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EXAMINATION ON THE EFFECTS OF TABLE TENNIS PLAY TO THE
BRAIN BLOOD FLOWS

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Purpose: Recently many ball games are becoming more popular as competition sports and as lifetime sports; the number of senior citizens who are playing various sports is increasing. It is generally recognized that the influence which ball games give to the brain is very important. Up to the present time very little is reported on the subject, however. In this report, we selected table tennis as an example of ball games and examined the effects of table tennis play on the blood flow in the brain.

Method: The test was conducted on six male volunteers, of ages 27~53, who played table tennis in different levels. Two of them were tournament players (top level), three had experience of playing table tennis (intermediate level), and one was a beginner. Using Tc-EDC (ethyl

cisteinatedimer) 740 XBq as a tracer, images of the local brain blood flow distribution were obtained by the SPECT (single photon emission computed tomography). Then the amounts of the blood flow were determined by the Patlak plot method.

First, the brain blood flows of the participants were measured at rest condition, i.e. without playing table tennis. On a different day, right after playing table tennis (hitting the balls against a robot machine) ten minutes, the brain blood flows were measured; blood pressures and pulses were also measured. As a reference exercise to compare with table tennis, ergometer was used.

Results: After playing table tennis, one person (top level senior player) showed marked increase of blood flow in little brain and brain stem (midbrain, pons, medulla), two showed moderate increases (intermediate players), one showed increase in the left motor field (top level), and 2 (one intermediate and a beginner) showed no change. Degrees of the change of blood pressure and pulse were different individually; in average, the blood pressure increased about 20% and the pulse about 30% by playing table tennis. When they exercised with ergometer, there was no increase in the brain blood flows.

Consideration: In order to investigate the effects of ball games to the brain, the effects of the table tennis play on the brain blood flow were examined. Among six volunteers, four showed increase of the brain blood flow in little brain and brain stem. The higher the level of

the skill, the more increased the brain blood flow.

It is considered that there is a difference between movements--vigorous--in competition sport and movements while enjoying as lifetime sport.

It is our intention to work on more examples so that the effects of ball games to the brain will be evaluated further by giving different amounts of physical exercise and by using different sports. It is hoped that the types and amounts of ideal loading for the brain will be pursued further.