

nutrition and physical activity represents the first-line function-preserving strategy. Pharmacological compounds, both existing and potential, can serve as a prospective complementary approach.⁴⁸

1.4 Concluding Remarks and Future Directions

To summarize, it can be assumed that targeting aging *per se* can be a more effective approach to postponing or preventing age-related disorders than treatments targeted to specific pathological conditions. Because of the aging population, such a therapeutic strategy is undoubtedly an area of increasing relevance for the pharmaceutical industry and public health organizations. As has been recently emphasized by Longo *et al.*,⁵⁴ ‘the time has come not only to consider several therapeutic options for the treatment of age-related comorbidities, but to initiate clinical trials with the ultimate goal of increasing the healthspan (and perhaps longevity) of human populations, while respecting the guiding principle of physicians *primum non nocere*.’ In modern pharmacy, anti-aging is likely one of the most prospective markets because the target group can potentially include each person. Several supplements, such as resveratrol, are already advertised in the pharmaceutical market as “anti-aging pills”.⁵⁵ Very promising in this regard is rapamycin (also known as sirolimus), which is already approved by the FDA as an anti-biotic and immunosuppressant drug. Current marketing research demonstrates that most people are willing to pay for long-term pharmacological therapy to prevent or delay the aging-related decline in physical and mental functions.⁵⁰ Recent sociological surveys show a great desire for extended life and health in the US and worldwide. In most of the surveys conducted until now, the cautious attitude to life extension was a consequence of an erroneous equation of extended life with a prolonged period of age-related functional decline and frailty. When continued health was stipulated in the questionnaire design, responses significantly favored longer life. In the survey by Donner *et al.*,⁵⁶ 20% of respondents wished to die at the age of 85, whereas 42% wanted to have an unlimited lifespan. Despite the widespread misconception that implementation of anti-aging medicine would increase the proportion of chronic patients in modern societies, it in fact would lead to reducing the ratio of unhealthy to healthy population since it would result in delaying the onset of age-related pathological conditions. In other words, it may lead to a decrease of biological age (*i.e.*, old individuals will become biologically younger) and to an increase of the age of disability, thereby increasing the retirement age and enhancing revenues without enhancing taxes.⁵⁷ Optimistic predictions of the feasibility of health- and life-extending interventions, however, should certainly be critically discussed in terms of their ethical, economic and social implications. Only after in-depth examination and following comprehensive debates will the implementation of such approaches in clinical practice be possible.