RAPID RESEARCH

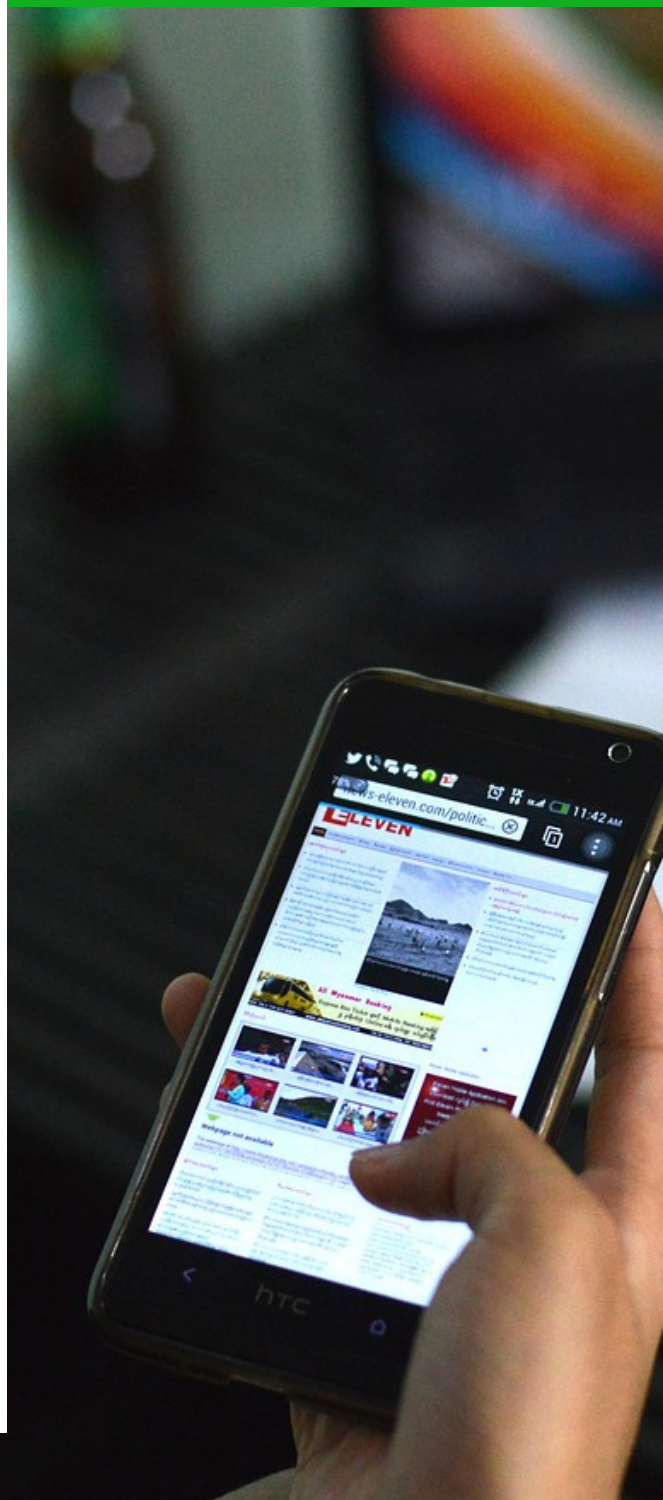
@physicaltherapyresearch

June 2021

Inside This Week:

Training the Core & Glutes

- Which Glute Bridge Position is Best?
- Which Exercises are Best For Training Hip Stability?
- EMG Analysis of 9 Core Exercises (Trunk, Hip, & Thigh)



