TEST-RETEST RELIABILITY OF DIFFERENT TEST CONCEPTS IN ICE SLEDGE HOCKEY


Sandbakk Ø, **Welde B.**

Introduction

- Minimal measurement error during the collection of interval- and ratio-type data is important in sport science

- The main components of measurement error are systematic bias due to learning effects and fatigue, and random error due to biological or mechanical variation

- The main measures of reliability are within-subject random variation, systematic change in the mean, and retest correlation (Hopkins 2000)
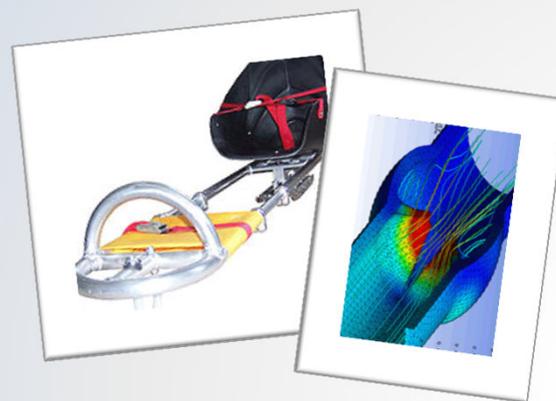
Technique
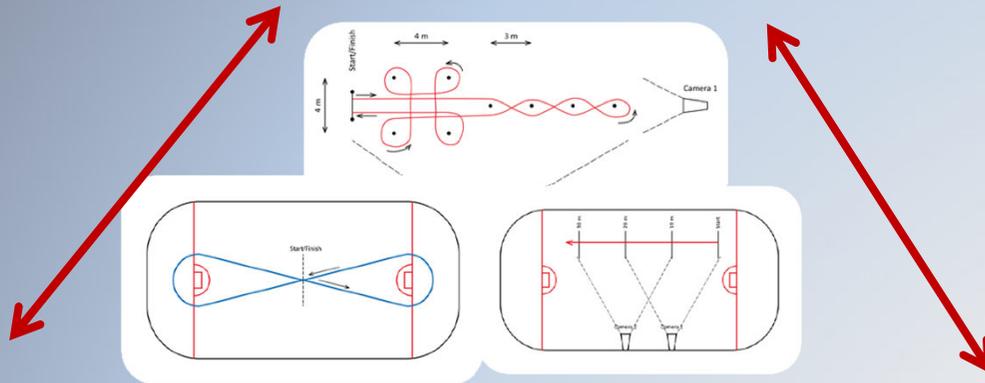
Physiology

Equipment

Introduction

- Ice sledge hockey is characterized by a constant alternation between short dashes, stopping actions and circle moves leading to multiple changes of work load and intensity

- We developed and validated test concepts that reflect some of these sport-specific characteristics

- The reproducibility of performance and movement characteristics of these tests require further examination

Aims of the study

- To establish the test-retest reliability of

  1) performance and movement characteristics of 30 m maximal sprinting

  2) performance during a complex technique test

  .....in elite ice sledge hockey players

Methods

- 12 elite ice sledge hockey players from the Norwegian national team performed the following tests on ice:

  1. 3 x 30-m maximal sprint

 2. 3 x complex technique test while controlling the puck
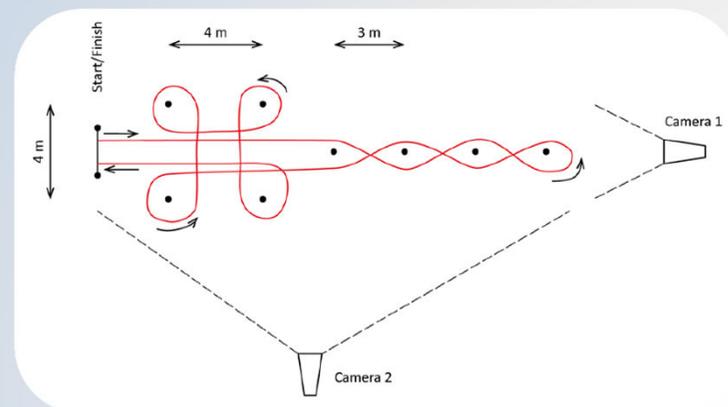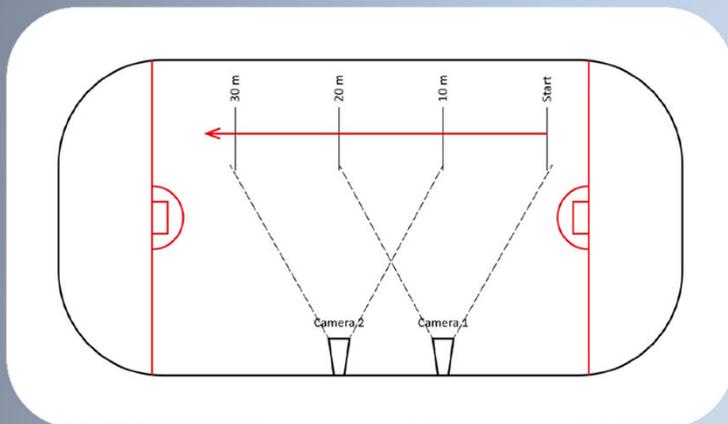
Methods

