



UNIVERSIDAD NACIONAL DE COLOMBIA

Gigong, an additional tool in the Traditional Chinese Medicine

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Summary

Qigong is a sub-division of Traditional Chinese Medicine, characterized by its effectiveness in stimulating and regulating Qi or energy. Through movement and coordinated breathing, various pathologies are worked on from their origin, which has allowed a joint development of acupuncture and herbalism as methods for prevention and treatment.

There are two primary sources, the first is external, performed by a specialist who manipulates the patient's Qi. The second is internal, that is, it comes from the patient and is achieved by self-practice. The different studies carried out have shown benefits for the patient that include a considerable development of physical capacity, an increase in cognitive capacity and the ability to function in society, as well as the development of multiple areas of life.

Within this review a wide variety of medical applications were found. Situation achieved thanks to the modulation of the respiratory pattern, the regulation of the sympathetic and parasympathetic systems, among others. In this way, therapeutic effects are observed that range from the cardiovascular system to the immune system, involving areas as unrelated as psychiatry and favoring responses even in pathologies as complex as cancer.

Like any treatment, it is important to take into account the patient's pathology to achieve optimal results. Situation that becomes important when research studies are carried out.

Therefore, it is necessary to create protocols where a personalized diagnosis is used and in this way continue the exploration of Qigong and all its potential.

Keywords: Qigong, Qi, Chinese, energy, Medicine, Acupuncture

Abstract

Qigong is a sub division of Traditional Chinese Medicine known for its effectiveness to stimulate and regulate the Qi or energy. Through coordinated movement and breathing various pathologies are worked, making possible a joint development with acupuncture and herbal medicine for prevention and treatment.

There are two primary sources: the first one is external and is performed by a specialist who can manipulate the patient's Qi. The second one is internal, that means, comes from the patient and is achieved by self-practice. Different studies have shown benefits in the patient, including a considerable increase of physical capacity, an improvement in cognitive ability and acquiring skills to function in society. In other words, the development of multiple areas of life.

In this review there was found a variety of medical applications. Situation achieved through modulation of respiratory pattern, regulation of sympathetic and parasympathetic systems, among

others. Therapeutic effects are observed ranging from the cardiovascular system to the immune system, involving as little related areas as psychiatry and encouraging responses even in such complex diseases as cancer.

Like any treatment it is important to consider the pathology of the patient to achieve optimal results. This situation becomes important when conducting research studies. So it is necessary to create protocols which use a personalized diagnosis and thus continue the exploration of Qigong and its potential.

Key words: Qigong, qi, energy, chinese, medicine, acupuncture

Content

	P.
Summary	V
Introduction	V
1. Definition	1
2. History	3
3. Types of qigong	5
4. Physiology	9
5. Benefits	13
5.1 Physical	15
5.2 Mental	15
5.3 Emotional	16
5.4 Social	17
5.5 Spiritual	17
6 Clinical application 6.1	18
Analgesia	19
6.2 Cardiovascular system	19
6.3 Pulmonary system	20
6.4 Musculoskeletal system	21
6.5 Immune system	22
6.6 Rehabilitation	23
6.7 Obesity	24
6.8 Cancer	25
6.9 Psychiatry	26
6.10 Metabolic system	27
7 Conclusions	28
Literature	31
	33

Introduction

Traditional Chinese Medicine is a medical art and lifestyle developed by more of 5000 years. Their experience and evolution over time has given us great number of tools to combat disease and maintain health, within which stand out Acupuncture and Chinese Herbalism, these being the most known. However, there is a branch that is little known in the Western world but which, due to its great advantages and benefits, has gradually taken a place preferential, comparable to Acupuncture and Chinese herbalism, called Qigong. Its beginnings date back to the beginnings of Traditional Chinese Medicine, and as itself, arose from observing nature and applying its teachings to the lifestyles. Its development was marked by Chinese history, the different events and philosophical currents, which contributed to his formation and which gave origin to the different types and applications that we find today.

The excellent results achieved by Qigong in the treatment of different pathologies have positioned it as one of the most practiced exercises in the world and have led us to search for the mechanisms that allow these very favorable results. To date, multiple hypotheses have been studied, which although they have not achieved fully explain its physiological mechanisms, have provided clues as to how works and mainly pathologies and specific uses have been identified where the Qigong has its best effects.

The efforts in the research and development of this work are focused on integrate Western Medicine and Traditional Chinese Medicine. Find reasons and support from the point of view of evidence-based medicine to justify the Use as a treatment and adjuvant to Qigong. Since discovering and knowing Qigong is to acquire a new tool from which both the doctor and the doctor can benefit. the patient.

1. Definition

Qigong is a technique of Traditional Chinese Medicine where the practitioner seeks to raise awareness of Qi (vital energy) and Shen (spirit) through focused exercises.

to recognize body, mind and environment as one, and thus achieve harmony between them.¹⁰ These exercises are based on movement without muscular effort and therefore without acceleration of the heart rate.¹⁸ They emphasize concentration on movement, breathing and maintaining a meditative state or peace of mind.¹³

Its epistemological definition allows us to divide the word into two, Qi: energy and GONG (or kung): Practice or work. Therefore, Qigong is considered to be a method for exercise and refine the Qi, and in this way reach our potentials, improve the quality of life, increase the adaptability of our body to different changes and mainly combat illness.¹⁰ That awareness of Qi, its condition, its relationship with the environment and the therapeutic possibilities when working on it, it is

what differentiates it from other oriental techniques such as Tai Chi or yoga, and is what gives it the medicinal approach that characterizes it.³

