

Bilateral Gluteus Medius and Maximus Activation Differences Between Low Handicap and High Handicap Golfers

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Subject 1: Brendon

Age:22 Sex:Male Handicap: 1

Warm Up:

- 2x15 standing trunk rotation bilateral (Ghigiarelli et al., 2014)
- 2x15 side steps bilateral
- 5 swings at 50%, 5 swings at 75%, 5 swings at 100% perceived effort (Goswami et. al, 2025)
- Repeated 3 times 1 minutes rest (Goswami et. al, 2025)

Single leg squat test was performed and showed left knee varus. Right single leg squat test showed no obvious dysfunction.

Correctives Performed per NASM protocol: (National Academy of Sports Medicine, 2021)

Inhibit: foam rolling of Adductor magnus, piriformis, and TFL

Lengthen: static stretching of Adductor magnus stretch 1x30sec piriformis, and TFL.

Activate: bilateral glute kick back 2x15 reps. bilateral resisted abduction 2x15 reps

Integrate: Wall Jumps 2x15 reps



Swing Test

3x (2 swings max effort)

3 minute rest between sets (American College of Sports Medicine, 2025)

Methods and Purpose

Methods:

EMGs were placed bilaterally on the gluteus maximus, and gluteus medius. Manual muscle tests were performed to ensure the EMGs were placed correctly. (Callaway et al., 2012)

Based on results from the single leg squat, correctives were performed

Purpose:

The purpose of the project was to examine the differences in bilateral gluteus maximus, and gluteus medius activation between a high and low handicap golfer. As well as what effect corrective exercises had on the previously mentioned muscles.

Brendon Pre/ Post Corrective

Cycle Phase	R GMax Pre (µV)	R GMax Post (µV)	L Gmax Pre (µV)	L GMax Post (µV)	R GMed Pre (µV)	R GMed Post (µV)	L GMed Pre (µV)	L GMed Post (µV)
Phase 1	28	23.5	28.85	27.5	19.5	19.85	17.65	17.35
Phase 2	40.5	34.15	40.7	38.35	29.35	30.85	27.35	27
Phase 3	51.35	43	50.35	47.2	40	40.5	36	35.35
Phase 4	57.65	48.8	56.3	52.2	45.35	46	41	40.85
Phase 5	53.65	43.85	52.8	47.65	40	41	36.65	37.5

Lacey Pre/Post Corrective

Cycle Phase	R GMax Pre (µV)	R GMax Post (µV)	L GMax Pre (µV)	L GMax Post (µV)	R GMed Pre (µV)	R GMed Post (µV)	L GMed Pre (µV)	L GMed Post (µV)
Phase 1	13.5	15.5	71	73	42.5	46	22.5	24.5
Phase 2	17	19	73.5	76	44.5	48.5	24	26.5
Phase 3	20	22	76	78	46	51	26	28.5
Phase 4	22	24	77.5	79.5	47.5	52.5	27.5	30
Phase 5	20.5	22	76	78	46	50.5	26.5	28.5

Subject 2: Lacey

Age: 23 Sex: Female Handicap: 30<

Warm Up:

- 2x15 standing trunk rotation bilateral (Ghigiarelli et al., 2014)
- 2x15 side steps bilateral
- 5 swings at 50%, 5 swings at 75%, 5 swings at 100% perceived effort (Goswami et. al, 2025)
- Repeated 3 times 1 minutes rest (Goswami et. al, 2025)

Single leg squat test was performed and showed Left knee varus and right knee varus.

