

Supplemental Document:
Development and Implementation of a Forward Solution Hip
Mathematical Model to Determine In Vivo Mechanics and
Predict Hip Separation

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Michael Thomas LaCour

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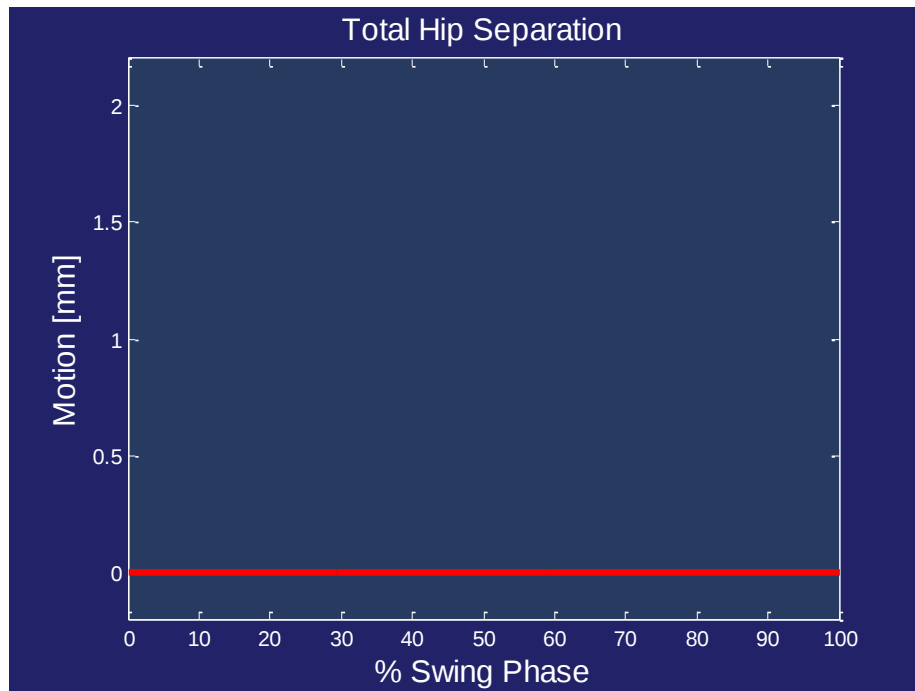
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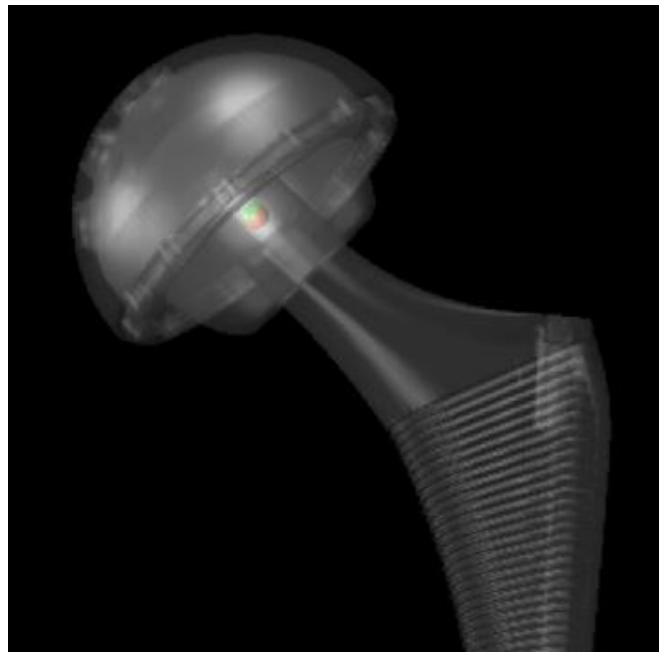
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APPENDICES

Appendix B: Cup Alignment during Swing Phase Figures

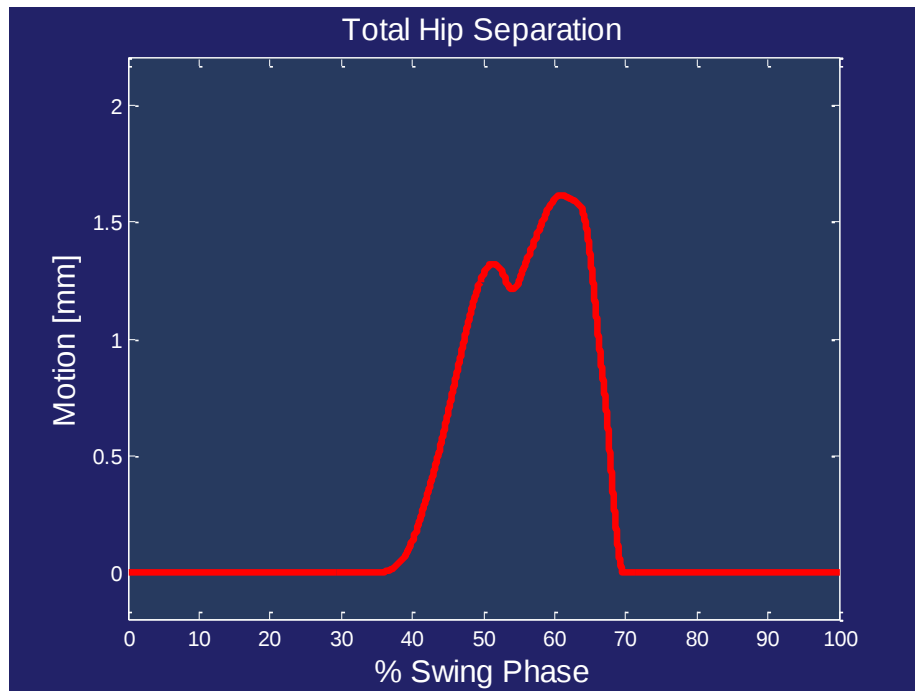


(a)

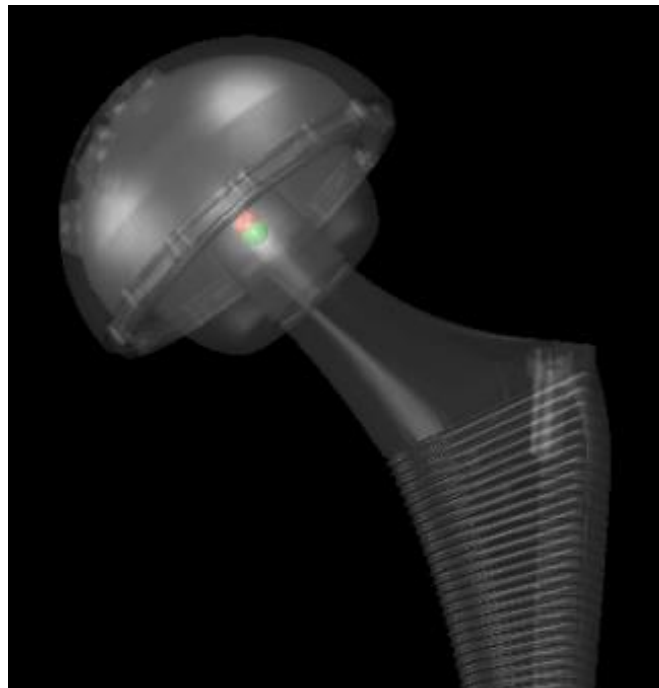


(b)

Figure B1: Perfect alignment, 40° inclination, 15° anteversion: 0mm separation.



(a)

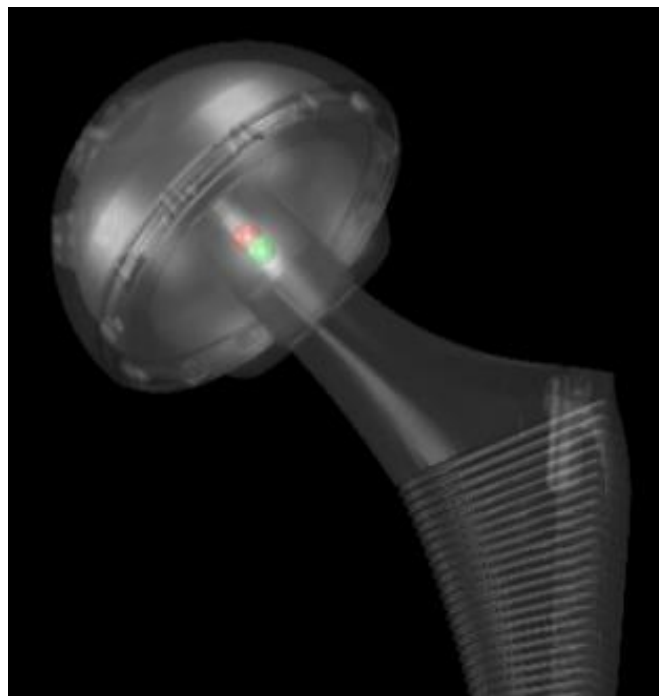


(b)

Figure B2: 1cm medial shift, 40° inclination, 15° anteversion: 1.6mm separation.

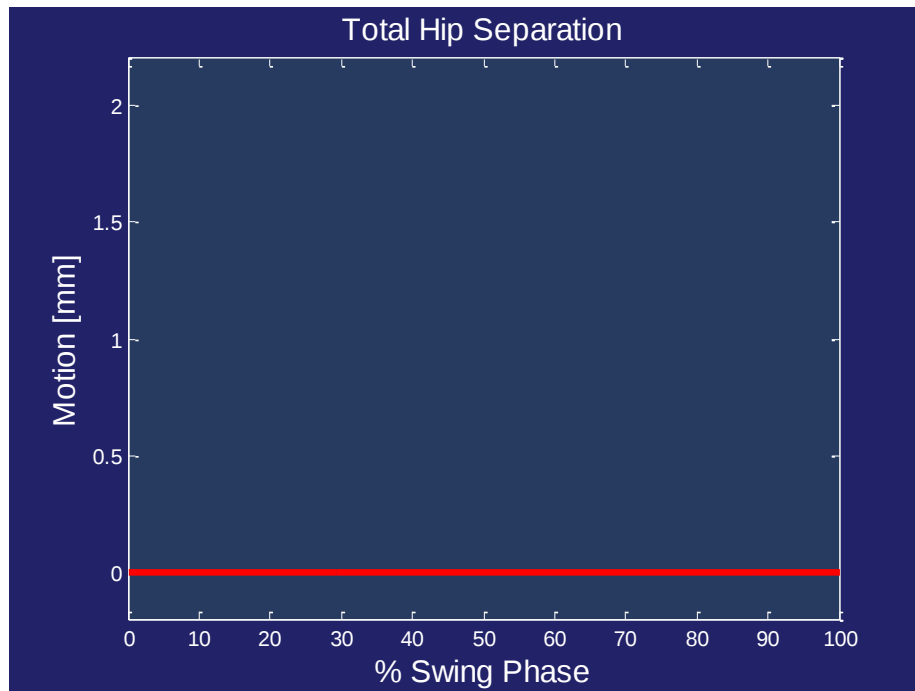


(a)

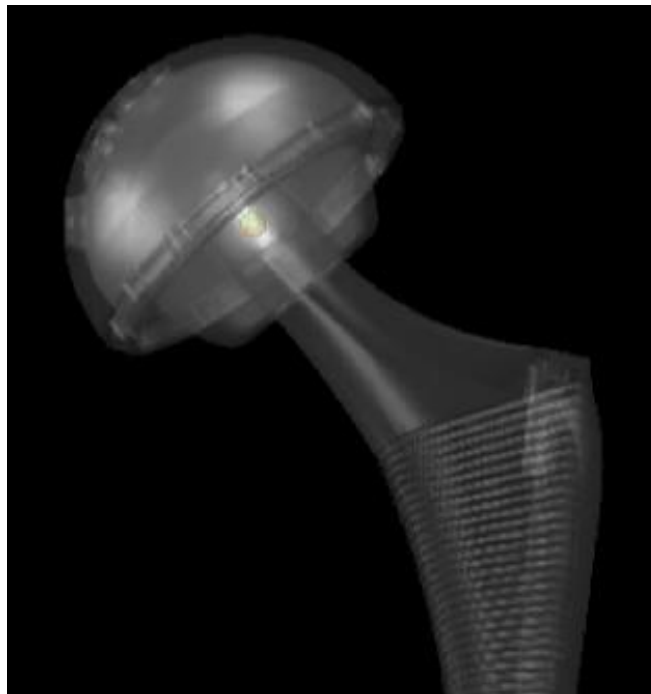


(b)

Figure B3: 1cm medial shift, 40° inclination, 35° anteversion: 3.4mm separation.

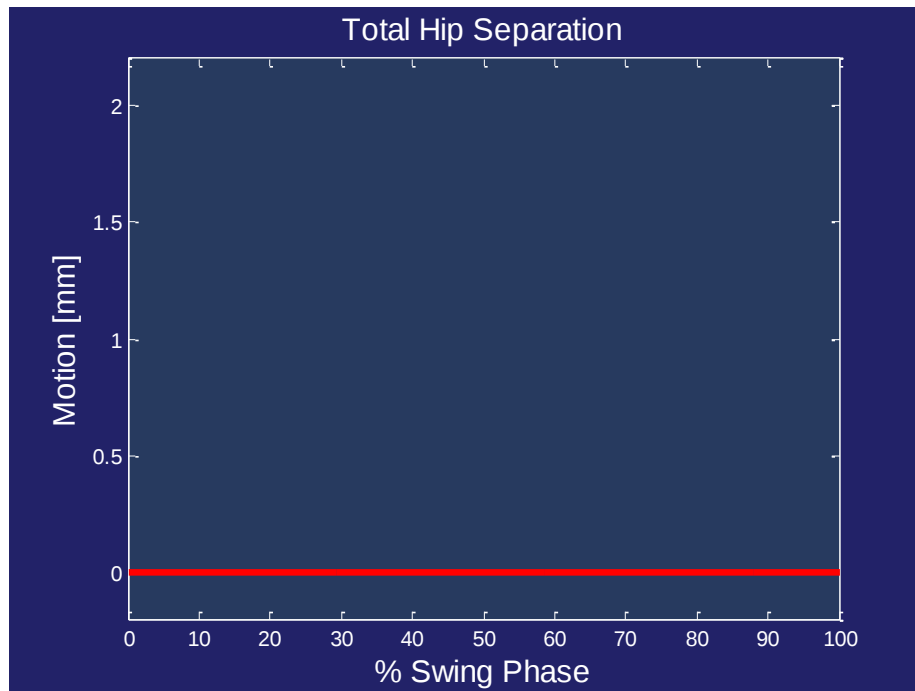


(a)

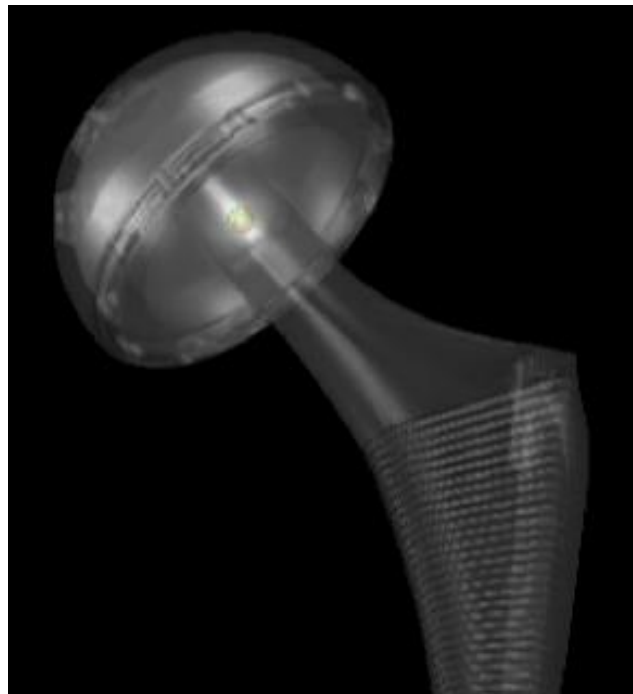


(b)

Figure B4: 0.5 cm medial shift, 40° inclination, 15° anteversion: 0.0mm separation.

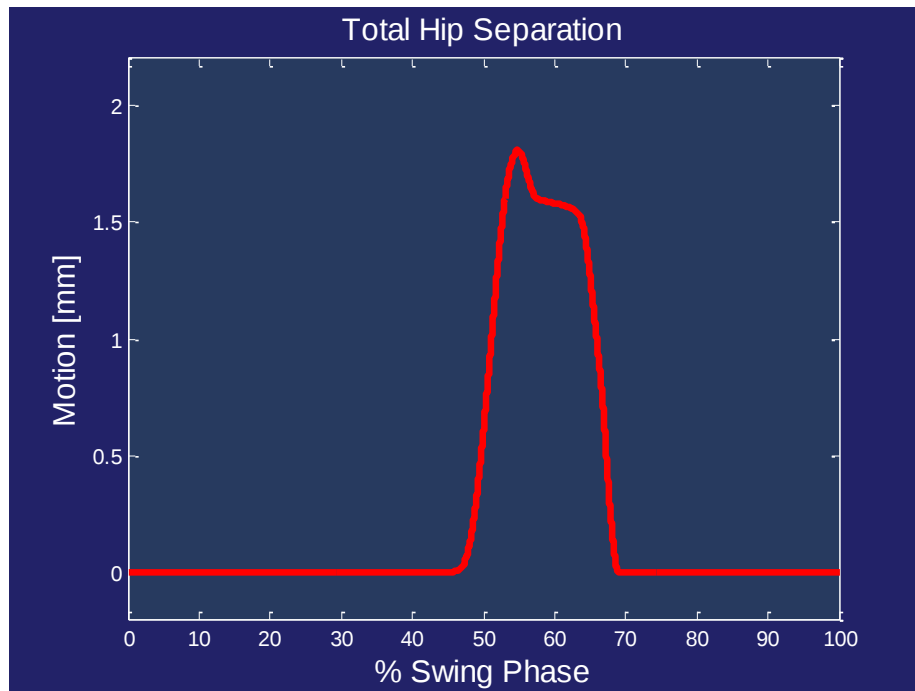


(a)

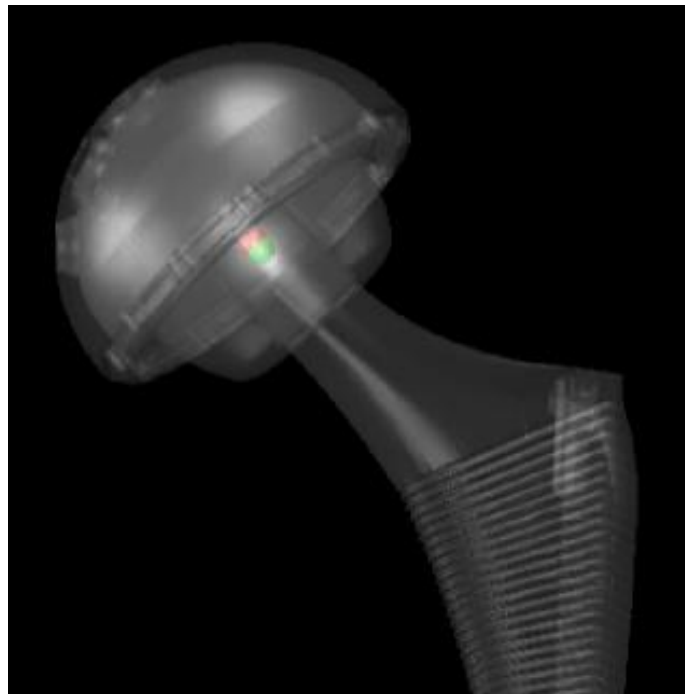


(b)

Figure B5: 0.5 cm medial shift, 40° inclination, 35° anteversion: 0.0mm separation.

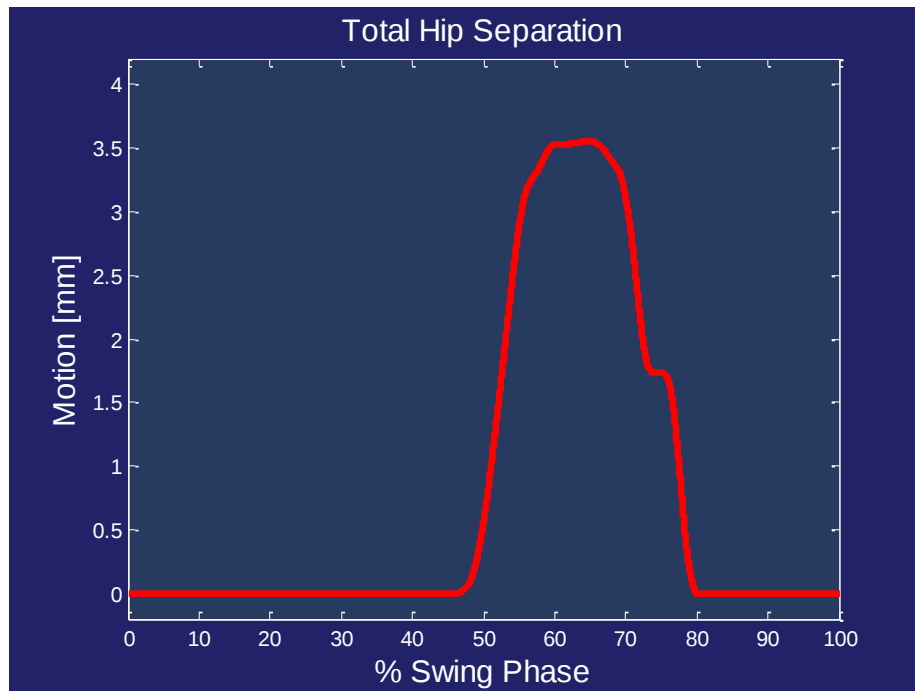


(a)

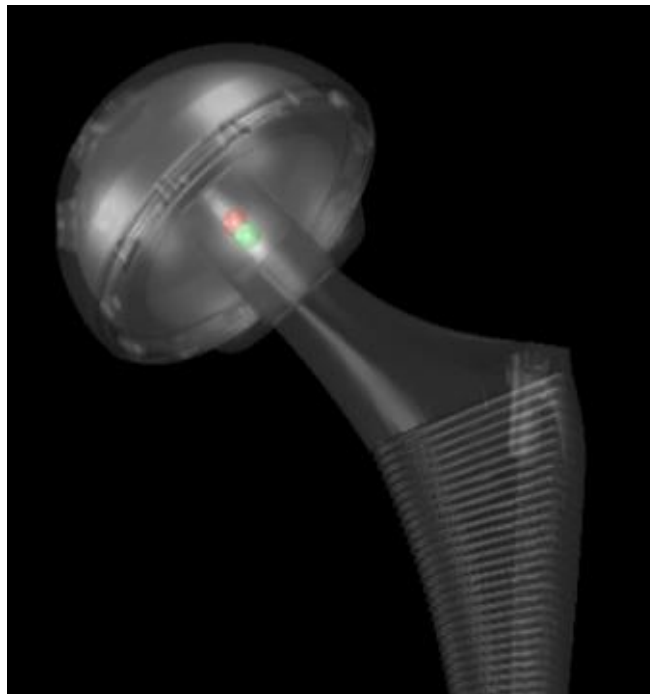


(b)

Figure B6: 1 cm superior shift, 40° inclination, 15° anteversion: 1.8mm separation.

