

The importance of separate measurements of lower limbs in posturography

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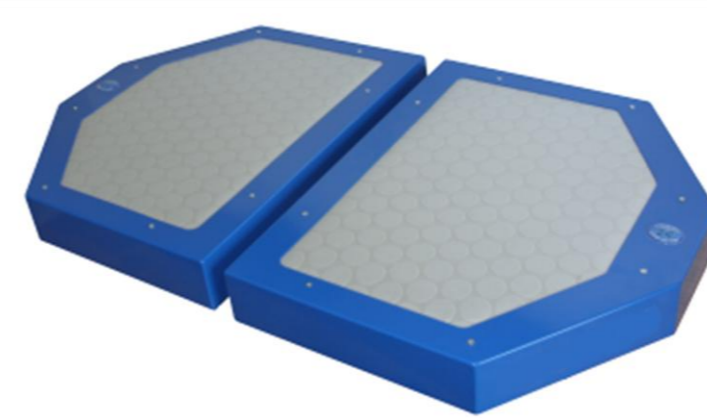
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Metods



Picture 1. Two platform stabilograph

Each of the examined persons had to stand on two-platform stabilographic scale barefoot in individual relaxed standing position. One foot rested on one plate of the posturograph while the other on second plate. Both limbs were straightened. Width of lower limb and the angle between feet was unconstrained, contrary to the situation in posturographic examinations. The test comprised two trials 30 seconds each

During first trial (relaxed standing with eyes open) each person was supposed to maintain stable standing position with eyes focused on still image displayed on the screen. In second trial (relaxed standing with eyes closed) the task was to maintain the same 'natural' position. During the whole test the examined person did not change the adopted body position.

Materials & Results

Research material comprised the group of 444 persons including 193 women and 251 men.

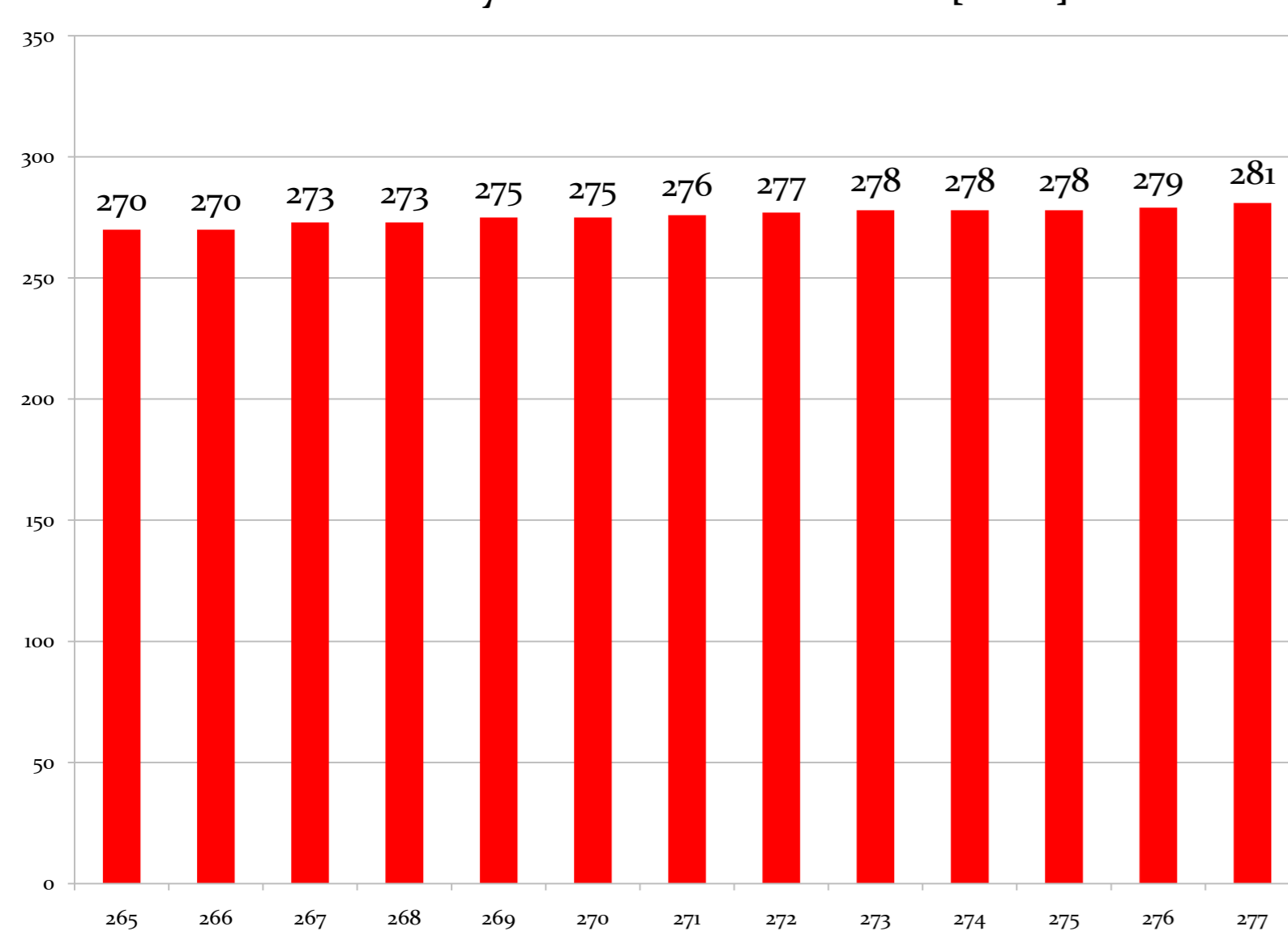
Average age of the examined persons: 21 ± 4.11 years

