Contributions Concerning the Application of the Means Specific to Qigong to Sedentary Adults

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Abstract

Sedentariness is an increasingly frequent phenomenon among adults. The prolonged lack of physical exercise leads to a decrease in the body’s functional capacity and in the quality of life. Qigong is an adaptable and comprehensive form of physical exercise borrowed from Chinese culture. The paper explores the effects of practicing Qigong gymnastics by a group of sedentary adults over a 3 month period. The experimental group (33 subjects) practiced Qigong, while the control group (20 subjects) practiced body-building. Weight, body-mass index, the static balance Stork test and the Ruffier index were all evaluated.

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1. Introduction

Sedentariness is more and more present in the life of most adults living in the urban area. The lack of regular physical exercise leads to a continuous decrease in fitness and quality of life. In time, sedentariness was shown to favour the apparition of many non-communicable diseases, such as diabetes, obesity, even certain types of cancer.

Qigong is a system of physical exercise, breathing techniques and visualization patterns originating from ancient China, which could be an alternative for the physical education of sedentary adults.

2. Body

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2.1. Sedentariness and its implications on the human body

Sedentariness is a phenomenon showing an ascending trend in present times. Due to multiple and fast changes in the social and professional lives of contemporary adults, the necessary stimulation of the major body structures and functions through physical exercise has diminished substantially, up to the point where the lack of regular physical exercise has become a major health hazard.

Sedentariness represents:

- a decrease in the quantity and quality of the physical exercise performed regularly, which leads to a decrease in the homeostatic parameters in a healthy individual, favoring a higher degree of vulnerability towards the environment conditions;
- a lifestyle from which physical exercise is partially or completely absent. Such a lifestyle usually also presents other modifications, like bad eating habits, insufficient rest, etc.

The advances in technology, the increasingly accessible services and functions of the modern society, the predominance of the workplaces with a strong intellectual component and lack of physical stimulation, have all lead to a decrease in the amount and intensity of physical stimulation, ranging from the activities of daily living to the recreational activities.

According to Bernstein et al. (1999), a sedentary individual is an individual who spends less than 10% of his daily energy in physical activities of medium or high intensity (activities that elevate the basal metabolic rate at least 4 times).

Another frequently used definition states that a sedentary individual is an individual who fails to perform at least 30 minutes of physical exercise of medium or high intensity in most days of the week.

As far as consequences go, sedentariness is recognized as an important risk factor for many non-communicable diseases (NCD). Rabaeus (2005) states that the lack of physical exercise is directly involved in favouring diseases such as: diabetes, obesity, atherosclerosis, ischemic heart conditions and certain types of cancer.

Sedentariness can be associated frequently with maintaining fixed positions (especially sitting) throughout the day, irregular and unhealthy eating, insufficient rest and intellectual overwork.

The present study shows the impact of the Qigong Chinese gymnastics system when performed as a regular exercise by sedentary adults, compared to body-building, which is frequently used as a tool in the adult’s continuous physical education.

2.2. The Qigong system

Qigong is a complex discipline, encompassing physical exercise, breathing techniques, visualization and meditation techniques invented and developed in China. It is a very vast domain, with many schools, due to the development in different regions and under different influences. Generally speaking, Qigong is a prophylactic and/or therapeutic means of protecting one’s health using physical exercise. Since the Chinese cosmology and philosophy played and continues to play a decisive role in the creation and evolution of this method, terms like “chi” or “yin-yang”, are frequently used.

The term “chi”, roughly translated as “vital energy” is, according to the Chinese, the substratum of the whole life. This energy manifests itself in the entire Universe, from the brightest star to the smallest particle. In the human body, according to the principles of the Chinese Traditional Medicine, it flows along the acupuncture meridians, nourishing the organs and tissues. When this type of energy flows well, the body is healthy and strong. When the chi is in excess, weak or blocked, the body becomes vulnerable to disease. When the flow of chi stops completely, the individual dies.
The practice of Qigong, unlike the Western physical culture, is aimed at sustaining, acquiring, storing, purifying and emitting this energy using specific means. These means involve specific body movements, breathing patterns and meditation techniques, all of them put together in the form of sets of exercises. Some of the sets are named after a wild animal, a naturally occurring phenomenon or a specific item from the Chinese culture or folklore.

