

Food Supplement and Kinovea Software along with Anaerobic Training Influences the Explosive Strength and Strength Endurance Variable of Sportsmen

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Abstract: Nowadays Nutrition and Biomechanics plays a principal role in the performance of the player. The present study is the influence of Kinovea Software and food supplement along with anaerobic training on Explosive strength and strength endurance variable of sportsmen. To accomplish the reason of the study, 90 sportsmen randomly selected from Ayya Nadar Janaki Ammal College, Sivakasi falling in the age group of eighteen to twenty five years will be selected and randomly divide in to three groups. Sportsmen should have been participated in intercollegiate tournament. Random group design will be adopted in this study the researcher make a meticulous analysis to discover out whether there is any major improvement in the mean level of the group in selected Explosive strength and strength endurance variable. They divided in to three groups. Experiment group I had taken Anaerobic Training with Kinovea Software. Experimental group II had taken the Anaerobic Training with Food supplement. Group III was act as Control Group while they will undergo for their regular training. Medicine ball throw and Sit ups was chosen as Explosive strength and strength endurance variable respectively. Anaerobic Training with Kinovea Software is more effective than Anaerobic Training with Food supplement and Anaerobic Training with Food supplement is more effective than Control group in promoting Explosive strength and strength endurance of the Sportsmen.

Keywords: Anaerobic training, Food supplement, Kinovea Software

Introduction

Nowadays Nutrition and Biomechanics plays a principal role in the performance of the player Video analysis is the major role in sports performance. Biomechanical analysis helps to correct the technique of activity, to correct the exercise technique and also to find out the weakness areas etc. Kinovea is a freeware software and user friendly for all the sports scientists and coaches as well. It helps to analyse the 2D motion of any sport with minimal perspective errors. It helps to analyse the various angle of motion and velocities that occur in our human body during various sports activities. M. and M. (2024) It helps to analyse the human gait in 2D perspective. It helps to collect the quantitative data with minimal perspective errors. It also can be used as a assessment tool for the functional movement screening by the physiotherapists. Also we can download the analysed data in a video format. Goblet Squat Analysis* It helps to analyse the Range of motion in each joint during the concentric and eccentric phase. It helps to analyse the torso (spine) angle deviation during the isometric phase.(pelvic tilt). Taga Maka et al. (2024) It helps to analyse the time taken between each reps in each phase.(velocity based training) It helps to compare the knee valgus deviation range between both legs. Also during jumping squats can analyse the ground contact time reaction and we also analyse the maximum triple extension of lower limb joints (hip, knee, ankle) Also analyse the vertical displacement time and range during jumping squats. Numerous factors can be bearing the performance of a players during struggle which related to special domain (Rajammal P.Deevadas, 1972),s. The certain nutrition and dietary approaches can enhance the sports performance and also nutrition is essential for an athlete's good performance (Manikandan and Selvam,

2010). Nutrition is a very imperative role to reach the sky-scraping level of achievement in sports. Nutritional position has a direct deportment on the level of fitness. Gupta and Gupta (2024) Hence, Explosive strength and strength endurance and training are very much dependent on nutritional status of sports personnel (Beals and Manore, 1998). The main dietary goal for active supplement information from nutritionists/dietitians and individuals is to obtain adequate nutrition to optimize health and fitness or sports performance (Congeni and Miller, 2002; Berning, 2000). In addition, several natural food components have been found to show physiological effects, and some of them are considered to be useful for promoting exercise performance or for prevention of injury (Wataru et al., 2006). Statement of the problem is to identify the impact of Food supplement and Kinovea software along with Anaerobic Training given to experimental groups on Explosive strength and strength endurance variable

Research Methodology

Ninety sportsmen selected from Ayya Nadar Janaki Ammal College, Sivakasi falling age range of eighteen to twenty five years were selected and randomly divided in to three groups. Sportsmen should have been participated in intercollegiate tournament. Random group design was adopted. They divided in to three groups. Group I will act as Experiment group I had taken Anaerobic Training with Kinovea software. Group II will act as Experimental group II had taken the Anaerobic Training with Food supplement. Group III will act as Control Group while they undergone for their regular training

Explosive Strength And Strength Endurance Variable (Altaf Hussain Bhatt 2010),

Variables	Tests
Explosive strength	Medicine ball throw
Strength endurance	Sit ups

