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Effects of exercise therapy on motor functions in Huntington's Disease

Abstract:

Introduction: Some studies suggest that exercise can improve fitness and motor impairment in these patients, but relatively little is known (Quinn, 2016). This meta-analysis therefore aims to show whether there are indeed effects of exercise on motor function in Huntington's disease.

Methods: PRISMA-guidelines (Page et al., 2021) are followed. Sources: PEDro, PubMed, Web of Science, Scopus. Search terms: Exercise OR exercise therapy OR physical therapy OR rehabilitation AND Huntington's disease. Inclusion criteria: experimental studies, exercise therapy, Huntington's disease, publication between 1990 and 2024, human participants. Methodological quality: PEDro score (Verhagen et al., 1998). Studies with a score ≥ 5 are included into meta-analysis. Standardized mean differences with 95 % confidence intervals ($SMD < .30$ = low, $> .50$ = medium, $> .80$ = strong) are shown in forest plots (Verhagen, & Ferreira, 2014) using RevMan 5.4 software (The Cochrane Collaboration, 2020).

Results: Of a total of 4833 publications, 12 studies met the criteria and were methodologically analyzed. Seven studies achieved the required score of ≥ 5 . All effects are in the low and medium range. Highest reach -3.03 and 4.34 (motor learning variables, favoring experimental group). UHDRS motor scale, gait speed, BBS and PPT show low effects favoring control group.

Conclusions: Only a few studies achieved at least average methodological quality. Various exercise interventions with different durations and intensities apparently show similar effects sizes. Even if some effects are in favor of the control group, it should be noted that the groups were partly unequal at baseline. Further research with high-quality designs is needed.

Biography

Andrea Dincher, began studying sports science at the age of 33 and received her PhD in this subject 7 years later. She is currently working on her habilitation. In addition to research in neurological rehabilitation, she also focuses on motor development and developmental disorders in childhood. For over 25 years, she has been a trainer in sports clubs for children's gymnastics, girls' apparatus gymnastics, long-distance running for children, senior sports, as well as obesity, orthopaedic and cardiac rehabilitation. She is honorary president of the German Sports Teachers' Association in the Saar region