Many studies have demonstrated the positive effects of Qigong on health. Sancier et al. (2004) show that Qigong had positive effects on aspects as: asthma, blood pressure, bone density, brain function, high blood pressure, the immune system, the sexual functions, longevity (increased by 50% after 30 minutes twice a day for 20 years).

Jahnke et al. (2010) published a study in 2010 in which they analyzed data from randomized controlled studies published in peer-reviewed publications indexed in PubMed, Google Scholar, Cochrane Database or PsycINFO. All randomized studies, comprised in 77 articles, discussed the effects of Qigong and Tai Chi (a subdivision of Qigong) on health. The conclusion of the study is that the results show consistently that Qi Gong and Tai Chi have beneficial effects on bone density, cardiopulmonary fitness, physical function, immune function and quality of life.

Most studies have compared groups of Qi Gong practitioners with non-practicing control groups. The present study compared Qigong with body-building, since body-building is one of the most frequently used means to prevent the negative effects of sedentariness. The results can show the efficacy of each discipline. The fitness and physical education instructors can assess the needs and goals of each client and recommend the appropriate physical discipline, the one that meets the client’s needs and wants better. Also, in Romania, Qigong is yet to be appreciated and used as a means of physical education for adults. With the increase in the number of fitness and wellness institutions, Qigong continues to be rarely used and poorly known.

The data obtained in the present study can be used by all physical education or physical therapy experts looking to improve their arsenal of tools for improving overall fitness and preventing disease in a low-cost, low-maintenance and time-effective way.

2.3. Material and method

In the present study participated 53 subjects, all sedentary adults, between the ages of 25 and 60, with no health problems serious enough to forbid physical exercise. The 53 subjects were divided into an experimental and a control group. In the experimental group, there were 33 subjects, 14 men and 19 women. The control group consisted of 20 individuals, 12 men and 8 women. The experimental group practiced Qigong 3 times a week, while the subjects in the control group practiced bodybuilding for 3 weekly sessions. The program used for the Qi Gong sessions is a well known set of exercises named Ba Duan Jin – Eight Pieces of Brocade and an additional static exercise called Zhan Zhuang (Standing Pole, in Chinese). All Qigong exercises had specific visualization and neuro-motor elements which were progressively more difficult. The first session of Qigong was lead by a specialist, but the rest of the sessions were performed by the subjects individually.

The participants in the control group followed a traditional body-building protocol 3 times a week. The session consisted of a warm-up, basic weight resistance exercises, cardio training and a cool down phase. The first session was lead by a specialist, but the rest of the sessions were performed by the subjects individually, in several wellness clubs in Bucharest.

For both groups, we measured the height and weight of the subjects, the body-mass index (BMI), the strength of the abdominal and hip flexor muscles and the Ruffier index. The measurements were performed at the beginning and end of the experiment, which lasted for 3 months (1 December 2010 – 10 March 2011). The statistical evaluation was done using the Anova test, the “T” Student test and the effect size Cohen test.

2.4. Results
After the 3 month period, the assessments were repeated and the data was compiled, analyzed and processed.

For the control group, the body-mass index (BMI) presented a decrease with a mean of 0.87 points, from a medium value of 24.74 to a medium value of 23.88. The decrease is statistically significant with $p<0.05$. For the experimental group, the body-mass index decreased with a mean value of 0.73 units, from a medium value of 23.49 to a medium value of 22.76. The decrease is statistically significant for $p<0.05$. Between the 2 groups there are no significant statistical differences for this parameter with $p>0.05$ ($p=0.237$).

