



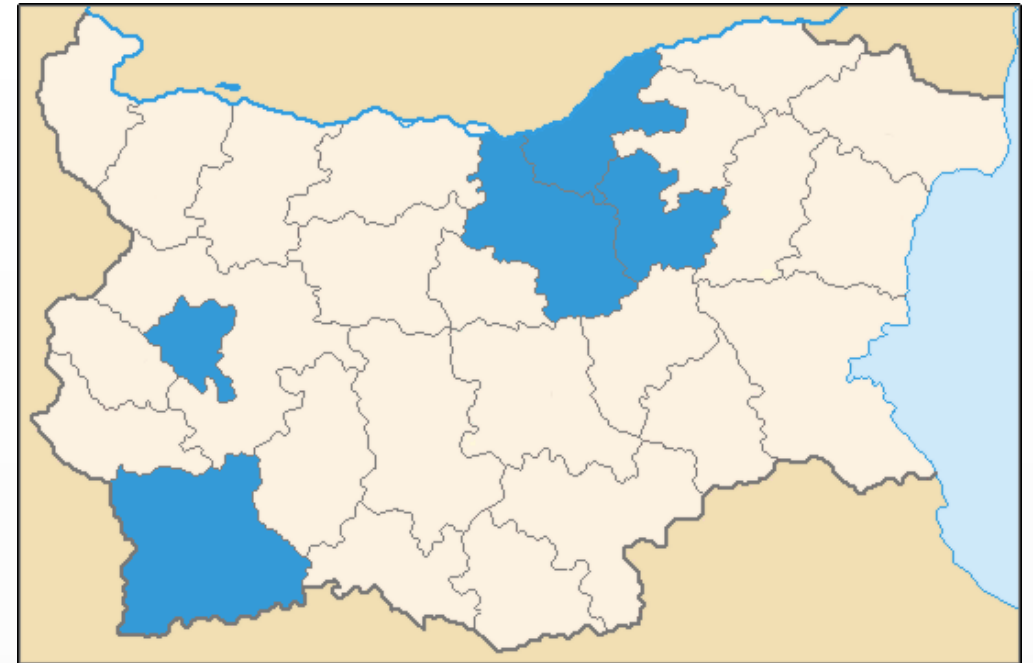
**BASES 2018**  
**Conference**

# PHYSICAL FITNESS ASSESSMENT OF YOUNG ARTISTIC GYMNASTS

**STEFAN KOLIMECHKOV, ILIYA KIUCHUKOV, LUBOMIR PETROV,  
ALBENA ALEXANDROVA, ILIYA YANEV, DILLYANA ZAYKOVA AND EMIL STOIMENOV  
NATIONAL SPORTS ACADEMY, BULGARIA**

# AIM OF THE STUDY

**The aim of this study was to assess the physical fitness of young competitive artistic gymnasts from different regions in Bulgaria.**