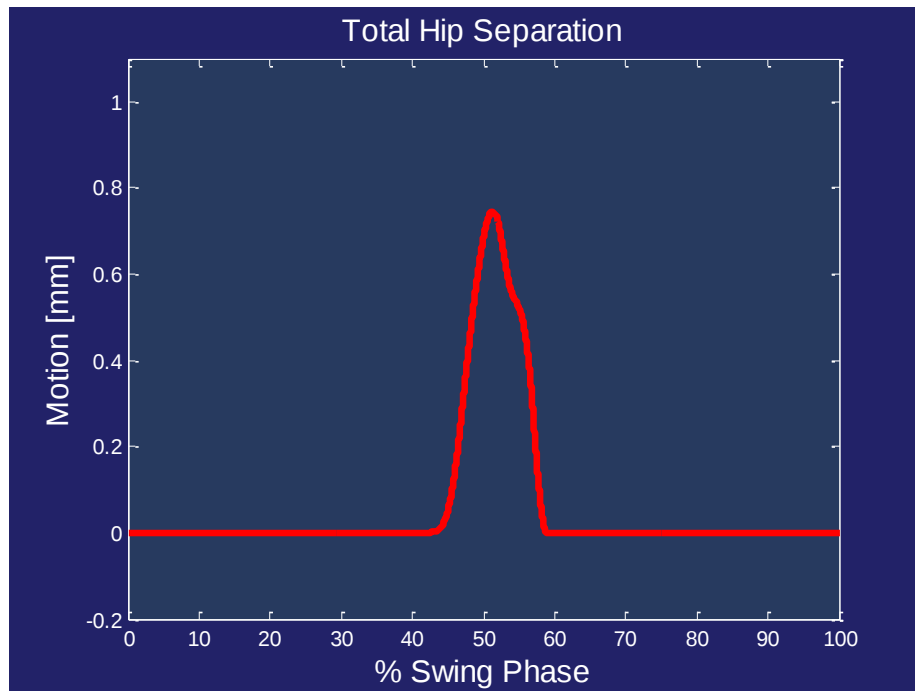


(a)

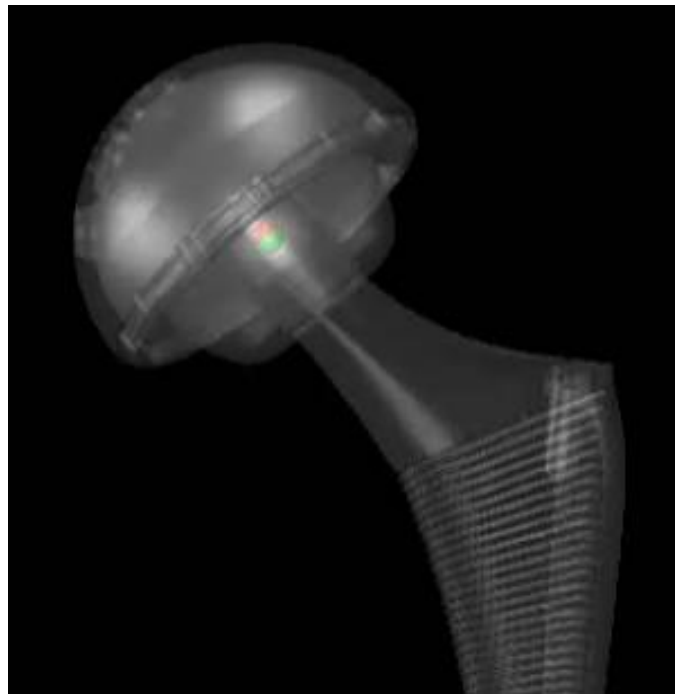


(b)

Figure B7: 1 cm superior shift, 40° inclination, 35° anteversion: 3.5mm separation.

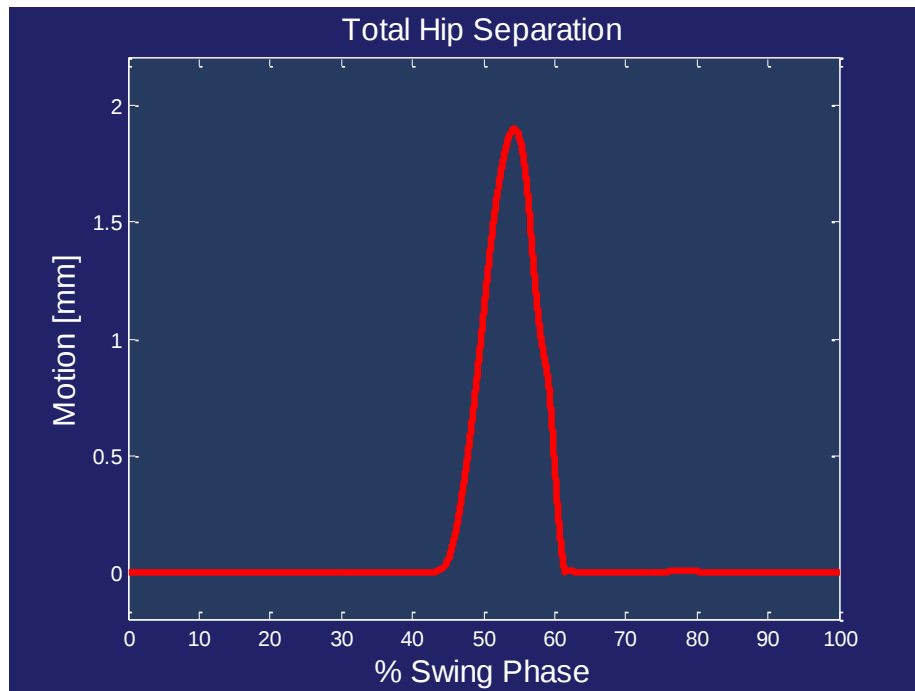


(a)

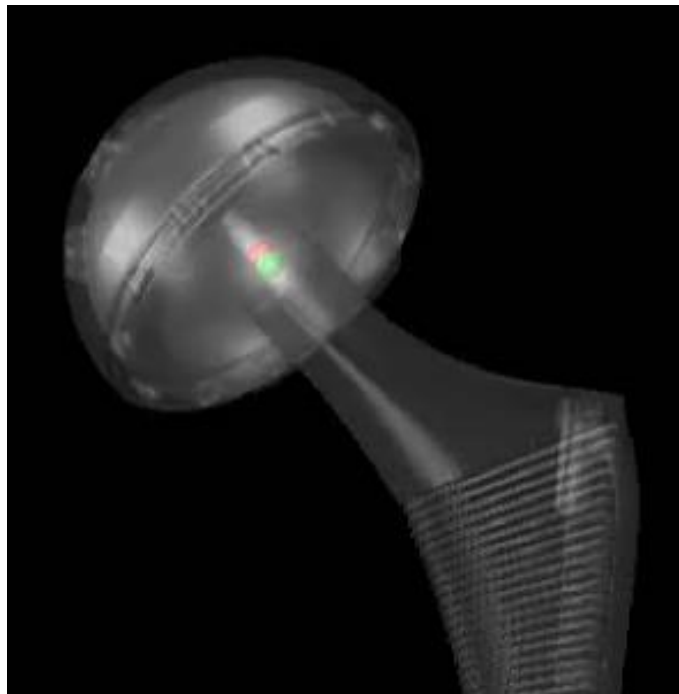


(b)

Figure B8: 0.5 cm superior shift, 40° inclination, 15° anteversion: 0.8mm separation.



(a)

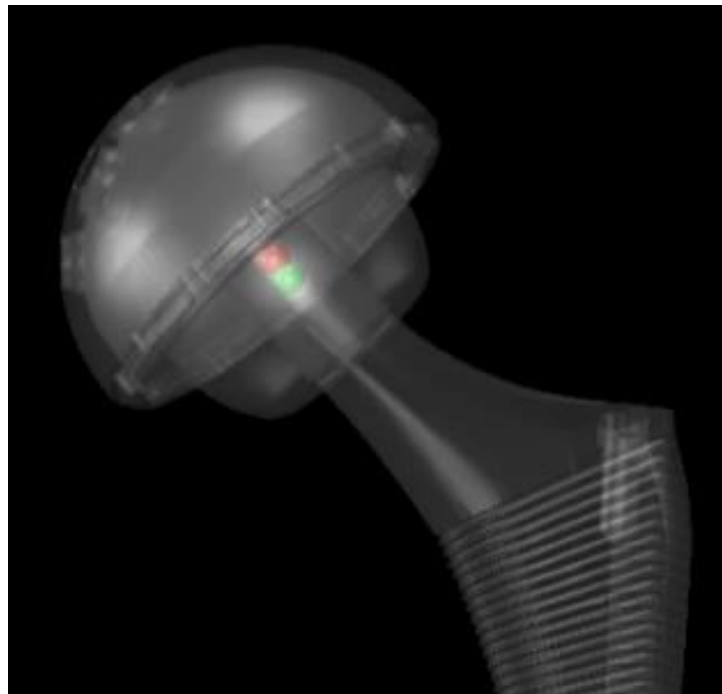


(b)

Figure B9: 0.5 cm superior shift, 40° inclination, 35° anteversion: 2.0mm separation.



(a)

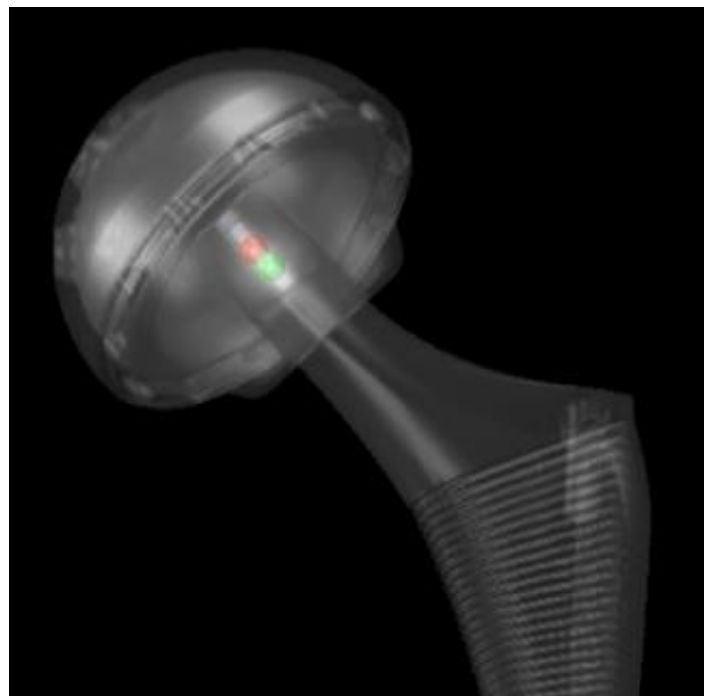


(b)

Figure B10: 0.71 cm supero-medial shift, 40° inclination, 15° anteversion: 3.3mm separation.



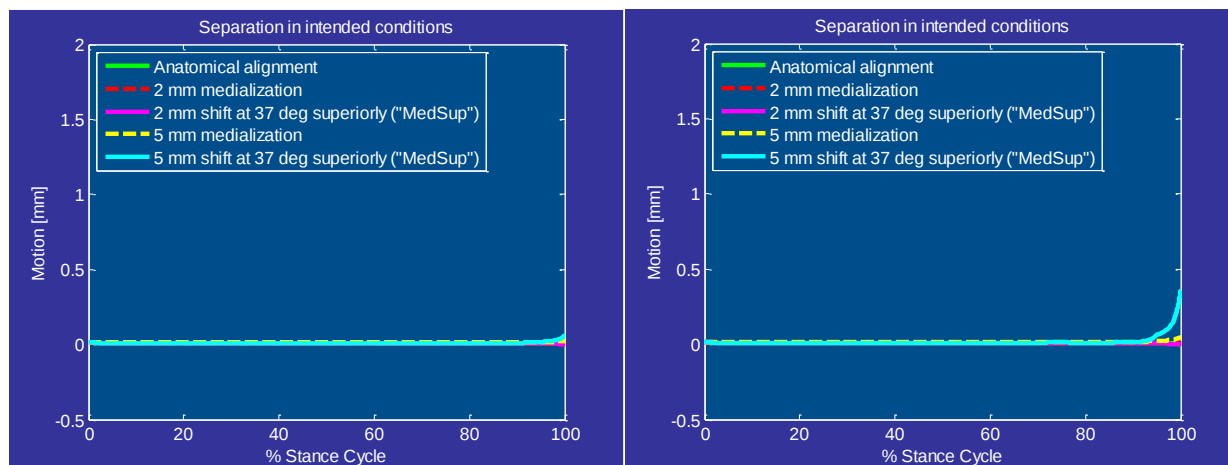
(a)



(b)

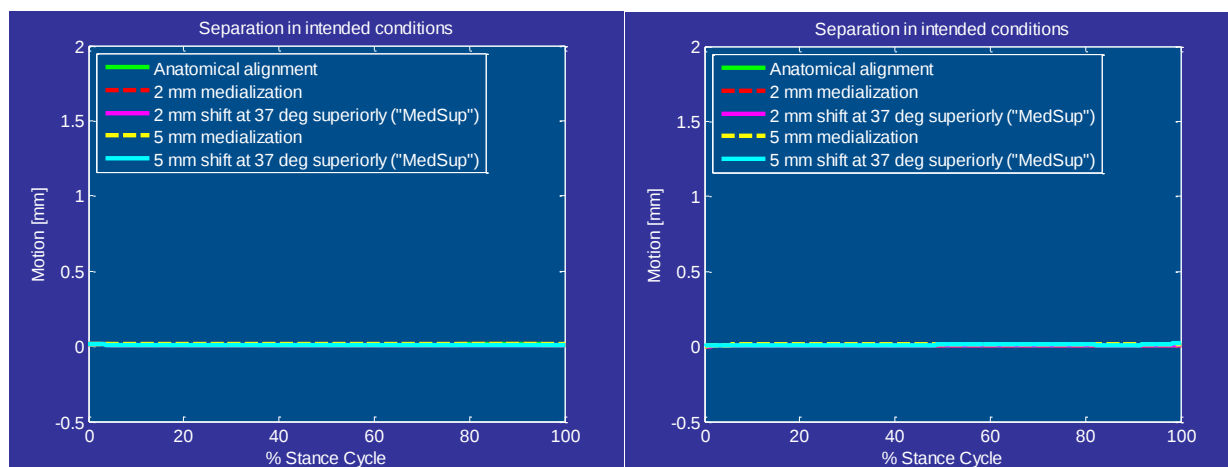
Figure B11: 0.71 cm supero-medial shift, 40° inclination, 35° anteversion: 4.9mm separation.

Appendix C: Cup Alignment during Stance Phase Figures



(a)

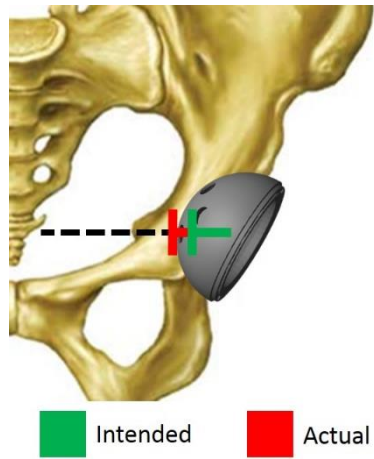
(b)



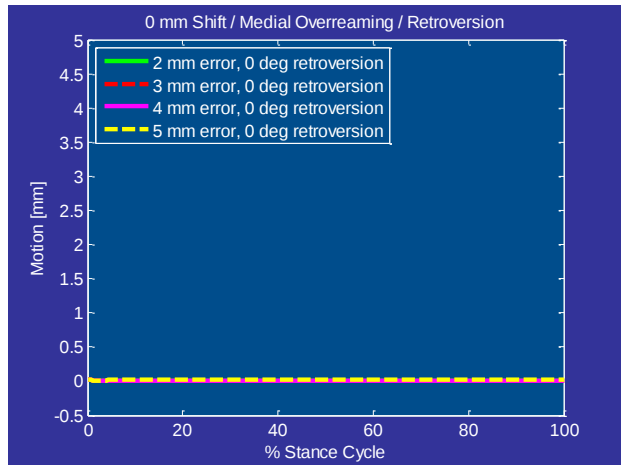
(c)

(d)

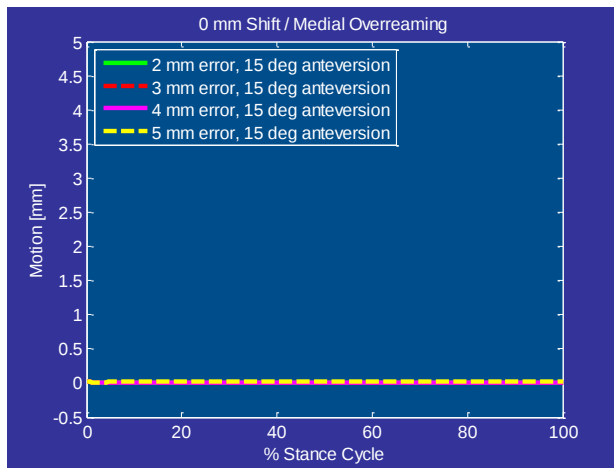
Figure C1 : Intended conditions for Patients (a) 1, (b) 2, (c) 3, and (d) 4.



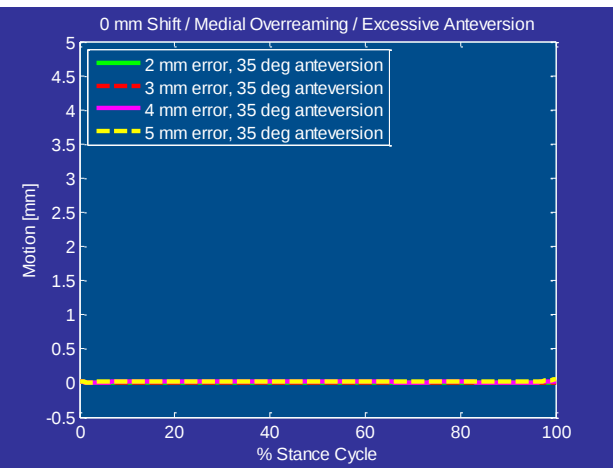
(a)



(b)

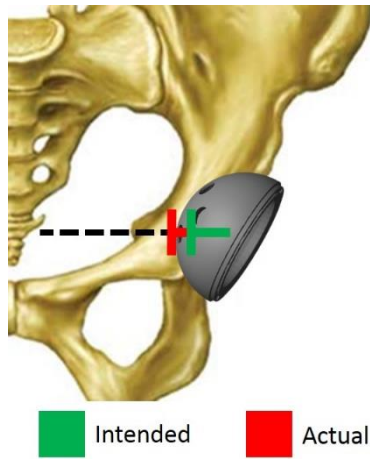


(c)

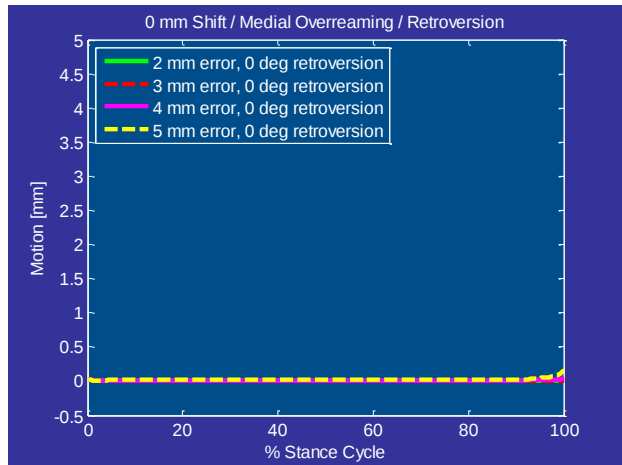


(d)

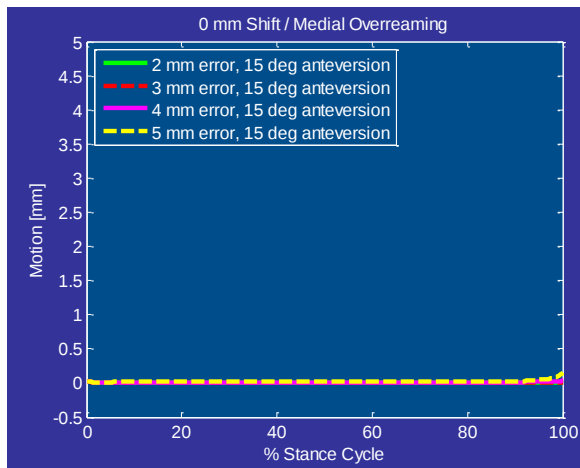
Figure C2: Patients 1 (a) Scenario, (b) 0° Retroversion (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



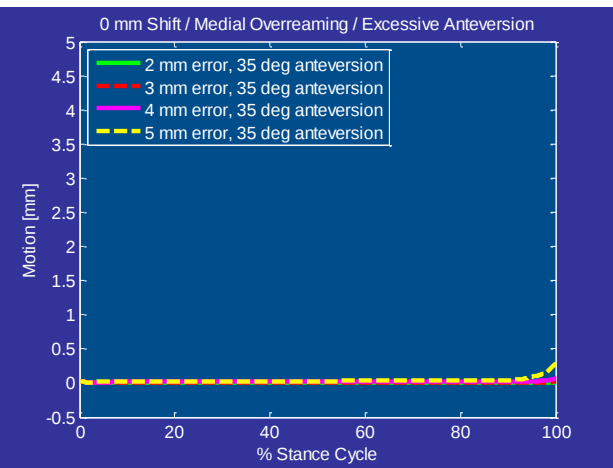
(a)



(b)

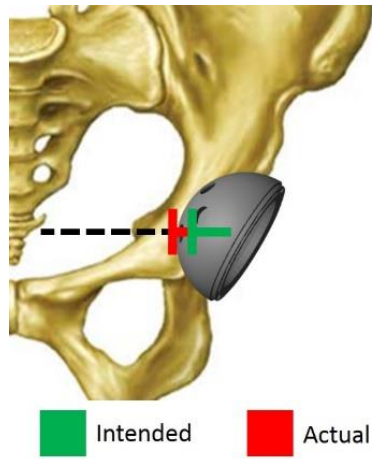


(c)

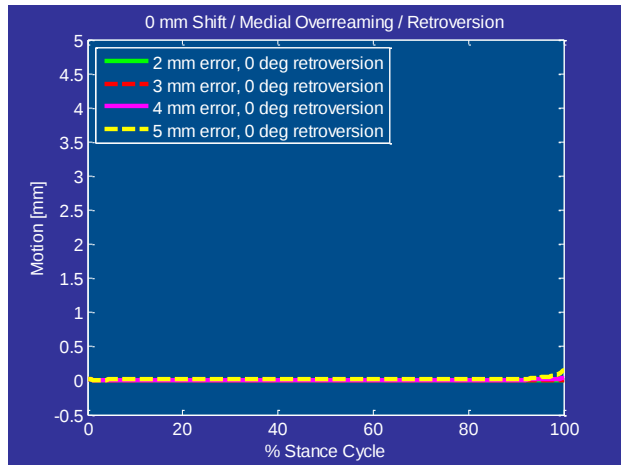


(d)

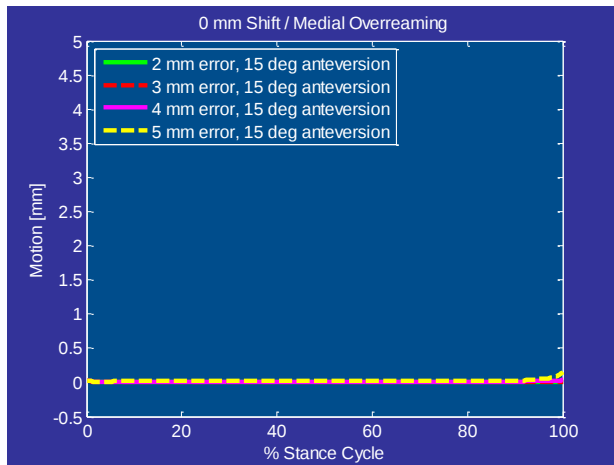
Figure C3: Patient 1 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



