# NORMATIVE SCALES FOR STUDENTS IN PHYSICAL EDUCATION

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***Abstract:***
*The intention of the study was to prepare normative scales for evaluating the performance of physical education students, in jumping events (athletics). A sample of 1400 student was taken from different physical education colleges and departments of universities of Punjab and Chandigarh. The subjects were divided in two groups according to their age, i.e. 18 to 21 year and 21 to 25 year boys and girls, in each age group; 700 students: 400 boys and 300 girls, students in physical education served as subjects. The performance of the subjects in jumping events collected through three test items, namely high jump, long jump, and triple jump. Norms were prepared for jumping events (athletics) with four normative scales such as percentile, Hull, sigma and T scale, and the standard for the students' evaluation was also established under Normal Distribution.*

## INTRODUCTION

In physical education, evaluation plays a vital role since the beginning. The phase of physical education and sports process is concerned with test, measurement and evaluation. These involve techniques to measure the student's status and progress in growth, development and achievement. The results of such application indicate not only changes in the product in these areas, but also the magnitude of such changes as well as the direction they have taken.

"Norms are the values considered to be the representative of a specified population. A test that has accompanying norms is definitely preferred to one that is usually based on age, weight, grade, height or various combination of these characteristics" (Johnson et al., 1988).

There are several types of norms, such as percentile norms, standard norms, T-score norms, age norms and grade norms. These norms are most popular and widely used in physical education and sports which are as old as the beginning of human culture. Physical activities were performed for recreational purposes in pre-historical times and, as time passed by, became famous in a competitive way. With the development of the human being sports activities have also changed and many new activities have appeared in the new trends of physical education and sports. History reveals that as human become more civilized, scientific and subsequently sought more exact way to measure the general as well as specific evaluation. The history of measurement and evaluation in physical education and sports has paralleled the growth and development of research which has elevated the field to a more respected position in the educational spectrum. Today, the measurement of skills and the knowledge of fitness testing are also deemed a necessary part of the professional training, of PE teachers and coaches. Today in every country there is a number of professional colleges and departments of Physical Education in various universities. In these colleges and departments, various courses of physical education are running, such as Diploma in physical education (DP.Ed) - 2-year course, Bachelor of physical education (B.P.E) - 4-year course, both are after 10+2, Bachelor in physical education (BP.Ed) - one-year course, after graduation, and Master of physical education (M.P.Ed) - 2-year course after (BP.Ed). In these courses various theoretical and practical subjects are being taught. The practical aspects of the curriculum include various elements of games and athletics.

The training of teaching for practical courses in physical education and sports, such as games and athletics, is given by teachers in Professional colleges and universities. Athletics is a major practical course of the physical education curriculum, because activities like running, jumping and throwing take place only in athletics.

All these events have been evaluated only by observational techniques, which is not a valid test/tool of measurement because it always shows partial and imperfect/biased opinions, and teachers are bound to respond to a false impression of teaching and training effects. The teaching of theoretical subjects is evaluated by taking a paper and pencil test. As the curriculum of PE contains both theoretical and practical aspects, effective teaching in Physical Education and sports shall depend largely upon the ability of the teacher/coach to test and evaluate the

students with the help of standardized athletic tests and norms.

Research scholars feel that if athletic performance norms are made available to teachers/coaches, students and athletes, they will definitely improve their performance because they will compare their current performance score with their previous score. It can be a motivational factor to develop the area of sports performance and PE teaching. With the availability of standardized performance norms, partial evaluation can be minimized. On the other hand, the job of the teacher will be made easier and reliable on the basis of performance norms, which will help to evaluate the students of physical education (teaching). In PE, practical teaching plays an important role as it is an integral part of this education system. In every curriculum of physical education programs, practical teaching has equal weigh to theory courses/subjects in elementary and high school level more emphases are given on practical teaching. Therefore objectivity in evaluation is highly required and can be achieved if teachers of physical education should prepare and evaluate perfectly with a valid test and ideal norms. If teachers have more practical knowledge, then the development of the nation should be positive and well practitioner teachers can produce in physical education profession.