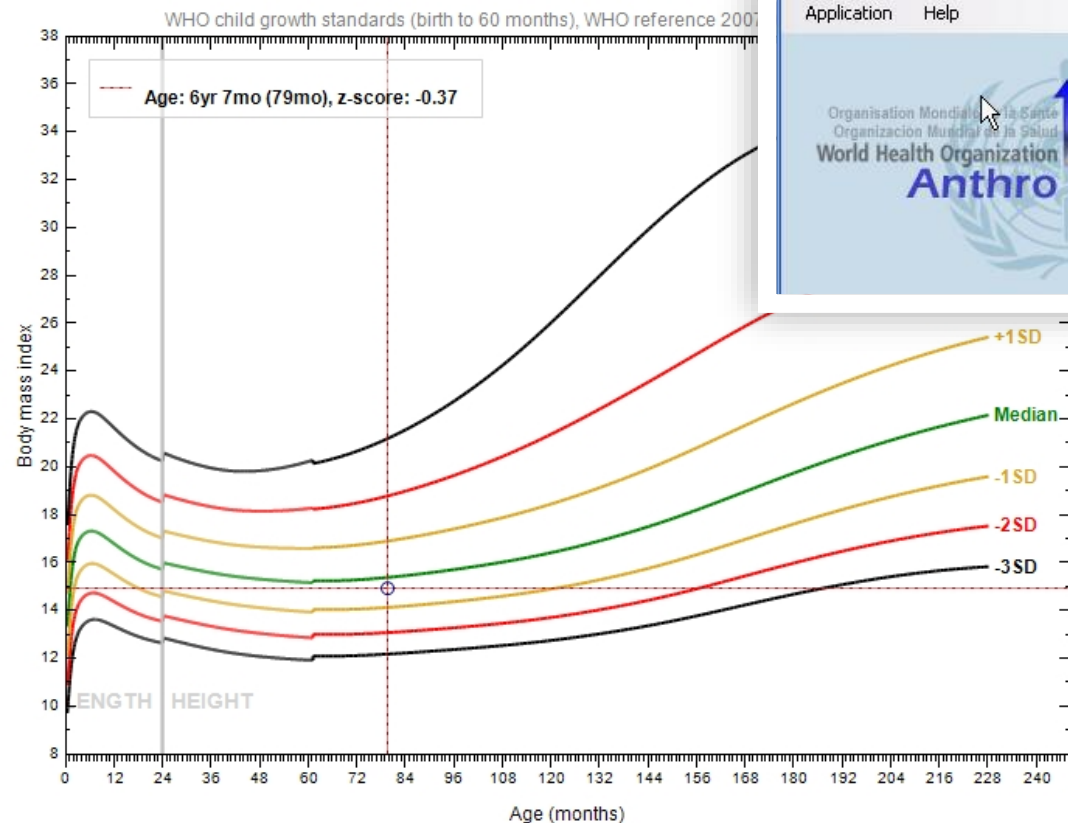


Project: Assessment of the Physical Development in Bulgarian Artistic Gymnasts,  
Funded by Grant '08/15.02.2018' from the National Sports Academy, Sofia, Bulgaria.



# METHODS

A total of 131 gymnasts (77 females and 54 males) between the ages of 5 and 16 took part in this study.



## ALPHA-FIT FITNESS TEST BATTERY

### Body composition

(stature, body mass, waist circumference, triceps and subscapular skinfolds)

### Musculoskeletal fitness

(handgrip strength and standing long jump)

### Motor fitness (4x10 m shuttle run test)

### Cardiorespiratory fitness

(VO<sub>2</sub>max was assessed by using an extended specialised version of the BeepShuttle Junior software)



