



# Common determinators of performance across II-sports – PACING project



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**KU LEUVEN**



Classification Research Partner

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Step 1: Identify target sport and impairment type/s to be classified

Step 2: Develop theoretical model of the determinants of sports performance

Step 3a: Develop valid measures of impairment/s (i.e., specific to the impairment; quantitative; reliable; precise; parsimonious; training resistant; and ratio scaled).



Step 4: Assess the relative strength of association between valid measures of impairment and sport-specific measures of performance determinants in order to identify the measures of impairment that account for a significant and independent portion of the variance in performance.

Step 5: Use outcomes from Step 4 to determine minimum impairment criteria, number of classes and class profiles.

# Pacing is the key



## Pacing Profiles in Competitive Track Races: Regulation of Exercise Intensity Is Related to Cognitive Ability

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Pacing has been defined as the goal-directed exercise bout, in which athletes need energy. The purpose of this study was to explore during competitive track races is different behavioral impairment, which is characterized by significant ( $IQ \leq 75$ ) and adaptive behavioral deficit samples included elite runners with intellectual group of world class runners without impairment runners (all male) and 28 were 1500 m-r was analyzed by means of 100 m split time (for 1500 m races). Based on the split time four segments of the races. Velocity fluctuates

### OPEN ACCESS

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### Pacing Ability in Elite Runners with Intellectual Impairment

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# Pacing - study 1



## Pacing Profiles in Competitive Track Races: Regulation of Exercise Intensity Is Related to Cognitive Ability

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# Principal Research Question

*“Are there differences in the ability to regulate exercise intensity during competitive 400m and 1500m track races in high level runners with and without ID?”*





	400m	1500m
MALE	47.22s	3'45"
FEMALE	56.33s	4'23"

	400m	1500m
MALE	43.03s	3'26"
FEMALE	47.6s	3'50"

