

How do the Intra-Competition Strategies Differ between Para-Powerlifting Winners and other Medal Winning Athletes?

Mr Pat Beaumont¹, Dr Dan van den Hoek¹, Dr Joel Garrett², Dr Christopher Latella³

¹. University of the Sunshine Coast, Australia ². Griffith University, Australia, ³. Edith Cowan University Australia.



Background

- Evidence in able-bodied powerlifting suggests that high performing athletes can accurately estimate their 1 repetition maximum and lift closer to it during competition
- Para-powerlifting athletes have three attempts to bench press as much weight as possible (i.e. no SQ or DL)
- Currently, there is limited research on competition strategies for para-powerlifters.

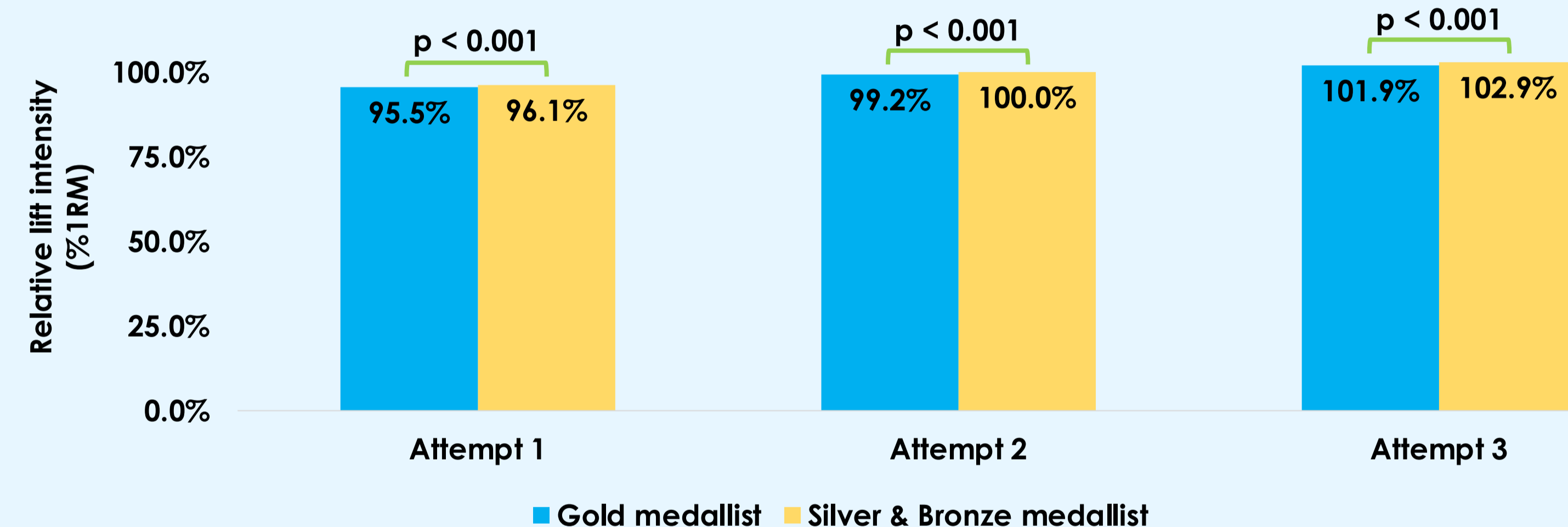
Project aims

- 1) Determine the current intra-competition strategies used by gold medallists and compare them with those used by silver and bronze athletes;
- 2) Analyse the relationship between these intra-competition strategies and competitive success;
- 3) Quantify the odds of success based on the observed relationship;
- 4) Provide recommendations for athletes and to utilise both in preparation for and during para-powerlifting competitions.

