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Relationship of fitness and physiological variables of non-sportswomen

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ABSTRACT

The purpose was to find out the relationship of the selected motor components and physiological variables in predicting fitness status of women. The twenty five female non sports women subjects were selected from Universities and Colleges of Rajasthan. Total twelve variables *i.e.* six physiological variables and six motor components were selected. Physiological variables included body density, vital capacity, blood pressure, breath holding capacity, hemoglobin. pulse rate. Motor components included Cardio vascular endurance, agility, flexibility, speed, strength and balance. Body density (percentage of body fat) was calculated from the skin fold measurements, peak flow rate with the help of peak flow meter, blood pressure by Doctor's Sphygmomano-meter in pulse pressure, hemoglobin percentage with the help of Hemoglobin meter, pulse rate by stopwatch, in number of beats per minute, breath holding capacity with the help of nasal clip and stop watch in seconds, Speed was measured by the performance of 50 m dash in seconds, Agility by 10 x 4 m shuttle run in seconds, Flexibility of lower back and hamstring muscles by the performance of sit and reach test in centimeters. Strength was measured by the performance of standing broad jump with the help of flexible steel tape in meters, Endurance by the performance of 600 m run on standard track with the help of stop watch in seconds/minutes, Balance by the performance of static balance test (stoke stand) in sec/minute. All the female students (sports women) were provided complete information about the study and instruments which were used. To find out the relationship of selected motor components and physiological variables Pearson Product Moment Correlation was used.

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Key words : Physical fitness, Peak flow rate, Body density, Systolic, Diastolic blood pressure

Physical fitness is a priceless possession of any man, because it serves as a base for any future development. A week or an unsuitable base can hardly withstand the load of a super structure. Therefore, physical fitness, at different stages of life, serves as a sound base for any further development. In fact it is the basic factor for achievement in any field of life (Uppal, 1996 and Sharma, 2000) .

In this modern era of competition, the physical, physiological fitness and psychological preparation of a players or team is as much important as teaching the different skill. These players are prepared not only to play, but also to win, or game. And for winning the game, it is not only the proficiency in the skill, which brings victory, but more important is the physical, physiological and psychological fitness of the players (Aluzo, 1962). Identification and selection of potential athletes in specific fields on scientific knowledge is a matter of routine in many developed countries. In India, this aspect has been given serious consideration and the players are selected mainly on the basis of their performance records in various sports meets. It is often forgotten that such 'talents' have already their peak performance with little scope for further spectacular improvement in spite of intense grooming scheduled, so they need to be identified at a very young age.

Another reason attributes to the lowering of the general physical fitness is that physical work is often considered being below the dignity of many as evident from the increasing level of labour charges in all spheres of life. People feel it embarrassing in walking a few hundred yards on the streets (Hockey Robert, 1973).

Thus, we see that the importance of physical fitness through organized physical education and sports programmes are of greater significance in today's sedentary life or else the risks of physical diseases and organic malfunction will be ever mounting.

In the present competitive world, women are visible, but then active involvement in physical activity is not yet pervasive. They are entering new roles in the society, which expects them to move equally with their male counter parts. The main focus should be on the lives of

the "everyday women", who has ever thought of participating in fitness programmes or other forms of physical recreation (Borms *et al.,* 1980).

METHODOLOGY

Fifty non-sports women were selected from Universities and Colleges of Rajasthan. The age level of the subjects was ranged from 18 to 25 years. All the subjects belonged to different socio-economic conditions.

Criterion measures:

The following motor components and physiological variables were taken on each subject by using standard technique:

Motor components:

Speed (50 meter dash):

It was measured by administering 50 meters dash to the nearest 1/100th of a second.

Agility (10 x 4 m shuttle run):

It was measured by administering 10 x 4 meters shuttle run to nearest 1/100th of a second.

Strength (standing broad jump):

It was measured by administering standing broad jump to the nearest in centimeter.

Flexibility:

It was measured by modified sit and reach test (centimeters). dekho kaise set kare

Balance (stoke stand):

It was measured by administering static balance test to the nearest 1/100th of a second.

Cardio vascular endurance (600m run):

It was measured by administering 600 meter run to the nearest 1/100th of a second.

Physiological variables:

Peak flow rate:

It was measured by the peak flow meter in liters.

Breath holding capacity:

It was measured during holding of the breath after full inhalation in sec/min.

