

Effect of warming up on the human body of sportsmen and women

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ABSTRACT

For this study 40 RKM, B.P.Ed. students of 2008-09 were selected randomly which were put in two groups *i.e.* for men and women. The average age of the subjects was 30 years. Pre-test was conducted for selected variables *i.e.* pulse rate, lung capacity, level of Haemoglobin, level of blood cholesterol and Alfa E.E.G. with the help of standard equipments after that 40 minutes warming up activity was administered for eight week in the early morning from 5 am onward and then second post-test was conducted for the same variables with the help of same equipments. The data from both the tests were analysed on the bases of statistical calculations. The conclusion of statistical t-test was found that 40 minutes regular warming up activity decreased the level of blood cholesterol, rate of nerve impulses became normal, lung capacity increased or inhaling capacity of lungs increased and level of haemoglobin and Alfa EEG increased, in the sportsmen and women.

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It has been observed and reported by so many researchers that following regular warming up physical activity/exercise improves the physiological variable of sportsmen or women but adopting appropriate and regular warming up in their training method fulfils the demanded positive health and level of physiological selected variables of the players of any country which is helpful in increasing level of performance of any sportsperson and also helpful in avoiding sports injuries. Investigator has realized its importance as a sportsman. Means used in this study were all types of walking, jogging, running, rotation on all the joints and starching exercise and 40m hollow sprint. Principle of exercises or activities were used walking-jogging-running and running-jogging-walking and pulse rate were maintained from 120 to 180 or 180 to 120 b/m and exercise used from toe to head or head to toe because muscles have attachment one joint to other. Physiological components such as Pulse rate, Lungs capacity, Haemoglobin level, Blood cholesterol level and Alfa E E G Level etc. have considerably importance not only in their physiological level but also bio-chemical development of the sportsmen and women.

Warming up is the processes through which human mechanism is brought to certain condition at which nerve impulses of the athlete can serve more quickly and efficiently.

A warm up is usually performed before participating in technical sports or exercising. A warm-up generally

consists of a gradual increase in intensity in physical activity (pulse raiser), a joint mobility exercise, stretching and sports related activity.

Warming up is the sole source of physiological development of the human beings. It is also known as the means and method of acquiring the ability to engage in tasks demanding sustained physical efforts. There is a direct relationship between systematic warming up and performance. The purpose of the present study was to calculate the effect of warming up on the selected variable of physiological fitness of the players. This study may be as an important and essential aid to the coaches and physical educationists to administer warming up activity before going into the main training task.

METHODOLOGY

Sample:

To achieve the above objective, 40 men and women players were selected from B.P.Ed class of RKM Physical Training College, Moradabad during the academic session or year 2008-09. Physiological variables and test items Pulse rate-taken with the help of stop watch and monometer, Lungs capacity-measured with the help of Spiro-meter and haemoglobin Level-haemo-meter, blood cholesterol Level-bio-chemical devise and Alfa E.E.G Level- Alfa EEG biofeedback technique were used for collecting the required data for the present research.

OBSERVATIONS AND DISCUSSION

The findings of the study have been presented in the following sub heads:

Pulse rate:

Table 1 shows the results of the level of pulse rate in men and women after statistical analysis which was taken after imparting eight week 40 minutes warming up exercise daily in the morning session to both the subjects men and women.

Results of Table 1 show that means value of the level of pulse rate of both the subjects decreased from 73.38 to 72.97 and obtained value of t-ratio 0.34 is not significant at 39 of 0.01 significance level, where as the means value of the level of pulse rate of both the subjects men and women decreased and the value of t-ratio in men subjects (2.07) is not significant at 19 of 0.05 significance level and the value of t-ratio in women subjects (2.86) is significant at 19 of 0.05 level of significance. Hence, the means values of both the subjects collectively is showing decreases in the level of pulse rate. It is concluded that imparting daily 40 minutes warming up exercises to the subjects decreased the level of pulse rate. The reason for decrease/increase in the level of pulse rate may be due to warming up exercise because hypothalamus creates activation to para sympathetic nervous system by controlling autonomic system which makes autonomic condition of the body of human being normal so that the increase in heart rate, nerves, blood pressure and rate of respiration become normal.