**OBJECTIVES**

To formulate athletic performance norms for students in Physical Education in Punjab and Chandigarh.

To formulate athletic performance norms for Physical Education students of different age groups, such as 18-21 and 21-25 years.

**METHOD AND PROCEDURE**

A sample of 1400 subjects, 400 boys and 300 girls, age between 18 and 21 years, and 400 boys and 300 girls, age between 21 and 25 years were selected. These subjects were students of different PE colleges and university departments. Students' performance data was collected by administering three test items namely high jump, long jump, and triple jump. The collected data analyzed with SPSS 16.0 and Microsoft excels to construct norms for test items. Four normative scales such as percentile, Hull, sigma and T scales were constructed. For grading of students five standards i.e. Excellent, Good, Average, Fair and Poor were also established under Normal Distribution.

**RESULTS OF THE STUDY**

The data was analyzed and the findings were presented in two different phases. The first phase deals with the percentile scale and the evaluation standards of physical education students, and the second phase deals with the T-scale, hull scale, and sigma scale.

**PHASE 1. PERCENTILE NORMS AND STANDARDS OF EVALUATION**

Percentile scales for the PE students with ages ranging from 18 to 21 and 21 to 25 years have been presented as follows:

**Table 1.**
Percentile norms for the long jump (in mtr.)

| PERCENTILE | Age Group 18-21 Years | | Age Group 21-25 Years | |
|---|---|---|---|---|
| | Boys | Girls | Boys | Girls |
| 95th | 5.73 | 4.27 | 6.49 | 4.85 |
| 90th | 5.47 | 3.91 | 6.25 | 4.31 |
| 85th | 5.32 | 3.75 | 6.14 | 4.11 |
| 80th | 5.12 | 3.60 | 5.92 | 3.84 |
| 75th | 4.87 | 3.44 | 5.62 | 3.70 |
| 70th | 4.67 | 3.27 | 5.46 | 3.64 |
| 65th | 4.59 | 3.25 | 5.35 | 3.54 |
| 60th | 4.50 | 3.22 | 5.29 | 3.45 |
| 55th | 4.39 | 3.18 | 5.23 | 3.29 |
| 50th | 4.33 | 3.13 | 5.19 | 3.26 |
| 45th | 4.26 | 3.08 | 5.14 | 3.19 |
| 40th | 4.13 | 2.97 | 5.01 | 3.16 |
| 35th | 3.82 | 2.78 | 4.89 | 3.11 |
| 30th | 3.64 | 2.71 | 4.78 | 3.00 |
| 25th | 3.55 | 2.60 | 4.69 | 2.88 |
| 20th | 3.33 | 2.50 | 4.47 | 2.76 |
| 15th | 3.24 | 2.39 | 4.28 | 2.66 |
| 10th | 3.12 | 2.34 | 4.12 | 2.55 |
| 5th | 2.74 | 2.17 | 3.69 | 2.38 |

**Table 2.**
Percentile norms for the triple jump (in mtr.)

| PERCENTILE | Age Group 18-21 Years | | Age Group 21-25 Years | |
|---|---|---|---|---|
| | Boys | Girls | Boys | Girls |
| 95th | 11.33 | 7.43 | 11.41 | 9.24 |
| 90th | 10.32 | 7.22 | 10.85 | 8.47 |
| 85th | 9.46 | 7.11 | 10.35 | 8.21 |
| 80th | 9.23 | 6.86 | 9.78 | 7.63 |
| 75th | 8.57 | 6.67 | 9.58 | 7.25 |
| 70th | 8.42 | 6.55 | 9.46 | 7.13 |
| 65th | 8.24 | 6.47 | 9.34 | 6.77 |
| 60th | 7.84 | 6.40 | 9.25 | 6.58 |
| 55th | 7.58 | 6.32 | 9.21 | 6.49 |
| 50th | 7.48 | 6.19 | 9.14 | 6.33 |
| 45th | 7.35 | 6.05 | 8.75 | 6.31 |
| 40th | 7.21 | 5.80 | 8.49 | 6.28 |
| 35th | 6.84 | 5.67 | 8.30 | 6.19 |
| 30th | 6.63 | 5.47 | 8.19 | 5.71 |
| 25th | 6.47 | 5.38 | 8.14 | 5.47 |
| 20th | 6.29 | 5.34 | 7.37 | 5.27 |
| 15th | 5.96 | 5.23 | 6.99 | 5.14 |
| 10th | 5.67 | 4.81 | 6.37 | 4.32 |
| 5th | 5.35 | 4.27 | 5.98 | 4.16 |