Average weight: 68.3 ± 15.6 kg

The examined persons included:

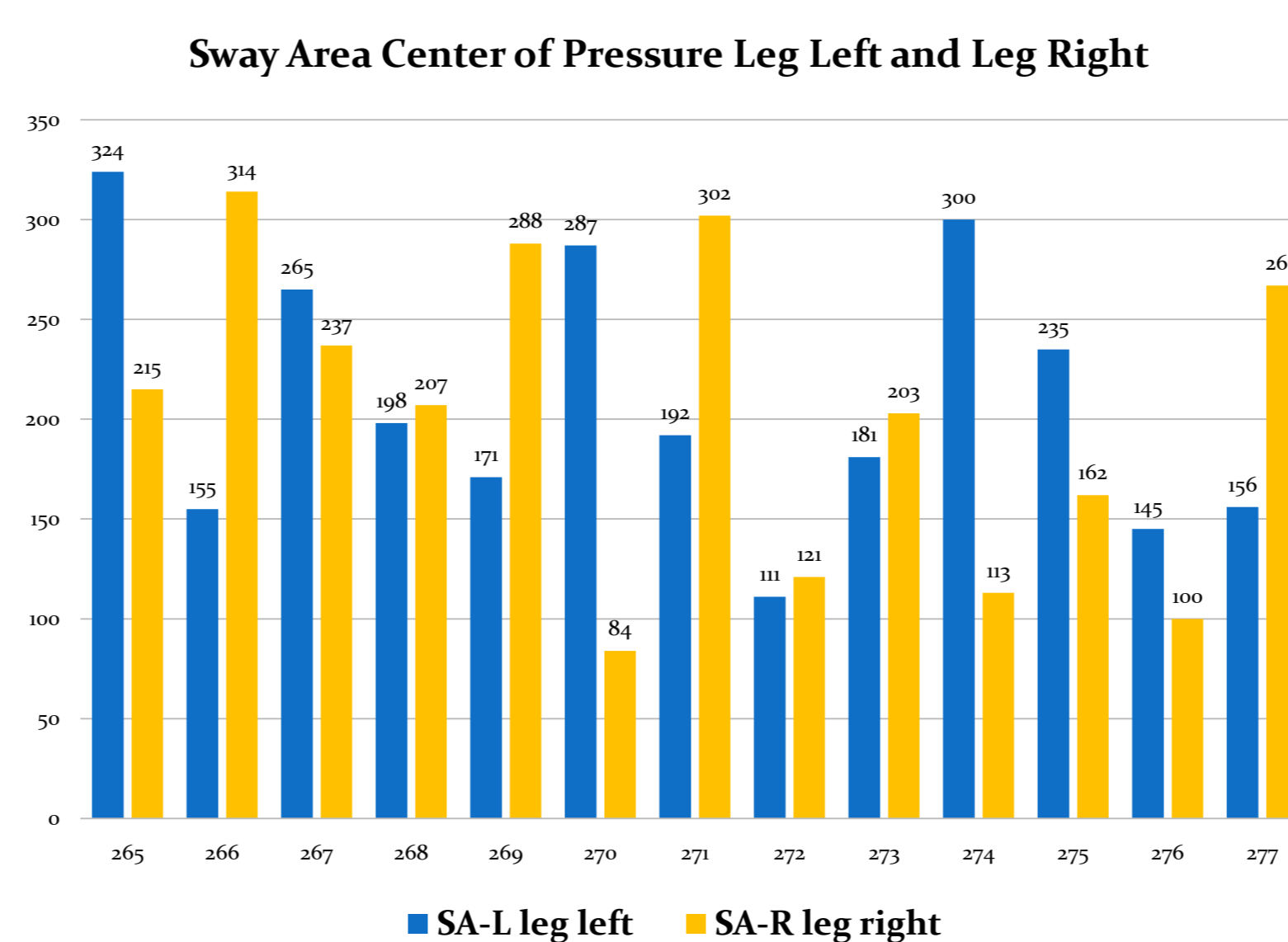
primary school students, young persons from special care educational centre for people with impaired hearing and sight, students, sportsmen from different disciplines (wrestling, table tennis, archery, biathlon, judo). The tests were carried out from August 2007 to August 2009.

