

## 太极（八法五步）对大学生转换功能的影响及追踪研究

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**摘要: 研究背景:** 转换功能是指在进行复杂任务时在操作上或者在心理定势间来回转换的过程, 指个体在完成任务时以恰当地方式进行灵活的反应变换以适应新的要求的需要, 具体体现为, 当两项任务竞争同一认知资源时, 对这两项任务相互转换的控制过程作为执行功能的重要组成部分之一, 其影响着个体的行为活动和社会适应发展等。大学生作为国家的建设者和接班人, 转换功能不良会导致其注意力转换困难、决策能力下降等问题, 甚至影响大学生的终身发展。研究表明, 转换功能在个体的整个生命周期都是可塑的, 探索提升大学生转换功能的有效干预方案已成为多学科领域研究者关注的热点。来自心理学领域的研究表明, 正念训练、注意力训练、冥想训练及呼吸训练等心理训练对个体转换功能提升具有积极作用。来自运动心理学领域的研究发现, 不同的运动项目、运动干预周期、运动强度以及单次干预时长对转换功能的促进作用具有不同效益, 且类型、持续时间、强度、频率等各运动构成要素单独和交互作用与转换功能的关系仍需深入研究。但目前研究多采用实验室运动(功率自行车、跑台)及综合性的运动方案, 其生态效度较低, 不易普及推广到大学生群体, 影响运动方案在现实场景的推广和应用, 限制了采用运动手段促进大学生转换功能的研究发展。太极拳是身心合一、心境体松, 兼具意念与养生健身的中华传统运动, 包含了身体移动、呼吸和冥想等成分。前人研究表明, 太极拳对个体的转换功能存在积极影响。然而, 已有太极拳与转换功能的研究大多从运动干预前、后两个时间点探讨太极拳对转换功能的影响, 尚未涉及其影响效果的追踪研究, 且当前研究群体多为老年人, 针对大学生的太极拳研究相对较少。**研究目的:** 本研究以大学生为研究对象, 根据太极(八法五步)“形、气、意”要素设计16周干预方案进行干预, 综合运用体育学、心理学测量方法与技术, 采用追踪研究设计, 探究16周太极(八法五步)对转换功能的影响及后期效应, 为采用太极(八法五步)促进大学生转换功能发展提供理论与实践基础, 为针对性地促进大学生转换功能健康发展提供长期运动干预方案的设计依据, 为确立太极拳是提升转换功能的优选手段提供科学证据, 助力健康中国。因此, 本研究具有一定的理论意义和实践价值。**研究方法:** 本研究以89名大学生为研究对象, 采用3(组别: 太极组、健步走组、对照组)×3(时间: 干预前、干预后、干预停止2周后)的两因素混合实验设计, 将被试按性别比例随机分为太极组、健步走组、对照组。太

极组进行 16 周，每周三次，每次 60 分钟的太极（八法五步）运动干预；健步走组进行 16 周，每周三次，每次 60 分钟健步走运动干预；对照组正常学习生活。在干预前、干预后、干预停止 2 周后采用 More-odd shifting 任务测量大学生转换功能。采用重复测量方差分析比较 16 周不同运动干预前、干预后、干预停止 2 周后大学生转换功能反应时、正确率的变化及差异。**研究结果：**（1）采用重复测量方差分析比较 16 周太极（八法五步）运动干预前后及干预停止 2 周后转换功能反应时的差异，发现太极（八法五步）能够极显著提升大学生转换功能运行效率，干预效果在干预结束后 2 周内具有稳定性，且效果优于健步走，健步走干预对大学生转换功能运行效率有非常显著提升作用，干预效果在干预结束后 2 周内具有稳定性；（2）采用重复测量方差分析比较 16 周太极（八法五步）运动干预前后及干预停止 2 周后转换功能正确率的差异，发现太极（八法五步）运动能够极显著提升大学生转换功能运行效能，干预效果在干预结束后 2 周内具有稳定性，且优于健步走组，健步走干预对大学生转换功能运行效能有非常显著提升作用，干预效果在干预结束后 2 周内具有稳定性。**研究结论：**（1）太极（八法五步）干预 16 周能够极显著提升大学生的转换功能。（2）健步走干预 16 周能够非常显著提升转换功能。（3）太极（八法五步）提升转换功能的干预效果在干预结束后 2 周内具有稳定性，且效果优于健步走。