According to ancient books, the foundations of Traditional Chinese Medicine are based on "the three treasures", jing (essence), shen (spirit) and Qi, the disharmony of these elements leads to illness. Qigong as part of Traditional Medicine

China aims to cultivate the 3 treasures and promote their harmony.¹¹

The study of Qigong is called Qigongology, which focuses not only on its medicinal properties but in the study of its origin, history, methods, principles and even religion, as well as the description of the related disciplines and philosophies that go from martial arts to Confucianism, Taoism and Buddhism among others. Its development, as it is known today, has been marked by Taoism and mainly its medicinal focus.¹⁰

Qigong is a fundamental part of Traditional Chinese Medicine, it plays an important role in the Chinese health system, being used as a treatment and adjuvant.

in multiple diseases. It focuses on the patient's recognition of their illness. He seeks to become aware of it, to recognize it as one with his body, mind and spirit (the goal is to achieve what is known as "the union of heaven and man"), and in this way to combat it through the harmonization of these items. It allows a combination of self-awareness and self-correction that activates self-regulation mechanisms of the body and therefore healing of various diseases.¹³ Its therapeutic effects range from the prevention and treatment of diseases, to accelerate rehabilitation processes and mainly maintain health.¹⁰ It has an important role in restoring the body's functions, thanks to the communication that is created between internal organs, tissues and cells.⁸

From the Western point of view, Qigong has been cataloged from alternative therapy to a form of physical and mental exercise, where unlike traditional conventional gymnastics which is based on increasing cardiac output and the respective oxygen consumption to develop flexibility, muscles and resistance physics, it seeks to promote slow and gradual, isometric and isotonic movements that, together with the coordination of respiratory movements and meditative states, favor the oxygenation, reduce the formation of free radicals, release neurohormonal factors, promote psychological and physiological self-regulation, and in general cultivate longevity thanks to the development of good physical condition and the prevention of disease.^{13,18,21}

It is said that there are more than 3000 different types of Qigong since its development. Over time it has involved many areas ranging from medicine to philosophy and martial arts, making it necessary to discuss the origins of the Qigong and Qigongology to understand the breadth of this concept and all its potential.

2. History

It is said that Qigong is the ancestral root of Traditional Chinese Medicine, which prior to documentation of it, there was a common origin of all practices that was concentrated in Qigong and over time it was divided into its respective branches.¹⁹

The exact origin of Qigong is uncertain, however it has been a technique developed through Over the years, in parallel with Traditional Chinese Medicine, its therapeutic approach and its relationship with Qi and the 5 elements, among others, confirm this. Therefore, its beginnings can be placed approximately 2000 to 5000 years ago.^{10,11,18}

The beginning of the different Qigong techniques, like the theory of Yin Yang or the 5 elements, is developed in communion with nature and thanks to the observation of the same. Like many other civilizations, the Chinese developed body techniques with meditative characteristics with a specific objective, which can have certain characteristics in common with Islam, the Egyptians, the Incas, India, etc., thanks to the fact that their expression is based on the relationship with nature.¹⁸

Its origin dates back to the first sages who identified the Qigong state, which is described as the sensation that occurs when a state is reached where there is no one is neither asleep nor awake, similar to what one feels seconds before falling asleep, when dreaming, when waking up, when special attention is paid to respiratory movements, when following an external object for a long time (e.g. the sounds of a bird, the moon, a cloud, etc.) and in near-death experiences. Your continuous practice and rehearsal – error led to its development, which was supported by the results, which gave way to the subsequent formation of schools and currents, each affected by the different dynasties and the respective historical events of the time.^{10,13}

The name Qigong was adopted after the founding of the People's Republic of China to encompass the sum of a large number of techniques focused towards the same goal and that They developed together. They were previously known as daoyin (conduction of the

energy flow), tuna (expiration and inspiration), jingzuo (calm sitting exercise), zuochan (Buddhist meditation), neigon (internal exercise) and lianqi (breathing exercise).¹¹

There are 6 main currents, which are linked to the approach with which they were developed. Those 6 currents are: Taoism, Confucianism, Buddhism, the arts martial, folkloric and the one of our interest, medicinal Qigong.

The Qigong developed by Taoism had the ultimate goal of developing as a celestial being and thus achieving immortality, achieving the Tao. Qigong in this approach was used as a way to seek to increase longevity, cultivate virtue, strengthen health, and confront death. In their daily practice they strengthened both mind as a body, maintaining tranquility and allowing the free course of life. Its main representatives were Lao Tzu, ZhunagZi and Dao De Jing, among others.^{10,11}

The main objective of Qigong developed by Buddhism was to cultivate the mind and as a second objective to refine the Qi. The use of it sought "conversion into Buddha" and reincarnation in paradise, focused on the vision of death as a new birth. Their daily practice allowed them to free themselves from mental worries. Its main representatives were Heart Sutra and Diamond Sutra. This current presented two sub-divisions, bading and cachan.^{10,11}

The main objective of Qigong developed by Confucianism was to achieve introspection within daily life and create the behaviors of a cultured person. Its goal was to know the properties of things and cultivate virtue¹¹. His form of practice focused on meditation, restoring Qi and regulating behavior, through control over body and mind. Its practitioners were followers of Confucius and focused on cultivating life and passively accepting death, unlike Buddhism. No prominent representatives are mentioned.¹⁰

