

太极拳运动对中老年帕金森患者平衡能力影响的 Meta 分析

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摘要: **目的:** 帕金森病 (Parkinson's disease, PD) 是目前高发的中老年人常见神经退行性疾病, 全球已经有超 1000 万帕金森病患。帕金森病人以运动障碍为主要特征, 临床表现包括运动功能受损, 同时伴有动作缓慢、步态震颤和平衡障碍, 且出现明显的肌力减退, 运动控制能力下降等。大多数帕金森病患者都有步态障碍症状, 走路无法正常抬脚以及跌倒的高风险。跌倒和平衡障碍成为提高中老年人生活品质的重要研究课题, 也是科学研究领域急需解决的问题, 发展新的物理治疗干预措施, 减少运动障碍对帕金森病中老年人至关重要。太极拳动静结合动作和缓, 简便易学的特点较容易被老年人接纳, 且在老年人群中深受喜爱。本文将采用 Meta 分析方法对太极拳运动干预影响中老年帕金森患者平衡能力的效应进行总结, 为中医传统运动太极拳锻炼的推广使用提供询证医学依据。 **方法:** 在 PubMed、Web of Science、The Cochrane Library、中国期刊全文数据库 (CNKI)、中国生物医学文献数据库 (CBM)、万方数据库 (WanFang Data)、维普数据库 (VIP) 等中英文数据库中, 检索收集太极拳运动对中老年帕金森病患者平衡能力研究的相关文献共 93 篇, 限定为随机对照试验 (Randomized Clinical Trials, RCT), 检索时限为各个数据库有文献收录之日起至 2021 年 7 月 24 日, 同时结合手工检索。按照 Cochrane 手册 5.1.0 标准, 由研究者独立对每篇纳入文献进行质量和偏移风险评估并提取数据, 通过筛选文献流程图逐步筛选最终剩余 9 篇文献进行 Meta 分析, 对纳入的文献采用 Stata16 统计软件进行 Meta 分析, 进行异质性、亚组干预、漏斗图的相应分析。其中 7 篇文献为中等质量研究, 其研究具有统计学意义。 **结果:** (1) 纳入的 RCT 文献中共包含 509 例样本, 研究的文献 $i^2=93.9\% > 50\%$, 且 Q 检验的 $P < 0.1$, 提示本次研究选择的文献之间存在较强的异质性, 基于本次研究的数据情况, 显示异质性的来源为干预周期不一致, 后续会按照干预周期分类并进行亚组分析; (2) 研究过程中分别以 8、12、24 周进行干预周期的亚组分析, 不同组别的异质性强度不同, 其中 12 周的干预周期异质性最低, 8 周和 24 周干预周期异质性较高, Meta 分析结果显示不同周期的太极拳运动干预治疗对比常规药物和日常锻炼治疗有所不同; (3) 在帕金森评定功能 Berg 平衡量表 (Berg Balance Scale, BBS) 中表明不一样的干预周期对比质量表评分不同, 评分值越高, 治疗效果越显著, 而平衡能力通过图表分析表明还不具有明显差异。 **结论:** (1) 太极拳是融健身、防身、修身于一体的中国传统体

育健身项目，它动作柔和自然、缓慢均匀、协调完整，在社区老年人中广泛流行；（2）PD 患者长期规范进行太极拳训练，不仅可以帮助控制运动障碍的症状，还可以改善其平衡能力、步态和预防跌倒；患者的日常生活自理能力有显著改善，且患者的活动平衡信心增强，充分体现了太极拳的优势与应用价值。同时，采用太极拳运动训练的过程中，可以增强患者呈现出有规律性的主动呼吸作用，锻炼下肢大肌群，人体的重心会不断的多方位的缓慢运动，并通过控制和支持相关身体重心以获得身体平衡。从而增强核心肌群对于机体稳定性的控制能力；（3）太极拳对 PD 早期患者的平衡能力和运动能力具有一定的效果，并且其干预效果具有长期性，但这种长期性效果是有限的，会随着干预的时间增长而逐渐减退。传统功法运动太极拳能够改善中老年 PD 患者的下肢功能，而在平衡能力方面的数据还不够全面，没有更多的证据证明太极拳运动对中老年 PD 患者的平衡能力是有效的，在未来的研究中，要不断扩大样本量，并且选取有足够代表性的样本，予以研究。若条件允许，可采用封闭式的干预方法，尽可能减少外界因素产生的影响，设计更加完善的干预方案，从而获得更加客观、更加准确的研究结果，因此更值得在临床上推广应用 (NSFC:31971095)。

关键词：帕金森病；中老年人；太极拳；平衡功能；Meta 分析

Meta-analysis of the effect of Taijiquan exercise training on the balance ability of middle-aged and elderly of patients with Parkinson's Disease

