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Five-second-squeeze testing in 333 professional and semiprofessional male ice hockey players: how are hip and groin symptoms, strength and sporting function related?

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Background

Hip and groin problems are common in ice hockey and football. In football, the Copenhagen five-second-squeeze test has been found to be a valid indicator of hip and groin related sporting function, but it is currently unknown how the five-second-squeeze test relates to self-reported function and muscle strength in ice hockey players.

Purpose

To investigate correlations between the five-second-squeeze test, self-reported function and hip muscle strength in ice hockey players. Furthermore, discriminative ability of the “traffic light” approach (Figure 1) regarding levels of self-reported function and strength was investigated.

Methods

Professional and semi-professional male ice hockey players (n=333) performed the five-second-squeeze test and responded to the sport subscale of the Copenhagen Hip and Groin Outcome Score [HAGOS (Sport)]. Bilateral adduction and abduction strength was measured using hand-held dynamometry.

Results

The five-second-squeeze test was significantly correlated to self-reported function ($\rho = -.319$; $p < 0.01$) and hip muscle strength ($\rho = -.157$ to $-.305$; $p \leq 0.01$). HAGOS (Sport) differed significantly between all three traffic light groups (Cohen’s $d = 0.23$ - 0.33 ; $p \leq 0.005$) (Figure 2). Players with NRS > 2 (“yellow-“ or “red light”) had lower adductor ($d \geq .73$; $p < 0.001$) and abductor strength (Yellow: $d = .29$; $p = 0.031$; Red: $d = .52$; $p = 0.052$) than “green light” players.

Conclusion

- The five-second-squeeze test was significantly correlated with self-reported function and was able to discriminate between the “traffic light” levels in ice hockey players
- Players with “yellow-“ and “red light” had reduced adductor and abductor strength compared to players with “green light” (NRS ≤ 2)
- Routine five-second-squeeze testing may allow early identification of affected ice hockey players and indicate “yellow light” and “red light” situations, in which players may benefit from load management and appropriate hip muscle strengthening