SA-COP Sway area Center of Pressure [mm²]

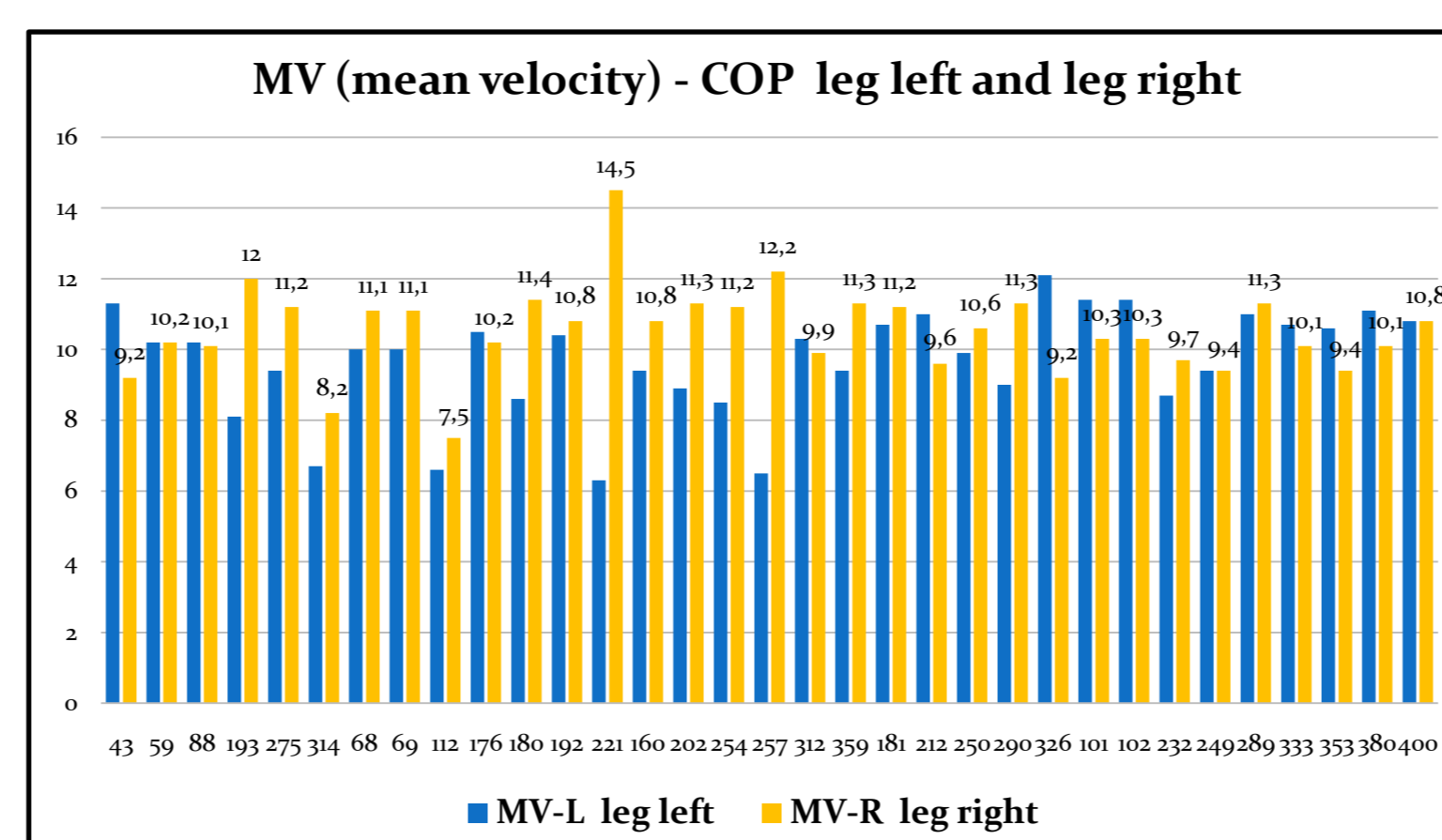


6 groups (A,B,C,D,D,E) separated from 444 persons

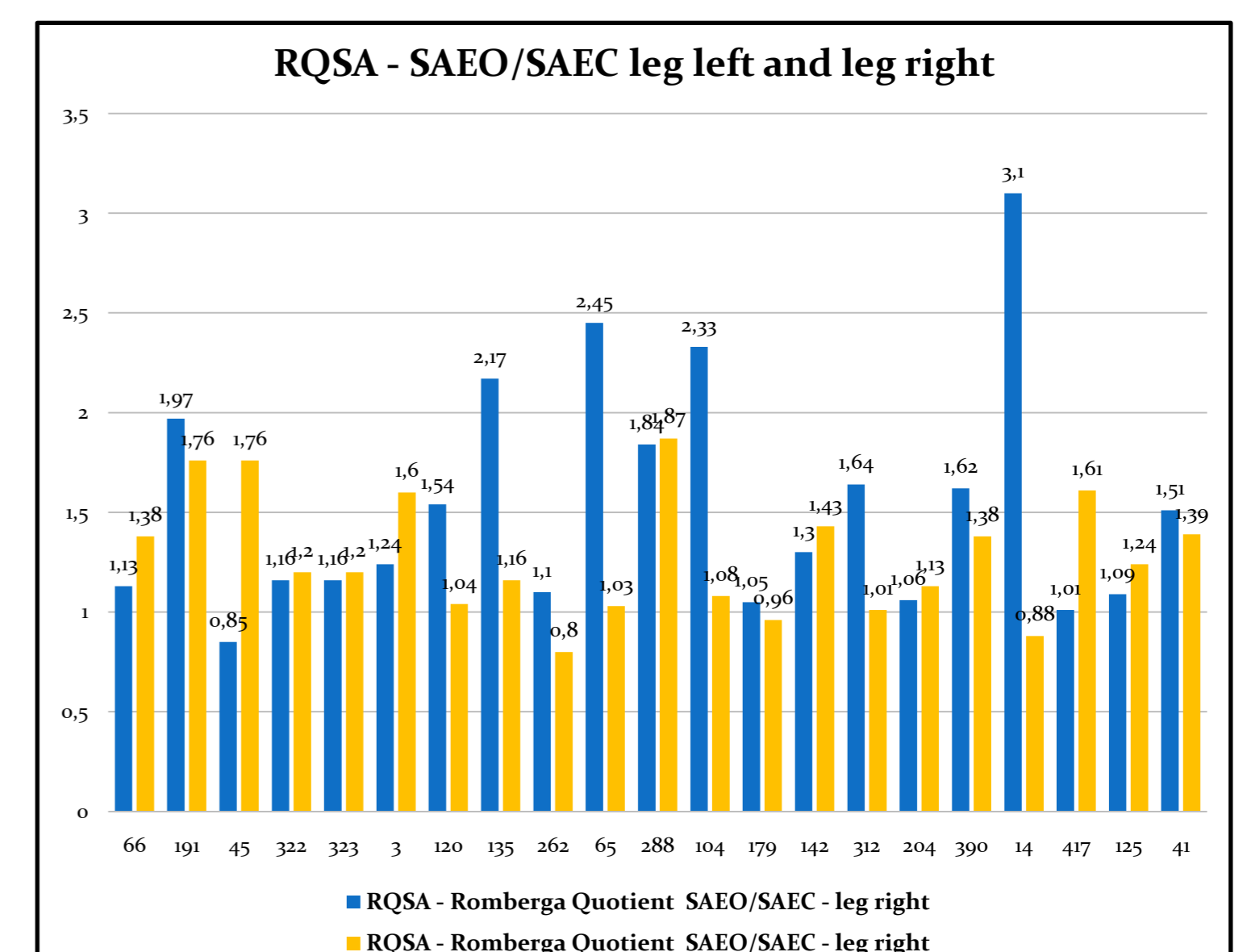
In order for the in-depth analysis of significance of measurement of SA-COP surface area to be carried out for evaluation of balance, a group was separated to include persons whose SA-COP values do not differ by more than $\pm 2.5\%$ from mean SA-COP value among the examined population of 444 persons.