**Table 3.**
Percentile norms for the high jump (in mtr.)

| PERCENTILE | Age Group 18-21 Years | | Age Group 21-25 Years | |
|---|---|---|---|---|
| | Boys | Girls | Boys | Girls |
| 95th | 1.56 | 1.25 | 1.57 | 1.45 |
| 90th | 1.45 | 1.23 | 1.55 | 1.20 |
| 85th | 1.43 | 1.22 | 1.52 | 1.18 |
| 80th | 1.41 | 1.21 | 1.48 | 1.16 |
| 75th | 1.36 | 1.21 | 1.44 | 1.16 |
| 70th | 1.34 | 1.20 | 1.38 | 1.14 |
| 65th | 1.32 | 1.20 | 1.38 | 1.14 |
| 60th | 1.31 | 1.20 | 1.35 | 1.14 |
| 55th | 1.28 | 1.19 | 1.35 | 1.12 |
| 50th | 1.27 | 1.18 | 1.32 | 1.12 |
| 45th | 1.25 | 1.14 | 1.32 | 1.10 |
| 40th | 1.24 | 1.12 | 1.31 | 1.08 |
| 35th | 1.23 | 1.11 | 1.30 | 1.06 |
| 30th | 1.23 | 1.08 | 1.30 | 1.06 |
| 25th | 1.22 | 1.08 | 1.28 | 1.05 |
| 20th | 1.20 | .98 | 1.25 | 1.04 |
| 15th | 1.17 | .98 | 1.25 | 1.02 |
| 10th | 1.14 | .98 | 1.23 | 1.02 |
| 5th | 1.12 | .87 | 1.21 | .98 |

Table 3 shows that the maximum scores of jumping events are at 95th percentile and the minimum scores are at 5th percentile for boys and girls in the 18-21 years of age, and for boys and girls in the 21-25 years of age. The highest scores are at the top and the lowest scores are at the bottom of the table.

In Tables 4 to 6 the evaluation standards are presented. Standards of evaluation were based on mean and standard deviation values.

**Table 4.**
Evaluatıon standards for the long jump (in mtr.)

| STANDARDS | SCORE LİMİT FOR 18-21 AGE GROUP | | SCORE LİMİT FOR 21-25 AGE GROUP | |
|---|---|---|---|---|
| | BOYS | GİRLS | BOYS | GİRLS |
| Excellent | Above 5.93 | Above 4.20 | Above 6.68 | Above 4.61 |
| Good | 4.82 - 5.92 | 4.19 - 3.46 | 5.66 – 6.68 | 3.78 – 4.60 |
| Average | 3.71 - 4.81 | 3.45 – 2.72 | 4.63 – 5.65 | 2.96 – 3.77 |
| Fair | 2.60 - 3.70 | 2.71- 2.00 | 3.60- 4.62 | 2.14- 2.95 |
| Poor | Below 2.60 | Below 2.00 | Below 3.59 | Below 2.13 |

**Table 5.**
Evaluatıon standards for the trıple jump (in mtr.)

| STANDARDS | SCORE LİMİT FOR 18-21 AGE GROUP | | SCORE LİMİT FOR 21-25 AGE GROUP | |
|---|---|---|---|---|
| | BOYS | GİRLS | BOYS | GİRLS |
| Excellent | Above 10.50 | Above 7.72 | Above 11.65 | Above 9.03 |
| Good | 8.50 – 10.49 | 7.71 – 6.62 | 9.73 – 11.64 | 7.29 – 9.02 |
| Average | 6.50 – 8.49 | 6.61 – 5.51 | 7.80 – 9.73 | 5.55 - 7.30 |
| Fair | 4.50 – 6.49 | 5.51- 4.41 | 5.88 - 7.80 | 3.82 - 5.56 |
| Poor | Below 4.49 | Below 4.40 | Below 5.88 | Below 3.82 |

