



ANALYSIS OF THE CHANGES ON SELECTED PSYCHOMOTOR PHYSIOLOGICAL AND SPEED RELATED PARAMETERS IN RESPONSE TO ASSISTED RESISTED AND COMBINED TRAINING

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ABSTRACT :

Resistance sprint training has been the basic training practice of some very successful sprinters. Resisted sprint running is a common training method for improving sprint-specific strength. Resistance during sprinting has been proposed to increase force output in the lower extremity, increase stride length and increase explosiveness during initial strides (Costello, 1985; Delecluse, 1997; Klinzing, 1984; Korchemny, 1992).

KEYWORDS : Living will, Passive euthanasia, Dying with dignity, Laws, Slippery slope

INTRODUCTION

Another possible benefit of sprinting under resistance is increased kinaesthetic feedback, allowing the athlete to better improve technique (Korchemny, 1992). Resisted sprint towing has become a popular training method with many sports teams and athletes (Schnier, 1982). This can involve an athlete towing a weighted sled, tyre, speed parachute, or some other device over a set distance (Faccioni, 1994). It has been said that such techniques will increase muscular force output, especially at the hip, knee and ankle, leading to a potential increase in stride length over time (Artingstall, 1990; Costello, 1985; Donati, 1996; Faccioni, 1994 & Pauletto, 1993). The resistance sprint training helped the athlete to improve the starting phase and acceleration (Letzelter *et al.*, 1995). Various studies have demonstrated that the assisted and resisted sprint training can produce significant changes in running speed and running kinematics. Nowadays assisted and resisted training programmes have become highly structured training for athlete's performance enhancement. It is an effective training method designed to elicit enhancements in motor fitness and physiological parameters. It has vast training effects depending upon the intensity and duration of the work and rest period. More research is required concerning the variation in different methods of sprint training and its effects. The applicability of these methods of training in develop physiological and speed parameters is yet to be reviewed extensively. Further, there is a need to examine the significant difference between assisted un-resisted sprint training in improving the selected physiological and speed parameters. Hence, the investigator was much interested to conduct a study to compare the effect of different sprint training, such as assisted, and resisted sprint training on physiological and speed parameters.

STATEMENT OF THE PROBLEM

The purpose of the present study is to find out the changes on selected psychomotor, physiological and speed related parameters in response to assisted, resisted and combined training.

OBJECTIVES OF THE STUDY

The primary research objectives are the following:

1. To analyze the changes on selected psychomotor, physiological and speed related parameters in response to assisted, resisted and combined training.
2. To compare the assisted, resisted and combined training influence on selected psychomotor, physiological and speed related parameters.

HYPOTHESES

Based on the objectives of the study and reviewing the related literature available in the area, the investigator framed the following hypotheses.

1. There would be significant improvement on selected psychomotor, physiological and speed related parameters due to the effect of assisted, resisted and combined training.
2. There would be significant differences among the assisted, resisted and combined training groups in improving the selected psychomotor, physiological and speed related parameters.

DELIMITATIONS

The study will be delimited to the following factors.

1. To achieve the purpose of the study, forty male students studying Basaveshwar College of Physical Education Bagalkot, Karnataka were selected as subject.
2. The age of the selected subject ranged from 18 to 25 years and all the subjects were healthy and normal.
3. The selected subject (N=40) were classified into four equal groups of ten each (n=10) at random. Group-I underwent assisted sprint training, group-II underwent resisted sprint training, and group-III acted as control.
4. The independent variables considered in this study will be assisted, resisted and combined training
5. The selected psychomotor parameters (Reaction time, balance and coordination), physiological parameters (Resting heart rate, Vo2 max. and forced vital capacity) and speed related parameters (Speed, stride length, stride frequency and anaerobic power) will be selected as dependent variables for the study.
6. The duration of the training period will be restricted to twelve weeks and the number of sessions per week was confined to three, which will consider adequate enough to cause changes in selected dependent parameters.
7. The selected psychomotor, physiological and speed related parameters will be assessed prior to and immediately after the training period by using the standardized test items.

LIMITATIONS

The following uncontrollable factors associated with the study will be considered as limitations of the study.

