

SAFER STRONGER SMARTER

Dumbbell Floor Press the future of 1RM testing

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Introduction

Looking for a safer and more efficient way to assess your maximal upper body strength? Look no further! Traditional 1RM Barbell Bench Press tests are **time-consuming** and come with the **risk of injuries** like **Anterior Glenohumeral instability**, **Atraumatic Osteolysis of the Distal Clavicle**, and **Pectoralis Major Rupture** (Green & Comfort, 2007). But don't worry; we've got you covered! Our study examined the relationship between the **Dumbbell Floor Press** and **Barbell Bench Press** as an **alternative means of assessing maximal strength** and **reducing injury risks**. The mechanisms which allow this are a **stable base** and a **shortening of the range of motion** (Duncan & Craig Liebenson, 2018).

Objective

Our objective was to investigate the relationship between Dumbbell Floor Press and Barbell Bench Press performance in college-aged male participants and explore the potential of the Dumbbell Floor Press as an alternative means of assessing maximal upper body strength while reducing injury risks.

Methodology

10 Participants - specifically college-aged males - underwent load estimation for Dumbbell Floor Press (DBFP) and Barbell Bench Press (BBP) using a formula $TBM-62.6\%/0.468$ (Tillaar & Ball, 2020) and $1RM = (100 \times W) / (52.2 + (41.9 \times e^{-0.055 \times R}))$ (Mayhew et al., 2008), previous history, or a correlation between the two exercises. Repetition to fatigue tests with DBFP was performed (A, B) then participants had a 3-minute rest period before conducting BBP (C, D) to fatigue. Data analysis involved converting the load to estimated 1RM using the formula $1-RM (kg) = 1.18 \text{ Repetition Weight (kg)} + 1.57 \text{ Reps} - 9.22$ (Mayhew et al., 2004) and conducting Single Factor ANOVA on the results

Results

- a p-value of 0.3, suggesting no significant difference between groups at the 0.05 level.

DISCUSSION

As our research found, the DFP can be a viable alternative to BBP for certain populations or situations, as they exhibit similar performance. It is worth noting the barbell bench press is a technically demanding exercise that requires proper instruction and experience to perform safely, and carries a risk of injury (Madsen & McLaughlin, 1984). In contrast, the dumbbell floor press provides a stable base and a shorter range of motion, which can reduce the risk of injury (Duncan & Craig Liebenson, 2018). These findings have important implications for strength and conditioning professionals, providing a potential solution to mitigate injury risk while still assessing an individual's strength capabilities. In addition, we found that utilizing a DFP in place of a BBP requires less equipment and as result could allow professionals to assess strength efficiently when time is a constraint.

LOOKING TO BUILD UPPER BODY STRENGTH?

OUR STUDY HAS SOME EXCITING FINDINGS TO SHARE!

We found that **Dumbbell Floor Press** and **Barbell Bench Press** exhibit similar performances.

This means they can be **interchanged** when estimating an **estimated one repetition maximum Barbell Bench Press**, and potentially allows your **training program** to offer a **safer, accessible alternative** for those looking to **avoid injury**.



Don't Let This Happen To You

Image 1: Image of a man with a pectoralis major rupture
<https://www.windsorupperlimb.com/data/images/pec%20major%202.png>



Image 2: Radiograph of osteolysis of the distal clavical
<https://upload.orthobullets.com/topic/3048/images/distal%20clavicle%20osteolysis.jpg>



Analysis

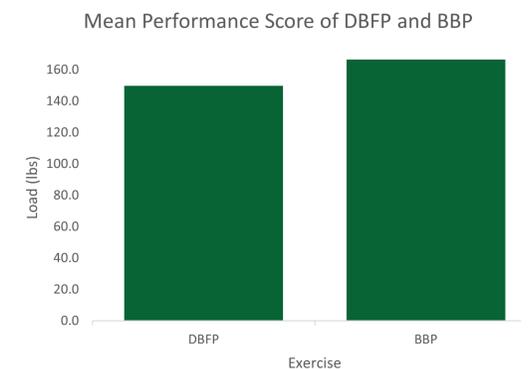
Figure 1: Data collection of participants where load represents weight of each dumbbell

Participant number	Load (Lbs)	Load (Kg)	Repetitions To Fatigue	ESTIMATED 1RM
PN01	45	20.4	13	130.9
PN02	45	20.4	24	168.9
PN03	45	20.4	31	193.2
PN04	35	15.9	27	155.7
PN05	30	13.6	16	105.9
PN06	45	20.4	21	158.6
PN07	45	20.4	18	148.2
PN08	35	15.9	15	114.2
PN09	75	34.0	8	184.4
PN10	45	20.4	15	137.8

Figure 2: Data collection of participants where load represents total weight of plates placed on barbell

Participant number	Load (Lbs)	Load (Kg)	Repetitions To Fatigue	ESTIMATED 1RM
PN01	105	47.6	10	138.2
PN02	175	79.4	8	213.9
PN03	120	54.4	20	190.5
PN04	90	40.8	11	123.9
PN05	85	38.6	2	86.9
PN06	115	52.2	21	188.1
PN07	111	50.3	17	169.5
PN08	135	61.2	12	180.5
PN09	175	79.4	12	227.7
PN10	125	56.7	5	144.5

Figure 3: Data represents the mean performance scores of both exercises estimated 1RM in lbs



Conclusion

Our study provides supporting evidence that DFP performance can potentially estimate one-repetition maximum performance in BBP. This provides significant implications for strength and conditioning professionals aiming to assess a client's upper body strength while mitigating injury risk and identifying viable alternatives to BBP in specific training scenarios. Future research could test the use of the DFP in a long-term training program for its use as an alternative in training programs for certain populations.

References

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