



## NORMATIVE VALUES OF STEP UP - STEP DOWN TEST AND SIT UP TEST IN ADOLESCENT GIRLS.

**Rutuja Suresh Chaudhari**

DVVPF'S college of Physiotherapy, Ahmednagar

**Suvarna S. Ganvir\***

HOD, department of Physiotherapy in Neurosciences, DVVPF'S college of Physiotherapy, Ahmednagar \*Corresponding Author

### ABSTRACT

**BACKGROUND** - Physical activity level is a way to express a person's daily physical activity as a number, and is used to estimate a person's Total Energy Expenditure.

Evaluation of this subject is important because of sedentary lifestyle and lack of parental education towards physical fitness in India. Also, participation of the subject declines as reproductive changes start occurring during this period.

**METHOD** - Ethical committee approval was obtained from IEC prior to begin the study. 100 students were selected for the study. To investigate the level of physical activity PAQ was used. After that two physical activity tests viz. Step up – step down test and Sit up test were administered. Normative data was established and the means were compared between the two (physically active and inactive) groups.

**RESULT** - 24 girls were found as physically active and 76 were inactive.

**CONCLUSION** - the normative value of step up test is 17 and sit up test is 16. Level of physical activity affected the performance on these to scales. . Level of physical activity affected the performance on these to scales

**KEYWORDS :** physical activity, sedentary lifestyle, lower level of physical activity, adolescent girls

### INTRODUCTION

Physical activity level is a way to express a person's daily physical activity as a number, and is used to estimate a person's Total Energy Expenditure.<sup>1</sup>

Physical activity encompasses all activities, at any intensity, performed during the 24 hour day. It includes [exercise](#) and incidental activity integrated into daily activity. This integrated activity may not be planned, structured, repetitive or purposeful for the improvement of fitness, and may include activities such as walking to the local shop, cleaning, working etc<sup>2</sup>.

There are two types of exercises

- 1) Aerobic type ( walking, running, swimming )
- 2) Anaerobic type ( static cycling, weightlifting )

Regular aerobic exercise plays a role in the prevention of heart diseases and other health risk factors. Aerobic activities are continuous activities that cause the heart rate and breathing rate to increase. Aerobic exercise can also help to lower blood pressure. Physical activity is an important part of keeping adolescents healthy. Encouraging healthy lifestyles in children and adolescents is important for when they grow older<sup>3</sup>.

Exercise increases your energy level, delivers oxygen and nutrients to whole body helping it to work more efficiently and boost endurance.<sup>4</sup> Exercising on a daily basis can help to strengthen the body musculature and keep the person physically active in daily life. Also, it improves the concentration and keeps mind fresh. It is important to encourage the adolescent girls to participate in physical activities which are appropriate for their age. Children and adolescents should do 60 minutes (1 hour) or more of physical activity daily. Aerobic: Most of the 60 or more minutes a day should be either moderate- or vigorous-intensity aerobic physical activity and should include vigorous-intensity physical activity at least 3 days a week. Musclet-strengthening: As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week. Bone-strengthening: As part of their 60 or more minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least 3 days of the week.<sup>5</sup> Being physically active as a teenager then can help to protect against a wide range of health risks in adolescence and into adulthood. But being active also has many immediate benefits for girls in particular for their mental health. Research shows that pre- teen and teenage girls who play or exercise regularly report greater life satisfaction and feel healthier than

girls who did not.<sup>6</sup>

Adolescence represents a critical period of development during which personal lifestyle choices and behavior patterns establish, including the choice to be physically active. Physiologically, there exists a complex dynamic between the 'dose' of regular Physical Activity undertaken, level of sedentariness, body mass index (BMI), fitness and the link with non-communicable disease.<sup>7</sup> Therefore, Physical activity is important in Adolescent girls. Perhaps, most importantly physical activity leads to higher self-esteem as they grow through adolescence. self-esteem is important for psychological well being, positive body image, increased self efficacy and leadership skills and having self-esteem protect against depression, anxiety, loneliness, aggression problems and high Behaviors like smoking and substance abuse. Thus, helping the girls be physically active can help them to stay physically, psychologically and emotionally.<sup>8</sup>

The current study aimed to find out the normative value of level of physical activity. The changing pattern of activities as the girl matures at the age of 10 and reproductive changes starts occurring.<sup>9</sup>

### Need of the study -

The absence of normative data for physical fitness for adolescent girls in India. It is difficult to design a fitness programme for this age groups. Also, lack of normal values makes it difficult to categorise the population as physically fit or unfit. The information of this subject is important because of sedentary lifestyle and lack of parental education towards physical fitness in India.

### AIM AND OBJECTIVE

**Aim** - To find out the normative values of physical activity in step up - step down test and sit up test in adolescent girls.

