Relationship Between Body Height And Hand Length Measurements Of Both Gender Adolescents From Region Of Gjakova In Kosovo

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• Introduction

• Methods

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• Recommendation for further researches
This study was based on measurements from Gjakova region adolescents. The aim of this study was to examine the Body Height of adolescents from Gjakova region of Kosovo as well relationship between Length of Hand and Body Height in both genders adolescents, contains four municipalities (Gjakova, Deçan, Junik and Rahovec).

Figure 1. Geographical Location of Gjakova
The update of average stature among Gjakova region population is so beneficial as well as its estimation utilizing length of hand measurements, mostly due to the reason that measurement of stature is important in many settings (Arifi et al., 2017; Bjelica et al., 2012):

- selecting talent in various sports
- assessment of nutritional status
- determination of basic energy requirements
- Standardization of measures or physical capacity and adjusting drug quantity
- the evaluation of children growth, predicting and standardization of physiologic standards such as lungs capability, muscle strength, glomerular filtering, metabolism, etc.
Introduction

• The stature and hand length might also be a relevant factor that can success of some athletes in various sports (Popovic, et al., 2014; Arifi et al., 2017)

• The researches by European anthropologists a century ago, which have studied body height of the population living in the surrounding of Dinaric Alps (Pineau, Delamarche, & Bozinovic, 2005).

As the modern Kosovars, belongs Dinaric racial classification, it is assumed by the authors of this study that adolescents that live in Gjakova region, it can be as tall from other parts of Kosovo and might by equally tall or at least very close to Europe's top nations.
• The first purpose was to examine the stature in Kosovar adolescents from Gjakova region as the authors did believe this is the place where the population can reach the full potential of the Dinaric Mountains.

• The second purpose of this research was to examine the stature in both Kosovar genders and its relationship between length of hand.
The subject of this study was 193, students from high schools, 101 are male and 106 females average of age is 18.23±0.42 years years old and for male 18.29±0.48 years old.

Anthropometric measurements of stature and length of hand have been conducted according to the protocol of the International Society for the Advancement of Kinanthropometry (Marfell-Jones, Olds, Stewart, & Carter, 2006).
The data was analyzed by Statistical Package for Social Sciences (SPSS) for Windows 25.00.

The results obtained were analyzed through descriptive parameters: Means and standard deviation (SD).

The ratio between stature and length of hand have been analyzed through correlation coefficient according to Pearson with reliability level of 95%.

The linear regression analysis was carried out to examine extent to which length of hand can reliably predict of stature.

These relationships were plotted as scatter diagram for both genders.
Table 1. Anthropometric Measurements of the Adolescents

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Stature Range (Mean ± SD)</th>
<th>length of hand Range (Mean ± SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>167.6-196.0 (179.32 ± 6.10)</td>
<td>17.0-21.7 (19.19 ± 0.91)</td>
</tr>
<tr>
<td>Female</td>
<td>157.2-181.3 (166.08 ± 4.93)</td>
<td>15.7-19.4 (17.47 ± 0.76)</td>
</tr>
</tbody>
</table>
### Results

Table 2. Correlation between Stature and length of hand of the Study Subjects

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Correlation Coefficient</th>
<th>95% confidence interval</th>
<th>Significance p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0.543</td>
<td>0.380-0.706</td>
<td>&lt;0.000</td>
</tr>
<tr>
<td>Female</td>
<td>0.664</td>
<td>0.514-0.813</td>
<td>&lt;0.000</td>
</tr>
</tbody>
</table>
Table 3. Results of Linear Regression Analysis Where the length of hand Predicts the Stature

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Regression Coefficient</th>
<th>Standard Error (SE)</th>
<th>R-square (%)</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0.543</td>
<td>5.152</td>
<td>29.5</td>
<td>6.597</td>
<td>0.000</td>
</tr>
<tr>
<td>Female</td>
<td>0.664</td>
<td>3.709</td>
<td>44.0</td>
<td>8.828</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Figure 1. Scatter Diagram and Relationship between length of hand Measurements and Stature among the Above Models
• This scientific paper contributes to a very important update of average stature among adolescents from the Gjakova region of Kosovo

• The adolescents from Gjakova region of Kosovo are very tall with an average of 179.32 centimeters for boys, same than male general population in Kosovo with 179.52 centimeters, and taller than adolescents of others region, Prizren, and Gjilan, and very closed with adolescents from region in Peja, Ferizaj, but not taller than adolescents from Prishtina, and Mitrovica:

  ▪ Region of Prishtina 180.62 cm
  ▪ Region of Mitrovica 180.28 cm
  ▪ Region of Peja 179.89 cm
  ▪ Region of Ferizaj 179.83 cm
  ▪ Region of Prizren 178.60 cm
  ▪ Region of Gjilan 177.68 cm
The adolescents from Gjakova region of Kosovo are also very tall with an average of 166.08 centimeters for female, taller than female general population in Kosovo with 165.72 centimeters, and taller than female adolescents in region of Mitrovica, Prizren, Ferizaj, and Gjilan, but not taller than female adolescents from region in Prishtina and Peja:

- Region of Prishtina: 166.77 cm
- Region of Peja: 166.33 cm
- Region of Mitrovica: 165.36 cm
- Region of Prizren: 165.33 cm
- Region of Ferizaj: 165.22 cm
- Region of Gjilan: 164.10 cm
However, there is a hypothesis that both sexes adolescents from Gjakova region of Kosovo did not reach their full genetic potential yet.

They have been influenced by various environmental factors (wars, in the former Yugoslavia, poor economic situation, etc.).

The authors believe that these circumstances had a negative bearing on the secular trend in Kosovo as well as surrounding countries.

It is expected that the secular changes influencing on stature will ascend in following two decades.
The results of this study confirm that the length of hand reliably predicts stature, based on results achieved for male and female from adolescents from Gjakova region in Kosovo.

The relationship between body height and length of hand are similar, the estimation equations which are obtained in this population are substantially same from other regions of Kosovo.

The results of this study confirm the necessity for developing height models for each region in Kosovo.
References


References

Thanks for attention