**SDC 1. Studies supportive of the value of healthy lifestyle.**

To assess the impact of a healthy lifestyle on the increased genetic risk for CHD, investigators combined data from 4-large scale studies which documented extensive genetic and lifestyle information that followed >55,600 adults for up to 20 yr.29 In one of the cohorts, the BioImage Study, measures of coronary-artery calcification were also obtained. Each participant was assigned a genetic risk score (low, intermediate, high) based on whether they carried any of the 50 gene variants associated with atherosclerotic CHD. Participant adherence to a healthy lifestyle was determined by a scoring system including 4 factors: no smoking, no obesity, regular PA, and a healthy diet. The lifestyle score was classified according to 3 categories: favorable (3 or 4 factors); intermediate (2 factors); or, unfavorable (≤1 factor). Investigators concluded that bad genetics essentially double the risk of CHD, but that a favorable lifestyle nearly cuts it in half. Among participants in the BioImage Study, both genetic and lifestyle factors were independently associated with levels of calcium-containing plaque in the coronary arteries, and healthy lifestyle factors appeared to confer less extensive plaque within each genetic risk group. Interestingly, the most impactful protective effect, by far, came from moving from an unfavorable lifestyle to one that was at least intermediate.

More recently, researchers sought to estimate the influence of 5 low-risk lifestyle factors (never smoking, BMI of 18.5 - 24.9 kg/m2, ≥30 min/d of moderate to vigorous PA, moderate alcohol intake, and a healthy diet score [upper 40%]) on premature mortality and life expectancy in the U.S. population.30 Data from 2 major ongoing cohort studies, the Nurses’ Health Study (n = 78,865) and Health Professional Follow-up Study (n = 44,354), when combined with National Health and Nutrition Examination Surveys (2013-2014) to estimate the distribution of the lifestyle score (0-5 scale) and the U.S. Centers for Disease Control and Prevention to derive the age-specific death rates of Americans, were used to estimate the life expectancy by levels of the lifestyle score. Results showed a direct association between each individual lifestyle factor and a reduced risk of premature death, with the combination of all 5 showing the most protection. During up to 34 yr of follow-up, adherence to 5 low-risk lifestyle-related factors prolonged the life expectancy at age 50 yr by 14.0 and 12.2 yr for female and male U.S. adults, respectively, as compared with individuals who adopted “zero” low-risk lifestyle factors. Interestingly, the most physically active cohorts of men and women demonstrated 7 - 8 yr gains in life expectancy. It was concluded that Americans could narrow the life expectancy gap between the U.S. and other high-income industrialized countries by adopting healthier lifestyles, an approach that has been previously emphasized,13,14 and that preventive care should be top priority for national health policy and an indispensable part of the U.S. health care system.