

A brief analysis of the relationship between QiGong and stress

Ramona-Niculina Jurcău¹, Ioana-Marieta Jurcău², Radu-Adrian Rozsnyai³, Nicolae Colceriu⁴

¹ Department of Pathophysiology, Medicine Faculty, "Iuliu Hațieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

² Emergency Clinical Hospital for Children, Cluj-Napoca, Romania

³ "Mihai Viteazul" Gymnasium School, Câmpia-Turzii, PhD Student, Babeș-Bolyai University, Cluj-Napoca, Romania

⁴ Faculty of Horticulture, University of Veterinary Medicine and Agricultural Sciences, Cluj-Napoca, Romania

Abstract

Qigong (QG) is a form of mind-body exercise that can be done anywhere and at any time without any special equipment. In accordance with the traditional Chinese medicine philosophy, QG achieves a harmonious flow of vital energy (Qi) and regulates the body's functional activities through breathing, conscious concentration, and gentle movements.

QG can be classified into two categories: dynamic QG (dong gong) and static QG (jing gong). There are two types of QG: a) internal QG or QG exercise, which is a self-directed form; and b) external QG, which is usually routed by experienced masters. In studies on the use of QG in stress, the following groups participated: adults with difficulties, middle-aged adults, students, hospital staff, people who regularly practice QG and healthy volunteers.

Compared with sedentarism, physical activity or intervention exercises, QG can significantly improve the quality of life. QG has effects on anxiety, vigilance, depression, fatigue, psychological stress; it also reduces work-related stress. QG exercises reduce the hyperactivity of the HPA axis and the release of the glucocorticoids circulating in the body from the adrenal cortex, so QG reduces blood concentrations of noradrenaline, adrenaline and cortisol.

Therefore, QG also causes stress reduction through the nervous, endocrine and immune systems. Specialized studies, although still limited in number, support the utility of QG in stressful situations.

Key words: Qigong, stress, stress mechanisms

Introduction

In recent years, unconventional methods have proven effective in lowering the blood levels of one of the most important stress hormones, cortisol; this is also the case of Qigong (QG), Tai Chi and Yoga (Matousek et al., 2010).

"QG is practiced in the Chinese communities by a large number of people to increase health, and in recent years an increasing number of studies have documented the effectiveness of QG for improving physical health and reducing stress and anxiety" (Wang et al., 2013).

Excessive stress has a negative impact on health and is associated with an increased incidence of anxiety and mood disorders as well as functioning deficiencies in every organ of the body (Selye, 1936; Luine et al., 2007).

This article is a continuation of previous research of the authors regarding the topic of Ginseng (Jurcău et al., 2013; Jurcău et al., 2018b) and stress modulation (Jurcău et al., 2017; Jurcău et al., 2018a).

QiGong

Definition of QG

Qigong is an ancient form of martial arts developed in China over 3000 years ago and has been used continuously until now (Liu, 1999; Tsang et al., 2002).

Characteristics of QG

QG allows individuals to cultivate natural strength or energy („Qi"), associated with physiological and psychological functionality (Jahnke et al., 2010). Common practice, focus on mind and breathing lead to a balanced and improved mood. Core components of QG include concentration, relaxation, breathing adjustment, body posture, movement and meditation (Tsang et al., 2002).

Types of QG

The first forms of QG represent one of the historical roots of the Theory and Practice of Contemporary Chinese Traditional Medicine (TCM). QG can be classified into two categories: dynamic QG (dong gong), involving coordination

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Address for correspondence: "Iuliu Hațieganu" University of Medicine and Pharmacy, Victor Babeș Str. no. 8, Cluj-Napoca 400012, Romania

E-mail: ramona_mj@yahoo.com

Corresponding author: Ramona Jurcău; ramona_mj@yahoo.com

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of movements and meditation; and static QG (jing gong), which focuses on concentrating the mind and relaxing the body without physical movement. Depending on the experience gained by the practitioner, there are two types of QG:

a) Internal QG or QG exercise is a self-directed form involving the use of movements, meditation, and controlled breathing patterns.

b) External QG is usually routed by experienced masters who use their hands to direct Qi energy (called emitted Qi) to the patient for healing or treatment.

