# A STUDY OF HEIGHT–WEIGHT CORRELATIONS AMONG TEENAGERS AND YOUNG ADULTS FROM L'VIV (UKRAINE)

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## Summary

By measuring of physical fitness, growth processes and morpho-functional maturity of children, teenagers and young people, anthropometric data allow an adequate evaluation of their state of health. The purpose of the research was to identify the average height parameters in their correlation with the average weight parameters and to describe the frequency of particular constitution types and the level of physical fitness of teenagers and young people in L'viv region. The completed research demonstrates that among teenagers and young people in L'viv region 8 to 18 suffer from weight deficit, whereas 10 to 20 % are over weight, so that only 64 to 75 % of tested individuals have the normal correlation of height and weight. It has been shown a considerable number of teenage and young – aged L'viv region inhabitants demonstrate the lack of physical fitness.

## Introduction

According to the latest researches, acceleration and environment have been significantly influencing basic anthropological parameters characterizing the physical development and intensity of growth processes of children, teenagers and young adults, viz. height and weight parameters [1, 2]. Along with the natural increase of body length and weight, the specific gravity of teenagers and young adults with the underweight/overweight problem and inharmonious height has augmented. That is why the main objective of the study was to establish the average height, its correlation with weight and the specific gravity of persons with the underweight/overweight problem among teenagers and young adults in Lviv (Ukraine).

**Key words**: height, body weight, height–weight correlation.

## Methods.

The survey covered 322 teenagers and young adults, including 145 boys and 177 girls at the age of 15-18 (height and weight check; table 1)

***Table 1***

**Tested individuals characteristics**

| Age of tested individuals | Number of tested individuals | |
|---|---|---|
| | boys | girls |
| 15 years | 20 | 32 |
| 16 years | 25 | 25 |
| 17 to 18 years | 100 | 120 |
| Total | 145 | 177 |

The height–weight correlation was measured according to the Ketle index [2]:
KI= body mass (kg) / (body length (m))$^2$.

The index norm is 21-22 units for boys and girls at the age of 15-16 and 22-23 units at the age of 17-18. The index increase of 2 units means overweight; and its decrease of 2 units means underweight.(table 2)

***Table 2***

**Ketle index standard:**

| Age | KI |
|---|---|
| 15-16 year | 21-22 |
| 17-18 year | 22-23 |

**Results and Conclusions**

It has been shown that man's average height increases from 170±18,5 cm (15 years boys) up to 178±16,4 cm (18 years boys); this parameter changes among women from 165±9,6 cm up to 167±9,2 cm. The determination of the specific gravity of persons of different height in each of examined group shows that among 15 years persons both sex more than 50% (55% of boys and 52% of girls) have lower height than average one. The same correlation is observed among 16 years girls; 70% of boys have higher height than average one.

The specific gravity of person with higher height then average one is predominated among 17-18 years person both sex and equals to 70 % for boys and 88% for girls. The study of the height-weight correlation has enabled to assert the norm height–weight correlation at 75% of boys and 70% of girls (age of 15), at 72% of boys and 64% of girls (age of 16), and at 71% of boys and 64% of girls (age of 17-18). In the group of 15-year-old teenagers, underweight persons constitute 15% of boys and 18% of girls, and first-degree overweight persons make up 10% of boys and 12 % of girls. Among 16-year-old teenagers, underweight persons amount to 8% of boys and 16 % of girls. First-degree overweight persons make up 16% of boys and 16 % of girls; and second-degree overweight persons, 4% of boys and 4 % of girls. In the category of 17-18-year-olds, underweight persons constitute 12% of boys and 18% of girls. First-degree overweight persons amount to 14% of boys and 15 % of girls; and second-degree overweight persons, 3% of boys and 3 % of girls.

***Table 3***

***Individuals normal and abnormal weight and height correlation***

| Age | boys | | | | girls | | | |
|---|---|---|---|---|---|---|---|---|
| | deficient weight | normal weight | 1-st stage over weight | 2-nd stage over weight | deficient weight | normal weight | 1-st stage over weight | 2-nd stage over weight |
| 15 years | 15% | 75% | 10% | - | 18% | 70% | 12% | - |
| 16 years | 8% | 72% | 16% | 4% | 16% | 64% | 16% | 4% |
| 17-18 years | 12% | 71% | 14% | 3% | 18% | 64% | 15% | 3% |

The results of the survey conducted have shown that, in the examined group, 8% to 18 % is underweight, 10% to 20% is overweight, and only 64-75% of the checked group has the norm height-weight correlation. This fact makes us focus on the necessity of elaborating measures to adjust lifestyle and nutrition in this age group.

## References

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