# Pacing during competition

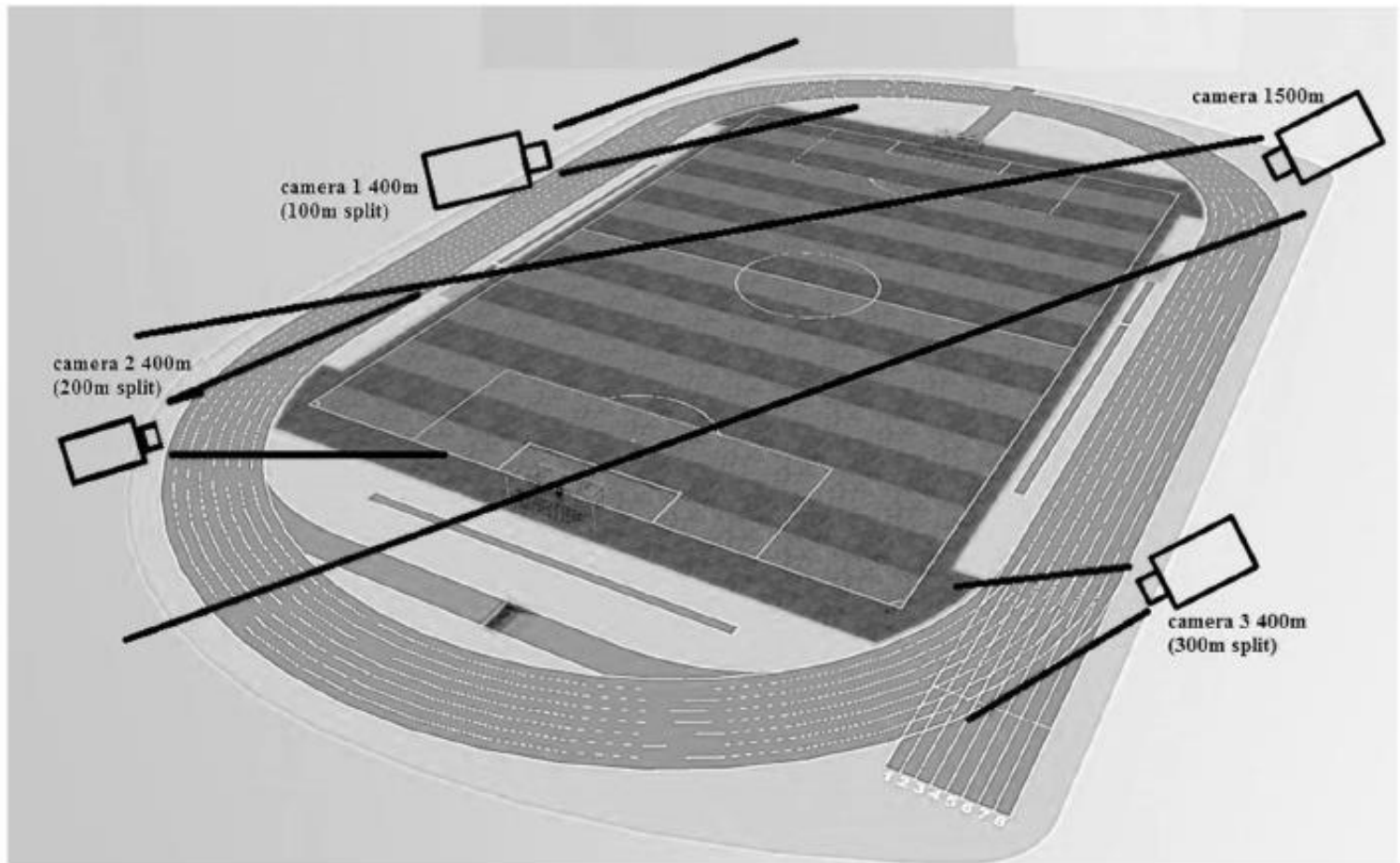
