

# Generic anthropometric and performance characteristics among elite adolescent boys in different sports

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## Purpose

Evaluate the Flemish Sports Compass

Examine the discriminative power

Allocate athletes to their sport based on a unique combination of test scores

## Methods

141 mature boys under 18 ( $16.1 \pm 0.8$  years; maturity offset =  $2,674 \pm 0,926$ ) from Flemish Top Sport Academies for badminton, basketball, gymnastics, handball, judo, soccer, table tennis, triathlon and volleyball were evaluated:

- Anthropometry: height, weight, BMI and Fat%
- Physical tests: handgrip, shoulder rotation, sit and reach, counter movement jump, standing broad jump, shuttle run 10x5m, endurance shuttle run, knee push-up and sit-ups
- Motor coordination tests: KTK balance beam, KTK jumping sideways, KTK moving sideways, Throwing shuttles and dribbling

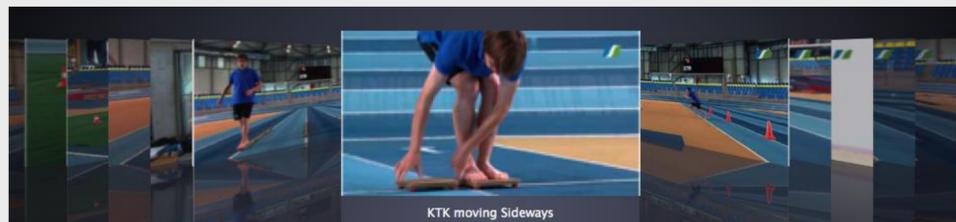


Figure 1: Moving sideways KTK

## Results

Sequential discriminant analyses were used to assess to what extent the scores on non-sport specific test allow the classification of young athletes as participants/non-participant in the respective sports.

The discriminating characteristics are briefly the following: flexibility in gymnastics, explosive leg strength in badminton and volleyball, speed and agility in badminton, judo, soccer and volleyball, upper body strength in badminton, basketball and gymnastics, cardio-respiratory endurance in triathletes, dribbling skills in handball, basketball and soccer and overhead throwing skills in badminton and volleyball.

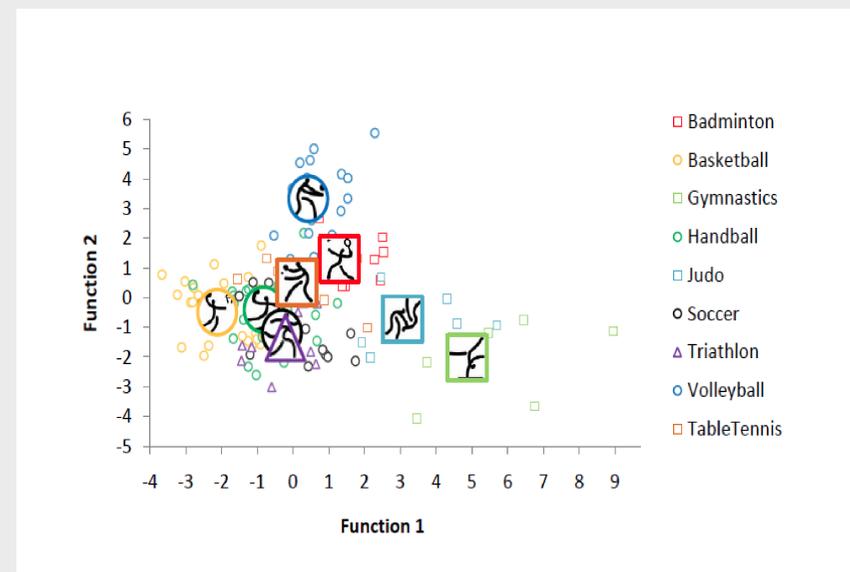


Figure 2: Differences based on canonical discriminant functions calculated from the 22 generic tests (FSC).

## Conclusions

The Flemish Sports Compass shows differences in generic talent characteristic distinguishing adolescent boys to their particular sport. The generic test battery might be useful in the orientation towards the sport that best fits.

Discriminant analyses resulted in a 96,4% correct classification of all participants for the nine different sports

When focusing on relevant performance characteristics, 80.1% to 97.2% of the total test sample was classified correctly within their respective disciplines

## References

- Pion, J., Segers, V., Fransen, J., Debuyck, G., Deprez, D., Haerens, L., Vaeyens, R., Philippaerts, R., & Lenoir, M. (2014) Generic anthropometric and performance characteristics among elite adolescent boys in nine different sports. *European Journal of Sports Sciences* (doi10.1080/17461391.2014.944875).
- Fransen, J., J. Pion, J. Vandendriessche, B. Vandorpe, R. Vaeyens, M. Lenoir and R. M. Philippaerts (2012). "Differences in physical fitness and gross motor coordination in boys aged 6-12 years specializing in one versus sampling more than one sport." *Journal of Sports Sciences* **30**(4): 379-386.
- Leone, M., G. Lariviere and A. S. Comtois (2002). "Discriminant analysis of anthropometric and biomotor variables among elite adolescent female athletes in four sports." *Journal of Sports Sciences* **20**(6): 443-449.

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