

One repetition maximum bench press performance: a new approach for its evaluation in inexperienced males and females. A pilot study

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The aim of this study was to evaluate a new method to perform the one repetition maximum (1RM) bench press test, by combining previously validated predictive and practical procedures. Eight young male and 7 female participants, with no previous experience of resistance training, performed a first set of repetitions to fatigue (RTF) with a workload corresponding to $\frac{1}{3}$ of their body mass (BM) for a maximum of 25 repetitions. Following a 5-min recovery period, a second set of RTF was performed with a workload corresponding to $\frac{1}{2}$ of participants' BM. The number of repetitions performed in this set was then used to predict the workload to be used for the 1RM bench press test using Mayhew's equation. Oxygen consumption, heart rate and blood lactate were monitored before, during and after each 1RM attempt. A significant effect of gender was found on the maximum number of repetitions achieved during the RTF set performed with $\frac{1}{2}$ of participants' BM (males: 25.0 ± 6.3 ; females: 11.0 ± 10.6 ; $t = 6.2$; $p < 0.001$). The 1RM attempt performed with the workload predicted by Mayhew's equation resulted in females performing 1.2 ± 0.7 repetitions, while males performed 4.8 ± 1.9 repetitions. All participants reached their 1RM performance within 3 attempts, thus resulting in a maximum of 5 sets required to successfully perform the 1RM bench press test. We conclude that, by combining previously validated predictive equations with practical procedures (i.e. using a fraction of participants' BM to determine the workload for an RTF set), the new method we tested appeared safe, accurate (particularly in females) and time-effective in the practical evaluation of 1RM performance in inexperienced individuals.

References

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Keywords

1RM bench press test; performance; predictive equations.