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Studying the Static balance differences between young adults and middle-aged adults

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1. Introduction

Nowadays, more and more people are exploring the balance, the function of which is multifunctional system that let a person keep the body upright while standing, and sitting (Bronte - Stewart et al. 2002). Our centers of gravity will change with the change of posture and force. Today people attach great importance to the balance capability that is an indispensable ability in the daily life, whereas it’s a complicated process to keep balance. Gallahue (1998) has proposed that balance is a significant and must physical fitness in life. If the body position changes unintentionally, we may lose our balance and fall down in the regular life, and cannot make a response effectively. Balance has two kinds: (1) the static balance ability: the ability of keeping the posture or stable state through vision, somatic sensor sensation and cerebellum. (2) The dynamic balance ability: keeping ourselves balance after sports and external force. Stevens et al. (2006) pointed out that the rate of tumble increased gradually along with the growth of the age, as well as the cost of injury or death. Therefore most of balance research investigating the balance of older people so far. But what I make an attempt to discuss is that whether the balance differs with the change of age between the young and middle-aged.

The aim of this research is to investigate the difference of the young and middle-aged by collecting relevant data about balance capability of the young (18-27 years old) and middle-aged (35-55 years old).

2. Methods

Twelve young and middle-aged participated in the experiment. All subjects have been informed the purpose and process of experiment, filled out the basic information (including individuals state of health, whether they have the habit of exercise, the frequency and the movement type), and then record every detail experimental data. All subjects have no trouble in lower limb diseases. Young people with an average age of 22.5 ± 4 years old, height 162.6 ± 6 cm, middle-aged people average age 46.3 ± 10 years old, height 162.1 ± 10 cm. In the experiment of the related data capture entity of the object under test measurement, according to every one of the participants in the standing force of 5 seconds static balance test and stand with eyes closed for 5 seconds to collect data. Using statistical analysis software further analysis data, the conclusion is discussed in this paper. Experiment process is given in figure 1: explain the start preliminary experiment content and fill in the basic personal information, secondly subjects extend bones and muscles, warm-up, exercise to prepare for the experiment, then start experiment. Participants must fulfill the evaluation two kinds of actions of 5 seconds load board static:

(1) Eyes opened: the feet parallel stand respectively placed on the balance board, retrieval 5 seconds cop moving trajectory data for comparison between those with and without movement of mobile trajectory.

(2) Eyes closed: feet stand respectively parallel placed on the balance board and close your eyes, retrieval 5 seconds cop moving trajectory data for comparison between those with and without movement of mobile trajectory.

Figure 1 experiment process
3. Results

The average balance parameters of all subjects were logged (standing with eyes closed for five seconds and standing with eyes opened for five seconds), we discussed in two aspects:

(1) Stand for 5 seconds: the middle-aged around the range and scope of swings are bigger than young people in all sides.

(2) Stand with eyes closed for 5 seconds: the middle-aged around the range and scope of swings are bigger than young people in all sides.

Basic on the results we can find that there were a significant difference between the middle-aged people and the young people. The swing scope and range of middle-aged people is larger than the young in all sides, no matter first stand with eyes closed for 5 seconds or stand with eyes opened about 5 seconds. But the data shows that the difference in middle age is larger than young people, but not worse.

4. Conclusion

In this research the balance didn't exist significant difference between the 12 young and middle-aged people. I think that one of the most influential factor is the posture of young and middle-aged, and it is also the factors possibly whether the eyes have looked at fixed point during the experiment time. we recommend that will be fixed standing posture performance research in order to further explore the balance ability of young and middle-aged people and its influencing factors, and also to check the difference of static balance between young and middle-aged people through the degree of subjects' attention.

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References