

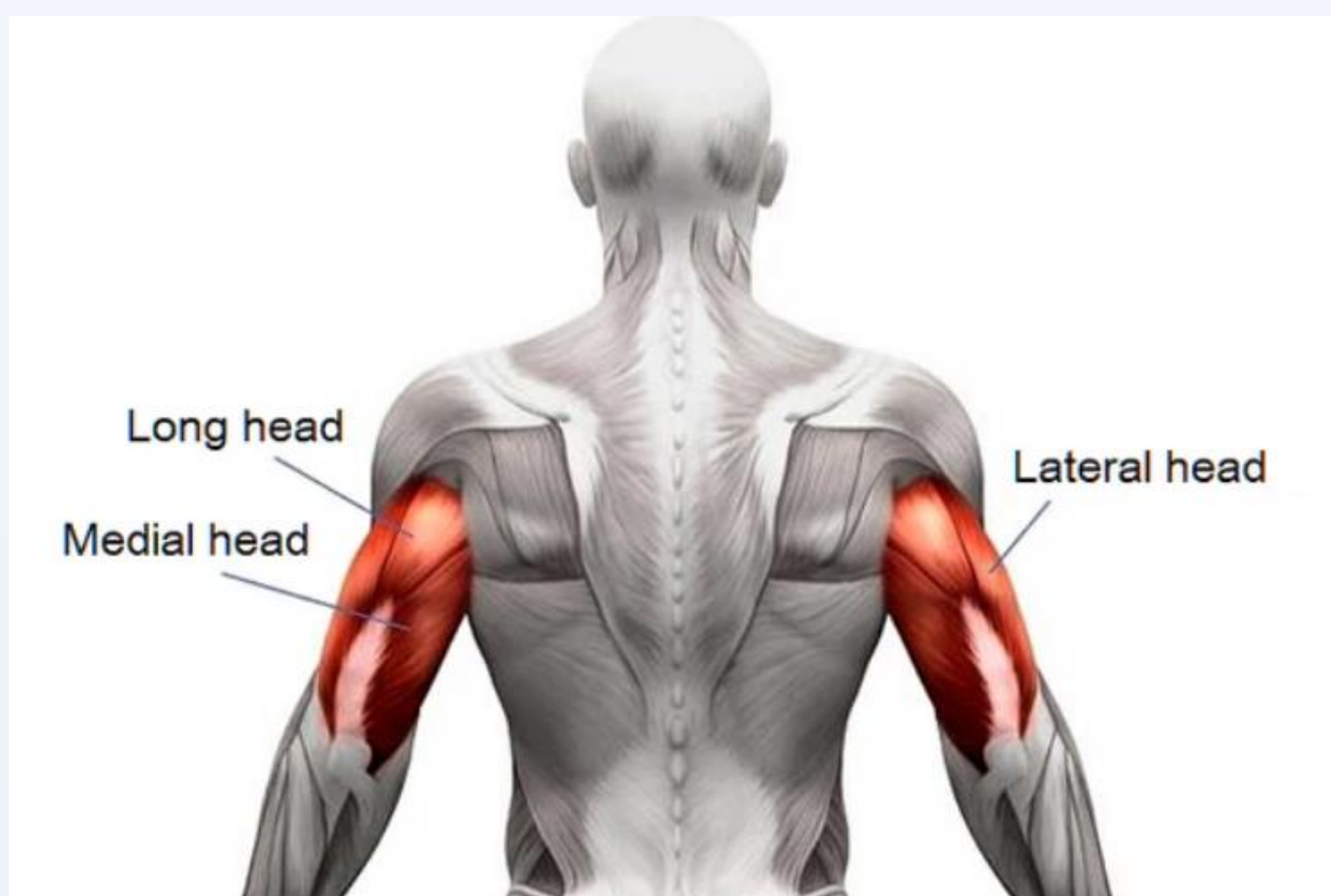
Background

The triceps brachii make up about two thirds of the upper arm muscle mass. This is important for pushing motions, arm stability, and upper body strength in both exercising and everyday life. Triceps exercises are frequently used in resistance training and rehabilitation programs.

The triceps are usually isolated with exercises like the Skull Crusher, which is a lying triceps extension that emphasizes elbow extension. The JM Press is another triceps exercise which is a hybrid movement of a close grip bench press and a skull crusher.

Both exercises are designed to target the triceps brachii, there has not been any comparisons of both exercises' neuromuscular activation and joint mechanics.

Analyzing the differences between the JM Press and Skull Crusher exercises can help determine which exercise works the triceps the most while also putting less strain on the shoulder joint.