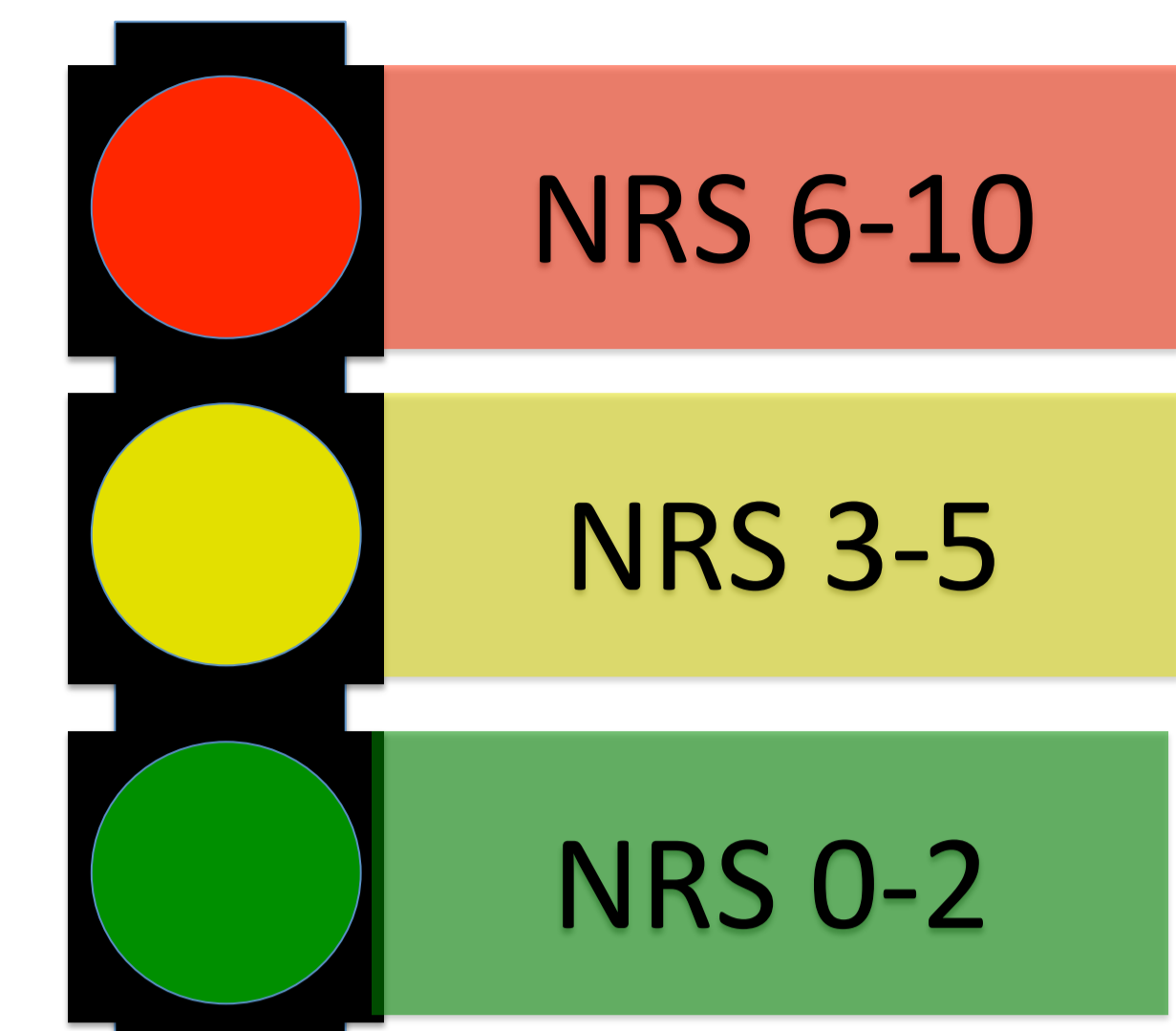


Fig 1: Traffic light approach: Categorization based on numeric pain rating scale (NRS)

