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EFFECT OF UPHILL TRAINING ON SYSTOLIC BLOOD PRESSURE AMONG WOMEN ATHLETES

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ABSTRACT

The purpose of the study was to find out the effect of uphill training on systolic blood pressure among women athletes. To achieve the purpose of the study 30 women athletes from Alagappa University, Karaikudi, Tamilnadu, India were selected at systematic random. The age of the subjects ranged between 18 to 21 years. The selected women athletes were divided into two equal groups of 15 each namely experimental group and the subjects in this group underwent Uphill training for 8 weeks and the other group was named Control group which did not participate in any training. Systolic Blood Pressure was selected as the criterion variable for the study. The dependent variable was tested prior to and immediately after the training with digital Sphygmomanometer and the unit of measurement was millimetres of mercury (mmHg). The t ratio was the statistical technique used to analyse the means of pre-test and post-test of the experimental and control group. Difference was found due to uphill training on Systolic Blood Pressure among the experimental group.

Keywords: Uphill Training, Systolic Blood Pressure, Women Athletes, Digital sphygmomanometer

INTRODUCTION

Running upward in the hill is uphill movement of the muscles [1]. When an training which involves concentric individual push his muscles against the

resistance the muscles and system work harder in order to overcome the given resistance. That is why uphill training provides us with various intensities, volumes and load. In uphill training the muscle have to exert more force; the increase in resistance strengthens the muscles [2].

BENEFITS:

Uphill training benefits us with leg muscle strength, quicker stride pace and expanded stride length, increase of running economy and even leg muscle soreness is reduced and as a result cardiovascular system works at the best [3].

SYSTOLIC BLOOD PRESSURE:

The pushing out of the blood from the heart is called as systole and the pressure exerted while pushing out of blood is called the systolic blood pressure. While measuring the blood pressure the highest reading on the sphygmomanometer is the Systolic blood pressure count which is measured in the unit mmHg. The normal range for systolic blood pressure is below 120mmHg. [4, 5].

RESEARCH METHODOLOGY

Research Subjects Selection

The purpose of the study was to find out the effect of uphill training on Systolic Blood Pressure among 30 women Athletes between the age group of 18 to 21 years by systematic random sampling from the

Alagappa University, Karaikudi, Tamilnadu.

Selection of variable

Independent Variable

- Uphill Training

Dependent Variable

- Systolic Blood Pressure

EXPERIMENTAL DESIGN AND IMPLEMENTATION

The selected subjects were divided into two equal groups of fifteen each and were named Uphill Training Group (Experimental Group) and Control Group. The experimental group was given training for 3 times per week for 8 week and control group didn't undergo any training and were just carrying out their own regular activity. The physiological variable systolic blood pressure was selected as criterion variable. All the subjects of both the groups were tested on selected criterion variable Systolic Blood Pressure, using digital sphygmomanometer prior to and immediately after the training programme [6, 7].

Statistical Technique

The t test was used to analysis the significant differences, if any, difference between the groups respectively.

Level of significance

The level of significance was fixed to 0.01 which was considered as an appropriate.

STATISTICAL ANALYSIS

The significant difference among the means of the experimental group was found out by pre-test and post-test. The data was analysed and dependent t test was used with 0.01 levels as significance.

The **Table 1** shows that the mean values of pre-test and post-test of the control group on Systolic blood pressure were 122.73 and 122.86 respectively. The obtained 't' ratio was 0.619, since the obtained 't' ratio was less than the required table value of 2.97 for the significant at 0.01 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of the experimental

group on Systolic blood pressure were 122.60 and 120.46 respectively. The obtained 't' ratio was 23.48* since the obtained 't' ratio was greater than the required table value of 2.97 for significance at 0.01 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in Systolic blood pressure. It may be concluded from the result of the study that experimental group improved in Systolic blood pressure due to eight weeks of uphill training.

