

Anthropometry of the Swiss judoka national teams of juniors and seniors – a descriptive study

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Objectives

To assess the anthropometrical characteristics and the hand grip strength of the Swiss junior and elite judo national team. The measured values were compared with data from the literature.

Materials & Methods

24 members, 19 males (23.01 ± 4.91 years) and five females (19.95 ± 2.02 years), were measured. The following anthropometric measurements were made: body size, body weight, six skinfolds (SFT), two bone breadths, two circumferences, body fat (tanita scale, Durnin and Womersley method), BMI and determination of somatotypes. In addition, the hand grip strength was measured. The anthropometric measurements were carried out in accordance with the ISAK guidelines. The literature search was done electronically using PubMed.

Results & Discussion

The mean somatotype of male judoka was 2.2 ± 0.8 for the endomorphy, 6.0 ± 0.9 for the mesomorphy and 2.0 ± 0.7 for the ectomorphy. The mean somatotype was balanced mesomorph. The mean hand grip strength of male judoka was 47.4 ± 6.7 kg. The mean somatotype of female judoka was 3.7 ± 1.2 for the endomorphy, 4.9 ± 0.7 for the mesomorphy and 1.5 ± 0.3 for the ectomorphy. The mean somatotype was mesomorphic endomorph. The mean hand grip strength of the female judoka was 27.0 ± 3.1 kg. There were anthropometric differences between the Swiss junior and senior judoka and between the Swiss athletes and the athletes of the reference studies. The estimated body fat % of the Swiss male judoka (11.3±1.8) corroborates well with the reference literature, whereas the values of Swiss female judoka (23,2 ± 4.3) were rather high in comparison to the study of Drid et al. (2009) (14.1±4.3 %) and Almansba et al. (2010) (19,5 ± 3,8 %)

Judo Team	Handgrip strength (mean in kg ±sd)
Swiss elite female	27.0 ±0.0
Swiss U20 female	27.0 ±3.1
Swiss elite male	48.4 ±5.2
Swiss U20 male	45.3 ±9.4
Brazilian U20 male	51.0 ±1.0

Table1. Overview of the mean handgrip strength of elite male and female judo teams

Conclusions

The morphology of a judo athlete requires a high mesomorphic component. Knowledge and adequate follow-up of the body composition of competitive judo athletes is important to guarantee an optimal development of the judoka's specific somatotype. As most of the athletes implement weight reduction periods before competition, professional medical support is of utmost importance to secure health and performance level of the judo athletes.

The anthropometric data and the results of the hand grip strength provide information concerning the components Swiss judoka should improve. It should be accentuated though, that a judoka who does not match the ideal profile might still be successful due to other factors (e.g. technical, tactical, mental strength).