Triceps brachii anatomy

Purpose

The purpose of this study was to compare triceps muscle activation and shoulder involvement between the JM Press and the Skull Crusher when both exercises were performed using equivalent loads.

Determine which exercise produces greater triceps activation, minimizes shoulder joint involvement, and provides a more efficient movement pattern for triceps development.

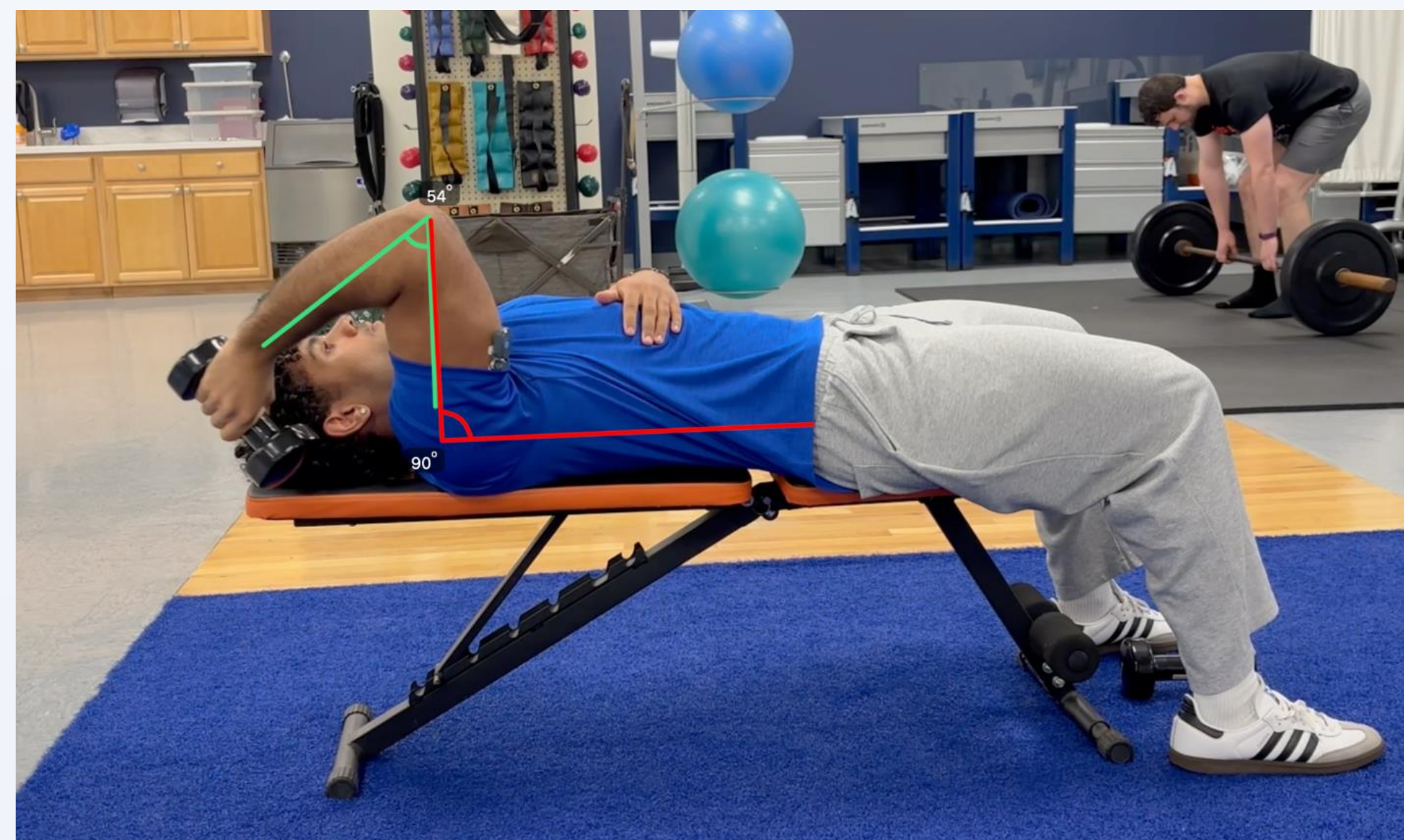
Methods

One male student volunteer performed the two exercises.

The activation of the triceps brachii muscles was measured using surface electromyography (EMG) during both exercises.

To standardize EMG data and to be able to find precise movement comparison, maximum voluntary isometric contraction (MVIC) testing was performed.

During the recorded lifts still images were taken to be able to evaluate joint positions and movement patterns by studying the angles of the elbow and shoulder joints.



