Introduction: In this study we aim to characterize the association of lifestyle and nutritional risk profiles with age-related macular degeneration (AMD) in two sub-populations with differing AMD prevalence.

Materials and Methods: Nested case-control study (N=1992) within the “Epidemiological Study of the Prevalence of Age-Related Macular Degeneration in Portugal: The Coimbra Eye Study”, including 768 subjects with AMD and 1224 age and sex-matched subjects without AMD attending a single visit at primary healthcare units in two locations in the center of Portugal – one in the coastal area (Mira – Coastal Town) and the other 70 km away from the sea (Lousã – Inland Town). All enrolled subjects underwent a validated lifestyle and food frequency questionnaire. An adherence score to the Mediterranean diet (mediSCORE, range 0-9) was constructed from individual food intakes, which were also further analyzed by conversion to nutrient consumption.

Results: A higher adherence to the Mediterranean diet (mediSCORE ≥ 6) was significantly associated with having no AMD (odds ratio (OR)=0.73, p=0.009). The sub-population with a lower prevalence of AMD presented a significantly higher adherence to the Mediterranean diet in relation to all individual food groups that comprise the mediSCORE (p<0.014) with the exception of cereals. Food group analysis showed a significant association of increased consumption of vegetables (OR=0.63, p<0.001) and fruit and nuts (OR=0.78, p=0.010) with no AMD. Macro and micronutrient analysis revealed that an increased ingestion of water, fibers, total fat, monounsaturated and polyunsaturated fatty acids, linoleic acid, vitamin A, carotene, α-tocopherol, vitamin C, folate, magnesium, iron and zinc were also significantly associated with having no AMD (p<0.0013). Finally, regular physical activity was also associated with having no AMD (p=0.003). Vegetables, legumes, fish and dairy products consumption above the sex-specific median was higher in the coastal town whereas fruits and nuts and meat consumption were higher in the inland town. A moderate consumption of alcohol, which was considered beneficial, was higher in the inland town whereas the ratio of monounsaturated lipids/saturated lipids above the sex-specific median was higher in the coastal town. The mean diet score was 4.5±1.6 in the coastal town and 3.7±1.6 in the inland town.

Conclusion: High adherence to a Mediterranean diet and performing regular physical activity seem to be protective factors for AMD in a Portuguese population. Dietary profiles differ between the two locations and may modulate AMD risk. The protective effect of diet is likely driven by an increased consumption of vegetables, fruits and nuts.