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| **Reference and Year** | **Cohort** | **Age ±SD****(years)** | **Results** | **Take home message** |
| DeFina *et al.*20191 | 21,758 Active Men- 16,447: <1500 MET-Min/Week- 3750: 1500-2999 MET-Min/Week- 1561: >3000 MET-Min/Week | 51.7±8.4 | Men with the highest exercise dose i.e. >3000 MET-min/week had the greatest prevalence of a CAC>100 AU, followed by those exercising <1500 MET-min/week and lastly 1500-2999 MET-min/week i.e. 27.7% vs. 24.5% vs: 22.6%, respectively; there was no increase in all-cause or cardiovascular disease mortality. | There is a dose response relationship between exercise dose and CAC score in older active men which has not translated to increased all-cause or cardiovascular disease mortality. |
| Aengevaeren *et al.* 20172 | 284 Male Lifelong Athletes (Competitive & Recreational)- *Group 1*: 88 exercise volume <1000 MET-min/week- *Group 2*: 121 between 1000-2000 MET-min/week-*Group 3*: 75 >2000 MET-min/week | 54±655±656±7 | - Athletes with the highest exercise dose (group 3) had the greatest prevalence of a CAC>0 AU, followed by group 2 and group 1 i.e. 43% vs. 50% vs. 68%, respectively.- Athletes with the highest exercise dose were also most likely to have calcified plaques – Group 1: 62% vs. Group 2: 59% vs. Group 3: 70%. | There is a relationship between exercise dose and CAC and calcified coronary plaques.  |
| Merghani *et al.* 20173 | - 152 low Framingham risk, Runners and Cyclists (106 Male, 46 Female), exercise volume 8±4 hrs/week 31±13 years.- 92 age-, gender- and risk score matched controls (54 Male, 38 Female), exercise volume 1.9±0.5 hrs/week | 54.4±8.5 | - 18.9% of male athletes had a CAC>100 AU vs. 7.4% of male controls.- 11% of male athletes had a CAC > 300 AU compared with none of the controls. - There were no differences in CAC between female athletes and controls. - Male athletes were more likely to have calcified plaques than controls i.e. 72.7% vs. 30.8%. | Male master endurance athletes have a greater prevalence of high CAC scores but more stable coronary plaque morphology than controls.  |
| Dores *et al.* 20184 | 105 Male Athletes (≥4 hour/week ≥5years | ≥40 | - 9.5% of athletes had a CAC>100 AU.- 12.4% of athletes had a CAC> 75th Centile. - 41.9% of athletes demonstrated coronary plaque.- 5.7% of athletes had obstructive CAD. | Cardiac CT provides additional data for risk stratification of master athletes over and above risk factor evaluation and exercise testing. |
| Braber *et al.* 20165 | 318 Asymptomatic, CVD free, Male Competitive and Recreational Athletes | ≥45  | - 52.5% of athletes had a CAC>0 AU.- 16.3% of athletes had a CAC>100 AU.- 5.3% of athletes had a stenosis >50%. | Occult CAD is common to more than half of male master athletes despite normal risk factor evaluation and exercise testing. |
| Möhlenkamp *et al.* 20086 | *- Group I*: 108 Male Marathon Runners (4686±2285 METs/week)*- Group 2*: 864 age-matched controls(1389±1876 METs/week)*- Group 3*: 216 age- and risk- matched controls (1748±2200 METs/week) | 57±6  | - Athletes (group 1) had an equal prevalence of a CAC>100 AU compared to age-matched (group 2) controls but a greater prevalence than age and risk-matched controls (group 3) i.e. group 1: 36.1% vs. group 2: 36.34% vs. group 3: 21.8%.- Athletes had a greater prevalence of CAC >75th centile than age-matched controls (p=0.85) but a lower prevalence than age and risk-matched controls (p=0.01) i.e. Group 1: 25% vs. Group 2: 24.2% vs. Group 3: 14.8%. | Male master endurance athletes have a greater prevalence of high CAC scores than age- and risk-matched controls.  |
| Jafar *et al.* 20197 | 56 Runners(37 Male, 19 Female)*- Group A* (n=21): >10 Ultramarathons or ironman/10 years*- Group B* (n=9): >9 marathons/10 years- *Group C* (n=26) >9 years shorter races/10 years | ≥45 | - Athletes with the highest exercise dose i.e. group A+B had a greater prevalence of a CAC>100 AU than group C i.e. 33% vs. 12% (p=0.05).- Athletes with the highest dose of exercise had a greater prevalence of a CAC score > 50th percentile i.e. 70% vs. 19% (p=0.001). | There is a dose response relationship between exercise dose and CAC score and atherosclerotic plaques in master athletes. |
| Roberts *et al.* 2017*8* | 50 Male Marathon Runners ≥1 marathon/year for >25 consecutive years | 59±7 | - 68% of runners had a CAC>0 AU. - 44% of runners had a CAC>100 AU. | Male marathon runners have a high prevalence of CAD however this was not associated with the number of marathons run. |
| Tsiflikas *et al.* 20159 | 50 Male Marathon Runners, mean PROCAM score 1.85% | 52.7±5.9 | - 52% of runners had a CAC=0 AU and no CAD- 40% of runners had a CAC>0 AU and a coronary stenosis <50% - 6% of runners had a CAC>0 AU and stenosis >50%- 2% of runners had a CAC>0 and stenosis >75% | Occult CAD detected by CT is common to more than half of low risk male marathon runners however only a small number have obstructive disease. |
| Roberts *et al.* 201710 | - 26 female marathon runners, ≥1 marathon/year for 10-25 years- 28 sedentary controls | 56±1061±10 | - Runners had a lower prevalence of calcified coronary plaque than controls i.e. 19.2% vs. 50%. (p=0.014)- Runners had a lower total calcified coronary plaque volume than controls i.e. 43mm3 vs. 77mm3. (p=0.014) | Female marathon runners had a low prevalence of CAC and calcified plaque volume and significantly lower than controls. |
| Karlstedt *et al.* 201211 | 25 low-risk elite marathon runners (21 Male, 4 Female), 75±11 km/week | 55±4 | - 2 (8%) runners had a >70% stenosis in the left anterior descending artery.  | A small but important number of elite low-risk marathon runners demonstrate obstructive coronary disease |

**Table 1.** Summary ofnoteworthy studies investigating the relationship between CAC score and CCTA findings amongst master athletes and active individuals.

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