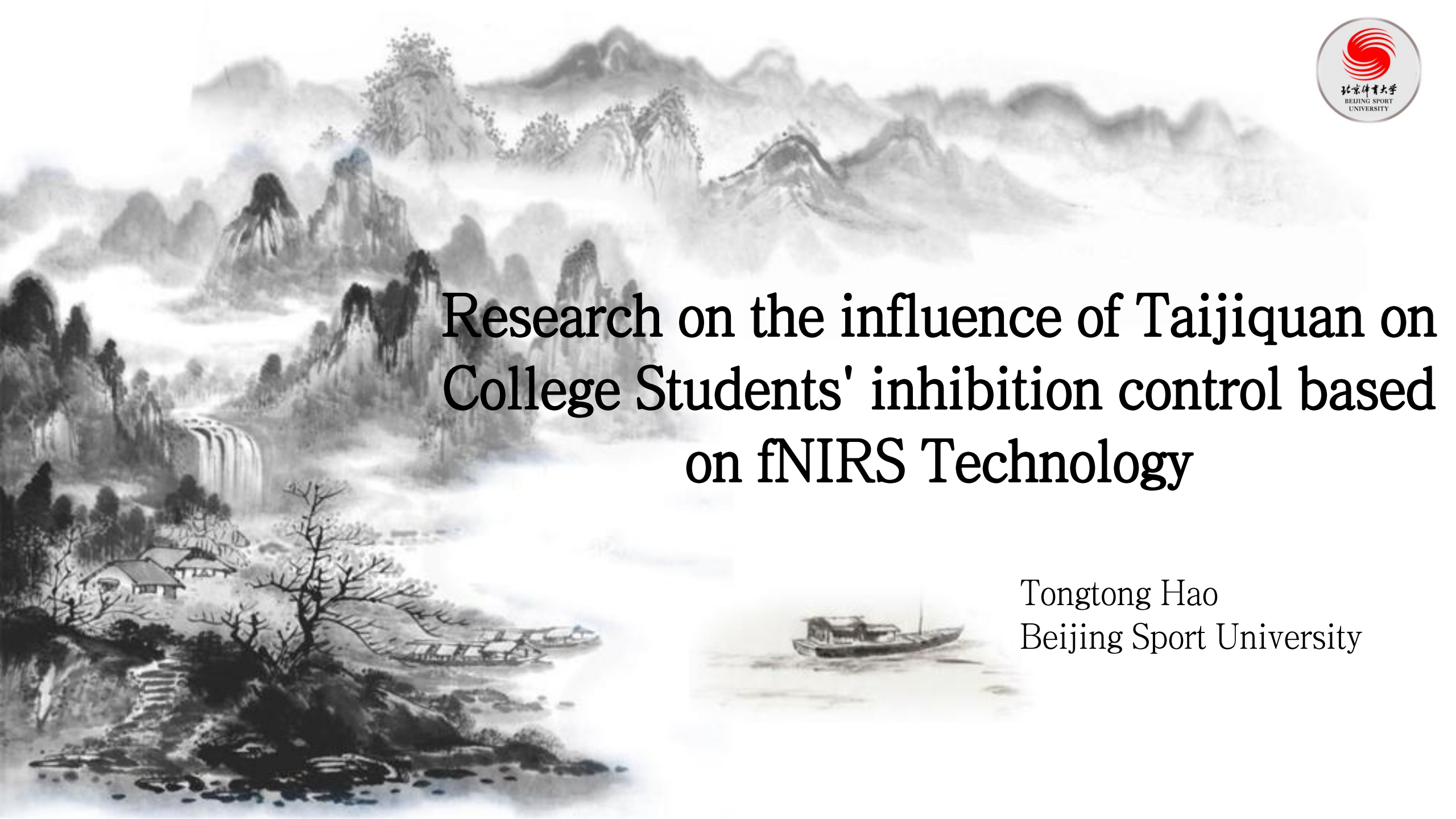

Research on the influence of Taijiquan on College Students' inhibition control based on fNIRS Technology

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Introduction to Taijiquan

Taijiquan, a national intangible cultural heritage, is a kind of internal and external cultivation, soft, slow, light and flexible combination of Taijiquan and yin-yang dialectical concept in Chinese traditional Confucian and Taoist philosophy, which integrates various functions such as taking good care of temperament, strengthening body and fighting and confrontation, combined with the changes of yin-yang and five elements in Yi ology, the meridian science of traditional Chinese medicine, ancient guidance and tuina Chinese traditional boxing of combining hardness with softness.

In December 2020, the 15th regular session of the UNESCO Intergovernmental Committee for the protection of intangible cultural heritage included the "Taijiquan" project in the UNESCO representative list of human intangible cultural heritage.

Objective:

Inhibition control is a process in which people actively overcome irrelevant factors and dominant reactions. Some Chinese college students have the problem of poor self-control. Physical exercise can effectively improve people's inhibition control function. Taijiquan originated in China and is popular in the world. It combines dynamic and static, has a degree of relaxation, combines with action, consciousness and breathing, focuses on action, actively controls and eliminates distractions, so as to achieve the effect of fitness and health. In view of the rare research on the inhibitory control effect and brain mechanism of Taijiquan, this study used near infrared brain imaging (fNIRS) technology to study the effect and mechanism of 20 week Taijiquan exercise intervention on inhibitory control of college students. This study hypothesized that Taijiquan can improve the inhibitory control function of college students, and the improvement benefit is related to the neural activation of prefrontal cortex.

Methods:

- 60 college students, aged 21.02 ± 2.11, were selected as experimental subjects, 30 in Taijiquan intervention group and 30 in control group. Independent variable 1 is the experimental conditions, including intervention group and control group; Independent variable 2 is the test order, including pre-test and post test. Dependent variables were Stroop task response time and fNIRS oxygenated hemoglobin changes with consistent and inconsistent conditions. The intervention group exercised intensively three times a week for 15 weeks, 45 minutes each time.Moderate intensity exercise, heart rate 80-100 times / minute. Wear polar heart rate meter.The control group did not change according to the original lifestyle.

Conclusion:

- The Stroop task behavior of college students has been significantly improved after 15 weeks of Taijiquan exercise, which has significantly enhanced the neural activation level of five brain regions under different conditions. The research results provide new thinking and scientific basis for Taijiquan to improve the inhibitory control function of college students.

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Thank you !