

Health related physical fitness among boys of Kandi and non Kandi areas in Punjab state

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ABSTRACT

Physically fit citizens are the emergent demand of a nation as the fitness of the citizens is an index of the prosperity of the country. The purpose of the study was to assess the health related physical fitness status of the boys of 13-14 years studying in 8th class at various government schools of Kandi and Non- Kandi areas of Punjab state. Random sampling technique was used to select the subjects. Total 1050 subjects were selected for the present study which includes Kandi area boys (N=525) Non-Kandi area boys (N=525). AAHPERD (1980) Health Related Physical Fitness Test Battery was applied for the collection of data. The Battery included four test items: (1) 9-Minute Run, (2) Sum of Skinfold Fat, (3) Modified Sit-Ups, (4) Sit and Reach. The Mean, SD, Mean difference, SEDM and 't'-values were calculated to find out the significance of difference and direction of difference between Kandi and Non-Kandi area boys. The level of significance was set at 0.05. The results revealed significant differences on the variables i.e. 9-Minute Run and Sum of Skinfold Fat between boys of Kandi and Non- Kandi area. However, no significant differences have been observed on the variables i.e. Modified Sit-Ups and Sit and Reach between boys of Kandi and Non- Kandi areas of Punjab state regarding health related physical fitness.

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Fitness of man has always concern of everyone but the concept of fitness has been changing from time to time. The earliest human beings were mainly dependent upon their individual strength, vigour and vitality for survival and existence. They had to run and struggle in search for food, shelter and protection from hostile environment. But, with the growth of civilization, fitness was given new dimensions like physical fitness, health related fitness, motor fitness and wellness. Health related physical fitness consists of those components of physical fitness that have a relationship with good health. The components are commonly defined as body composition, cardio-vascular fitness, flexibility, and muscular strength and endurance. However, the degree of development of each varies with the type of physical activity. Health and physical fitness is important to everyone and should be stressed by physical educators and medical people alike (Tancred, 1987). Health-related fitness refers to the state of physical and physiological characteristics that define the risk levels for the premature development of diseases or morbid conditions presenting a relationship with a sedentary mode of life (Bouchard and Shephard, 1993). According to Russel (1985) health related physical fitness is the ability to perform strenuous physical activity with vigour and without excessive fatigue, and demonstration

of physical activity traits and capacities that are consistent with minimal risk of developing hypokinetic diseases.

Fat causes poor performances in the area of cardio-respiratory endurance because it not only places an over load on the circulatory system and heart to pump more blood to a large vascular system, but fat also acts as dead weight in the body (thus offering extra resistance to movement) while contributing nothing to muscle contraction (Shaver, 1982). Obesity has long been recognised as an important aspect of human health and the AAHPERD (1980) has included body composition assessment in its health oriented physical fitness test. High percentage of body fat decreases the ability of cardio-respiratory system to supply oxygen to various parts of the body, thereby lowering one's cardio-respiratory endurance capacity. Clarke and Clarke (1975) revealed that one of the aims of exercise and training is to cause changes in body composition. The individual may employ weight lifting exercises to become stronger, in which he is seeking to enhance muscle hypertrophy, which seeks to increase the quantity of lean tissue. Whether or not the fat content reduction depends on the combination of energy expenditure and caloric restriction, it is entirely conceivable that a balance could be affected between the gain in lean weight through hypertrophy and the loss

of fat weight through mobilization of the adipose tissue. Thus, the exercise regimen could actually result in no change in total body weight, pointing out the carefully evaluated body composition.

The body is the temple of soul, and to reach harmony of body, mind and spirit, the body must be physically fit. As physically fit persons lead longer lives, have better performance records and participate fully in life. The recent advances in science and technology have resulted in innovation and inventions which have influenced human life style in many ways. The work hours have been reduced because of atomization of factories, farm work, household and many other areas of human endeavours have reduced physical involvement of the people. Due to this, modern working conditions lead to sedentary life. Under these circumstances, physical fitness demands are increasing in modern time.

Regular exercise as well as proper diet, abstention from smoking, proper amount of sleep and relaxation will help us to lead more healthful and hopefully more productive life. To develop and maintain health related fitness, children need exposure to wide variety of sports and fitness activities. Children and youth will hopefully develop interest in the types of physical activities that will promote and maintain physical fitness throughout adult life.