The development of Qigong focused on martial arts and folk Qigong occurred thanks to the study of books on the different currents of Qigong. Its common practice in parks, homes and meeting places in towns were transformed into what would be different methods of martial arts ranging from boxing to Tai Chi, with the aim of training the body and regulating the mind.¹⁰

Medicinal Qigong was developed by different sages throughout history, taking part from the previously mentioned theories. Its development was achieved thanks to health workers, patients with chronic diseases and the desire to maintain health by practitioners of other Qigong currents. Within your

Prominent representatives include the Yellow Emperor Huangdi, Dao De Jing, Heart Sutra among others. Its philosophy is the one previously discussed where it seeks through different methods harmonize body, mind and spirit. Its main goal is to regulate Qi to maintain health and combat disease.¹⁰

The first mentions of medicinal Qigong date back to the HuangDi NeiJing, where it says: "If one maintains stillness and a healthy mind, the true Qi circulates with fluidity, and essential substances and vitality are preserved inside the body; In this case, how can the disease appear?" "Through the inspiration of Qi essential and by maintaining mental activities free of worries, the different parts of the body can be harmonized." Reference is made to breathing and meditation exercises as part of training to harmonize Qi.^{11,12,27}

The Huang Di NeiJing in turn says: "When people are calm with a free mind and few desires, their hearts rest without fear, their bodies can be worked without reaching fatigue and the original Qi is harmonious and adequate." This reinforces the concept of the Qigong state and explains its physiological bases. In second instance says: "there were men who mastered the rules of heaven, earth, yin and yang, and inhaled and exhaled the essential Qi of nature. They kept the spirits inside, and kept their skin and muscles vigorous all the time" a phrase that reinforces the antiquity of Qigong as a mechanism for health prevention.²⁷

From the first mention of Qigong in the HuangdiNeiJing one can find mentions through the different dynasties. In the Han dynasty: Synopsis of the prescriptions of the golden box (Zhang Zhongjing), in the era of the three kingdoms: The games of 5 animals (HuaTuo), in the Dong Jin dynasty: "the achievement of one, everything is possible" (Ge Hong, 284-?), in the Sui dynasty: General treatise on causes, and in the Tang dynasty: The symptoms of diseases and "Essential container for emergent use is worth 1000 gold" (SunSimiao, 581-682). Among other mentions.^{10,11}

With the continuous development of Qigong, schools were formed mainly from Taoist and Buddhist currents. Its diffusion throughout China found through over time multiple connections between the different currents which allowed Qigong to become increasingly complete and rich in its benefits. The main connection is It was between the Taoist and medicinal currents, which was the basis for the emergence of medicinal Qigong as it is known today and is practiced around the world.^{10,11,18}

Current globalization and the continuous search to find new tools that allow us to combat disease has allowed Qigong to take on more and more strength, which has led to it spreading around the world and reaching the West in such a way and on such a magnitude that currently in the United States it is estimated that between 500,000 and 2,500,000 people practice Qigong on a regular basis.⁹ This has been achieved despite of the limitations in its teaching since it requires a person to direct each session and explain the movements step by step; attempts to put in writing the Descriptions of the movements have not been fruitful since they lend themselves to misinterpretation, bad translation, the use of antonyms due to ignorance of Traditional Chinese Medicine, among many other difficulties.¹⁵

Qigong is currently practiced all over the world, without significant differences between men and women. Although studies show that people with levels Higher socioeconomic groups, older and with greater academic achievements tend to have greater access to this practice; its development currently occurs in the general population, with the presence of all ages and socioeconomic and cultural levels.⁹

3. Types of Qigong

When finding so many styles and currents of Qigong, it is normal to find many divisions and subdivisions. However, the most recognized and practical division consists in the division that is made according to its source, thus finding: *Internal Qigong and External Qigong*.^{10,11,26}

Internal Qigong corresponds to self-healing through practice. Stimulates points key acupuncture along the meridians with the aim of stimulating the flow of Qi and its nutrition. It consists of the most practiced method and most studied because it is easy to handle by the patient and its extensive benefits have been demonstrated. Its healing spectrum covers both the body and the mind, making it very useful in diseases caused by emotional factors.^{6,10,13}

The requirements for the practice of internal Qigong ideally include coming of age, will, discipline and above all the desire for healing. Use is not recommended in minors, despite being possible, given that at this age pathologies due to Qi insufficiency are not as frequent as in adults and self-discipline is not. It is always adequate to continue treatment for the required time. given to Since internal Qigong can involve continuous exercises, it is necessary that the patient has the capacity for self-care and a sufficient degree of independence. To perform Exercises in full comfort must have been previously evacuated, no belt, watch, glasses or other accessory that limits the fluidity of the Qi should be worn, and there should be no fullness, hunger or thirst.^{10,26}

The approach with which internal Qigong was developed is prevention as the main tool, that is, working with healthy people to prevent the appearance of illness. disease, improve quality of life and exploit the potential that exists in each person. The following approach corresponds to "sub-healthy" people, a term that in Traditional Chinese Medicine is applied to people who presented some type of

illness and are in the recovery process. Finally, as an adjuvant method in the treatment of diseases in both Traditional Chinese Medicine and Western Medicine, and even as a sole therapy for certain pathologies depending on the evolution of the disease and its complexity.¹⁰

Within internal Qigong we find a sub-division focused on the type of exercises practiced, static or dynamic exercises.^{10,26}

Static Qigong uses determined positions for prolonged periods of time, with the mind concentrated on reaching the Qigong state described previously and using the imagination to channel Qi to the region or channel that you seek to work on. Example: Visualize how the air enters with each inhalation, fills the lungs, becomes a white light that reaches the upper abdominal area (Ren12) and it is filled with energy (this exercise is useful in disharmonies of the earth element).