1. The changes in climatic conditions (*atmospheric temperature, relative humidity, wind velocity and other meteorological factors*) during the period of experimentation and at the time of testing were considered as limitations.
2. The growth and development of the participants if any, during the period of experimentation and the possible influence on the criterion variable could not be controlled. However, the control group was involved to nullify the effect of anatomical and physiological maturation.
3. The participants are motivated verbally; no attempt will be made to differentiate the motivation level during the period of training and testing.
4. The previous experience of the participants in the field of sports and games, which might be influencing on training and the data collection will not considered.
5. Heredity and socio-economic conditions and its influence on the participants are not considered in this study.

SIGNIFICANCE OF THE STUDY

1. The result of the study will help the coaches to identify the appropriate methods among the three types of training confined to this study in improving the psychomotor, physiological and speed related parameters.
2. The result of this study will be helpful to physical education teachers and coaches in designing the assisted, resisted and combined training programs to improve athletic performance according to the individual concerned.
3. The results of this study reveal the extent to which the chosen psychomotor, physiological and speed related parameters would change due to assisted, resisted and combined training programme for twelve weeks.
4. The study is quite significant and has a practical use for sprint coaches. The results of this study will give answers to some of the problems and questions that coaches face, such as to what extent could speed performance be improved through the use of assistance and additional external resistance and combination of both.

SELECTION OF SUBJECTS

To achieve the purpose of the study forty male students studying Basaveshwar College of Physical Education Bagalkot affiliated to Rani Chennamma University Belagavi, Karnataka state were selected as subject. The subjects were taken in the age group between 18 and 25 years. The selected subjects were divided into four groups of ten subjects each. Group-I will undergo the assisted sprint training, group-II will undergo resisted sprint training, Group-III will undergo combined assisted and resisted speed training for twelve weeks and Group-IV considered as control who will not undergo any special training programme.

SELECTION OF VARIABLES AND TESTS

The investigator analyzed various literature and consulted the experts in physical education in selecting the test items to collect data on the selected speed and physiological parameters, which are standardized and most suitable to this study, they are presented in table - I.

Table – I
Dependent Variables and Tests

S. No.	Variables	Test Items	Unit of Measurement
1.	Reaction time	Chronoscope with reaction timer	Seconds
2.	Balance	Stork stand test	Seconds
3.	Coordination	Alternate hand wall toss test	Numbers
4.	Resting Heart Rate	Blood pressure monitor	bpm
5.	VO2 max	One mile run	l/min
6.	Forced Vital Capacity	Spirometry test	Liters
7.	Speed	50 m run	Seconds
8.	Stride Length	50 m run	Meters
9.	Stride Frequency	50 m run	Numbers
10.	Anaerobic Power	Running based anaerobic sprint test (RAST)	Watts

TRAINING PROGRAMME

In this study, training will be done under close supervision with frequent adjustments in training intensity to maintain the desired training stimulus. During the training period, the experimental groups

underwent their respective training programme for three days a week (alternative days) for twelve weeks in addition to their regular programme of the course of study as per their curriculum. The training programmes were scheduled for one session in a day. The participants of Group-I will undergo the assisted sprint training, group-II will undergo resisted sprint training and Group-III will undergo combined assisted and resisted speed training for twelve weeks. The participants performed their respective training as per the schedule under the supervision of the investigator.

Before constructing the training schedule, a pilot study was conducted to assess the capability of all the participants in order to fix the load. The initial loads of the participants were fixed according to the performance in the pilot study. While constructing the training programmes, the basic principles of sports training namely progression, over load and specificity will be followed.

COLLECTION OF THE DATA

The pre test data will be collected on selected psychomotor, physiological and speed related parameters prior to the training programme and post test data will be collected immediately after twelve weeks of assisted resisted and combined sprint training from the experimental and control groups.

EXPERIMENTAL DESIGN AND STATISTICAL TECHNIQUE

The experimental design used in this study is random group design involving 40 participants, who are divided at random into four groups of ten each. The data will be collected from the four groups prior to and post experimentation on selected dependent variables are statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Since four groups were involved, whenever the obtained 'F' ratio for adjusted post test means will found to be significant, the Scheffe'S test will be applied as post hoc test to determine the paired mean differences (Broota, 1989).

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