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DIFFERENCES IN SELECTED PHYSIOLOGICAL VARIABLES OF RUNNERS BEFORE AND AFTER MASSAGE INTERVENTION

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Abstract

Today's regime of competitive sport is very intensive and often causes athletes to become fatigued. A massage is generally defined as the mechanical manipulation of soft tissues using rhythmically applied moves and pressures with the purpose of enhancing health and well-being. Therapeutic massage is believed to increase muscle mass blood flow and muscle tissue temperature, thereby enhancing performance. The purpose of the present study was to examine the effect of single session sports massage on running performance of track athletes. The subjects for the present study were inter-collegiate and inter-University level track athletes pursuing Graduation in Karnataka during 2024-25. Sprinters, middle-distance and long distance runners were selected for the present investigation. Their age ranged between 18 to 28 years. Exclusion criteria included athletes with prominent health ailments and sports injuries. Sports massage interventions were carefully selected by the researcher on the basis of reviews gone through and expert suggestions. The pre-performance effects of massage protocol on running performance were assessed in the present investigation. The investigator himself took physiological test for peak expiratory flow and flexibility in ideal conditions. The post-event effects of massage protocol on physiological variables were assessed in the present investigation. The investigator himself assessed Peak Expiratory Flow capacity and Flexibility after adequate warm-up on DAY 1. Standard equipment and procedure were followed for the testing. A spirometer was used for testing Peak Expiratory flow and a Sit and Reach box was used for assessing flexibility. After a gap of seven days, on DAY 8 a time trial was followed by Massage session by the investigator as per pre-determined massage protocol. Immediately after massage session, each athlete was tested for same physiological parameters. Massage helps in improving Peak expiratory flow and flexibility in 100m, 1500m and 3000m runners after time trial followed by massage intervention.

Keywords: Massage Intervention, Massage Manipulation, Protocol, Physiological Variables, Flexibility and Peak Expiratory Flow.

Introduction

Massage therapy is one of the oldest forms of treatment that nowadays is popularity as part of complementary and drug-free approaches (Moyer and et al. 2004). The history of Massage is old as the history of sports. It has been used from thousand years ago all over the world for the purpose to rehabilitate and relax the body after performing any sort of physical activities; not only in sports but also in daily use we cannot neglect the importance of massage.

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Massage has been used for rehabilitation and relaxation for thousands of years around the world. The large proportion of massage application in sports events is due to many coaches and athletes holding the belief, based on observations and experiences, that massage can provide several benefits to the body such as increased blood flow, reduced muscle tension and neurological excitability, and an increased sense of well-being.

Massage is a method that some coaches use to bring out an athlete's best performance. Massage refers to the systematic manipulation of the soft tissues of the body for therapeutic purposes. Sports massage is a specific application of massage. Sports massage is the science and art of applying massage and related techniques to maintain the health of the athlete and to enhance athletic performance.

Performance sports are sports activities with the aim of achieving a better record of achievement from time to time, carried out by athletes with a gradual training process. Warm-up is practiced by athletes to increase their physiological and psychological capacities prior to training or competition, despite limited scientific evidence supporting one protocol over another (Faigenbaum et al., 2005;). Different types, intensity and duration of warm-up ensure different physiological-biochemical and psychological changes in the body (Bishop, 2003). Traditionally, athletes perform static stretching after initial jogging during warm-up because it is easy, safe, and believed to be less likely to strain the muscles than other types of stretching (Koch et al., 2003). Apart from stretching, pre-event massage can be used as an adjunct to physical warm-up (Tessier, 2005). Many claims are made about massage, but few are backed by any empirical data regarding either mechanisms or effects.

A positive mindset is both favorable and necessary in most sport and exercise settings. People use numerous physical routines before their exercise or sporting competition. Some of these, like stretching and massage, may also contribute to positive mental states.