Dynamic Qigong uses slow movements, without muscular effort and with a goal determined according to the channel worked. Synchronize precise movements with breathing exercises and mental concentration. Like static Qigong and Qigong in general, the Imagination and its coordination with respiratory movements take great importance to enhance its medicinal effect.

Finally we have mixed Qigong, which combines static and dynamic Qigong, integrating prevention and treatment that both provide. Guigen Qigong is its main representative, used widely in Traditional Chinese Medicine since It is based on the doctrines of meridians and Zang Fu. It is made up of 6 sections of mixed exercises, one for each channel and its coupling.

It is recommended to personalize the type of Qigong practice depending on the pathology of the patient, in such a way that if a patient has a deficiency of Yang, he must practice an exercise that increases his Yang, in this case Dynamic Qigong would be the best option, if on the other hand the patient has Yin deficiency, should practice static Qigong, since stillness increases yin. Not making an adequate diagnosis prior to starting the practice can lead to therapeutic failure.²⁶

External Qigong consists of the treatment of the disease by a Qigong teacher or specialist, who can manipulate the Qi, both to emit it and to achieve its regulation and in this way correct the disease.^{10,13,25}

Although it is known that there is a great psychological influence from the charisma of the Qigong master and the influence of the patient's previous beliefs, very typical of the ritual used in external Qigong in Chinese culture, clinical supports have been found that the results in the patient's pathology are not only an achievement of these characteristics. A study with human cells *In vitro* stimulated to daily by Qigong masters for 20 minutes and at a distance of 10 cm, showed an increase in their proliferation with statistical significance. Although the replica of the study presented variable results, it is enough to confirm an additional component to the psychological and social effect that external Qigong can have.²⁵ The effect on cell cultures can also be evidenced in reverse, achieving *in vitro* inhibition of tumor cell cultures, an effect that requires further studies due to the clinical implications it has.³

To achieve mastery of this activity, years of practice and a condition of purity are required, which gives external Qigong a "dependent operator" classification, that is, That is, their results vary depending on the quality of the teacher. However, once the technique is mastered, it opens the doors to the cure of the vast majority of diseases known to man.^{3,10,13}

4. Physiology

Although it is not known with certainty how Qigong exerts its different medicinal effects, the studies conducted to date suggest different mechanisms. that seek to bring the body to a point of balance.

The main tool of Qigong is the modulation of the respiratory pattern, this allows hypothalamic regulation leading to homeostasis between the sympathetic and parasympathetic systems.¹ It has been shown that respiratory exercises in general, and in particular those that use respiratory frequencies, low, they can modify and strengthen the autonomic system by decreasing sympathetic activity and increasing vagal tone. This manifests itself in the body in a decrease in oxygen consumption, regulation of cardiac activity and metabolic rate. Effects which are not exclusive to Qigong and can be observed in other practices such as Yoga in Japan or Pranayama in India.^{16,23}

Although the exact mechanism of respiration modulation has this regulatory effect is unknown, there is a hypothesis that during inspiration the Stretching of lung tissues produces an inhibitory signal through the action of slowly adapting stretch receptors (SARs) and hyperpolarization produced by fibroblasts, this generates a synchronization signal with the central nervous system and a consequent decrease in the activity of the sympathetic system.²³

Modulation of the sympathetic system also explains other effects of type neurohormonal, since a reduction of endogenous chemicals such as norepinephrine and cortisol, while the release of endorphins is evident. This occurs in response to physical activity and is reinforced by the theory of psychoneuroimmunology.^{1,6} Cortisol, known for its direct relationship with stress, has been shown to inhibit the production of cellular mediators such as Interferon Gamma,

Tumor Necrosis Factor and interleukin 12, all of great importance as protective agents.¹⁴

Over the years, great progress has been made in the development of tools that allow us to observe and measure brain activity, which has facilitated the neuro electrophysiological study in Qigong and Traditional Chinese Medicine in general. Through studies with electroencephalograms in people with daily living habits that include Taichi or Qigong for at least one month of practice, found an increase in alpha and theta waves, which are associated with positive behaviors, increased cognitive and relaxation abilities, reaction speed, concentration, attention, creativity and better decision-making capacity.^{2,7} A hemispheric asymmetry was also found in the electroencephalogram, predominantly left (which has been associated with a decrease in anxiety and stress, feeling of general well-being) and activation by functional images of the prefrontal, temporal, parietal regions and the anterior cortex, in people who practiced meditative exercises for at least 8 weeks.²

When an object of concentration is added to a meditative state, such as the coordinated movements of dynamic Qigong, it has been observed in the electroencephalogram a predominant elevation of the Theta wave. This wave is mainly associated with selective attention and memory related to work activities, which may explain the cognitive effects of Qigong and differentiates it from relaxation exercises in general, where only changes in the Alpha wave are observed.²

In addition to the neurochemical effect found in Qigong, it is necessary that there is a mechanical effect that explains the additional responses in pathologies of a nature. locomotor. It has been shown that slow and focused movements, through continuous practice, lead the person to create awareness of different injuries and with the time eliminate erratic muscle patterns that generate greater tension, inflammation and inappropriate movements.⁷

5. Benefits

The benefits associated with Qigong are extensive. Benefits that are not only limited to the physical field but also to the mental, emotional, social and spiritual fields. Depending on the intensity and frequency with which Qigong is practiced and the needs of each patient, more marked results will be found in a certain area.^{6,24}

The favorability of its use can be quantified according to the percentage of people who continue with the practice of the exercise compared to other types of exercises. Qigong only manages a percentage of withdrawals of 34% versus 52% observed in other disciplines. This takes on greater importance in a sedentary world, with high tendencies toward obesity, where the value of regular physical activity has been widely proven.²⁴

As previously mentioned, the areas of benefit range from just the physical component to a wide variety of psychological and mental benefits, without However, each area is developed in a unique way by each patient according to their life experiences and the multidimensional approach that they want to give to the practice. To facilitate the description of the benefits, it will be divided according to the different components. favored, even though people generally report mixed results.

