

8 周不同剂量太极拳对大学生情绪调节影响的实验研究

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摘要: 研究目的: 近年来, 我国政府高度重视大众身心健康问题, 相继出台了《“健康中国 2030”规划纲要》等一系列文件。大学生作为推进“健康中国”建设过程中的主力军, 其情绪健康备受关注。2020 年心理健康蓝皮书数据显示, 十余年间青少年的心理健康状况稳中有降, 抑郁、焦虑和压力等负性情绪的检出率呈现逐年升高的趋势。太极拳作为一种特定的运动方案, 已被发现能够有效降低个体抑郁和焦虑水平, 改善情绪状态以及情绪调节策略的使用。尽管太极拳是一种有效的情绪调节手段, 但从实际情况看, 大学生可能因缺乏时间而无法保证高频率或长时间的锻炼, 那么, 针对大学生群体推出一套具有普适性的运动方案具有重要意义。基于此, 本研究将通过 8 周的太极拳干预探讨不同剂量太极拳对大学生情绪调节的影响。**研究方法:** 本研究采用随机对照实验设计。使用 G*Power 软件进行样本量估计, 通过社交媒体发布海报招募并筛选 90 名在校大学生, 随机均分为性别比例相同的三组: 实验组一、实验组二、空白对照组。实验组一进行每周 3 次、每次 50min 的低频次长时太极(八法五步)干预; 实验组二进行每周 5 次、每次 30min 的高频次短时长太极(八法五步)干预; 空白对照组则保持原有的学习生活。数据采集于干预前 1 周与干预结束后 1 周内实施。使用《情绪调节自我效能感量表》(Regulatory Emotional Self-Efficacy, RES)与《情绪调节问卷》(Emotion Regulation Questionnaire, ERQ)评估被试情绪调节自我效能感及策略运用的变化。采用 3 组别×2 时间的混合实验设计, 其中组别(不同运动剂量)为被试间因素, 时间为被试内因素, 问卷得分结果为因变量, 所有数据采用 SPSS 25.0 进行统计分析, 显著性水平设定为 $p = 0.05$ 。**研究结果:** (1) 在 ERQ 量表认知重评维度得分上, 时间×组别交互效应显著 ($F=3.786, p=0.027<0.05$, $partial\eta^2=0.084$), 时间与组别主效应均不显著 ($ps>0.05$), 进一步简单效应结果显示空白对照组前、后测认知重评得分显著下降 ($p=0.018<0.05$)。以认知重评得分变化值(后测-前测)为因变量进行单因素方差分析及 LSD 事后检验, 结果显示, 实验组二的变化值显著高于空白对照组 ($p=0.008<0.05$), 表明每周 5 次、每次 30min 的 8 周太极(八法五步)干预有效抑制了大学生认

知重评能力的下降。在 ERQ 量表表达抑制维度得分上, 未出现显著结果。(2) 在 RES 量表表达积极情绪自我效能感维度 (POS) 上, 时间主效应显著 ($F=4.532, p=0.036<0.05, partial\eta^2=0.052$), 时间 $\times$ 组别交互效应显著 ($F=3.182, p=0.047<0.05, partial\eta^2=0.071$), 组别主效应不显著 ($p>0.05$), 进一步简单效应结果显示, 实验组一干预前后 POS 得分显著增加 ($p=0.010<0.05$)。以 POS 变化值 (后测-前测) 为因变量进行单因素方差分析及 LSD 事后检验, 结果显示, 实验组一的变化值显著高于空白对照组 ($p=0.018<0.05$), 表明每周 3 次、每次 50min 的 8 周太极 (八法五步) 干预有效提升了大学生的表达积极情绪自我效能感。在 RES 量表调节沮丧/痛苦情绪自我效能感 (DES) 上, 时间 $\times$ 组别交互效应显著 ($F=4.767, p=0.011<0.05, partial\eta^2=0.103$), 时间与组别主效应均不显著 ($ps>0.05$), 进一步简单效应结果显示, 实验组一 ($p=0.016<0.05$) 和实验组二 ($p=0.045<0.05$) 干预前、后 DES 得分均显著增加。在后测维度上, 实验组一 ($p=0.006<0.05$) 和实验组二 ($p=0.021<0.05$) 的 DES 得分均显著高于空白对照组。以 DES 变化值 (后测-前测) 为因变量进行单因素方差分析及 LSD 事后检验, 结果显示, 实验组一 ($p=0.006<0.05$) 和实验组二 ($p=0.015<0.05$) 的变化值均显著高于空白对照组, 表明两种剂量的 8 周太极 (八法五步) 干预均有效提升了大学生的调节沮丧/痛苦情绪自我效能感。在 RES 量表调节生气/愤怒情绪自我效能感 (ANG) 上, 时间主效应显著 ($F=5.989, p=0.017<0.05, partial\eta^2=0.067$), 组别主效应显著 ($F=5.505, p=0.006<0.05, partial\eta^2=0.117$), 时间 $\times$ 组别交互效应不显著 ($p>0.05$)。研究结论: 8 周太极拳干预对大学生情绪调节的影响具有剂量效应: 高频次短时长的运动方案在认知重评维度表现突出, 低频次长时长的方案在提升表达积极情绪自我效能方面更具优势; 二者在调节沮丧或痛苦情绪自我效能感上效果相当, 均具有积极影响, 而在调节生气或愤怒情绪自我效能感维度无特异性。本研究为太极拳运动处方的个性化与精准化设计提供了实证依据, 突显了基于个体需求与干预目标选择适宜剂量的科学价值。