# RESULTS & DISCUSSION

## BODY COMPOSITION

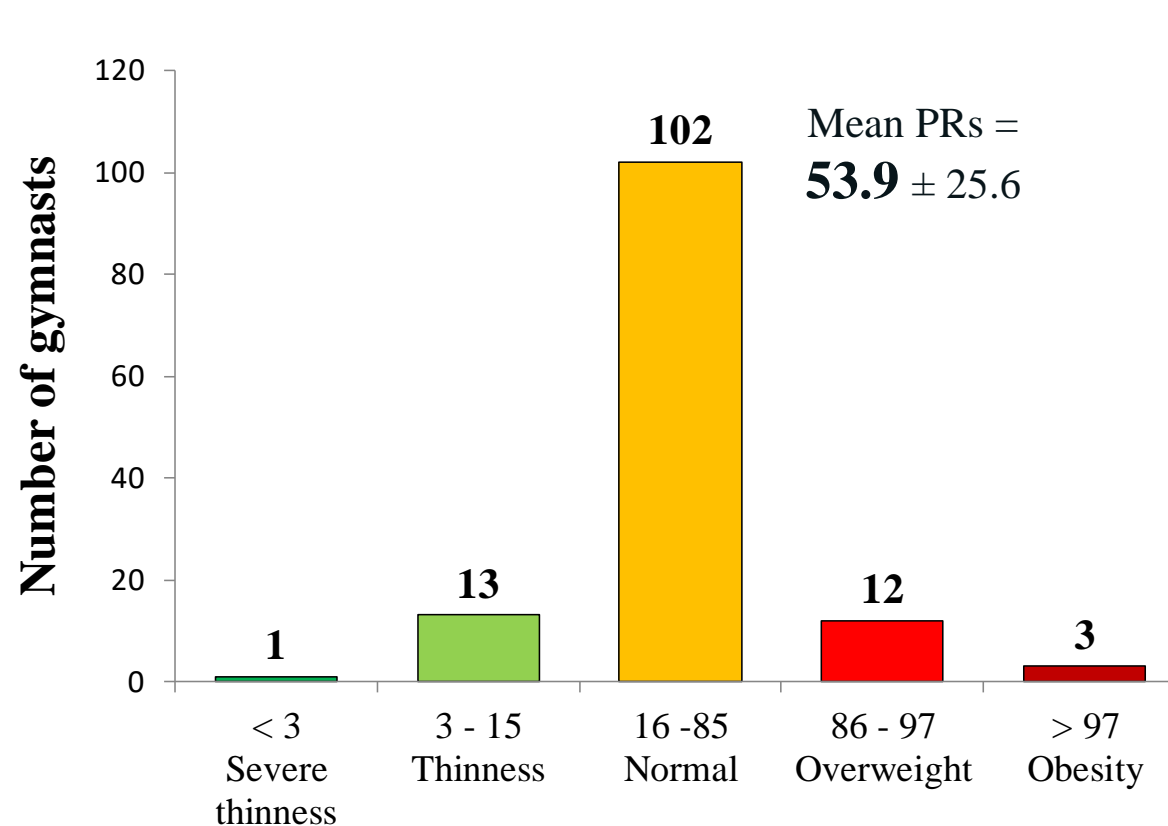


Fig. 1. Distribution of BMI percentile scores

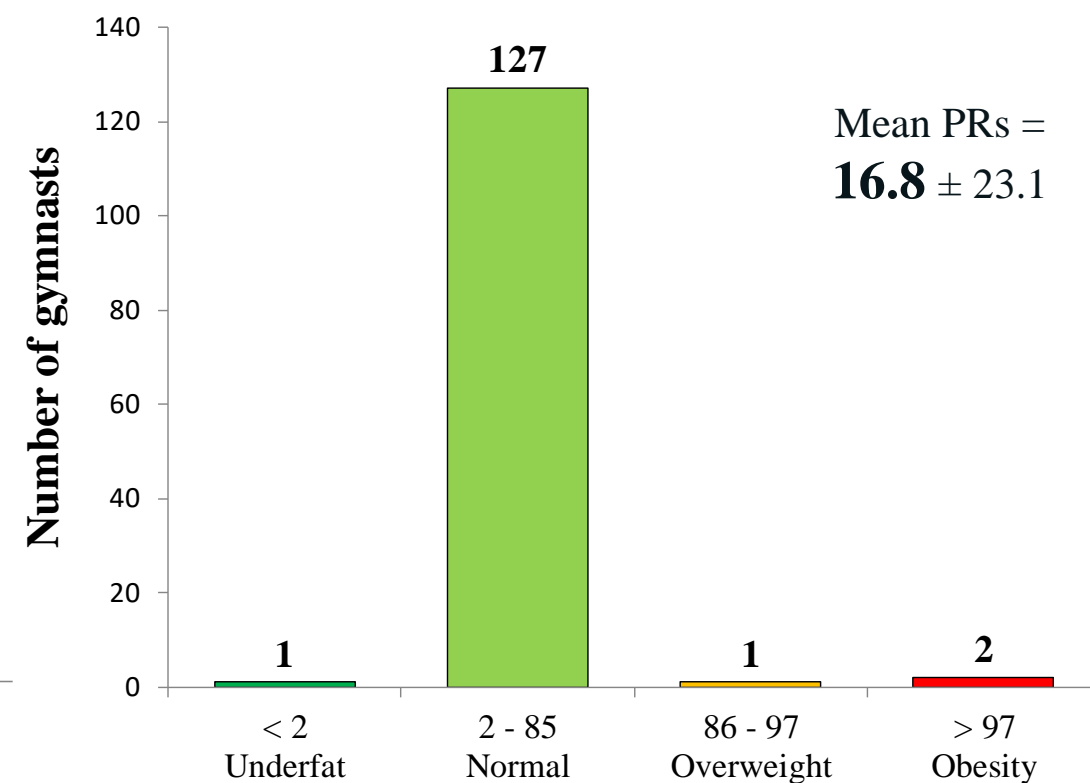


Fig. 2. Distribution of Fat% percentile scores

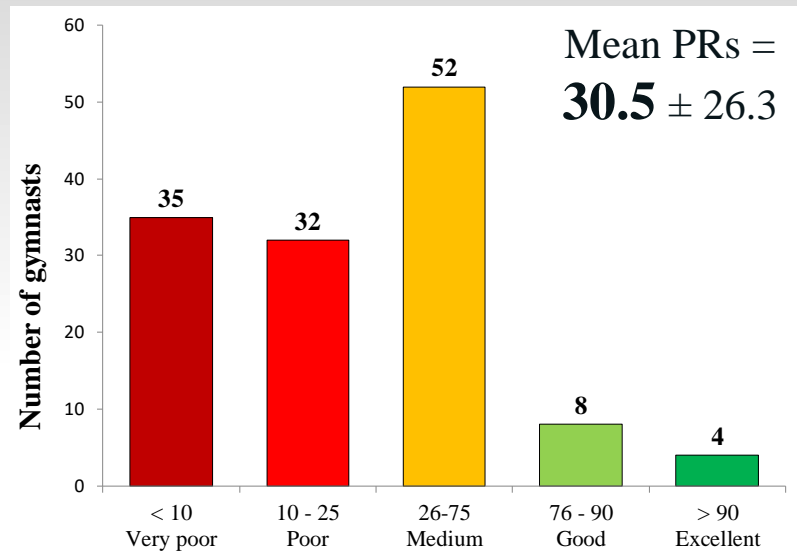


Fig. 3. Distribution of handgrip strength percentile scores

## MUSCULOSKELETAL FITNESS

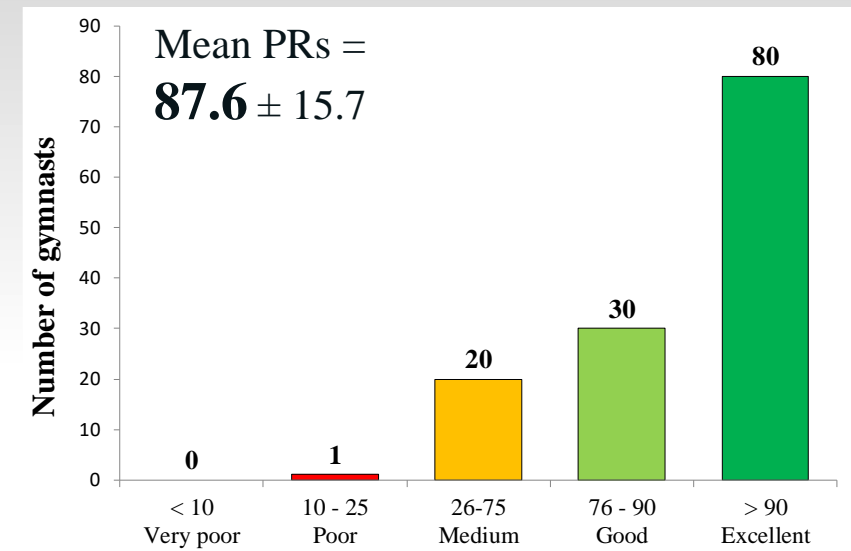