Environment is also held responsible for the mode of doing work which refers from place to place. It is generally seen that people living in hilly areas have to face more physical work as compared to people staying in plains. The daily life work under difficult condition itself acts as a load and demands a physiological change for adaptation in such an environment. The area of investigation under present study was Kandi and Non-Kandi areas of Punjab state. Kandi area (Sub-mountain area) lying on the North-East of the motelled road running from Chandigarh to Pathankot via Sahibzada Ajit Singh Nagar, Roopnagar, Balachaur, Garshankar, Hoshiarpur, Dasuya, Mukerian and Dharkalan block in Gurdaspur district (Govt. of Punjab Letter No. 322-SMAC-1(1AC)72/119 dated January 16, 1973). Non-Kandi area (Plain area) covers large parts of Punjab constituent the plains. It is situated south of mountainous area. Thus, the present study was designed to assess the health related physical fitness status of Kandi and Non-Kandi area school boys of (13-14 years Class 8th) of Punjab state.

METHODOLOGY

Total 1050 subjects were selected for the present study which included Kandi area boys (N=525) Non-Kandi area boys (N=525). Subjects for data collection

(13-14 years Class 8th boys) were drawn from different government schools of Kandi and Non-Kandi areas of Punjab state. Random sampling technique was applied for the selection of subjects. AAHPERD (1980) Health Related Physical Fitness Test Battery was applied for the collection of data. The Battery included four test items:

- 9-Minute Run (to measure maximal functional capacity and endurance of the cardio-respiratory system).
- Sum of Skinfold Fat (to evaluate the level of fatness in school age boys).
- Modified Sit-Ups (to evaluate abdominal muscular strength and endurance).
- Sit and Reach (to evaluate the flexibility (extensibility) of the low back posterior thighs).

The Mean, SD, Mean difference, SEDM and 't'-values were calculated to find out the significance of difference and direction of difference between Kandi and Non-Kandi area boys of Punjab state. The level of significance was set at 0.05.

OBSERVATIONS AND DISCUSSION

The results with regard to Kandi and Non-Kandi area boys (13-14 years Class 8th) on the variables; 9-Minute Run, Sum of Skinfold Fat, Modified Sit-Ups and Sit and Reach have been presented in Table 1.

9-Minute run:

Table 1 and Fig. 1 present the results of variable 9-Minute Run related to Kandi and Non-Kandi area boys (13-14 years Class 8th). The descriptive statistics showed the Mean and S.D. values of Kandi area as 1830.537 and 270.869, respectively. However, Non-Kandi boys had Mean and S.D. values as 1734.076 and 224.165, respectively. The mean difference and Standard error difference of mean were 96.461 and 15.345, respectively. The 't'-value 6.286 as shown in Table 1 was found statistically significant as the p-value (sig) .000 was found lesser than 0.05 level of significance with (df=1048).

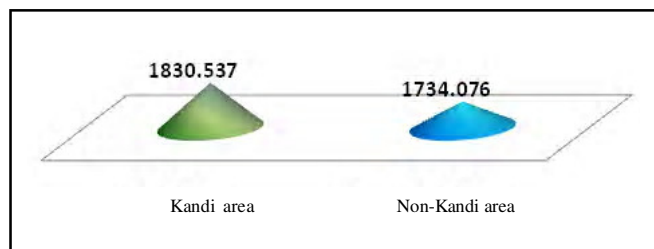


Fig. 1: Mean scores of (13-14 years 8th class) boys of Kandi and Non-Kandi area on the variable 9-minute run.

Table 1: Mean scores of kandi and non-kandi area boys (13-14 years class 8th) on different variables

| Variables | Kandi area (Boys = 525) | | Non-Kandi area (Boys = 525) | | Mean difference | SEDM | t-value | Sig |
|------------------------|----------------------------|---------|--------------------------------|---------|-----------------|--------|---------|------|
| | Mean | S.D. | Mean | S.D. | | | | |
| 1. 9-Minute run | 1830.537 | 270.869 | 1734.076 | 224.165 | 96.461 | 15.345 | 6.286* | .000 |
| 2. Sum of skinfold fat | 14.056 | 3.308 | 14.719 | 4.121 | -.663 | 0.231 | -2.876* | .004 |
| 3. Modified sit-ups | 27.404 | 6.144 | 27.497 | 6.004 | -.933 | 0.375 | -.249 | .803 |
| 4. Sit and Reach | 6.574 | 4.044 | 6.385 | 4.714 | .188 | 0.271 | .694 | .488 |

*indicates significance of value at P=0.05

Degree of freedom= 1048

Sum of skinfold fat:

Table 1 depicts the results of the variable sum of skinfold fat between Kandi and Non-Kandi area boys (13-14 years Class 8th). The Kandi area boys had mean value 14.056 and S.D. value 3.308 whereas Non-Kandi area boys had mean value 14.719 and S.D. value 4.121 (Fig. 2). The mean difference and standard error difference of mean were -.663 and 0.231, respectively. The 't'-value -2.876 as shown in the table was found to be significant as the p-value (sig) .004 was found lesser than the 0.05 level of significance with (df=1048).