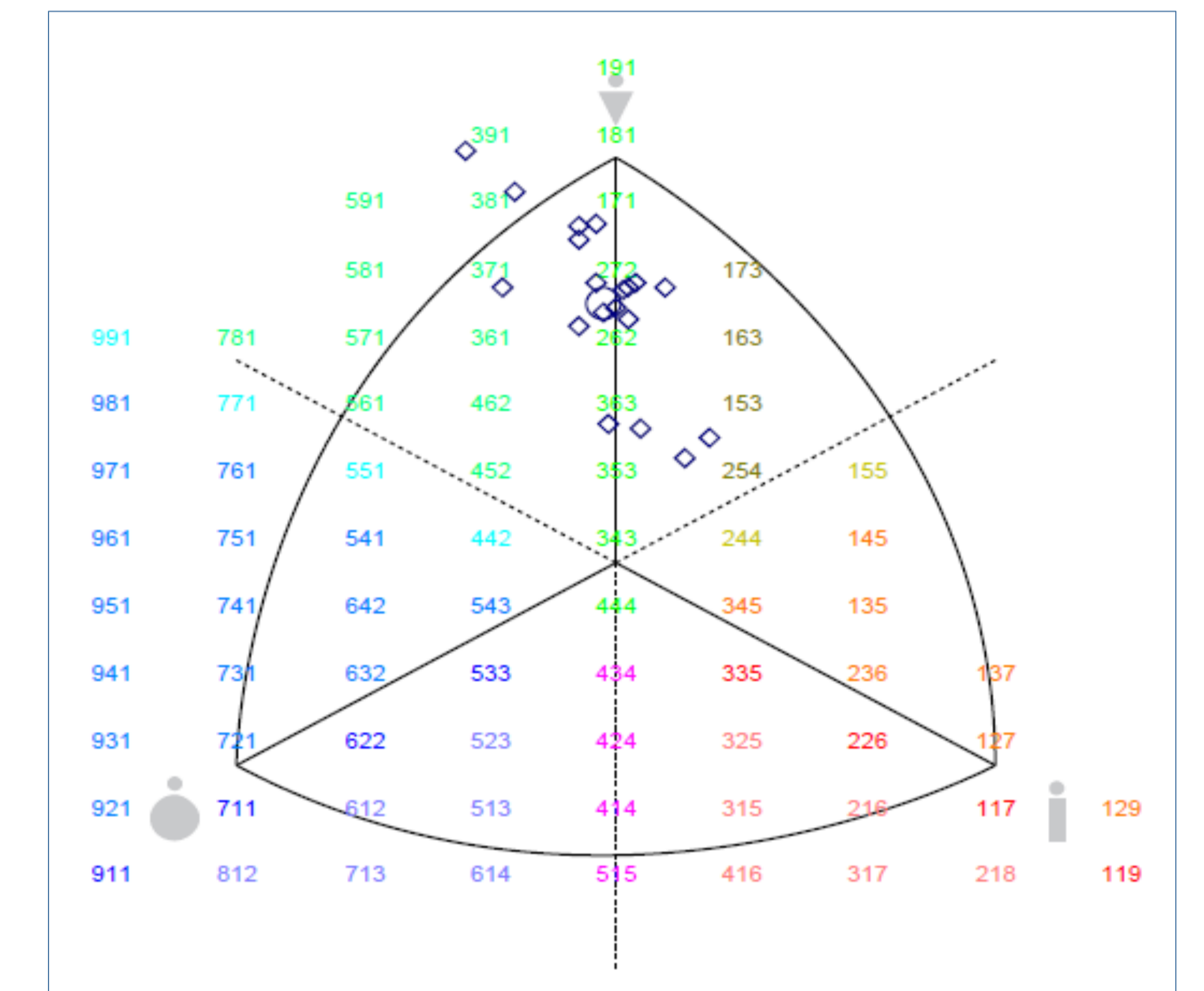


Fig. 1. Individual and mean (O) somatotypes of the male junior (U20) and senior male elites judoka of the Swiss national team.

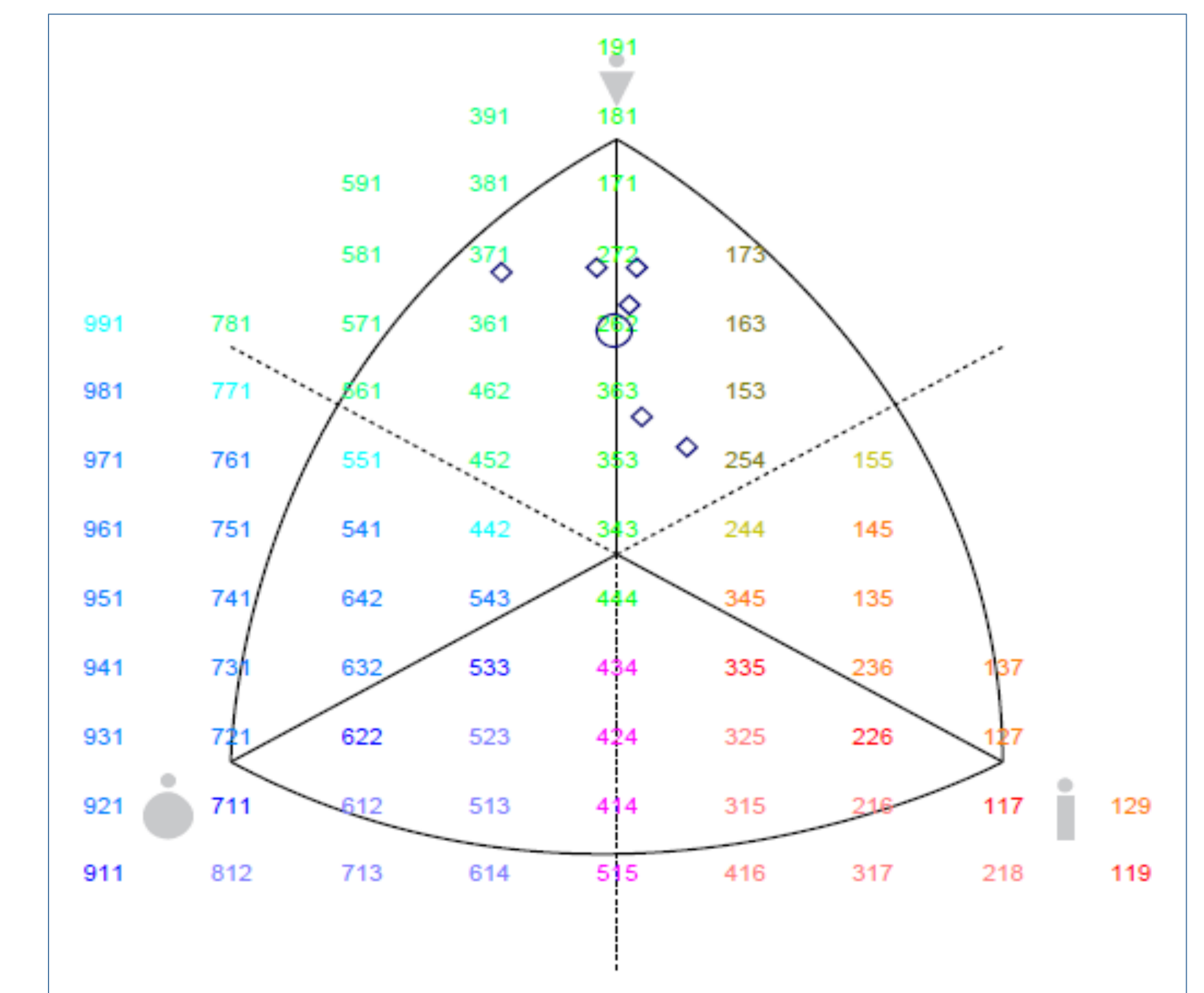


Fig.2. Individual and mean(O) somatotypes of the female junior (U20) and senior female elites judoka of the Swiss national team