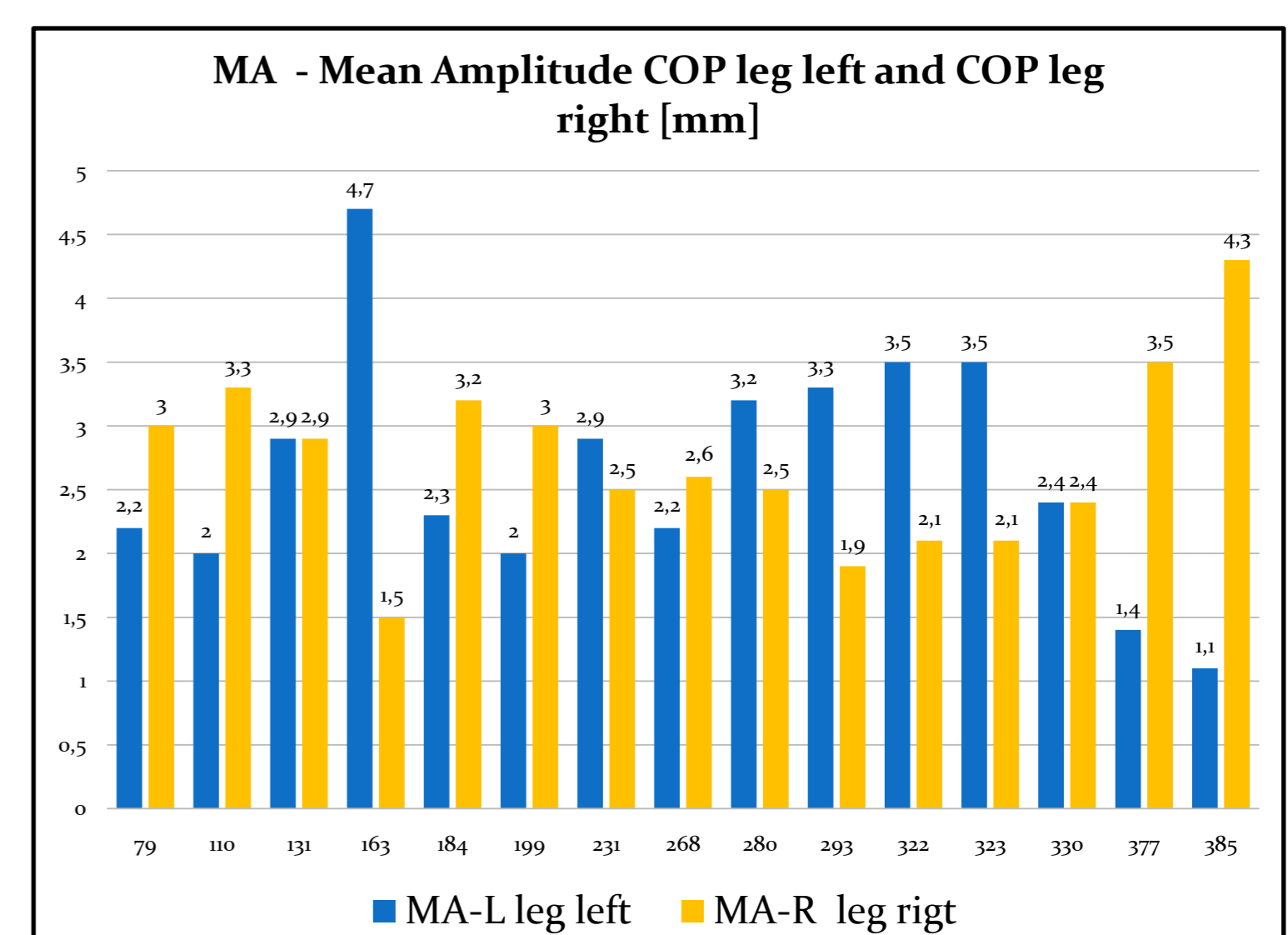
13 persons were qualified to group A, a uniform group selected according to the procedure described above.



