

EDITORIAL:

**Tai Chi Chuan and Qigong in scientific research: present and future
[Tai Chi Chuan y Qigong en el ámbito científico: presente y futuro]**

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Introduction

Asian natural health practices are increasingly present in the physical and sporting habits of the Western population. In particular, the Tai Chi Chuan (*TCC*) and Qigong (*QG*) have become an everyday activity that can be performed both in parks and sports facilities in Western cities. The impact of these activities on a global level is very difficult to measure, however, given the lack of statistics on the number of practitioners, associations and existing schools.

The degree of acceptance that these disciplines have achieved can be measured by the number of informative publications about them. According to the study by Perez and Gutierrez (2008), 215 (62.3 %) of the 345 papers published between 1960 and 2006 on Chinese martial arts were on *QG*, and 115 (33.3 %) papers were on *TCC*, implying that both practices represented 95.6 percent of these publications. More importantly, during the 1990-1999 and 2000-2006 time periods, *TCC* came to occupy the top of monographs published, ahead of the rest of all forms of Chinese, Japanese and Korean martial arts; during the last time period, *QG* represented the third most published. According to the authors, the rise of this activity can be attributed to motivation changes for sports. Health, personal development, education, and socialization, as opposed to competition, have become increasingly important goals, which both *TCC* and *QG* fit perfectly.

Current Scientific Research

International studies also reflect the rise of *TCC* and *QG*, although these works are currently having more impact in some areas of knowledge than in others. The main lines of research for both disciplines have focused mainly on analyzing the benefits of these activities on the health of their practitioners (Jahnke, Larkey, Rogers, Etnier, and Lin, 2010). While some studies about sociological motivations for practice have also been made, such as those of Jouper and Jassmen (2009) or Wu, Keyes, Callas, Xiaolin, and Bookchin (2010), in *TCC* some priority has also been given to the study of their biomechanical aspects (Gatts and Woollacott, 2006; Wu, Liu, Hitt, and Millon, 2004). Anthropological and sociological reflection on the construction and function of these practices constitutes

an important line of research in *QC* (Farquhar and Zhang, 2005; Hsu, 1999; Palmer, 2007; Wile, 2001). What energy is and how it works has also been investigated and discussed (Chen, 2004). Regarding studies on the positive health effects associated with both *TCC* and *QG*, as evidenced in studies of meta-analysis and systematic review experience, various topics have been addressed. In *TCC*, there have been 14 meta-analyses on topics as varied as *psychological effects* and *quality of life* of the practitioners (e.g., Wang, Bannuru, Ramel, Kupelnick, Scott, and Schmid, 2010), improving the problems of *pain, stiffness* and *function in osteoarthritis of the knee* (e.g., Hall, Maher, Latimer, and Ferreira, 2009), improving the *balance and reduction of falls* (e.g., Logghe, Verhagen, Rademaker, Bierma-Zeinstra, van Rossum, Faber, and Koes, 2010), improvement in *aerobic capacity* (Taylor-Piliae and Froelicher, 2004) and the increased *strength* of the lower limbs (Liu, Liu, Zhu, Mo, and Cheng, 2011). 44 systematic reviews have been made: *balance and reduction of falls* (Jiménez-Martín, Meléndez, Albers, and Schofielf, 2013; Low, Ang, Goh, and Chew, 2009), improvement in *pain, stiffness* and *function in osteoarthritis* (Jiménez-Martín and Meléndez-Ortega, 2013; Wang, Collet, and Lau, 2004), improved *quality of life and psychological well-being* (Jiménez, Melendez, and Albers, 2012; Zhang, Layne, Lowder, and Liu, 2012), prevention against *cardiovascular problems* (Yeh, Wang, Wayne, and Phillips, 2009), improvement in *aerobic capacity* (Lee, Lee, and Ernst, 2009), *diabetes type 2* (Lee, Choi, Lim, and Ernst, 2011), *cancer* (Lee, Choi, and Ernst, 2010), *osteoporosis* (Wayne, Kiel, Krebs, Davis, Savetsky-German, Connelly, and Buring, 2007), *rheumatoid arthritis* (Lee, Pittler, and Ernst, 2007), *Parkinson's disease* (Lee, Lam, and Ernst, 2008), *biomechanical studies* (Hong and Li, 2007), and overall benefits provided by this practice (Jiménez-Martín, Meléndez, Albers, and López-Díaz, 2013; Kuramoto, 2006).

