Relationship between shoulder pain assessments and wheelchair basketball performance

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1. Introduction (1/3)

- **Wheelchair Basketball (WB) players:** spinal cord injury (SCI), congenital deformities, post-polio syndrome, lower limb amputation and orthopedics deformities.

- Not all players who participate in WB use a wheelchair for activities of daily living (Pérez-Tejero & Castellanos; 2009)

Age and SP
WB propulsion technique = Range of Motion (ROM)
ROM = presence or absence of injury
Shoulder Pain Index in Wheelchair Basketball player (SPI-WB)

1. Demographic data
2. Transfers
3. Pain related ADLs, distinguishing between wheelchair users and all participants
4. SP perception when performing sport skills (SS): shooting, pushing, rebounding or one-handed long pass, and other game situations

García-Gómez & Pérez-Tejero, 2017
1. Introduction (2/3)

- **WB Performance through game-related statistics (GRS)**

  1. **Functional class** (Pérez-Tejero & Pinilla, 2015; Vanlandewijck, Verellen, y Tweedy, 2011)
  2. **Winning and losing teams** (Gómez, Pérez, Molik, Szyman, y Sampaio; 2014)
To analyze the relationship between shoulder pain assessments and wheelchair basketball performance through game-related statistics
2. Method

**WB PLAYERS**
- 12 WB players from the elite Spanish selection male
- Age between 18 to 42 years (29.9±7.05)

• **Shoulder Pain Index for Wheelchair Basketball (SPI-WB)** (Curtis et al; 1995 and García-Gómez et al., 2019)
  - 4 items related to SP perception when performing specific **WB skills**: shooting, pushing, rebounding or one-handed long pass during game situation

• **Performance through GRS**: total shoots, offensive and defensive rebounds, total rebounds, assists, blocks and total points
  - European Championships (Fránkcfort, Germany): 8 games
  - Variables were relativized per 40 minutes

• **Sperman test**: correlations between SP and GRS
  - **r-value (effect size)**: (r> 0.1=small, r > 0.3 = medium and r > 0.5 = large) (Hopkins, 2002)
  - PASW statistics 20 (SPSS Inc., Chicago, IL, USA).
  - P<0.05
3. Results

Total shoots ($r = -0.619$, $p < 0.05$)
Assists ($r = -0.684$, $p < 0.05$)
Total points per players during the game ($r = -0.582$, $p < 0.05$)

Total shoots ($r = -0.760$, $p < 0.05$)
Total points per players during the game ($r = -0.760$, $p < 0.05$)

More SP = less performance
5. Discussion and practical implications

- Similar with previous studies, these results show how SP could have a negative relationship with WB sport skill (García-Gómez & Pérez-Tejero, 2017), specifically WB performance.

- How an adequate strategy to screen shoulder condition could have a correlation with the WB performance (Dutton, 2019).

- According to this results and other studies (García-Gómez and Pérez-Tejero, 2016; Wessels et al., 2013) the correlation between SP and joint mobility could affect WB skills performance.

- Preventive shoulder health programs must be implemented along preparation period together with specific strength training (García-Gómez et al., 2019).
5. Conclusion

- The findings of this study provide a first step of the relationship between shoulder pain and WB performance.

- Gender issues and more sample are needed in the future to address this topic, and also to guide training advice.
Thank you for your attention

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