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„The impact of vitamin D and physical activity on the expression of selected age-related genes in different organs of young and old Wistar rats “

verfasst von / submitted by
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1 Introduction

The number of people aged 60 and older is one of the fastest growing in the world. In 2018, individuals at the age of 65 and above outnumbered children younger than five years. By 2050 there will be more older adults than adolescents and young adults together [1]. This trend is due to a combination of better health care and thus resulting lower mortality, as well as a declining birth rate [2].

However, it is unclear whether old adults today are healthier than 50 years ago. Difficulties such as sensory impairments, frailty, and dementia, for instance, remain causes of required help for basic everyday activities [3]. Furthermore, one major health issue of people over the age of 60 are non-communicable diseases [3]. Europe and Eastern Asia are regions already facing the challenge of caring and supporting the oldest part of their populations [1]. It is estimated that in Austria, for instance, people aged 65 and older will account for 27.7 % of the Austrian population by 2050 [4].

The aim of NutriAging, an Austrian-Slovakian cross-border project funded by the EU, is to raise the awareness of a healthy lifestyle in appearance of a good quality diet and an adequate amount of physical activity. These two factors contribute to an increase in life quality and a reduction of non-communicable diseases. In particular, NutriAging focuses on three nutrients, critical in older adult's diet, namely proteins, vitamin D and omega-3 fatty acids. This thesis will focus on the impact of vitamin D on gene expression, using the example of the Norwegian rat (*Rattus norvegicus*) as model of aging.

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