

**ijcrr**

Vol 04 issue 15

Category: Research

Received on:04/06/12

Revised on:23/06/12

Accepted on:06/07/12

## **ANALYSIS OF HEALTH RELATED PHYSICAL FITNESS OF PUNJAB STATE KANDI AND NON-KANDI AREA BOYS**

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### **ABSTRACT**

The present study was conducted to find out the health related physical fitness of Punjab state Kandi and Non-Kandi area boys. In this study, the subjects for data collection were drawn from the different government schools of Kandi and Non-Kandi areas of Punjab state. Random sampling technique was used to select the subjects. The sample consisted of one thousand and fifty (N=1050) boys of Kandi and Non-Kandi areas of Punjab state. To measure maximal functional capacity & endurance of the cardio-respiratory system of the subjects the 9-Minute run test was applied. To evaluate the level of fatness in school age boys, the Skinfold Caliper was used. To assess the abdominal muscular strength & endurance of the subjects, modified sit-ups test was applied. Sit and reach test was used to evaluate the flexibility (extensibility) of the low back and posterior thighs of the subjects. The 't' test was applied to find out the significant differences between Kandi and Non-Kandi area boys. To test the hypothesis, the level of significance was set at 0.05 level. It has been observed that Kandi area boys 14-15 years (class 9<sup>th</sup>) demonstrated significantly better maximal functional capacity & endurance, body composition, abdominal muscular strength & endurance and flexibility (extensibility) of the low back and posterior thighs than Non-Kandi area boys 14-15 years (class 9<sup>th</sup>).

**Keywords:** Cardio-respiratory, Body composition, Abdominal Muscular Strength & Endurance, Flexibility, Kandi Area, Non-Kandi Area

### **INTRODUCTION**

Physical fitness is an inseparable part of sports performance and achievement. The quality of an individual sportsman's fitness in terms of its utilitarian values is directly proportional to the level of performance. In the arena of International competition one can hardly differentiate the top notch contenders from one another in terms of levels of fitness. However, deciding factors sometimes remain with fitness in terms of its finer aspects. The longer one remains at high altitude, the better his performance would be, but it never

quite reaches the values that are obtained at sea level. It is also mentioned that the training at altitude probably enhances performance at sea level, but only in unconditioned non athlete individuals. For the high trained athletes, the training intensity required for the maintenance of a peak performance cannot achieve at high altitude. Since the dawn of civilization, physical fitness has greatly contributed towards the strength of a nation as history points out that people and communities who cared for their bodies, through vigorous physical activities, remained strong and

prosperous, whereas, those who neglected it waned and perished. The great Roman Civilization crumbled because its people took to luxury (Zeigler, 1979). Fitness is a broad term denoting dynamic qualities that satisfy the needs regarding mental and emotional stability. But the term physical fitness denotes that the organic systems of the body are healthy and function efficiently, so as to enable the fit person to engage in vigorous tasks and leisure activities without much strain (Singing, 1971). Physical fitness refers to the organic capacity of the individual to perform the normal task of daily living without undue tiredness or fatigue having reserve of strength and energy available to meet satisfactorily any emergency demands suddenly placed upon him (Singh et al., 2000). On the other hand, health-related physical fitness is defined as the ability to perform strenuous activity without excessive fatigue, showing evidence of traits that limit the risks of developing diseases and disorders which affect a person's functional capacity. Health and physical fitness is important to everyone and should be stressed by physical educators and medical people alike (Tancred, 1987). Health related physical fitness, as such, is a much wider and more significant concept than the idea of mere physical fitness of human body. All the sports programmes and physical fitness programmes designed for school students by the government authorities should, therefore, aim at achieving health related physical fitness for young students as well as for men and women. 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 an important aspect for the mode of doing work which varies 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 conditions itself act 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 area of Punjab state. The area lying on the North-East of the motelled road running from Chandigarh to Pathankot via SahibzadaAjit Singh Nagar, Roopnagar, Balachaur, Garshankar, Hoshiarpur, Dasuya, Mukerian and Dharkalan block in Gurdaspur District is Sub-Mountain area (Govt. of Punjab, 1973). A large parts of Punjab constituent the plains. It is situated south of mountainous area. It comprises the districts: Amritsar, Barnala, Bathinda, Faridkot, Fatehgarh Sahib, Firozepur, Jalandhar, Kapurthala, Ludhiana, Mansa, Moga, Mukatsar, Patiala, Sangrur and TarnTaran. The parts of five districts such as Sahibzada Ajit Singh Nagar, Roopnagar, Shaheed Bhagat Singh Nagar, Hoshiarpur and Gurdaspur falls under Kandi and Non - Kandi areas. Therefore, the present study was designed to assess the health related physical fitness of Punjab state Kandi and Non-Kandi area boys.

## **METHOD AND PROCEDURE**

### **Sample**

In the present study, the subjects for data collection were drawn from the different government schools of Kandi and Non-Kandi areas of Punjab state. Random sampling technique was used to select the subjects. The sample consisted of one thousand and fifty (N=1050) boys of Kandi and Non- Kandi area of Punjab state.