5.1 Physical

It is the most common of the benefits found. 100% of the people surveyed after continuous Qigong practice show some degree of improvement in their physical capacity, their general abilities and the potential to develop them.²⁴

The benefits that can be obtained in general functional capacity is a particular attraction for the elderly. The physical characteristic that

In this group, balance and/or equilibrium is most favored, which is represented

favorably in reducing the number of falls. A faculty that could also be included within the mental benefits and at certain times social benefits, since at

Reducing the number of falls provides new tools to carry out social activities that were previously limited by the fear of falling. These benefits seem to develop directly proportional to age.^{13,19,21}

The use of Qigong in elderly people is increasingly recommended and practiced, since due to their physical limitations they cannot be

exposed to exercises whose intensity can lead to musculoskeletal injuries or cardiovascular decompensation, so exercises such as dynamic or mixed Qigong are ideal.²¹

Other physical characteristics that benefit from continuous Qigong practice are coordination, endurance and flexibility, and to a lesser extent strength, power and speed, which are still significant when compared with sedentary control groups, and are mainly manifested in the hips and lower extremities.¹⁹

5.2 Mental

The first change that is described once the practice of Qigong begins is the increase at the level of consciousness about the body. Other changes speak of an increase in general cognitive function and functional ability, which could only be measured subjectively.

The development of these faculties is affected in a way directly proportional to maintaining a state of awareness of your body and your surroundings during practice.⁷

Among other findings, it was evident that the ability to concentrate as well as mental vitality, mainly during work activity, was increased in workers with daily Qigong practice routines of at least 15 minutes a day and for a period of no less than 3 months.¹⁷

5.3 Emotional

One of the main emotional factors that lead directly to illness is stress. This not only affects health but influences other areas of life such as work productivity, interpersonal relationships and the general feeling of well-being.

It has been proven that the main emotional change found with the practice of Qigong is the reduction of stress and anxiety in general. The influence that Qigong has on stress control is such that even in people with jobs with high stress indices, such as that handled within the emergency medical service or in the intensive care unit, it has been possible to reduce its levels shortly after the start of the practice.^{6,24}

When trying to identify the causes of why Qigong manages to correct stress, evidenced a reduction of endogenous chemicals conventionally associated with stress such as norepinephrine and cortisol, as well as a regulation of the sympathetic system in particular related to the modulation of respiratory rate.^{1,6,14}In turn, the use of slow breathing exercises has been associated with the management of anxiety crises and generalized stress, since it manages to attenuate the cardiac autonomic response and thus the symptoms presented.¹⁶

Among other benefits in this area, it has been shown that the vast majority of people who practice Qigong show a general improvement in their quality of life, self-confidence and report obtaining tools to overcome obstacles, which has an impact on the attitude with which they face daily life.¹³

5.4 Social

Although Qigong cannot stop aging, there has been an improvement in acceptance of this process by the elderly, as well as an increase in their physical capacity and, as a consequence, functional independence. The Group classes developed mainly for elderly people open the doors to meeting different people and reliving social coexistence.^{19,24}

After the experiences with Qigong in work groups or group classes, different studies have implemented social function scales such as the SF 36, where they evaluate aspects of daily life, finding a significant improvement in social function in the vast majority of participants.⁶

The increase in social activities of people who practice Qigong is explained by the decrease in the symptoms of the underlying disease, which frees the person to continue with their usual activities. Situation seen reinforced by the improvement in the ability to perform daily functions such as lifting a chair, grabbing an object, opening a door, walking distances of more than 50 meters, among others.^{13,17}

5.5 Spiritual

During the thousands of years of development of Qigong it has always been considered a form of personal growth, regardless of the areas of life in which it manifests itself. Although its practice has no relation to religion in general, a large number of people manage to create an association and use this exercise as a method to cultivate and nourish their spirit.²⁴

6. Clinical application

Qigong being a form of medical treatment progressively increasing in popularity and use, recent efforts have been made to find that Specific pathologies can be treated through this technique. Although there are multiple studies where no clear conclusions have been reached, favorable evidence has been obtained in the vast majority.

