Cineanthropometric Study in Spanish Judoists

Anthropometric characteristics of proportionality, body composition and somatotype have been determined in a group of 72 Spanish judoists. The sample includes the junior male and female National Team, and seniors competitors in the last Olympic Games held in 1992, and participants in the National Championship of 1993. The methodology has been used according to Weiner and Lourie (1981) and MOGAP procedures described by Borms et al. (1979). The obtained results show a similar proportionality profile and mesoendomorphic mean somatotype in both male and female series. However, were found significant differences between sexes as well as depending of weight categories.

Introduction

The Judo has its origins in the Ju-Jitsu, practised in Japan since year 23 B.C., and one of the most important elements of the traditional culture in that country (Uzawa 1973). Jigoro Kano, a student at the Faculty of Literature in Tokio University, founds in 1882 his own judo school to which he called “Kodokan” or house which shows the way. The new method, created by Kano, is not only a defence and attack art, but he adds a teaching element of the person, in a physical and mental level.

In 1935, Mikonosuke Kawaishi, introduces the judo in France whose practice is spread to the rest of Europe. The same happens in Spain, and in 1946 is founded in Madrid the first school for teaching this sport.

In 1953 the first Spanish Championship is held and in 1965 the Spanish Federation is set up. But it is since 1970’s when judo gets its real importance in the international competition because of the great number of medals which were won (Taira et al 1992). Also, it has been really important for the boom of this sport in Spain, its introduction in schools, circumstance which was favoured by the easy practice of this physical activity in in-door floors, as well as the own educative philosophy of this martial art.
From the biomechanical point of view, the judo involves a great variety of movements, which need a great muscular and articular skill, as well as a great capability for catching and keeping one’s balance i.e., a firm setting of the body centre of gravity. Physiologically, as a consequence of making short and violent efforts, the judokas obtain the energy through lactic anaerobiosis, using basically the hepatic and muscular reserves (Taira et al. 1992).

From the Physical Anthropology it is important to analyze in which way the practice of this sport contributes in the morphology of the individual, focusing aspects as the corporal composition, somatotype, and proportionality. In this way, its knowledge will allow us to find some criterions for following and planning this sport, guided to get the biggest physical efficiency.

**Material and Methods**

The sample consists of 72 judoists, 30 men and 42 women, between 16 and 30 years old, belonging to Spanish Judo Federation. In these group, we can be found some medal winners in the Olympic Games in 1992, contestants in the National Championship held in 1993, and the male and female junior selections of the National Team.

The direct anthropometric measures analyzed are: stature, sitting height, arm length (acromion-dactilion), leg length (iliac spine height), span, biacromial and bicristal diameters, transversal and anteroposterior breadths of the torax, humerus and femur bicondylar width, relaxed and flexed upper arm, forearm, wrist breadth, thigh and calf circumferences in cents. Triceps, subescapular, suprailiac, abdominal, thigh and calf skinfolds in mm and body weight in Kg. All measures were taken according to the methods proposed by the International Biological Programme, and described by Weiner and Lourie (1981).

The used instruments have been: anthropometer, spreading and sliding calipers and steel measuring tape "G.P.M.", caliper for fat thickening "Holtain LTD" and digital "Tefal" weight scale with 200 g precision.

The analysis of the proportionality has been carried out using the Phamtom model described by Ross and Wilson (1974) as well as four indices: 100 x sitting height/stature; 100 x bicristal/biacromial; 100 x arm length/stature and relative span.

The fractionation of the four components of the total body weight was determined following the indications of Borms et al. (1979) and Carter, (1982a) described for the M.O.G.A.P.

The somatotype has been determined according to the methodology of Heath-Carter (1980) carrying out the statistical analysis of data using the computer program SOMATOS (Villanueva and Villanueva 1990). For each sample group, established according sex and weight category, mentioned analysis estimates the mean somatotype (S) and coordinates X and Y corresponding to the representation of it in a bidimensional somatochart. The analysis also estimates the attitudinal distance (SAD) and the somatotype attitudinal mean (SAM). The SAD is the distance between two any somatopoints in three dimensions and is calculated in units of the three original components. The average of the SADs of each somatopoints from the mean somatopoint (S) of a sample is called somatotype attitudinal mean (SAM). These parameter express the dispersion degree of the individual somatoplots about the mean somatotype. For comparative purposes, it has been done an “F” test or analysis of variance(two way ANOVA), appropriate for the somatotypological method described by Carter et al (1983).