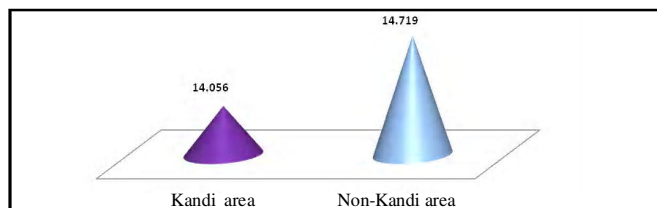
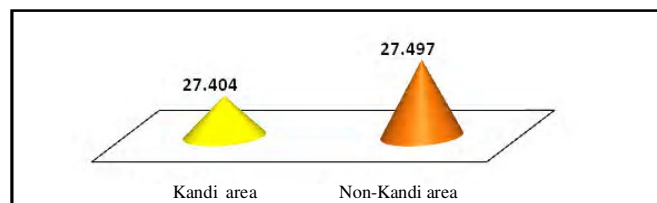
**Fig. 2: Mean scores of (13-14 years 8th class) boys of Kandi and Non-Kandi area on the variable sum of skinfold fat****Modified Sit-ups:**

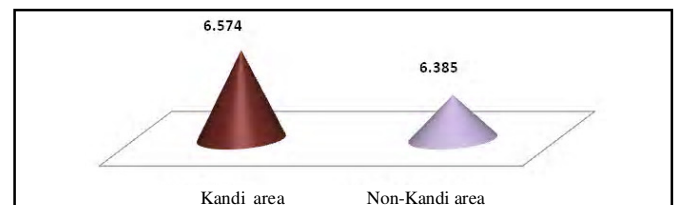
Table 1 also shows the results of variable Modified Sit-Ups related to Kandi and Non-Kandi area boys (13-14 years Class 8th). The descriptive statistics showed the Mean and S.D. values of Kandi area as 27.404 and 6.144, respectively. However, Non-kandi area boys had mean and S.D. values as 27.497 and 6.004, respectively (Fig. 3). The Mean Difference and Standard Error Difference of Mean were -.933 and 0.375, respectively. The 't'-

**Fig. 3: Mean scores of (13-14 years 8th class) boys of Kandi and Non-Kandi area on the variable modified sit-ups**

value -.249 as shown in the table was found insignificant as the p-value (sig) .803 was found higher than 0.05 level of significance with (df=1048).

Sit and reach:

Table 1 reveals the results of variable Sit and Reach related to Kandi and Non-Kandi area boys (13-14 years Class 8th). The descriptive statistics showed the Mean and S.D. values of Kandi area as 6.574 and 4.044, respectively. However, Non-Kandi area boys had Mean and S.D. values as 6.385 and 4.714, respectively (Fig. 4). The Mean Difference and Standard Error Difference of Mean were 0.188 and 0.271, respectively. The 't'-value 0.694 as shown in the table was found insignificant as the p-value (sig) 0.488 was found higher than 0.05 level of significance with (df=1048).

**Fig. 4: Mean scores of (13-14 years 8th class) boys of Kandi and Non-Kandi area on the variable sit and reach**

It is evident from above findings that significant differences have been observed on the variables; 9-Minute Run and Sum of Skinfold Fat between boys of Kandi and Non-Kandi areas. When comparing the mean values of both the groups, it has been found that Kandi area boys have performed better on the above said variables. However, no significant differences have been observed on the variables *i.e.* Modified Sit-Ups and Sit and Reach between boys of Kandi and Non-Kandi area. But a microscopic look at these variables shows that boys of Non-Kandi area have performed better on the variable Modified Sit-Ups whereas the Kandi area boys have performed better on the variable sit and Reach though

not significantly. The outcome of above results might be due to the better general fitness of Kandi area boys as it has been observed that most of the boys of this area have to either walk down few kilometres or have to ride cycles to reach their schools due to lack of transportation facilities hence, facilitated the Kandi area boys to do well on the task at hand. It is generally believed that the people living in hilly areas have to face more manual work, walking, cycling and carrying loads are essential components of their ordinary day to day life as compared to people staying in plains. Glaner (2003) revealed that higher and moderate levels of aerobic endurance, flexibility, muscular strength/endurance, and desirable body fat levels, are very important for promoting health at all ages, and to avoid early development of chronic diseases. Kei (2010) while examining weight status, health-related physical fitness and quality of life in Hong Kong adolescents revealed that both overweight and underweight adolescents had poorer health related physical fitness than those of normal weight.

Conclusion:

It is concluded from the above findings that Kandi area boys have performed significantly better on the variables; 9-Minute Run and Sum of Skinfold Fat than Non- Kandi area boys. However, no significant differences have been found on the variables; Modified Sit-Ups and Sit and Reach between boys of Kandi and Non- Kandi areas of Punjab state regarding health related physical fitness.

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