# Strength Profile Of Elite Class Indian Judokas

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ABSTRACT
The present study was conducted with the aim of preparing a strength profile of National level Indian Judokas. 65 male Judokas of age 18-25 years took part in this study voluntarily. All the subjects had training experience of more than 6 years. All the subjects had performance level of National level or above. The subjects were explained about the objective of the study. Judokas of weight category 60kg-90kg took part in this study. The subject's performance was tested on bench press, bent over rowing, grip strength, back strength, and leg strength variables. Their performance was measured inside gymnasium barbell, weight plates, grip strength dynamometer, back strength dynamometer were used to measure subject's performance on selected independent variables. As a result of the study a strength profile was developed.
**Key words: Judoka, Strength profile, Dynamometer, Grip strength.**

## Introduction

Strength is considered to be prerequisite of sports performance in many sports. So many motor abilities are directly related to strength. Judo is one of the strength dominating sports where having good level of muscular strength is must for optimum performance. Strength facilitates an sportsmen to promote sports performance, prevent injury, and rehab with higher pace. The present study emphasises on most important strength predictors of Judo performance. An attempt had been made to develop strength profile of elite class Indian Judokas. The judokas of light weight category and heavy weight category both took part in this study. The findings of the study will assist new talent to evaluate their level of strengths.

## Methodology

Sixty five male Judokas were selected purposively from different states of India. Judokas whose weight category lies between -60 kg and -90kg took part in this study. 13 Judokas from each weight category were selected. Stature height was measured using Stadiometer. Sitting height, leg length, Upper arm circumference, calf circumference, thigh circumference, chest circumference was measured using non stretchable tape. Data was first cleaned using outlier detection functionality of SPSS. To develop anthropometric profile of Judokas mean, SD, minimum and maximum scores were calculated with the help of SPSS. Then profile specific descriptive statistics were converted into standard scores by using the formula minimum-mean/SD, Maximum-mean/SD. Once the calculation of

standard scores was done scores were transformed so that all the negative values can be converted into positive one. As the final step of developing profile chart transformed scores were plotted onto graph.

## Findings

| Table-1 Profile specific descriptive statistics | | | | | |
|---|---|---|---|---|---|
| Variable | N | Mean | S.D. | Min | Max |
| Bench Press | 65 | 103.66 | 24.82 | 60 | 150 |
| Bent over rowing | 65 | 86.46 | 16.14 | 55 | 120 |
| Grip Strength | 65 | 47.92 | 6.22 | 36 | 60 |
| Leg Strength | 65 | 150.93 | 13.47 | 122 | 178 |
| Back Strength | 65 | 138.5 | 14.06 | 107 | 173 |

Strength measurements were recorded in terms of kilograms. Mean, standard deviation, minimum, & maximum scores have been presented in table-1. Table-1 provides framework for subsequent steps of profile development. These scores were computed in SPSS.

| Table-2 Standard Scores | | | | |
|---|---|---|---|---|
| Variable | N | Min | Mean | Max |
| Bench Press | 65 | -1.76 | 0 | 1.87 |
| Bent over rowing | 65 | -1.95 | 0 | 2.08 |
| Grip Strength | 65 | -1.92 | 0 | 1.94 |
| Leg Strength | 65 | -2.15 | 0 | 2.01 |
| Back Strength | 65 | -2.24 | 0 | 2.45 |

Minimum and maximum score presented in previous table have been converted into standard score by using $\frac{x-\bar{x}}{\_\_\_}$ formula. Where x= minimum/maximum, $\bar{x}$= Mean.

| Table-3 Transformed scores | | | | |
|---|---|---|---|---|
| Variable | N | Min | Mean | Max |
| Bench Press | 65 | 32.41 | 50 | 68.67 |
| Bent over rowing | 65 | 30.51 | 50 | 70.78 |
| Grip Strength | 65 | 30.84 | 50 | 69.42 |
| Leg Strength | 65 | 28.52 | 50 | 70.10 |
| Back Strength | 65 | 27.60 | 50 | 74.54 |

Scores presented in table-2 were having negative values in column 3 to overcome that problem all the scores were transformed to reach positive values using $Z_1 = 50 + 10 \times Z$. Where $Z_1$= Transformed score, $Z$= Minimum/maximum score.
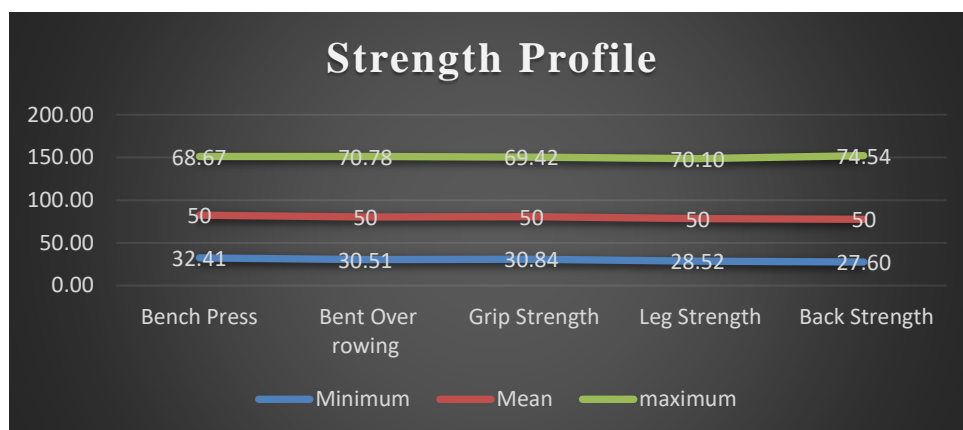
Figure-1



Figure 1 represents the graphical picture of developed profile chart. Scores presented in figure 1 are free from units. On the x-axis selected strength variables have been presented. On Y-axis converted values have been plotted. Green line shows maximum score for each variable while red and blue linesrepresents mean and minimum scores respectively.

## Conclusions:

➢ For the bench press variable minimum and maximum scores were noted to be 32.41, 68.67 respectively.

➢ For the bent over rowing variable minimum and maximum scores were noted to be 30.51, 70.78 respectively.

➢ For the grip strength variable minimum and maximum scores were noted to be 30.84, 69.42 respectively.

➢ For the leg strength variable minimum and maximum scores were noted to be 28.52, 70.10 respectively.

➢ For the back strength variable minimum and maximum scores were noted to be 27.60, 74.54 respectively.

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