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Are We Physiotherapists Really Fit?

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Abstract: ***This cross-sectional study was done on 82 healthy Physiotherapists selected using purposive sampling, within an age group of 25 to 40 years, fulfilling the 2014PAR-Q+ with a BMI of the range 18.5 to 24.5. They were asked to perform the modified Bruce protocol on motorized treadmill. All the vital parameters namely BP, HR, RR and RPE were documented pre and post exercise testing and after every stage during the protocol along with FEV1 and PEFR, measured using a Mini-Wright digital peak flow meter. The VO_2max value 28.564 was on the lower side which categorizes them in people having poor physical fitness. The HR max was 92.97% of the predicted value which confirms that the subjects had performed till their maximal level. Although these high cardiac responses were within the normal range, this can be considered as a sign of low physical activity considering the mean time the subject could perform the test was only 14.43 mins with 9.28 METs.Thus the results show that the therapists aren't optimally fit for their profession, and their perception for fitness is high thus, even though knowing the importance of being physically fit still they aren't really active.***

Keywords: Physiotherapists, Cardiopulmonary fitness, Modified Bruce protocol, PEFR

1. Introduction

As defined by the World Health Organization (WHO), Health is a "state of complete physical, mental, and social wellbeing, and not merely the absence of disease or infirmity." Hence an individual who is free of disease doesn't indicate that he is completely healthy and fit.

Cardiopulmonary fitness is known as one of the most important factor in a physical therapist's management plan and also plays an important role in helping physiotherapists to carry out their work throughout the day and treat a number of patients with the same level of quality, enthusiasm and energy.

Cardiopulmonary fitness appears to be one of the most important correlates of overall health status and is a not only a potent predictor of an individual's future risk of cardiovascular disease, but determines the fitness, quality of life, how active the individual can be which can be estimated way before an occurrence of a disease. But it is often neglected, be it the common man or even the physical therapist themselves.

Physiotherapists talk about enhancement of health, fitness and functioning for the entire population, but what about physiotherapists themselves being healthy? Physical therapy involves a lot of mobilization techniques, passive movements, gait training, patient ambulation and much more which requires quiet a good amount of strength and endurance to be active throughout the day and treat a number of patients.

Physiotherapy is a profession which requires physical activity and adequate level of physical fitness. The fitness levels required by the physiotherapy professionals are high due to professional demands and also because physiotherapy professionals are projected as fitness experts in the society [1].

Shouldn't physiotherapists themselves be healthy, fit and have optimal physical fitness levels? Is academic qualification the only criteria for performance by physiotherapists? Shouldn't we physical therapists practice what we preach?"

The purpose of this study is to determine a comprehensive data about the cardiopulmonary fitness in physiotherapists who although already know the hazards of physical inactivity but may or may not be really active.

2. Review of Literature

1) N.K.Multani, Bhawna and Amandeep Singh[1]aimed to measure the fitness levels in physiotherapy students of Haryana and Punjab. They measured their physical fitness by Toe-touch test, shoulder flexibility test, BMI, push-ups, wall squat test and Harvard step test. More than 50% students complained of musculoskeletal pain. Results showed low endurance in most of the students and also a few students were underweight. The physical fitness of the students is less as compared to the profession demands. They concluded that there is need of including physical fitness training in the curriculum of physiotherapy.

2) **Sobush DC, Fehring RJ**[4]aimed to include physical fitness norms. This study describes the methods used and the results obtained for 16 physical fitness factors of 98 female and 13 male physiotherapists and discusses the implications of physical fitness in physiotherapy practice. The established physical fitness norms will enable us to know as to how these norms of physiotherapists and physical therapy students compare with established values.

3) O'Donoghue G, Doody C, Cusack T.[2]aimed to provide an accurate picture of physical activity and exercise promotion and prescription content within Irish undergraduate physiotherapy curricula so that the content prepares the physiotherapy graduates for contemporary practice. Frequency analysis was done to provide a guide to the extensiveness of physical activity and exercise promotion and prescription content. According to the results, they concluded that there is a strong need for re-evaluation of physical activity and education of exercise in Irish physiotherapy curricula and that there is lack of explicit

exercise content in relation to public health and lifestyle-related disease.

