

AFFLUENCE OF ALTERNATE PACE RUNNING ON SELECTED PHYSIOLOGICAL PARAMETERS AMONG COLLEGE MEN STUDENTS

Dr. S. Selvakumar

Director & Head, Department of Physical Education, BS Abdur Rahman Crescent Institute of Science & Technology [Deemed to be University], Chennai, Tamil Nadu

Cite This Article: Dr. S. Selvakumar, "Affluence of Alternate Pace Running on Selected Physiological Parameters Among College Men Students", Indo American Journal of Multidisciplinary Research and Review, Volume 7, Issue 2, July - December, Page Number 78-80, 2023.

Copy Right: © IAJMRR Publication, 2023 (All Rights Reserved). This is an Open Access Article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract:

The purpose of the study was designed to examine the effect of alternate pace running on resting pulse rate and breath holding time among college men students. For the purpose of the study, thirty college men students from BS Abdur Rahman Crescent Institute of Science & Technology [Deemed to be University] were selected as subjects. They were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent alternate pace running for three days per week for twelve weeks. Group II acted as control who did not undergo any special training programme apart from their regular physical education programme. The following variables namely resting pulse rate and breath holding time were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables namely resting pulse rate and breath holding time by using radial pulse and holding the breath for time at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the 'F' ratio obtained by the analysis of covariance, which was considered as an appropriate. The results of the study showed that there was a significant difference between alternate pace running group and control group on resting pulse rate and breath holding time. And also it was found that there was a significant improvement on selected criterion variables such as resting pulse rate and breath holding time due to alternate pace running.

Introduction:

The concept behind alternate pace running is to challenge the body by pushing it to work harder during intense intervals, followed by active recovery periods that allow the body to recuperate before the next intense effort. This alternating pattern helps to improve cardiovascular endurance, speed, muscular strength, and overall running efficiency. During the high-intensity intervals, runners typically aim to maintain a faster pace or increase their effort level, often reaching close to their maximum heart rate. This can be achieved through various methods such as sprinting, tempo runs, hill repeats, or fartlek training (unstructured speed play). These intervals are designed to elevate the heart rate and push the body out of its comfort zone, thereby stimulating adaptations that lead to improved performance.

Following each intense interval, recovery periods are incorporated to allow the heart rate to decrease and the muscles to partially recover. These recovery phases are essential for preventing overexertion and reducing the risk of injury. Depending on the specific training plan, recovery periods may involve jogging, walking, or complete rest, allowing runners to catch their breath and prepare for the next interval. One of the key benefits of alternate pace running is its versatility and adaptability to individual fitness levels and goals. Runners can customize their interval workouts by adjusting the duration, intensity, and number of intervals based on their current fitness level, training objectives, and race distances. This flexibility makes it suitable for runners aiming to improve their speed, endurance, or overall fitness, as well as those preparing for specific events such as 5K races, marathons, or ultramarathons.

In addition to its physiological benefits, alternate pace running can also add variety and excitement to training routines, helping to prevent boredom and plateaus in performance. By constantly challenging the body with varied workouts, runners can continue to make progress and achieve their desired fitness goals.

Alternate pace running is a highly effective training method that can help runners of all abilities enhance their fitness, performance, and enjoyment of the sport. Whether you're aiming to set a new personal best, conquer a challenging race distance, or simply improve your overall health and well-being, incorporating interval training into your running regimen can be a valuable strategy for achieving success.

Methodology:

The purpose of the study was designed to examine the effect of alternate pace running on resting pulse rate and breath holding time among college men students. For the purpose of the study, thirty college men students from BS Abdur Rahman Crescent Institute of Science & Technology [Deemed to be University] were selected as subjects. They were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent alternate pace running for three days per week for twelve weeks. Group II acted as control who did not undergo any special training programme apart from their regular

physical education programme. The following variables namely resting pulse rate and breath holding time were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables namely resting pulse rate and breath holding time by using 50 mts run and bend knee sit-ups at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the 'F' ratio obtained by the analysis of covariance, which was considered as an appropriate.

Analysis of the Data:

Resting Pulse Rate:

The analysis of covariance on resting pulse rate of the pre and post test scores of alternate pace running group and control group have been analyzed and presented in table 1.

