The evaluation and measurement of human body dimensions are achieved by physical anthropometry (Chamela 1997, Williams et al., 1995). Cephalometry is one of the important parts of anthropometry in which dimensions of head and face are measured. Cephalometric results are used in pediatrics, forensic medicine, plastic surgery, oral surgery dentistry, and diagnostic comprehension between patient and normal populations (Williams et al.).

The human body dimensions are affected by ecological, biological, geographical, racial, gender and age factors (Golalipour et al., 2003, Okupe et al., 1984, Tuli et al., 1995, Rajlakshmi et al., 2001).

On the basis of above factors, anthropometric studies are conducted on the age, sex and racial groups in certain geographical zones (Williams et al. and del Sol, 2005).

The most important of cephalometric dimension are height and weight of head that with using of them we can determine cephalic index.

On basis of cephalic index head shapes classified four international categories, that including dolicocephal, brachiocephal, mesocephall and hyperbrakicephal (Williams et al. and del Sol).

A few investigations determined the types of head shape in various ages in Iran and other countries (Avicenna 1984; Jorjani, 1975; del Sol; Shah & Jadhav, 2004; Jordaan 1976 and Golalipour et al.).

By noticing, the effect of racial, ethnic and geographical factors on head dimensions and lack of documented research in this area, for the first time, this study was done to determine the cephalic index and types of head shapes in 17-20 years old native Fars male in Gorgan- north of Iran.

MATERIAL AND METHOD

This research descriptive and cross- sectional was done on 200, 17-20 years old normal native Fars males in Gorgan- North of Iran.
Native Fars group is main and original in habitants of this region and populations of native Fars have been selected last three generations who lived in this zone.

All the measurements were taken with the subject sitting in chair, in relaxed condition and head in anatomical position.

Head measurements, which were determined by Martin spreading caliper, were included:

Head length = Summit of glabella to furthest occipital point.
Head width = greatest breadth, at right angles to median plane.

Cephalic index = \( \frac{\text{Head width}}{\text{Head length}} \times 100 \)

Above index was determined on the basis of international anatomical descriptive (Williams et al.).

Depending upon this index the types of head and face shapes were followed as (Williams et al.):

<table>
<thead>
<tr>
<th>Head shape</th>
<th>Cephalic index (CI) range (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dolichocephalic</td>
<td>CI &lt; 74.9</td>
</tr>
<tr>
<td>Mesocephalic</td>
<td>75&lt;CI&lt;79.9</td>
</tr>
<tr>
<td>Brachycephalic</td>
<td>80&lt;CI&lt;84.9</td>
</tr>
<tr>
<td>Hyperbrachycephalic</td>
<td>85&lt;CI&lt;89.9 and CI&lt;89.9</td>
</tr>
</tbody>
</table>

The data for each person was recorded in a special form and then analyzed by EPI6.

RESULTS

Mean and SD of cephalic index in native Fars group was 84.8 ± 6.9. Head was classified by cephalic index, so that hyperbrachycephalic type with 52% was dominated. Also the 25% of the individuals were brachycephalic, 21.5% mesocephalic and 1.5% dolichocephalic (Table I).

Table I. Distribution of head shapes in native Fars male 17-20 years old.

<table>
<thead>
<tr>
<th>Head shape</th>
<th>Number (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dolichocephalic</td>
<td>3 (1.5)</td>
</tr>
<tr>
<td>Mesocephalic</td>
<td>43 (21.5)</td>
</tr>
<tr>
<td>Brachycephalic</td>
<td>50 (25.0)</td>
</tr>
<tr>
<td>Hyperbrachycephalic</td>
<td>104 (52.0)</td>
</tr>
</tbody>
</table>

DISCUSSION

In this study cephalic index was 84. The cephalic index was higher than others study such as, in Tehran-center of Iran with 75 (Abolhasanzadeh & Farahani, 2003), India with 80.42 (Shah & Jadhav), and in Chile with 80.42 (del Sol).

Cephalic index was determined in Chile with average of 81.51 ± 0.46. Also, cephalic index reported 81.19 ± 0.05 in European people in Mediterranean area, and 79.72 ± 0.97 in north of Europe (apud García & Lips 1986a,b).

In our study, dominant type of head shape was hyperbrachycephalic (52%). This finding is not similar to another study in Iran (Abolhasanzadeh & Farahani), that the dominant type was brachycephalic (36.6%). Also, dominant type of head from this study is not similar to other study, in India (Bhatia et al., 1955) with dolicocephal (58.5%), and del sol study in Chile and (Marquer & Chamela, 1961) that mesocephal type was dominant type.

Bathia et al., on 806 samples in India, reported that 58.5 % of the individuals were dolichocephalic, 19.2 % hyperdolicocephal, 21% mesocephalic and less than 1% of them were brachycephal.

Also, del Sol on 50 adult’s male in the IX Region of Chile, reported that 66% of the individuals were mesocephal, 28% brachycephal, 4% hyperbrachycephal and 2% dolichocephal.

Abolhasanzadeh & Farahani on 953 adult male (22-24 years old) in Tehran- Iran reported that 36.6 % of the individuals were brachycephalic, 29.9 % hyperbrachycephal, 24.5 % mesocephal and 9% dolicocephal.

Shah & Jadhav on 302 male students reported that 41% of students were mesocephal and 37% brachycephal. The some centuries age, the some studies were done by two famous scientists in Iran, are very interesting (Avicenna and Jorjani).

More than eleven centuries ago, Avicenna & Jorjani reported that the dominant type of head shape in Iranian people were mesocephal (Avicenna & Jorjani). But recent studies in Iran, showed that the dominant type were hyperbrachycephal or brachycephal.

Therefore, we concluded that there is a trend change in head shapes of Iranian people and the dominate type of head shape changed from mesocephal to brachycephal and hyperbrachycephal.
Other study has shown changes of head shape (brachycephalization) during 30 years on population (Nakashima, 1986).

In respect to the variation of head shape in various races, ethnic and geographical zones, we believe that hereditary factor primarily affects on the shape of head, however environment has secondary effect on it.

It must be remembered that the reaction to a given environment represents the interaction of the genotype of the population being studied with the environment (Jordaan).

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RESUMEN: El índice cefálico y la forma de la cabeza son afectados por factores geográficos, género, edad y raza. El objetivo de este estudio fue determinar el índice cefálico y la forma de la cabeza en 200 hombres nativos de Gorgan-Norte de Irán, cuyas edades fluctuaban entre 17 y 20 años de edad. El estudio descriptivo fue realizado a través de cefalometría clásica.

La media y DS del índice cefálico fue 84.8 ± 6.9. El 52% de los individuos era hiperbraquicéfalo, 25% braquicéfalo, 21.5% mesocéfalo y 1.5% dolicocefalo. Los individuos nativos Fars eran típicamente hiperbraquicéfatos. En comparación con otros estudios efectuados en el mundo, podemos determinar el rol del factor racial/étnico en los diámetros cefálicos.

PALABRAS CLAVE: Formas craneofaciales; Cefalometría; Índice cefálico; Hombre.

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