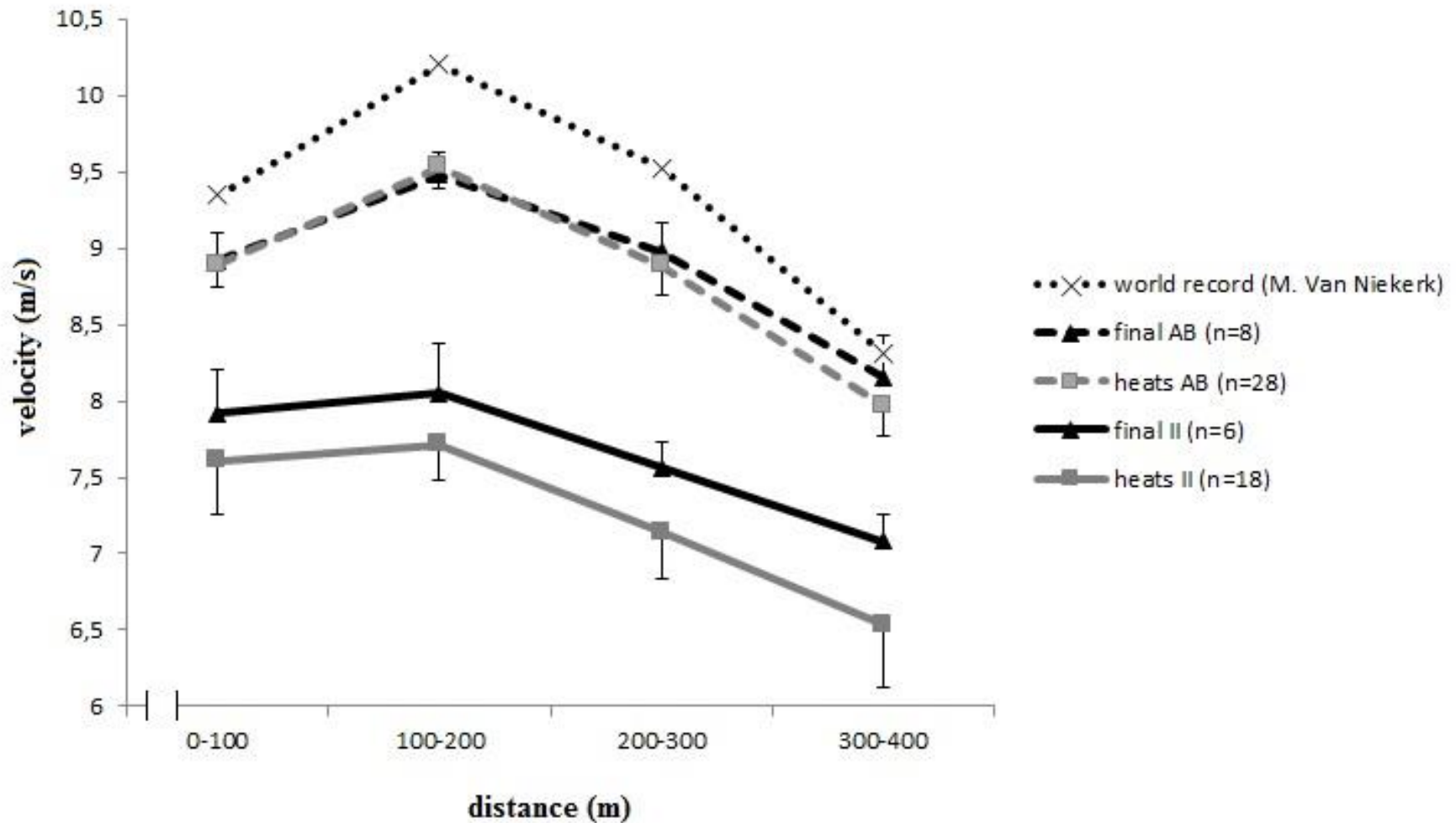