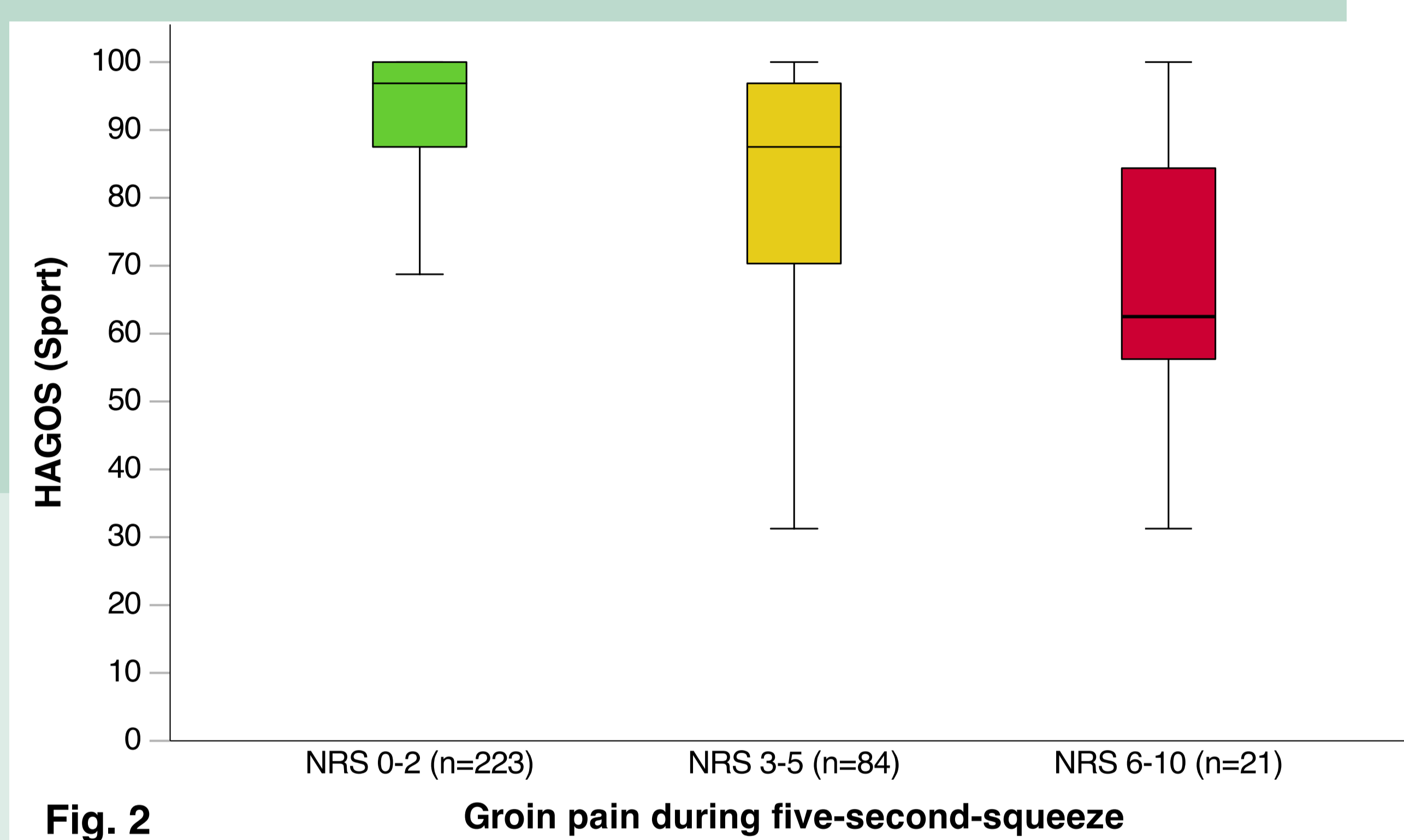
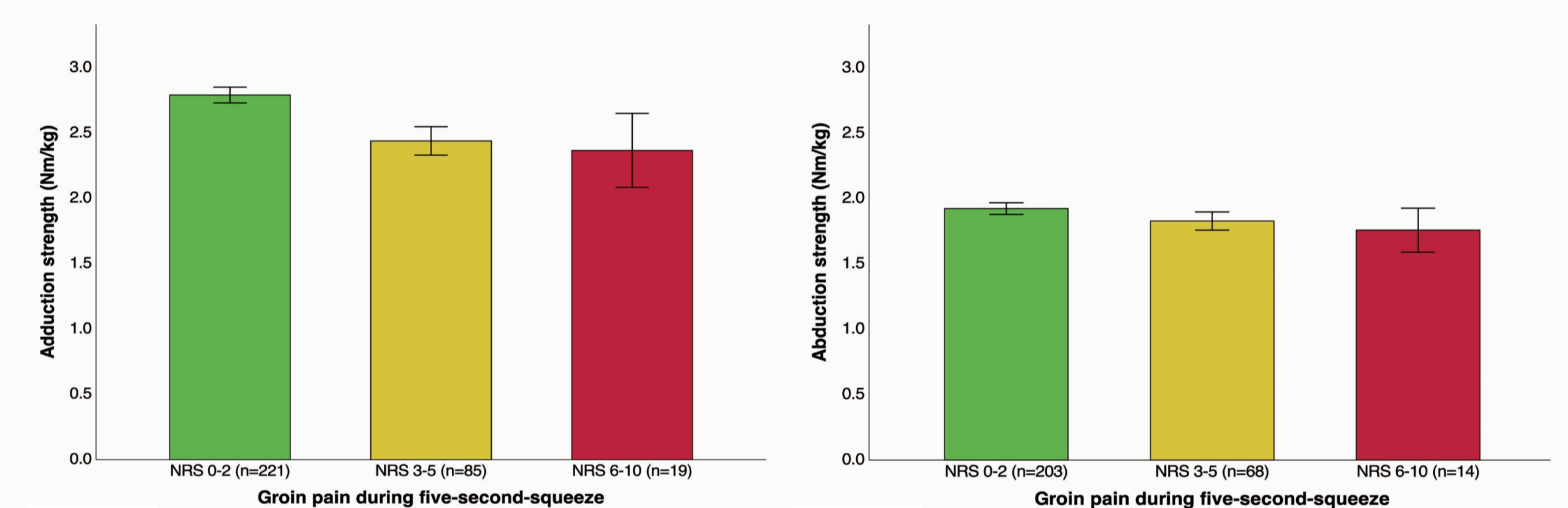


Fig. 2



3A

3B



3C

3D

Fig. 3: Strength profiles [Mean (95% CI)]

3A: Adduction strength; 3B: Abduction strength; 3C: Adduction strength testing; 3D: Abduction strength