Blood pressure:

It was measured by Sphygmomanometer and Stethoscope in mm/hg.

Pulse rate:

It was measured in terms of number of pulse beat recorded per minute during resting and active condition radial artery.

Hemoglobin percentage:

It was measured by the Hemoglobin meter.

Body density (Body composition):

It was determined by skin fold sites with the help of the skin fold caliper.

OBSERVATIONS AND DISCUSSION

The sports women data obtained on each of the independent variables were correlated with the dependent variables in order to find out the relationship between the dependent and independent variables. The analysis of data pertaining to this is presented in following Tables 1-6.

Table 1 : Relationship of physiological variables to 50 M dash on non sports women

Variables correlated	Coefficient of correlation (r)
Peak flow rate	0.357
Breath holding capacity	0.372855
Systolic blood pressure	0.476171*
Diastolic blood pressure	0.00677
Resting pulse rate	0.028461
Active pulse rate	0.078053
Hemoglobin	0.243739
Fat%	0.214617
Fat weight	0.136871
Lean body mass	0.061449

*Significant at .05 level of confidence N=25 r .05 (23) = 0.396

Table 2: Relationship of physiological variables to 10x4M shuttle run on non sports women

Variables correlated	Coefficient of correlation (r)
Peak flow rate	0.141169
Breath holding capacity	0.218137
Systolic blood pressure	0.336588
Diastolic blood pressure	0.188706
Resting pulse rate	0.02448
Active pulse rate	0.322333
Hemoglobin	0.098853
Fat%	0.20992
Fat weight	0.22276
Lean body mass	0.21633

*Significant at .05 level of confidence N=25 r .05 (23) = 0.396

Table 3: Relationship of physiological variables to standing broad jump on non sports women

Variables correlated	Coefficient of correlation (r)
Peak flow rate	0.164423
Breath holding capacity	0.22936
Systolic blood pressure	0.10565
Diastolic blood pressure	0.0977
Resting pulse rate	0.01182
Active pulse rate	0.10842
Hemoglobin	0.026888
Fat%	0.179438
Fat weight	0.092114
Lean body mass	0.00785

*Significant at .05 level of confidence N=25 r .05 (23) = 0.396

Table 4 : Relationship of physiological variables flexibility on non sports women

Variables correlated	Coefficient of correlation (r)
Peak flow rate	0.158643
Breath holding capacity	0.20561
Systolic blood pressure	0.09869
Diastolic blood pressure	0.06181
Resting pulse rate	0.14615
Active pulse rate	0.079834
Hemoglobin	0.13439
Fat%	0.392804
Fat weight	0.27602
Lean body mass	0.125478

*Significant at .05 level of confidence N=25 r .05 (23) = 0.396

Table 5 : Relationship of physiological variables to balance on non sports women

Variables correlated	Coefficient of correlation (r)
Peak flow rate	0.12363
Breath holding capacity	0.122353
Systolic blood pressure	0.05328
Diastolic blood pressure	0.25381
Resting pulse rate	0.002747
Active pulse rate	0.08399
Hemoglobin	0.158199
Fat%	0.496674*
Fat weight	0.189807
Lean body mass	0.07723

*Significant at .05 level of confidence N=25 r .05 (23) = 0.396

Table 6 : Relationship of physiological variables to 600 M run on non sports women

Variables correlated	Coefficient of correlation (r)
Peak flow rate	0.078739
Breath holding capacity	0.14493
Systolic blood pressure	0.232468
Diastolic blood pressure	0.312874
Resting pulse rate	0.079958
Active pulse rate	0.225378
Hemoglobin	0.430587*
Fat%	0.16623
Fat weight	0.169907
Lean body mass	0.153161

