

中国传统运动对 2 型糖尿病疗效的系统评价再评价

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摘要: **目的:** 通过对中国传统运动对 2 型糖尿病 (type 2 diabetes, T2MD) 疗效的系统评价/meta 分析进行再评价, 为中国传统运动治疗 2 型糖尿病提供参考。**方法:** 由 2 位研究者独立检索 PubMed、EBSCO、The Cochrane library、Web of science、万方数据知识服务平台 (Wanfang Data)、中国知网 (CNKI) 六个数据库, 关于中国传统运动干预 2 型糖尿病的系统评价/meta 分析, 检索时限为 2010 年至 2021 年 2 月 2 日, 并利用 endnote 软件进行文献管理及查重, 依据纳入排除标准从题目、摘要、干预措施和结局指标进行初步筛选, 在排除明显不相关的文献后, 进一步阅读全文, 确定是否纳入, 最后根据预先设计好的 Excel 数据表提取资料, 遇分歧与第 3 名研究者协商解决。提取资料包括: 题目、第一作者、发表年份、纳入原始研究数量、研究对象及例数、年龄、性别、干预措施、质量评价工具、结局指标等。2 位研究者独立对纳入的文献由采用 AMSTAR2 工具和 PRISMA 声明进行方法学和报告质量评价, 完成后进交叉核对, 有问题经由双方讨论或咨询第三方结果。**结果:** 最终纳入 6 篇分析中国传统运动 (太极、八段锦、气功) 对 2 型糖尿病疗效的研究。6 项研究均进行了 Meta 分析, 5 篇利用 Cochrane 偏倚风险评估工具, 1 篇采用改良 Jadad 评分评价偏倚风险。应用 AMSTAR2 量表对纳入研究的 6 篇系统评价/Meta 分析进行方法学质量评价, 评价结果显示: 1 篇为低质量, 5 篇为极低质量。条目 2、条目 3、条目 7、条目 10 存在报告缺失, 具体为: 未说明提前确定研究方法, 说明纳入研究的类型, 未提供详细的排除文献清单并说明原因, 未报告纳入各个研究的资助来源。PRISMA 声明进行报告质量评价, 发现除条目 5、条目 8 之外, 其余 25 个条目报告率 $\geq 50\%$, 存在完整报告率较低的情况。评价中发现, 条目 2、5、6、7、8、11、12、16、19、24 条目报告不全。体现在一下内容: 结构式中对局限性、系统综述的注册号的报告; 研究中方案和注册的报告; 纳入标准未给出合理的说明; 针对每次检索及最终检索的结果, 描述所有文献信息的来源; 缺少对资料库检索方法的说明; 缺少资金来源描述; 缺少在资料总和中单个研究偏倚的方法如何被利用; 未对其他方法进行描述, 说明哪些分析是预先制定的; 结果部分缺少对每个研究中可能存在偏倚的相关数据说明; 讨论部分缺少分析它们与主要利益集团的关联性 (如医疗保健的提供者、使用者及政策决策者)。所纳入的 Meta 分析显示, 中国传统运动可

降低 T2DM 患者的糖化血红蛋白(HbA1c)水平, 中国传统运动(太极、八段锦)降低了 T2DM 患者的餐后血糖。对于空腹血糖水平不同研究的出的结论不同。研究发现中国传统运动可以改善总胆固醇水平, 但差异无统计学意义。对于低密度脂蛋白, 有研究认为中国传统运动(太极拳、八段锦、气功)对低密度脂蛋白有显著影响, 但也有研究认为与对照组相比, 太极拳组低密度脂蛋白水平下降, 但差异无统计学意义。对于高密度脂蛋白, 有研究认为八段锦有效改善 T2D 的高密度脂蛋白水平, 太极拳对 T2DM 患者的高密度脂蛋白水平, 不同研究得出的结果存在差异。中国传统运动可有效降低 T2DM 患者的甘油三酯水平。太极拳对 T2DM 患者身体质量指数(BMI)的干预效果优于对照组。太极拳可改善 T2DM 患者的生活质量, 但在躯体功能、躯体疼痛、身体因素所致角色限制、情绪因素所致角色限制、生命活力、社交功能、心理健康和总体健康评价这 8 个维度的改善, 不同的研究的出的得出结论不同。 **结论:** 目前中国传统运动对 2 型糖尿病疗效的系统评价/Meta 分析的方法学和报告质量较低, 中国传统运动在改善 2 型糖尿病患者糖化血红蛋白、餐后 2 小时血糖、BMI 方面得出结论一致, 对于空腹血糖、总胆固醇、低密度脂蛋白、高密度脂蛋白、生活质量在不同研究之间存在差异。本研究仅纳入了近 10 年发表的中文及英文文献, 存在一定局限性, 可能会对结果产生影响。本研究通过对中国传统运动对 2 型糖尿病疗效系统评价进行方法学和报告质量评价, 呈现了目前该领域研究现状及存在的报告质量问题, 建议未来进行相关研究时, 注重试验方案的拟定、注册和实施。未来对 2 型糖尿病通过中国传统运动进行干预研究时, 针对存在争议的结局指标, 应开展更多大样本量、设计严谨的 RCT 予以验证。

