

MARTIAL ARTS & MEDICINE

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A study of Taijiquan and the Treatment of Cancer

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Abstract

Background. Since the first, pioneering works were published in 1974 [Ryan], interest in the effects of Taijiquan on health has increasingly involved biomedical research, producing many publications in English on scientific journals.

Problem and aim. This study focuses specifically on oncological or neoplastic pathologies to evaluate the degree of integration between the biomedical organicistic approach, typical of western medicine and the holistic approach of traditional Chinese medicine, related to the effects of Taijiquan (TJQ) on this type of pathology.

Methods. The study proposes an analysis of the methods and results of two meta-analyses and eight experimental case studies.

Results. The fundamental difference in dealing with neoplastic pathology between Western Medicine and Traditional Chinese Medicine is that in the West the cancer is fought, while the cancer patient is treated in the Far East. Here we examine only the aspect of the practice of Taijiquan (TJQ) in dealing with the tumor and the benefits that derive from this practice. Checks related to TJQ show clearly how this discipline and also Qigong (QG) are able to allow for a rebalancing of physiological parameters. This process takes place through various mechanisms: the first of these is a reduction in cellular metabolism involving a reduction in oxygen consumption and therefore the capacity of the organism to reduce its energy intake, its energy consumption, to optimize its biological functions. In this case TJQ is a supplementary practice of the mind/body of Chinese Medicine with a component of physical activity that has positive effects on aerobic capacity, muscle strength and quality of life among cancer survivors.

Conclusion. The combined use of chemotherapy and Chinese Medicine increases the effect of chemotherapy and reduces side effects. Often the use of the combination helps the patient to better tolerate the therapy and to complete the therapeutic plan.

Introduction

Since the first, pioneering works were published in 1974 [Ryan], interest in the effects of Taijiquan on health has increasingly involved biomedical research, producing many publications in English in scientific journals. Back in 2004 the qualitative rather than quantitative consistency of the published works allowed a review [Klein, Adams 2004] selecting the research on physiological topics only, excluding those focused only on psychological aspects, also analyzing only the research that corresponded to a high degree of reliability scientific measurements measured with the Scarlett method.

The fields of medicine involved in the research mainly concerned the skeletal and locomotor system, with particular attention to the ambulatory skills, but to progressively extend over the last decade even more to topics for which it is more difficult to carry out adequate

experimentation, such as values of blood pressure, Parkinson's disease, immune functions, oncological affections.

This study focuses specifically on oncological or neoplastic pathologies to evaluate the degree of integration between the biomedical organicistic approach, typical of western medicine and the holistic approach of traditional Chinese medicine. This investigation uses a qualitative analysis of scientific research related to the effects of Taijiquan (TJQ) on this type of pathology. For this purpose some scientific research, published in English in the last decade in specialized magazines, has been considered.

Methods

The study proposes the analysis of the methods and results of two meta-analyses and eight experimental

case studies selected for their completeness among those identified online using the specialized Pub Med search engine to collect the biomedical research related to the benefits of (TJQ) on cancer patients published in English in the last decade.

Results

This research started from a meta-analysis of 2014 [Zeng *et al.* 2014]. Five databases (Medline, CINAHL, Scopus, the Cochrane Library, and the CAJ Full-text Database) were searched until June 30, 2013. randomized controlled trials of Qigong and TJQ as a treatment intervention for cancer patients were considered for inclusion. The primary outcome for this review were the changes in quality of life (QOL) and other physical and psychological effects in cancer patients. The secondary outcome for this review was adverse events of the Qigong and TJQ intervention. This study found that qigong/tai chi had positive effects on the cancer-specific QOL, fatigue, immune function and cortisol level of cancer patients. However, these findings need to be interpreted cautiously due to the limited number of studies identified and high risk of bias in included trials. Further rigorous trials are needed to explore possible therapeutic effects of Qigong and TJQ on cancer patients.