- Measurements
  - Test times were recorded by fixed light sensors
  - Cycle time and was analyzed by video analysis
  - Additional analyses using accelerometers and INS technology
- Calculations of measurement error were carried out according to Bland & Altman (1999) and Hopkins (2000):
  - The repeatability coefficient (CR)
  - Standard error of measurement (SEM)
  - Intraclass correlation analysis (ICC)
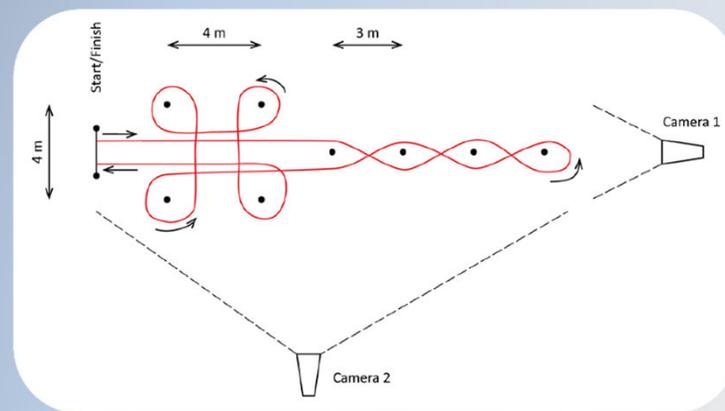
Results

30 m sprint

- Performance: 6.46 ± 0.45 s
  - CR = 0.24 s – 4%
  - SEM = 0.08 s – 1.2%
  - ICC = 0.991

- Cycle time: 0.54 ± 0.05 s
  - CR = 0.04 s – 7%
  - SEM = 0.01 s – 2.4%
  - ICC = 0.979
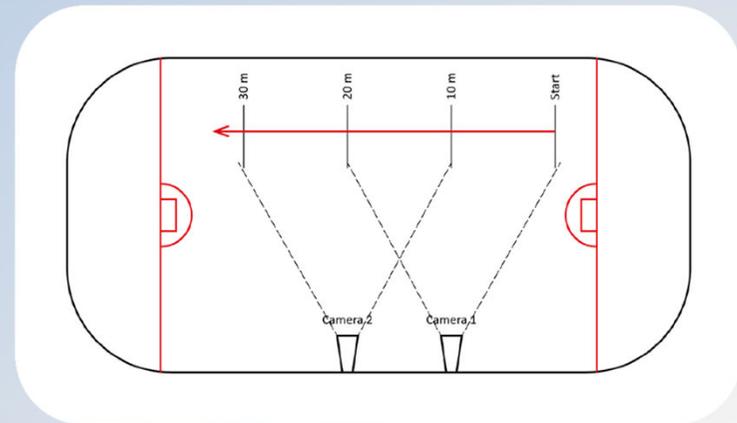
Results

Technique test

- Performance: 26.75 ± 3.31 s
  - CR = 3.53 s – 13%
 - SEM = 1.14 s – 4.3%
  - ICC = 0.940

Discussion and Conclusions

- The 30-m sprint test has a relatively low typical error and appears to be a useful practical tool in further investigations

- The more complex technique test may be questioned due to its high within-subject variation

- Reasonable precision for estimates of reliability requires approximately 50 study participants and at least 3 trials (Hopkins 2000)

Technique
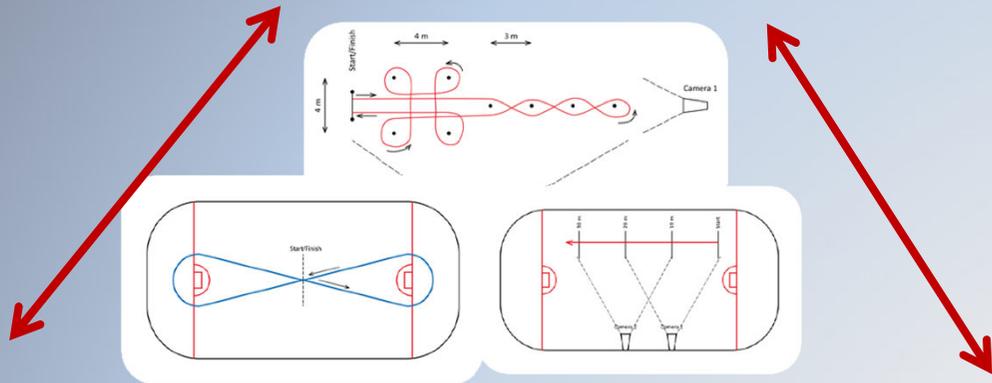
Physiology

Equipment

Questions?