

Research on Tai Chi Health Promotion from the Perspective of Meta Analysis

Rong Siyu^{1, a}, Qi Yufei^{1, b, *}, Fu Siqian³

¹Graduate School, Wuhan Sports University, Wuhan, Hubei 430079, China

²Department of P. E, Central South University, Changsha, Hunan 410006, China

³Department of P. E, Central South University, Changsha, Hunan 410006, China

^a396855546@qq.com, ^byufeiqi6@gmail.com

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Abstract: Tai Chi health promotion research is a hot topic in traditional national sports in recent years, covering many aspects of sports medicine-based research. A search of Meta analysis literature related to the health promotion of tai chi by the Cochrane website revealed that relevant journal literature had appeared since June 2011, and by December 2019, there were only 7 literatures. The research was carried out based on the literature data method and logic analysis method, and the following conclusions were drawn: (1) In recent years, the new entry of Tai Chi health promotion research Point, getting smaller and deeper, from general epidemiological research to molecular biology and cognitive neuroscience, indicating that researchers are trying to find Tai Chi for health More fundamental factors. (2) The duration of most current research trials is not enough, the design of the trials is weak, and the input intervention and output volume of the trials are not uniform, resulting in a greatly reduced scientific test. (3) Future research suggests that extracting and analyzing the effective elements of movement in Tai Chi can not only guide the crowd more clearly, but also help solve the mystery of the effective mechanism of Tai Chi, and furthermore, the extracted the elements are effectively used in different sports training.

1. Introduction

The study of Tai Chi's health promotion effect is a hot topic in traditional national sports in recent years. Its research involves many fields of modern medicine and covers many aspects of sports medicine-based research, such as physical activity, sports intervention, health promotion, Exercise control and exercise rehabilitation. The Tai Chi health promotion research that this research focuses on refers to the Tai Chi as a means of health promotion (or intervention), aiming at two aspects of physical health and mental health, an experimental study of the population.

Meta-analysis, also known as systematic review or meta-analysis, is a commonly used systematic review method in evidence-based medicine. It is specifically used for statistical testing of large amounts of data from random controlled experiments (RCTs) on the same subject. It is an efficient and reliable assessment. The way. Retrieve the meta-analysis literature related to Tai Chi health promotion through the Cochrane website, As of December 2019, there were only 7 articles, based on the literature data method and logic analysis, analyze its research rules and discuss potential research trends.

2. Literature review

2.1. Effect of reducing the risk of falls in the elderly

On the Cochrane website, it can be found that three teams have made systematic reviews on the effects of sports interventions on the risk of falls in the elderly. All three reviews use Tai Chi as one of the main interventions. Among them, the systematic review of Tracey E Howe's "Exercise to Improve the Balance of the Elderly" was published on November 9, 2011. Through a meta-analysis, after examining the data of 9821 subjects in 94 studies, it is believed that the current Research on

the balance ability of the elderly is still insufficient, and it is impossible to make a clear conclusion on the effects of many interventions including Tai Chi.

Lesley D Gillespie published a systematic review of "Intervention on the Prevention of Falling of Elderly People in the Community" on September 12, 2012. They examined data from 79,193 subjects in 159 trials, of which 1563 involved Tai Chi intervention the experimental subjects concluded that Tai Chi intervention has a significant effect on reducing the risk of falling in the elderly.

Denise Kendrick et al. published a systematic review on "exercise training reduces the fear of falling in the elderly in the community". It surveyed 2878 subjects aged between 68 and 85 in 30 studies and practiced in 3D (Tai Chi Or yoga), balance training or strength endurance training are intervention methods. The quality of the test data ranges from low to medium, and no high-quality data has been seen. Due to the low quality of the data and the bias in the trial, this review concludes that exercise training intervention is likely to directly reduce the risk of falling in the community after the intervention, but there are still many uncertain causal needs Further research to confirm.

2.2. Impact on primary prevention of cardiovascular disease

Primary prevention of diseases refers to the prevention before these diseases occur.