Among the studies carried out on the effects of Qigong on different pathologies, none have been found that show that its practice can be counterproductive, that can lead to complications of pre-existing pathologies or new injuries. Which provides peace of mind that the patient can use this tool with complete confidence. It is worth remembering that these exercises must be supervised at the beginning. by qualified personnel, especially when there is a prior physical limitation, since improper use can lead to complications.¹

The greatest evidence supporting the great benefits of Qigong is given by patients' feeling of the need to continue their practice to maintain health, which is greater than 60% of practitioners.⁹ However, It is necessary to find and explain exactly what this feeling of well-being is due to, showing so far that Qigong has a beneficial effect that includes the neurological, cardiovascular, metabolic, and immune systems among many others that will be discussed below.¹⁴

6.1 Analgesia:

Chronic pain is one of the main reasons why people take the decision to start a treatment or therapy considered as an alternative. This reason

It is generally the number one reason for a patient to start practicing Qigong, which is why pain management is considered one of the main applications of medicinal Qigong.²⁴

The influence of Qigong on pain control has therefore been widely studied, finding a significant improvement in pain as well as a strengthening.

of the entire cellular immune system. A situation that is observed more markedly in elderly patients.⁶

The mechanisms studied so far suggest that the increase in levels of oxygen in the blood and in turn the decrease in carbon dioxide, promote the removal of substances that increase pain, mainly metabolites of disposal. Concomitantly, the release of substances known to control pain such as endorphins and the decrease in pain promoters such as cortisol, mentioned previously, have been observed.¹⁷

Among the pathologies in which its effectiveness has been seen to control or partially reduce pain are fibromyalgia, arthritis, osteoarthritis, low back pain, among others.¹³

6.2 Cardiovascular system:

The most significant effect within the cardiovascular system achieved with the continuous practice of Qigong is the decrease in blood pressure in hypertensive patients, in particular when compared with sedentary patients or even in patients with habits regular aerobic exercise. A decrease of up to 14 mm Hg in both systolic and diastolic pressure was found with the practice of Qigong at least 3 times a week.^{13,17,19}

Among the positive effects of Qigong, a significant improvement in ventricular function has also been found. Measurement of the ejection fraction 20 minutes

After carrying out a practical session, an increase in it was evident.

This has been related to a regulation of the sympathetic system, which also explains the modulation of heart rate.¹⁹ A situation that correlates with the decrease in the levels of type B natriuretic peptide in patients with

continuous Qigong compared to patients with usual care in heart failure.¹³

Thanks to the manipulation of the parasympathetic system, Qigong, as well as the different Practices where low-frequency breathing exercises are performed can reduce heart rate. These modifications are maintained over time in a manner directly proportional to the practice time and require a minimum of 3 months.¹⁶

6.3 Pulmonary system:

As it is an exercise that includes a physical work component, Qigong showed a general improvement in respiratory capacity. However, studies have even shown superiority compared to other types of activities considered suitable for these achievements. One of these examples is found in patients with breast cancer, where a significant increase in the maximum amount of oxygen or aerobic capacity (VO₂ max) was evident when compared to resistance exercise.^{13,21}

At the same time, in elderly people with underlying respiratory pathologies such as asthma, through breathing exercises similar to those used in static Qigong, achieved an improvement in aerobic capacity, regulation of the respiratory pattern and increase in respiratory muscle strength. This manifests itself in a reduction in the limitation in carrying out physical activities, prolonged absence of symptoms, decreased use of rescue medications, increase in the intervals of presentation of nocturnal seizures and improvement in their quality of life.⁵

In particular the results found in the strength of the respiratory muscles, measured by the maximum expiratory pressure (P_{emax}), the maximum inspiratory pressure (P_{imax}) and maximum voluntary ventilation (parameters achieved through spirometry), presented positive changes so important that they can be useful not only in asthma but in different respiratory and neuromuscular pathologies.⁵

Regardless of age or underlying pathology, it was observed that tolerance to physical activity, measured by time and speed when walking, increased after 12 weeks of frequent Qigong practice.²¹

It is important to highlight that no significant changes were found in lung function as such and that once training was suspended for more than a month the patients returned to levels close to baseline. It is recommended that Qigong practice be carried out permanently and in parallel with the established management protocols if there is any underlying lung pathology.⁵

6.4 Musculoskeletal system:

In the United States the number one cause of physical limitation is arthritis in the legs.

different forms. Drug therapy only provides partial therapeutic results, is expensive and has multiple adverse effects, which has led to these patients

Look for different therapeutic options. These pathologies of the musculoskeletal system not only cause pain that considerably deteriorates the quality of life, but at the same time they generate a marked functional limitation, which leads to a commitment and free development of their personal life.^{3,17}

Based on the different theories of pain according to Traditional Chinese Medicine, it is I would consider arthritis or osteoarthritis as a blockage of the free movement of Qi in the affected areas (Bi Syndrome), so interventions such as Qigong should achieve positive effects on the symptoms presented in these conditions.³

For this reason, multiple studies have been conducted around the world, mainly in China, where it has been possible to verify the effectiveness of Qigong for the treatment of these pathologies. The most significant findings of these studies are: relaxation of the compromised tissues, increased blood flow in these areas, greater presence of oxygen and release of analgesic promoters, which together manifests itself in a significant decrease in pain. Achievements that were achieved with only 3 months of treatment and that in an evaluation 3 months after it they still remained.³

Just as in Arthritis, continuous practice of Qigong has proven to reduce pain and functional limitations particularly in patients with different types of muscular dystrophy.^{17A} study in patients with chronic low back pain and regional pain

complexes showed a decrease in short-term pain scores associated with a decrease in long-term anxiety scores.⁷

At the same time, there is evidence of a decrease in pain and joint stiffness in patients with osteoarthritis of different areas of the body who practice Qigong continuously, compared to sedentary patients who practice other types of physical activity.¹⁹

By placing greater emphasis on the skeletal system, few studies have been found, However, in postmenopausal women there was a trend towards increasing bone density, reducing the risk of fractures and delaying the appearance of osteoporosis. Positive characteristics that were only attributed in the past to resistance exercises or weight lifting.¹³

Although the different types of muscle tension are not considered a pathology as such Yes, they can trigger different pathologies such as muscle spasms, tension headaches and torticollis, among others. It has been observed that Qigong prevents and treats these pathologies with similar success to conventional treatments.¹⁷

6.5 Immune system:

The immune system is a set of structures and mechanisms that provide us with the protection against different pathogenic factors on a daily basis. This system is one of the most studied since to date there are still a large number of unknowns.