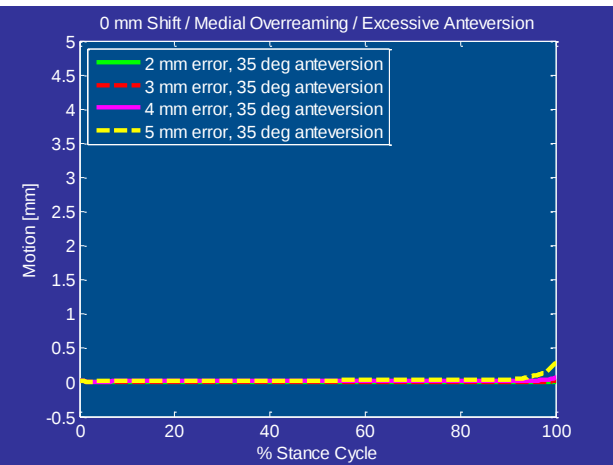
(a)



(b)

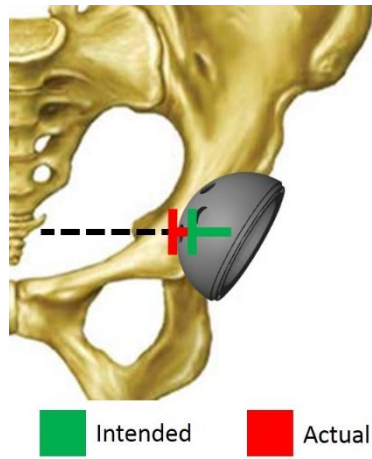


(c)

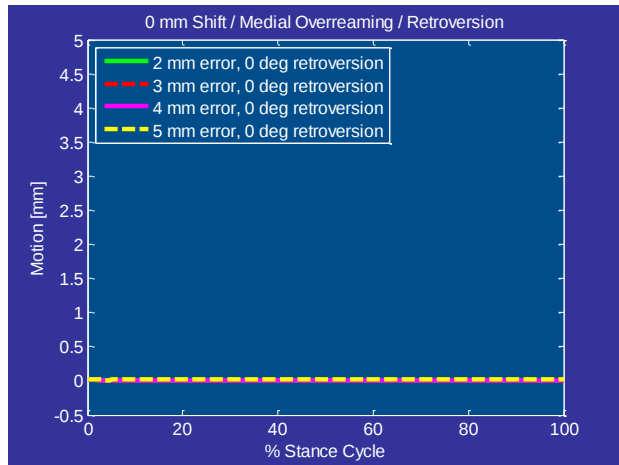


(d)

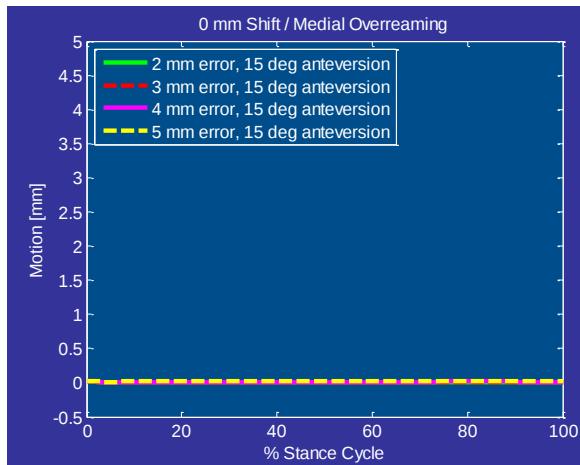
Figure C4: Patient 2 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



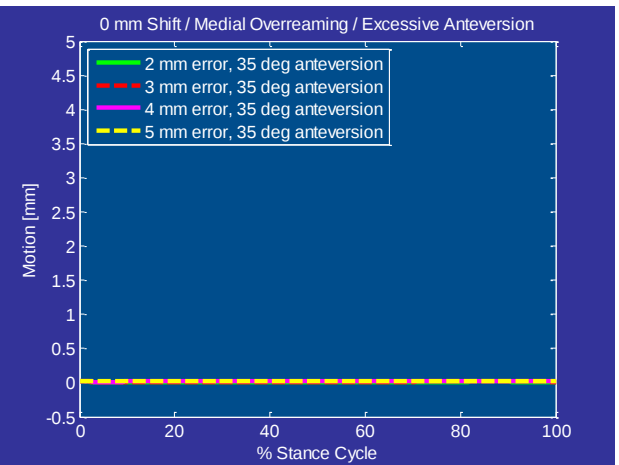
(a)



(b)

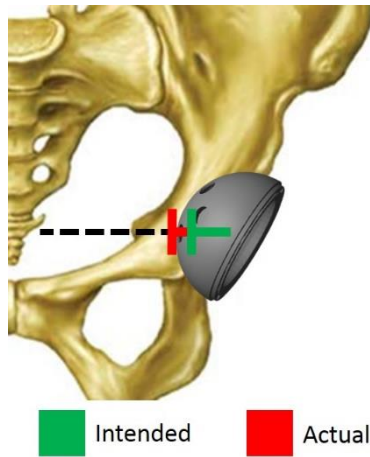


(c)

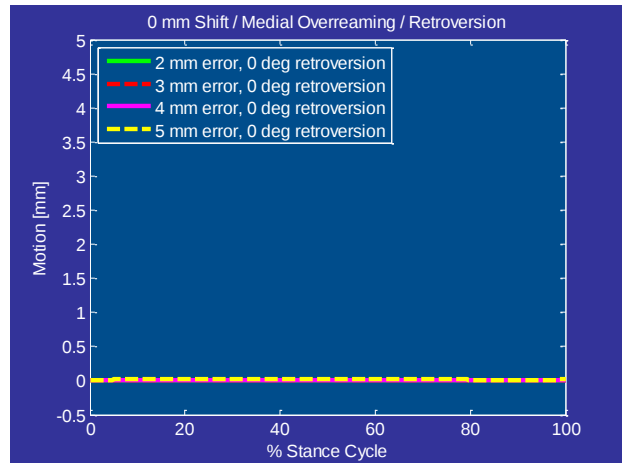


(d)

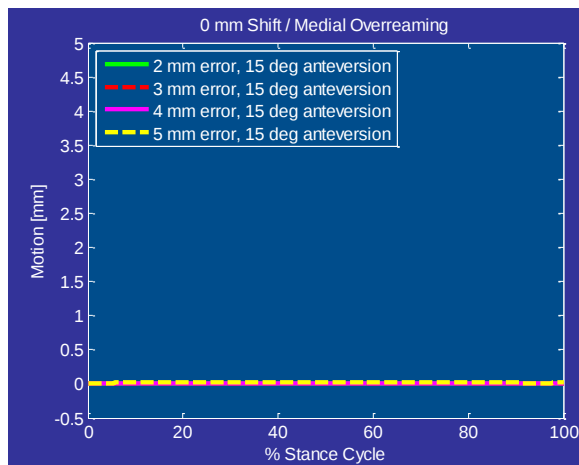
Figure C5: Patient 3 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



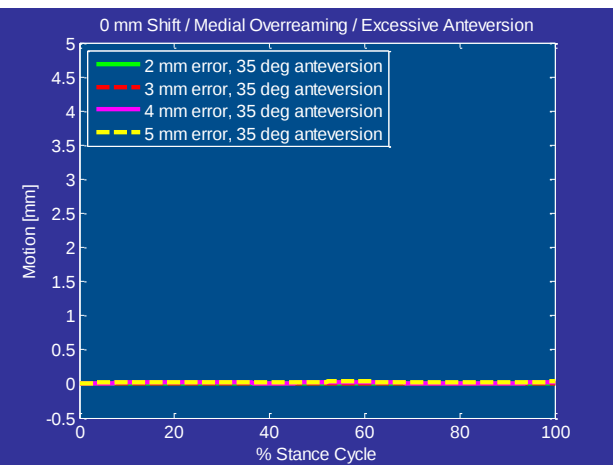
(a)



(b)

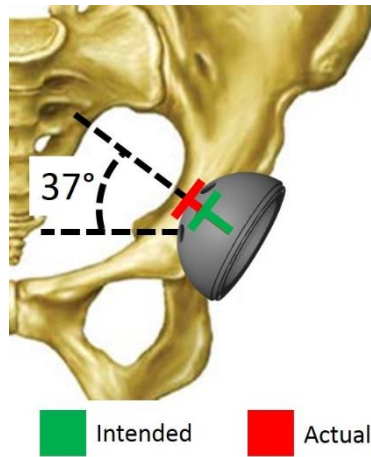


(c)

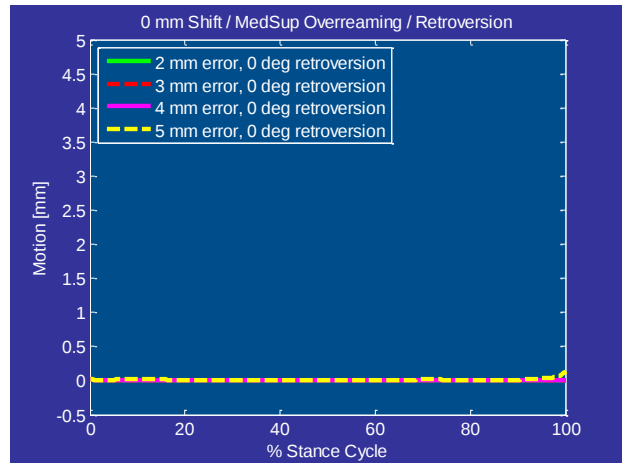


(d)

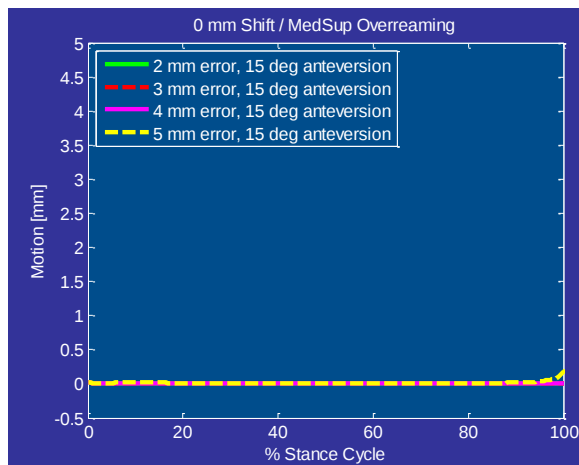
Figure C6 : Patient 4 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



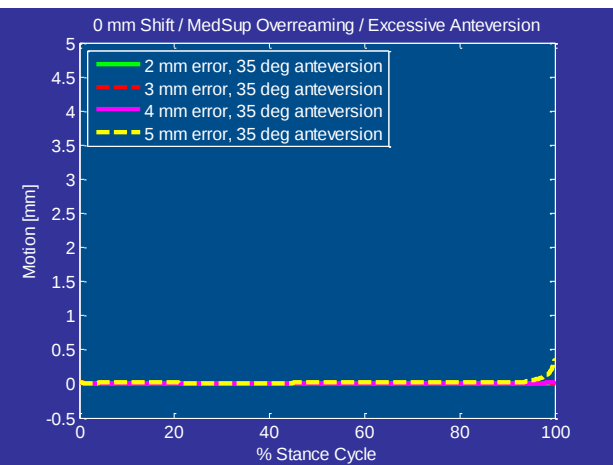
(a)



(b)

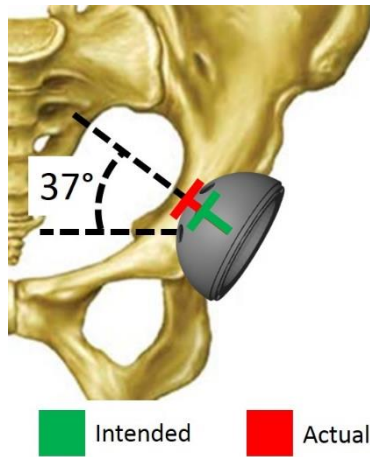


(c)

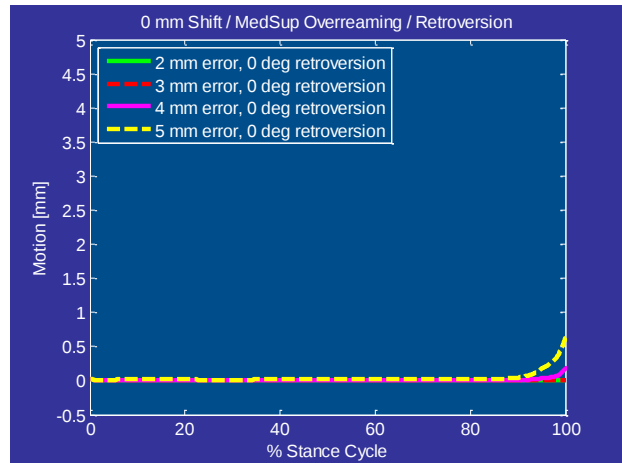


(d)

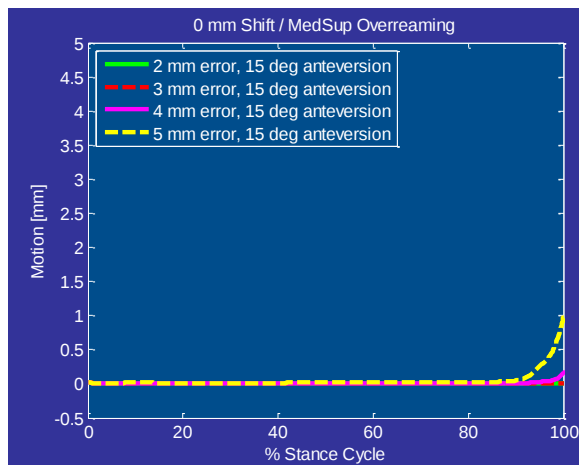
Figure C7: Patient 1 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



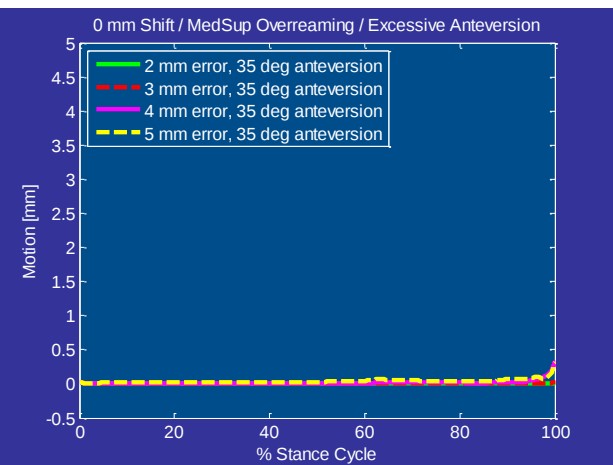
(a)



(b)

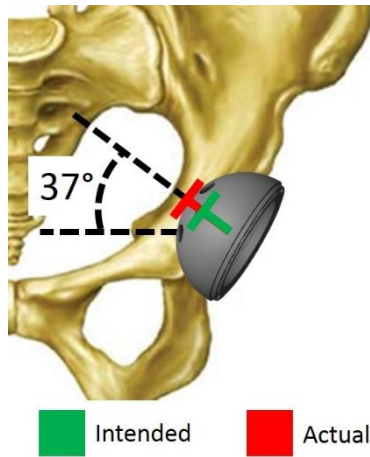


(c)

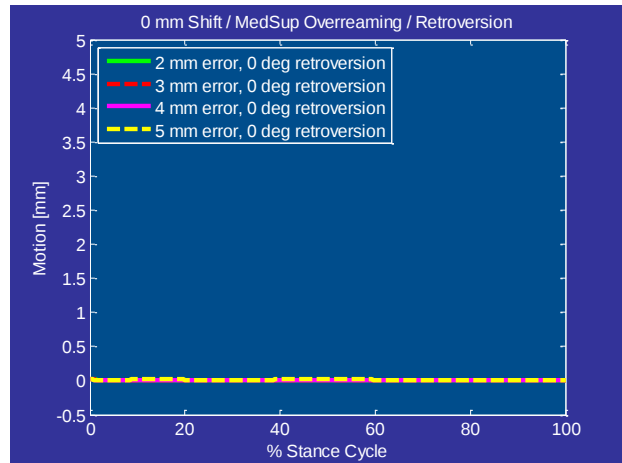


(d)

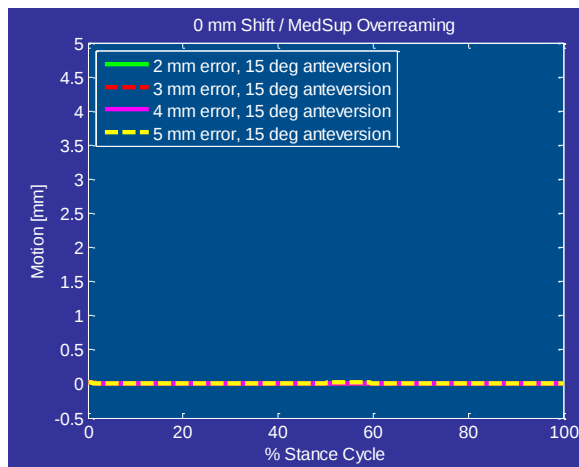
Figure C8: Patient 2 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



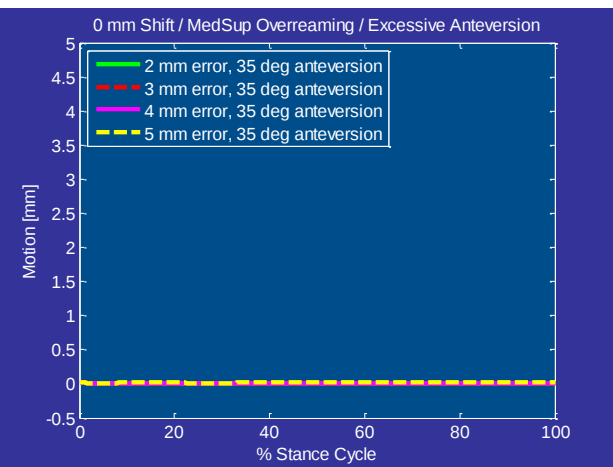
(a)



(b)

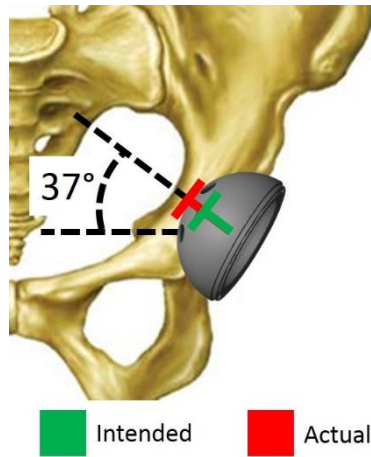


(c)

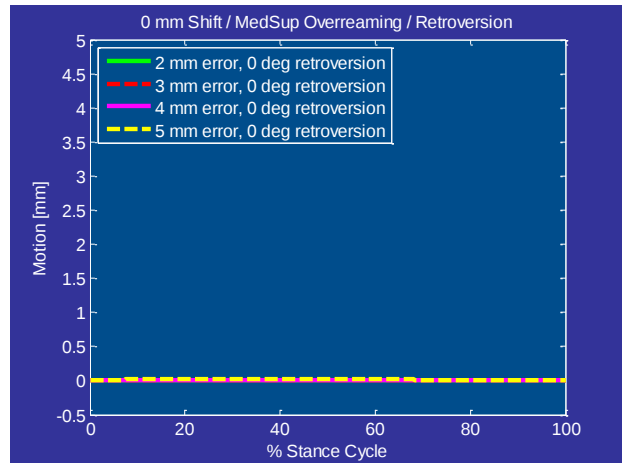


(d)

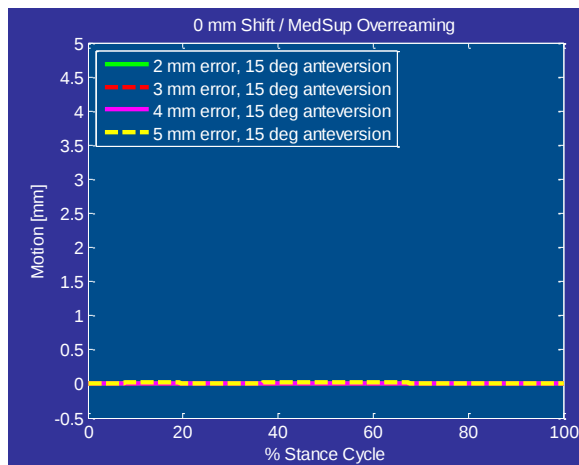
Figure C9: Patient 3 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



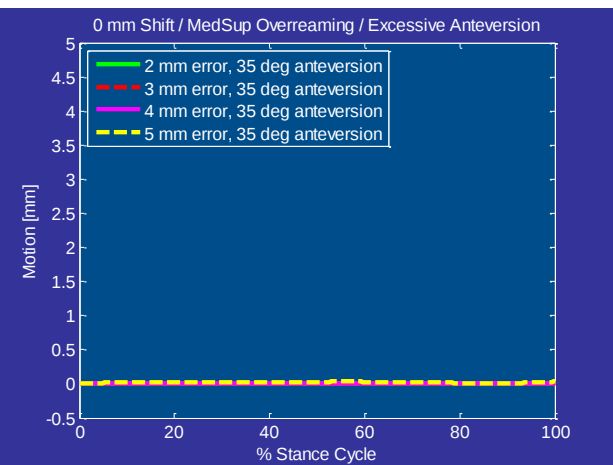
(a)



(b)

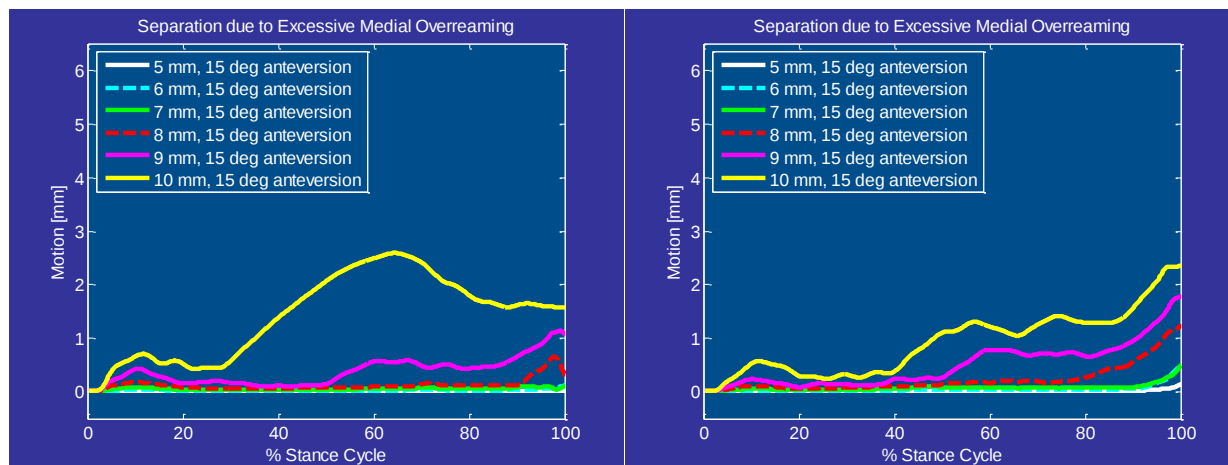


(c)