Lungs capacity:

Table 2 shows the results of the level of lungs

capacity in men and women after statistical analysis which was taken after imparting eight week 40 minutes warming up activity daily in the morning session to both the subjects men and women.

Table 2 shows the means value of the level of lungs capacity (F.E.V-I stand for forced expiratory volume) of both the subjects which increased from 72.80 to 104.08 and obtained value of t-ratio (15.35) is significant at 39 of 0.01 significance level, where as the means value of the level of lungs capacity (F.E.V-I) of both the subjects men and women decreased and the value of t-ratio in men subjects, 14.99 is significant at 19 of 0.05 significance level and the value of t-ratio in women subjects, 10.21 is significant at 19 of 0.05 level of significance. Hence the means values of both the subjects collectively showing increases in the level of lungs capacity (F.E.V-I). It is concluded that imparting daily 40 minutes warming up to the subjects increased the level of lungs capacity (F.E.V-I). The reason for such type of increase in the level of lungs capacity (F.E.V-I) may be due pause in between inhale and exhale and increase and decrease in the rate of intensity which open all the air sacs and involve all the three parts of lungs in the body of human being.

Haemoglobin level:

Table 3 shows the results of the level of haemoglobin in men and women after statistical analysis which was taken after imparting eight week 40 minutes warming activity daily in the morning session to both the subjects, men and women.

Table 3 shows the means value of the level of haemoglobin of both the subjects increased from 10.74 to 11.83 and obtained value of t-ratio (6.27) is significant at

Table 1: Pulse rate					
Groups	Pre-test	Post-test	r	t-value	S.L.
Male (n=20)	M=69.90	72.32	0.11	2.07	0.05
	S.D.=5.04	02.91			
Female (n=20)	M=76.60	73.6	0.34	2.86	0.01
	S.D.=4.50	03.15			
Total subjects (n=40)	M=73.38	72.97	0.32	0.34	0.01
	S.D.= 5.81	2.35			

Table 2: Lungs capacity					
Groups	Pre-test	Post-test	r	t-value	S.L.
Male (n=20)	M=75.15	102.35	0.87	14.99	0.05
	S.D.=8.78	14.15			
Female (n=20)	M=70.45	108.8	0.85	10.21	0.01
	S.D.=9.20	22.65			
Total subjects (n=40)	M=72.80	104.08	0.79	15.35	0.01
	S.D.=8.92	18.72			

Table 3: Haemoglobin level

Groups	Pre-test	Post-test	r	t-value	S.L.
Male (n=20)	M=11.25	11.95	0.62	2.50	0.05
	S.D.=1.59	01.11			
Female (n=20)	M=10.23	11.7	0.79	8.58	0.01
	S.D.=1.24	0.89			
Total subjects (n=40)	M=10.75	11.83	0.68	6.27	0.01
	S.D.=1.50	1.00			

39 of 0.01 significance level, where as the means value of the level of haemoglobin of both the subjects men and women, increased and the value of t-ratio in men subjects (2.50) is significant at 19 of 0.05 significance level and the value of t-ratio in women subjects (8.58) is significant at 19 of 0.05 level of significance. Hence, the means values of both the subjects collectively is showing increase in the level of haemoglobin. It is concluded that imparting daily 40 minutes warming up to the subjects increase the level of haemoglobin. The reason to increase in the production level of haemoglobin due to receiving of sufficient amount of oxygen which increases the working capacity of cell and increases the production of red blood cells through scientific warming up activity.

Blood cholesterol level:

Table 4 shows the results of the level of blood cholesterol in men and women after statistical analysis which was taken after imparting eight week 40 minutes warming up activity daily in the morning session to both the subjects men and women.