关键词: 中国传统运动; 2 型糖尿病; 系统评价; AMSTAR 2 工具

Effect of traditional Chinese exercise on type 2 diabetes: An overview of systematic reviews

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Abstract: Objective: A systematic review/Meta analysis of the efficacy of traditional Chinese exercise in the treatment of type 2 diabetes mellitus was conducted to reevaluate, To provide reference for Chinese traditional exercise treatment of type 2 diabetes. **Methods:** two researchers independently searched six databases including PubMed, EBSCO, The Cochrane library, Web of

science, Wanfang Data and CNKI, systematic review/meta-analysis of traditional exercise intervention in type 2 diabetes mellitus in China. The retrieval time was from February 2, 2010 to February 2, 2021, and the Endnote software was used for literature management and duplicate check. According to inclusion and exclusion criteria, preliminary screening was conducted from topics, abstracts, interventions and outcome indicators. After excluding obviously irrelevant literatures, the full text was further read to determine whether to include them. Finally, according to the pre-designed Excel data table to extract data, Negotiate with the third researcher to resolve any differences. The extracted data included: title, first author, year of publication, number of original studies included, study subjects and number of cases, age, gender, intervention measures, quality assessment tools, outcome indicators, etc. Two investigators independently evaluated the methodological and report quality of the included literature using the AMSTAR2 tool and PRISMA statement, and completed a backward cross-check. Questions were discussed by both parties or consulted with third party results. **Results:** Six studies that analyzed the efficacy of traditional Chinese exercises (Tai Chi, Baduanjin and Qigong) in the treatment of type 2 diabetes were included. Meta-analysis was performed on all 6 studies, 5 using the Cochrane bias risk assessment tool, and 1 using the modified Jadad score to assess bias risk. The AMSTAR2 scale was used to evaluate the methodological quality of the 6 systematic reviews/meta-analyses. The evaluation results showed that 1 paper was of low quality and 5 papers were of very low quality. There are missing reports in items 2, 3, 7 and 10. Specifically, the research methods were not specified in advance, the types of included studies were not explained, a detailed list of excluded literatures was not provided and the reasons were not explained, and the funding sources of each included study were not reported. Prisma declared to conduct report quality evaluation, and found that except item 5 and item 8, the report rate of the other 25 items was $\geq 50\%$, and the complete report rate was low. It was found in the evaluation that the reports of items 2, 5, 6, 7, 8, 11, 12, 16, 19 and 24 were incomplete. This is reflected in the following contents: the report of the registration number of the limitations and systematic reviews in the structural formula; Report on the programme under study and registration; Inclusion criteria are not given a reasonable explanation; According to each search and the final search results, describe the sources of all literature information; Lack of description of database retrieval method; Lack of description of

funding sources; Lack of how individual study bias methods are utilized in data summation; The other methods are not described, indicating which analyses are predetermined; The results part lacks relevant data to explain the possible bias in each study. The discussion section lacks analysis of their relevance to major interest groups (such as health care providers, users, and policy makers). The included meta-analysis showed that traditional Chinese exercise can reduce the HbA1c level in T2DM patients, and traditional Chinese exercise (Tai Chi, Baduanjin) can reduce the postprandial blood glucose in T2DM patients. Different studies have come to different conclusions about fasting glucose levels. The study found that traditional Chinese exercise improved total cholesterol levels, but the difference was not statistically significant. For LDL, some studies believe that traditional Chinese exercises (Taijiquan, Baduanjin and Qigong) have a significant impact on LDL, but some studies believe that compared with the control group, the LDL level in Taijiquan group decreases, but the difference is not statistically significant. As for high-density lipoprotein, some studies believe that Baduanjin can effectively improve the level of high-density lipoprotein of T2D patients. Different studies have different results on the effect of Taijiquan on the level of high-density lipoprotein of T2D patients. Traditional Chinese exercise can effectively reduce triglyceride levels in patients with T2DM. The intervention effect of Taijiquan on BMI of T2DM patients was better than that of the control group. Taijiquan can improve the quality of life of patients with T2DM, but different studies have drawn different conclusions on the improvement of the 8 dimensions of physical function, physical pain, role limitation caused by physical factors, role limitation caused by emotional factors, life vitality, social function, mental health and overall health evaluation. **Conclusion:** Currently, the methodological evaluation/meta-analysis of the efficacy of traditional Chinese exercise on type 2 diabetes mellitus has a low methodological quality and report quality. The conclusion of traditional Chinese exercise in improving HbA1c, 2-hour postprandial blood glucose and BMI in patients with type 2 diabetes mellitus is consistent. Fasting blood glucose, total cholesterol, low-density lipoprotein, high-density lipoprotein, and quality of life vary among studies. This study only included Chinese and English literatures published in recent 10 years, which had some limitations that might affect the results. This study evaluated the methodological and report quality of the systematic evaluation of the efficacy of Chinese traditional exercise for type 2 diabetes,

presenting the current research status in this field and the existing report quality problems. It is suggested that the formulation, registration and implementation of the trial scheme should be emphasized in future related studies. In future intervention studies on type 2 diabetes through Chinese traditional exercise, a well-designed RCT with a large sample size should be carried out to verify the controversial outcome indicators.

Key words: Chinese traditional sports, Type 2 diabetes, Systematic evaluation, AMSTAR2 tools