Methodology

The subjects for the present study were inter-collegiate and inter-University level track athletes pursuing Graduation in Karnataka during 2024-25. Sprinters, middle-distance and long distance runners were selected for the present investigation. Their age ranged between 18 to 28 years. Exclusion criteria included athletes with prominent health ailments and sports injuries.

Sports massage interventions were carefully selected by the researcher on the basis of reviews gone through and expert suggestions. Details of massage manipulation techniques and massaging protocol are given in table 1 as below.

TABLE 1.
DETAILS OF MASSAGE MANIPULATION TECHNIQUES AND MASSAGING PROTOCOL USED.

S. No.	Manipulation Techniques	Strokes	Duration
1	Effleurage or Stroking Manipulation	Superficial stroking Deep stroking	2 mins
2	Pressure manipulation	Kneading Palmer kneading Digital kneading Ironing Petrissage Picking up Wringing Skin Rolling Friction Circular friction Transverse friction	6 mins
3	Percussion manipulation	Clapping, Hacking, Tapping, Beating, Pounding, Tenting and contact heel percussion	4 mins
4	Vibratory manipulation	Vibration Shaking	2 mins
5	Compression manipulation	Compression	2 mins
6	Others	Rubbing, rocking, cross stretch, nerve stroke, fine tremulous, thumb press	4 mins

The post-event effects of massage protocol on running performance were assessed in the present investigation. The investigator himself assessed Peak Expiratory Flow capacity and Flexibility after adequate warm-up on DAY 1. Standard equipment and procedure were followed for the testing. A spirometer was used for testing Peak Expiratory flow and a Sit and Reach box was used for assessing flexibility. After a gap of seven days, on DAY 8 a time trial was followed by Massage session by the investigator as per pre-determined massage protocol. Immediately after massage session, each athlete was tested for same physiological parameters.

Mean and Standard Deviation were calculated for the present study and Paired sample 't' test were calculated to understand the differences in Peak Expiratory Flow and Flexibility before and after physiological testing.

Findings

The raw data on Peak Expiratory Flow and Flexibility were subjected to descriptive statistics and the results are provided in table 1 as below.

TABLE NO. 1
DESCRIPTIVE RESULTS OF PEAK EXPIRATORY FLOW AND FLEXIBILITY OF RUNNERS BEFORE AND AFTER TIME TRIAL AND MASSAGE INTERVENTION.

Variables		Mean	Std. Deviation	Std. Error Mean
Peak Expiratory Flow	Pre massage	487.96	75.48	7.91194
	Post massage	504.97	80.48	8.43634
flexibility	Pre massage	29.52	4.17	0.43717
	Post massage	30.69	4.15	0.43501

From table 1 it is evident that the data on Peak Expiratory Flow and Flexibility are normally distributed with acceptable homogeneity of sample. The raw data were further subjected to comparative statistics and the results are provided in table 2 as below.

TABLE NO. 2.
SUMMARY OF 'T' TEST ON DIFFERENCES IN PEAK EXPIRATORY FLOW AND FLEXIBILITY OF RUNNERS BEFORE AND AFTER TIME TRIAL AND MASSAGE INTERVENTION.

Variables		Std. Error Mean	t	df	Sig. (2-tailed)
Peak Expiratory Flow	Pre massage – Post massage	1.76228	9.653	90	.000
Flexibility	Pre massage – Post massage	0.15196	7.702	90	.000

Table 2 makes it evident that there is significant difference in Peak Expiratory flow and flexibility in runners before and after time trial and massage intervention. The table value required for significant difference is 1.660. The obtained 't' value for Peak Expiratory flow (9.653) and Flexibility (7.702) are higher than the table value required for significance at 0.05 level of significance.

Discussion

From obtained results we infer that the potential of massage for better relaxation is upheld. All coaches, trainers and athletes can make use of massage intervention for relaxation. The physiological benefits of massage arte proved in this study.

Conclusion

Massage helps in improving Peak expiratory flow and flexibility in 100m, 1500m and 3000m runners after time trial followed by massage intervention.

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