

EHJ News

First past the post: research on endurance exercise wins the Desmond Julian Award

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Belgian cardiologist Ruben De Bosscher has clinched the 2024 Desmond Julian Award—for a paper investigating sports cardiology. Dr De Bosscher of the University of Leuven (KU Leuven) and his team won the prize for a study about the links between endurance exercise and atherosclerosis (Figure 1).

The winning study¹—Lifelong endurance exercise and its relation with coronary atherosclerosis—is part of the Master@Heart project based in Belgium and was judged to be the best paper according to an expert panel of the *European Heart Journal* (EHJ). Based on originality, methodology, presentation, and importance, alongside bibliometric indexes, the Desmond Julian Award honours the life and work of the late Desmond Julian, a pioneering cardiologist and inaugural editor of the *EJH*. Dr De Bosscher is the third recipient of the award, which is presented annually at the ESC Congress.

The winning paper focused on understanding how long-term endurance exercise affects the heart, including potential risks like myocardial scarring and arrhythmias. The research into the relationship between the impact of long-term endurance exercise on coronary atherosclerosis and acute cardiac events is significant as it challenges the assumption that high levels of exercise equate to better health. A key asset

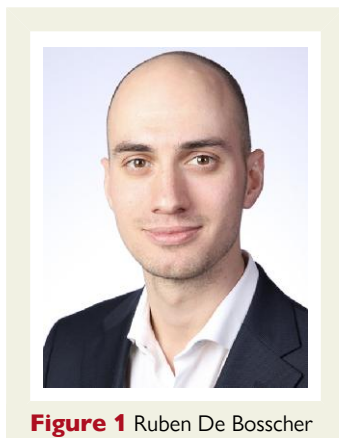


Figure 1 Ruben De Bosscher

of the Master@Heart study relates to the recruitment strategy. After a broad media call, study participants were included at random from a larger sample of eligible individuals. This strategy is unique in sports cardiology studies and minimized the potential of selection bias. The study found that while individuals engaged in lifelong endurance exercise have higher fitness levels, they also have a higher prevalence of coronary plaques compared with healthy non-athletes. This suggests that although endurance exercise has many benefits, it may also increase certain risks, highlighting the complexity of cardiovascular health.

Dr De Bosscher is from Ghent in Belgium and graduated from medical school at KU Leuven. He joined the endurance exercise project during a period of training in internal medicine when he was supervised by Prof. Guido Claessen who is a principal investigator of the Master@Heart study. The research appealed to Dr Bosscher both as an avid recreational athlete and a cardiologist. The award-winning paper, completed over 4 years, came from an awareness of increasing evidence that the dose–response relationship between high-volume, high-intensity endurance exercise and the health benefits, from a cardiovascular perspective, might at some stage be marked by a point of diminishing returns or even potential harm when considering coronary atherosclerosis.

He says: 'We looked at high risk plaque features, which tend to correlate more with adverse events such as a myocardial infarction and we found that plaques were present and also fairly large, and they were often in proximal coronary segments, just at the beginning of the coronary arteries, which could have a larger impact. This consolidated previous findings that middle-aged athletes who exercised the most have the most coronary calcifications, especially when it comes to calcified plaque. It also showed that the same athletes have the most mixed and non-calcified plaques, which previous trials have identified to be less prominent, so it was a bit of a mixed picture.'

Dr De Bosscher says the study is a good example of collaborative research and what can be achieved when you join forces with other centres both nationally and internationally focused on the same area. He says: 'It not only allows you to have a larger study with more authority, which offers opportunities to publish in more impactful journals, but more importantly, it allows you to spread information to a much larger

public. Because the field of sports cardiology is quite small and true clinical cases and events are fortunately very low, multicentre longitudinal studies like the Master@Heart programme are one of the strongest ways forward within this field of research.'

Going forward, Dr De Bosscher believes the study has consolidated previous findings about the dose–response relationship between exercise and coronary atherosclerosis and raises some important areas to investigate. He says: 'The next question is to identify what this relationship is and what are the mechanisms that lie beneath it. Whether it is just sheer circulation volume, blood pressure, hormones, or something else. We need to investigate further what the clinical impact of these findings are in a longitudinal fashion.'

As a newly qualified cardiologist Dr De Bosscher plans to focus on a fellowship in intensive care medicine and in interventional cardiology specialist training. Despite the challenges of trying to combine a full-time clinical career with research, he will stay involved in ongoing sports cardiology–related studies as much as possible. He hopes the research project will spark debate and in turn prompt further investigations, which will help to fill in a few gaps.

Winning the Desmond Julian Award is a great honour for both himself and his team. He says: 'It's very much a recognition of the collective efforts that our team put forward. It validates our commitment to the way that scientific research can improve clinical practise in so many ways. It lifts our morale and works as one of the strongest motivators to continue on the path that we ventured out on.' Dr De Bosscher hopes to use the increased visibility that winning the Award provides a platform for future projects and collaborations. He is also keen to emphasize that the main message about physical activity remains

unchanged and that regular exercise should be encouraged as it continues to have overwhelming health benefits.

Comments from Prof. Guido Claessen:

'A unique strength of the paper is the incorporation of an extremely healthy and physically active group of control subjects. As such, we were able to dissect the effects of regular high-volume endurance exercise training in a population that is similar in other aspects of health. This is a major difference compared to previous studies in sports cardiology which have tended to compare athletes with the general population which, as a whole, is usually not particularly active or fit. Using this strategy, we were able to challenge the concept that well-trained athletes had a more-protective coronary plaque phenotype and, hence, are not immune to coronary heart disease. An important clinical message is that moderate amounts of exercise, for example jogging up to 3 hours, already provides most of the benefit on the level of coronary artery disease. Higher levels of high-volume endurance exercise should be done for pleasure, not to further reduce cardiovascular risk.'

Declarations

Disclosure of Interest

All authors declare no disclosure of interest for this contribution.

Reference

1. De Bosscher R, Dausin C, Claus P, Bogaert J, Dymarkowski S, Goetschalckx K, et al. Lifelong endurance exercise and its relation with coronary atherosclerosis. *Eur Heart J* 2023;**44**:2388–99. <https://doi.org/10.1093/eurheartj/ehad152>