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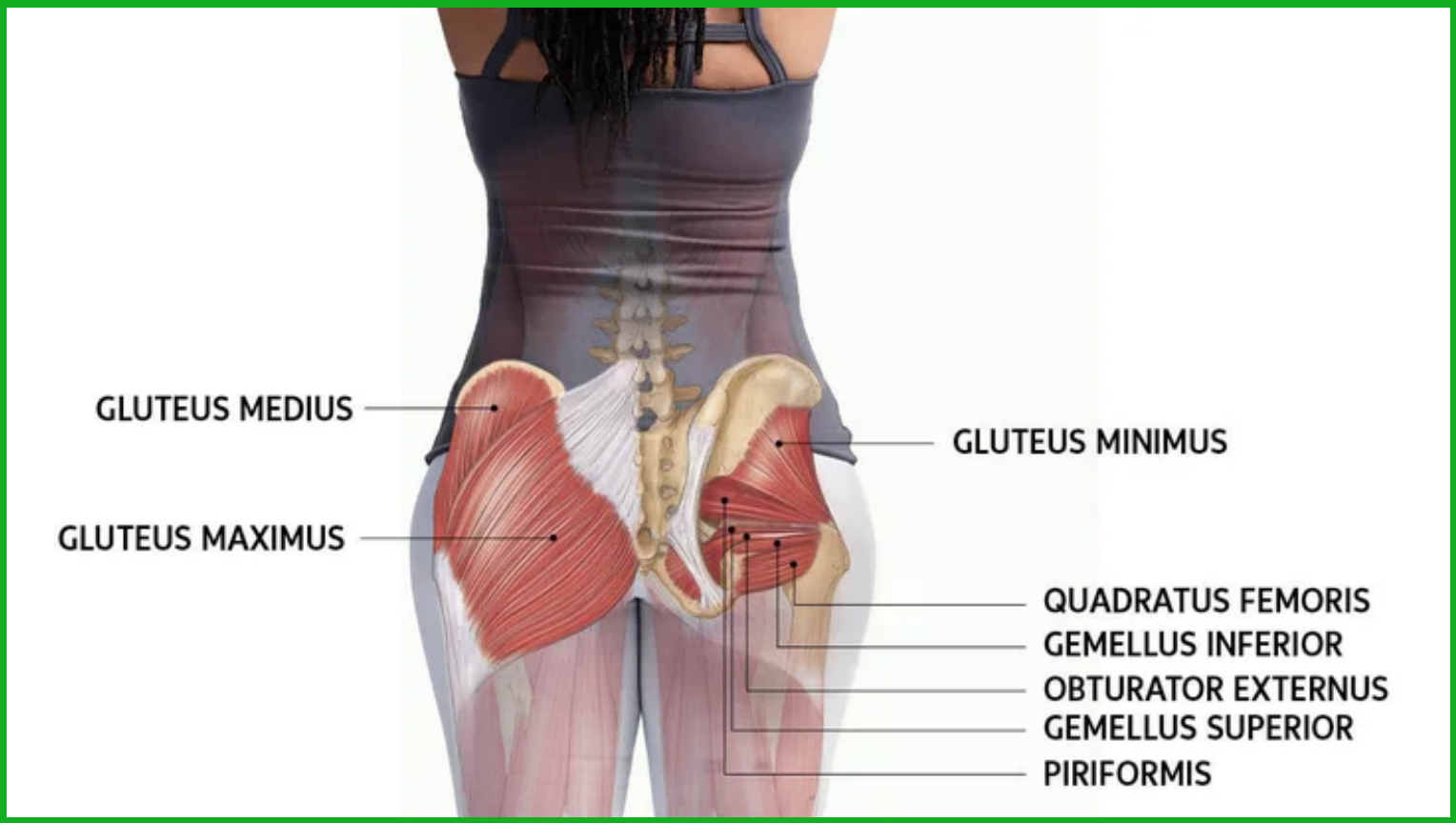
WHICH GLUTE BRIDGE POSITION IS BEST?

This study examined which modified position for the single-leg glute bridge is best for preferentially activating the gluteus maximus and medius

