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EFFECT OF VARIED PACKAGES OF PHYSICAL TRAINING FOR COMPETITIVE PERIOD ON SPEED OF SCHOOL LEVEL BOYS

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Abstract:

For the purpose of this study, eighty boys studying in the high school and higher secondary schools of Puducherry region were randomly selected as subjects and their range of age group was between fourteen to nineteen years. The total subjects were divided into four groups called as I, II, III and IV and each group consist of twenty students. The groups I, II, and III were treated as experimental groups and the group IV was considered as control group. The pre and post tests on speed variable were taken and recorded for all the four groups. All the three experimental groups were trained for six days per week for a period of 16 weeks. The adjusted post test mean differences between experimental group I and experimental group III was 10.01 and it was significant at 0.01 levels. The value of 0.10 was obtained as adjusted post test mean difference between experimental group II and experimental group III. The experimental group I packaging I competitive period physical training with required intensity and required volume had significantly improved on speed power greater than the other two experimental groups.

Introduction:

Sports Training is done for improving sports performance. The sports performance is not the product of one single system or aspect of human personality. The total personality of a sportsman has to be improved in order to improve his performance. Completive Sports is becoming a highly technical job. A lot of research is being done by the western countries on the scientific basis of performance in sports. As a result of more research new techniques are being adopted for training high level sportsmen. In recent years the dramatic changes that have taken place has brought about some revolution in performance. These recent changes in conditioning methods are based on and have been motivated careful observation and scientific research. The changed programme has produced valid and precise information on the relative effectiveness of different training methods. As a result we currently know much better than ever before about the functioning of the body systems during training and competition. We have learned more about the effects of diet, drugs, attitude, warm up and other influencing factors. In recent years, we have gained new knowledge about almost every aspect of conditioning and performance. The efficiency of athletes can be boosted up through proper training and conditioning. The condition of training has different aspects including the varied physical and physiological factors. The use of scientific method or technique has helped to develop every new and effective training method one such method of training is package of trainings which has now come to be used by sports coaches in different parts of the world.

Speed:

Speed is the performance prerequisite to do motor actions under given conditions in minimum of time (Theiss and Schnabel – 1987). Speed of movement is a prized quality in athletics. Speed of movement shall be defined as the rate at which a person can propel his body or parts of his body through space

Speed Training:

Factors determining various speed abilities are reaction ability, acceleration ability, locomotor ability, movement speed, and speed endurance. Reaction speed: It is the ability to react effectively and quickly to a signal. In sports reaction ability is required to react quickly and effectively to various signals and changing situations. Reaction time is most commonly taken as a measure of the reaction ability. The reaction ability can be developed by the following methods:

- ✓ Playing different types of games in which quick reaction are frequently required.
- ✓ The sportsman should react repeatedly and with maximal effort to a signal.

Example: sprint starts arranged in series of 3-4 with full rest in between.

- ✓ The sportsman should react repeatedly to a signal but with increasing speed and should also do the same with different speeds. It is the ability to achieve high speed of locomotion from a stationary position or from a slow moving position.

Acceleration Speed: It is the ability to achieve high speed of locomotion from a stationary passion or from a slow moving passion. For the direct improvement of acceleration ability short sprints are the best means. For improving acceleration ability the following load parameters are suggested:

Intensity - Maximum or near maximum
Duration - The duration of the sprint should be from 4-6 see. It can be less for children.

Distance - Depend on the nature of sport.
Repetitions - Should be arranged in series of 3-4 repetitions
Recovery - Full recovery in between the series.

It can be measured by conducting short sprint (20-60m)

Locomotor Ability: It is the ability to maintain maximum speed of locomotion for maximum duration possible. Gundlach (1969) found that in track and field sprint it can last from 20-45 metres. Maintenance of maximum speed is differs from persons to person, depending their age and performance level. The following load parameters are suggested for the improvement of locomotor ability:

Intensity - Maximum or near maximum
Duration - 6-9 Sec
Distance - Will differ according to the suggested duration of sprint.
Repetitions - 5-10, if distances are shorter, these can be managed in series of 2-3 repetitions
Recovery - Full Recovery

Locomotor speed can be measured by testing the time of 30m sprint from flying starts.

Movement Speed: It is the ability to complete the movement in correct sense within shortest duration. Example: clearing the hurdle or clearing the starting block etc. It can be improved by the following methods:

- ✓ Repeating the movement with maximum speed.
- ✓ Practicing the movement under easier conditions.

Example: use of jump boards for long jump.

- ✓ Practicing with a faster rhythm.

Speed Endurance: It is the ability to do sports movements with high speed under conditions of fatigue. Speed endurance is a combination of speed and endurance abilities. The methods for the improvement of speed endurance are as follows:

- ✓ Repetition Method
- ✓ Intensive Interval Method

Speed endurance can be measured by the following test:

- ✓ 300-400 sprint
- ✓ 40 sec. sprint
- ✓ 10 X 50m sprint with 30 sec rest in between repetitions

Training and Speed:

Speed is the performance prerequisite to do motor actions under given conditions in minimum of time. From general point of view we can have five types of speed abilities; they are reaction ability, movement speed, acceleration ability, locomotors ability and speed endurance. Speed performance is commonly improved not directly by improving the functioning of central nervous system but indirectly by improving the various factors on which the speed performance depends. The various factors are mobility of the nervous system, explosive strength, technique, biochemical reserves, metabolic power, flexibility and psychic factors.