Anaerobic Training

Sr.No	Days	Monday -Thursday	Tuesday –Friday	Wednesday –Saturday
(1)	Warming Up 5 to10 Minutes	Mild jogging followed by complete body stretching then afterhead to toe exercises then 2 or 3 longer strides running of 50 meters	Mild jogging followed by complete body stretching then after head to toe exercises then 2 or 3 longer strides running of 50 meters	Mild jogging followed by complete body stretching then after head to toe exercises then 2 or 3 longer strides running of 50 meters
(2)	Main Course	30 minutes	30 minutes	30 minutes
	Component s to be focused	Speed	Speed	Speed
	Method	Extensive intervalmethod for short	Changing the pace after each specified	Changing the pace after each specified

		duration	time duration.	distance.
	Activities Format	4 longer strides – 50 meters. followed by 2 sprints 100 meters. then 2 times hopping 20 meters. then 6 sprints 20 meters. then 2 times slow pace running 80 meters. Recovery time- 90 to 180 Seconds	Two sets of 3.00 minutes of jogging followed by 0.20 seconds of sprint then 3.00 minutes of slow running then 20 seconds longer stridesthen 2 min brisk walking ending with 30 seconds of fastrunning. Recovery time- 90 to180 Seconds.	300 meters. Brisk walking 40 meters. sprint 50 meters. jogging 50 meters. sprint 100 meters. mild jogging 30 meters. hopping 500 meters. jogging 30 meters. longer strides 100 meters. walking (Two Times incontinuation)
	Intensity	80 to 85%	80 to 85%	80 to 85%
	Max. Heart RateRange	180 Beats/Minutes or more	160 to 180 Beats/Minutes	140 to 180 Beats/Minutes
	Min Heart Rate	125 B/M	125 B/M	120 Beats/Minutes
	Nature of Recovery	Incomplete	Incomplete	Incomplete
(3)	Cooling Down 5 to 10 Minutes	Upper and lower extremities stretching, sitting and lying down exercises with partners, forward lounging, and side ward bending.	Upper and lower extremities stretching, sitting and lying down exercises with partners, forward lounging, side ward bending.	Upper and lower extremities stretching, sitting and lying down exercises with partners, forward lounging, side ward bending.

Food Supplement

It was made by dry roasted of Whole wheat, Finger Millet (Ragi), Pearl millet, Green gram, Red rice, Black gram, Brown /black channa, Roasted gram, Horse gram, Groundnut, corn, Barley, peanut, soya beans, Cashew, Almond, Dry ginger & Cardamom (Toshikazu Yoshikawa,2006) before going to fine powder and let it cool down too. Take two table spoon of food supplement powder in a pan and add 100 to 150 ml of water at room temperature. mix it well without any lumps and cook on low flame until it gets thick. Add sugar for sweet as per taste preference (Congeni J, Miller S. 2002)

Kinovea

Take a video of work out who had undergone the training in the experimental group I and upload in Kinovea 2d software and manually worked on it and avoided the unnecessary movements in anaerobic training to minimize the energy and give maximum output

Analysis of Data

This table shows that ANCOVA of Medicine ball throw (Explosive strength) among Anaerobic training with Kinovea Software, Anaerobic training along with food supplement and control group

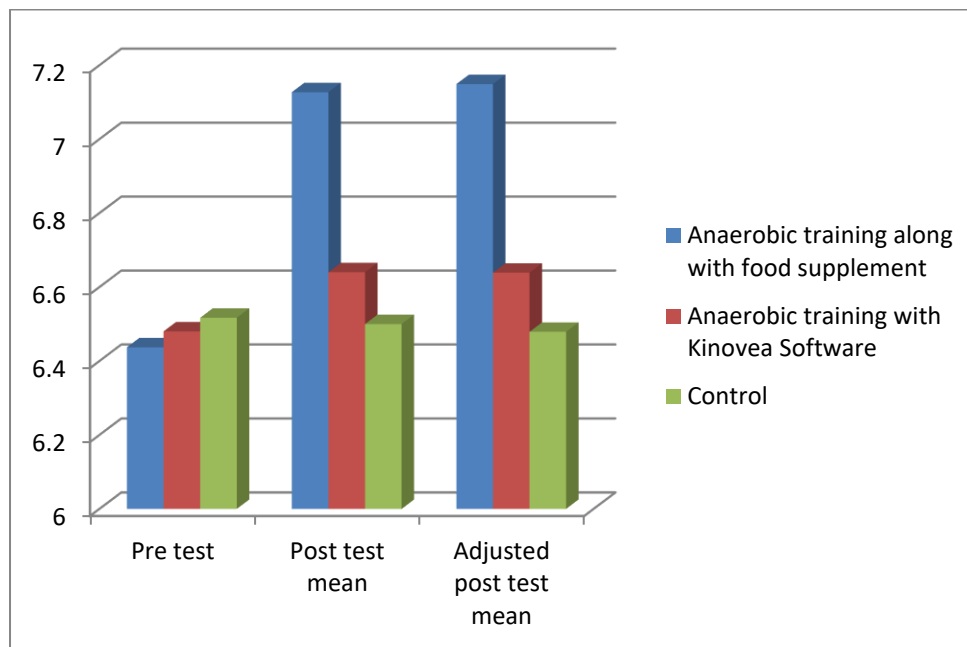
Group	Anaerobic training along with food supplement	Anaerobic training with Kinovea Software	Control	SS	Degrees of freedom	MSS	'F'Ratio
Pre test	6.437	6.480	6.517	B: 0.962 W: 375.993	2 87	0.481 4.322	0.111
Post test mean	7.127	6.640	6.500	B 64.916 W 193.707	2 87	32.458 2.227	14.578 *
Adjusted post test mean	7.149	6.639	6.479	B 73.176 W 86.312	2 86	36.588 1.0043	36.455 *

