

Abstract

# Olive Oil Consumption Is Associated with Lower Cancer Mortality among Italian Adults: Prospective Results from the Moli-Sani Study and Analysis of Potential Biological Mechanisms <sup>†</sup>

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**Background and Objectives:** Olive oil is a key component of a traditional Mediterranean Diet and its cardiovascular health benefits have been well documented in large cohorts worldwide. However, the relationship of olive oil with cancer mortality is less robust, and it remains unclear whether the health advantages of olive oil may be accounted for by specific biological mechanisms. We therefore sought to investigate the relationship between olive oil consumption with cancer mortality in an Italian general population, and to examine specific biological pathways common to major chronic diseases as possibly underlying these associations. **Methods:** Longitudinal analysis on 22,895 men and women (mean age  $55.4 \pm 11.7$  y) from the Moli-sani Study (enrolment 2005–2010) followed up for 12.2 years. Dietary data were collected using a semi-quantitative food frequency questionnaire, and olive oil consumption was standardized to a 10 g tablespoon (tbsp) size. Cox regression models were used to estimate hazard ratios (HRs) and 95% confidence intervals (95% CIs). **Results:** Compared with individuals who rarely consumed olive oil ( $\leq 1.5$  tbsp/d), participants who had the highest consumption ( $>3$  tbsp/d) reported 28% lower rates of cancer death (HR = 0.72; 95% CI: 0.54–0.94); a linear dose–response relationship was observed ( $p$  value for overall association = 0.030;  $p$  for non-linearity = 0.47). Higher intake of olive oil was also linked to an 18% reduced rate of mortality from any cause (HR = 0.82; 95% CI: 0.70–0.97), while the association with CVD mortality was not unequivocal (HR = 0.80; 95% CI: 0.60–1.06). Among the known risk factors analyzed, lower levels of blood pressure and resting heart rate associated with consumption of olive oil accounted for 14.5% and 8.1% of its inverse relationship with all-cause and cancer mortality, respectively. **Discussion:** Higher olive oil consumption was associated with higher survival that was largely driven by a reduction in cancer mortality, independent of overall diet quality. Known risk factors for major chronic diseases mediate such associations only in part, suggesting that other biological pathways are potentially involved in this relationship.

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