Acceleration has been shown to be a very important factor. Research by susanka et-al, shows that the most of the world's best men achieved their greatest velocity in the locomotors between 50 and 60 meters. Women and weaker male athletes reach maximum velocity earlier between 40 and 50 meters.

50 meters run performance is considered to be the speed ability of the body. Good sprinters normally have a higher percentage of fast twitch fibers than the long distance runners; whose muscles tend to contain more, slow twitch fibers. Training called intensive interval training, repetition run, weight training, polymeric training, and flexibility training can improve 50 meters run performance.

Hypothesis:

It was hypothesised that there would be significant differences among the effect of package I, Package II and package III for competitive period of physical trainings on speed of school level boys.

Method:

The main purpose of the study was to find out the effect of varied packages of physical training for competitive periods on speed of school level boys.

For the purpose of this study, eighty boys studying in the high school and higher secondary schools of Puducherry region were randomly selected as subjects and their range of age group was between fourteen to nineteen years. The total subjects were divided into four groups called as I, II, III and IV and each group consist of twenty students. The groups I, II, and III were treated as experimental groups and the group IV was considered as control group. The initial tests on speed test power variable were taken and recorded for all the four groups. All the three experimental groups were trained for six days per week for a period of 16 weeks.

Among the three experimental groups, group I was involved with packaging I preparatory period physical training with required intensity and required volume, group II was taken up with package II preparatory period physical training with above 90% intensity and required volume, and the group III was trained with the package III preparatory period physical training with fixed high intensity and fixed high volume. The control

group was not involved in any physical trainings. After 16 weeks of preparatory period training, the second test on speed variable are taken for all the four groups and recorded.

The statistical analysis of the data collected from the pretest and post test of experimental groups and control group on speed for the competitive period of training have been presented in the table I

Table 1: Analysis of Covariance for the Pretest and Post Test Data of Experimental Group I, Experimental Group II, Experimental Group III and Control Group on Speed for the Competitive Period Training (Scores in seconds)

Test	Group I Gradually Loaded Intensity & Required Volume	Group II Fixed High Intensity & Required Volume	Group III Fixed High Intensity & Fixed High Volume	Group IV Control Group	SOV	DF	SS	MS	"F"
Pre - Test Mean SD	6.96 0.18	6.91 0.18	7.03 0.18	7.16 0.17	B.M W.G	3 76	6.09 2.49	0.23 0.03	7.03**
Post - Test Mean SD	6.73 0.32	6.72 0.18	6.89 0.17	7.15 0.16	B.M W.G	3 76	2.42 3.80	0.81 0.05	16.15**
Adjusted Post - Test Mean	6.95	6.83	6.87	7.00	B.S W.S	3 75	0.40 1.00	0.13 0.01	10.01**

* = Significant at .05 level ** = Significant at .01 level

Table value for df 3 and 76 at .05 level =2.72 Table value for df 3 and 75 at .05 level =2.73

Table value for df 3 and 76 at .01 level =4.05 Table value for df 3 and 75 at .01 level =4.05

Table shows the analysed data of speed. The pretest means of experimental group I, experimental groups II, experimental group III and control group were 6.96 seconds, 6.91 seconds, 7.03 seconds and 7.14 seconds respectively. The obtained 'F' ratio of 7.03 was significant at .01 level for the degree of freedom 3 and 76. The post test means of experimental group I, experimental group II, experimental group III and control group were 6.73 seconds, 6.72 seconds, 6.89 seconds and 7.15 seconds respectively. The obtained F-ratio of 16.15 was significant at 0.01 level for the degree of freedom 3 and 76

The adjusted post test means were 6.79 seconds for experimental group I, 6.83 seconds for experimental group II, 6.87 seconds for experimental group III and 7.00 seconds for control group. The obtained F-ratio of 10.01 was significant at 0.01 level for the degree of freedom 3 and 75. The above results indicated that there was significant difference existed among the adjusted post test means of experimental group I, experimental group II, experimental group III and control group. Further, to determine which of the paired means had a significant difference, the Scheffe's test was applied as post hoc test and the results were presented in the table 2.