PubMed information on QG

When searching for information about Qi Gong (2019.01), PubMed publishes different publication numbers depending on the keywords used (Table I):

Table I

QiGong PubMed publications depending on the keywords used

Keywords	Number of publications	Period of time	Number of years
QiGong	635	1981-2018	37
QiGong exercise	277	1981-2018	37
QiGong therapy	535	1981-2018	37
QiGong stress	77	1996-2018	22
QiGong evaluation	53	1989-2018	29
QiGong for health	355	1989-2018	29

QG and stress

Countries where stress-related QG was studied

Studies on the use of QG in stressful situations have been conducted predominantly in Asia: Hong Kong (Chan et al., 2012; Chan et al., 2011; Cheung et al., 2005; Chow et al., 2012; Tsang et al., 2013; Tsang et al., 2006; Tsang et al., 2003), Mainland China (Liu et al., 2008), South Korea (Lee et al., 2004; Hwang et al., 2013).

The effect of QG on stress compared to different sports

QG for health consists of holistic consciousness exercises that alleviate the symptoms of chronic physical states and emotional disturbances (Ng & Tsang, 2009; Tsang et al., 2006; Tsang et al., 2013). Compared with sedentarism (Tsang et al., 2013; Tsang et al., 2006), physical activity (Tsang et al., 2007) or intervention exercises (Tsang et al., 2007), QG can significantly improve the quality of life. So, QG has beneficial effects on stress (Lee et al., 2004).

Scale used in QG assessment in stress

In stress-based QG studies, different stress assessment scales have been used, such as: Stress Perception Scale (Griffith et al., 2008; Hwang et al., 2013); Depression and Stress Anxiety Scale (Chow et al., 2012); Checklist of symptoms - 90 (Liu et al., 2008).

Subjects participating in studies on QG in stress

The following subjects participated in studies on the use of QG in stress: adults with difficulties (Hwang et al., 2013); middle-aged adults (Chow et al., 2012); students (Liu et al., 2008; Manzanque et al., 2009); hospital staff (Griffith et al., 2008); people who regularly practice QG (Johansson et al., 2008); healthy volunteers (Lee et al., 2004).

Studies that confirm the favorable effect of QG use in stress

It has been proven that external QG without touching (QTN) or with touching has significant effects on anxiety,

vigilance, depression, fatigue, psychological stress, cortisol levels, cytotoxicity of NK cells, and neutrophil function (Jung et al., 2006). In another stress study, compared to the control group, QG significantly reduced stress-related arterial markers: the blood concentrations of noradrenaline, adrenaline and cortisol (Lee et al., 2003b). In addition, QG has been shown to reduce blood pressure (Lee et al., 2003a; Lee et al., 2004; Tsai et al., 2003). QG exercises have immediate and lasting effects on stress in middle-aged adults by reducing cortisol levels (Jung et al., 2006; Lee et al., 2004). Thus, due to the safety of this method, its minimal costs and clinical health benefits, QG may be an adjunctive therapy for elderly patients with corneal conditions (Ng & Tsang, 2009). QG exercises can also reduce work-related stress, such as computer-related stress (Skoglund & Jansson, 2007).

Possible mechanisms of QG in stress

It is assumed that breathing regulation and structured movements of the body during QG exercises lead to long, deep and rhythmic diaphragmatic breathing, which acts on the autonomic nervous system (ANS) and the endocrine system, causing increased cardiac output and oxygen consumption and elimination of carbon dioxide, which would have the effect of stabilizing the mood and restoring homeostasis (Wang et al., 2010).

Exercising QG has a significant effect on the hypothalamic-pituitary-adrenal axis: it decreases plasma concentrations of ACTH, aldosterone and cortisol and improves anxiety (Lee et al., 2004). In addition, QG reduces urinary norepinephrine excretion, cardiac rhythm and temperature by reducing sympathetic nervous system activity (Skoglund & Jansson, 2007).

There would be three psychobiological pathways that could explain the effects of QG exercises on stress and depression: a) the hypothalamic-pituitary-adrenal axis; b) monoamine neurotransmitters in the brain; and c) neurotrophic factors derived from the brain (Tsang & Fung, 2008). Among these, the „neuroendocrine hypothesis” (Tsang & Fung, 2008) assumes that: the mindfulness element of QG health exercise could reduce stress signals sent by the limbic system to the hippocampus and amygdala, which would reduce the secretion of the corticotropin-releasing factor from the periventricular hypothalamus and release of the adrenocorticotrophic hormone from the anterior pituitary gland. Therefore, QG exercises for health would reduce hyperactivity of the HPA axis in individuals with depression and the subsequent release of glucocorticoids circulating in the body from the adrenal cortex.

