Exercise and Aging: Different Approaches to Different Beneficial Effects

Thou shouldst not have been old till thou hadst been wise

—The Fool, King Lear, William Shakespeare

In the classic sentence handed down by the Fool in the King Lear book, William Shakespeare indicates all his knowledge about the aging process, at least, by the alterations that occur in the cognitive domains. It is important to remember that the aging process is commonly accompanied by an improvement in the crystallized intelligence, or also called as expertise, sapientiae, which allows the subject to cope easier with social stressful situations. Once the king had being made stupid decisions, the Fool inquired him about his wisdom. However, the Fool forgot an important aspect associated with the aging process, and he did not consider the hypothesis that the king was suffering from cognitive decline. In fact, it is undeniable, that improved crystallized intelligence is one of the few possible beneficial phenomena that occur during the aging process because the most widely observed phenomenon is the elevated prevalence and incidence of several chronic degenerative diseases and geriatric syndromes.

The presence of chronic degenerative diseases in older adults has been known since ancient times. In 1931, for example, the pathologist Allen R. Long described, for the first time, the presence of the atherosclerotic process on the coronary arteries of an ancient Egyptian mummy of an older woman. Leonardo da Vinci also reported alterations in the organic system of older adults, so that records of his first dissection suggest the presence of sarcopenia and osteoporosis in an older man:

I have stripped the skin from one who owing to an illness was so emaciated that the muscles were consumed and reduced to the state of a thin membrane so that the cords, instead of being transformed into muscle were converted into a wide sheet; and when the bones were clothed by this leather, they possessed little of their natural thickness.

It is noteworthy, that the presence of chronic diseases might also be part of the construct denominated as successful aging. Although, currently, there is no clear consensus on the definition of successful aging, quantitative and qualitative studies have been proposing physical, functional, psychological, physiological, physiopathological, and social approaches.

In a qualitative point of view, healthy older adults commonly report autonomy—the capacity to realize, understand, and create a strategy to perform a task—and independence—the capacity to, in fact, accomplish the task—as fundamental aspects of successful aging. When data are based on older adults with physical disability, resilience and the capacity to cope with stressful situations are pointed as the most crucial factors. Nevertheless, at the end of the day, engagement components seem to be ubiquitous among different populations of older adults, so that, in a simple point of view, their biggest concern is not how much they will live (i.e., longevity), but how they will live—mainly—if they will be able to perform the physical, cognitive, religious, social, and familiar activities that they need and wish.

These aforementioned aspects indicate that older adults should be observed in a holistic fashion, beyond the isolated biomedical, psychological, or social one-dimensional point of view. Unfortunately, in the physical exercise field, researchers and health professionals have not explored such aspects, much less the range of possibilities associated with exercise prescription. Interestingly, exercise compliance is a hot topic due to its key role in the effectiveness of the exercise program, so that is possible infer that dropouts might occurs also because a holistic approach has not been performed.

In fact, to the success of a preventive or rehabilitation program of exercise, researchers must offer to health professionals a range of well-designed studies demonstrating how different exercise approaches may elicit different beneficial effects. In turn, health professionals should, first of all, make a medical screening to understand the aim(s) of the physical exercise program, understand what successful aging means for its subject or group who will perform the program of physical exercise, and what their preferences regarding the type of exercise. Once these are collected, exercise prescribers will—with a wealth of possibilities—create the best program of exercise to improve prognosis, to provide a practice of enjoyable exercise, as well as to offer—as far as possible—the elements associated with the interpretation of successful aging of each individual.

Therefore, the current special collection expects to offer original and review articles presenting interesting data from clinical, epidemiological, and clinical randomized experiments that aimed to demonstrate that effects of physical activity/exercise in different conditions presented by older adults, from social to medical conditions.

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