For the abdominal and hip flexor muscle strength, in the control group, we measured an improvement with a mean value of 7 units, from a medium value of 23 sit ups to a medium value of 30 sit ups performed in one minute. The difference is statistically significant with $p<0.05$. In the experiment group, we measured an improvement with a mean value of 6.24 sit-ups, from a medium initial value of 22.33 sit-ups to a medium final value of 28.58 sit-ups performed in a minute. The difference is statistically significant with $p<0.05$. Between the 2 groups there are no statistical differences for this parameter with $p>0.05$ ($p=0.229$).

Concerning the Ruffier index, in the control group we measured a decrease with a mean value of 1.89 units, from a medium value of 10.53 units to a medium value of 8.64 units, meaning an improvement in the subject’s effort adaptation capacity. The differences are statistically significant, with $p<0.05$. In the experimental group, we measured a decrease with a mean value of 1.66 units, from a medium value of 10.82 units to a medium value of 9.16, meaning an improvement in the subject’s effort adaptation capacity. The differences are statistically significant with $p<0.05$. Between the 2 groups there were no statistically significant differences for this parameter, with $p>0.05$ ($p=0.246$).

<table>
<thead>
<tr>
<th>Measured parameter</th>
<th>Medium value for control group</th>
<th>Medium value for experimental group</th>
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<tbody>
<tr>
<td>Body-Mass Index initial</td>
<td>24.74 units</td>
<td>23.49</td>
</tr>
<tr>
<td>Body-Mass Index final</td>
<td>23.88 units</td>
<td>22.76</td>
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<tr>
<td>Abdominal and hip flexor strength initial</td>
<td>23 sit ups</td>
<td>22.33 sit ups</td>
</tr>
<tr>
<td>Abdominal and hip flexor strength final</td>
<td>30 sit ups</td>
<td>28.58 sit ups</td>
</tr>
<tr>
<td>Ruffier Index initial</td>
<td>10.53 units</td>
<td>10.82</td>
</tr>
<tr>
<td>Ruffier Index final</td>
<td>8.64 units</td>
<td>9.16</td>
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2.5. Discussion

For the Body-Mass Index parameter, the results of the control group were slightly better, but the final overall medium value was better for the experimental group. Still, as far as efficacy goes, practicing Qigong proved to be comparable to body-building for improving the subject’s Body-Mass Index.

For the abdominal and hip flexor strength test (sit ups performed in a 1 minute interval), the gains were also better for the control group, although with less than 1 sit up, compared to the experimental group. Qigong appears to be a valid strategy for improving the strength of these muscles, comparable to body-building.

For the Ruffier Index, the improvements are better for the control group, although the difference between the mean values is of less than 1 unit. Qigong proved to be an efficient physical exercise strategy for increasing the degree of effort adaptation in the participant subjects.

The Qigong exercise practice was done in the subject’s own homes. It didn’t involve any equipment, any additional time invested in going to and from the gym, it was done in the subject’s time of choice and it had very few hazardous elements. Since there is no necessary equipment, it is a cost-effective system, it is flexible and
easily adjustable. Since the joint impact during Qigong is less than during walking, it can be safely used for all ages and all levels of physical conditioning.

3. Conclusions

Qigong is a form of physical exercise that is easy to perform and understand. Although it uses its own terminology, derived from the Chinese culture, it offers straightforward strategies consisting of physical exercises, breathing and meditation techniques. Beyond the relaxing, calming effect, Qigong can also be challenging and can help the practitioner improve his physical condition, as was confirmed in our experiment. The subjects improved their Body-Mass Index, their abdominal and hip flexor muscle strength and their cardiopulmonary effort adaptation through the practice of 3 weekly sessions of Qigong. These benefits were comparable to those obtained by other sedentary adults who practice 3 weekly sessions of body-building, which is commonly used by adults looking to improve their fitness. By comparison, Qigong doesn’t require any equipment, is very safe, low-cost, low maintenance and only needs a minimum of specialized counselling from an experienced practitioner. At the same time, it offers good results in improving fitness. Qigong can be used by physical education and physical therapy professionals in prevention and therapy, and is an ideal strategy for the prevention of the negative effects of sedentariness. In the view of these finding, we can recommend using Qigong as an alternative physical activity for the sedentary adults.

References