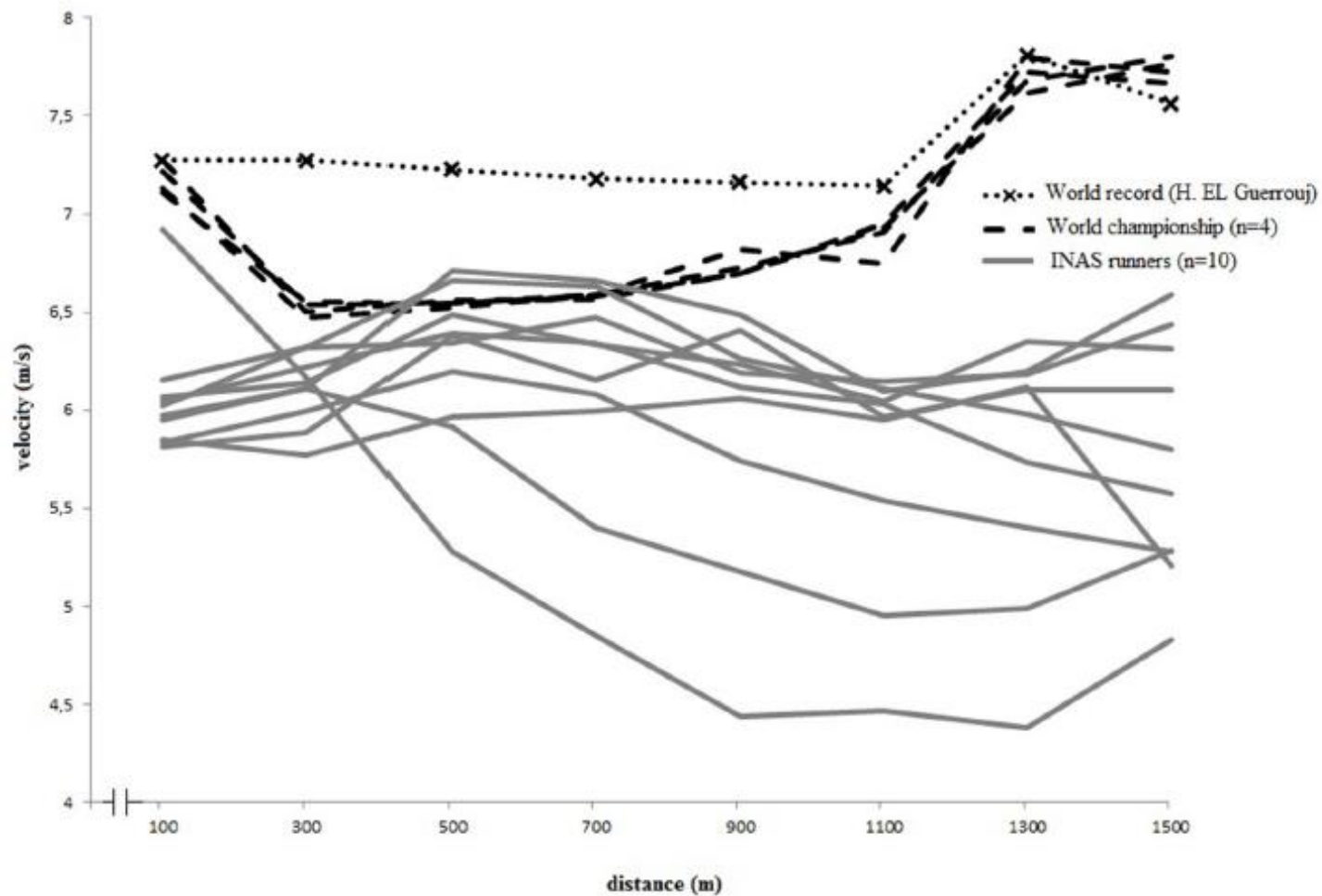
FIGURE 1 | Camera positions for split time calculations during 400 and 1500-m races.