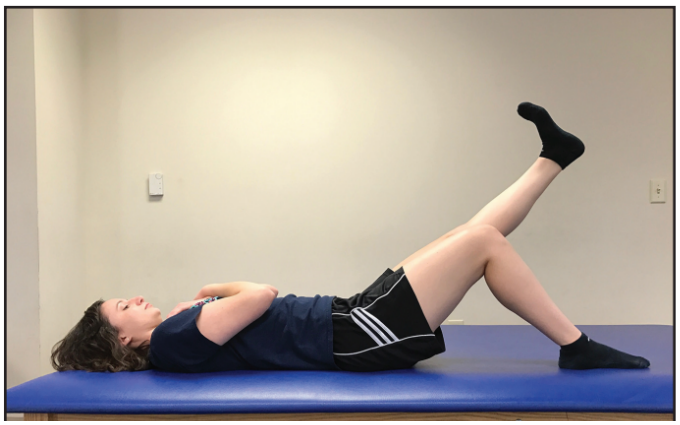


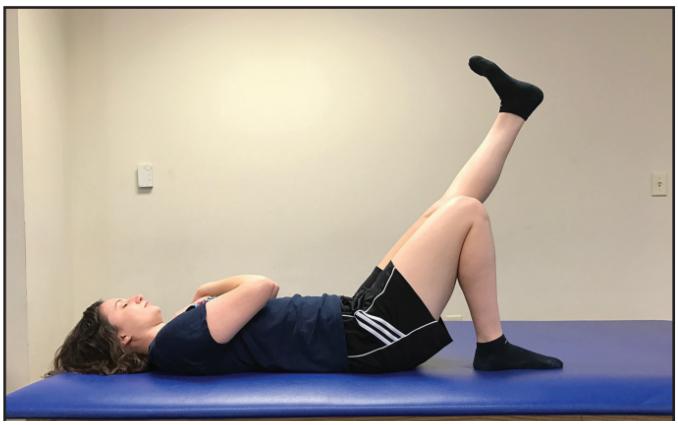
KEY FINDINGS

Bridging with the knee flexed to 135° vs. 90 demonstrated preferential activation of the gluteus maximus and gluteus medius.

Hamstring activation significantly decreased when the dominant knee was flexed to 135° vs. 90°.

Gluteal activation remained similarly high at 90° vs. 135°





MAIN TAKEAWAYS

The modified single-leg bridge position with 135° of knee flexion displayed **preferential activation of the gluteus maximus and gluteus medius** over the biceps femoris (Hamstrings).

This modified single-leg bridge, may **allow more optimal training of the gluteal muscles due to the increased muscle activation required.**

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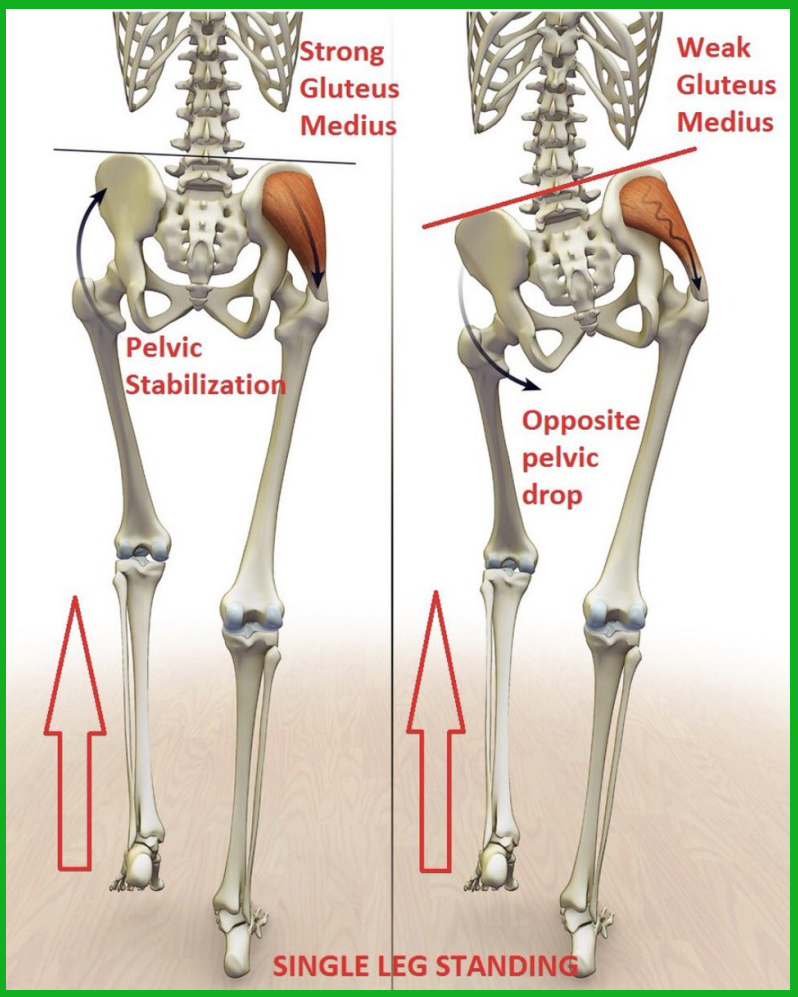
WHICH EXERCISES ARE BEST FOR TRAINING HIP STABILITY?

This systematic review quantified the EMG activity of exercises that utilize the Glute maximus and Glute medius muscles during hip abduction and hip external rotation, a key movement pattern for hip stability.



KEY FINDINGS

The **highest Gmax activity** was elicited during:
Lateral step ups
Cross over step ups
Rotational single leg squat
(ranging from **79 to 113%** Max Voluntary Isometric Contraction).

Gmed activity was highest during:
Side bridge with hip abduction
Standing hip abduction with elastic resistance at the ankle
Side lying hip abduction
(ranging from **81 to 103% MVIC**).