Within our interest, it is known that type 1 cytokines such as Interferon Gamma, Tumor Necrosis Factor alpha and Interleukin 12 promote cellular response mediated, while type 2 cytokines such as Interleukin 4, 6 and 10 are anti-inflammatory.¹⁴

The benefits found with the practice of Qigong show the property of enhancing the immune system in general, showing an increase in the levels of leukocytes, eosinophils, monocytes, Natural Killer cells, Immunoglobulin G (Ig G), Interferon Gamma and complement factors C3, among others, also modulating C-reactive protein, Interleukin 6, Tumor Necrosis Factor alpha, in times as short as just one month of frequent practice.¹³

In elderly people who frequently practice Qigong, changes in the levels of superoxides and growth hormones have been observed, which directly affect the power of the immune system. In turn, favorable changes can be observed in the immunological parameters of the cellular immunity system. given by a greater measurement of antigens in blood samples from practitioners of different ages.¹⁷

At the same time, there are multiple studies that are more specific in indicating its effects. Within these we can mainly find studies on the response to vaccination and studies with specific pathologies.

In the first group, the most important finding consists of a better response in the cellular immune reaction when administering the varicella zoster and influenza vaccines.^{13,14,19}

In the second group we find a study in patients with aplastic anemia. which were treated with Qigong for a period of 5 months showing an improvement in the proportion between CD4 lymphocytes and CD 8 lymphocytes. It has also been seen that In general, the activity of these lymphocytes and Natural Killer cells increases after a 40-minute session.¹⁴

6.6 Rehabilitation:

One of the main uses of Qigong throughout the world is as reinforcement in the different rehabilitation processes, which is not only limited to physical rehabilitation, but it can be applied to different types of psychological, mental and functional.

In Colombia there is a high percentage of people with different types of psychosocial trauma caused by the armed conflict and other types of factors that predispose to violence of different kinds. The impact that violence generates on the individual limits their ability to live and function in society, a situation that requires years of psychosocial work to be overcome and generally ends in different situations. psychiatric pathologies ranging from depressive syndrome to post-traumatic stress syndrome.⁷

The symptoms generated by these pathologies manifest themselves in depressed mood, anxiety, sleep disturbances and persistent pain, among many others. There are various treatments for these pathologies based on psychotherapy and pharmacotherapy with partially positive results, however, it has been documented that the use of Qigong and Taichi provides an additional response that manifests itself in a significant decrease in the symptoms presented.⁷

Within other types of rehabilitation, a similar ability of Qigong compared to vestibular rehabilitation to achieve adequate rehabilitation in balance disorders has been observed.¹³

In patients who survive Cerebrovascular Disease (CVD) in processes of rehabilitation with Qigong and Tai Chi, a significant improvement has been observed in balance, balance, flexibility, extension and strength of the limbs, among others.¹³

6.7 Obesity:

Obesity has become a global public health problem, which according to the WHO has reached figures comparable to an epidemic. Its presence has been widely confirmed as a risk factor for multiple pathologies that can lead to death. Situation that supports the importance of finding management options complementary to those already used.

Studies carried out with Qigong show a progressive decrease in the rate of body mass in patients with some degree of overweight or obesity compared to control groups of sedentary patients. The magnitude of the decrease goes hand in hand with the type of Qigong and its intensity, however, although there is a difference when compared to control groups with exercise protocols, this difference is not significant or as marked as in sedentary control groups.^{13,19}

Another finding that supports the use of Qigong as a complement in the treatment of obesity is the decrease in the percentage of body fat after its practice by more than 12 weeks, however, the decrease in fat was mainly at the expense of subcutaneous fat. This study also showed a decrease

effectiveness of visceral fat, although this is observed more clearly in insulin-requiring diabetic patients or with metabolic syndrome as underlying pathologies.²¹

6.8 Cancer:

In recent years, multiple tools have been found in combat against cancer, however, this is still a pathology that affects a large part of the world's population, having a high mortality rate. This has led to alternative therapies are resorted more frequently, among which found Qigong, and that in countries such as Australia, the United States, among others, it has a percentage of use that varies between 52 to 83% of patients with this pathology.¹

From the point of view of Traditional Chinese Medicine, cancer is seen as part of a syndrome that varies in each patient, but in general leads to the body cannot fight this disease. If translated into Western Medicine, this is It could correlate with the immune system becoming weak, preventing its normal functioning. In turn, chemotherapy in these patients leads to the presentation of symptoms such as diarrhea, vomiting, stomatitis, among others, which are explained by the disharmony that occurs between the Qi of the spleen and the Stomach. Since Qigong seeks to regulate and refine Qi, and therefore the response that the body has to different pathologies (immune system), it is logical to think that it can become a helps in the treatment of cancer and in reducing the symptoms caused by chemotherapy.⁴

Unfortunately, there are no large-scale studies that relate Qigong to cancer, however, among the few that can be found, there are some with indications as important as the possibility that the use of Qigong prolongs the life of cancer patients.⁴

