

Setting a high bar(bell): Profiling the most successful nation in para powerlifting at the Paralympic Games.

Introduction:

Para powerlifting affords an opportunity for up to 20 gold medals at each Paralympic Games and presents the most medals to be won within a single discipline at the games. Some nations achieve extraordinary success for the number of athletes that participate. At the Paralympic Games, 79% (83/105) of athlete entries from China achieves a medal including 33 gold medals, 10 ahead of their nearest competitor (Nigeria).

In comparison to China, traditional high-performing Olympic nations including the USA (22%; 12/55), UK (41%; 12/29), and Australia 29% (8/27) have not achieved the same success in Paralympic powerlifting competition. As such, nations should consider benchmarking their performance against the best-known performers within the sport.

Methods:

We used publicly available competition data from the inception of powerlifting as a paralympic sport (1984) until the conclusion of the Tokyo 2020 Paralympic Games (September 2021). Data extracted included athlete age, sex, bodyweight, weight class, nationality, competition attempt weights, lift outcome (success/failure), and placing.

We compared athlete bodyweight (as a percentage of the allowable within their competitive weight class), age, number of participations at Paralympic Games, relative attempt weight selection (to an athlete's maximum successful lift within each competition) and reported descriptive statistics as mean \pm SD. We compared these data between Chinese athletes and those from Nigeria, Egypt, USA, UK, and Australia.

We used Tukey post-hoc analysis to determine differences between groups with an alpha of 0.05 considered statistically significant.

Results:

There was no difference in age of athletes competing for each nation across the total sample. The percentage of bodyweight allowable within weight classes with an upper limit did not differ between nations. Bodyweight as a percentage of the minimum differed by nation but post-hoc analyses were not completed for heavyweight athletes due to some countries having less than two cases.

Relative attempt weight selection did not differ between nations for males or females. The number of successful lifts was different between nations for males but not females. Chinese athletes had fewer successful lifts than Australian or USA counterparts. Nigerian males had few successful attempts than their USA counterparts.

Discussion:

Preliminary analyses show that medal winning performances in para powerlifting are unlikely to be explained by athlete age, bodyweight percentage within the allowable limit for a weight class, or the number of successful lifts. Further analyses will be presented to explain the potential reasons for China's continued success in para powerlifting.