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AGE-RELATED MACULAR DEGENERATION: AN ASSOCIATION WITH PHYSICAL ACTIVITY AND LIFESTYLE
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Introduction: Current treatments for Age-related Macular Degeneration (AMD) are mainly restricted to antiangiogenic injections for choroidal neovascularization (one of the forms of late AMD) and vitamin supplements to prevent progression from intermediate AMD. The last present limited efficacy and compliance issues. Therefore, growing interest has been devoted to the influence of a healthy lifestyle in the pathophysiology of oxidative stress and inflammation that leads to advanced AMD. Assessment of individual risk factors might be of limited value when considering a multifactorial complex disease as AMD. The purpose of this study was to comprehensively assess the influence of healthy lifestyle profiles, including physical activity, personal history and systemic comorbidities, on AMD.

Methods: AMD patients and a group of healthy controls were recruited as part of a prospective, cross-sectional study on AMD biomarkers, at 2 different sites (United States: Massachusetts Eye and Ear, Harvard Medical School, Boston; Portugal: Centro Hospitalar Universitário de Coimbra/Association for Innovation and Biomedical Research on Light and Image, Coimbra). Besides a bilateral ophthalmologic exam and color fundus photographs (used for AMD grading), for all participants we obtained a complete medical history according to a standardized questionnaire. Subjects were also invited to reply to a physical activity questionnaire (Rapid Assessment of Physical Activity (RAPA) test for American subjects and a translated version of the International Physical Activity Questionnaire for Portuguese participants). For the purpose of this study, the last was scored in metabolic equivalent task (MET) units. Univariate and multivariate linear and logistic regressions were performed for analyses.

Results: A total of 495 subjects was recruited (US 37.8% n=188; Portugal: 62.0% n=307), including 20.4% (n=101) controls and 18.2% (n=90) early, 41.0% (n=203) intermediate and 20.4% (n=101) late AMD. For the Portuguese population, univariate analysis revealed that total METs were significantly lower in early (β=-0.18; p=0.012), intermediate (β=-0.30; p<0.001) and late (β=-0.27; p<0.001) AMD patients as compared to controls. The multivariate analysis revealed that, even after adjusting for age (β=-0.23; p=0.001) and body mass index (β=-0.12; p=0.024), there was a significant difference in the total METs between controls and any stage of AMD (β=-0.15; p=0.012). For the American population, after accounting for confounding, no significant relations were found between levels of physical activity and AMD.

Conclusion: In a Portuguese population, physical activity might have a protective role against AMD. The relatively small sample size of the American population probably precluded us to replicate these findings in this cohort.