OXYGEN SUPPLY, AGING AND REHABILITATION

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Aging as a physiological part of life is the cumulative result of oxidative damage to cells which derives from aerobic metabolism. Insufficient tissue oxygenation occurs in a wide range of physiological and pathological conditions and reactive oxygen species are physiological products of aerobic life and their accumulation affects aging. Aging is characterized by a decrease in oxygen supply to tissues, in reduction of tissue PO2 and in the activity of several enzymes and metabolic factors. The ventilatory response to hypoxia is attenuated with aging, related to the age-dependent structure modifications including the basal reduction of oxygen requirements. Weather life span could be correlated with oxygen supply remains to be elucidated. However, an increased metabolic rate, intense exercise and stress induce release of several substances that can influence aging velocity. Rehabilitative processes would improve the aging effects with increase in oxygen supply through several factor that would induce vasodilatation in damaged tissues. Moreover rehabilitation and exercise training programs would prevent diseases improving the quality of life. For this reason, we would argue if rehabilitation would modify the oxygen supply to tissue and if Rehabilitation works through the modification of the oxygen to tissues would improve the aging processes. The main issue concerning the correlations between hypoxia and life span remains open until we solve the question of how and why do cells sense oxygen? In other words, to better understand aging and rehabilitative processes we need to know what is the O2 species that is being sensed by cells and would clarify how rehabilitation could delay or reduce the effects of the ageing.