As previously mentioned, the use of Qigong has not only contributed to the treatment of cancer as such, but has proven to be a useful tool in the treatment of cancer. reduction of symptoms associated with the difficult treatments that people have to go through when presenting with this disease. Among the symptoms in which found improvement is fatigue, tiredness, depressed mood,

mood variability, anxiety, among others, which is summarized in an improvement in their quality of life.¹

In relation to immunology applied to cancer, findings have been found that they can be promising. The cellular-mediated response is important as a mechanism to combat cancer and excessive production of cytokines can suppress the immune response against cancer, therefore an adequate balance between the two allows for homeostasis that prevents or limits tumor growth. Immunological studies in Qigong show the improvement of this balance with only 7 weeks of practice.¹⁴

Inflammation is another of the known factors that can lead to the development of several types of cancer. Markers of inflammation such as C-reactive protein (CRP), commonly found elevated in cancer patients, show a significant decrease after 10 weeks of Qigong practice.¹

6.9 Psychiatry:

Depressive syndrome is one of the first causes of suicide, mainly in elderly people. Its development has been associated with the lack of tools or social support that comes as a consequence of physical and cognitive limitations. A study with Qigong in elderly patients with physical limitations and initial symptoms of depressive syndrome show a significant improvement in the scales of psychosocial function and the feeling of general well-being with a 30-minute training only 2 times a week for 12 weeks.²²

There are other studies that support the previous one where its effectiveness is observed in correct and reduce depressed mood, differentiating the former from a depressive syndrome where it is very useful as an adjuvant since its usefulness as a treatment has not been proven.¹⁹ The regulation of mood can be so effective that a decrease in the duration of the grieving process in elderly patients.²

“Burnout” syndrome, also known as Chronic Fatigue Syndrome, manifests itself in multiple ways, including mental and physical fatigue, headache, difficulty concentrating, sleep disturbances and muscle pain. Symptoms that mainly affect work capacity and are generally triggered by not adequate working conditions. If we take the above to a diagnosis from the point of view of Traditional Chinese Medicine we could infer a Qi Deficiency, Given that the maximum objective of Qigong is the refinement of Qi, it can be concluded that it would be a great tool for the treatment of this condition.¹⁷

Regular use of Qigong has been suggested to be useful in people with global insomnia, in particularly patients with insomnia aggravated by pathologies with the presence of pain or patients with chronic fatigue (Qi insufficiency).^{13,17} It has also been found that in patients with post-traumatic stress there is a decrease in the frequency of recurrent nightmares and sleep disruption, as well as an overall improvement in sleep quality scores.⁷

Other psychological symptoms and psychiatric disorders that can be attenuated with the use of Qigong are: emotional lability, anxiety, fatigue, confusional syndrome, obsessive-compulsive syndrome, among many others.^{2,7}

6.10 Metabolic system:

There are multiple benefits documented so far in the metabolic system, among which several carried out with respect to the regulation of cholesterol in patients with a diagnosis of dyslipidemia stand out.¹⁷ But without a doubt the most representative was the one published by Bastyr University in Washington, where they took a cohort of patients diagnosed with Type 2 Diabetes Mellitus and started an adjuvant management protocol with Qigong for 60 minutes per week, associated with the established pharmacological management and the respective dietary care. After 12 weeks, a significant reduction in plasma glucose levels was observed in all patients, as well as an improvement in insulin resistance and glycosylated hemoglobin levels. Suggesting Qigong as an effective complementary therapy in the treatment of Diabetes Mellitus type 2.²⁰

A regulation of thyroid hormones has also been observed, as well as parathyroid hormones, growth hormone, testosterone, hormone leuteinizing and follicle stimulating, in different cases of hormonal and metabolic disorders.13,21

7. Conclusions and recommendations

Qigong has a very rich and nourishing history, a history in which we have only now begun to get involved. It is a tool of thousands of years of use and development, which comes to us as a new therapeutic option and therefore the bulk of its capabilities are still unknown to us.

Through its practice, globalization and study, a large number of benefits, whose usefulness favors multiple areas of life, among which the physical, mental, emotional, social and spiritual aspects stand out. Benefits that in turn have an important clinical application and given the ease of learning and practicing it, added to the fact that it does not require additional medical equipment, makes it a highly cost-effective treatment or adjuvant.

An additional reason to recommend the use of Qigong in patients regardless of their underlying illness is that no evidence has been found that its practice can become counterproductive. A situation that favors that its indication by the medical team does not entail any risk for the patient.

One of the most notable findings found in this review was the broad spectrum of medical applications found. As it is a predominantly physical exercise, the therapeutic effects were believed to be focused on what physical activity as such it could provide, however, the clinical studies found show positive effects that range from the cardiovascular system to the immune system, involving responses in areas as little related to physical activity as the psychiatry and favoring medical results even in pathologies as complex as cancer.

When Qigong is valued from the point of view of evidence-based medicine, it is common to find some degree of benefit in the areas valued in each study. But the greatest support for the faculties it has is given from the

patient's point of view, where the response in quality of life levels always obtains favorable results.

Although there are inconclusive studies or with unfavorable results, it is necessary remember that just as a treatment with acupuncture or herbal medicine requires a specific prescription according to the patient's syndrome, a similar situation occurs in Qigong and not all people can expect benefits from the same exercise practiced. This invites us to continue studying it, create new protocols where there is a personalized diagnosis and in this way allow the patient to enjoy all the potential that Qigong offers as a therapeutic tool and as a style of life.

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