The break- up of total sample is shown in the tables below:

1050 Subjects (Kandi and Non- Kandi areas)	
Kandi Area Boys=525	Non-Kandi Area Boys=525

### Selection of variables

To measure maximal functional capacity and endurance of the cardio-respiratory system of the subjects, the 9-Minute run test was applied. To evaluate the level of fatness in school age boys, the Skinfold Caliper was used. To assess the abdominal muscular strength & endurance of the

subjects, modified sit-ups test was applied. Sit and reach test was used to evaluate the flexibility (extensibility) of the low back and posterior thighs of the subjects. The 't' test was applied to find out the significant differences between Kandi and Non- Kandi area boys. The level of significance was set at 0.05.

## RESULTS

**Table-1: Significant differences in the mean scores of Kandi and Non-Kandi area boys (14-15 years class 9<sup>th</sup>) on the variables; cardio-respiratory function, body composition, abdominal muscular strength & endurance and flexibility**

Variables	Kandi Area Boys=525		Non-Kandi Area Boys=525		Mean Difference	SEDM	t-value	Sig.
	Mean	SD	Mean	SD				
Cardio-respiratory function	1873.581	258.044	1791.810	221.749	81.771	14.85	5.507*	.000
Body composition	14.149	3.576	15.009	4.436	-.860	0.249	3.461*	.001
Abdominal muscular strength & endurance	29.983	6.751	29.025	6.357	.958	0.405	2.367*	.018
Flexibility	8.172	4.350	7.249	4.670	.940	0.278	3.377*	.001

\*Significant at 0.05 level

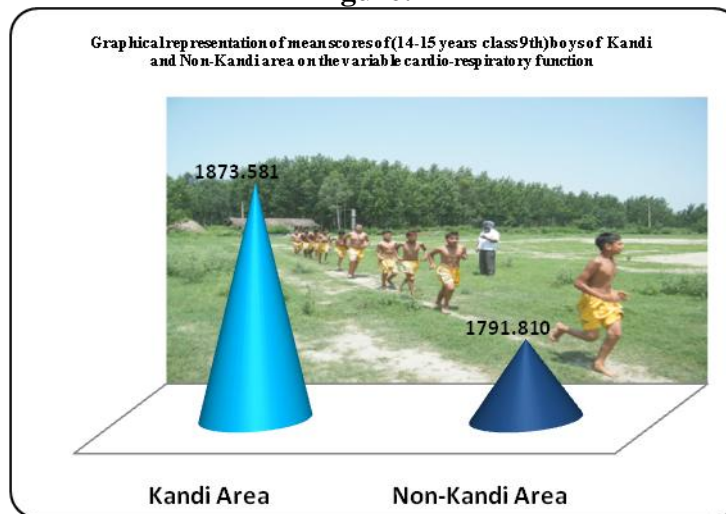
Degree of freedom= 1048

### Cardio-respiratory function

Table-1 presents the results of variable cardio-respiratory function related to Kandi and Non-Kandi area boys (14-15 Years Class 9<sup>th</sup>). The descriptive statistics shows the Mean and SD values of Kandi area as 1873.581 and 258.044 respectively. However, Non-Kandi boys had Mean and SD values as 1791.810 and 221.749 respectively. The Mean Difference and Standard Error Difference of Mean were 81.771 and 14.85

respectively. The 't'-value 5.507 as shown in the table above was found statistically significant ( $P < .05$ ). It has been observed from the above results that Kandi area boys have demonstrated better on maximal functional capacity & endurance of the cardio-respiratory system than Non-Kandi area boys. The comparison of mean scores of both the groups has been presented graphically in figure-1.

**Figure: 1**

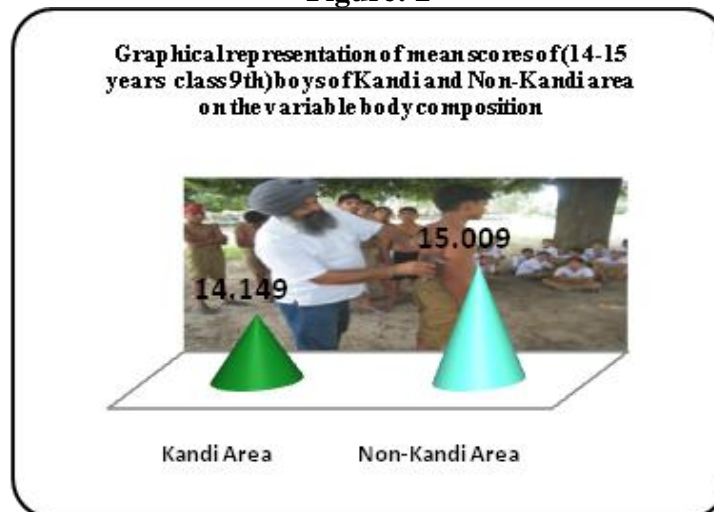


### **Body composition**

Table-1 depicts the results of the variable body composition between Kandi and Non-Kandi area boys (14-15 Years Class 9<sup>th</sup>). The Kandi area boys had Mean value 14.149 and SD value 3.576. However, Non-Kandi area boys had Mean value 15.009 and SD value 4.436. The Mean Difference and Standard Error Difference of Mean were -.860

and 0.249 respectively. The 't'-value 3.461 as shown in the table above was found to be significant ( $P < .05$ ). It has been found from above results that Kandi area boys had significantly lesser Fat level than Non-Kandi area boys. The comparison of mean scores of both the groups has been presented graphically in figure-2.

