Overview and Age-related Physiological Changes

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Aging is regarded as **"**A process of natural, essential, inevitable, spontaneous, gradual, and almost irreversible morpho-functional change／variation by time, resulting in maturation through childhood, puberty, and young adulthood and then decline through middle and late age". Through a total sum of ontogenetic and ontoclastic cycle, with an active & passive mechanism, aging can be defined as all cell number loss, or with cellular function reduction, or with poorer integration among the cells, or with poorer linkage among cells and the environment, and manifested as a complicated, sophisticated, and heterogeneous or diversified variety complex of aberration, accumulation, alteration, atrophy, collapse, compression, damage, decaying, degeneration, deprivation, derangement, destruction, disabling, disturbing, dystrophy, failure, interfering, disorder, impairing, impeding, inflammation, insufficiency, invasion, loss, out of control, mal-alignment, necrosis, proliferation, ruining, storage, trauma,…etc., and hence the adaptation, affecting, compromising, impacting, inducing, influencing, interacting, involving, modulation and reacting…etc.. Aging is also supposed to be with several principles, i.e. "cumulative", "universal", "progressive", "intrinsic & extrinsic", "deleterious". Aging change occurs in various subcellular apparatus, cells, tissues, organs and systems all over the body. In the past, aging had ever been described as losing function at roughly 1% a year in majority of organ system, beginning around age 30, however, heretoday, it occurs in different rates and starting niches within and among individuals, rather, with well documented experiences on epithelium, muscle, neuron, reticulo-endothelium or hematopoieto-immunological tissue and connective tissue. And it may accumulate the pathological phenomena over a lifetime; therefore, pathological changes appearing more readily in the elderly. In general, all various tissues, organs & systems are supposed to start in decaying around 25~30 and then keep the trend in a steady rate unless specified. Aging of structure and function is not definitely parallel in the path and trend. For instances, vascular system may start to decay in late forties, however, it maybe but not always starts to decay at as early as 2; basal heat production start to decay at 13~14; brain structure start to decay at 20 or so, but the memory may start to decay in late thirties; sensory function may start to decay in 30~40 years old, renal function may not decay until 70 in some individuals ……..etc..

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