

ONLINE DATA SUPPLEMENT

Lipid trajectory modeling methods

We estimated lipid trajectories from age 20 forward using linear mixed modeling of the repeated lipid measurements obtained at all available visits. For each of the four groups defined by gender and race/ethnicity, we modeled the mean trajectory using linear splines with knots at ages 30 and 40. Under this model, the mean trajectory is assumed to be continuous and linear within each decade of age, but the slope is allowed to vary across decades. The models also included four random effects, one corresponding to each of the fixed effects (including the intercept), with unstructured covariance matrix. The models were estimated using Proc Mixed in SAS Version 9.2 (SAS Inc, Cary NC). To simplify fitting of the models, we centered the age axis at 30. Individual mean trajectories were then estimated using the conditional expectations of the random effects, given the outcome data, in combination with the group mean trajectories. While the individual trajectories were not extrapolated beyond the most recent visit, we did project the mean trajectory for each participant between age 20 and the baseline visit, under the linear spline model. This means that for participants entering the study relatively late in their twenties, more information is "borrowed" from the group mean trajectory in estimating the individual trajectory before study entry.

Linear spline analysis

Lowess plots showed substantial non-linearities in the associations of coronary calcium with body mass index, self-reported alcohol consumption, and baseline serum cotinine. To model these non-linearities, we used linear splines with knots at body mass index of 40 kg/m², a weekly alcohol consumption of 190 ml, and a serum cotinine level of 400 ng/ml, as indicated by the Lowess plots.