Table 4 indicates that the means value of the level of blood cholesterol of both the subjects decreased from 155.5 to 150.18 and obtained value of t-ratio 2.86 is significant at 39 of 0.01 significance level, where as the means value of the level of blood cholesterol of both the subjects men and women decreased and the value of t-ratio in men subjects (1.63) is not significant at 19 of 0.05 significance level and the value of t-ratio in women subjects (2.39) is significant at 19 of 0.05 level of significance. Hence, the means values of both the subjects collectively are showing decrease in the level of blood

cholesterol. It is concluded that imparting daily 40 minutes warming up to the subjects decreased the level of blood cholesterol. The reason for decreased in the level of blood cholesterol may be bio-chemical changes in the body of human being. As level of flow of acetylcholine is decreased than level of catecholamine and cortisol increases and in the same way the level of serum cholesterol and blood sugar decreases (Uduppa, 2000).

Alfa EEG level:

Table 5 shows the results of the level of Alfa EEG level in men and women after statistical analysis which was taken after imparting eight week 40 minutes warming up activity daily in the morning session to both the subjects men and women.

Table 5 shows the means value of the level of Alfa EEG of both the subjects which increased from 5.98 to 8.05 and obtained value of t-ratio 3.74 is significant at 39 of 0.01 significance level, where as the means value of the level of Alfa EEG of both the subjects men and women increased and the value of t-ratio in men subjects, 2.75 is significant at 19 of 0.05 significance level and the value of t-ratio in women subjects, 2.55 is also significant at 19 of 0.05 level of significance. Hence, the means values of both the subjects collectively are showing increase in the level of Alfa EEG. It is concluded that imparting daily one hour warming up to the subjects decreased the level of Alfa EEG. The reason for increase in the level of Alfa EEG may be Alfa rays coming out from the human body if there is a competition head of the subject which create unrest and tension in the mind of

Table 4: Blood cholesterol level

Group	Pre-test	Post-test	r	t-value	S.L.
Male (n=20)	M=151.9	147.45	0.87	1.63	0.05
	S.D.=22.56	24.94			
Female (n=20)	M=159.1	152.9	0.88	2.39	0.01
	S.D.=24.59	24.42			
Total subjects (n=40)	M=155.5	150.18	0.88	2.86	0.01
	S.D.=23.58	24.53			

Table 5: Alfa E E G Level

Group	Pre-test	Post-test	r	t-value	S.L.
Male (n=20)	M=6.46	8.35	0.73	2.75	0.05
	S.D.=3.23	4.47		d.f.=19	
Female (n=20)	M=5.50	7.77	0.39	2.55	0.01
	S.D.=2.50	04.40		d.f.=19	
Total subjects (n=40)	M=5.98	8.05	0.58	3.74	0.01
	S.D.=2.89	04.28		d.f.=39	

sportsman. Warming up changes the level of Alfa E. E. G. and removes tension etc. in the body of human.

Conclusion:

Warming up is that activity which helps to maintain the balance between physiological and mental state of human body if it performed in early in the morning because in that time, level amount of atmospheric energy is found more due to peaceful uncontaminated atmosphere which gives fresh air to maintain pulse rate, lungs capacity, level of haemoglobin, level of blood cholesterol and Alfa E.E.G. in sports personals.

Recommendations:

- It will be worthwhile to make a similar study on a large population of respective sports and general public who belongs to rural and urban areas.
- The same study may be conducted on junior boys and girls under the age of 10, 12 and 14 years.
- All the scientific aspects like physiological, psychological, economical, biomechanical etc aspect also be taken into consideration.
- Similar studies may be undertaken on different levels or age groups with men and women subjects on hills.
- To reduce for maximum risk of injury (the core muscles act as shock absorbers for jumps and rebounds etc. of incoming balls).
- It is recommended for reducing back problems and injuries through such type of study and this would be beneficial for all sports and team games.

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