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Genetics and Some Aging-Related Mechanisms

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Abstract: Aging can be defined as the time-dependent decline of physiological functions of an organism. Aging, a multifactorial process composed of both genetic and environmental components, is a highly complex biologic phenomenon of great importance. The details of the mechanisms leading to aging are not yet known. All changes in the process of aging have a cellular basis, and perhaps aging should be studied, fundamantally, at the cellular level under defined and controlled environmental conditions. Some genetic approaches have promise for the understanding of this multifactorial process. In this review, some causal hypotheses related to oxidative damage, caloric restriction, mitochondrial mutations, protein elongation factor (EF-1), stress proteins (Hsp70), altered gene regulation and telomere loss are discussed to clarify the mechanisms of aging. Aging must be considered as parts comprising a whole, it must be understood as the sum of its parts. Although there are some experimental results supporting these hypotheses, there is still much to learn about the genetics of aging.

Key Words: Genetics, aging, aging-related mechanisms.

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