Another very important meta-analysis was published in 2015 [Chen *et al.*]. The aim of this systematic review was to summarize current evidence regarding the effectiveness of TJQ in individuals with four common chronic conditions—cancer, osteoarthritis (OA), heart failure (HF) and chronic obstructive pulmonary disease (COPD). Four databases (MEDLINE, EMBASE, CINAHL and SPORTDiscus) were searched for original articles. Two reviewers independently screened the titles and abstracts and then conducted full-text reviews, quality assessment and finally data abstraction. Thirty three studies met the inclusion criteria. Meta-analyses were performed on disease-specific symptoms, physiological outcomes and physical performance of each chronic condition. Subgroup analyses on disease-specific symptoms were conducted by categorizing studies into subsets based on the type of comparison groups. Meta-analyses showed that TJQ improved or showed a tendency to improve physical performance outcomes, including 6-min walking distance and knee extensor strength, in most or all four chronic conditions. TJQ also improved disease-specific symptoms of pain and stiffness in OA. The results demonstrated a favorable effect or tendency of TJQ to improve physical performance and showed that this type of exercise could be performed by individuals with different chronic conditions, including COPD, HF and OA.

Breast cancer has been the subject of three specific researches. In 2004, a pilot investigation was published

[Mustian *et al.* 2004]: the TJQ group exhibited improvements in health-related quality of life and self-esteem from baseline to 6 and 12 weeks, while the support group exhibited decline. Anyway, randomized, controlled clinical trials with larger sample sizes were needed. In 2011, another research examined the effects of a 10-week TJQ program on neuropsychological, psychological, and physical health of female cancer survivors [Reid-Arndt, Matsuda, Cox 2012]. Results suggest that TJQ may promote gains in neuropsychological functioning, in addition to previously demonstrated improvements in physical and psychological health. These findings support the need for controlled trials examining the potential benefits of TJQ on neuropsychological functioning after cancer. In 2012, an experiment proposed a Group Exercise Training for Functional Improvement after Treatment (GETFIT) to three-group, single-blind, parallel design, randomized controlled trial in women, aged 50-75 years old, who have completed chemotherapy for cancer comparing 1) TJQ 2) strength training 3) a placebo control group of seated stretching exercise [Winters-Stone *et al.* 2012]. The GETFIT will provide important new knowledge about preventing falls using accessible and implementable exercise interventions for women following chemotherapy for cancer. In 2016, a double-blind, randomized controlled pilot study with 87 female Breast Cancer Survivors (BCSs) demonstrated that practices including gentle movement – such as Qigong and Tai Chi Easy (QG/TCE) or non-meditative gentle exercise – among women with a history of breast cancer may improve many facets of the cancer experience, including QOL, cognitive function and physical activity patterns [Larkey *et al.* 2016]. Practicing QG/TCE may show some advantages for body mass index reduction compared to non-meditative gentle exercise.

Another important field of research focused on lung cancer. In 2013, a study investigated the effect of a 16-week TJQ exercise intervention on the recovery of postsurgical non-small cell lung cancer survivors [Wang *et al.* 2013]. It demonstrated that TJQ may have a role in ameliorating the imbalance between humoral and cellular immunity, potentiating human immunity against tumors. In 2015, a randomized trial of Taijiquan exercise as compared with low-impact exercise as a control intervention was conducted [Zhang *et al.* 2016]. Between January 2012 and December 2014, 96 patients were enrolled in this trial. Results demonstrated that Taijiquan is an effective intervention for managing cancer-related fatigue (CRF) in patients with lung cancer undergoing chemotherapy, especially for decreasing general fatigue and physical fatigue, and increasing vigor.

Similar experiment was conducted with a randomized controlled trial of TJQ exercise from January 2014 to August 2015 [Zhou *et al.* 2018]: 114 patients in nasopharyngeal carcinoma (NPC) undergoing chemoradiotherapy were enrolled in TJQ group and control

group, 83 completed the experiment. Results demonstrated that TJQ is conducive to alleviate CRF in NPC patients undergoing chemoradiotherapy. The improvement in autonomic nervous system balance might fit into the process of TJQ for CRF management in this population.

Finally, in 2014, on "Current Oncology Report", Chaoul *et al.* wrote: "many patients are seeking strategies to manage their distress that are outside conventional medicine such as mind-body techniques. Mind-body techniques such as meditation, yoga, tai chi, and qigong have been found to lower distress and lead to improvements in different aspects of quality of life. It is essential that the standard of care in oncology include distress screening and the delivery of different techniques to help patients manage the psychosocial challenges of diagnosis and treatment of cancer" [Chaoul *et al.* 2014].

Discussion

According to Western medicine all tumors originate from a cell. In normal tissues cells reproduce by dividing, in order to meet the various needs of the organism: to grow the whole organism or a part of it or to replace dead or damaged cells.