**Figure: 2**



### **Abdominal muscular strength & endurance**

Table-1 shows the results of variable abdominal muscular strength & endurance related to Kandi and Non-Kandi area boys (14-15 Years Class 9<sup>th</sup>).

The descriptive statistics shows the Mean and SD values of Kandi area as 29.983 and 6.751 respectively. However, Non-Kandi area boys had Mean and SD values as 29.025 and 6.357

respectively. The Mean Difference and Standard Error Difference of Mean were -.958 and 0.405 respectively. The 't'-value 2.367 as shown in the table above was found statistically significant ( $P < .05$ ). It has been observed from above findings that boys of Kandi area have performed

significantly better on abdominal muscular strength & endurance as compared to Non-Kandi area boys. The comparison of mean scores of both the groups has been presented graphically in figure-3.

**Figure: 3**

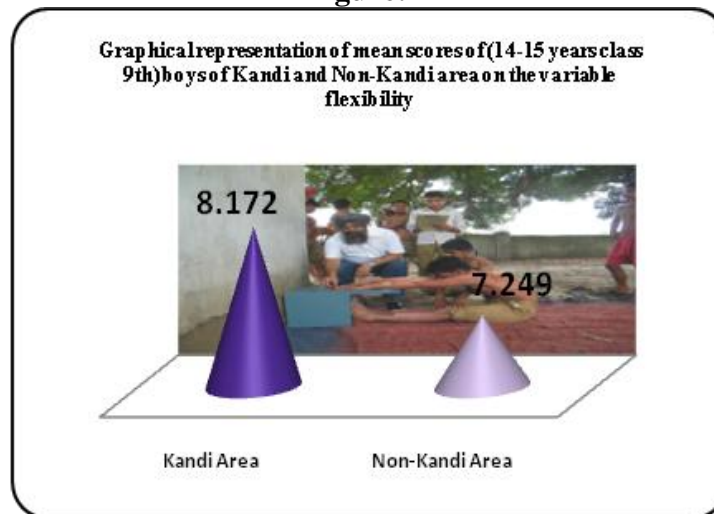


### Flexibility

Table-1 reveals the results of variable flexibility related to Kandi and Non-Kandi area boys (14-15 Years Class 9<sup>th</sup>). The descriptive statistics shows the Mean and SD values of Kandi area as 8.172 and 4.350 respectively. However, Non-Kandi area boys had Mean and SD values as 7.249 and 4.670 respectively. The Mean Difference and Standard Error Difference of Mean were .940 and 0.278

respectively. The 't'-value 3.377 as shown in the table above was found significant ( $P < .05$ ). It has been observed from the above results that Kandi area boys have demonstrated significantly better flexibility (extensibility) of the low back and posterior thighs than Non-Kandi area boys. The comparison of mean scores of both the groups has been presented graphically in figure-4.

**Figure: 4**



### **DISCUSSION**

It can be observed from the findings of table-1 with regard to 14-15 years (class 9<sup>th</sup>) boys that significant differences were found on the variables; cardio-respiratory function, body composition, abdominal muscular strength & endurance and flexibility between Kandi and Non-Kandi area boys. It has been observed that Kandi area boys have performed significantly better on maximal functional capacity & endurance of cardio-respiratory system, had lesser level of fatness, significantly better abdominal muscular strength & endurance had demonstrated significantly better flexibility (extensibility) of the low back and posterior thighs. 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 which could have 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. Similar results have been reported by Kumar (2006). 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. Physical fitness variables are very important in both athletes and form a condition for higher performance. Mal (1982) stated that the components of physical fitness like strength, speed, endurance, flexibility and the various coordinative abilities are essential for a high technique and tactical efficiency depending upon the demand of the game, each factor of physical fitness should be optimally developed. Jan Percival et al. (1982) concluded that every individual has different level of fitness, which may change from time to time, it may also change from place to place and sometimes it may changes with work or situation also.

### **CONCLUSION**

It is concluded from the above findings that significant differences were observed between Kandi and Non-Kandi areas boys. Kandi area boys 14-15 years (class 9<sup>th</sup>) demonstrated significantly

better maximal functional capacity & endurance, body composition, abdominal muscular strength & endurance and flexibility (extensibility) of the low back and posterior thighs than Non-Kandi area boys 14-15 years (class 9<sup>th</sup>).

#### **ACKNOWLEDGEMENT**

I wish to express my gratitude to all the Principals/Headmasters and Physical Education teachers of different schools of Non-Kandi areas of Punjab State for their kind co-operation and support they have rendered in the collection of data. My sincere thanks to all the students for their willingness to respond to various tests put to them during the collection of data for the present study.

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