## 400m pacing strategy

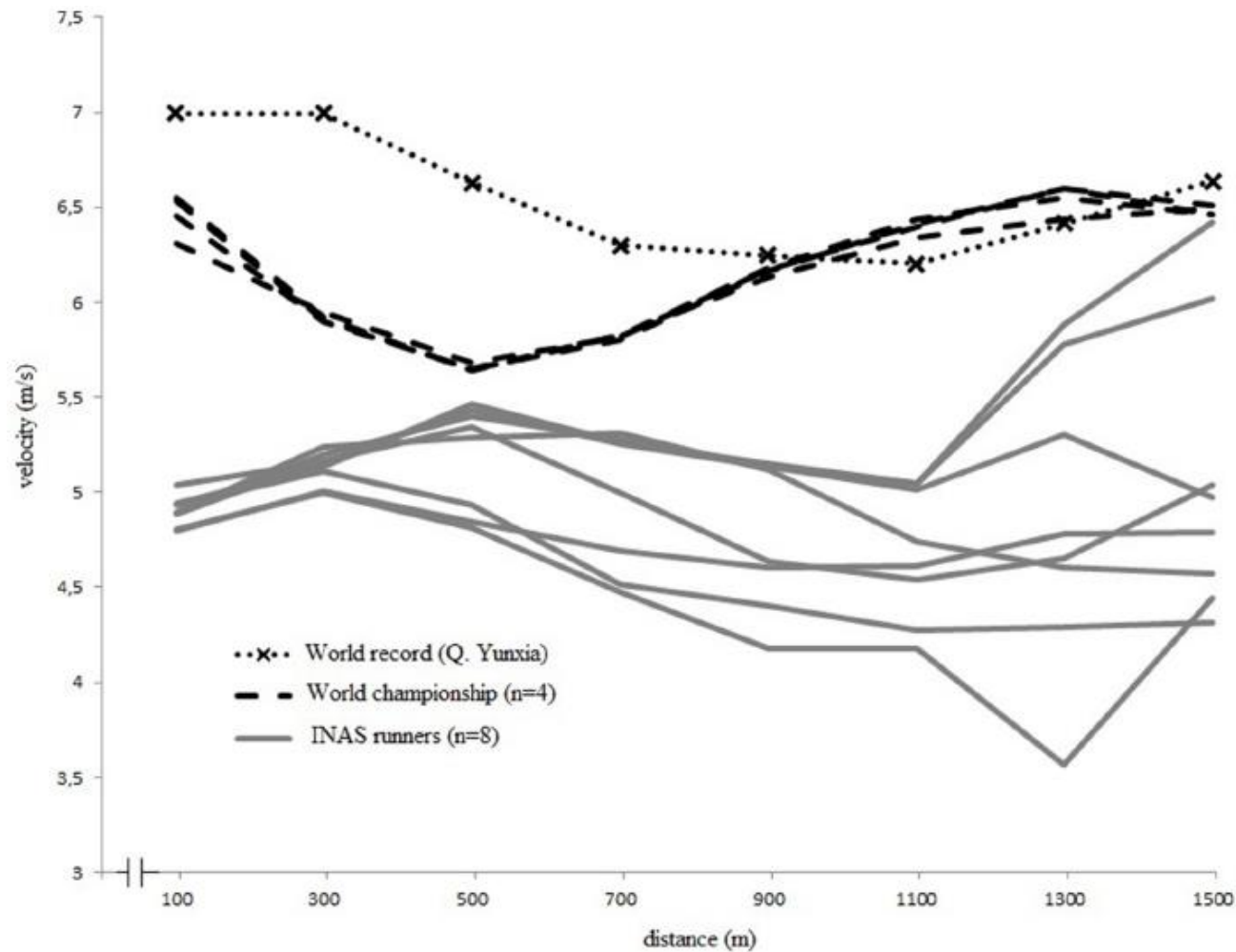




# 1500m – M -pacing strategy



# 1500m F- pacing strategy



# Pacing – study 2

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# Principal Research Question

*“Are there differences in the ability to maintain a pre-planned submaximal running velocity in well-trained athletes with and without ID?”*



For para-athletes with  
an intellectual disability



Matched for  
training volume!

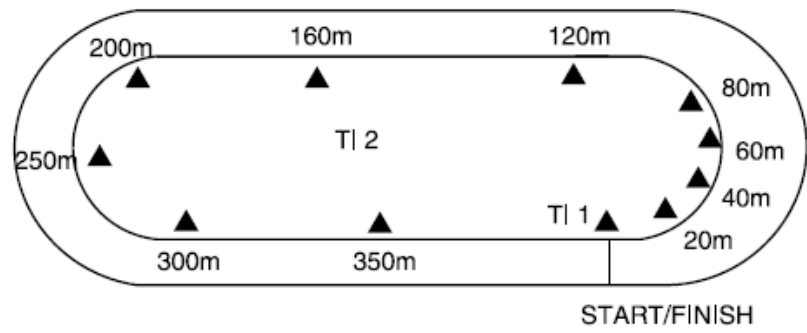


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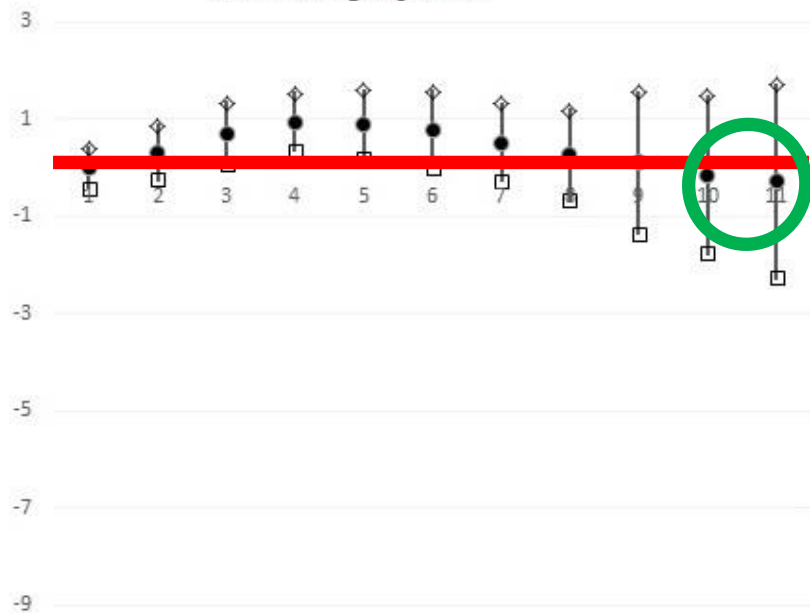