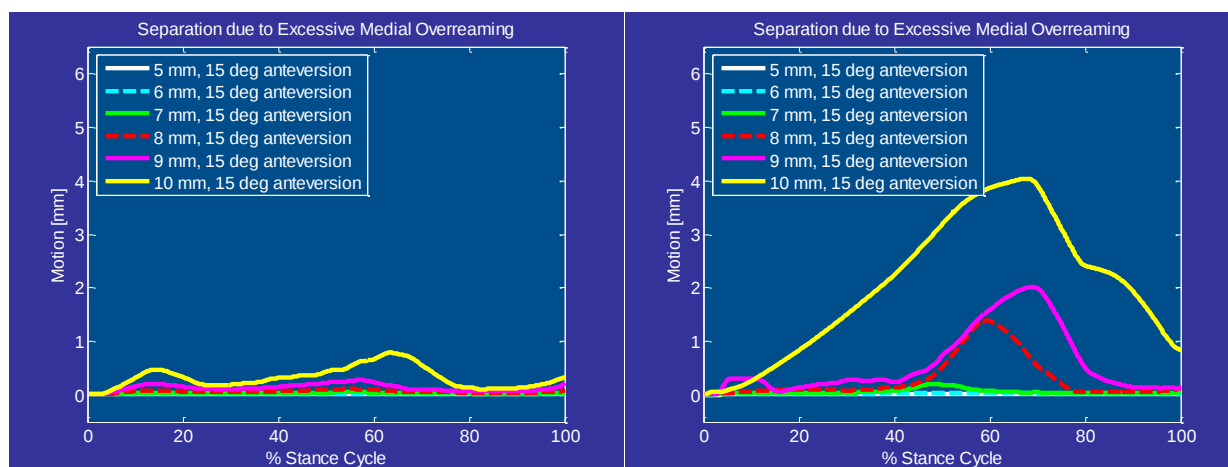
(d)

Figure C10: Patient 4 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



(a)

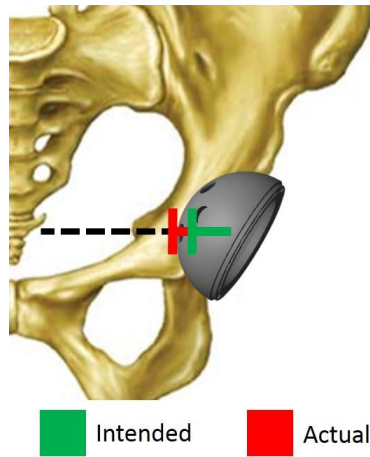
(b)



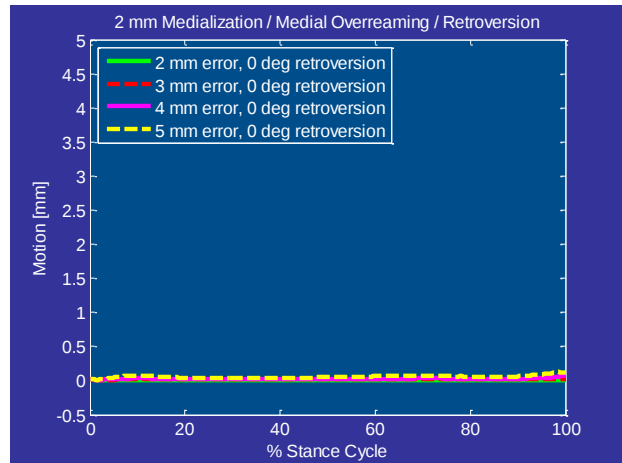
(c)

(d)

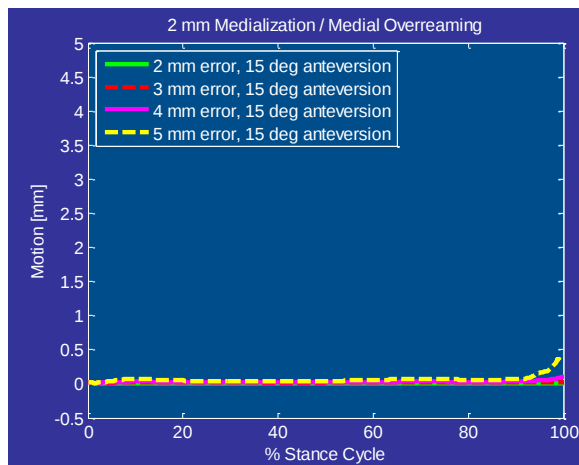
Figure C11: Patients (a) 1, (b) 2, (c) 3, and (d) 4 showing excessive overreaming scenarios.



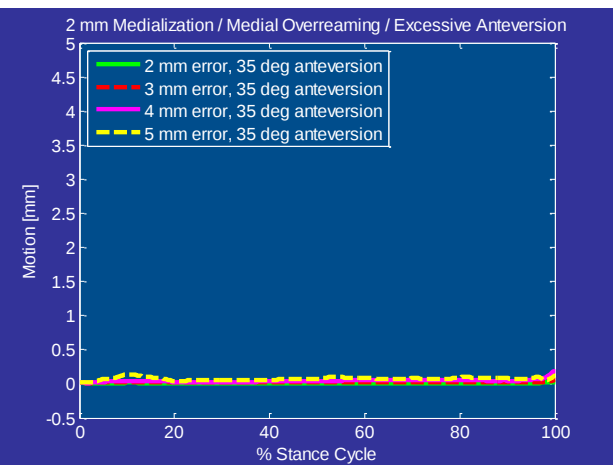
(a)



(b)

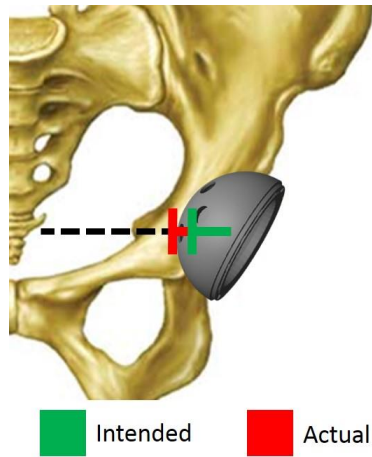


(c)

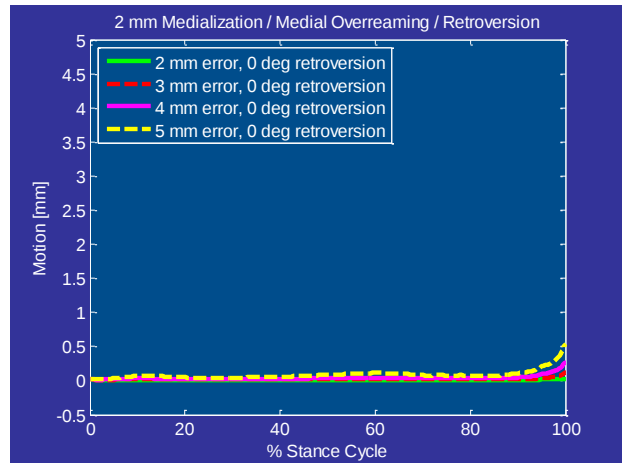


(d)

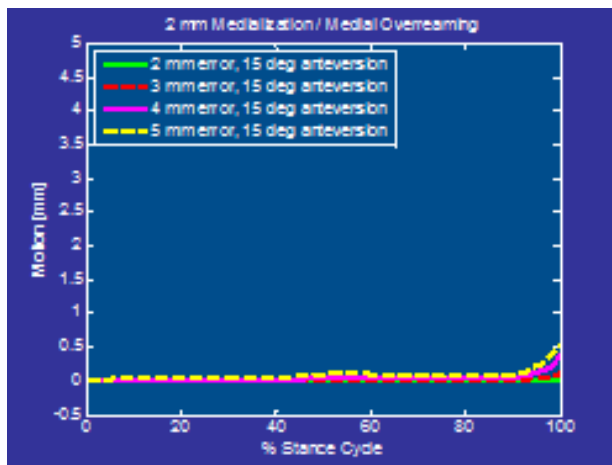
Figure C12: Patient 1 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



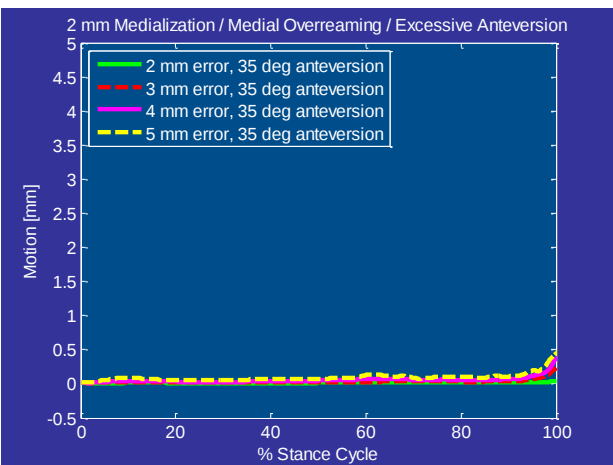
(a)



(b)

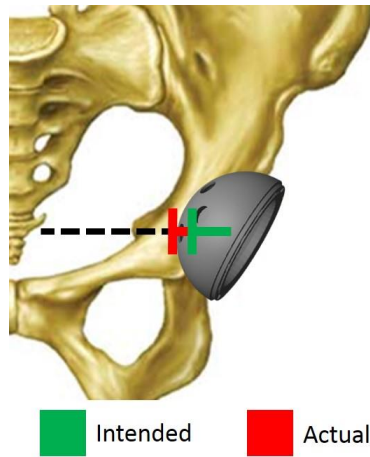


(c)

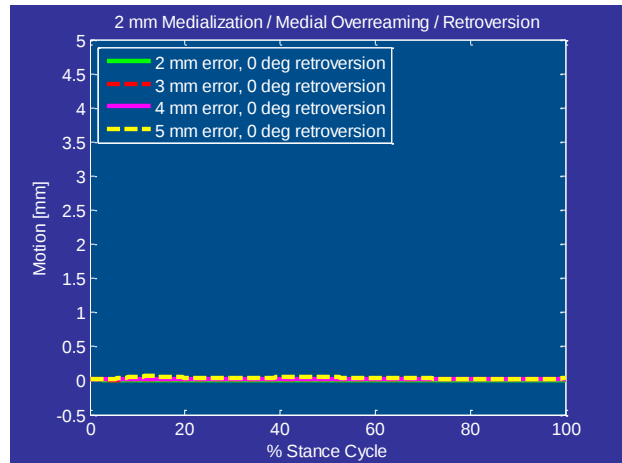


(d)

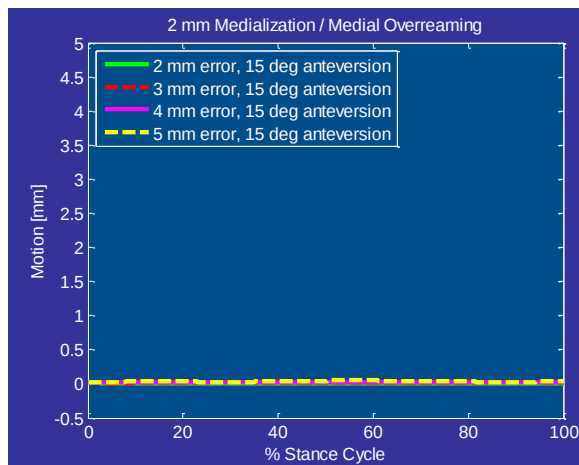
Figure C13: Patient 2 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



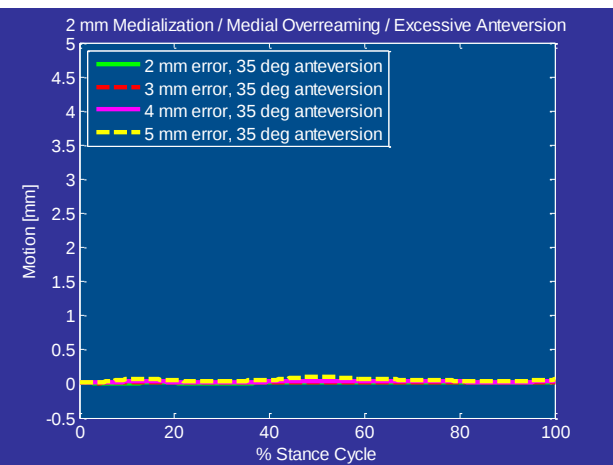
(a)



(b)

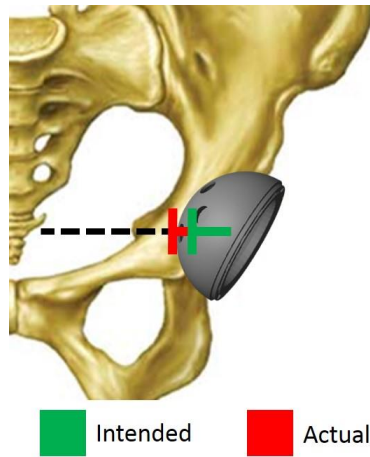


(c)

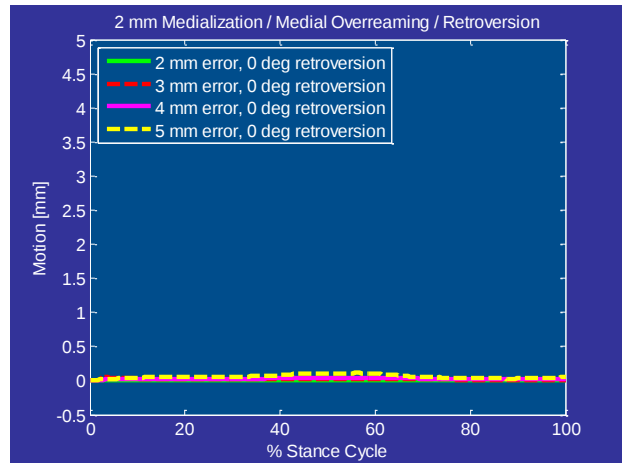


(d)

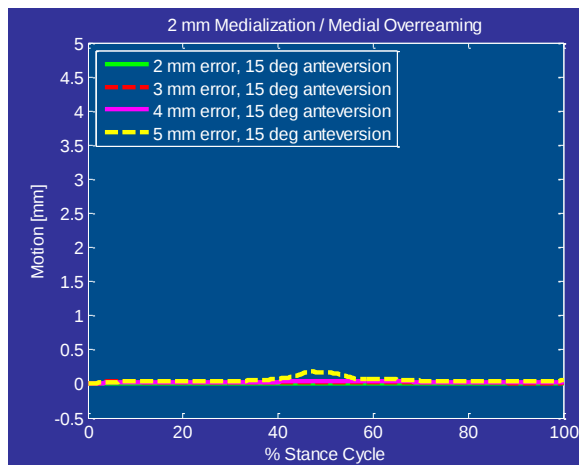
Figure C14: Patient 3 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



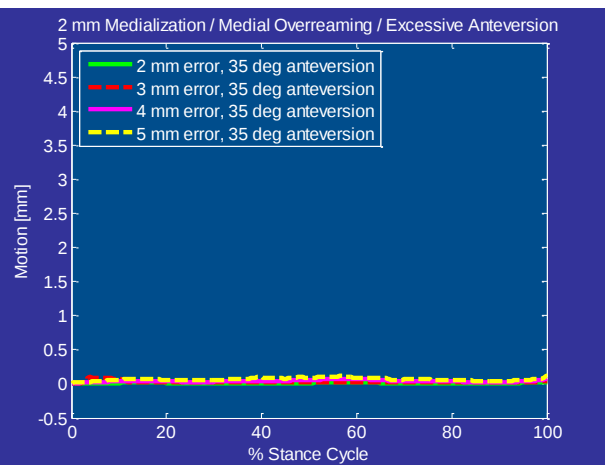
(a)



(b)

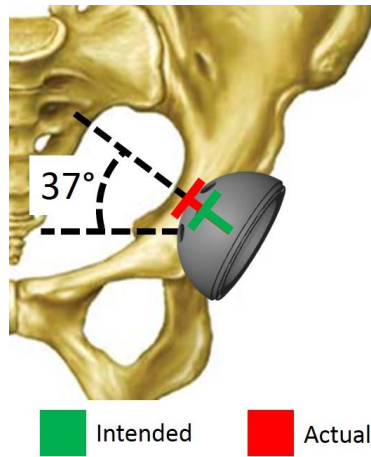


(c)

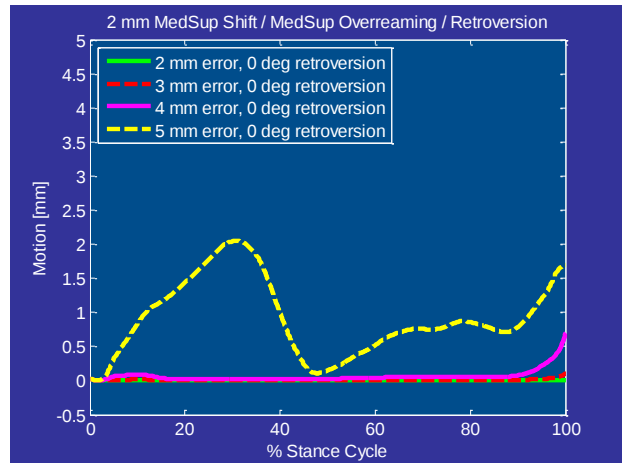


(d)

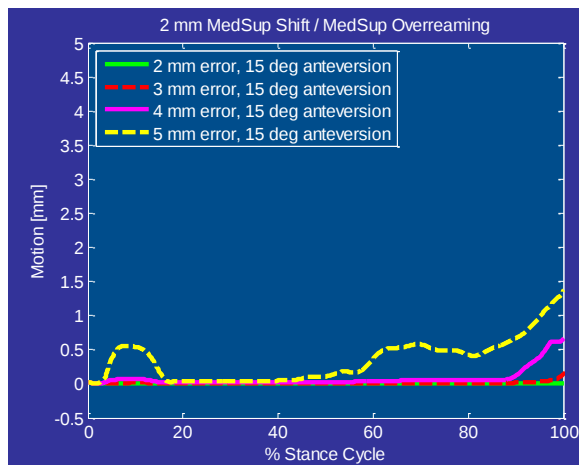
Figure C15: Patient 4 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



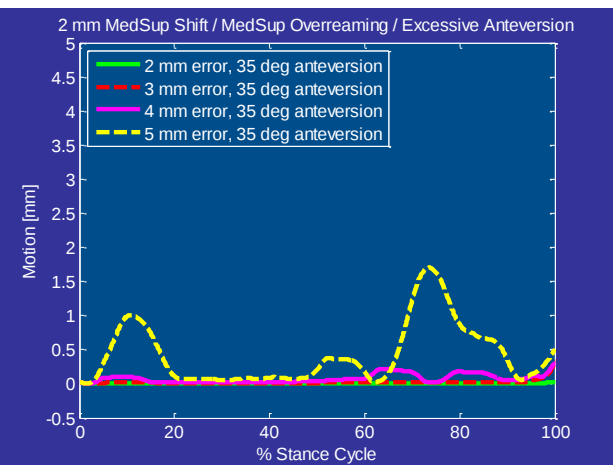
(a)



(b)

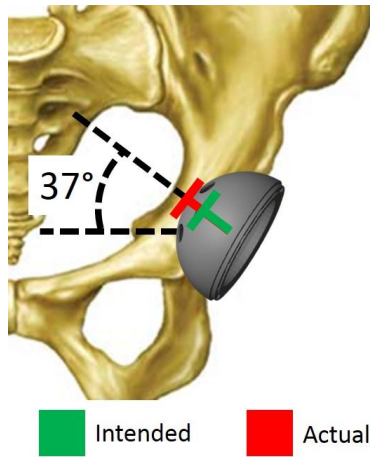


(c)

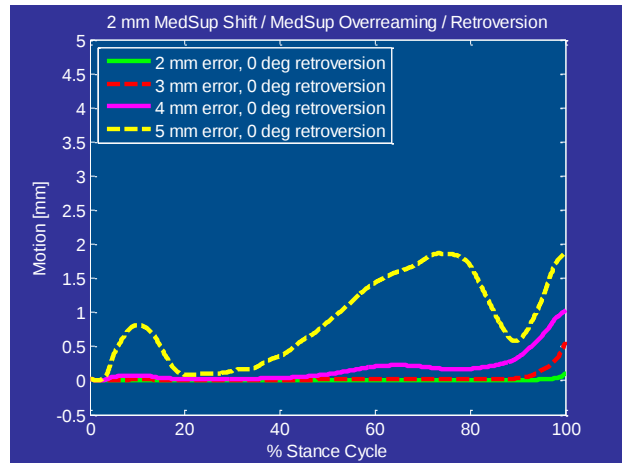


(d)

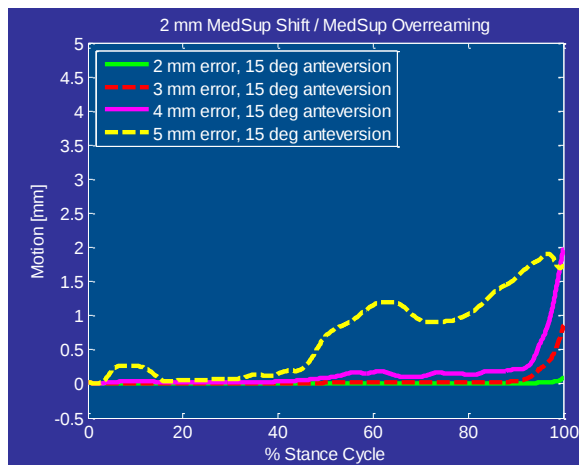
Figure C16: Patient 1 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



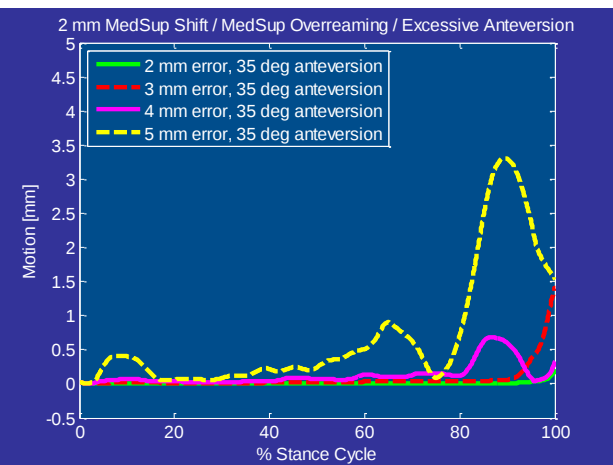
(a)



(b)

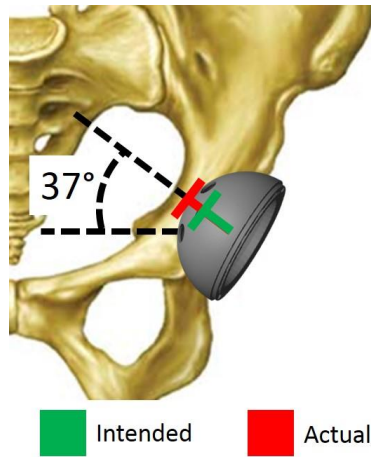


(c)

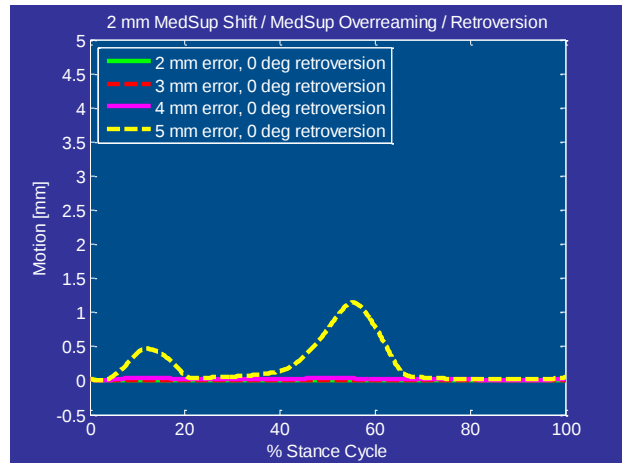


(d)