Stress and a sedentary lifestyle are considered to be the main causes of cardiovascular disease (CVD), and Tai Chi exercise helps release stress, so it is very likely to play an active role in the primary prevention of CVD. Louise Harley's team published the latest systematic review on the primary prevention effect of Tai Chi on cardiovascular disease on April 9, 2014. Its data sources cover 13 completed trials and 3 ongoing trials in all major databases of the world (Cochrane, EMBASE Classic, Web of Science, etc.), including 1,520 experimental subjects. All studies have an unclear risk of bias in at least one aspect. Some studies have a very high risk of bias because they hide grouping schemes and selectively report results. The duration of Tai Chi in the study is not the same as the boxing style. Seven of these studies recruited 903 healthy subjects. Other studies enrolled elderly people at risk of falling, people with high blood pressure and liver and kidney dysfunction, and those with high blood pressure or just reaching the threshold.

Because there is no long-term research on Tai Chi intervention in CVD, limited by insufficient evidence, the effect of Tai Chi on CVD risk factors is still unclear. Some studies have shown signs of Tai Chi's positive effects on CVD risk factors, but they have not appeared in all studies. Moreover, there is great heterogeneity and a certain degree of bias between research and research, and longer and higher quality trials are needed in the future.

2.3. Intervention effect on rheumatoid arthritis

Rheumatoid arthritis is an auto-inflammatory immune disease that can destroy the musculoskeletal system of the human body. The main purpose of its treatment is to reduce pain, eliminate inflammation, slow down or stop joint damage, prevent disability and improve the sense of proprioception. Alice Han et al. Made a systematic review of the effect of Tai Chi on rheumatoid arthritis (Last updated: June 7, 2016), 206 participants were included in the study. Studies have shown that Tai Chi-based training programs have no significant effect on the intervention of this disease index, including daily living ability, joint softness and swelling, and the patient's global comprehensive score. In terms of the range of joint activity, the ankle plantar flexion ability of Tai Chi practitioners has been significantly improved from a statistical and clinical perspective. But no decisive effect has been found so far. One study showed that participants in the Tai Chi test group enjoyed exercise participation significantly higher than the control group immediately after the study and four months after the end of the study.

The conclusion of this systematic review shows that Tai Chi participants have significantly improved their lower-limb exercise ability and special range of joint exercise ability, but have no positive effects on the ability to handle chores, joint tenderness, grip strength and the number of swollen joints there is no negative impact.

2.4. Intervention effect on chronic obstructive pulmonary disease

Patients with chronic obstructive pulmonary disease (COPD) will frequently experience dyspnoea. Tai Chi, an ancient rate-adjusting exercise to promote balanced movement in the body, has been reported to improve the balance and strength of the elderly, But the effects of tai chi on COPD patients with dyspnea, exercise capacity, lung function and psychological self-adaptation are still uncertain.

Shirley PC Ngai et al. made a systematic review of the study of Tai Chi's intervention in chronic obstructive pulmonary disease. The study investigated the effect of Tai Chi on reducing symptoms of dyspnea and improving exercise ability, and judged the influence of Tai Chi on the psychological and physiological functions of people. . Its search scope covers the world's major medical databases, including the Chinese Medical Database, and screened for randomized controlled trials (RCTs) of Tai Chi in patients with chronic obstructive pulmonary disease, and Tai Chi group (individual Tai Chi intervention alone or in combination with other interventions). Control group (conventional care or intervention with the same effect as Tai Chi). The study collected and analyzed data from 984 subjects from 12 studies.

The results showed that the Tai Chi group showed better significant differences in the 6-minute walk test (6MWT) and the lung function test (forced expiratory volume in 1 second FEV1) compared to the general care group. However, the effect of reducing the degree of breathing difficulties and improving the quality of life is still uncertain. At present, data on the influence of Tai Chi on the maximum exercise ability, balance ability and muscle strength of COPD patients are still insufficient. When comparing Tai Chi with other interventions (breathing training or other exercises) compared with other intervention groups alone, the Tai Chi group did not have any special features in terms of symptom relief or physiological and psychological status.

