International Journal of Health Sciences and Research
[Indexed, Peer-Reviewed Journal]
Volume 15; Issue: 8; August 2025
Website: www.ijhsr.org
Original Research Article *ISSN: 2249-9571*

Effect of Different Exercise Regimen on Exertional Level in Young Healthy Adults Age Group of 18-40 Years

Dr. Mrunal Rajendrasingh Pardeshi[1], Dr. Arijit Kumar Das[2], Dr. Abhijit Diliprao Diwate[3]

[1,2,3]Department of Cardiovascular and Respiratory Physiotherapy, DVVPFS College of Physiotherapy, Ahmednagar, India

Corresponding Author: Dr. Mrunal Rajendrasingh Pardeshi

DOI: https://doi.org/10.52403/ijhsr.20250819

ABSTRACT

BACKGROUND: Exercise is essential for the prevention of many cardiovascular illnesses, for promoting good health, and for recovering from a disease episode. Aerobic activities are suitable for these kinds of exercises. Numerous techniques are available for aerobic exercise, such as walking, cycling, jogging, and running.
OBJECTIVE: To study the comparison between 12 min of plain surface walking vs12-minute treadmill walking vs12 min ergometer cycling on Exertion level
METHODS: A cross- sectional study was conducted with Seventeen normal healthy individuals in age group between 18-40 yrs were recruited in study. Participants were excluded if they had musculoskeletal, cardiovascular and neurological disorders. Perceived exertion is assessed by RPE scale (open epi software) was used for statistical analyses
RESULT: In the present study of 17 subjects, the mean age group was 22.8± 1.93, height 162.9±2.56, weight 56.65 ±5.6 This Study observed extremely significant difference when plain surface walking was compared with treadmill walking and plain surface walking was compared with cycle ergometer (P<0.001). the difference between cycle ergometer and treadmill walking was not significant
CONCLUSION: Our findings indicates that Exertion levels are minor in plain surface walking than treadmill walking and bicycle ergometer

Keywords: Exertion level, RPE, Exercise

INTRODUCTION

Cardiovascular health is critical for both daily activities like walking, running, and stair climbing as well as for athletic success in a variety of sports. Fitness is a reliable and powerful indicator of cardiovascular disease, all-cause mortality, and morbidity in adults. Globally, the prevalence of CVD is 5,214 per 10,000 individuals. By 2030, the anticipated anticipates 5,236 cases per 100,000 (1). Research indicates that young people's cardio-respiratory fitness is deteriorating. Determining one's level of fitness and tracking the impact of interventions depend on accurate measurements of cardio-respiratory fitness (2)

Assessment of perceived exertion during physical activities was introduced in the research already in the early 1960s by

Gunnar Borg, the creator of the scale for rating the perceived exertion (RPE). RPE has been used primarily to estimate the perception of exertion during physical work, for example, during tests of aerobic capacity. This use of RPE is consequently termed estimation. (3) The scale is constructed to have a linear relationship with heart rate (HR) at the group level in the intensity range between 60–200 beats min-1. In the early work of Gunnar Borg, the concept of an "exertion gestalt" was formulated.9 4) It relates to how a multitude of sensations underlying the perception of exertion, e.g., muscle work, breathing, chemical substances in the blood, etc., can be integrated into a perceived whole or gestalt. (5) This study aim was to know the effect of different exercise regimen on exertion level

MATERIALS & METHODS

We conducted a cross-sectional study in a college lab. The duration of the study was 2024-25. Ethical clearance was obtained from the institutional ethics committee, and written informed consent was taken from the participants. Our study included a convenient sample size of 17 we included participants, young healthy individuals in the age group of 18-40 years age group. Subjects diagnosed with musculoskeletal, cardiovascular, and neurological disorders, which can hamper the activities to be carried out, and subjects doing regular exercise for the last 1 month or more were excluded from the study.

STATISTICAL ANALYSIS

Data was entered in an MS Excel sheet and analysed using OpenEpi software version 3.06. Descriptive statistics were used for the demographic data of all participants. Mean and standard deviation (SD) are calculated using GraphPad Insta software version 3.0. Results are analysed by an unpaired t-test for intergroup analysis. The P value is < 0.001, considered extremely significant.

RESULT

A total of 17 Subjects were included in this study, aged 18 -40. The demographic data of these subjects are illustrated in Table 1

PARAMETER	Mean and SD
Age (Years)	22..8± 1.93
Weight	56.65± 5.86
Height	162.9± 2.65

Table No.1 shows the Demographic data of the Subjects

Interpretation: This Table shows baseline characteristics of patient's data represented in Mean, SD and percentage of age, weight, height

Comparison	P value
Plain surface v/s cycle ergometer	***P<0.001
Plain surface v/s treadmill	***P<0.001
Cycle ergometer v/s treadmill	ns P>0.05

