from Caucasian [athletes](#) in the way they adapt to exercise.

Provided by St. George's University of London

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