**Table 6.**
Evaluatıon standards for the hıgh jump (in mtr.)

| STANDARDS | SCORE LİMİT FOR 18-21 AGE GROUP | | SCORE LİMİT FOR 21-25 AGE GROUP | |
|---|---|---|---|---|
| | BOYS | GİRLS | BOYS | GİRLS |
| Excellent | 1.52 & Above | 1.32 & Above | 1.56 & Above | 1.29 & Above |
| Good | 1.36 - 1.51 | 1.19 - 1.31 | 1.42 – 1.55 | 1.28 – 1.17 |
| Average | 1.21 - 1.35 | 1.06 - 1.18 | 1.29 – 1.41 | 1.16 – 1.05 |
| Fair | 1.07 - 1.20 | .94 - 1.05 | 1.15 - 1.28 | 1.04 - .93 |
| Poor | Below 1.06 | Below 93 | Below 1.15 | Below .93 |

**PHASE II.**

In this section, T scale, Hull scale, and Sigma scale were constructed. It is considered a standard scale because it is based on mean and standard deviation values. These scales for the PE students with ages ranging from 18 to 21 and 21 to 25 years have been presented as follows:

**Table 7.**
Norms for the long jump for the 18–21 year age group (ın cm.)

| BOYS | | | | GIRLS | | |
|---|---|---|---|---|---|---|
| T-SCALE | HULL SCALE | SIGMA SCALE | PERCENTILE | T-SCALE | HULL SCALE | SIGMA SCALE |
| -34.88 | 103.42 | 149.52 | 0 | 2.82 | 94.7 | 125.32 |
| 57.32 | 167.96 | 204.84 | $10^{th}$ | 64.07 | 137.57 | 162.07 |
| 149.52 | 232.5 | 260.16 | $20^{th}$ | 125.32 | 180.45 | 198.82 |
| 241.72 | 297.04 | 315.48 | $30^{th}$ | 186.57 | 223.32 | 235.57 |
| 333.92 | 361.58 | 370.8 | $40^{th}$ | 247.82 | 266.2 | 272.32 |
| 426.12 | 426.12 | 426.12 | $50^{th}$ | 309.07 | 309.07 | 309.07 |
| 518.32 | 490.66 | 481.44 | $60^{th}$ | 370.32 | 351.95 | 345.82 |
| 610.52 | 555.2 | 536.76 | $70^{th}$ | 431.57 | 394.82 | 382.57 |
| 702.72 | 619.74 | 592.08 | $80^{th}$ | 492.82 | 437.7 | 419.32 |
| 794.92 | 684.28 | 647.4 | $90^{th}$ | 554.07 | 480.57 | 456.07 |
| 887.12 | 748.82 | 702.72 | $100^{th}$ | 615.32 | 523.45 | 492.82 |

**Table 8.**
Norms for the trıple jump for the 18–21 year age group (in cm.)

| BOYS | | | | GIRLS | | |
|---|---|---|---|---|---|---|
| **T-SCALE** | **HULL SCALE** | **SIGMA SCALE** | **PERCENTILE** | **T-SCALE** | **HULL SCALE** | **SIGMA SCALE** |
| -93.04 | 167.02 | 253.7 | 0 | 147 | 284.94 | 330.92 |
| 80.33 | 288.37 | 357.72 | $10^{th}$ | 238.96 | 349.31 | 386.1 |
| 253.7 | 409.73 | 461.74 | $20^{th}$ | 330.92 | 413.68 | 441.27 |
| 427.07 | 531.09 | 565.77 | $30^{th}$ | 422.88 | 478.06 | 496.45 |
| 600.44 | 652.45 | 669.79 | $40^{th}$ | 514.84 | 542.43 | 551.62 |
| 773.81 | 773.81 | 773.81 | $50^{th}$ | 606.8 | 606.8 | 606.8 |
| 947.18 | 895.17 | 877.83 | $60^{th}$ | 698.76 | 671.17 | 661.98 |
| 1120.55 | 1016.53 | 981.85 | $70^{th}$ | 790.72 | 735.54 | 717.15 |
| 1293.92 | 1137.89 | 1085.88 | $80^{th}$ | 882.68 | 799.92 | 772.33 |
| 1467.29 | 1259.25 | 1189.9 | $90^{th}$ | 974.64 | 864.29 | 827.5 |
| 1640.66 | 1380.6 | 1293.92 | $100^{th}$ | 1066.6 | 928.66 | 882.68 |