Fig. 4. Distribution of standing long jump percentile scores

## MOTOR FITNESS

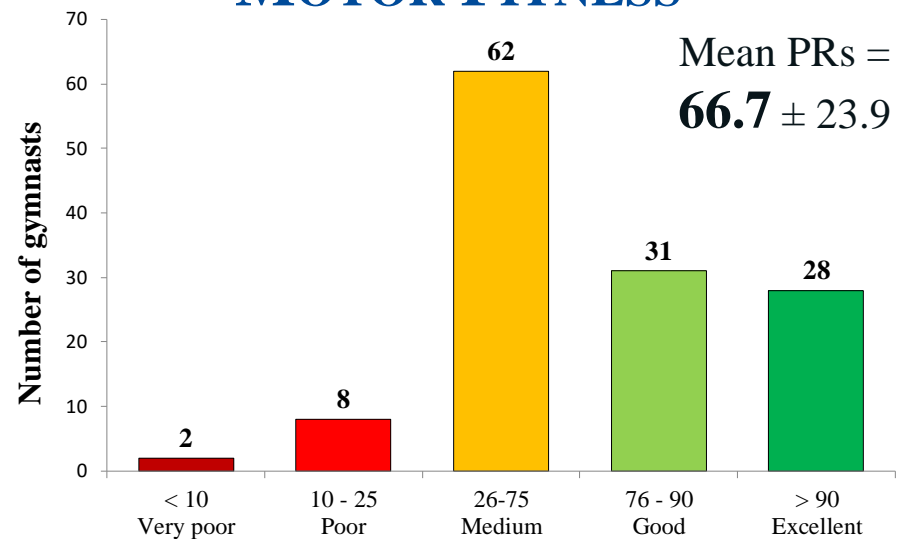
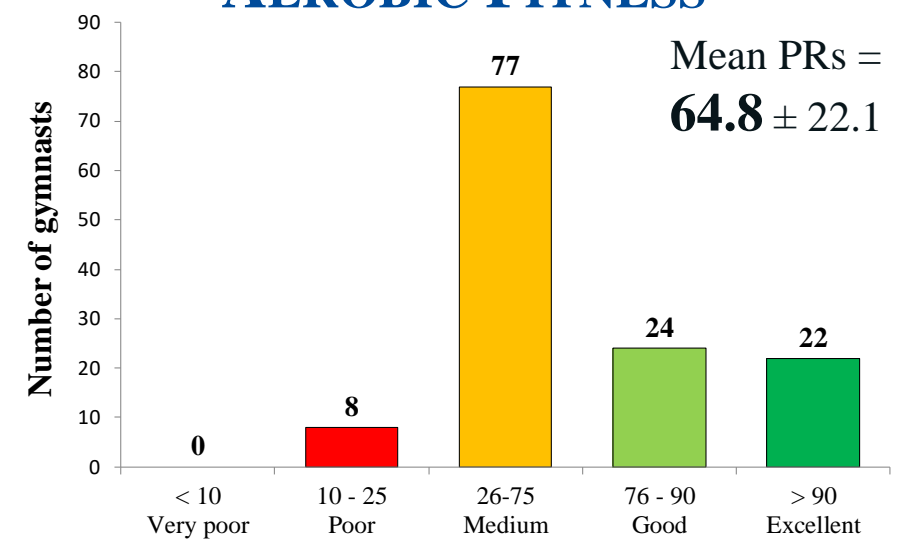


Fig. 5. Distribution of 4x10 m SRT percentile scores

## AEROBIC FITNESS

Fig. 6. Distribution of VO<sub>2</sub>max percentile scores

# CONCLUSIONS

- **Artistic gymnastics improves all health-related components** of physical fitness and positively influences children's physical development.
- Although practising an anaerobic sport, **gymnasts had better physical fitness, including higher aerobic capacity**, compared with their peers.
- **Body fat percentage should be used instead of BMI** for gymnasts in order to accurately assess their body weight.

**correspondence:**  
**[dr.stefan.kolimechkov@gmail.com](mailto:dr.stefan.kolimechkov@gmail.com)**

