Short Communication

Effect of “wuqinxi” exercise on antioxidant status, intestine *Bacillus acidophilus*, *Lactobacillus casei* and *Bacillus bifidus* in obese old people

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Accepted 10 February 2011

In the present study, we examine effect of “wuqinxi” exercise on antioxidant enzymes activities, lipid peroxidation level, intestine probiotics in obese old people. Results showed that 12 months of “wuqinxi” exercise could markedly enhance blood antioxidant enzymes activities, lipid peroxidation and intestine probiotics count in obese old people. It could be concluded that “wuqinxi” exercise is beneficial for obese old people.

Key words: Wuqinxi, antioxidant, probiotics.

INTRODUCTION

Qigong is a mind–body exercise originating from traditional Chinese medicine and aim to improve health (Sancier, 1996). In earlier studies, Qigong has been found to reduce stress (Lee et al., 2000; Skoglund and Jansson, 2007), anxiety (Lee et al., 2004), and depression (Tsang et al., 2006) as well as to improve physical activity and balance (Stenlund et al., 2005). Since patients with burnout often report exhaustion and low energy levels, Qigong would be a favourable method in their rehabilitation.

In the present study, we examine effect of “wuqinxi” exercise on antioxidant status, intestine *Bacillus acidophilus*, *Lactobacillus casei*, and *Bacillus bifidus* in obese old people.

METHODS

Design and subjects

This study was conducted with a consecutive convenience sample of 55 obese old people (33 men, age 55-61 and 22 women, 50-60). Approval for the study was obtained from the human subject ethics committees of the involved hospital and university. The purpose of the study was explained to the patients, and written consent was obtained before data collection. All obese old people were asked to practice “wuqinxi” for 2 h every day. The experiment last for 12 months. Blood and faeces were taken from all practicers every three months.

Biochemical analysis

MDA, TC, TG, LDL-c and HDL-c levels, SOD, CAT, GSH-Px activities were measured using commercial kits. *B. acidophilus*, *L. casei*, *B. bifidus* in faeces were counted through a oil immersion lens. The number of viable microorganisms is given in colony forming units (c.f.u.).

Statistical analyses

Results are presented as means±SE. The difference between two measures was established using Student's t test for unpaired samples. To verify the differences among the three measures, an analysis of variance (ANOVA) for repeated measures was performed. Statistical analyses were conducted using Graph Pad.
RESULTS AND DISCUSSION

The reactive oxygen species (ROS) are known to play a major role in either the initiation or progression of carcinogenesis by inducing oxidative stress (Sun, 1990; Gulcin et al, 2006). Peroxides and superoxide anion (O2•−, H2O2, √OH) above the capability of naturally produced antioxidants may result in the instability of critical macromolecules and represents the molecular basis of many diseases including inflammation processes, cardiovascular alterations, and cancer (Halliwell and Gutteridge, 1989; Cerutti, 1985; Meneg et al., 2011; Chen et al., 2011; Zhang et al., 2010; Behroozi et al., 2009). In particular, in pneumonia and inflammatory disorders, such as sarcoidosis, decrease in serum HDL-C concentrations was shown during infection and/or inflammation in several studies (Sammalkorpi et al., 1988; Cabana et al., 1989; Feingold et al., 1993; Deniz et al., 2006; Reshmi et al., 2010; Remya et al., 2009). In general, a marked decrease in serum high-density lipoprotein cholesterol (HDL-C) concentrations was shown during infection and/or inflammation in several studies (Sammalkorpi et al., 1988; Cabana et al., 1989; Feingold et al., 1993). Generally, plasma LDL-C concentrations are reduced during infection and inflammation. This is believed to be due to a host response to infection and inflammation, which might induce LDL-C oxidation, resulting in lower serum LDL-C concentrations (Cabana et al., 1989; Feingold et al., 1993).

Table 3 summarizes the correlation coefficients describing the relationships between TC, TG, LDL-c and HDL-c parameters in the studied population. As expected, blood TC, TG and LDL-c levels were markedly decreased with prolong “wuqinxi” exercise time. However, blood HDL-c level was markedly increased with prolong “wuqinxi” exercise time.

L. acidophilus (meaning acid-loving milk-bacterium) is a species in the genus Lactobacillus. L. acidophilus is a homo-fermentative species, fermenting sugars into lactic acid, which grows readily at rather low pH values (below pH 5.0) and has an optimum growth temperature of 30°C (86 °F) (citation needed). L. acidophilus occurs naturally in the human and animal gastrointestinal tract, mouth, and vagina. Some strains of L. acidophilus may be considered to have probiotic characteristics (Ljungh and Wadström, 2006).

Table 4 summarizes the effect of “wuqinxi” on intestine B. acidophilus, L. casei, B. bifidus in obese old people. As expected, number of intestine B. acidophilus, L. casei, B. bifidus were markedly increased with prolong “wuqinxi” exercise time.
Table 4. Effect of “wuqinxi” on intestine B. acidophilus, L. casei, B. bifidus in obese old people.

<table>
<thead>
<tr>
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<th>3</th>
<th>6</th>
<th>9</th>
<th>12</th>
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<tbody>
<tr>
<td>Bacillus acidophilus</td>
<td>5.25±0.12</td>
<td>5.92±0.09</td>
<td>6.93±0.08**</td>
<td>7.48±0.07**</td>
</tr>
<tr>
<td>Lactobacillus casei</td>
<td>4.02±0.09</td>
<td>5.06±0.08**</td>
<td>5.72±0.06**</td>
<td>5.99±0.07**</td>
</tr>
<tr>
<td>Bacillus bifidus</td>
<td>8.12±0.09</td>
<td>9.81±0.08*</td>
<td>10.79±0.37**</td>
<td>11.61±0.14**</td>
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</tbody>
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*P<0.05, **P<0.01, compared with control (3 month).

REFERENCE