**Table 9.**
Norms for the hıgh jump for the 18–21 year age group (in cm.)

| BOYS | | | | GIRLS | | |
|---|---|---|---|---|---|---|
| **T-SCALE** | **HULL SCALE** | **SIGMA SCALE** | **PERCENTILE** | **T-SCALE** | **HULL SCALE** | **SIGMA SCALE** |
| 67.08 | 85.76 | 91.98 | 0 | 58.91 | 75.08 | 80.47 |
| 79.53 | 94.47 | 99.45 | $10^{th}$ | 69.69 | 82.63 | 86.94 |
| 91.98 | 103.19 | 106.92 | $20^{th}$ | 80.47 | 90.17 | 93.41 |
| 104.43 | 111.9 | 114.39 | $30^{th}$ | 91.25 | 97.72 | 99.87 |
| 116.88 | 120.62 | 121.86 | $40^{th}$ | 102.03 | 105.26 | 106.34 |
| 129.33 | 129.33 | 129.33 | $50^{th}$ | 112.81 | 112.81 | 112.81 |
| 141.78 | 138.04 | 136.8 | $60^{th}$ | 123.59 | 120.36 | 119.28 |
| 154.23 | 146.76 | 144.27 | $70^{th}$ | 134.37 | 127.9 | 125.75 |
| 166.68 | 155.48 | 151.74 | $80^{th}$ | 145.15 | 135.45 | 132.21 |
| 179.13 | 164.19 | 159.21 | $90^{th}$ | 155.93 | 142.99 | 138.68 |
| 191.58 | 172.9 | 166.68 | $100^{th}$ | 166.71 | 150.54 | 145.15 |

Tables 7 to 9 show the highest scores for jumping events; they are at $100^{th}$ percentile and the lowest scores are at Zero percentile for age group 18-21 year boys. The highest scores are at the bottom of the table and the lowest scores are at the top of the table

**Table 10.**
Norms for the long jump for the 21-25 year age group (in cm.)

| BOYS | | | | GIRLS | | |
|---|---|---|---|---|---|---|
| **T-SCALE** | **HULL SCALE** | **SIGMA SCALE** | **PERCENTILE** | **T-SCALE** | **HULL SCALE** | **SIGMA SCALE** |
| 86.95 | 215.27 | 258.05 | 0 | - 6.08 | 96.83 | 131.14 |
| 172.5 | 275.16 | 309.38 | $10^{th}$ | 62.53 | 144.86 | 172.31 |
| 258.05 | 335.05 | 360.71 | $20^{th}$ | 131.14 | 192.89 | 213.47 |
| 343.6 | 394.93 | 412.04 | $30^{th}$ | 199.75 | 240.92 | 254.64 |
| 429.15 | 454.82 | 463.37 | $40^{th}$ | 268.36 | 288.94 | 295.8 |
| 514.7 | 514.7 | 514.7 | $50^{th}$ | 336.97 | 336.97 | 336.97 |
| 600.25 | 574.59 | 566.03 | $60^{th}$ | 405.58 | 385 | 378.14 |
| 685.8 | 634.47 | 617.36 | $70^{th}$ | 474.19 | 433.02 | 419.3 |
| 771.35 | 694.35 | 668.69 | $80^{th}$ | 542.8 | 481.05 | 460.47 |
| 856.9 | 754.24 | 720.02 | $90^{th}$ | 611.41 | 529.08 | 501.63 |
| 942.45 | 814.13 | 771.35 | $100^{th}$ | 680.02 | 577.1 | 542.8 |