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Abstract: Objective: Parkinson's disease is a common neurodegenerative disease in the middle-aged and elderly, with more than 10 million Parkinson's patients worldwide. Parkinson's disease is mainly characterized by dyskinesia. Its clinical manifestations include impaired motor function, accompanied by slow movement, tremor, frozen gait and balance disorder, and obvious muscle strength decline and motor control ability decline. Most patients with Parkinson's disease have gait disorder symptoms. They can't lift their feet normally, which seriously affects the quality of life. With the growth of middle-aged and elderly people, falls are also an adverse event prone to occur in the daily life of middle-aged and elderly patients with Parkinson's disease. Falls and balance disorders have become important research topics to improve the quality of life of the elderly, and they are also urgent problems to be solved in the field of scientific research. Therefore, the development of new physical therapy interventions to reduce movement disorders is very

important for the middle-aged and elderly people with Parkinson's disease. Taijiquan is easy to be accepted by the elderly, and is deeply loved by the elderly. This paper will use meta-analysis method to summarize the effect of Taijiquan exercise intervention on the balance ability of middle-aged and elderly Parkinson's patients, so as to provide evidence-based medical basis for the promotion and use of traditional Chinese medicine Taijiquan exercise. **Methods:** Computer search for PubMed, Web of Science, The Cochrane Library, CNKI, CBM, WanFang Data, VIP Database, etc. All randomized clinical trials (RCT) affecting the balance of PD patients. The search time limit was from the date of publication of each database to JUL. 24, 2021, as well as manual search. According to the Cochrane Handbook 5.1.0 standard, the researcher independently assessed the quality and bias risk of each included document and extracted the data. The remaining 9 literatures were gradually screened through the literature screening flow chart for meta-analysis. The included literatures were meta-analyzed by Stata16 statistical software for heterogeneity, subgroup intervention and funnel diagram. Among them, 7 literatures were of medium quality, and the research was statistically significant. **Results:** (1) A total of 509 samples were included in the RCT literature. The literature $I^2 = 93.9\% > 50\%$, and the $P < 0.1$ of Q test suggested that there was strong heterogeneity among the literature selected in this study. Based on the data of this study, it suggested that the source of heterogeneity was inconsistent intervention cycles. Subgroup analysis will be carried out according to the classification of intervention cycles in the follow-up meeting; (2) Long term standardized Taijiquan training for PD patients can not only help to control the symptoms of dyskinesia, but also improve their balance ability and gait and prevent falls; Patients' self-care ability of daily life has been significantly improved, and patients have stronger confidence in activity balance, which fully reflects the advantages and application value of Taijiquan. At the same time, in the process of Taijiquan exercise training, it can enhance the patients to show regular active breathing, exercise the major muscles of the lower limbs, the center of gravity of the human body will continue to move slowly in multiple directions, and obtain body balance by controlling and supporting the relevant body center of gravity. So as to enhance the control ability of core muscle group for body stability; (3) In the Parkinson's rating scale BBS (Berg Balance Scale), it shows that different intervention cycles have different scores compared with the quality scale. The higher the score, the more significant the treatment effect. However, the balance ability shows no significant difference through chart analysis. **Conclusion:** (1) Taijiquan is a Chinese traditional sports fitness project integrating fitness, self-defense and self-cultivation. Its movements are soft, natural, slow, uniform and coordinated. It is widely popular among the elderly in the community; (2) Long term standardized Taijiquan training for PD patients can not only help to control the symptoms of dyskinesia, but also improve their balance ability and gait and prevent falls; Patients' self-care ability of daily life has been significantly improved, and patients have stronger confidence in activity balance, which fully reflects the advantages and application value of Taijiquan. At the same time, in the process of Taijiquan exercise training, it can enhance the patients to show regular active breathing, exercise

the major muscles of the lower limbs, the center of gravity of the human body will continue to move slowly in multiple directions, and obtain body balance by controlling and supporting the relevant body center of gravity. So as to enhance the control ability of core muscle group for body stability; (3) Taijiquan has a certain effect on the balance and exercise ability of patients with early PD, and its intervention effect has a long-term effect, but when this long-term effect is limited, it will gradually decline with the increase of the time when the intervention stops. Traditional exercise Taijiquan can improve the lower limb function of middle-aged and elderly PD patients, but the data on balance ability are not comprehensive. There is no more evidence to prove that Taijiquan is effective on the balance ability of middle-aged and elderly PD patients, In the future research, we should continue to expand the sample size and select enough representative samples for research. If conditions permit, the closed intervention method can be adopted to reduce the impact of external factors as much as possible, and a more perfect intervention scheme can be designed to obtain more objective and accurate research results. Therefore, it is more worthy of clinical application. (NSFC:31971095)

Key words: Parkinson's disease, Middle-aged and elderly of patients, Taijiquan, Balance ability, Meta-analysis