Secondary objective of the study was to investigate if the level of physical activity affects the performance of students on these two scales.

### METHODOLOGY :

It was an observational study design categorized under cross sectional study. 100 samples were taken. The study was conducted in Rupibai Motilal Bora New English school and Vikhe Patil college of Nursing in ahmednagar district. It was completed in one year duration in which we have taken 4 months for collection of data and rest of the period for data analysis. Adolescent girls ranging from 12 to 19<sup>10</sup> years of age were included. Variables of the study were PAQ, step – up step down test sit up test and age. Girls having musculoskeletal problems, deformity of

trunk, pain in lower extremity, etc. were excluded from the study.

**Procedure**

Ethical committee approval was obtained from the Institutional Ethical Committee of COPT, Ahmednagar prior to begin the study. . We have taken the permission from the principals of respective schools. One hundred students with ages ranging between 12 to 19 years from Vikhe Patil college of Nursing and Rupibai Motilal Bora New English school were recruited for this investigation A letter duly signed by the principal of Vikhe Patil college of Physiotherapy was given for the details regarding our study.After all the formalities done, the students gathered in study setting area. We have given the information about our study. Everyone was given a copy of PAQ to detect their level of physical activity in their daily routine life, every question was explained to them in detail by our team member and guided them to analyze themselves that in which category they can fit. Demographic data and informed consent were taken.

After this two physical activity tests were taken,

- 1) Step up - step down test
- 2) Sit up test

In step up - step down test, the participant was instructed to step up. In sit up test, the participant was instructed to place her both hands on shoulder and do sit ups with moderate speed.

In both the activities, the participant needed to do it for 30 seconds for 3 trials and rest period of 5 seconds was given in between to them and asked to stop the activity if any kind of discomfort they feels. We have given the rest period of 15 minutes to every student between the two tests to avoid fatigue. Finally, the mean of PAQ and three readings of step up - step down and sit up tests were calculated and the final mean of two tests was the normative value in adolescent girls.

**RESULT**

Among 100 girls , 24 were found as physically active and 76 were inactive . This indicates that only 24% adolescent girls are physically fit today in India.

Mean, standard deviations and correlation matrix of step up – step down test and sit up test with mean of PAQ were calculated. All the correlations were statistically significant.

Parameter	PAQ	STEP UP – STEP DOWN TEST (no. of repetitions)	SIT UP TEST (no. of repetitions)
MEAN	2.14	17.333	16.324
Standard Deviation	0.6159	3.745	4.534
Minimum	1.000	10.000	3.000
Maximum	3.783	27.000	28.000

	Step up–step down test (Mean, SD)	Sit up test ( Mean, SD)
Physically active	21.200, ± 2.901	20.200, ± 4.726
Physically inactive	16.078, ±3.077	15.065, ± 3.718
T value	0.2175	0.248
Significance	Not significant	Significant

**DISCUSSION**

Physical activity level is a way to express a person's daily physical activity as a number, and is used to estimate a person's Total Energy Expenditure. This study indicates level of physical activity in adolescent girls. However, we found that there are only 24% adolescent girls are physically active compare with the international norms.<sup>11,12</sup> The intervention is very less as there is sedentary behaviour and lack of parental education towards physical fitness in India.

This suggest that it is necessary to evaluate their level of physical activity to make them aware about fitness and need of physical activity in daily life. A technology makes working and domestic life sedentary. So such intervention can alert people to their level of inactivity and prompt them to counter this change with keeping the health on first priority.

In addition, this can help in decreasing the future generation to suffer from. Also, being lived in sedentary lifestyle it is necessary to keep ourselves healthy and fit to boost our immunity against the diseases. Active participation of parents as well as adolescent girls influences both behaviour and self - esteem. Children and adolescents who

participated in higher levels of physical activities had better health related quality of life.<sup>13</sup> WHO suggests that children and youth aged 5–17 years old should accumulate at least 60 minutes of moderate to vigorous-intensity of physical activity everyday. Yet majority of the young people in many countries do not meet the recommendations of PA levels.<sup>14,15</sup>

We have correlate step up – step down and sit up test with PAQ. Both the testes were based on muscular strength and cardiovascular endurance. The results indicated low level of physical activity.

This shows that the effect of sedentary behaviour and lack of awareness in India can lead to many health related problems post menopause in their lives or can develop early in life too. Because “The less muscular activity the early it will affect your life.”

**CONCLUSION –**

So the normative value of step up test is 17 and sit up test is 16. Comparing with international norms level of physical activity of adolescent girls in India is towards lower level<sup>14,15</sup> . Level of physical activity affected the performance on these to scales. . Level of physical activity affected the performance on these to scales

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**DECLARATION :**

The funding organization had no role to conduct or design the study. Conflicts : none The study had been proceed after the permission granted from Institutional Ethical Committee.

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