**Table 11.**
Norms for the trıple jump for the 21-25 year age group (in cm.)

| BOYS | | | | GIRLS | | |
|---|---|---|---|---|---|---|
| **T-SCALE** | **HULL SCALE** | **SIGMA SCALE** | **PERCENTILE** | **T-SCALE** | **HULL SCALE** | **SIGMA SCALE** |
| 75.37 | 315.91 | 396.09 | 0 | - 80.74 | 136.31 | 208.66 |
| 235.73 | 428.16 | 492.31 | $10^{th}$ | 63.96 | 237.6 | 295.48 |
| 396.09 | 540.41 | 588.52 | $20^{th}$ | 208.66 | 338.89 | 382.3 |
| 556.45 | 652.67 | 684.74 | $30^{th}$ | 353.36 | 440.18 | 469.12 |
| 716.81 | 764.92 | 780.95 | $40^{th}$ | 498.06 | 541.47 | 555.94 |
| 877.17 | 877.17 | 877.17 | $50^{th}$ | 642.76 | 642.76 | 642.76 |
| 1037.53 | 989.42 | 973.39 | $60^{th}$ | 787.46 | 744.05 | 729.58 |
| 1197.89 | 1101.67 | 1069.6 | $70^{th}$ | 932.16 | 845.34 | 816.4 |
| 1358.25 | 1213.93 | 1165.82 | $80^{th}$ | 1076.86 | 946.63 | 903.22 |
| 1518.61 | 1326.18 | 1262.03 | $90^{th}$ | 1221.56 | 1047.92 | 990.04 |
| 1678.97 | 1438.43 | 1358.25 | $100^{th}$ | 1366.26 | 1149.21 | 1076.86 |

**Table 12.**
Norms for the hıgh jump for the 21-25 year age group (in cm.)

| BOYS | | | | GIRLS | | |
|---|---|---|---|---|---|---|
| **T-SCALE** | **HULL SCALE** | **SIGMA SCALE** | **PERCENTILE** | **T-SCALE** | **HULL SCALE** | **SIGMA SCALE** |
| 80.01 | 96.84 | 102.45 | 0 | 60.35 | 75.67 | 80.77 |
| 91.23 | 104.69 | 109.18 | $10^{th}$ | 70.56 | 82.81 | 86.9 |
| 102.45 | 112.55 | 115.91 | $20^{th}$ | 80.77 | 89.96 | 93.02 |
| 113.67 | 120.4 | 122.65 | $30^{th}$ | 90.98 | 97.11 | 99.15 |
| 124.89 | 128.26 | 129.38 | $40^{th}$ | 101.19 | 104.25 | 105.27 |
| 136.11 | 136.11 | 136.11 | $50^{th}$ | 111.4 | 111.4 | 111.4 |
| 147.33 | 143.96 | 142.84 | $60^{th}$ | 121.61 | 118.55 | 117.53 |
| 158.55 | 151.82 | 149.57 | $70^{th}$ | 131.82 | 125.69 | 123.65 |
| 169.77 | 159.67 | 156.31 | $80^{th}$ | 142.03 | 132.84 | 129.78 |
| 180.99 | 167.53 | 163.04 | $90^{th}$ | 152.24 | 139.99 | 135.9 |
| 192.21 | 175.38 | 169.77 | $100^{th}$ | 162.45 | 147.13 | 142.03 |

Tables 10 to 12 show the highest scores for jumping events are at $100^{th}$ percentile and the lowest scores are at Zero percentile for age group 21-25 year girls. The highest scores are at the bottom of the table and the lowest scores are at the top of the table.

