

原 著

健康づくりを目指した卓球用プログラムの開発と有用性

— 体力の向上と安全性に関する研究 —

The development and the usability of table-tennis program for health-enhancement

— Study on the physical fitness -enhancement and the safety —

森山 琢磨¹⁾

Takuma Moriyama¹⁾

山口 典孝²⁾

Noritaka Yamaguchi²⁾

中塘 二三生³⁾

Fumio Nakadomo³⁾

Abstract

The purpose of this study is to develop the program (hereinafter, the new table tennis program) for aged people playing table tennis, which require less exercise load and difficulties in motion, and effective to prevent them from falling, and to identify its usability. The subjects are 15 males and 19 females at the age of 65 to 69 (66.8 ± 1.5 : mean \pm standard deviation), who have been exercising the new table tennis program on a regular basis. The control groups are, 14 males and 15 females at the age of 65 to 69 (67.0 ± 1.4) exercising the conventional program, and 20 males and 22 females at the age of 65 to 69 (67.2 ± 1.4) with no exercise-habits. The frequency, the hours, and the period of exercises with the new table tennis program and the conventional program are 3 weekly, 30 minutes per one time, in 10 months respectively. As the results of them, the subjects with the new table tennis program showed the higher values in the muscular strength (male: 38.5 ± 3.5 kg, 35.8 ± 3.8 kg; female: 25.9 ± 2.3 kg, 23.3 ± 2.5 kg), the balancing ability (male: 35.5 ± 3.1 cm, 28.1 ± 3.5 cm; female: 35.2 ± 2.7 cm, 28.3 ± 3.5 cm), and the flexibility (male: 37.5 ± 5.3 cm, 34.2 ± 6.4 cm; female: 41.0 ± 4.2 cm, 36.8 ± 4.6 cm) compared with no exercising habits ($p < 0.05$). That subjects showed the same values in the muscular strength (male: 38.5 ± 3.4 kg; female: 25.3 ± 2.2 kg), and showed the higher values in the balancing ability (male: 32.2 ± 3.3 cm; female: 31.0 ± 3.2 cm), compared with the one with the conventional program. The motion intensity with the new table tennis program (male: $69.8 \pm 6.4\%$ HRmax; female: $67.6 \pm 5.9\%$ HRmax) is significantly lower than that with the conventional program (male: $78.1 \pm 7.5\%$ HRmax; female: $75.9 \pm 7.1\%$ HRmax). On the other hand, there have been some appeals on lumbago (male: 7.1%) and knee ache (male: 7.1%; female: 6.7%) in the conventional program. However, there has been no appeal on physicals in the new table tennis program. That proves the safety involving the sports disability is high. Judging from the above results, the new table tennis program requires less exercise load, and is effective in maintaining and enhancing the balancing ability. With the lower occurrence rate of sports disability, they have indicated that it is usable for the exercises among aged people.

キーワード 卓球、高齢者、転倒予防、体力、プログラム

table tennis, aged people, fall prevention, physical fitness, program

1) 関西学院大学大学院

2) 大阪医療福祉専門学校

3) 関西学院大学

Graduate school of Kwansei Gakuin University

Osaka College of Medical and Welfare

Kwansei Gakuin University