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## Influence of physical activity on reaction rate in a selected group of seniors

We live in modern times, people live longer, medical care is improving, while fewer children are being born, the population is aging. Life expectancy often does not mean prolonging life to the same quality as young people. Seniors face many disabilities, they are not as fast and agile, and life can be more difficult for them. Public transport, various automated call, and reservation systems in offices, self-service cash registers) can be for seniors whose cognitive abilities are limited and the reaction time extended, made difficult or outright impossible. If we improve the speed of response in the aging population, we can involve the aging part of the population more in full life, improve their independence and at the same time slow down the process of mental aging. Aim: The aim of this research was to determine the effect of three different types of training on selective response rate and motor response rate in the senior population. Methods: We compare the effect of three different types of training, namely resistance training - included 3 sets of 8 to 10 repetition at 75% of one-repetition maximum focused on the large muscle groups, balance training - included 4 sets of 8 to 10 repetition, on the bosu or with gym ball and Combination training - once a week resistance training, once a week balance training. We conducted a nine-week intervention training program. Twice a week, 60 min, 9 weeks. The study includes seniors aged 61 to 82 with an average age of 69.9 years, who were divided into three groups according to the type of training resistant, balanced, and combined. The number of participants was 71, of them 8 men and 63 women (n = 71; 63 women and 8 men). The diagnostics of the monitored parameters took place before the start of the intervention program and after its end. It was measured by the VTS test-Vienna test system (Schuhfried GmbH) test to determine the reaction time and motor reaction rate. It measures the selective response to a visual and acoustic stimulus. It is a widely used system with its own standards, which are not standardized. The research performed an analysis based on raw data on the average reaction time, the average motor reaction time, the number of correct, erroneous, incomplete responses, and the number of reactions that did not occur. These data make it possible to evaluate the concentration of attention, deficits of attention, reaction rate, and motor speed examined in a selective reaction process. Processing of results: determination of materiality and presentation of coefficients "effect size" and Cohen's D Results: We know from previous research that there is an improvement. More detailed results of our research will be published at the conference.

**Primary authors:** STRAČÁROVÁ, Nikola; SVOBODOVÁ, Lenka; SEBERA, Martin; SKOTÁKOVÁ, Alena

**Presenter:** STRAČÁROVÁ, Nikola