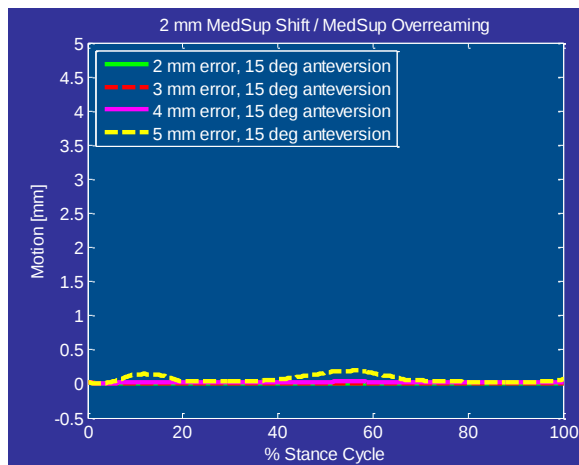
Figure C17: Patient 2 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



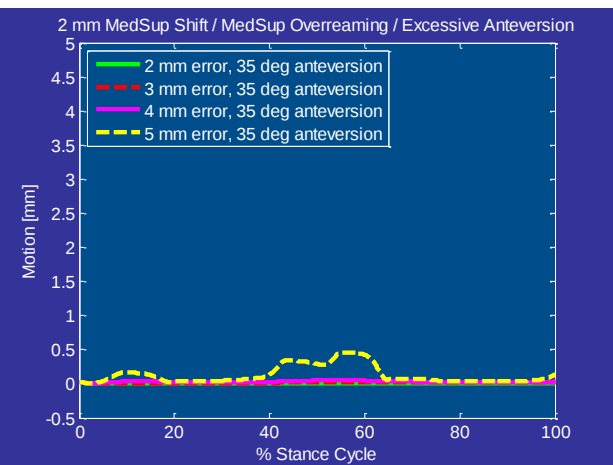
(a)



(b)

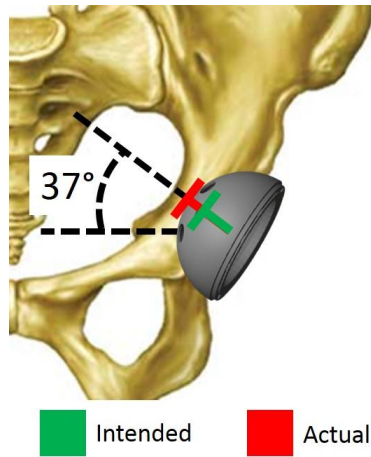


(c)

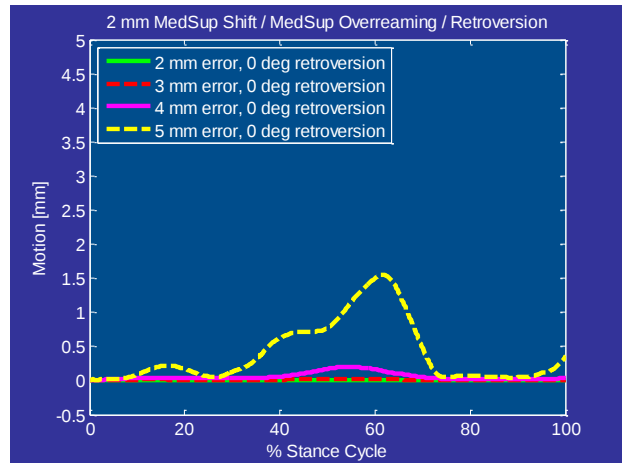


(d)

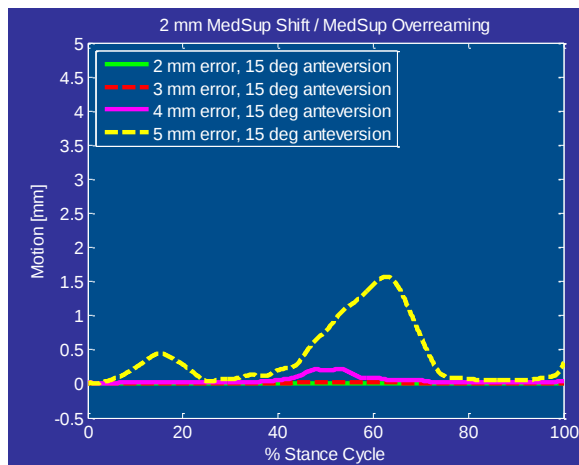
Figure C18: Patient 3 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



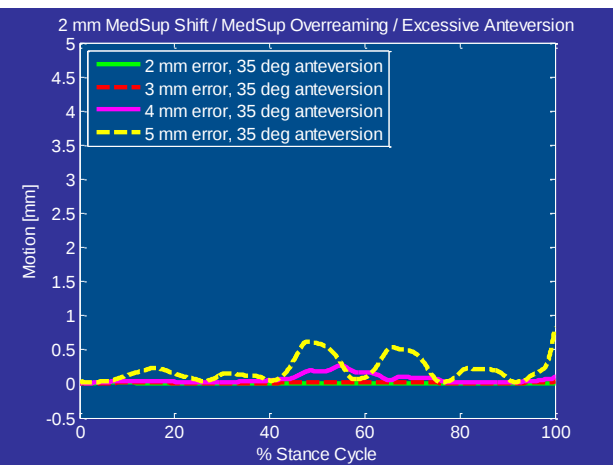
(a)



(b)

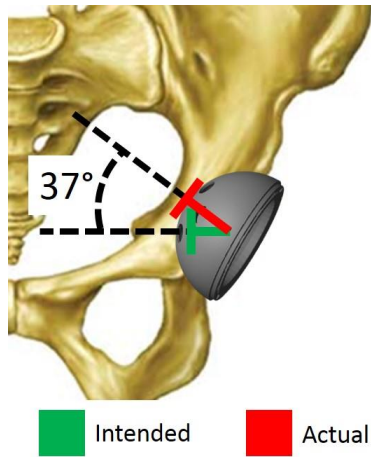


(c)

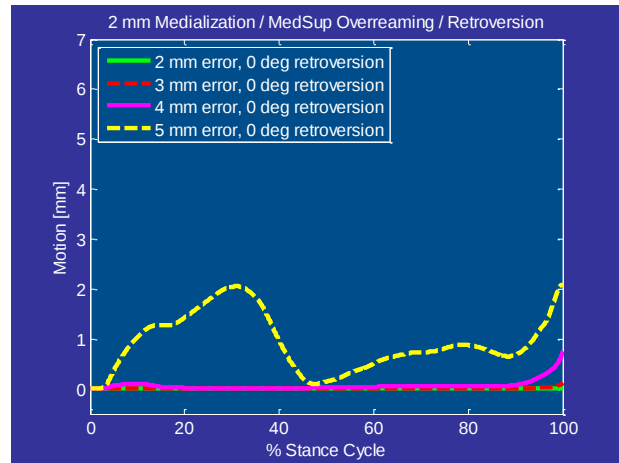


(d)

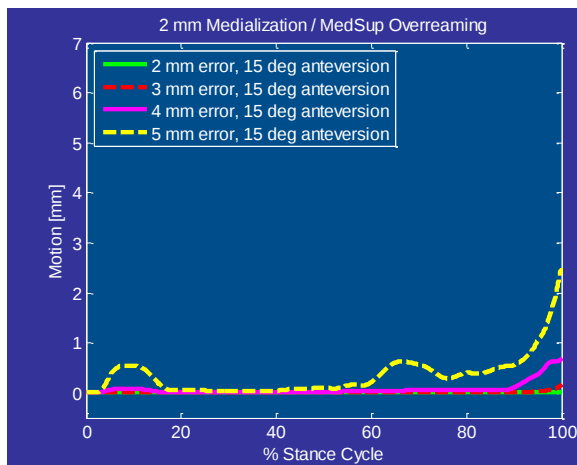
Figure C19: Patient 4 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



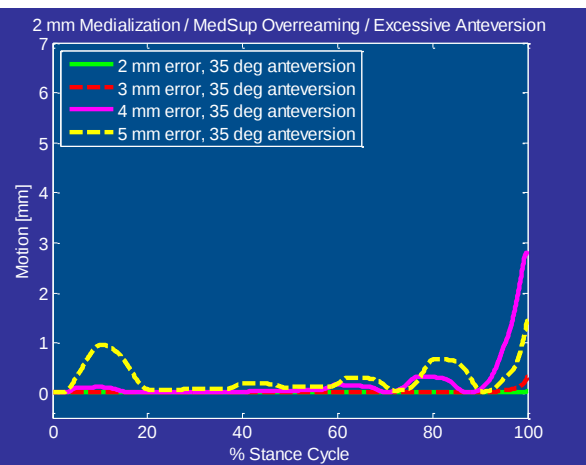
(a)



(b)

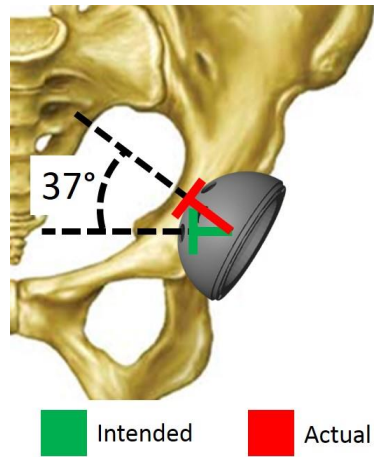


(c)

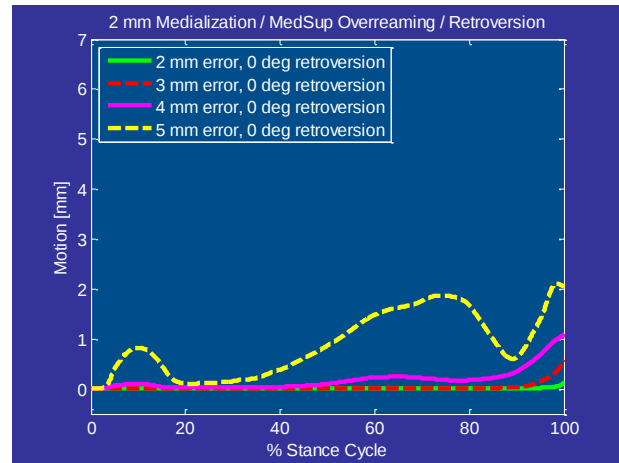


(d)

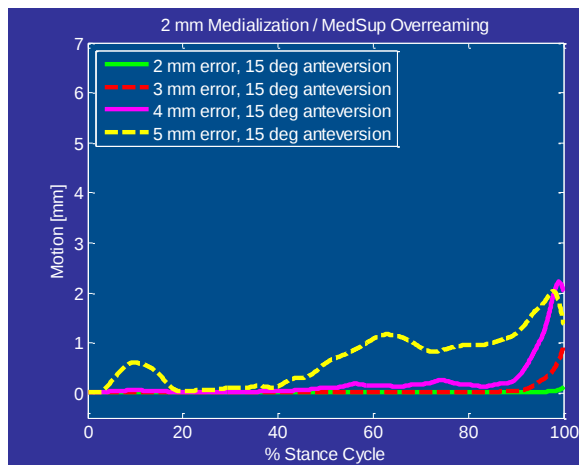
Figure C20: Patient 1 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



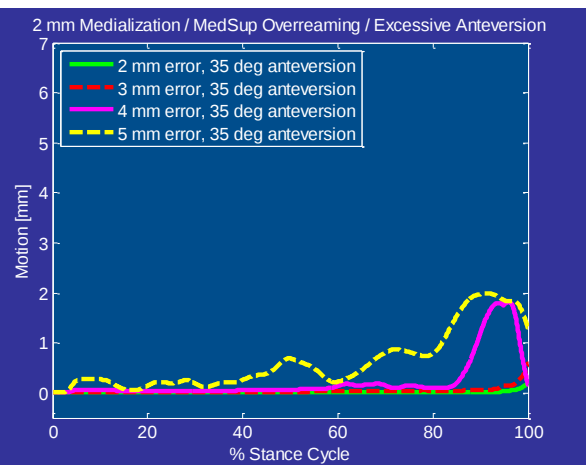
(a)



(b)

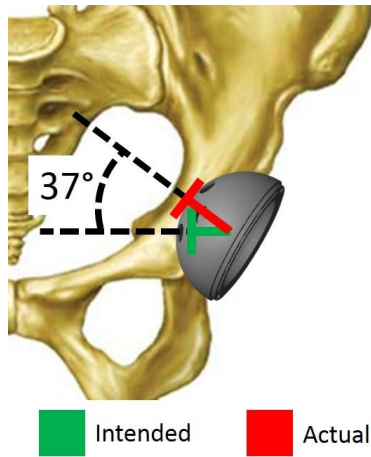


(c)

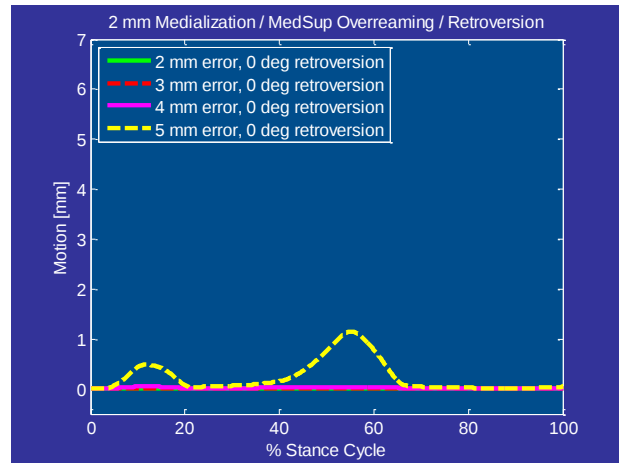


(d)

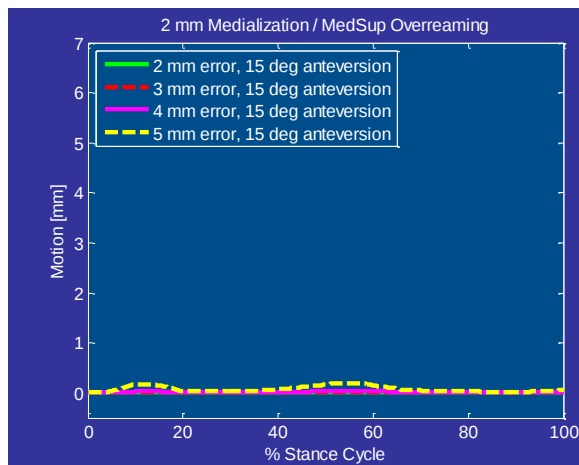
Figure C21: Patient 2 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



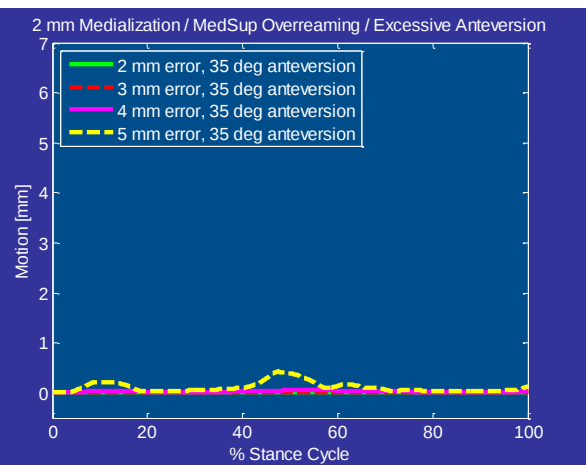
(a)



(b)

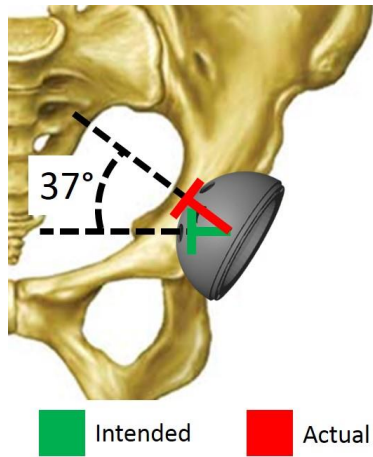


(c)

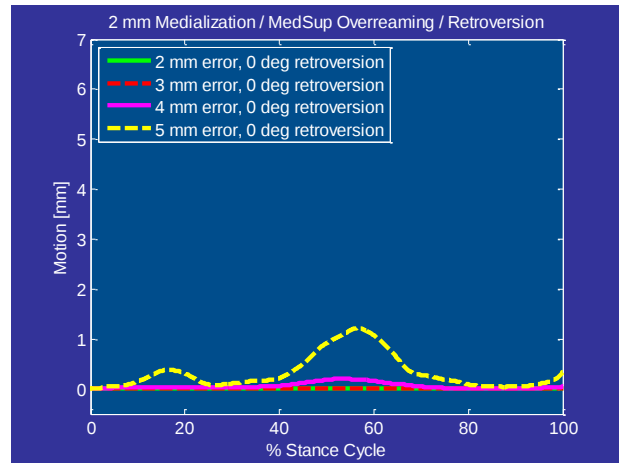


(d)

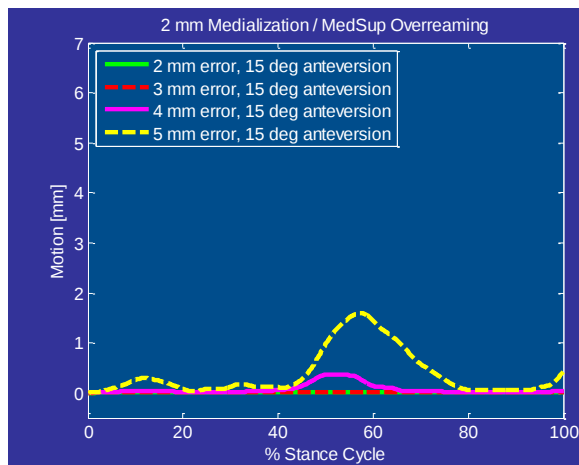
Figure C22: Patient 3 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



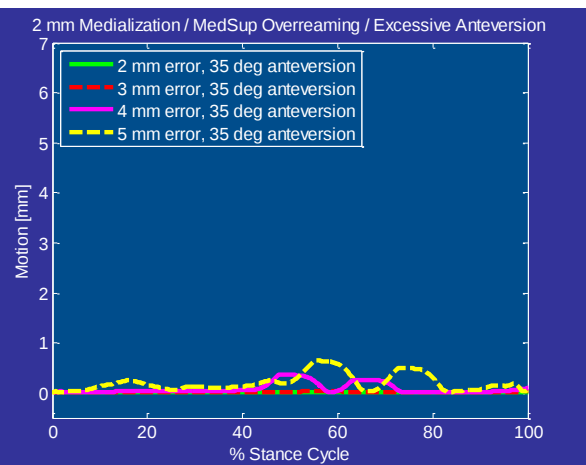
(a)



(b)

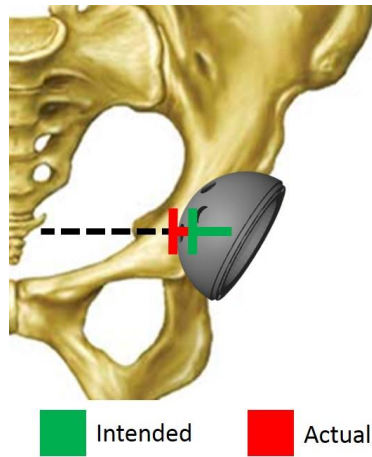


(c)

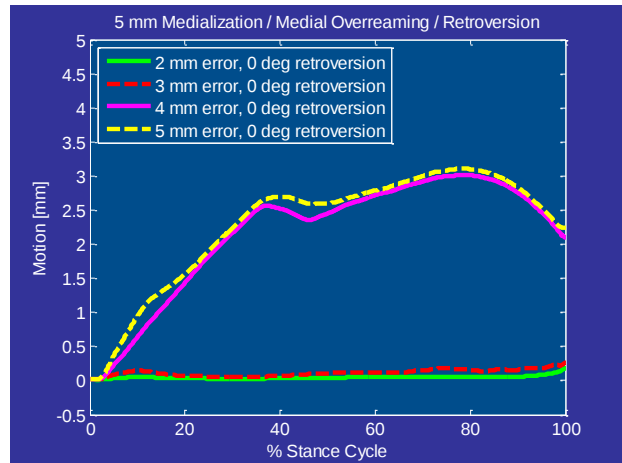


(d)

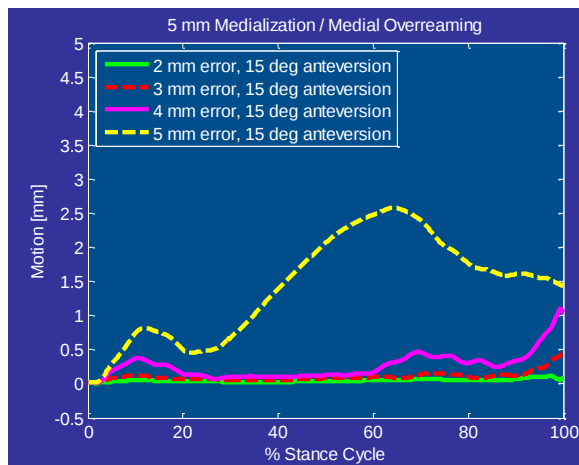
Figure C23: Patient 4 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



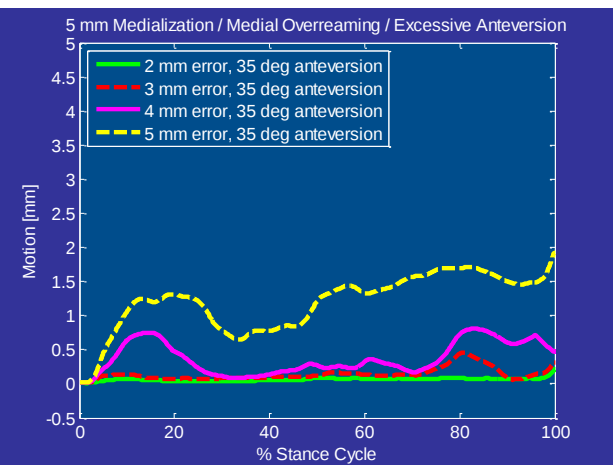
(a)



(b)

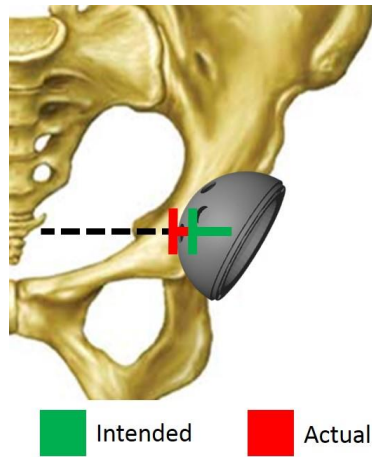


(c)

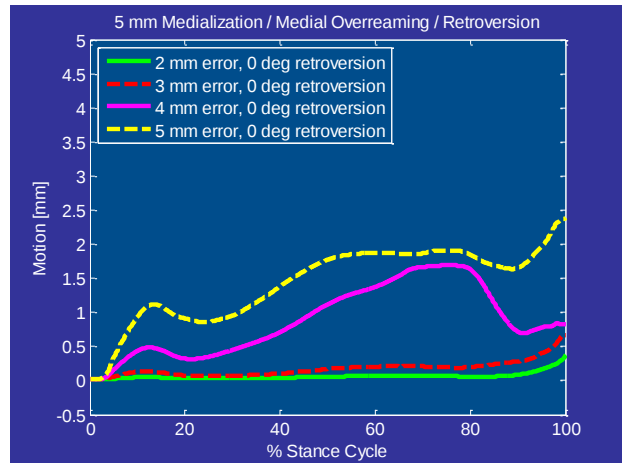


(d)