关键词: 情绪调节; 运动剂量; 太极 (八法五步)

An 8-week experimental study on the effects of different Tai Chi dose on emotion regulation in university students

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Abstract: Purpose: Aligned with the Healthy China 2030 Initiative and a series of subsequent policy

documents, the Chinese government has prioritized the physical and mental well-being of the general population. University students, as a key cohort in this national endeavor, have exhibited a steady decline in mental health over the past decade; national data from the 2020 Blue Book on Mental Health indicate rising prevalence rates of depression, anxiety, and stress. Tai Chi, a traditional mind-body exercise, has been found to attenuate negative affect and enhance both emotional states and emotion-regulation strategies. However, undergraduates often report time constraints that prevent high-frequency or prolonged training. Consequently, determining a pragmatic and efficacious Tai Chi prescription for this population is imperative. The present study examined the dose-response effects of an eight-week Tai Chi intervention on university students' emotion regulation. **Methods:** A randomized controlled trial was conducted. Using G*Power, a target sample of 66 participants was estimated. Recruitment flyers were disseminated via social media; after screening, 90 healthy undergraduate volunteers (no prior Tai Chi experience) were enrolled and randomly assigned—while maintaining sex balance—to one of three groups: Experimental Group 1 ($n = 30$): 3 sessions / week, 50 min / session (Ba Fa Wu Bu Tai Chi). Experimental Group 2 ($n = 30$): 5 sessions / week, 30 min / session (Ba Fa Wu Bu Tai Chi). Control Group ($n = 30$): continued habitual lifestyle. Assessments were undertaken one week pre-intervention and one week post-intervention using the Regulatory Emotional Self-Efficacy Scale (RES) and the Emotion Regulation Questionnaire (ERQ). A 3 (Group) $\times$ 2 (Time) mixed-model design was employed, with Group as a between-subjects factor and Time as a within-subjects factor. Data were analyzed in SPSS 25.0; significance was set at $p < 0.05$. **Results:** (1) ERQ cognitive reappraisal: A significant Group $\times$ Time interaction was observed ($F=3.786, p=0.027<0.05, partial\eta^2=0.084$). Simple effects indicated a significant decrease in the control group ($p = 0.018 < 0.05$). Post-hoc contrasts on change scores showed that Experimental Group 2 improved significantly more than controls ($p = 0.008 < 0.05$), demonstrating that 5 $\times$ 30 min sessions effectively prevented declines in cognitive reappraisal. No effects emerged for expressive suppression. (2) RES positive emotion self-efficacy (POS): Time, $F = 4.532, p = 0.036, partial\eta^2 = 0.052$, and Group $\times$ Time, $F = 3.182, p = 0.047, partial\eta^2 = 0.071$, were significant. Experimental Group 1 exhibited significant gains ($p = 0.010 < 0.05$), and change scores surpassed those of controls ($p = 0.018 < 0.05$), indicating that 3 $\times$ 50 min sessions enhanced POS of university students. (3) RES despondency/distress self-efficacy (DES): A significant Group $\times$ Time interaction, $F = 4.767, p = 0.011, partial\eta^2 = 0.103$, emerged. Both experimental groups improved (Group 1: $p = 0.016$; Group 2: $p = 0.045$), and post-test scores were higher

than controls (Group 1: $p = 0.006$; Group 2: $p = 0.021$). Change-score contrasts confirmed superiority of both intervention conditions ($ps \leq 0.015$). (4) RES anger/irritation self-efficacy (ANG): Significant main effects of Time, $F = 5.989$, $p = 0.017$, $partial\eta^2 = 0.067$, and Group, $F = 5.505$, $p = 0.006$, $partial\eta^2 = 0.117$, were found; the Group $\times$ Time interaction was not significant. **Conclusions:** Eight weeks of Tai Chi training yields dose-dependent benefits for university students' emotion regulation. High-frequency, short-duration sessions are particularly effective for maintaining cognitive reappraisal, whereas low-frequency, long-duration sessions confer greater advantages in enhancing positive emotion self-efficacy. Both regimens comparably improve self-efficacy in regulating despondency/distress, yet neither demonstrates specificity for anger/irritation. These findings provide empirical guidance for personalized and precise Tai Chi prescriptions, underscoring the scientific value of tailoring exercise dosage to individual needs and regulatory goals. **Recommendations:** Future research should expand to examine a broader range of exercise doses; mechanistically, functional near-infrared spectroscopy (fNIRS) or functional magnetic resonance imaging (fMRI) can be integrated to observe neuroplastic changes, while high-frequency heart-rate variability (HF-HRV) is simultaneously recorded to construct a “brain–heart–behavior” mechanistic model, thereby providing an evidential basis for the effects of different Tai Chi dosages.

Keywords: Emotion Regulation; Exercise Dose; Ba Fa Wu Bu Tai Chi