Conclusions

1. The practice of QG leads to removal of diseases, strengthening of health and, in time, to achievement of longevity.
2. Studies on QG and stress have been conducted on populations of different ages and professions, using psychological, functional and biological assessments.
3. QG causes stress reduction through the nervous, endocrine and immune systems.
4. Specialized studies, although still limited in number, support the utility of QG in stressful situations.

Conflicts of interest

Nothing to declare.

References

- Chan AS, Cheung MC, Tsui WJ, Sze SL, Shi D. Dejian mind-body intervention on depressive mood of community-dwelling adults: a randomized controlled trial. *Evid Based Complement Alternat Med.* 2011;2011:473961. doi: 10.1093/ecam/nep043.
- Chan AS, Wong QY, Sze SL, Kwong PP, Han YM, Cheung MC. A Chinese Chan-based mind-body intervention for patients with depression. *J Affect Disord.* 2012;142(1-3):283-289. doi: 10.1016/j.jad.2012.05.018.
- Cheung BMY, Lo JLF, Fong DYT, Chan MY, Wong SH, Wong VC, Lam KS, Lau CP, Karlberg JP. Randomised controlled trial of qigong in the treatment of mild essential hypertension. *J Hum Hypertens.* 2005;19(9):697-704. DOI:10.1038/sj.jhh.1001884
- Chow YWY, Dorcas A, Siu AMH. The effects of qigong on reducing stress and anxiety and enhancing body-mind well-being. *Mindfulness.* 2012;3(1):51-59. DOI: 10.1007/s12671-011-0080-3.
- Griffith JM, Hasley JP, Liu H, Severn DG, Conner LH, Adler LE. Qigong stress reduction in hospital staff. *J Altern Complement Med.* 2008;14(8):939-945. doi: 10.1089/acm.2007.0814.
- Hwang EY, Chung SY, Cho JH, Song MY, Kim S, Kim JW. Effects of a brief Qigong-based stress reduction program (BQSRP) in a distressed Korean population: a randomized trial. *BMC Complement Altern Med.* 2013;13:113. doi: 10.1186/1472-6882-13-113.
- Jahnke R, Larkey L, Rogers C, Etnier J, Lin F. A comprehensive review of health benefits of qigong and tai chi. *Am J Health Promot.* 2010;24(6):e1-e25. doi: 10.4278/ajhp.081013-LIT-248.
- Johansson M, Hassmén P, Jouper J. Acute effects of qigong exercise on mood and anxiety. *Int J Stress Manag.* 2008;15(2):199-207. DOI: 10.1037/1072-5245.15.2.199.
- Jung, MJ, Shin B, Kim Y, Shin Y, Lee MS. Is there any difference in the effects of Qi therapy (external qigong) with and without touching? A pilot study. *Int J Neurosci.* 2006;116(9):1055-1064. DOI:10.1080/00207450600575474.
- Jurcău R, Colceriu N, Jurcău I. Influence of a Romanian phytotherapeutic product called "Antistress", containing Ginseng, on anxiety and salivary cortisol, in one student exam session. *Int J Educ Psychol Comm (IJEPC).* 2013;3(2):38-51
- Jurcău R, Jurcău I, Colceriu N, Girlea K. Phytotherapeutic modulation of the impact of facial expressions in intense physical stress. *Palestrica of the Third Millennium.* 2018a;19(4): 208-211. <https://doi.org/10.26659/pm3.2018.19.4.208>.
- Jurcău R, Jurcău I, Colceriu N, Kwack DH. Brief analysis of the Sport-Ginseng relationship, from the perspective of PubMed publications. *Palestrica of the Third Millennium.* 2018b;19(4):212-216. <https://doi.org/10.26659/pm3.2018.19.4.212>.
- Jurcău R, Jurcău I, Colceriu N. Influence of Green tea extract and Passiflora on heart rate and fatigue sensation, in intense mental stress. *Acta Physiologica.* 2017;221:242
- Lee MS, Lee MS, Choi ES, Chung HT. Effects of qigong on blood pressure, blood pressure determinants and ventilatory function in middle-aged patients with essential hypertension. *Am J Chin Med.* 2003a;31(3):489-497. DOI:10.1142/S0192415X03001120.
