

# Health 401K

## It's never too late to contribute!

*Research has shown us that the foundation for health problems is laid during young adulthood. Most people lose their ideal cardiovascular health before they reach midlife, which is the point when most of us start to think about our health. What strategies can be used to preserve or restore our heart health? Does it matter when we improve our health? Is it ever too late?*



### Abstract

- Declines in premature cardiovascular disease (CVD) mortality are reversing in the United States and many high-income countries. Although cardiovascular health (CVH) after midlife is associated with a lower risk for CVD and mortality, CVH rapidly declines with age beginning in young adulthood.
- Using a nationwide, single-provider database of the Korean National Health Insurance Service, we analyzed data collected from routine health examinees 20 to 39 years of age in 2003 and 2004. The primary outcome was a composite CVD event, defined as the first hospitalization for myocardial infarction, stroke, or heart failure, or cardiovascular death by December 31, 2019.
- The study included 3 565 189 participants (median age, 31 years; 65.6% male) with baseline CVH scores distributed as in the Figure (A), excluding examinees with incomplete information (n = 214 735), previous CVD n=11 777), or <1-year follow-up (n=13 257). During a median follow-up period of 16.1 years, 39 165 first CVD events were recorded. All events occurred at age ≤55 years (median, 44 years) and were thus considered premature. The cumulative incidence of CVD events was highest for the baseline CVH score of 0 (0.23% per year), followed sequentially by higher CVH scores. Among individuals with the highest (6 of 6) CVH score, incidence rates for CVD events were <0.02% per year. After multivariable adjustment, participants with baseline CVH scores of 1, 2, 3, 4, 5, and 6, respectively, were at 26%, 49%, 65%, 75%, 82%, and 85% lower hazards for CVD events in comparison with those who had a 0 CVH score (hazard ratio, 0.70 per 1-point higher CVH score [95% CI, 0.70–0.71]. By event subtypes, each 1-point higher CVH score was associated with lower hazards for myocardial infarction (by 42%), heart failure (by 30%), cardiovascular death (by 25%), and stroke (by 24%).
- The current study advances the literature in 3 notable ways. First, our findings add some grounds for optimism that regaining lost CVH during young adulthood may still improve future CVD risk. Second, our findings also demonstrate that young adults with poor CVH remain at higher risk even after improving their CVH compared with those who retained ideal CVH in the first place. Last, our study fills knowledge gaps in an understudied (ie, young, Asian) population and extends the diversity of previous findings on Black and White individuals.

*This study included over 3.5 million participants with a median age of 31. Baseline cardiovascular risk scores and examinations were performed. Each participant was then assigned a CV health score between 0 and 6, with one point assigned for each of the six nondietary ideal CV health factors modified from the [American Heart Association's Life's Simple 7](#) (smoking status, physical activity, weight, blood glucose, cholesterol, and blood pressure). The group with the lowest score of 0 (fewest healthy factors) had a 0.23% annual risk of premature cardiovascular disease. Compared with those with a score of 0, premature CVD risk was reduced by 26% for a score of 1, 49% for a score of 2, 65% for a score of 3, 75% for a score of 4, 82% for a score of 5 and 85% for the highest score of 6. Each one-point increase in CV health score reduced risk for heart attack by 42%, heart failure by 30%, cardiovascular death by 25%, and stroke by 24%. In a subgroup with follow-up examinations, it was found that each 1-point increase in health score over time reduced the risk of cardiovascular disease by 21%. This study brings home the point that health behaviors at a young age are important for long-term health. While nothing can get us to the same baseline as people who started with all healthy habits, we can make some "catch up" contributions to our health 401K by making positive health habit changes throughout our lives. Like a retirement account, even a small contribution (1 point increase) makes a big difference over time.*

Associations of Ideal Cardiovascular Health and Its Change During Young Adulthood With Premature Cardiovascular Events A Nationwide Cohort Study. Circulation. 2021;143:00–00. DOI: 10.1161/CIRCULATIONAHA.121.054212