Skull crusher



JM Press

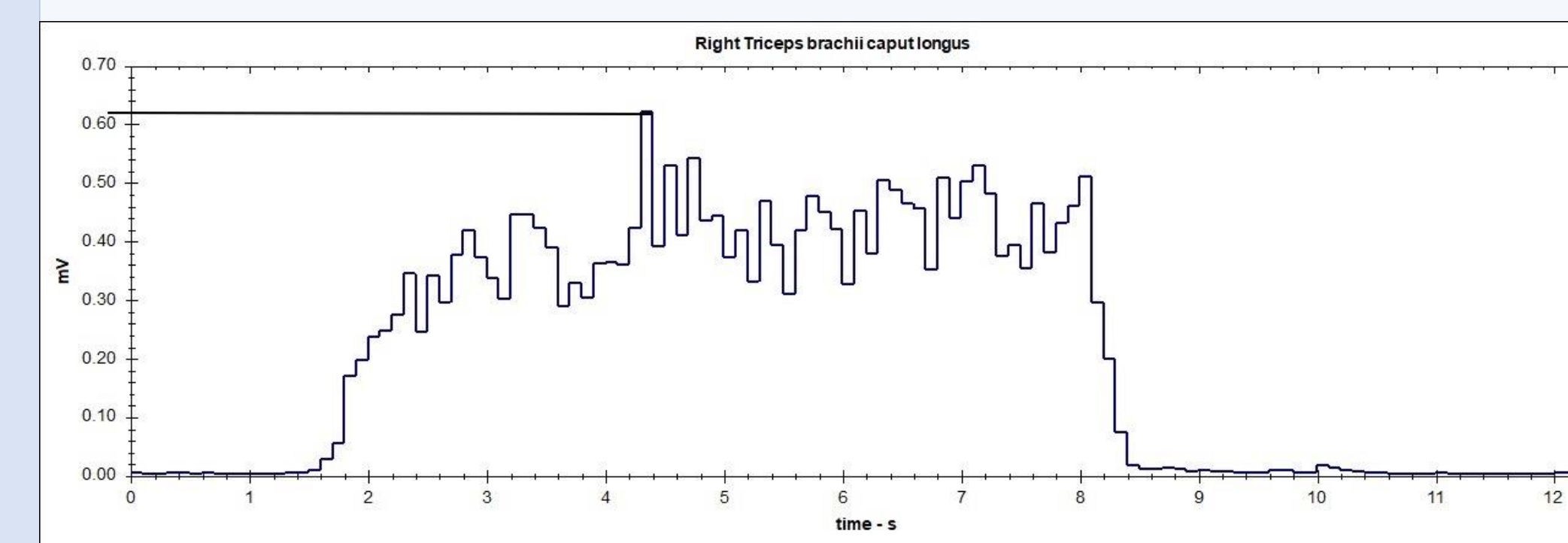
Results

Our data showed that the JM Press produced greater triceps activation.

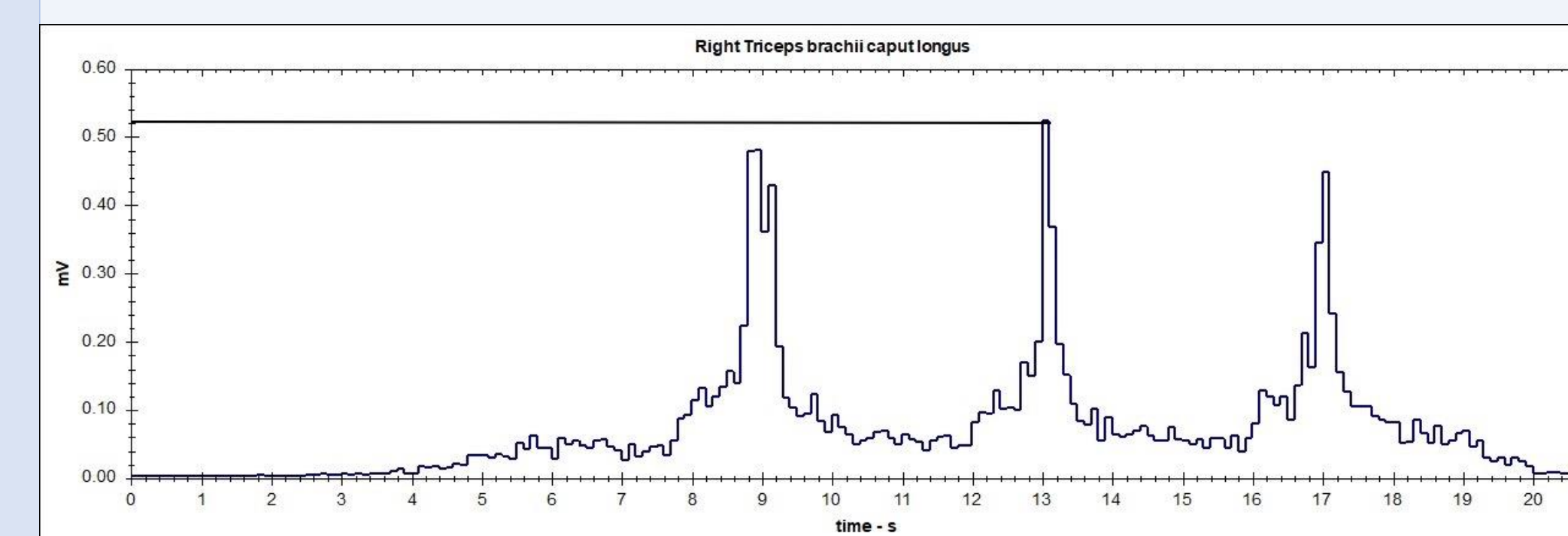
The EMG value of the JM Press was 0.65 mV, while the Skull Crusher was a 0.53mV.

