



## LIFE'S SIMPLE 7 FOR CARDIOVASCULAR HEALTH IS ASSOCIATED WITH LOWER CANCER RISK IN THE MOLI-SANI STUDY

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**Background and Aims.** Cardiovascular disease and cancer share several modifiable risk factors and possibly common biological pathways, as proposed by the “common soil” hypothesis. Life’s Simple 7 (LS7) is a composite metric of cardiovascular health encompassing behavioural and biological factors. While higher adherence to LS7 is consistently associated with reduced cardiovascular morbidity and mortality, evidence on its relationship with cancer risk remains limited and inconsistent. This study sought to investigate the association between adherence to LS7 and overall and site-specific cancer incidence, and explore the potential biological mechanisms underpinning this relationship in a large Italian population-based prospective cohort.

**Methods.** We longitudinally analysed data on 21,689 apparently cancer-free participants from the Moli-sani Study cohort (baseline 2005-2010). The LS7 metric includes smoking, physical activity, diet, body mass index, blood pressure, total blood cholesterol, and glucose. Each ideal metric was assigned 2 points, with total scores ranging from 0 to 14. Shared biological risk factors (i.e., inflammatory markers, renal markers and resting heart rate) were evaluated as potential mediators. Cox proportional hazards models were used to estimate hazard ratios and 95% confidence intervals for

cancer risk associated with a 1-point increase in LS7, adjusting for established risk factors.

**Results.** Over a median follow-up of 13.1 years, 1,303 incident cancer cases were documented. Each 1-point increase in LS7 was associated with a 5% reduction in overall cancer incidence (HR=0.95; 95%CI 0.92-0.98), with similar associations observed in men and women. Inverse associations were observed for lung (HR=0.86; 95%CI 0.80-0.93) and pancreatic cancer (HR=0.89; 95%CI 0.79-1.00), as well as for colorectal cancer in men only (HR=0.92; 95%CI 0.86-0.99). Mediation analyses indicated that inflammatory markers and resting heart rate together accounted for approximately 20% of the association between LS7 and cancer incidence.

**Conclusions.** Higher adherence to LS7 is associated with a lower risk of incident cancer in this adult population-based cohort. The partial mediation by inflammation and resting heart rate suggests that shared systemic and physiological processes may contribute to the observed relationship, supporting the “common soil” hypothesis. Optimising cardiovascular health should be introduced as part of integrated strategies for cancer prevention. The present study was performed in the context of the Fondazione Umberto Veronesi ETS—IRCCS Neuromed framework agreement.