Table 2 shows comparison of three groups

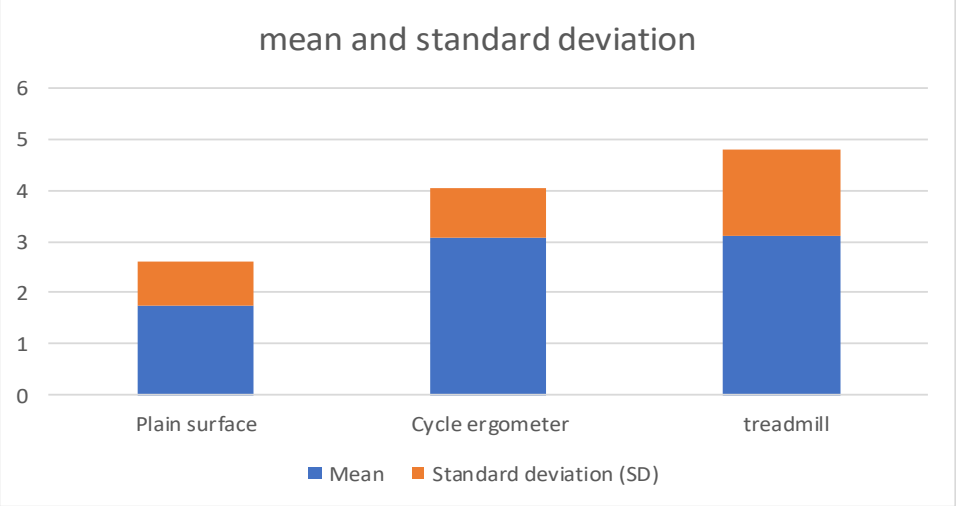

Fig. 1 shows mean and SD of three groups

DISCUSSION

Physical activity that is repetitive, planned, structured, and intentional is referred to as exercise. Improving or maintaining one or more aspects of physical fitness is the primary goal of exercise. (6) During exercise, intensity is important as it affects breathing and heart rate, which can be checked by exertion level.

In the present study of 17 subjects, the mean age group was 22.8± 1.93height 162.9±2.56, weight 56.65 ±5.6. In our study, we found a result showing statistically significant changes in the Exertional level in different exercise regimens.

In comparison to the treadmill and bicycle ergometer, we observed reduced RPE values for walking on a simple surface. When comparing the plain surface to a treadmill and bicycle ergometer, we discovered differences between the two groups. Regarding the exertion level, there was no noticeable variation between the treadmill and the bicycle ergometer.

Study conducted by R.G Eston et al 2010 revealed that, RPE may be a valuable tool for regulating the intensity of effort during severe exercise in such participants and may be used to forecast relative metabolic demand, particularly at higher workloads. (7)

The findings of our study are in accordance with study conducted by Cakir et al

that reported that RPE values are increased after doing cycler ergometer as compared to normal walking. (8) Lindsay Haswell et al reported Walking on a treadmill and walking on the ground cause different physical movements in your body. (9) You don't need to utilize as many leg muscles to propel yourself forward when walking on a treadmill because the belt travels beneath your feet. Walking on the ground causes your hip extensors to contract more, your hamstrings to be used more, and your dorsiflexion to increase. (10)

In our study exertion level is less in plain walking surface It can be explained by stating that walking, which is a day-to-day activity for a person, does not psychologically create much exertion.

CONCLUSION

Our findings indicate that Exertion levels are minor in plain surface walking than in treadmill walking and bicycle ergometer.

Declaration by Authors

Ethical Approval: Approved

Acknowledgement: I would like to thank my parents. I am highly grateful to Dr. Archana Nagargoje, Dr. Pranali Gaikwad, and my colleagues for helpful feedback and guidance.

Source of Funding: The Hospital has provided the Needed Equipment

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Olsson, K. S. E., Ceci, R., Wahlgren, L., Rosdahl, H., & Schantz, P. (2024). Perceived exertion can be lower when exercising in field versus indoors. *PloS one*, *19*(5), e0300776.
2. Grummt, M., Hafermann, L., Claussen, L., Herrmann, C., & Wolfarth, B. (2024). Rating of Perceived Exertion: a large Cross-Sectional study defining intensity levels for individual physical activity recommendations. Sports Medicine - Open, 10(1).
3. Price, S., Wiecha, S., Cieśliński, I., Śliż, D., Kasiak, P. S., Lach, J., Gruba, G., Kowalski, T., & Mamcarz, A. (2022). Differences between Treadmill and Cycle Ergometer Cardiopulmonary Exercise Testing Results in Triathletes and Their Association with Body Composition and Body Mass Index. *International journal of environmental research and public health*, *19*(6), 3557.
4. Hussain N, Gersh BJ, et al. Impact of cardiorespiratory fitness on frequency of atrial fibrillation, stroke, and all-cause mortality. Am J Cardiol. 2018;121(1):41–9.
5. Mays RJ, Goss FL, et al. Validation of adult omni perceived exertion scales for elliptical ergometry Percept MotSkills.2010;111(3):848–62.
6. Plante, T. (2010). Effects of Perceived Fitness Level of Exercise Partner on

Intensity of Exertion. Journal of Social Sciences, 6(1), 50–54
7. Millet GP, Vleck VE, Bentley DJ. Physiological differences between cycling and running: lessons from triathletes. Sports Med. 2009;39(3):179-206. doi: 10.2165/00007256-200939030-00002.
8. Eston RG, Davies BL, Williams JG. Use of perceived effort ratings to con- trol exercise intensity in young healthy adults. Eur J Appl Physiol Occup Physiol. 1987;56(2):222–4.
9. Noble BJ, Borg GA, et al. A category-ratio perceived exertion scale: relationship to blood and muscle lactates and heartrate. MedSciSportsExerc.1983;15(6):523–8.
10. Borg GA. Psychophysical bases of perceived exertion. Med Sci Sports Exerc. 1982;14(5):377–81.

How to cite this article: Mrunal Rajendrasingh Pardeshi, Arijit Kumar Das, Abhijit Diliprao Diwate. Effect of different exercise regimen on exertional level in young healthy adults age group of 18-40 years. *Int J Health Sci Res.* 2025; 15(8):144-147. DOI: *https://doi.org/10.52403/ijhsr.20250819*

******