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Aging as a disease of hypohydration

Statement of the problem: There are some 300 theories of aging, none conclusively demonstrated. Although the free radical theory of aging is the most prominent and well-studied, in 1978, Hungarian researcher Zs-Nagy proposed the Membrane Hypothesis of Aging (MHA)² and in 2002 explained how it improves upon the free-radical and other theories.³ MHA holds that changes to the integrity and function of the cell membranes over time result in a critical loss of intracellular water (ICW) content and an increase in intracellular dry mass content, with corresponding loss of functionality in the cell. Eventually, the accumulation of intracellular dry mass has degenerative consequences, increasing the damaging efficiency of free radicals, slowing the rates of RNA and protein synthesis and total protein turnover, and inducing waste product accumulation. In my clinical dermatology practice of 50 years, I have confirmed Zs-Nagy's hypothesis, finding hypohydration to be the common unifying factor in my patients' health and functional age (as opposed to chronological age). Methodology & Theoretical Orientation: Data on ICW, ECW, cell membrane capacitance, fat free mass, age, gender, and more were collected from nearly 1,000 patients. These measurements were then compared against a general population data set of some 8,000 patients. Interventions in a self-selected group of patients included a comprehensive nutrition, exercise, stress management, and skincare program intended to strengthen cell membranes and increase cell hydration. Findings: The population data confirmed the general loss in cell membrane capacitance and ICW in males under-30 vs males over-65. The patient data showed a significant increase in ICW and cell membrane capacitance, and a decrease in ECW following the 10-week intervention. Significance: Hypohydration is a common and readily addressed phenomenon of aging that needs to be better understood by dermatologists to help our patients prolong health and well-being as they age.

Recent Publications

1. Murad, Howard. Cultural Stress: The Ubiquitous Stressor Hiding in Plain Sight. 2021 *Advances in Mind Body Med*, 2021, 35(2):14-16.
2. Murad, Howard. Jankicevic J, Garabedian-Ruffalo SM, The Cultural Stress Theory of Obesity. *Int J Psychiatr Res*, 2021; 4(1):1-12
3. Murad, Howard. Connective Tissue Breakdown: Remodeling, Repair, and Prevention Using an Inclusive Method of Treatment. *Gerontology & Geriatric Medicine*, 2019, 5. 1-8.

Biography

Howard Murad is internationally recognized for his innovations in the science of skincare. A board-certified dermatologist and trained pharmacist, Dr. Murad has personally treated over 50,000 patients. In 1989, he founded his eponymous skincare company, Murad, to share his ground breaking skincare formulas, which were among the first to achieve significant, measurable results without surgery. In 2003, Dr. Murad refocused his energies to champion Modern Wellness, connecting the dots linking cellular hydration, mental health, joyful exercise, creative expression, Cultural Stress management, and efficacious skincare. In addition to peer-reviewed articles, he is the author of many books, including *The Water Secret*, *The Cellulite Solution*, *The Murad Method*, and *Conquering Cultural Stress*.

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