

The question of what exactly is meant by “anti-aging drugs” is complicated by several factors. First, linguistics, and the problem that the word “aging” has more than one meaning. Second, the question of whether aging is a disease. Thirdly, problems relating to what counts as an anti-aging intervention. These issues will be reviewed here briefly and a serving definition of the meaning of *anti-aging* suggested. This builds on previous work that attempts to define anti-aging interventions.^{2–10} We will then present an attempt at a broad and general description of the biological basis of aging, to offer the beginnings of an etiological basis for the understanding of senescence as a disease syndrome. Then, in the main part of this chapter, we examine how the aging *vs.* disease question is presented in general medical textbooks.

2.1.1 What Does “Aging” Mean?

The word *aging* acts as a stumbling block in discussion because it has multiple meanings that are sometimes conflated. The main, distinct meanings are:

- The passage of time (*calendar aging*).
- Time-dependent alterations, usually in adult living organisms, but also inert objects (*age changes*).
- Cumulative deteriorative changes in adult organisms leading to pathology and death (*senescence*).^{11–13} Senescence is one type of age change.

An unfortunate additional source of confusion is that the word senescence also has a second meaning, as introduced by Leonard Hayflick, that of *cellular senescence*. This refers to a specific type of cellular change where the proliferative capacity of cells is lost and a pathogenic hypertrophic phenotype appears. Confusion between these two meanings can, in some contexts, be avoided by use of the term *organismal senescence* to contrast with cellular senescence. However, it seems likely that the two meanings of senescence will continue to generate confusion. Replacement of *cellular senescence* with another term would solve this problem.

Thus, the English language is a hindrance in that the multiple meanings of aging impede understanding. Not all languages have this problem; for example the Russian *stareniye* (старение) means, essentially, senescence. For people, age changes include maturational changes, such as the attainment of wisdom, and character development. In this sense, an anti-aging drug would be highly undesirable; clearly, the interest is in anti-senescence (or geroprotectant) drugs, where senescence is meant in its original sense, not the sense of cellular senescence.

2.1.2 Is Aging a Disease?

Human senescence manifests as a wide range of deteriorative changes, including some that are debilitating and sometimes fatal (*e.g.* cardiovascular disease, cancer and dementia) and some that are not (*e.g.* greying of hair