## Title
Risks of High Coronary Artery Calcium



## Journal
JAMA Cardiology, 4(7)

## ISSN
2380-6583

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## Publication Date
2019-07-01

## DOI
10.1001/jamacardio.2019.1400

Peer reviewed

# Letters

COMMENT & RESPONSE

## Risks of High Coronary Artery Calcium

**To the Editor** We read with great interest the article by DeFina et al[1] in a recent issue of *JAMA Cardiology*. The authors are to be commended on their unquestionably important observations. In this article, DeFina et al[1] evaluated the prevalence of coronary artery calcium (CAC) among men with high levels of physical activity and their subsequent mortality risk. The authors concluded that high levels of physical activity (>3000 metabolic equivalent of task [MET]-minutes/week) are associated with prevalent CAC but not associated with increased all-cause or cardiovascular disease mortality after a decade of follow-up compared with lower levels of physical activity.

We would like to draw attention to a few important observations. People with CAC levels greater than 100 Agatston units (AU) had absolute event rates 6-fold to 9-fold that of those with CAC less than 100 AU, regardless of physical activity category. Furthermore, traditionally, we compare results with a CAC of 0 as a good functional baseline, not a CAC lower than 100 AU, so such analyses are muting the harms by using a comparator group that is already at some risk. Table 2[1] shows that absolute event rates in people with higher levels of CAC (100 AU or more) had 4-fold as many all-cause deaths as those with lower levels (6% vs 1.2% in >3000 MET-minutes/week category) and 6-fold to 8-fold the risk of cardiovascular disease deaths (1.8% vs 0.2% in >3000 MET-minutes/week category). This is a dramatic issue, as DeFina et al[1] reported individuals with very high levels of physical activity had 11% greater adjusted risk of having CAC of 100 AU or greater compared with those with lower levels of activity. The authors demonstrated, in a large cohort, that those who exercise have more calcification, and those with more calcification have 4-fold to 8-fold increased risk of dying. The logical conclusion that we can derive from the results of this study would be that if individuals have high levels of CAC, they do not do worse with more exercise, which is true, but the fact that CAC of 100 AU or more was more prevalent is problematic from overall event rates and needs further evaluation.

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**Published Online:** May 15, 2019. doi:10.1001/jamacardio.2019.1400

**Conflict of Interest Disclosures**: Dr Budoff has received grants from General Electric. No other disclosures were reported.

1. DeFina LF, Radford NB, Barlow CE, et al. Association of all-cause and cardiovascular mortality with high levels of physical activity and concurrent coronary artery calcification. *JAMA Cardiol*. 2019;4(2):174-181. doi:10.1001/jamacardio.2018.4628