

# 1RM STRENGTH TESTING



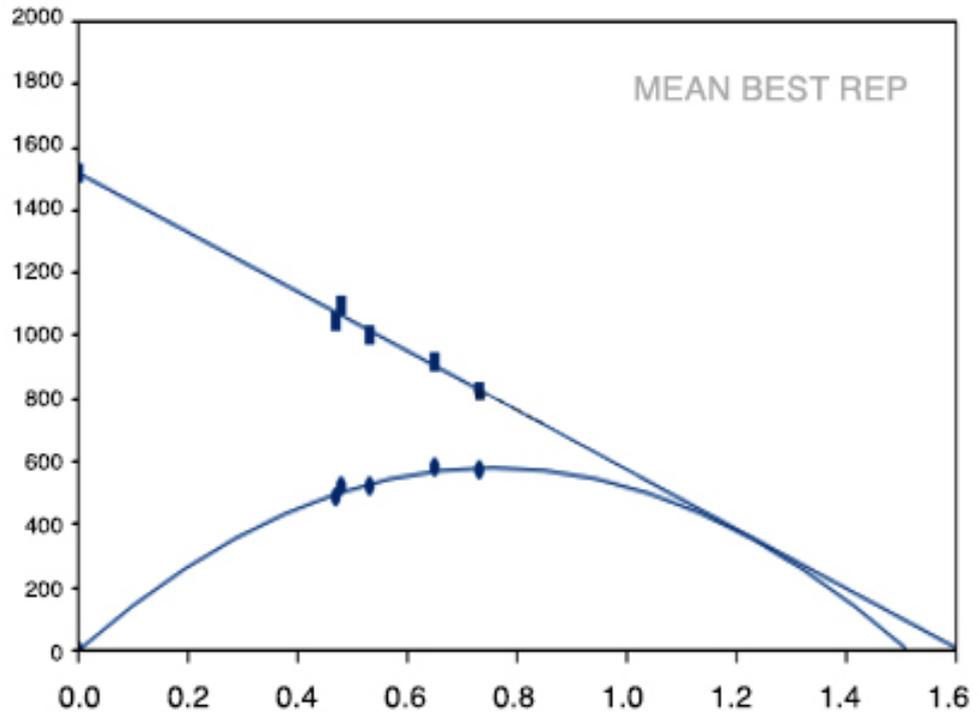
## RATIONALE

The use of repetition maximum testing (1RM) is often used by athletic trainers, health and fitness professionals and rehabilitation specialists to quantify the level of strength, assess strength imbalances, and to evaluate training programs.

1RM testing has developed to be a reliable assessment of maximal strength. However, the extreme efforts from musculoskeletal loading in 1RM testing may not be recommended for some populations and also carry a higher risk of injury compared with sub maximal testing.

To avoid potential injuries but still collect meaningful data, 1RM prediction equations are a popular alternative to 'a single maximum rep'. Using GymAware, maximum strength can be predicted for a given exercise without the need to go to **failure**. This prediction is based on the relationship between mean bar velocity and load, with maximum strength predicted to occur at approximately 0.3m/s.

## BENCH PRESS



**PREDICTED 1RM 154.78 kg**

Weight	Mean Velocity (m/s)	Mean Power (W)	Mean Force (N)
80.0	0.73	575.82	821.33
90.0	0.65	580.59	919.37
100.0	0.53	520.31	1002.29
105.0	0.47	486.71	1046.3

## SETUP

For the basis of this guide we will look at bench press. In order to generate the 'power & force/velocity profile' it is recommended that at least 4 sets of 1-2 reps are completed each with a progressive load. As the load increases the bar speed decreases. As this is a sub maximal assessment it is recommended that once bar speed drops below 0.5m/s you end the test and use the report to predict you maximum.

To generate the report go to 'finder'>'reporter' then select 'gymaware', 'athlete name', 'bench press', and 'test date' from the four lists. Press 'Generate report' and in the report window select '1RM' profile. Press 'Generate report' to view your graph and corresponding data.

## BENEFITS TO THE COACH

Using GymAware to predict 1RM reduces the risk of injury to athletes significantly. Without the need to go to a maximum load a coach could implement this assessment throughout the season as a method of monitoring change in performance.

The test also provides the coach objective data for each set allowing further analysis of the load/velocity profile.

## IMPORTANT

Each attempt to move the bar should be made at maximum velocity.