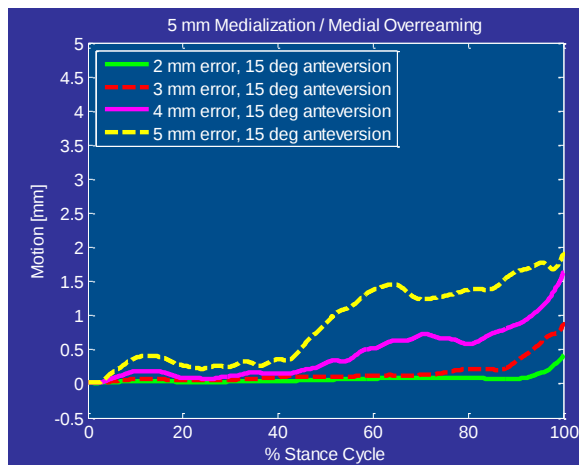
Figure C24: Patient 1 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



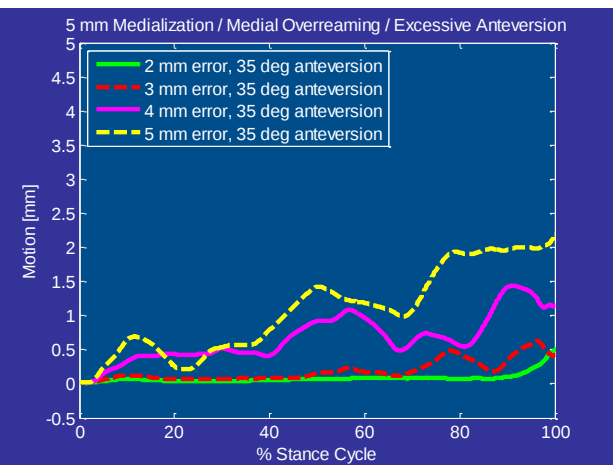
(a)



(b)

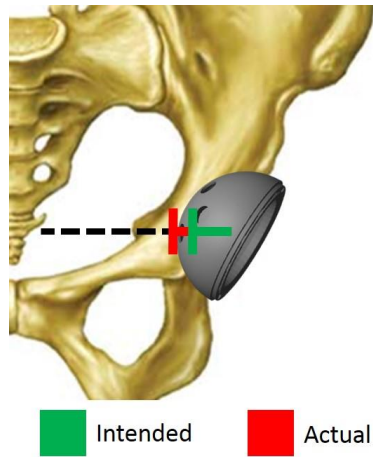


(c)

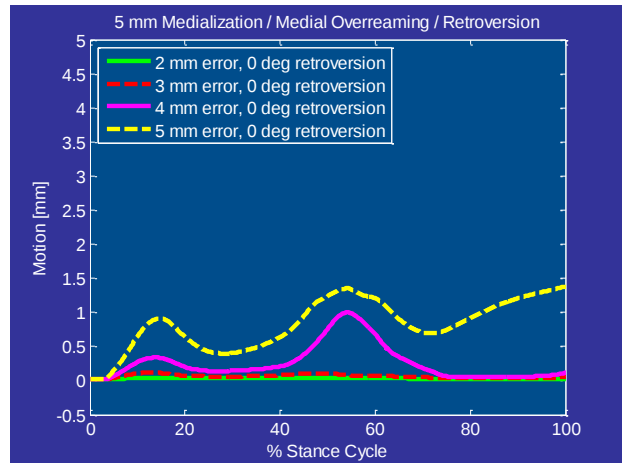


(d)

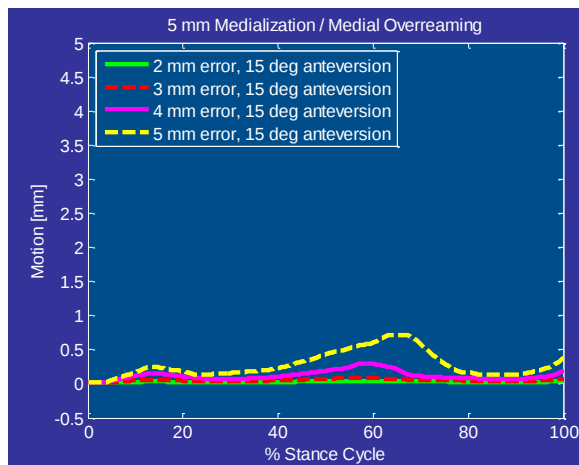
Figure C25: Patient 2 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



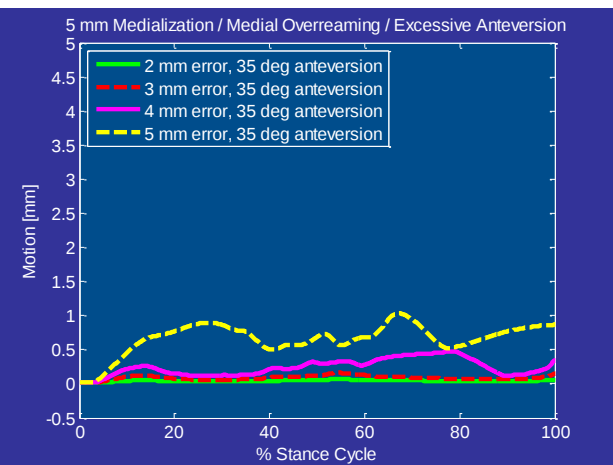
(a)



(b)

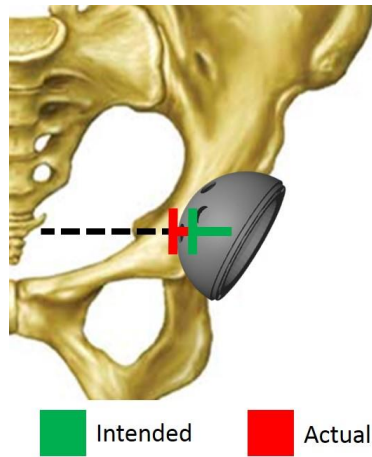


(c)

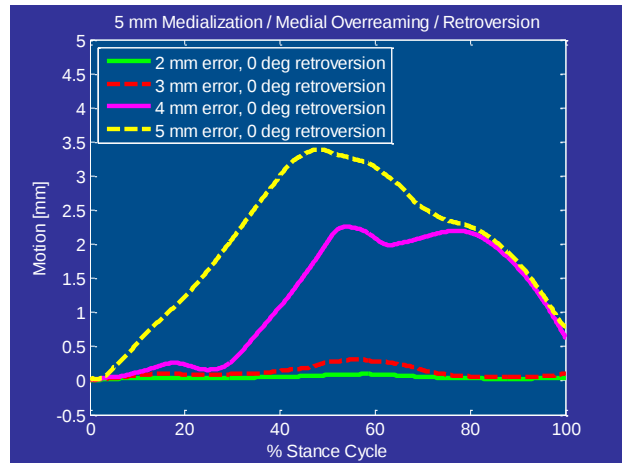


(d)

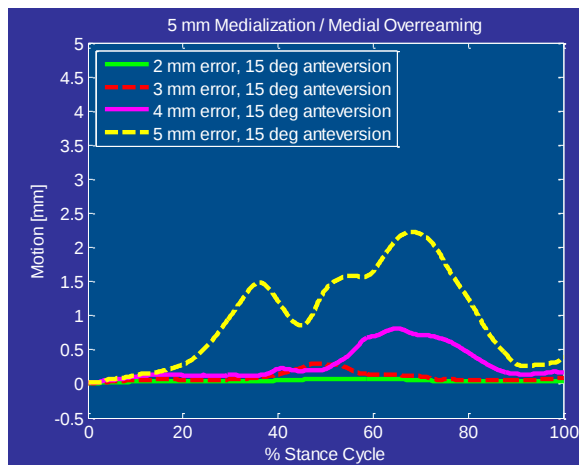
Figure C26: Patient 3 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



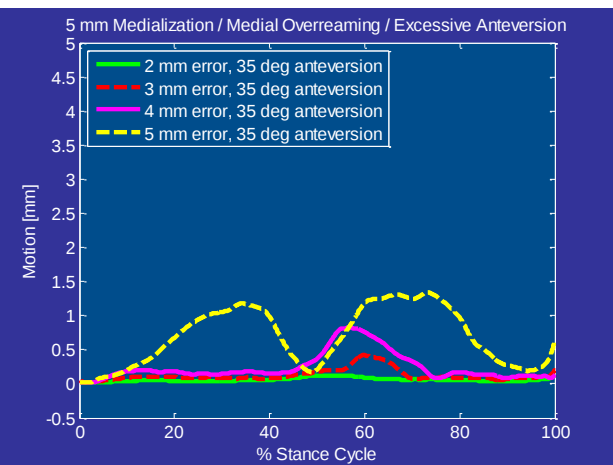
(a)



(b)

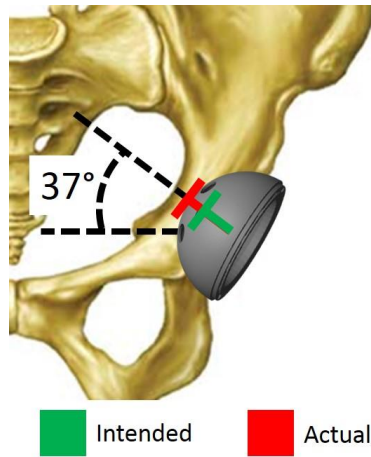


(c)

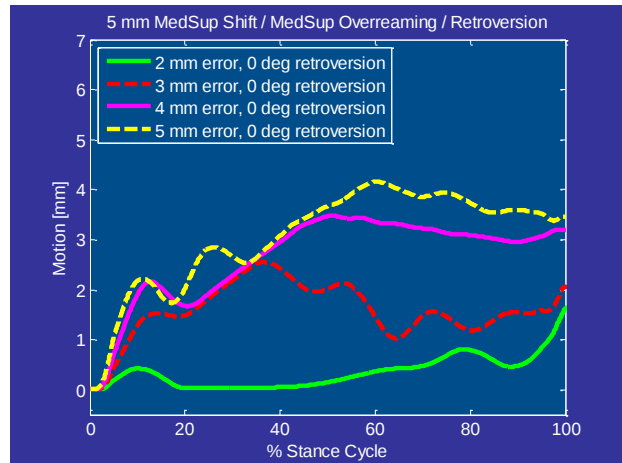


(d)

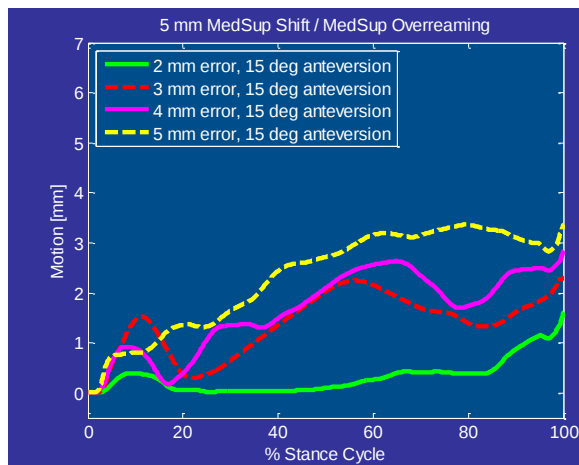
Figure C27: Patient 4 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



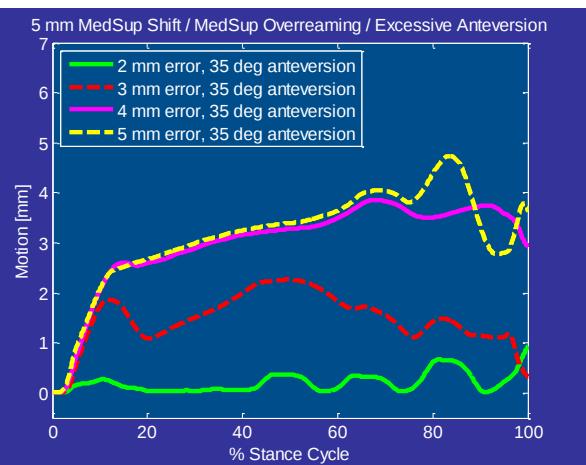
(a)



(b)

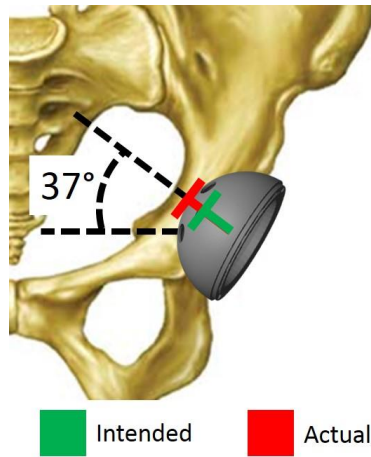


(c)

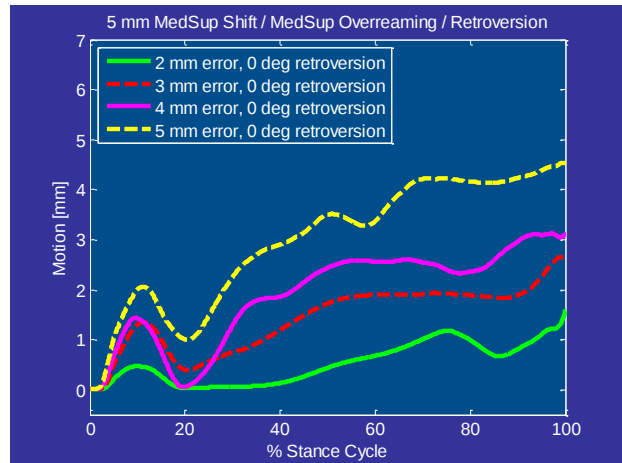


(d)

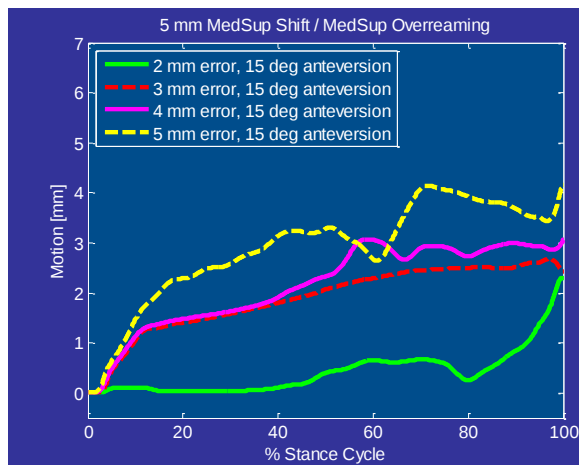
Figure C28: Patient 1 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



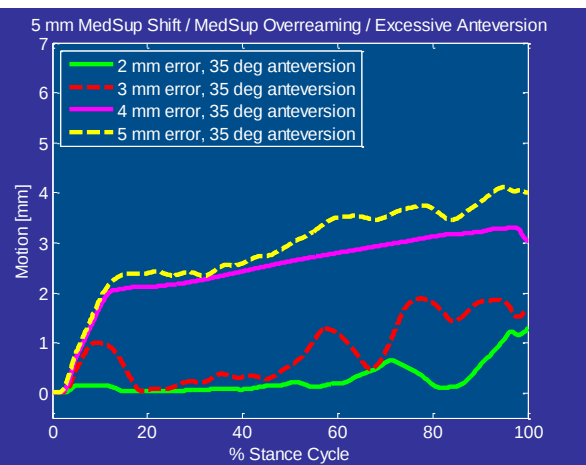
(a)



(b)

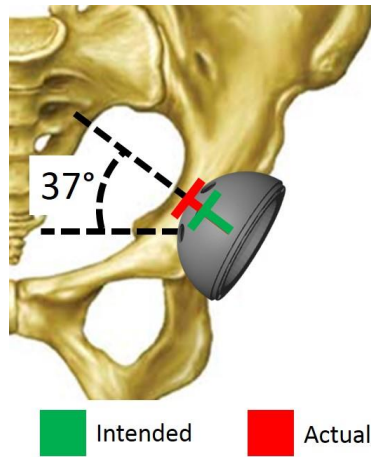


(c)

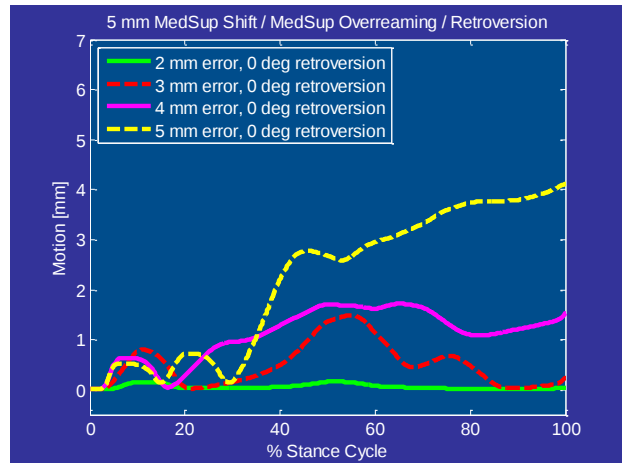


(d)

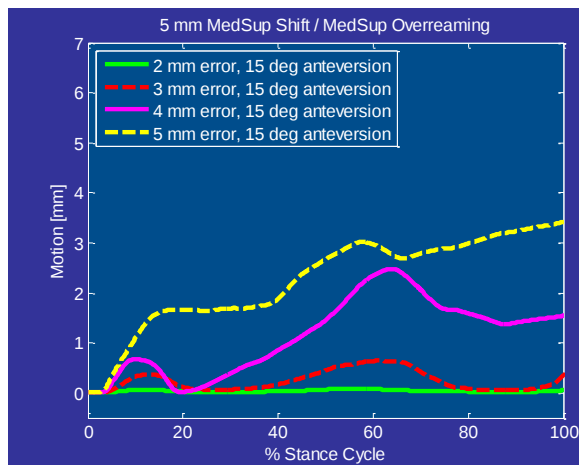
Figure C29: Patient 2 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



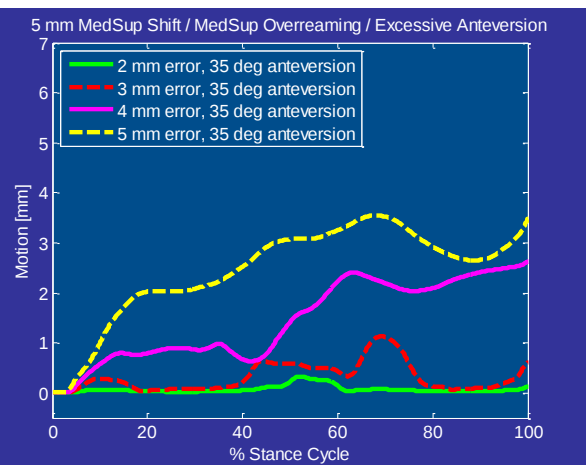
(a)



(b)

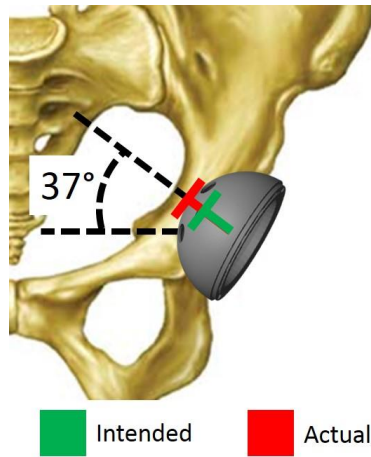


(c)

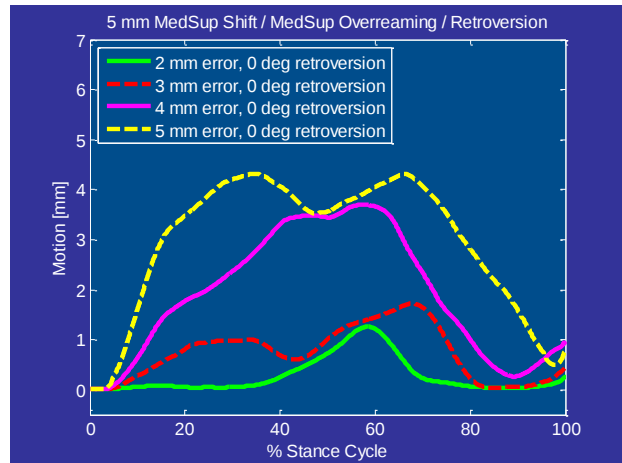


(d)

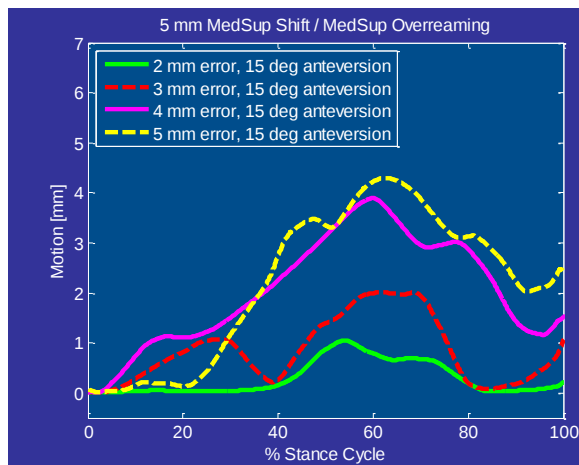
Figure C30: Patient 3 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



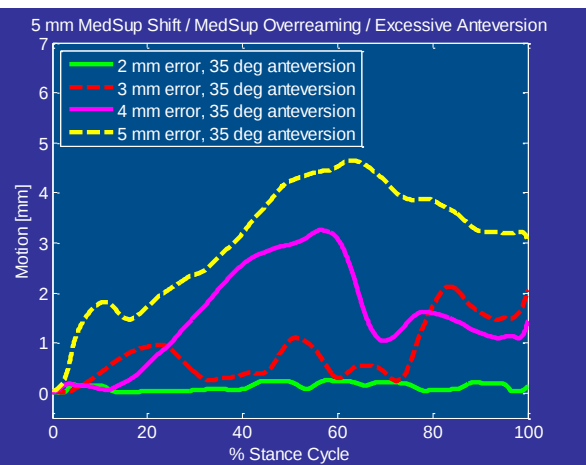
(a)



(b)

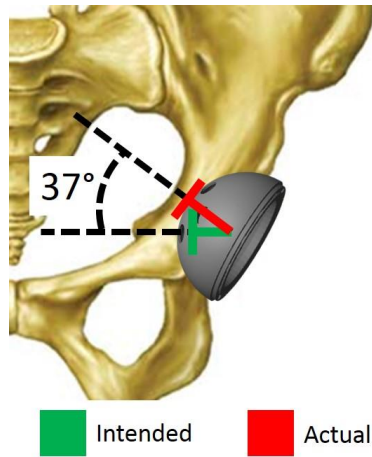


(c)

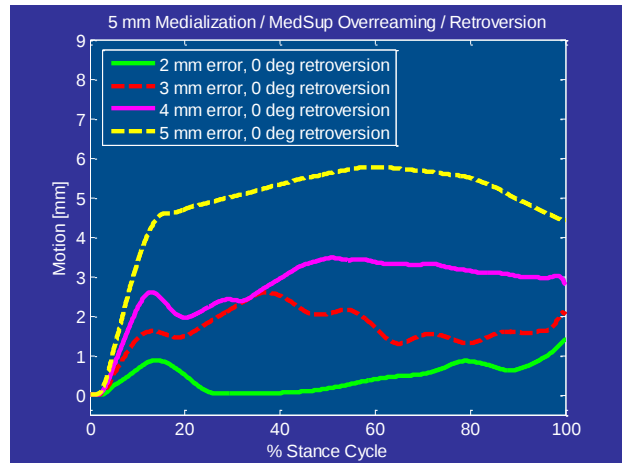


(d)