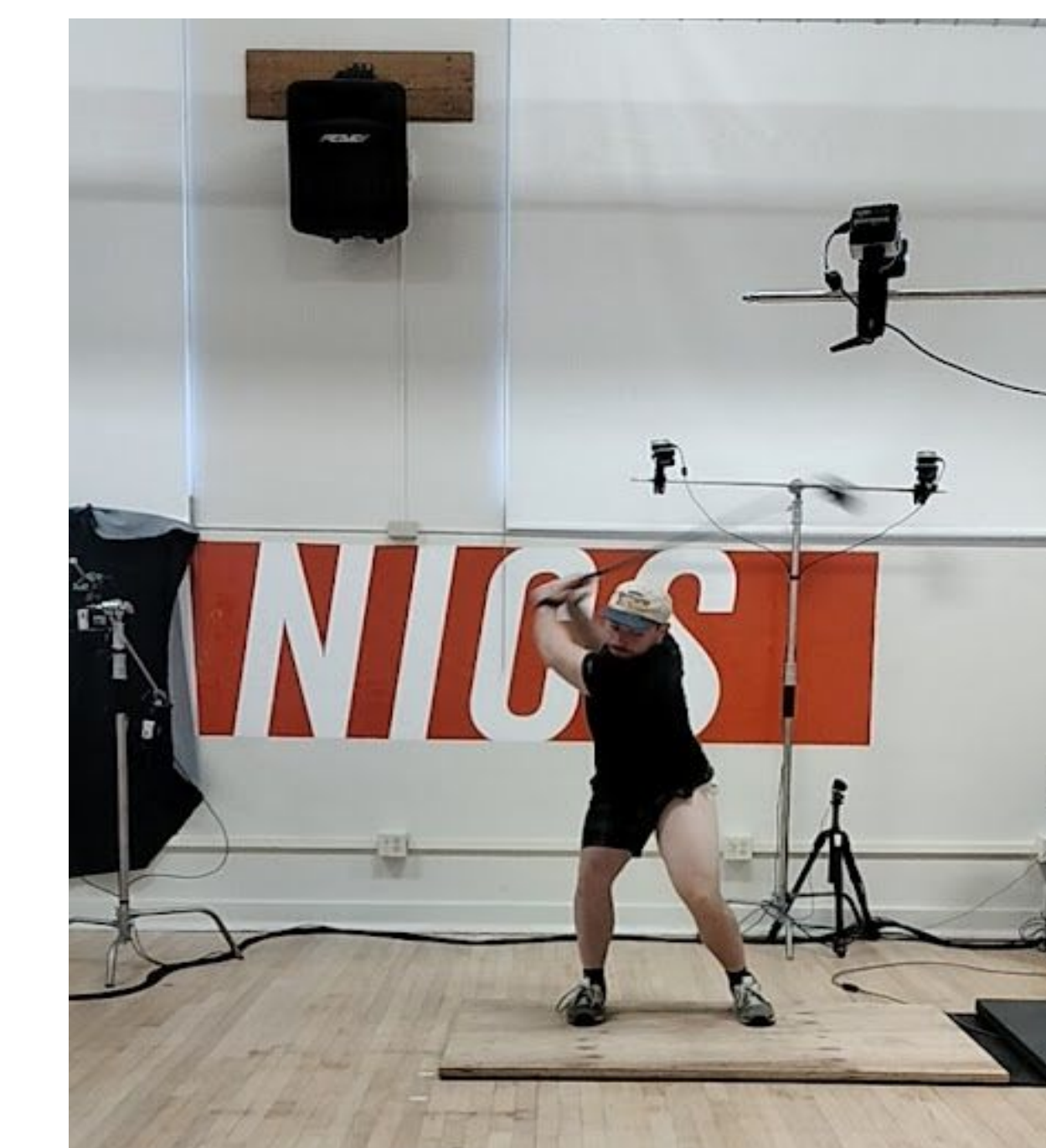
Correctives Performed per NASM protocol: (National Academy of Sports Medicine, 2021)

Inhibit: foam rolling of Adductor magnus, piriformis, TFL

Lengthen: static stretching of Adductor magnus, piriformis, and TFL

Activate: bilateral glute kick back 10-15 reps. bilateral resisted abduction, 10-15 reps

Integrate: wall Jumps 10-15 reps



Swing Test:

3x (2 swings max effort)

3 minute rest between sets (American College of Sports Medicine, 2025)

Results

Brendon demonstrated a 14–18% decrease in R Glute Max activation and a 3–10% decrease in L Glute Max activation across the full swing cycle following corrective intervention. He also showed a 1–5% increase in R Glute Med activation and a 0–2% increase in L Glute Med activation. In comparison, Lacey exhibited approximately 2–4% increases in both R and L Glute Max activation post-correctives and 2–5% increases in R and L Glute Med activation. Overall, Brendon's results reflect reduced gluteal activation magnitudes, whereas Lacey's results reflect increased activation magnitudes across the same muscle groups.