- Lee MS, Lee MS, Kim HJ, Choi ES. Effects of qigong on blood pressure, high-density lipoprotein cholesterol and other lipid levels in essential hypertension patients. *International Int J Neurosci.* 2004;114(7):777-786. DOI:10.1080/00207450490441028.
- Lee MS, Soo Lee M, Kim H, Moon S. Qigong reduced blood pressure and catecholamine levels of patients with essential hypertension. *Int J Neurosci.* 2003b;113:1691. DOI:10.1080/00207450390245306.
- Liu H, An H, Meng F, Hu B, Wei Y, Meng F. A survey about the effect of eight-section brocade to the mental health of students in medical college. *Medicine Society.* 2008;21:63-64.
- Liu H. *The Healing Art of Qigong.* New York: Warner Books; 1999,293.
- Luine VN, Beck KD, Bowman RE, Frankfurt M, Maclusky NJ. Chronic stress and neural function: Accounting for sex and age. *J Neuroendocrinol.* 2007;19(10):743-751. DOI:10.1111/j.1365-2826.2007.01594.x.
- Manzaneque JM, Vera FM, Rodriguez FM, Garcia GJ, Leyva L, Blanca MJ. Serum cytokines, mood and sleep after a qigong program: is qigong an effective psychobiological tool? *J Health Psychol.* 2009;14(1):60-67. doi: 10.1177/1359105308097946.
- Matousek RH, Dobkin PL, Pruessner J. Cortisol as a marker for improvement in mindfulness-based stress reduction. *Complement Ther Clin Pract.* 2010;16(1):13-19. doi: 10.1016/j.ctcp.2009.06.004.
- Ng BH, Tsang HWH. Psychophysiological outcomes of health qigong for chronic conditions: a systematic review. *Psychophysiology.* 2009;46(2):257-269. doi: 10.1111/j.1469-8986.2008.00763.x.
- Selye H. A syndrome produced by diverse nocuous agents. *Nature.* 1936;138:32. DOI: <https://doi.org/10.1038/138032a0>.
- Skoglund L, Jansson E. Qigong reduces stress in computer operators. *Complement Ther Clin Pract.* 2007;13(2):78-84. DOI:10.1016/j.ctcp.2006.09.003.
- Tsai J, Wang W, Chan P, et al. The beneficial effects of tai chi chuan on blood pressure and lipid profile and anxiety in a randomized controlled trial. *J Altern Complement Med.* 2003;9:747-754.
- Tsang HW, Cheung L, Lak DC. Qigong as a psychosocial intervention for depressed elderly with chronic physical illnesses. *Int J Geriatr Psychiatry.* 2002;17(12):1146-1154. DOI:10.1002/gps.739.
- Tsang HW, Fung KM. A review on neurobiological and psychological mechanisms underlying the anti-depressive effect of qigong exercise. *J Health Psychol.* 2008;13(7):857-863. doi: 10.1177/1359105308095057.
- Tsang HW, Tsang WW, Jones AY, Fung KM, Chan AH, Chan EP, Au DW. Psycho-physical and neurophysiological effects of qigong on depressed elders with chronic illness. *Aging Ment Health.* 2013;17(3):336-348. doi: 10.1080/13607863.2012.732035.
- Tsang HWH, Fung KMT, Chan ASM, Lee G, Chan F. Effect of a qigong exercise programme on elderly with depression. *Int J Geriatr Psychiatry.* 2006;21(9):890-897. DOI:10.1002/gps.1582.
- Tsang T, Orr R, Lam P, Comino EJ, Singh MF. Health benefits of tai chi for older patients with type 2 diabetes: The "move it for diabetes study" - A randomized controlled trial. *Clin Interv Aging.* 2007;2(3):429-439.
- Wang C, Bannuru R, Ramel J, Kupelnick B, Scott T, Schmid CH. Tai Chi on psychological well-being: systematic review and meta-analysis. *BMC Complement Altern Med.* 2010;10:23. doi: 10.1186/1472-6882-10-23.
- Wang CW, Chan CL, Ho RT, Tsang HW, Chan CH, Ng SM. The effect of qigong on depressive and anxiety symptoms: a systematic review and meta-analysis of randomized controlled trials. *Evid Based Complement Alternat Med.* 2013;2013:716094. doi: 10.1155/2013/716094.