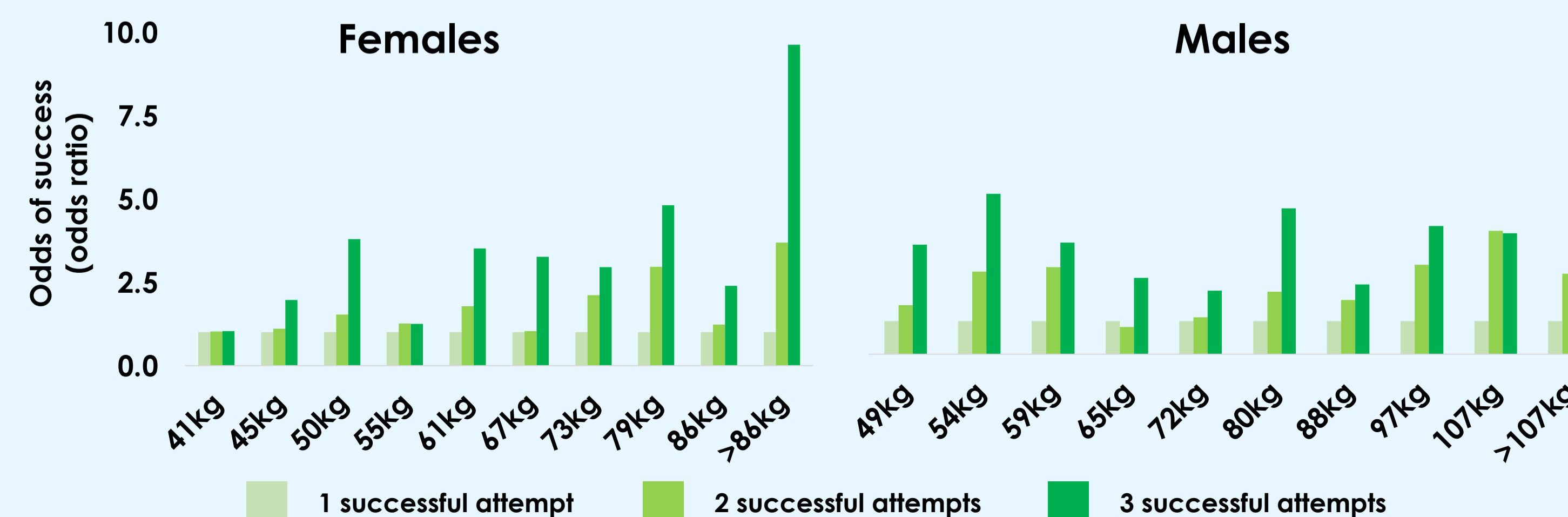
Methods

- A retrospective analysis dating from November 1964 to September 2021 was conducted using the online database openpowerlifting.org.
- Athletes who competed in at least one World Para-Powerlifting event, placed in the top three, and had complete records of age, sex, body weight, body weight category, and competitive lift attempts were extracted for the analysis.
- Athletes were classified as Gold Medallists (1st place) or Silver and Bronze Medallists (2nd or 3rd place) and given a score based on successful lift attempts.

Gold medal winning athletes are better at predicting and executing lifts at their 1RM than silver and bronze medallists



The odds of winning a competition increase drastically when athletes achieve three successful lifts



Statistical analysis

Relative lift intensity was calculated by dividing the athletes lift attempt weight by their greatest successful lift attempt during competition. A one-way ANOVA was used to determine the significance of differences between groups. Binary logistic regression was used to quantify these variables as predictors of competitive success.

Results

- 2,774 individual results were included in the analysis.
- Regardless of sex or weight class, gold medallists lifted a significantly greater absolute weight than silver and bronze.
- Gold medallists consistently chose a more conservative relative lift attempt than silver and bronze athletes.
- The odds of achieving a gold medal tended to increase with each successful lift attempt, regardless of sex or weight class.

Discussion

On average, gold medallists attempted each lift at a more conservative percentage of their actual competition max. This makes them more likely to complete three successful lift attempts, which increases their odds of competitive success.

Practical applications

Para-powerlifting athletes should participate in training activities that best prepare them to estimate competition day maximum. Preferring a conservative, cumulative attempt approach may increase the likelihood of competitive success.

Athletes may use this data to identify weight classes that are potentially more competitive. Therefore, potentially allowing them to compete in a weight category where implementing intra-competition strategies offers greater odds of success.

Corresponding author's details

Name: Pat Beaumont
Email: patrick.beaumont1999@gmail.com
LinkedIn: <https://www.linkedin.com/in/patrick-beaumont-920448229/>
Affiliation: University of the Sunshine Coast, School of Health

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