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Winning the race with aging: age-related changes in gait speed and its association with cognitive performance in dogs

Alejandra Mondino, Michael Khan, Beth Case, Gilad Fefer, Wojciech K. Panek, Margaret E. Gruen and Natasha J. Olby*

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Introduction: In humans, gait speed is a crucial component in geriatric evaluation since decreasing speed can be a harbinger of cognitive decline and dementia. Aging companion dogs can suffer from age-related mobility impairment, cognitive decline and dementia known as canine cognitive dysfunction syndrome. We hypothesized that there would be an association between gait speed and cognition in aging dogs.

Methods: We measured gait speed on and off leash in 46 adult and 49 senior dogs. Cognitive performance in senior dogs was assessed by means of the Canine Dementia Scale and a battery of cognitive tests.

Results: We demonstrated that dogs' food-motivated gait speed off leash is correlated with fractional lifespan and cognitive performance in dogs, particularly in the domains of attention and working memory.

Discussion: Food-motivated gait speed off leash represents a relatively easy variable to measure in clinical settings. Moreover, it proves to be a more effective indicator of age-related deterioration and cognitive decline than gait speed on leash.

KEYWORDS

canine cognitive dysfunction syndrome, canine gerontology, mobility, walking speed, memory, attention

Introduction

Canine geriatric syndrome has been proposed as a new concept that describes "the constellation of key physical, functional, and metabolic changes that characterize aging in dogs and predispose to age-related dysfunction, disease, and death" (1). Some of the most remarkable age-related changes associated with this syndrome occur in motor and cognitive function (1, 2). Physical impairments and slowing of movement reflect the diminished performance of numerous systems, such as musculoskeletal system, central and peripheral nervous system, and sensory organs (3–5).

In humans, gait speed is a valid, reliable, and simple measure of physical function. This is considered a crucial component of geriatric evaluation because it is associated with disability, hospitalization, mortality and cognitive decline (6–9). In fact, gait speed is considered a "sixth vital sign" in older adults together with blood pressure, respiration, pulse, temperature, and pain (7). The link between gait speed and cognition has become particularly interesting since it has been demonstrated that slow gait speed can be a harbinger of cognitive decline and dementia (10–12).

Dogs Other Large Mammals In Aging Research I

James William Buchanan



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veterinarians collaborations with patients and publics and research animals specially bred for experiments or surplus to requirements Developing the idea of the animal research nexus this book explores how connections and disconnections are made between these different elements how these have reshaped each other historically and how they configure the current practice and policy of UK animal research An electronic edition of this book is freely available under a Creative Commons CC BY NC ND licence **Subject Guide to Books in Print** ,1983 *National Agricultural Library Catalog* National Agricultural Library (U.S.),1979

Dogs Other Large Mammals In Aging Research I Book Review: Unveiling the Magic of Language

In an electronic digital era where connections and knowledge reign supreme, the enchanting power of language has become more apparent than ever. Its ability to stir emotions, provoke thought, and instigate transformation is truly remarkable. This extraordinary book, aptly titled "**Dogs Other Large Mammals In Aging Research I**," compiled by a very acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound affect our existence. Throughout this critique, we will delve into the book is central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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