Table 1: Analysis of Covariance of the Data on Resting Pulse Rate of Pre and Post Tests Scores of Alternate Pace Running and Control Groups

Test	Alternate Pace Running Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	73.33	72.93	Between	1.20	1	1.20	1.04
S.D.	0.87	0.96	Within	32.27	28	1.15	
Post Test							
Mean	71.87	72.80	Between	6.53	1	6.53	5.28*
S.D.	1.18	0.98	Within	34.67	28	1.24	
Adjusted Post Test							
Mean	71.72	72.95	Between	11.06	1	11.06	31.16*
			Within	9.58	27	0.35	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively).

The table 1 shows that the adjusted post-test means of alternate pace running group and control group are 71.72 and 72.95 respectively. The obtained "F" ratio of 31.16 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 required for significance at .05 level of confidence on resting pulse rate.

The results of the study indicated that there was a significant difference between the adjusted post-test means of alternate pace running group and control group on resting pulse rate.

Breath Holding Time:

The analysis of covariance on breath holding time of the pre and post test scores of alternate pace running group and control group have been analyzed and presented in table 2.

Table 2: Analysis of Covariance of the Data on Breath Holding Time of Pre and Post Tests Scores of Alternate Pace Running and Control Groups

Test	Alternate Pace Running Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	42.80	42.07	Between	4.03	1	4.03	0.07
S.D.	8.24	6.93	Within	1671.33	28	59.69	
Post Test							
Mean	49.13	42.40	Between	340.03	1	340.03	5.51*
S.D.	6.60	6.67	Within	1727.37	28	61.69	
Adjusted Post Test							
Mean	48.82	42.72	Between	278.70	1	278.70	49.01*
			Within	153.53	27	5.69	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively).

The table 2 shows that the adjusted post-test means of alternate pace running group and control group are 48.82 and 42.72 respectively. The obtained "F" ratio of 49.01 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 required for significance at .05 level of confidence on breath holding time.

The results of the study indicated that there was a significant difference between the adjusted post-test means of alternate pace running group and control group on breath holding time.

Conclusions:

- There was a significant difference between alternate pace running group and control group on resting pulse rate and breath holding time.
- And also it was found that there was a significant improvement on selected criterion variables such as resting pulse rate and breath holding time due to alternate pace running.

References:

1. Bacon, A. P., Carter, R. E., Ogle, E. A., & Joyner, M. J. (2013). VO2 max trainability and high intensity interval training in humans: a meta-analysis. *PLoS One*, 8(9), e73182.
2. Buchheit, M. (2012). The 30-15 intermittent fitness test: accuracy for individualizing interval training of young intermittent sport players. *Journal of Strength and Conditioning Research*, 26(11), 365-374.
3. Buchheit, M., & Laursen, P. B. (2013). High-intensity interval training, solutions to the programming puzzle: Part I: cardiopulmonary emphasis. *Sports Medicine*, 43(5), 313-338.
4. Buchheit, M., & Laursen, P. B. (2013). High-intensity interval training, solutions to the programming puzzle: Part II: anaerobic energy, neuromuscular load and practical applications. *Sports Medicine*, 43(10), 927-954.
5. Gibala, M. J., Little, J. P., MacDonald, M. J., & Hawley, J. A. (2012). Physiological adaptations to low volume, high intensity interval training in health and disease. *The Journal of Physiology*, 590(5), 1077-1084.
6. Laursen, P. B., & Jenkins, D. G. (2002). The scientific basis for high-intensity interval training: optimising training programmes and maximising performance in highly trained endurance athletes. *Sports Medicine*, 32(1), 53-73.
7. Milanović, Z., Sporiš, G., & Weston, M. (2015). Effectiveness of high-intensity interval training (HIT) and continuous endurance training for VO2max improvements: a systematic review and meta-analysis of controlled trials. *Sports Medicine*, 45(10), 1469-1481.
8. Tabata, I., Nishimura, K., Kouzaki, M., Hirai, Y., Ogita, F., Miyachi, M., & Yamamoto, K. (1996). Effects of moderate-intensity endurance and high-intensity intermittent training on anaerobic capacity and VO2max. *Medicine & Science in Sports & Exercise*, 28(10), 1327-1330.