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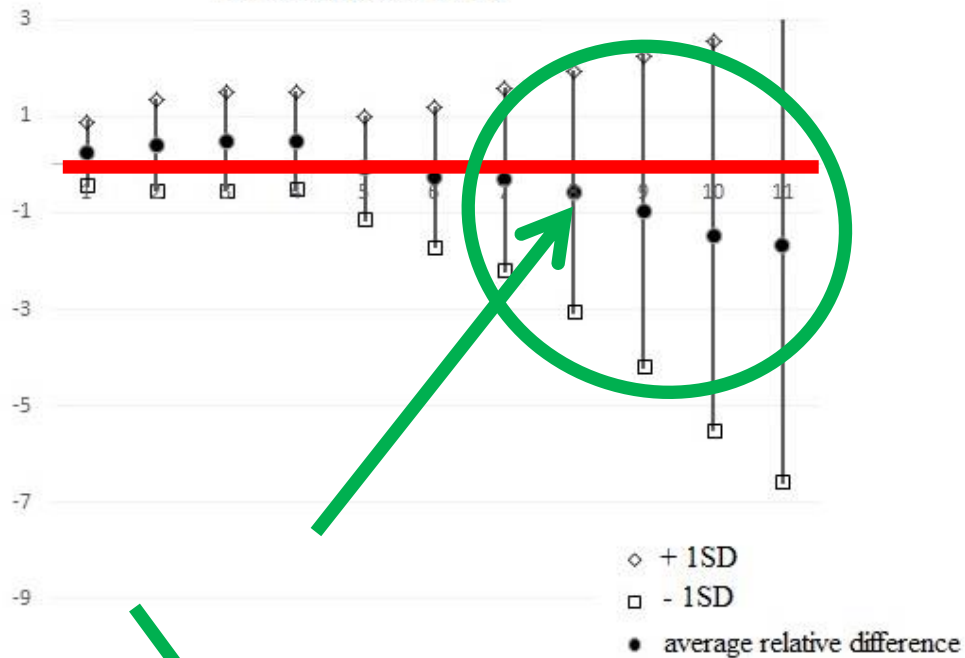




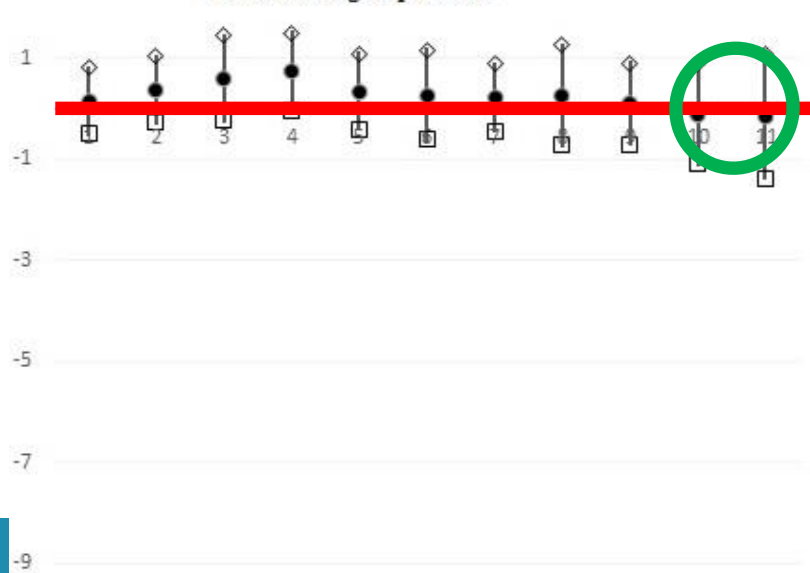
A. Control group Trial 1



B. INAS Runners Trial 1



C. Control group Trial 2



D. INAS Runners Trial 2



# Pacing in runners with ID – summary

## Overall

ID runners have:

- ↓ ability to pace a submaximal velocity
- ↓ efficiency to self-regulate their exercise intensity
- => impact of impaired cognition on pacing?



# Implications for research

- Effect of training quality? – can pacing be learned?
- Comparison sample matching?
- Assessment of other pacing components in ATL
  - Velocity fluctuations
  - Distribution of energy
  - Impact of opponents...
- Effect of training volume => longitudinal studies
- Dual-tasking



# Opponents





# Implications for classification

- Middle & long-distance: one pacing test based on 1500m PB for all distances
  - => consider other alternatives?
- Short distance: no pacing?
  - => consider other alternatives?
- Observation in competition
  - How to quantify pacing during the race