This is group D (33 persons) Persons whose COP velocity was the same and did not differ by more than $\pm 2.5\%$ from the mean value for 444 persons



This is group B (21 persons) Persons with RQ-SA value which did not differ by more than $\pm 2.5\%$



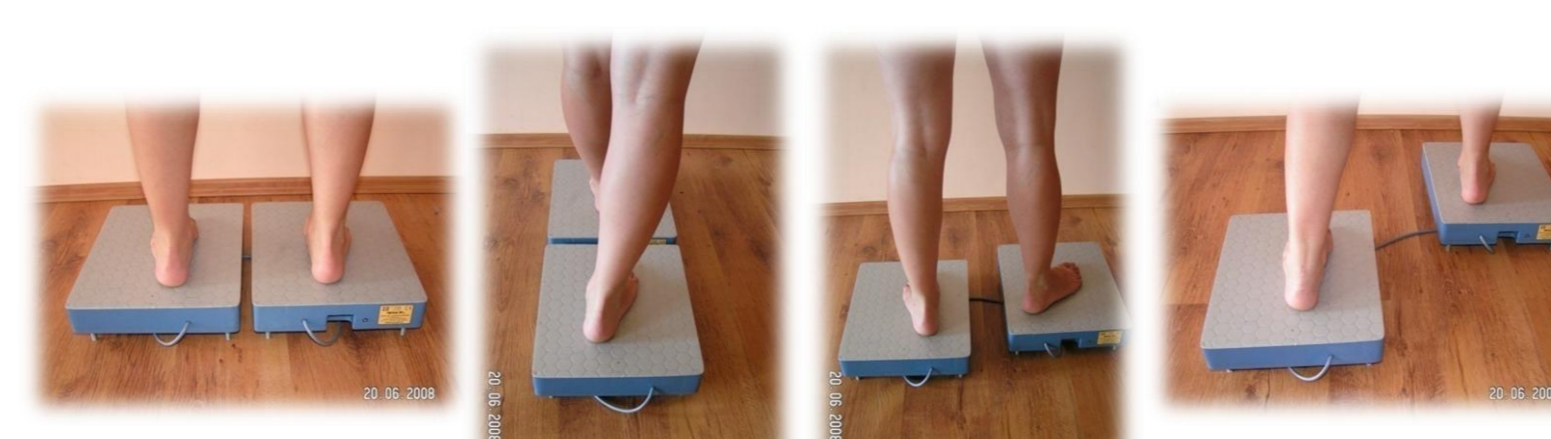
This is group (15 persons) Persons whose mean COP amplitude was equal

Conclusions

Separate concurrent measurements carried out for each limb allowed to show considerable differences (in balance parameters) between persons who obtained similar results in single-platform posturographs.

The presented results point to the need for stabilographic investigations of transfer of COP using concurrent and independent measurement of transfer of COPLL and COPLR and the registration of changes in balance.

The present paper presents new cognitive opportunities connected with implementation of new measurement techniques into stabilography in the form of two-platform stabilographic scales.



More information about posturograph can be found at www.koordynacja.com.pl

Such a development in measurement opportunities for stabilography offered by two-platform posturograph might contribute to verification of a number of views existing in this field.

Separate concurrent measurements carried out for each limb allowed to show considerable differences (in balance parameters) between persons who obtained similar results in single-platform posturographs.

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