

Incorporating Baduanjin into a Western Medical Practice: A Study in Artificial Intelligence and Traditional Chinese Medicine (TCM)

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ABSTRACT

The present study provides a brief discussion of baduanjin, a set of qigong exercises that have been in use by Chinese medical practitioners for many generations, then proceeds to use Microsoft Copilot, an artificial intelligence chatbot, to show medical practitioners and researchers how artificial intelligence may be used to conduct medical research. The instruction given was to summarize some studies that have been conducted on the use of baduanjin in medical research, and to provide references. Copilot provided summaries of five recent studies as well as citations and links to those studies. The study concluded that using artificial intelligence to conduct medical research can be a useful tool, at least at the preliminary stages of research. It can provide a good starting point and can help researchers find some relevant information. However, using AI, at this stage of development at least, should not be the only step in a research project, but can be a good first step. PubMed and other databases should continue to be used to obtain more complete information.

Keywords: Baduanjin; Tai Chi; Qigong; Traditional Chinese Medicine; TCM; Artificial Intelligence; Copilot

Introduction

Baduanjin (ba duan jin) is one of the most popular qigong [pronounced chee gong] exercise sets. It is a tool in the Traditional Chinese Medicine (TCM) toolbox and consists of the following eight exercises:

- 1) Holding the hands high with palms up to regulate the internal organs.
- 2) Posing as an archer shooting both left- and right-handed.
- 3) Holding one arm aloft to regulate the functions of the spleen and stomach.
- 4) Looking backwards to prevent sickness and strain.
- 5) Swinging the head and lowering the body to relieve stress.
- 6) Moving the hands down the back and legs, and touching the feet to strengthen the kidneys.
- 7) Thrusting the fists and making the eyes glare to enhance strength.
- 8) Raising and lowering the heels to cure diseases [1].

Actually, performing the above exercises is a little more complicated than what the names would suggest because the movements must be performed in a certain way, and the breathing must be done in a way that conforms to the exercise. Baduanjin, like other qigong exercises, as well as tai chi, its close cousin, are forms of moving meditation [2-14]. Qigong exercises have been compared to yoga exercises, but they are not the same as yoga exercises. Studies that have compared the effects of baduanjin or other qigong exercise sets to yoga have found that qigong exercises are often as good as, or better than yoga exercises in treating certain ailments [15-40]. It is possible to find videos of several variations of the exercise set on the internet. One may also purchase a manual complete with instructions and a DVD that shows how to perform the official Chinese Health Qigong Association version of the exercises [1]. It provides similar manuals and DVDs for several other sets of qigong exercises as well [41-47]. Baduanjin, like other qigong exercises [48-73], awakens the body's energy pathways and strengthens the body's natural immune system. Traditional Chinese Medicine (TCM) focuses attention on prevention rather than treatment. Because qigong exercises awaken the body's

natural healing powers, the same exercises can be used to treat a wide range of ailments. Although some practitioners prescribe certain qigong exercises to treat a specific malady, other practitioners believe that prescribing different qigong exercises for different ailments is unnecessary, since all qigong exercises activate the body's natural healing powers, the thought being that the energy will flow to the area that needs attention, regardless of which exercise is chosen.

One way to cover all bases and to satisfy both types of practitioners is to prescribe baduanjin [50,62]. Its eight exercises cover energy flow to all the major organs. Because it has been shown to be effective in treating a wide range of diseases and ailments, it has become increasingly popular as a supplement to traditional Western medicine in recent decades. Practitioners and researchers who want to learn more about the use of qigong in general and baduanjin in particular can find many studies in the PubMed database [74]. A search of that database using the keyword "qigong" got 1184 hits. A key word search for "baduanjin" received 283 hits.

Using Artificial Intelligence

The use of artificial intelligence to aid in medical research has been gaining in popularity in recent years [75-101]. Medical practitioners and scientists who do not want to spend a lot of time reading studies about the use of baduanjin in medical practice, but who want to obtain some basic knowledge about it without expending much effort, they can use artificial intelligence (AI) to generate basic information. Some AI bots also provide citations if asked, although some prior studies have found that early versions of some AI chatbots have given citations to articles that do not exist [102], or that produce biased results [103-104]. Thus, some care must be taken when using AI for research. Sources, if given, must be checked for accuracy. However, as technology moves forward, the accuracy of the information provided by AI bots will improve. The AI bot chosen for the present study is Microsoft Copilot [105]. This bot was chosen because prior studies [72-73,106-113] using it have produced results that were generally good to excellent. The first step in using an AI bot for a study is to give it an instruction. For this study, the following instruction was given:

Instruction

Summarize some studies that have been done on the use of baduanjin in medical research. Provide references.

Its reply is given below.

Reply: Certainly! Here are some studies related to the use of Baduanjin in medical research:

1. Effect on Hypertension

o A systematic review and meta-analysis of randomized controlled trials (RCTs) investigated the effectiveness of Baduanjin exercise for hypertension. The study included 14 trials with 1058 patients. Compared to routine treatment or health education, Baduanjin

exercise resulted in a significant reduction in systolic blood pressure (MD: -8.52 mmHg) and diastolic blood pressure (MD: -4.65 mmHg). However, the evidence quality was low for blood pressure outcomes and very low for cardiovascular morbidity and mortality [1].

2. Rehabilitation and Cardiopulmonary Function

o Recent studies have shown that practicing Baduanjin promotes rehabilitation in patients with depression, sleep disorders, spinal and joint diseases, cognitive dysfunction, and even improves cardiopulmonary function in patients with heart failure [2].

Physical, Cognitive, and Mental Well-being:

o A comprehensive review explored the effectiveness of Baduanjin exercise on physical, cognitive, and mental health outcomes. The study highlighted potential mechanisms and implications for clinical practice and future research [3].

3. Health-Related Physical Fitness

o Baduanjin training has been beneficial for older individuals with physical and mental disorders such as anxiety, hyperlipidemia, spinal problems, osteoarthritis, and type 2 diabetes. Some studies also indicated its potential benefits in improving physical function in young adults [4].

4. Standardization and Unification

o Clinical studies of Baduanjin vary in specific intervention measures (style, intensity, duration, learning, and practice methods). Further standardization and unification are needed [5].

For more details, you can refer to the following references:

AUTHOR NOTE: Links were given to the full articles.

Concluding Comments

Using artificial intelligence to conduct medical research can be a useful tool, at least at the preliminary stages of research. It can provide a good starting point and can help researchers find some relevant information. In the case of the present study, AI provided a good, although brief summary of what baduanjin can do and has done, and included citations and links to some studies that summarize research results. Additional commands could be given to the AI bot to uncover additional, more specialized studies. However, using AI, at this stage of development at least, should not be the only step in a research project, but can be a good first step. PubMed and other databases should continue to be used to obtain more complete information.

Funding

None.

Conflict of Interest

None.

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