Table value 3.07

This table shows the paired adjusted final means and difference between means of Medicine ball throw (Explosive strength)among Anaerobic training with Kinovea Software, Anaerobic training along with food supplement and control group

Anaerobic training along with food supplement	Anaerobic training with Kinovea Software	Control group	Mean difference
71.486	66.388		5.098*
71.486		64.792	6.694*
	66.388	64.792	1.596

Graphical Representation For Medicine Ball Throw (Explosive Strength)



This table shows that ANCOVA of Sit ups (Strength Endurance) among Anaerobic training with Kinovea Software, Anaerobic training along with food supplement and control group

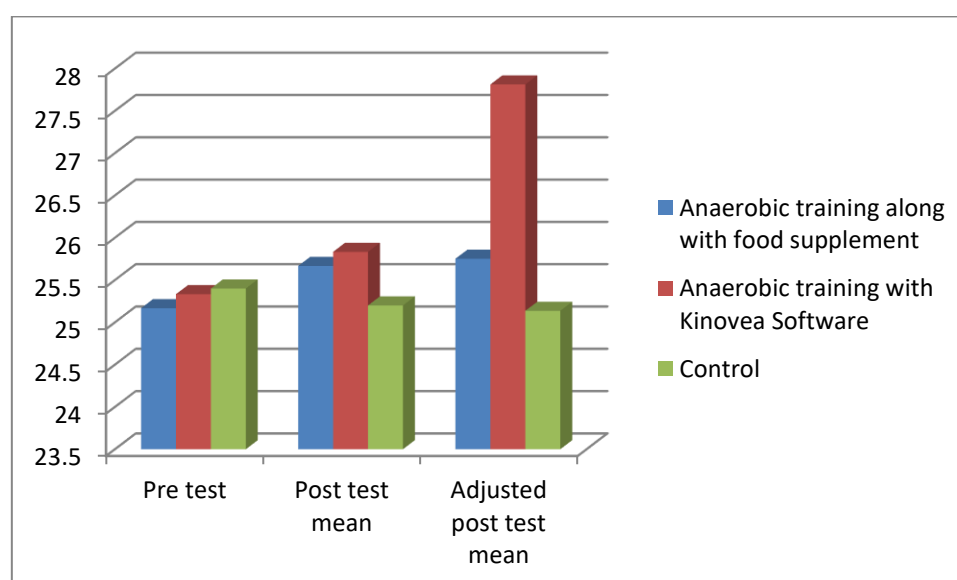
Group	Anaerobic training along with food supplement	Anaerobic training with Kinovea Software	Control	SS	Degrees of freedom	MSS	'F'Ratio
Pre test	25.167	25.333	25.4	B: 0.867 W: 436.033	2 87	0.433 5.012	0.086
Post test mean	25.667	25.833	25.200	B: 118.467 W: 305.633	2 87	59.233 3.513	16.861*
Adjusted post test mean	25.752	27.812	25.136	B: 117.540 W:127.198	2 87	58.920 1.479	39.837*

Table value 3.07

This table shows the paired adjusted final means and difference between means of Sit ups (Strength Endurance) among Anaerobic training with Kinovea Software, Anaerobic training along with food supplement and control group

Anaerobic training along with food supplement	Anaerobic training with Kinovea Software	Control group	Mean difference
25.752	27.812		2.060*
25.752		25.136	0.616*
	27.812	25.136	2.676*

Graphical Representation For Sit Ups (Strength Endurance)



Discussion Of Findings

This result reveals that there is good and huge variation in the Explosive strength inbetween pre test and post test means of Anaerobic Training with Food supplement group (experimental group I) and Anaerobic Training with Kinovea (experimental group II).