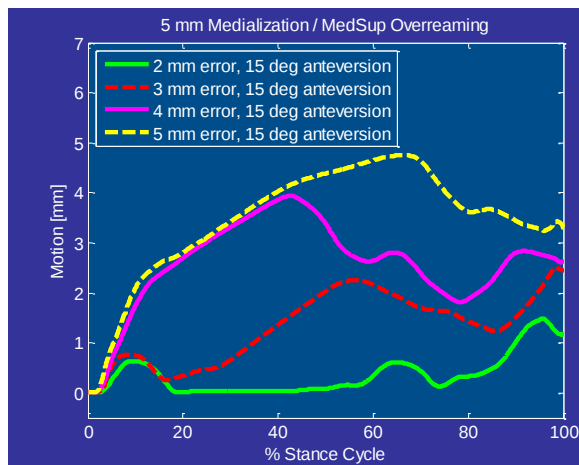
Figure C31: Patient 4 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



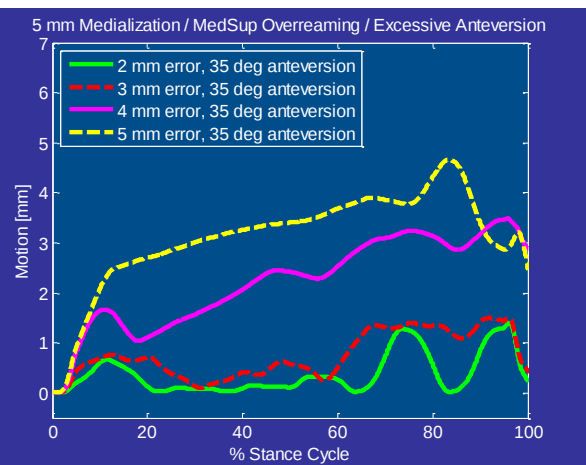
(a)



(b)

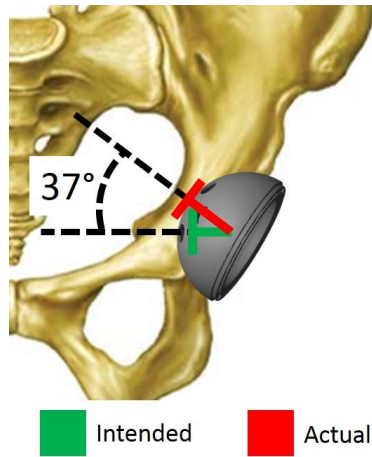


(c)

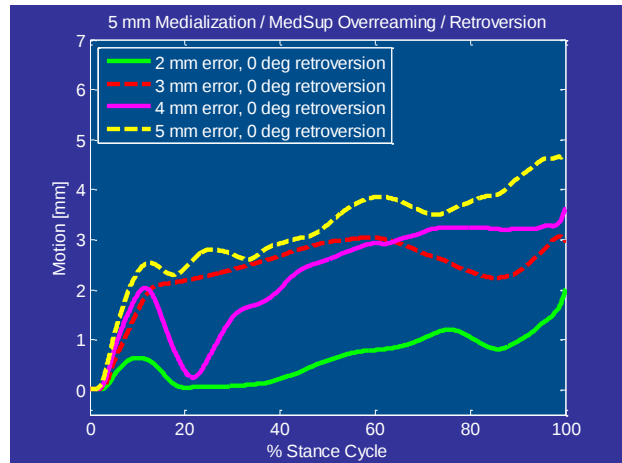


(d)

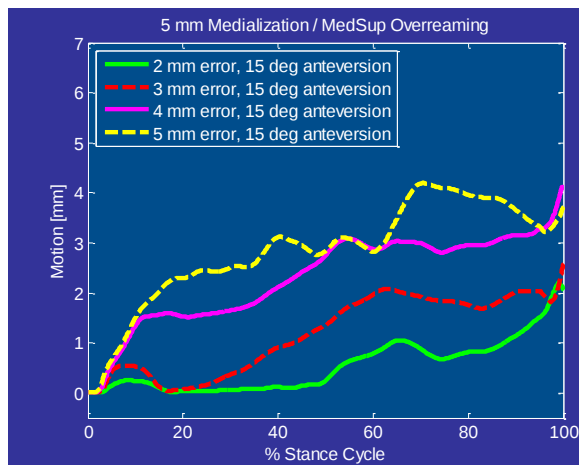
Figure C32: Patient 1 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



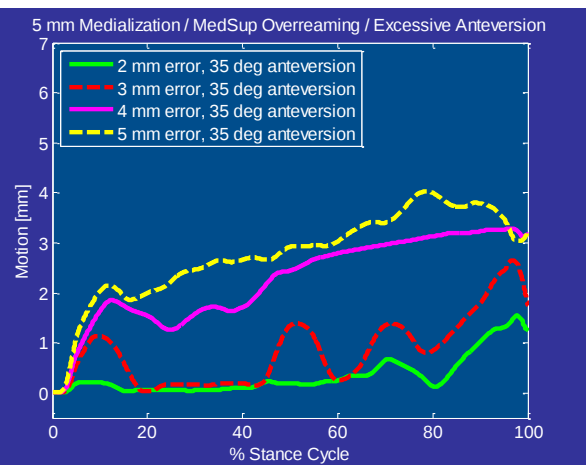
(a)



(b)

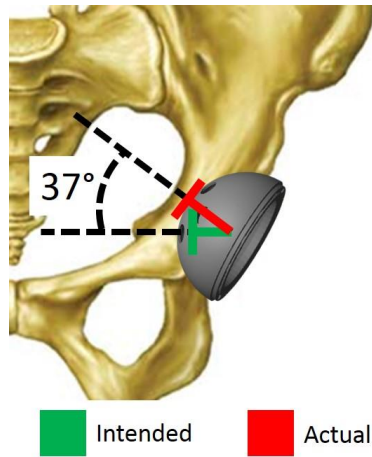


(c)

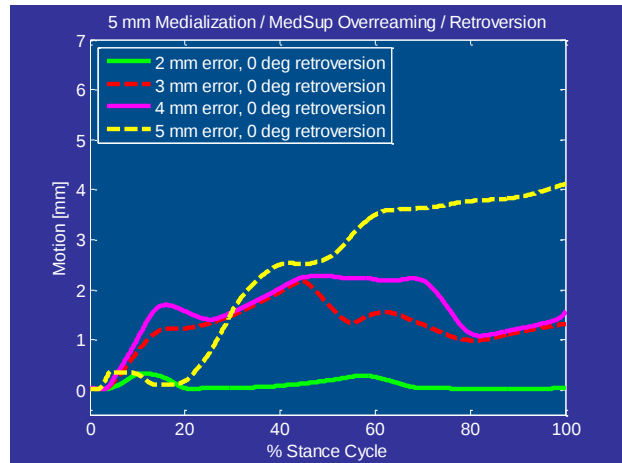


(d)

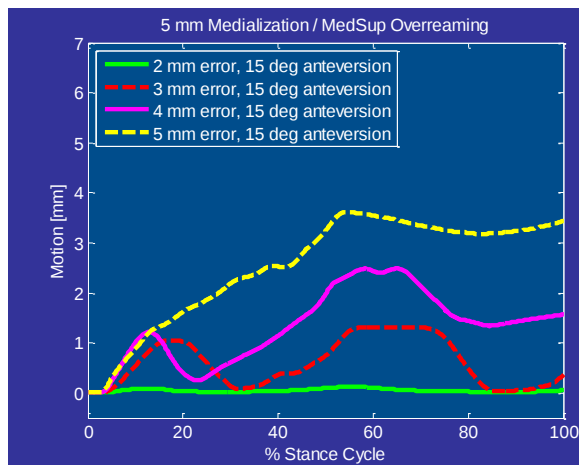
Figure C33: Patient 2 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



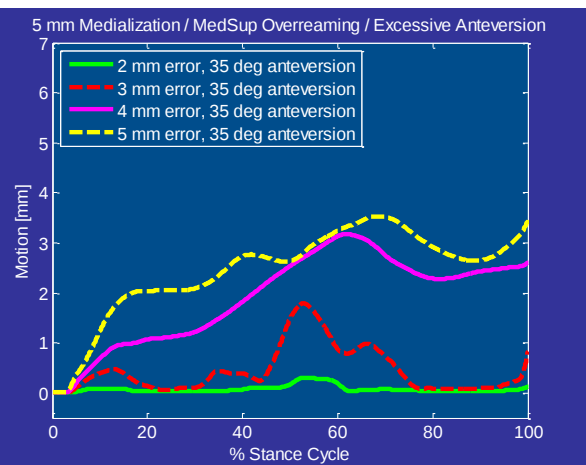
(a)



(b)

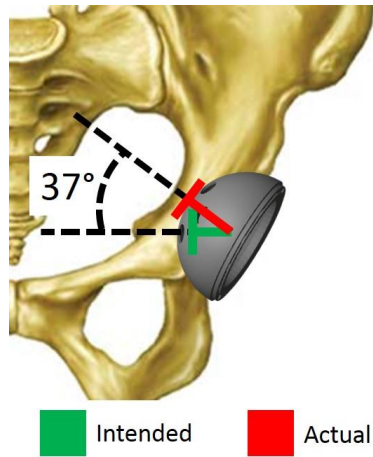


(c)

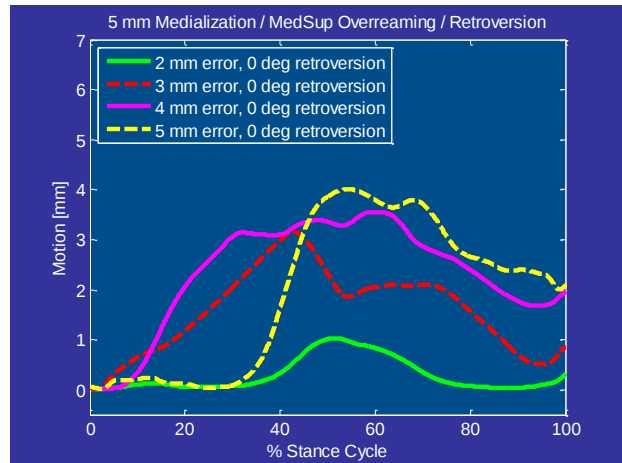


(d)

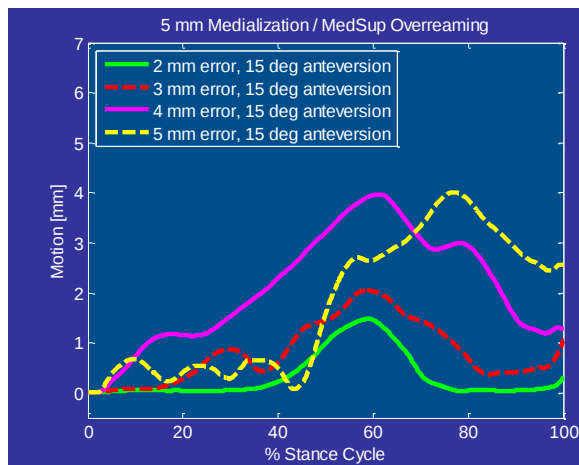
Figure C34: Patient 3 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).



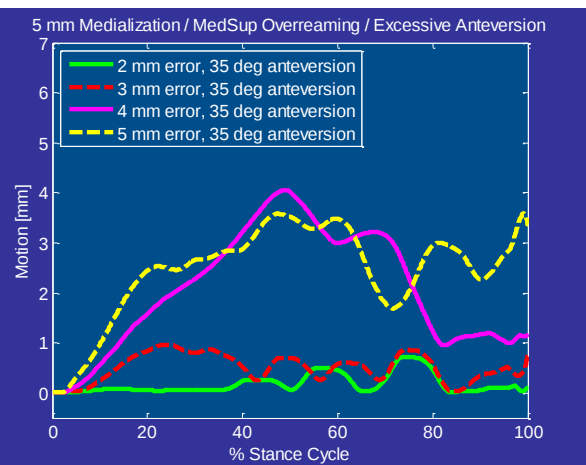
(a)



(b)



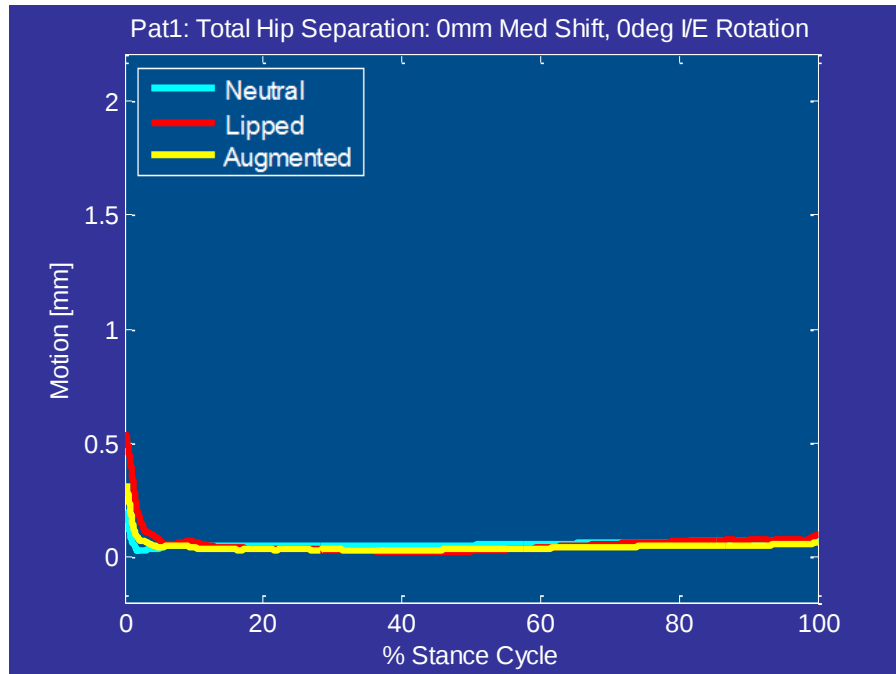
(c)



(d)

Figure C35: Patient 4 (a) Scenario, (b) 0° Retroversion, (c) 15° Anteversion, and (d) 35° Anteversion. Upper left image modified from (humananatomychart.us).

Appendix D: Cup Medialization Figures with Rotation Center Alignment

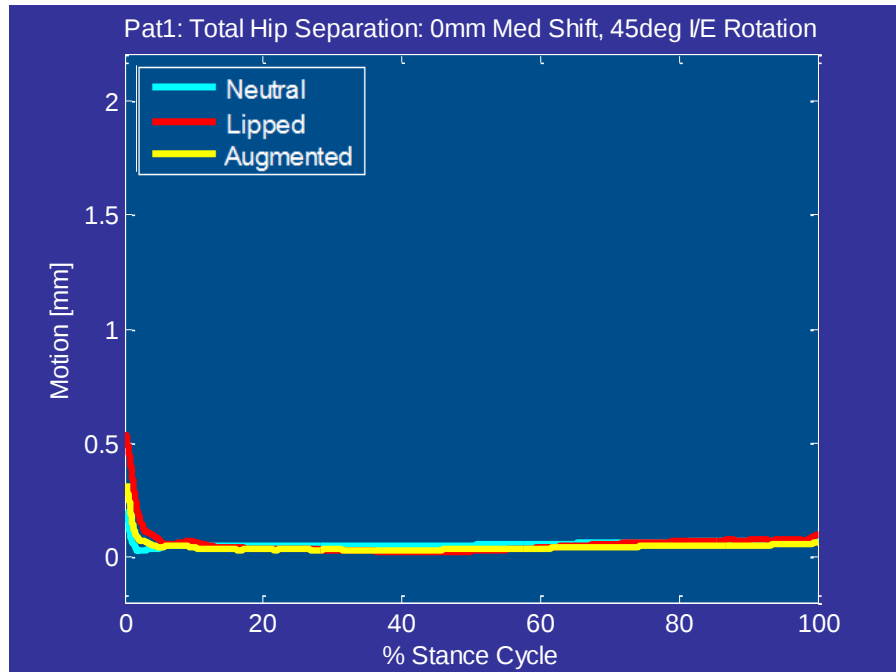


(a)

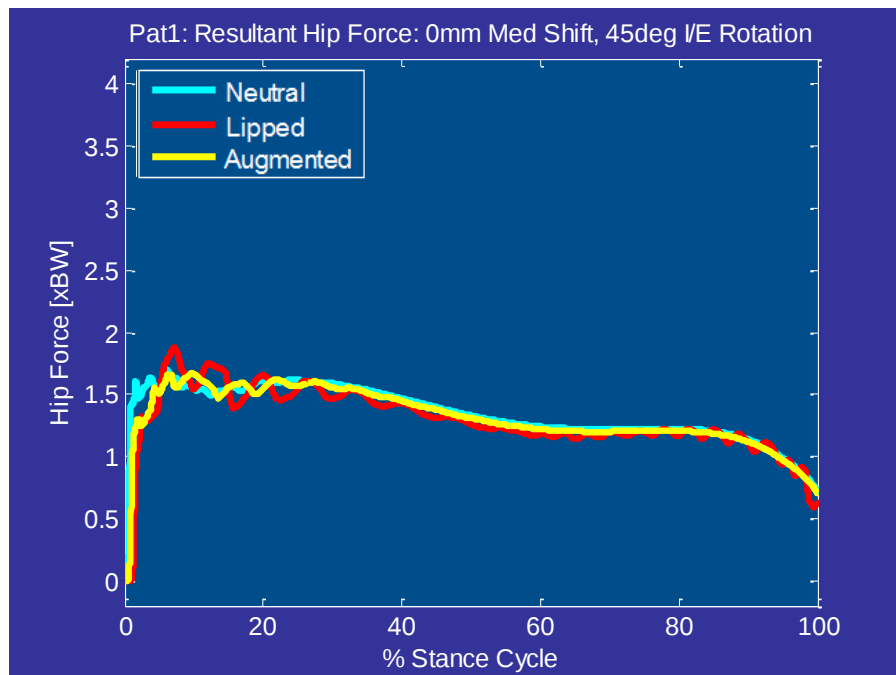


(b)

Figure D1: (a) Hip separation and (b) hip force for Pat 1: 0mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

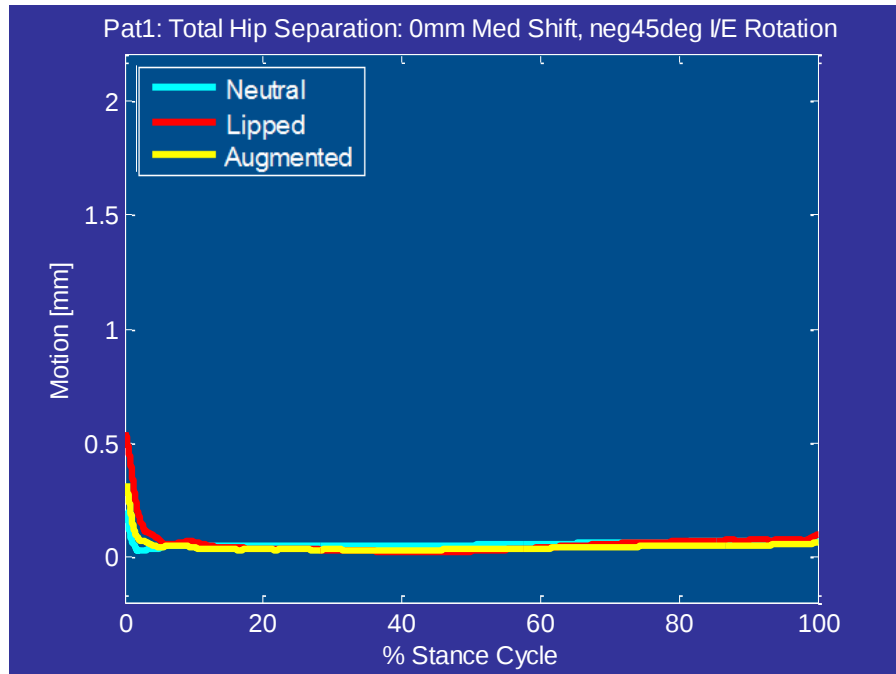


(a)



(b)

Figure D2: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

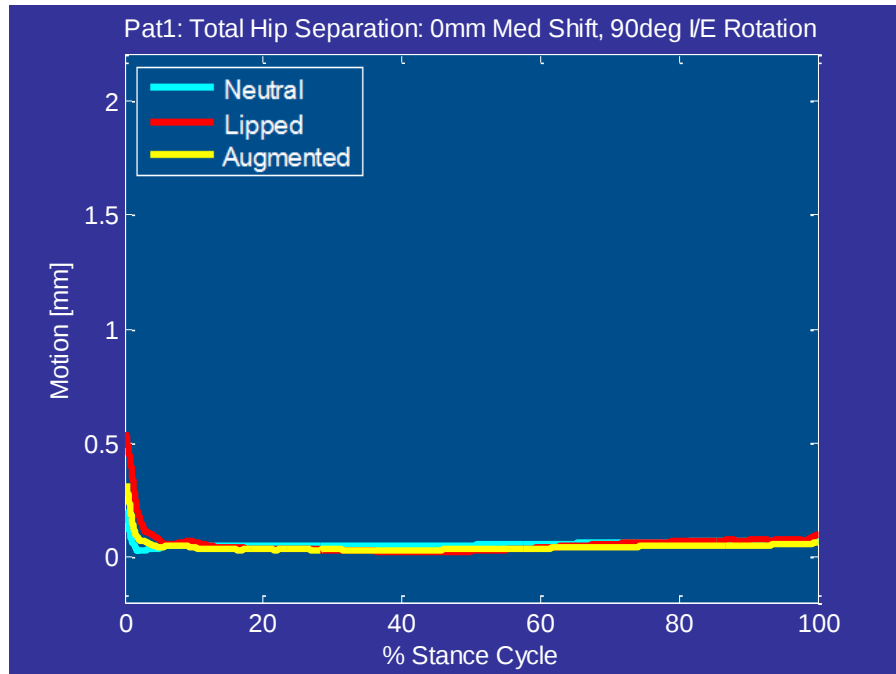


(a)

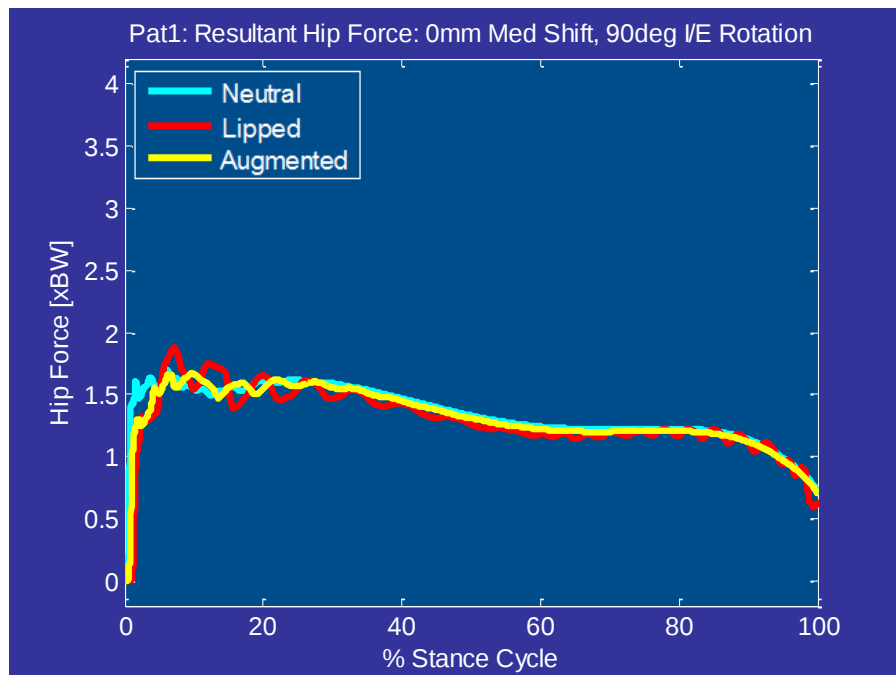


(b)