3. Conclusion

3.1. Deeper research needs to be discovered

The study of Tai Chi health promotion outside China started from the study of the elderly falling to prevention and balance improvement, and then extended to proprioception, arthritis and cardiovascular disease, and then there were further studies for diabetics, Parkinson, The study of stroke patients also involves other system functions of the human body, such as the respiratory system and the immune system. The effect of Tai Chi exercise on the psychological health of the population is another important topic in the research field. With the deepening of the research, the good effect of Tai Chi on sleep and social adaptability has been verified. In recent years, the new entry point of Tai Chi health promotion research has become more and more "small" and "deep", from general epidemiological research to molecular biology and cognitive neuroscience., Indicating that researchers are trying to find more fundamental factors for Tai Chi to promote health.

In the research in this field, there are two points worth looking forward to. One is that the research literature of Hong Kong scholars shows that the local elders of Tai Chi practice in Hong Kong are of high quality. In some cross-sectional studies, certain physiological indicators of these elderly It is no less than that of local young people. This shows that Hong Kong has a high level of Tai Chi practice, so in the future, Hong Kong scholars will produce more outstanding scientific research results that are worth looking forward to.

The second is the research team of Fuzhong Li et al, Promote Tai Chi to American communities through research projects, and follow up on the effects and costs in a timely manner, and continuously optimize its Promotion plan, their promotion effect is worth looking forward to.

At the same time, there are two dilemmas. First, the test subjects are limited to the elderly, and the target population of the experiment is too single, which is not conducive to the development of Tai Chi health promotion effects; second, the intervention is limited to simplified Tai Chi, and most studies use simplified Tai Chi as the intervention method, from As a result, the research potential of simplified Tai Chi is limited, and it is urgent to tap into traditional Tai Chi.

3.2. More scientific experiments need to be developed

Although there are a large number of research papers that give positive conclusions about Tai Chi's intervention in chronic diseases, Cochrane's research team is more inclined to give neutral or insignificant evaluations of related studies. The reason for this difference is that the current research has the following weaknesses:

The first is that the length of the experiment is not long enough. The vast majority of studies do not exceed one year. Tai Chi, as a sport that requires long-term practice, obviously requires longer follow-up studies to discover more.

The second is that the design of the experiment is weak. Randomized controlled trials in Tai Chi health promotion research generally have the problem of optimization of experimental design. As a low-cost exercise method suitable for the elderly, only meditation or education groups are set in the control. It can only prove the difference between exercise and non-exercise, but it can't prove the uniqueness of Tai Chi. The research results are not convincing. It is necessary to compare the current sports methods commonly used by the test crowd to reflect the true value of Tai Chi exercise. Another problem is that there is generally no report on grouping strategy and whether to use blind method (allocation hiding) in Chinese literature. The lack of information in this aspect leads to the decline of data quality. Therefore, the experimental conclusion data is evaluated as low quality, which leads to the conclusion of systematic evaluation is not significant. The third point is that the input intervention of the experiment and the measurement method of the output result are not uniform. Although the name is Tai Ji, the specific content varies widely, because scholars use different Tai Ji (or without detailed explanation) and measure the results in different ways, so it is hard to say that everyone is studying the same thing, and it is difficult to determine its validity. Therefore, research in this field still has a long way to go, and the above-mentioned weaknesses need to be rectified.

In addition, unlike the randomised controlled trials, which have been widely used, the recent emergence of randomised controlled effects based on preferences has included preferences in the grouping design, which is a noteworthy new trend.

3.3. More standardized solutions to be resolved

In the future, the extraction and analysis of the effective elements of Tai Chi movement will not only guide the crowd more clearly, but also help solve the mystery of the effective mechanism of Tai Chi, and furthermore, the extracted elements can be effectively used In different sports training.

Furthermore, can we organize and express Tai Chi scientifically? As the leading project of national traditional sports, Tai Chi is accepted by people from all walks of life in the society. The market for Tai Chi is more prosperous and the demand is greater. The key factor of the "market status" is obviously its "product quality", that is to say, whether the relevant practitioners of Tai Chi can truly provide the people with a health care service that can withstand scrutiny and verification. To do this, it is necessary to integrate medical and physical science researchers, scientifically organize and express Tai Chi based on a large number of solid basic research, and how to give various problems that arise in the practice process. To come up with a standardized solution and build a Tai Chi health engineering service system are all issues that must be discussed next in the field of Tai Chi health promotion research.

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