No variation in speed inbetween the pretest and post test of control group. concerning statistical ANCOVA, it's observed that there is a good and huge variation in Explosive strength of the adjusted postmean of food supplement, kinovea and control. The results of the adjusted post mean indicate that there is a huge variation between Anaerobic Training with food supplement and control group on Explosive strength.

Good and huge variation in the Strength Endurance inbetween the pretest and post test means of Anaerobic Training with Food supplement group and Anaerobic Training with Kinovea.

No variation in Strength Endurance inbetween the pretest and post test of control group. Concerning statistical ANCOVA, it is observed, there is a good variation in the Strength Endurance among the adjusted post test means of groups (Anaerobic Training with Kinovea, Anaerobic Training with Food supplement group and control).

The results of the adjusted post mean show that there is a huge variation between Anaerobic Training with food supplement and control group on Strength Endurance.

This result indicates the Anaerobic Training with Kinovea software group had significantly influenced Explosive strength and strength endurance variables namely medicine Ball throw and Situps of Sportsmen

This result indicates the Anaerobic Training with Food supplement had significantly influenced Explosive strength and strength endurance variables namely medicine Ball throw and Situps of Sportsmen.

Anaerobic Training with Food supplement group made significant improvement better than control group in Explosive strength and strength endurance.

References:

- [1] Manikandan S and Selvam D, (2010), "Nutrition and sports performance", Br J Sports Med; 44: i46
- [2] Beals KA, Manore MM. (1998) Nutritional status of female athletes with subclinical eating disorders. J Am Diet Assoc. 98:419–25
- [3] Gupta, R., & Gupta, S. (2024). Savouring Success: The Impact of Social Media on The Growth of the Food Industry. International Journal of Research -Granthaalayah, 12(8), 206–210. <https://doi.org/10.29121/granthaalayah.v12.i8.2024.6640>
- [4] Congeni J, Miller S. (2002) Supplements and drugs used to enhance athletic performance. Pediat Clin North Am. 49:435–61.
- [5] Wataru Aoi, Yuji Naito and Toshikazu Yoshikawa, (2006) , "Exercise and functional food" Nutrition Journal, 5:15
- [6] Altaf Hussain Bhatt 2010, "test and measurements in Physical Education", Sports Publication in New Delhi, p125
- [7] PL Karad 2011 Test measurement and Evaluation in Physical Education, Khel Sahitya Kendra Publication in New Delhi, p 85
- [8] M., S., & M., R. (2024). Interrelationship Between Food, Medicine and Health as Reflected in the Ancient Tamil Society. International Journal of Research -Granthaalayah, 12(12), 38–51. <https://doi.org/10.29121/granthaalayah.v12.i12.2024.5862>
- [9] Adedoyin, R. A., Ogundapo, F. A., Mbada, C. E., Adekanla, B. A., Johnson, O. E., Onigbinde, T. A. and Emechete, A. A. I. (2009) Reference Values for Handgrip Strength among Healthy Adults in Nigeria. Hong Kong Physiotherapy Journal 27(1):21-29.
- [10] Charles Harold McCloy. (2004). "Test and measurement in Health and physical Education", fiends publication india 12:2076–2081.
- [11] Johnson, Barry L, practical measurements for evaluation in Physical education, sports publication New delhi P94-119
- [12] Taga Maka, C., Nono, Y. J., & Mbiat, H. de G. (2024). Scientific and Technical Review of Natural Cameroonian Based Foods and Devices for Administration by Enteral Tube Feeding. International Journal of Engineering Technologies and Management Research, 11(7), 49–59. <https://doi.org/10.29121/ijetmr.v11.i7.2024.1478>
- [13] Rajammal P. Deevadas, 1972, Nutrition in tamilnadu, sangam publication India, P67-76.
- [14] F.C. Blank, 1999, handbook of Food and Nutrition, Agrobios India, P40-68
- [15] Chandra sekhar, 2004, Weight training, vivek thani Khel Sahitya Kendra Publisher new delhi, P218 - 231