Authors’s Response to: Football matches and acute cardiac events: potential effects of a complex psychosocial phenomenon on cardiovascular health

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Dr Culic’s review of the literature on the cardiovascular effects of watching football matches reached different conclusions than our recent review of the issue.1 He based his arguments on several points that are, in our opinion, incorrect.

The approach used by Dr Culic to summarize evidence in favour of or against the hypothesis that watching football matches is associated with an increased risk of acute cardiovascular events is questionable. Simple counts of positive and negative studies can be seriously misleading, especially if the sample sizes of the studies vary from 45 to 4395 events, as we found in our review.2

We disagree with Dr Culic’s claim that the results of Wilbert-Lampen et al.,2 have a higher validity and should therefore receive more emphasis. Indeed, as discussed in the accompanying editorial, an important source of bias was probably present in the German study, possibly explaining the surprisingly high increase in the risk of myocardial infarction on the day of matches involving the German team.2,3 It is also incorrect that only the German study reported...
estimates adjusted for the day of the week.\textsuperscript{2} Five other studies, including ours, adjusted for this variable.\textsuperscript{1}

The role of barometric pressure as a possible confounder should also be placed in perspective. Compared with the effects of other meteorological risk factors on cardiovascular risk, the influence of barometric pressure seems to be, if anything, quite small.\textsuperscript{9} Moreover, as there is no reason to expect that barometric pressure is systematically associated with the days on which matches are disputed, it is unlikely that confounding by barometric pressure could pose serious concerns for validity. This conclusion applies particularly to studies, such as ours, that analysed a large number of matches.

The statement that mortality studies show an association between the watching of football matches and cardiovascular mortality is not supported by the studies included in our review. The meta-analytic effect estimated by the mortality studies in our paper is 1.01 (95% confidence interval, 0.86–1.15).

Finally, Dr Culic cited a study by Bauman et al.,\textsuperscript{5} which was published in a special Christmas issue of the Medical Journal of Australia. Bauman and colleagues suggested that their failure to find an association between hospital admissions for acute myocardial infarction and football matches in Australia could be due to higher rates of motivational deficiency disorder among Australians compared with other populations.\textsuperscript{5} Although the epidemiological methods in the study by Bauman were sufficiently accurate to grant inclusion in our review, the points raised in the discussion were clearly ironic and should not be cited uncritically. This admonition is particularly warranted when these arguments are made to support the introduction of \textit{ad hoc} preventive measures, including changes in the pharmacological treatments of individuals with pre-existing coronary heart disease.

As we emphasized in our paper, one of the most critical aspects of the German study is the inconsistence between the reported effect estimates and the magnitude of the effects expected based on previous evidence for other recognized cardiovascular triggers.\textsuperscript{3} Dr Culic suggested that part of the observed effect might not be due to real triggers but to other mechanisms that cause a delayed increase in cardiovascular risk. However, in the German study, most of the increase in risk was observed in the hours immediately before and after the match.\textsuperscript{5} Even if other mechanisms were involved, it is difficult to imagine that they could be responsible for most of the observed risk. As reported by Dr Culic, acute emotional stress is associated with a 2-fold increase in the risk of myocardial infarction for \textasciitilde{}2 h after the exposure. Averaged over a 24-h period, this increase corresponds to a relative risk (RR) of 1.1 on the day of a particularly stressful match. Following the reasoning of Dr Culic, we should then assume that other ill-defined, long-lasting mechanisms would be responsible for most of the observed 2.7-fold increase in cardiovascular risk.\textsuperscript{2} We think this situation is not very likely. Moreover, only a fraction of the population actually watches the matches (and is thus exposed). The proportion of the Italian population who watched the matches during the 2006 World Cup ranged between 27 and 40%. Even if the increase in risk lasted for the entire day of the match, this substantial misclassification of exposure would require RRs in the range of 5–8 among exposed subjects to make possible an observed RR of 2.7 in the general population.

In conclusion, we think that, regardless of Dr Culic’s criticisms, our claim that ‘football is just a game’ remains valid. The cardiovascular effects of watching football matches are likely to be, if anything, very small.

Funding

The work was carried out within the framework of projects that were partially supported by the Special Project Oncologia, San Paolo Foundation/FIRMS, the Italian Association for Cancer Research (AIRC) and Regione Piemonte.

References


\textsuperscript{5} Bauman AE, van der Ploeg HP, Chey T, Sholler G. The hazards of watching football–are Australians at risk? \textit{Med J Aust} 2006;\textit{185}:684–86.