In the context of global population aging and its economical and societal burden challenges, the improvement of older adults' health by encouraging them to adopt healthier behaviors and obtain regular health screenings that could reduce the risk for many chronic diseases, help to decrease health disparities, to lower health care costs, to improve life quality of old people, to keep them socially inserted and allow the use of their resting workforce. Our presentation deals with the three main sore points of this struggle: 1. understanding healthy versus pathological brain aging; 2. elaboration of the most accurate and powerful diagnosis tools; 3. elaboration of those preventive and curative, medical and non-medical algorithms able to delay as much as possible the onset of age-related brain pathology.

The first section, “Normal Versus Pathological Aging” reviews the cut-edge insights related to natural changes that occur during aging in the absence of disease, their cultural, gender and bio-medical particularities, and points out the debates in the field around the true impact of neuronal loss and huge individual variation. The causal aspects of aging are also overviewed, with focus on the most relevant ones (programmed versus wear & tear aging, free radical theory, glycation theory, glucocorticoid cascade hypothesis, stress and depression impact and management, the crucial role of inflammation-related events and the impact of C1q protein activation, telomeres as the aging pacemaker and the hope of new trend of discovering novel utilisations for old geriatrics’ arsenal. The 10 Ways to Combat Alzheimer's Disease as formulated by Wesson Ashford are pointed out, together with the long-term use of non-steroidal anti-inflammatory drugs (NSAIDs) that is commented. The recent insight that the brain protects itself and its ability to repair itself after injury or neurodegeneration, until recently considered limited or non-existent, is argued, aside the mention of the emerging concept of cognitive reserve that changed that view.

The central conclusion of this presentation is that brain aging delay and brain pathology prevention resides in the accuracy and powerfulness of diagnosis tools as the first, decisive step.