4) Agnieszka Kotwica[5]aimed to assess the physical fitness levels of 1st year male and female students of medicine and physiotherapy faculties at Lublin Medical University. The tests used for the survey were the Pilcz motor skills test and Denisiuk endurance test. The analyses of results are: there were hardly any differences between the students of the two faculties, but showed marked differences in the physical fitness between sexes. Thus the conclusion was that the overall level of physical fitness is the lower limit of the average level.

5) Baloqun JA.[6]aimed to assess the physical fitness status of physical therapy students. The outcome measures used were body fat composition, low-back, and hamstring flexibility, aerobic capacity, and muscular endurance, static and dynamic muscular strength. Results of the investigation revealed that the students' physical fitness compares well but is not superior to the norms reported previously for female physical therapy students and female college students of the same age.

6) **Neethu John, Balamugesh Thangakunam, Augustine Joshua**[7]aimed to develop a regression equation for the sedentary healthy Indian population. The participants in their study were the staff and caregivers of patients from different states of India who were asked to perform a maximal ETT on a motorized treadmill. They concluded that predicted VO_2max using their newly formed equation was significantly lower than the western population.

7) **Matthew J. Faber, Carl Foster, John Greany, Glenn Wright, Brian K. Allen, John P. Porcari** [8]performed a comparative study between Bruce protocol and modified Bruce protocol on 22 individuals who were randomly asked to perform Bruce protocol and modified Bruce protocol. The results of this study revealed the values of VO_2max, HR_{max}, V_{Emax} and RPP to be the same for modified Bruce protocol. From this they concluded that modified Bruce protocol had a better subject preference, patient tolerance & physician acceptance.

8) **Steven N. Blair; James B. Kampert, ; Harold W. Kohl III, et. al.**[9]aimed to quantify the relationship between cardio-respiratory fitness and cardiovascular disease mortality. They calculated CVD and all-cause death rates for low, moderate, and high fitness categories according to the strata of smoking habit, cholesterol level, blood pressure, and health status. They concluded that low fitness is an important precursor of mortality and in order to prevent premature mortality, physicians should encourage physical activity in sedentary patients.

3. Problem Definition

We physical therapists are professionals who deliver/prescribe exercises to improve fitness including cardiovascular endurance and strength. But are we fit enough to be physically active throughout the day and then have the capacity for our personal chores including hobbies, social, participation, sports etc.

4. Methodology

Study Design- Cross sectional study

Sample size- 100

Sampling method- Purposive

Inclusion criteria
1) Male and female working Physiotherapists in the age group of 25 to 40 years.
2) Fulfilling the 2014PAR-Q+ questionnaire.
3) BMI- 18.5 to 29.9

Exclusion criteria
1) Individuals with any diagnosed cardiac, pulmonary, vascular, Musculo-skeletal or Neuromuscular disease/ dysfunction.
2) Individuals on an aerobic exercise training program since 3 months or more.

Materials: Modified Bruce protocol software, Mini-Wright digital Peak flow meter, Sphygmomanometer, Polar FT2 Heart rate monitor, Treadmill.

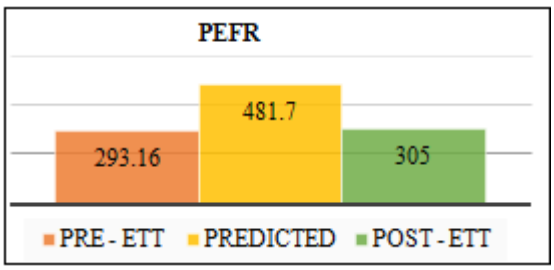
Outcome Measures- PEFR and $FEV_{1,}$ RPE, VO_2max.

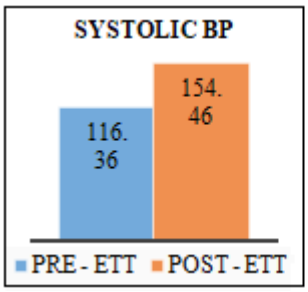
Data Analysis: Descriptive analysis

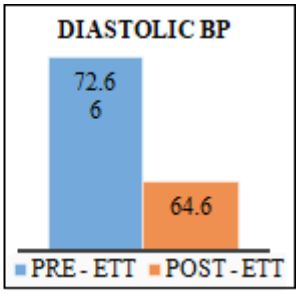
Procedure- 82 healthy physiotherapists recruited using purposive sampling, according to the criteria of the study. Participants were explained about the research and written informed consent was taken. They were asked to perform the modified Bruce protocol on motorized treadmill. All the vital parameters namely BP, HR, RR and RPE were documented pre and post exercise testing and after every stage during the protocol along with FEV1 and PEFR, measured using a Mini-Wright digital peak flow meter.