Table 2: Scheffe's Test for the Differences between the Paired Adjusted, Post - Test Means on Speed for Competitive Period Training (Scores in Seconds)

Adjusted Post Test Means				Means differences	Level of significant
Group I Gradually Loaded High Intensity & Required Volume	Group II Fixed High Intensity & Required Volume	Group III Gradually Loaded High Intensity & Fixed High Volume	Group IV Control Group		
6.79			7.00	0.22	0.01
	6.83		7.00	0.17	0.01
		6.87	7.00	0.12	0.05
6.79	6.83			0.04	NS
6.79		6.87		0.09	NS
	6.83	6.87		0.04	NS

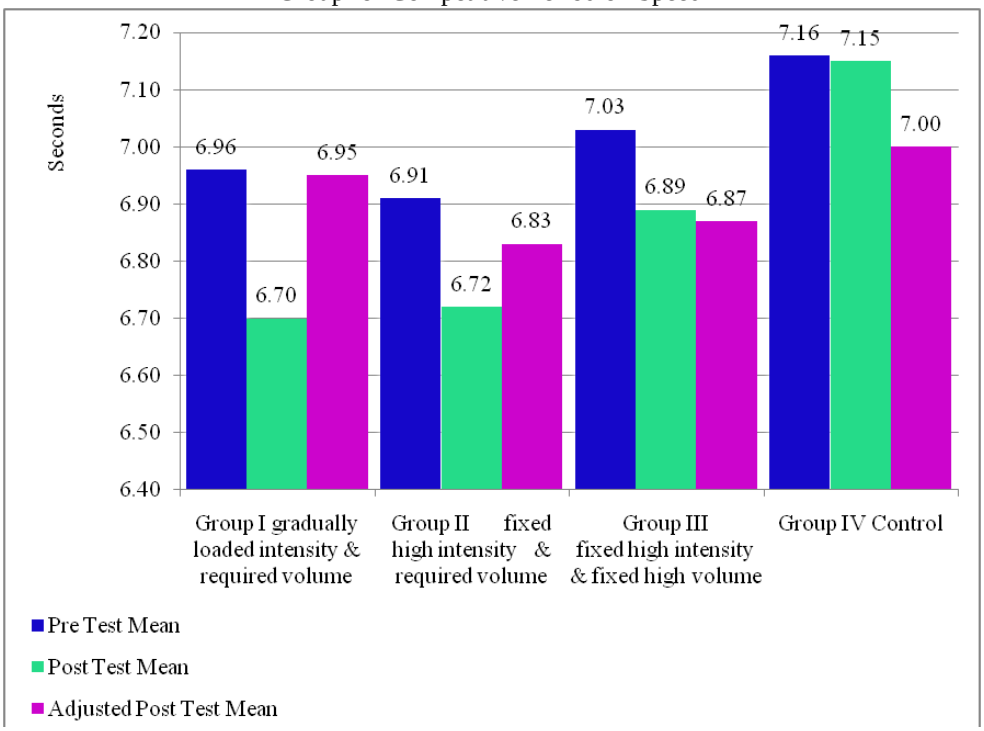
Confidence interval value at .05 level = 0.10 Confidence Interval value at .01 level = 0.13

Table II shows the differences between the paired adjusted post test means on speed. The confidence interval value at .05 level was 0.10; and 0.13 was the confidence interval value at .01 level. The adjusted post test mean difference on speed between experimental group I and control group was 0.21 and the obtained value was significant at 0.01 level The adjusted post test mean difference of 0.17 was obtained between experimental group II and control group. The obtained value was significant at 0.01 level. The adjusted post test mean difference between experimental group III and control group was 0.12 and the obtained value was significant at 0.05 level.

The adjusted post test mean difference of 0.04 was obtained between experimental group I and experimental group II and the obtained value was insignificant. The adjusted post test mean difference between experimental group I and experimental group III was 0.09 and the obtained value was insignificant. The value of 0.04 was obtained as adjusted post test mean difference between experimental group II and experimental group III. The obtained value was insignificant. The above results indicated that experimental group I, experimental group II, experimental group III were significantly improved the speed, when compared with the control group and also there was no significant difference existed among the three training groups.

It was also indicated that experimental group I had significantly improved the speed greater than the other two experimental groups.The pre test, post test and adjusted post test mean values of experimental groups and control group on speed for competitive period were graphically represented in the figure

Figure: The Pre-Test, Post – Test and Adjusted Post Test Mean Values of Experimental Groups and Control Group for Competitive Period on Speed



Discussion on Findings for the Competitive Period Training:

The result of the study for the competitive period indicate that 30 metres run performances from flying start, 30 metres run performance from crouch start and 300 metres run performance were developed significantly by package I, package II and package III physical training groups when compared to the control group. It is also found that the result of the study indicate that package I physical training group significantly improved the 30 meters run performance from flying start, 30 meters run performance from crouch start and 300 meters run performance when compared to package II and package III physical training groups. High intensity interval training, acceleration run, weight training, plyometric training, wind sprint etcetera might have improved the ATP, CP level, actins and myosin level and mitochondria levels in the muscles. Since, package I physical training group underwent the above mentioned training, the group I might have been improved significantly on 30 meters run performance from flying start, 30 metres run performance from crouch start and 300 meters run performance, when compared to package II and package III physical training groups.

The result of the study regarding 30 metres run performance from flying start was supported by the findings of Delecluse et. al., Wisloff et.al. and Wadley. The result of the study regarding 30 metres run performance from crouch start was supported by the findings of Bonquet et. al., Polman et. al., Siegler et. al and Young et. al. The result of the study regarding 300 metres run performance was against the findings of Delecluse et. al.

Conclusion:

From the result of the present study and related literature, it is concluded that significant different existed among the three experimental group in developing dependent variables such as 30 meters run performance from flying start, 30 metres run performance from crouch start and 300 metres run performance,

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