In tumors this delicate balance, governed by the chemical messages sent from one cell to another and by the genes found in their DNA, is compromised. The cell continues to reproduce unbridled and the processes with which the damaged cells undergo a programmed death, called apoptosis, are also lost.

To use a metaphor, one can say that at some point, a cell of the organism "goes crazy" – loses some of its properties, acquires others – and begins to multiply itself outside of every rule.

At the origin of all these phenomena there are gene alterations, called mutations, which, adding to each other, make the control mechanisms undone. It is not sufficient, in fact, that only one mechanism is defective, but it is necessary that the errors accumulate on different fronts so that the tumor can begin to develop. Some of these mutations are hereditary, while others are caused by external factors.

The hinges on which the whole of Traditional Chinese Medicine is based are essentially seven, namely: Yin-Yang, Qi – Blood – Organic Liquids, Energetic Meridians, Organs and Viscera, Body-Mind, Uniqueness-Wholeness, Microcosm-Macrocosm. When, for many causes, health is undermined and loses its solidity and permanence, the disease is established. This is a condition for which the relationships between the seven hinges are altered. The alteration is an extremely modular eventuality. Following this, various degrees of alteration are determined. Within each degree of alteration, so many ways of manifestation are contemplated.

By virtue of this it is correct to state that the absence of symptoms cannot fully identify with the absence of disease. This can be established in a very subtle and almost perfect silent manner. Cancer is just one example. Traditional Chinese Medicine considers cancer to be the result of the arrest of the circulation of Organic Qi / Blood / Liquids and the production of matter which is mass. The altered circle of energies and fluids that follows multiple Disharmonies/Disequilibriums. The action of the causes corresponds to the alteration of one or more Disharmony/Disequilibrium that can determine various syndromic and structural manifestations and one of these could be cancer.

The fundamental difference in dealing with the neoplastic pathology between Western Medicine and Traditional Chinese Medicine is that in the West the cancer is fought, while the cancer patient is treated in the Far East. In *Huang Di Nei Jing, Classic of Internal Medicine of the Yellow Emperor*, it has been affirmed for more than two millennia: "It is necessary to cure the patient and not the disease". Traditional Chinese Medicine is certainly the most organic ancient medical doctrine still operating in a large part of the world. It is divided into five basic areas: Acupuncture and Moxibustion; Phytotherapy; Dietetics; Massage (Tuina); Taijiquan and Qigong moving meditative exercises also called medical gymnastics.

Here we examined only the aspect of the practice of Taijiquan (TJQ) in dealing with the tumor and the benefits that derive from this practice. Checks related to TJQ shows clearly how this discipline and also the Qigong (QG) are able to allow for a rebalancing of physiological parameters. This process takes place through various mechanisms: the first of these is a reduction in cellular metabolism involving a reduction in oxygen consumption and therefore a capacity of the organism to reduce its energy intake, its energy consumption, to optimize the biological functions. In this case TJQ is a supplementary practice of the mind/body of Chinese Medicine with a component of physical activity that has positive effects on aerobic capacity, muscle strength and quality of life among cancer survivors.

Conclusion

As the reported articles confirm, experimental science has also progressed in a holistic dimension; in fact, nowadays, more and more alternative and integrative techniques to treat various tumors are included, studied and applied within a therapeutic plan. These techniques focus on the common thread that binds the mind and body, which were member to be one of the seven pillars on which Traditional Chinese Medicine is based. They can be defined as a variety of techniques aimed at improving the mind's ability to influence bodily functions and symptoms and make use of the results of age-old disciplines

such as Taijiquan, Qigong, Yoga, meditation techniques. They focus first on the sick patient rather than on the disease and help him to deal with both physical and mental pain. The use of these techniques is increasingly used in the Western world in the treatment of tumors as a valid support tool, not only for psychological purposes.

The combined use of chemotherapy and Chinese Medicine increases the effect of chemotherapy and reduces side effects. Often the use of the combination helps to better tolerate the therapy and to complete the therapeutic plan. The comparison of survival time between chemotherapy alone and in association with Traditional Chinese Medicine is almost double in the group with combined use in pancreatic, pulmonary and mammary tumors. One of the most important aspects is the improvement of the quality of life found in patients who use Traditional Chinese Medicine.

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