In *QG*, 5 meta-analysis and 20 systematic reviews were carried out. The first group dealt with *fibromyalgia* (Lauche, Cramer, Hauser, Dobos, and Langhorst, 2013), *hypertension* (Guo, Zhou, Nishimura, Teramukai, and Fukushima, 2008), and

psychological well-being (Wang, Man, Lee, Wu, Benson, Fricchione, Wang, and Yeung, 2013). The second group was about *cancer support and strengthening the immune system* (Lee, Chen, Sancier, and Ernst, 2007), *diabetes* (Xin, Miller, and Brown, 2007), *hypertension and cardiac rehabilitation* (Lee, Pittler, Guo, and Ernst, 2007), *psychological well-being* (Ng and Tsang, 2009), *pain* (Lee, Pittler, and Ernst, 2007), *fibromyalgia* (Chan, Wang, Ho, Ng, Ziea, and Wong, 2012), *pulmonary rehabilitation* (Ng, So, Tsang, and Ng, 2012), and *movement disorders* (Lee and Ernst, 2009).

These revisions have been made in two ways: (1) analyzing research from the point of view of the methodological design based on standardized tools (e.g., CONSORT, Jadad Score, PEDro rating scale, NICE, etc.), and (2) describing and summarizing the research conducted and their results. Some methodological weaknesses can be observed in the above mentioned studies (small samples, lack of control groups, lack of information on the random assignment of participants, dropout, etc.) even in the reviews, such as those of Lee, Oh, and Ernst (2011) and Li, Zhang, Smith, Xue, Luo, Chen, Skinner, and Finkelstein (2011). It leads to the conclusion that those studies should be viewed cautiously. However, despite these shortcomings, given the multitude of positive results on health registered, many researchers argue that both activities represent an alternative non-pharmacological intervention against certain diseases, as well as a high potential for prevention to reduce medical costs and expand the range of activities in health programs for different ages.

Regarding studies on what energy (qi) is and how it works, it should also be noted that there is an important line of research on the capacity of its "external release" by certain people. Chen (2004) summarized it in five areas: First is the measurement of physical signals (infrared radiation, infrasonic sound, microparticles, and magnetism). Second is the analysis of the influence of chemical reactions (acceleration of reactions and decomposition or formation of compounds). Third is biological structures (the change in the structure or biomolecular properties, inhibition or cell multiplication). Fourth is detection by means of living beings (animals and fish) to overcome the "suggestion" effect. Fifth is people's disease. Within these works, it should also be noted that, in Japan, some researchers want to decouple the notion of energy from its traditional Chinese framework and associate it with the idea of energy that quantum physics postulates (Tsuyoshi and Tomoko, 2009).

Limitations of the studies

Research on this subject must cope not only with the improvement of methodological designs. The main problem is how to establish comparisons and achieve

relevant conclusions, given the high heterogeneity of styles and forms of both practices, each with its own personality, principles, dosing criteria, learning, teaching styles, content distribution on each session, etc. In this line of thought, Li et al. (2011) point out the need to expand the items included in "standardized" tools of assessment and used in systematic reviews, to better capture the conditions that accompany TCC implementations. Wayne and Kaptchuk (2008a, 2008b) identify three paradigms that should redirect research: first, overcoming the reductionist view of causal attribution to a single factor and moving on to conceive TCC as a "multi-component" reality; second, overcoming criticizing the placebo effect and accepting that, in a systemic vision, everything can become an influential factor; and third, precisely defining the framework for implementing these practices in research.

Future research

The evolution of these studies will stay in a close relationship with the research done in the field of Chinese medicine since both TCC and QG techniques are rooted in this tradition. One of the most interesting analyses that can be found on the evolution of international studies in Chinese Medicine corresponds to Hinrichs (1998). This author prophetically identified three areas of knowledge from which most interest will further arise on this subject (medicine, history and anthropology). He also anticipated future lines of discussion on this work: (1) the real "continuity" of history and the "uniqueness" of these traditions; (2) the "scientific" nature of these practices; (3) the contributions these practices can offer to modern medicine; (4) the explanation of the "internal rationality" accompanying these practices outside the parameters of Western reasoning; (5) the expression of these practices as "social culture"; (6) the review of the "Western medical model" as the only valid reference and the identification of new paradigms of thought; and (7) the use of these practices as a political strategy of China's communism.

On the other hand, given the existing chaos of teacher training in these disciplines in many Western countries, a line of research will probably arise in the near future regarding adverse effects that these activities can also produce. At present, the number of papers on this subject, outside the Chinese language, is very small (Ng, 1999; Shan, Yan, Xu, Zhang, Yu, Zhao, and Chai, 1989). Nevertheless, this has already occurred in China with the boom of these activities during the 80s and 90s, and it led not only to the creation of specialized medical centres to treat the individuals affected, but also to its official recognition as a "disease" in Chinese psychiatry manuals (Palmer, 2007).

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