Table 1: Analysis of t-ratio for the pre and post-tests of experimental and control group on Systolic blood pressure (Scores mmHg)

| Variables | Group | Mean | | SD | | SE | | Df | 't' ratio |
|-------------------------|--------------|--------|--------|------|------|------|------|----|-----------|
| | | Pre | Post | Pre | Post | Pre | Post | | |
| Systolic Blood Pressure | Control | 122.73 | 122.86 | 1.94 | 1.99 | .502 | .515 | 14 | 0.619 |
| | Experimental | 122.60 | 120.46 | 1.95 | 2.06 | .505 | .533 | | 23.48* |

*Significance at .01 level of confidence for degree of freedom 14= 2.97

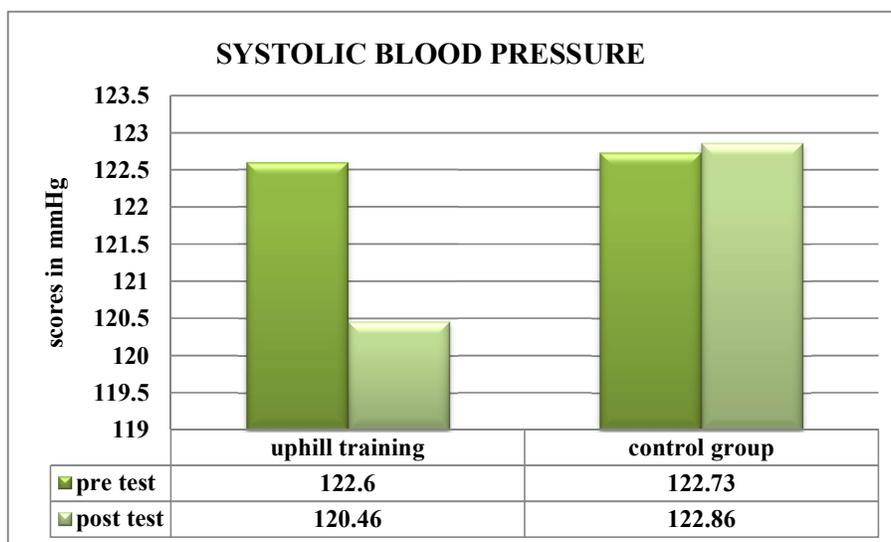


Figure 1: Bar Diagram Showing the Pre and Post Mean Values of Experimental and Control Group on Systolic Blood Pressure

DISCUSSIONS ON FINDINGS

The result of the study indicates that the experimental group that is the uphill training group had significantly improved the selected dependent variable systolic blood pressure when compared to the control group. It is also found that the improvement was caused by uphill training group when compared to the control group [8].

CONCLUSION

On the basis of the results obtained the following conclusions are drawn,

1. There was a significant difference between experimental and control group on systolic blood pressure after the training period.
2. There was a significant improvement in systolic blood pressure. However the improvement was in favour of experimental group due to eight weeks of uphill training.

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CONFLICT OF INTEREST

Nil

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REFERENCE

- [1] Haakstad, L. A., Edvardsen, E., & Bø, K. Effect of regular exercise on blood pressure in normotensive pregnant women. A randomized controlled trial. *Hypertension in pregnancy*, 35(2), (2016) 170-180.
- [2] Kim, S. J., Yoon, E. S., Jung, S. Y., & Kim, D. Y. Effect of uphill walking on browning factor and high molecular weight-adiponectin in postmenopausal women. *Journal of exercise rehabilitation*, 16(3), (2020) 265.
- [3] Kosunen, K., Pakarinen, A., Kuoppasalmi, K., Näveri, H., Rehunen, S., Standerskjöld-Nordenstam, C. G., & Adlercreutz, H. Cardiovascular function and the renin-angiotensin-aldosterone system in long-distance runners during various training periods. *Scandinavian journal of clinical and laboratory investigation*, 40(5). (1980) 429-435.
- [4] Alaguraja, K., & Yoga, P. Pranayama package on systolic blood pressure among middle ages unemployed women. *International Journal of Sports, Exercise and Physical Education*, 1(1), (2019) 18-20

- [5] Mirian, M., Piffer, M. L., Bogossian, P. M., & Fernandes, W. R. Effects of Aerobic Training on Systolic, Diastolic and Mean Blood Pressure in Arabian Horses. *Equine Veterinary Journal*. 46(1), (2014) 24-24.
- [6] Shahbabu, B., Dasgupta, A., Sarkar, K., & Sahoo, S. K. Which is more accurate in measuring the blood pressure? A digital or an aneroid sphygmomanometer. *Journal of clinical and diagnostic research: JCDR*, 10(3), (2016) 11
- [7] Yoga P, Influence of Varied Packages of Yogic Practices on Cardio Vascular Endurance among College Men Students. *International Journal Engineering Research & Sports Science*, 2(2), (2015) 33-34
- [8] Yoga P and James Rathinaraj S.. Yogic Practices on Heart Rate. *International Journal of Yogic Human Movement and Sports Sciences*, 3(2), (2018) 349-350