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Trevor Archer

University of Gothenburg, Sweden

Physical exercise ensures health and longevity in brain integrity

The outcome of combining physical exercise, whether endurance-type or resistance-type, with dietary selection, or even the exercise regime by itself has been shown repeatedly to endow numerous beneficial manifestations that stretch over multiple domains that include immune defense systems and anti-disease pathological effects, chronic metabolic disorder, cognitive-affective states and alimentary canal micro biota. The combination of exercise with selective, not merely restrictive, diets mobilizes a multiplicity of cellular adaptive responses and signaling pathways, reduced pro-inflammatory and increased anti-inflammatory cytokines, more effective cognitive performance in emotionally-charged situations and general health, well-being and quality-of-life improvements. Physical exercise presents a particularly useful intervention in individuals employed in sedentary occupations or afflicted by a neurodegenerative disorder, such as PD. The several links between exercise and quality-of-life, disorder progression and staging, risk factors and symptoms-biomarkers in PD all endow a promise for improved prognosis. Nutrition provides a strong determinant for disorder vulnerability and prognosis with fish oils and vegetables with a Mediterranean diet offering both protection and resistance. Three factors determining the effects of exercise on disorder severity of patients may be presented: Exercise effects upon motor impairment, gait, posture and balance; Exercise reduction of oxidative stress, stimulation of mitochondrial biogenesis and up-regulation of autophagy, and Exercise stimulation of dopamine (DA) neurochemistry and trophic factors. Running-wheel performance, as measured by distance run by individual mice from different treatment groups, was related to DA-integrity, indexed by striatal DA levels.

Biography

Trevor Archer has received his PhD from Uppsala University during the period of 1976-79. Currently, he is working as Professor in Gothenburg University. He has successfully completed his administrative responsibilities as Head of Department and Dean of Faculty. His research has included biopsychology, health, sports, personality, learning and memory, neurotoxicity, brain disorders and epigenetics. Based on this research and fellowship training, he has received several awards and honors, such as: Honorary Doctor and Honorary Professor in Pharmacology of the Polish Pharmacology Society, Sansone Award of the School of Medicine, University of Washington, St. Louis, Missouri. He is serving as an Editorial Member of 24 reputed journals like *Neurotoxicity Research* and *Acta Neurologica Scandinavica* & expert reviewer for 117 journals like *Psychopharmacology*, *European Journal of Pharmacology* and *Journal of Addiction Research and Therapy*. He authored 318 research articles, 150 book chapters, edited 42 books, and one general psychology book. He is a member of Neurotoxicity Society. He has been honored as Founding Member of European Behavioral Pharmacology Society.

trevor.archer@psy.gu.se

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