**关键词：**转换功能；大学生，太极（八法五步）

## The Effects of Tai Chi (Bafa Wubu) on College Students' Switch Functions and Tracking Study

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**Abstract:Background:** Switch function refers to the process of switching back and forth operationally or between psychological stereotypes when performing a complex task, and refers to the need for individuals to flexibly change their responses in an appropriate manner to adapt to new requirements when completing a task, which is specifically embodied in the fact that, when two tasks are competing for the same cognitive resources, the process of controlling the interconversion of these two tasks is one of the important components of executive functioning, which influences the development of individuals' behavioural activi

ties and social adaptations. behavioural activities and social adaptation development. As the builders and successors of the country, poor switching function will lead to difficulties in attention switching and reduced decision-making ability, and even affect the lifelong development of college students. Research has shown that switch functioning is plastic throughout an individual's lifespan, and exploring effective interventions to enhance switch functioning in college students has become a hot topic of interest for researchers in multiple disciplines. Studies in the field of psychology have shown that mental training such as positive thinking training, attention training, meditation training, and breathing training have positive effects on the improvement of switch functioning. Studies in the field of exercise psychology have found that different exercise programmes, exercise intervention cycles, exercise intensities and single intervention durations have different benefits on the facilitation of switch function, and the relationship between the type, duration, intensity, frequency and other components of exercise, both individually and interactively, and the relationship between them and the switch function still needs to be studied in depth. However, most of the current studies use laboratory exercises (power cycling, running platform) and comprehensive exercise programmes, which have low ecological validity, are not easy to be popularized and promoted to the college student population, affect the promotion and application of exercise programmes in real-life scenarios, and limit the development of research on the use of exercise to promote the switch function in college students. Tai Chi is a traditional Chinese exercise that combines physical and mental unity, mind and body relaxation, and both intention and health and fitness, and contains components such as body movement, breathing, and meditation. Previous studies have shown that Tai Chi has a positive effect on the switch function of individuals. However, most of the studies on Tai Chi and switch function have examined the effects of Tai Chi on switch function at two points in time, before and after the exercise intervention, but have not yet addressed the tracking of its effects, and most of the current study groups are elderly people, with relatively few studies on Tai Chi for college students. **Aim of the study:** This study took college students as the research object, designed a 16-week intervention programme based on the elements of "form, qi and intention" of Tai Chi (Bafa Wubu), comprehensively applied the measurement methods and techniques of kinesiology and psychology, and adopted a tracking research

h design to investigate the effects of 16 weeks of Tai Chi (Bafa Wubu) on the switch function and its post-effects, which was the first time to use the Bafa Wubu in Tai Chi. It provides a theoretical and practical basis for the use of Tai Chi (Bafa Wubu) to promote the development of switch function in college students, provides a basis for the design of a long-term exercise intervention programme to promote the healthy development of switch function in college students, and provides scientific evidence for the establishment of Tai Chi as the preferred means of enhancing switch function to assist a healthy China. Therefore, this study has certain theoretical significance and practical value.

**RESEARCH METHODS:** This study was conducted with 89 college students, and a two-factor mixed experimental design of 3 (group: Tai Chi group, walking group, control group)  $\times$  3 (time: pre-intervention, post-intervention, and 2 weeks after cessation of the intervention) was adopted, in which subjects were randomly divided into a Tai Chi group, a walking group, and a control group in accordance with the proportion of gender. The Tai Chi group was given a 16-week, three times a week, 60-minute Tai Chi (Bafa Wubu) exercise intervention; the walking group was given a 16-week, three times a week, 60-minute walking exercise intervention; and the control group was given a normal study life. College students' switch function was measured using the More-odd shifting task before, after, and 2 weeks after the intervention was stopped. Repeated-measures ANOVA was used to compare the changes and differences in the response time and correct rate of college students' switch function before, after, and 2 weeks after the cessation of the 16-week exercise intervention.

**The results of the study:** (1) repeated measures ANOVA was used to compare the differences in the response time of the switch function before and after the 16-week Tai Chi (Bafa Wubu) exercise intervention and 2 weeks after the intervention was stopped, and it was found that Tai Chi (Bafa Wubu) could enhance the efficiency of the switch function of college students very significantly, and the effect of the intervention was stable for 2 weeks after the intervention was over, and the effect was better than that of walking, and the intervention of walking had very significant enhancement effects on the efficiency of the switch function of college students, and the intervention effect was stable for 2 weeks after the intervention was over. (2) The repeated measures ANOVA was used to compare the differences in the correct rate of switch function before and after the 16-week Tai Chi (Bafa

Wubu) exercise intervention and 2 weeks after the intervention was stopped, and it was found that the Tai Chi (Bafa Wubu) exercise could significantly improve the efficiency of the switch function of college students, and the intervention effect was stable for 2 weeks after the intervention, and better than that of the walking group. It was found that Tai Chi (Bafa Wubu) exercise could significantly improve the switch function performance of college students, and the intervention effect was stable within 2 weeks after the intervention, and it was better than that of the walking group. **Conclusion:** (1) Tai Chi (Bafa Wubu) intervention for 16 weeks can significantly improve the switch function of college students. (2) Walking for 16 weeks was able to significantly improve the switch function. (3) The effect of Tai Chi (Bafa Wubu) on switch function was stable for 2 weeks after the intervention, and the effect was better than that of walking.

**Key words:** Switch Function; College Students, Tai Chi (Bafa Wubu)