5. Result

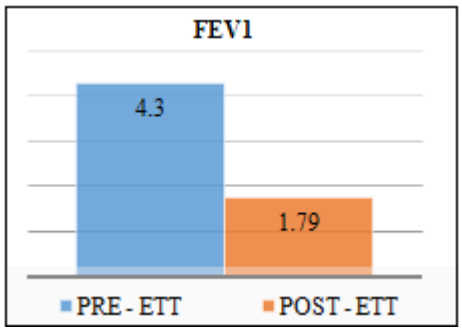
Anthropometric Measures	*Total*
Age	28.26 ± 3.89
Weight	59.56 ± 9.70
Height	161.4 ± 6.44
BMI	22.91 ± 3.99

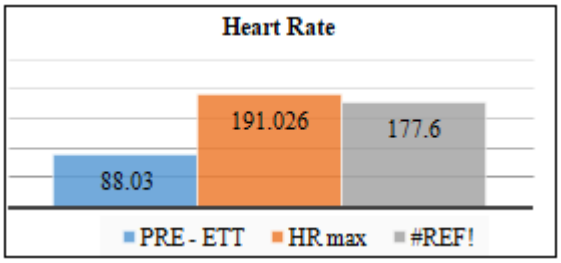


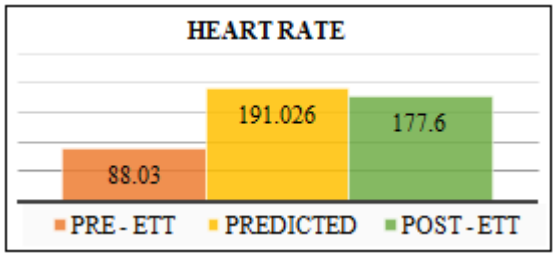




VO_2max	RPP
28.654	27776.4







6. Discussion

The pre-ETT PEFR was only 60% of the predicted value. This is definitely less for a physiotherapist who needs optimum health.

The VO_2max value of 28.564 were on the lower side which categorizes them in people having poor physical fitness, which supports study concluding that the physical fitness level of students is not satisfactory as compared to the physical demands of the profession [(1).]

Also study indicates a strong need for re-evaluation of physical activity and exercise education in Irish physiotherapy curricula. There is a lack of explicit exercise content in relation to public health and lifestyle-related disease.[2]

The HR max was 92.97% of the predicted value which confirms that the subjects had performed till their maximal level.

The RPP helps us in understanding the load on the left ventricle of the heart. The value in the current study population shows that the subjects were taxed to moderately high levels. Although these high cardiac responses were within the normal range, this can be considered as a sign of low physical activity considering the mean time the subject could perform the test was only 14.43 mins with 9.28 METs. This is supported by a study which concluded that Physical Activity trends were categorized under low and moderate for Physiotherapy students in Coimbatore.

Also most of the students perceive their endurance level to be normal to above average, but the results of Harvard step test show that most of the students have poor level of endurance. Huotari *et al*., reported that the correlations between the self-perceived and measured physical fitness were non-significant [12].But, in contrast Mikkelsson *et al*., showed that subjects can estimate at group level their fitness[13].,also Magnus *et al*., reported correlations between the self-perceived and measure physical fitness were significant [14].

Thus the results of the study show that the physical therapists are not physical fit, however, their perception about their own fitness is high. This means that even though we are aware of the importance of having a good physical fitness, we are not taking any measure to keep ourselves physically fit/active.

7. Conclusion

Therefore, we can say that the physical fitness of the physiotherapists is low to meet their job demands**.**

8. Future Scope of the Study

The health of the therapist is equally important as is of his patients. Thus intervention of fitness training of therapists and its effect on patient care and the therapist's quality of life can be studied. Also fitness training should be included in the physiotherapy curriculum as well as should be followed by physiotherapy practitioners.

Also the study assesses only cardio-pulmonary fitness as a tool for measuring physical fitness other factors such as muscle strength, Flexibility, Body composition can be studied in further studies.

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