*Significant at .05 level of confidence N=25 r .05 (23) = 0.396

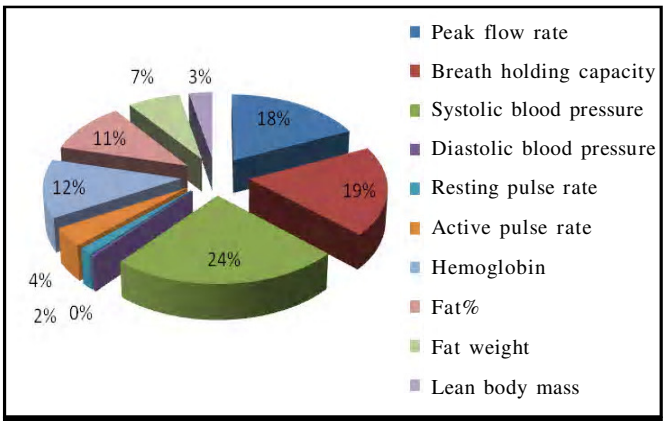

Fig. 1: Relationship of physiological variables to 50 M dash on non-sports women

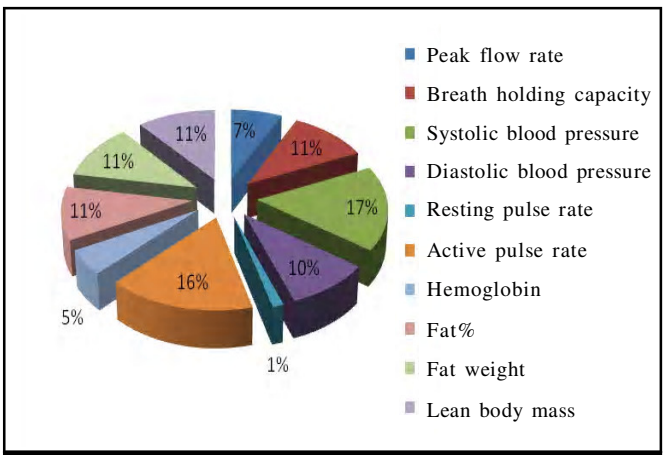

Fig. 2: Relationship of physiological variables to 10 x 4 shuttle run on non-sports women

The non-sports women data obtained on each of the independent variables were correlated with the dependent variables in order to find out the relationship between the

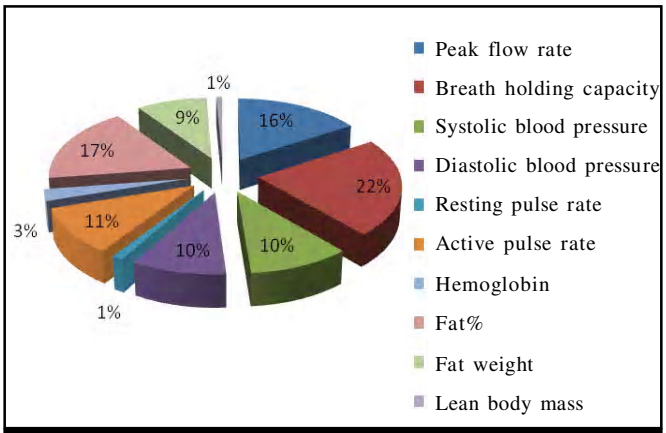

Fig. 3: Relationship of physiological variables to standing broad jump on non-sports women

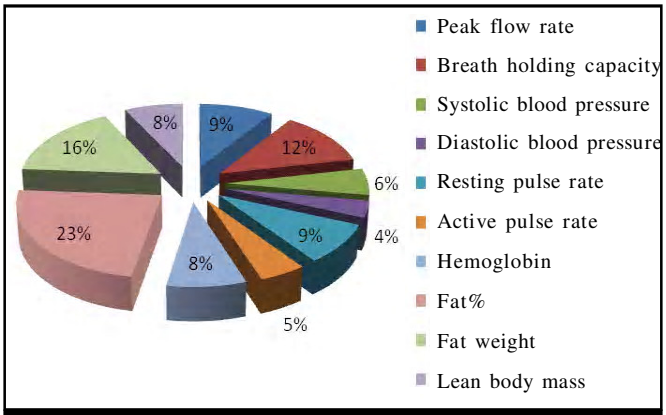

Fig. 4: Relationship of physiological variables to sit and reach test on non-sports women

dependent and independent variables. The analysis of data pertaining to this is presented in following Tables.

The data's of physiological variables when correlated with motor components of non sports women *i.e.* systolic blood pressure to 50 m dash, hemoglobin to 600 m run and fat% to balance were found to be significant (Table 1-6).

Mathews (1973) have also stated that an increase in amount of physical activity changes body composition when total body weight is unchanged, there is an increase in the mass of bone, muscle and decrease in body fat in other words their increase in lean body mass at the expense of fat, that means more lean body mass at the expense of fat which is useful for players. Besides other bodily factors body density and fat variables also contribute to the fitness ability (Fig. 1-4).

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