MAIN TAKEAWAYS

Exercises with greater movement complexity, e.g. the lateral step-up, were found to **elicit greater % MVIC for both Gmax and Gmed.**

Exercises performed **weight bearing produced a greater % MVIC for both Gmax and Gmed** compared to Non WB.

Individuals who have difficulty performing WB exercises can **benefit from using NWB side-lying or seated exercises to strengthen the gluteal musculature.**

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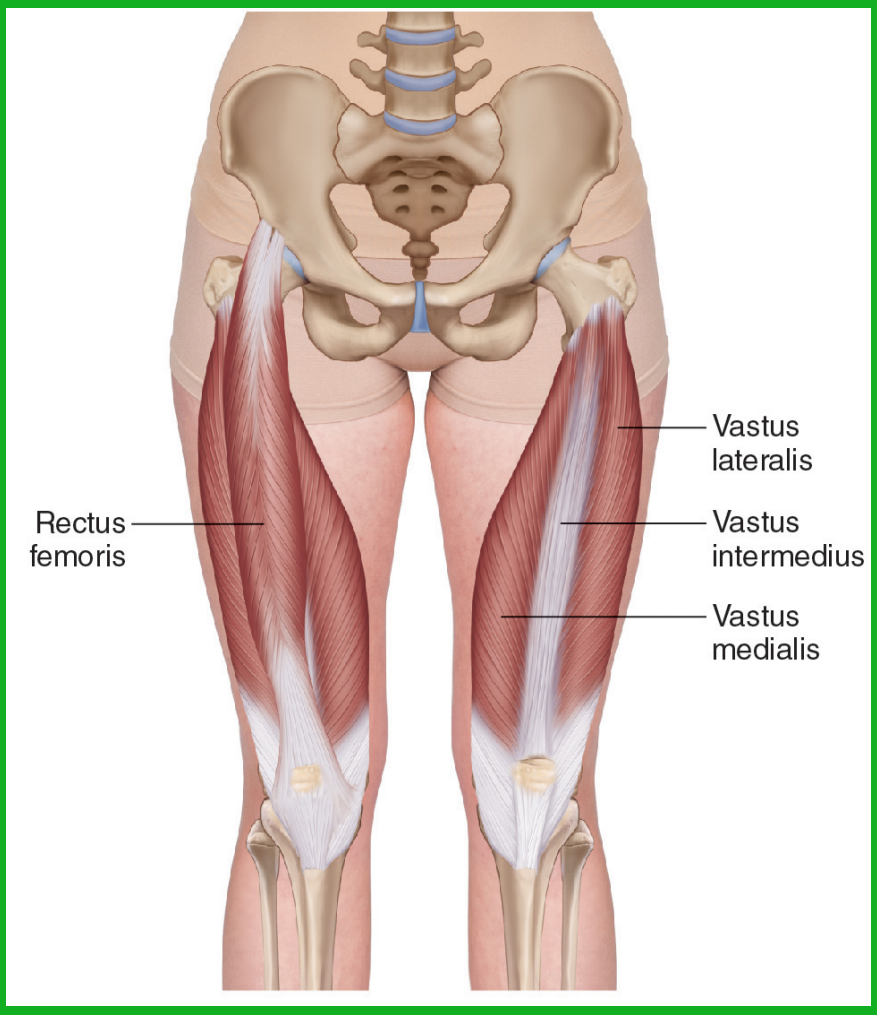
EMG ANALYSIS OF 9 CORE EXERCISES (TRUNK, HIP & THIGH)

This research identified which core exercises that could most develop strength and which would be more appropriate for endurance or stabilization training.



9 Exercises Examined

1. Active hip abduction
2. Bridge
3. Unilateral-bridge
4. Side-bridge
5. Prone-bridge elbows
6. and toes
7. Quadruped arm/lower extremity lift
8. Lateral step-up
9. Standing lunge

KEY FINDINGS

The **lateral step-up and the lunge exercises** produced EMG levels greater than 45% (MVIC) in the vastus medialis obliquus, a good level for strengthening.

The **side-bridge exercise** was great for strengthening the:
Gluteus medius
External oblique abdominis muscles

Quadruped arm/lower extremity lift exercise can strengthen the **gluteus maximus muscle.**

All the other exercises examined produced EMG levels **less than 45% MVIC,** so they may be more beneficial for training endurance or stabilization in healthy subjects.

MAIN TAKEAWAYS

The 9 exercises examined could be used for a **core rehabilitation or performance enhancement program.**

Depending on the individual needs of a patient or athlete, some of the exercises may be more **beneficial than others for achieving strength vs. endurance.**

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We would greatly appreciate any feedback you have, as it helps us continually improve!

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