The JM Press also showed reduced shoulder involvement.

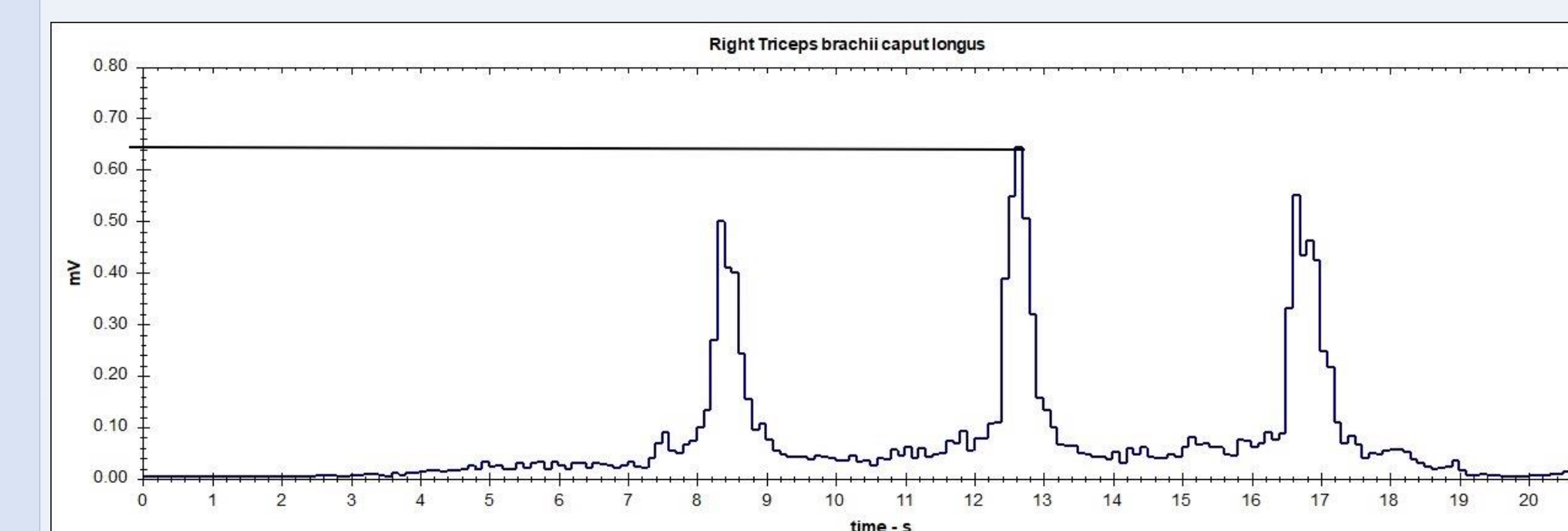
This suggests that there was improved joint stability and more isolated elbow extension movement compared to the Skull Crusher.



Maximum Voluntary Isometric Contraction



Skull crusher



JM Press

Conclusion

Our project demonstrated that the JM Press is perhaps a better exercise for activating the triceps brachii while reducing shoulder strain.

While both exercises are effective, the reduced shoulder involvement as well as higher activation seen in the JM Press may make it a safer and more effective alternative compared to the Skull Crusher.

Overall, if you want to maximize triceps activation while building upper body strength, you should consider incorporating the JM Press into your resistance training programs.

Practical Implications

Understanding biomechanics and muscle activation is important for designing effective training programs.

Selecting exercises that maximize muscle activation while minimizing joint stress can improve strength development, reduce injury risk, enhance long term joint health, and support rehabilitation and clinical exercise prescription.

References

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Acknowledgements

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