**DISCUSSION AND FINDINGS**

Four normative scales, namely Percentile, Hull, Sigma and T-scale, were constructed for students of physical education colleges and universities of Punjab (State) and Chandigarh (U.T.). The differences in the performance of male students belonging to two age groups (18-21 and 21-25 years) in long, triple and high jumps were found. The mean scores in long jump, triple jump and high jump of the subjects of the two groups have been found to be 426.12, 773.81, 129.32 and 514.70, 877.17 and 136.11, respectively. It indicates that there is a significant difference in the performance of the students in long jump, triple jump and high jump of the above mentioned two groups. The results reveal that the subjects of the 21-25 years of age group performed better in long, triple and high jumps as compared to the male subjects of 18-21 years of age.

The investigator's opinion is that the difference in the performance of male subjects in the field events might be due to the influence of the factors such as age, diet, experience, physical and psychological maturity and fitness of subjects. This may be due to the above mentioned facts.

The differences in the performance of female students belonging to two age groups (18-21 and 21-25 years) in long, triple and high jumps. The mean scores in long jump, triple jump and high jump of the subjects of two groups have been found to be 309.07, 606.80, 112.81 and 336.97, 642.76 and 111.40, respectively. It indicates that there is a significant difference in the performance of long jump and triple jump but in-significant difference in high jump of the above mentioned two groups. The result shows the subjects of the 21-25 years of age group performed better in long and triple jumps as compared to the subjects of 18-21 years of age and in high jump event the subjects of 18-21 years of age group performed

better in high jump as compared to the subjects of 21-25 years of age.

The investigator revealed the fact that the difference in performance of girls subjects in the field events may be influenced by a number of factors such as age, diet, experience, physical and psychological maturity and fitness of subjects. This may be due to the above mentioned facts.

## IMPLICATIONS OF THE STUDY

The present study will be helpful for the following reasons:

1) it provides criteria to teachers of physical education for objective evaluation.
2) it helps the coaches and physical education teachers to know the effects of their training, teaching and coaching on the athlete's performance.
3) it helps physical education teachers and coaches to grade the students.
4) it helps students to compare their current performance with previous performance in athletics.
5) it provides norms which will be helpful to Physical Education students, teachers and coaches for the evaluation, classification and selection of students for different levels of competition.
6) it provides scientifically constructed athletic performance norms for students of physical education.
7) it enables students to evaluate self performance in athletics.

## SUGGESTIONS AND RECOMMENDATIONS

In the light of the conclusions of the present study, the following recommendations are made:

1. The same study can be conducted on students of arts colleges of Punjab and Chandigarh.
2. The normative scale constructed in this study may be used to evaluate the performance of students of physical education colleges and university departments of Punjab and Chandigarh.
3. It is recommended that similar studies may be conducted on school students of Punjab and other states.
4. Norms should be revised each year because the fitness/performance level of the student improves.
5. It is suggested that prepared norms in the study may be adopted by the college and department of physical education of universities to evaluate the athletics performance of students of Punjab and Chandigarh.
6. Based on the present study, athletics performance of physical education students may be compared with students of physical education of other states.
7. The same study can be conducted on professional athletes of different levels.

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## *ÉCHELLES NORMATIVES POUR LES ETUDIANTS DE L'ÉDUCATION PHYSIQUE*

***Résumé:****L'intention de l'étude était de préparer les échelles normatives pour évaluer la performance des étudiants en éducation physique, dans les épreuves de sauts (athlétisme). Un échantillon de l'étudiant 1400 a été prise à partir de différents collèges d'éducation physique et du ministère des universités du Pendjab et de Chandigarh. Les sujets ont été divisés en deux groupes selon leur âge chronologique soit 18 à 21 ans et 21 à 25 ans garçons et les filles, dans chaque groupe d'âge 700 400 les étudiants garçons et filles 300 étudiants de l'éducation physique a servi en tant que sujets. La performance des sujets dans les épreuves de sauts recueillies par le biais de trois items de test à savoir le saut en hauteur, saut en longueur et au triple saut. Les normes ont été préparés pour les épreuves de sauts (athlétisme) avec quatre échelles normatives telles que percentile, Hull, sigma et l'échelle T et standard pour l'évaluation des élèves ont également établis en vertu de distribution normale.*