Figure D3: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

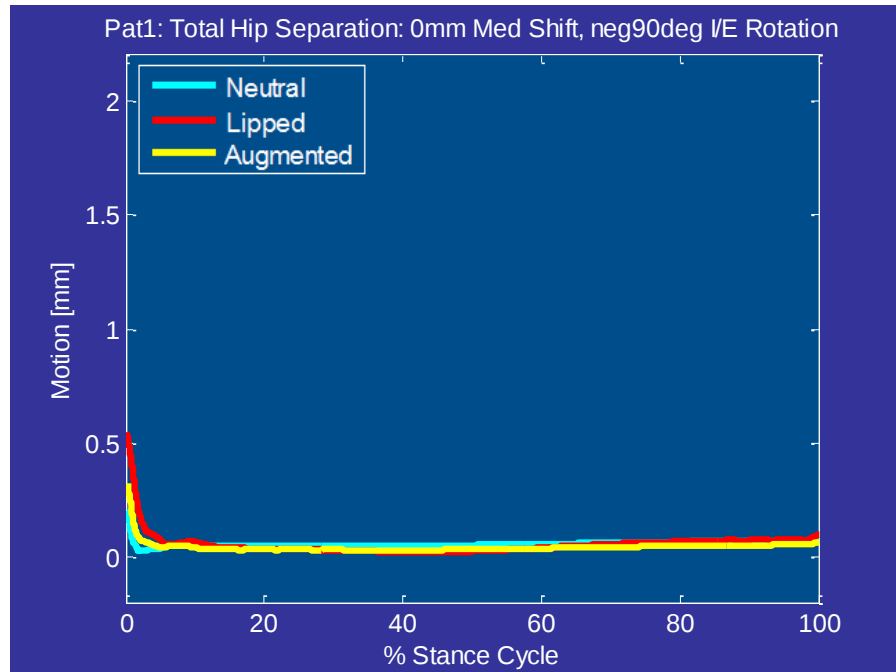


(a)

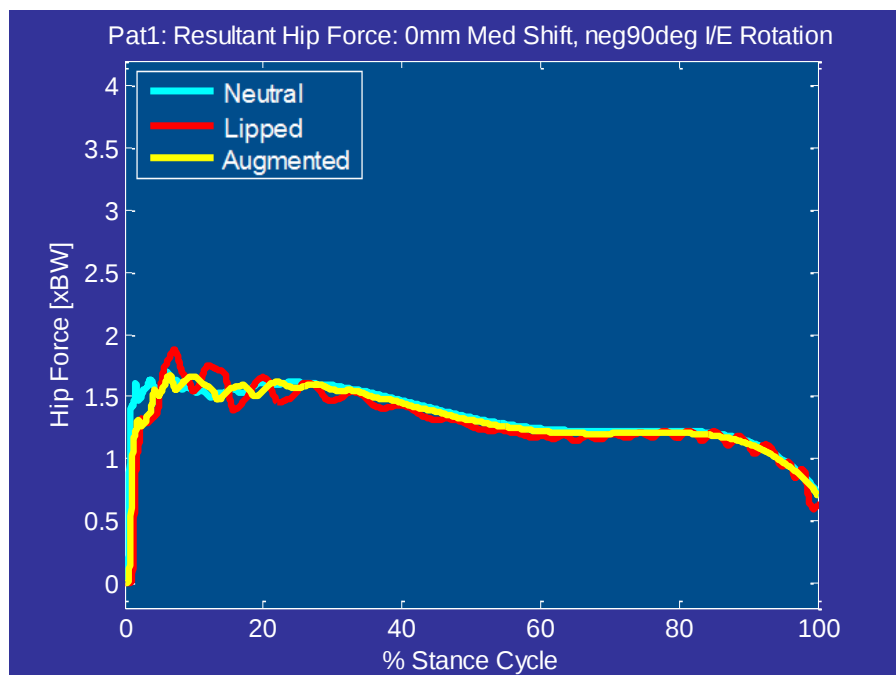


(b)

Figure D4: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

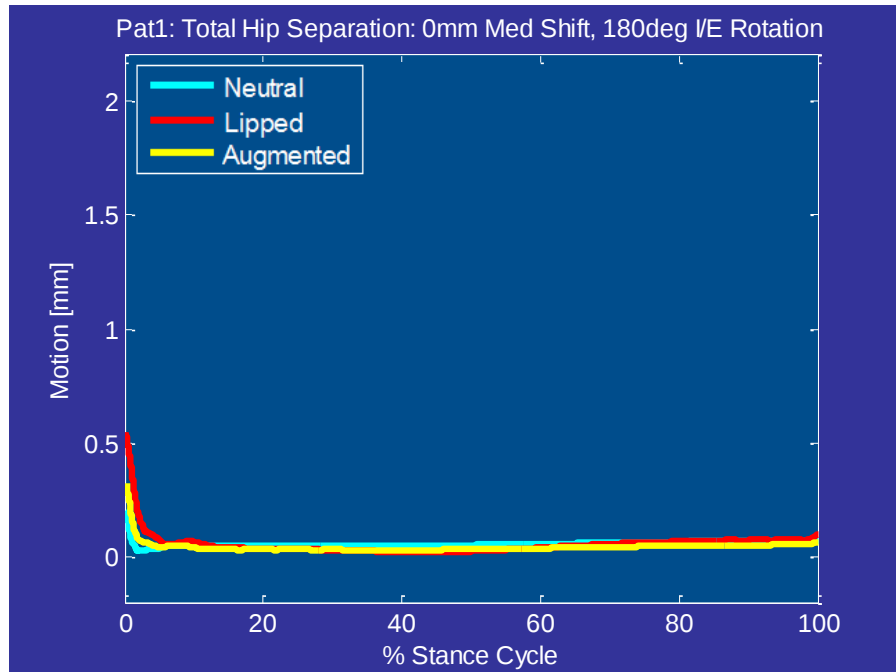


(a)

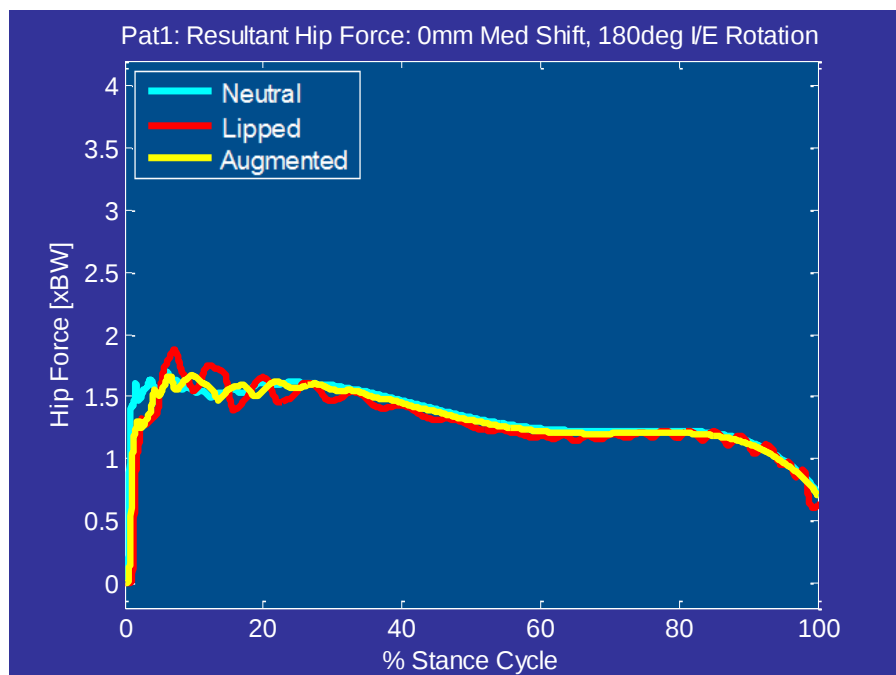


(b)

Figure D5: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

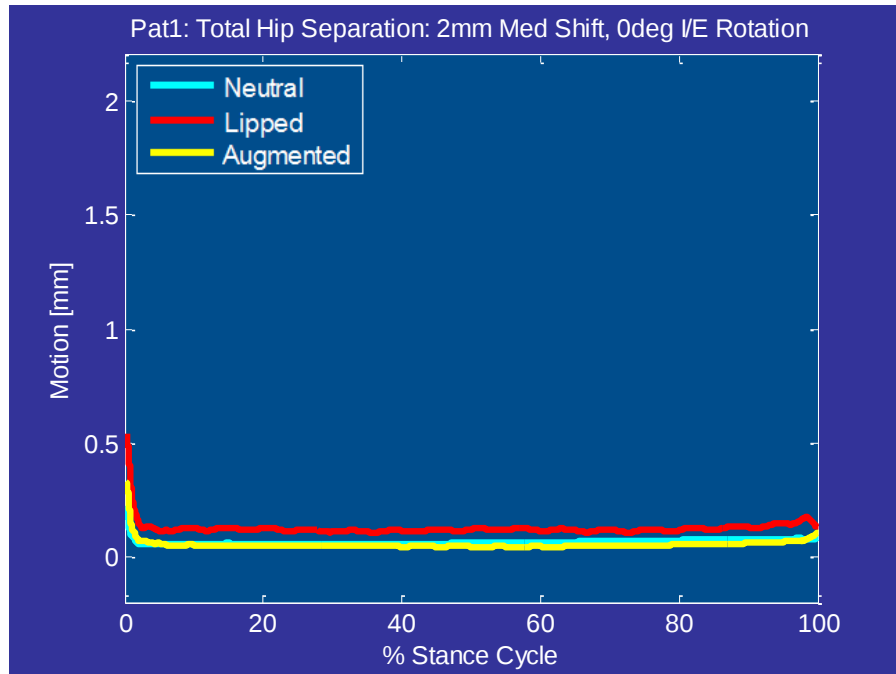


(a)

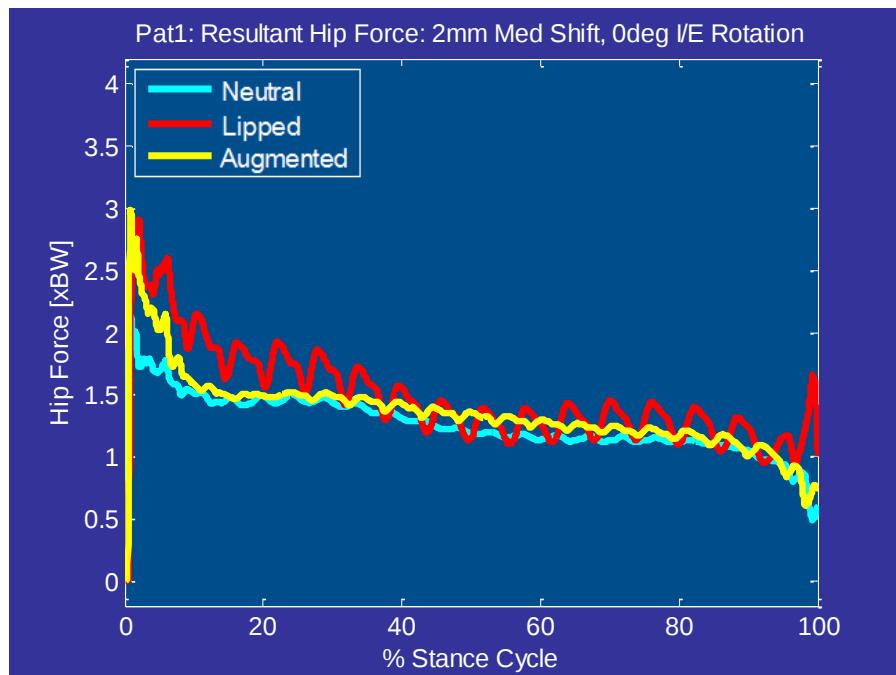


(b)

Figure D6: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

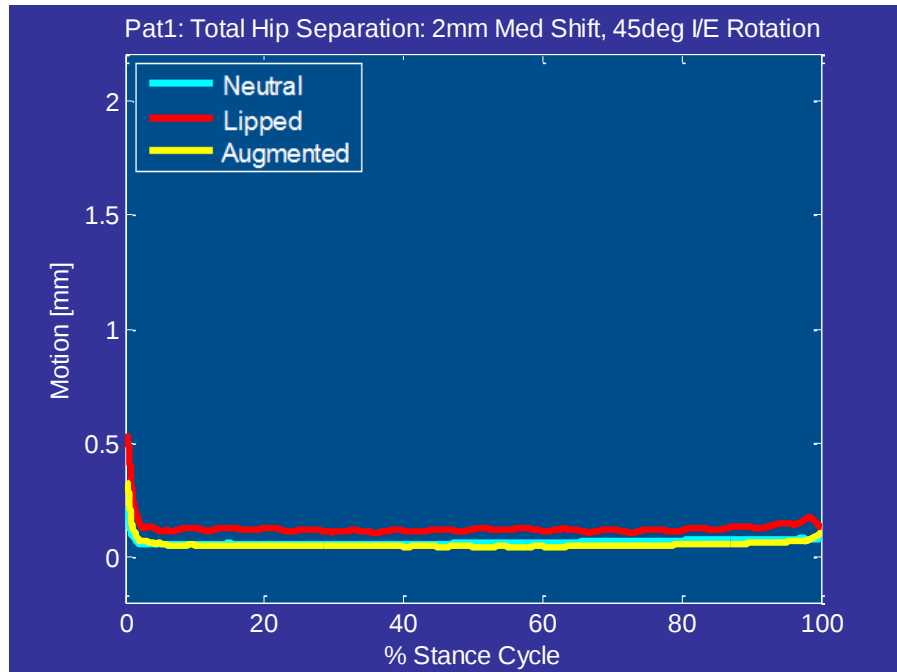


(a)

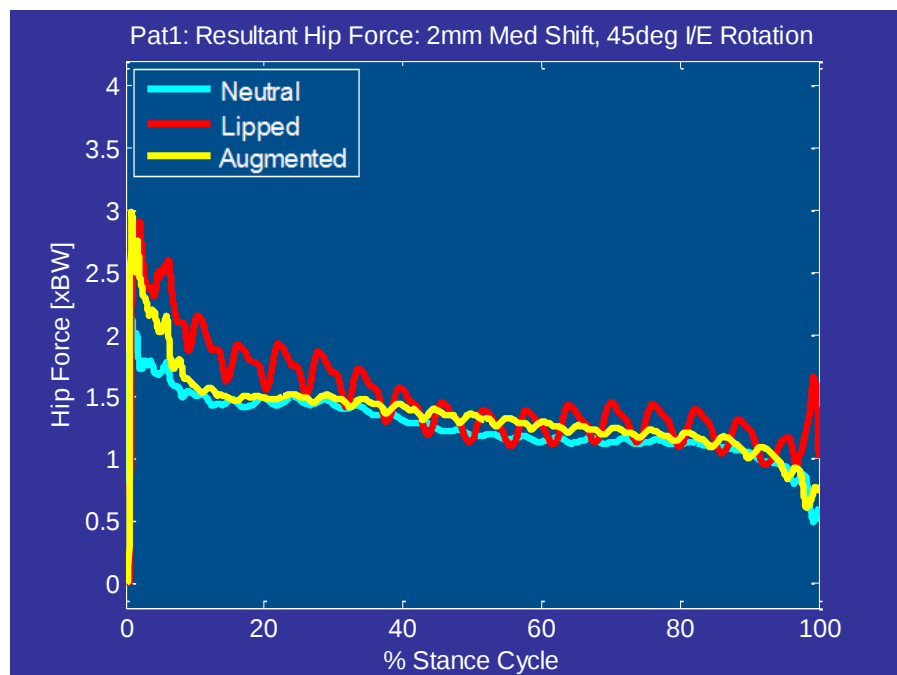


(b)

Figure D7: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

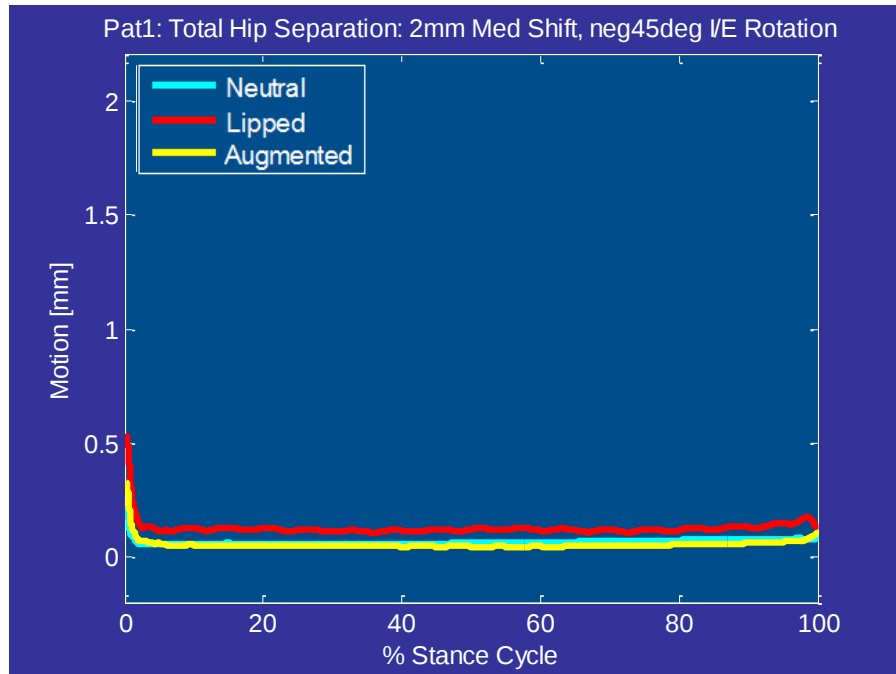


(a)

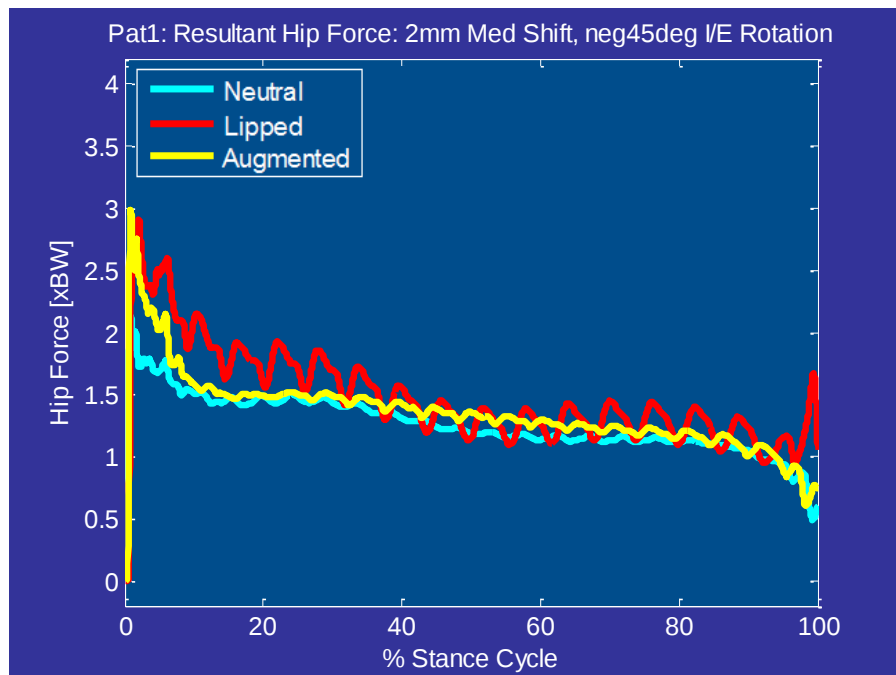


(b)

Figure D8: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

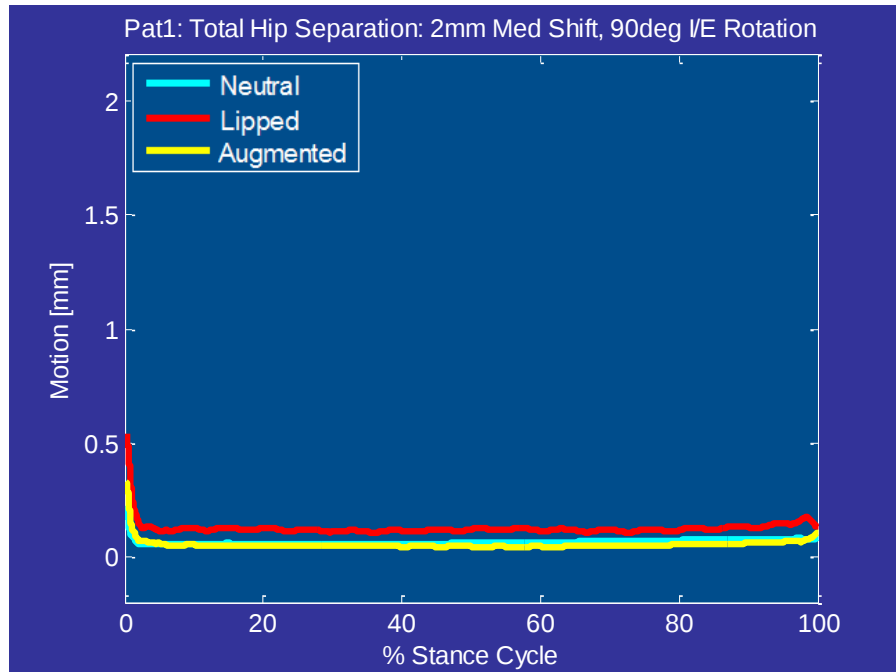


(a)

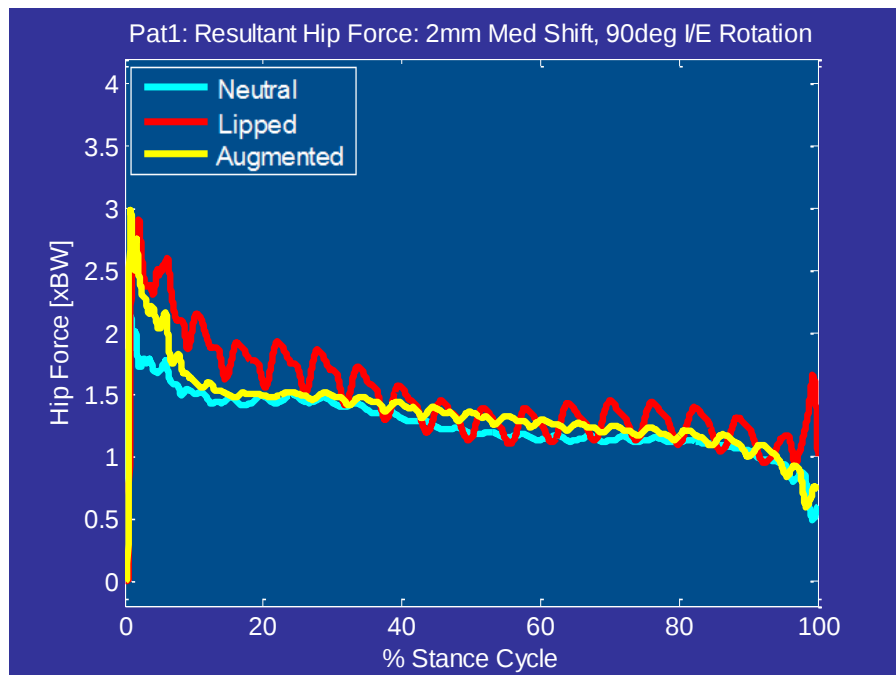


(b)

Figure D9: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

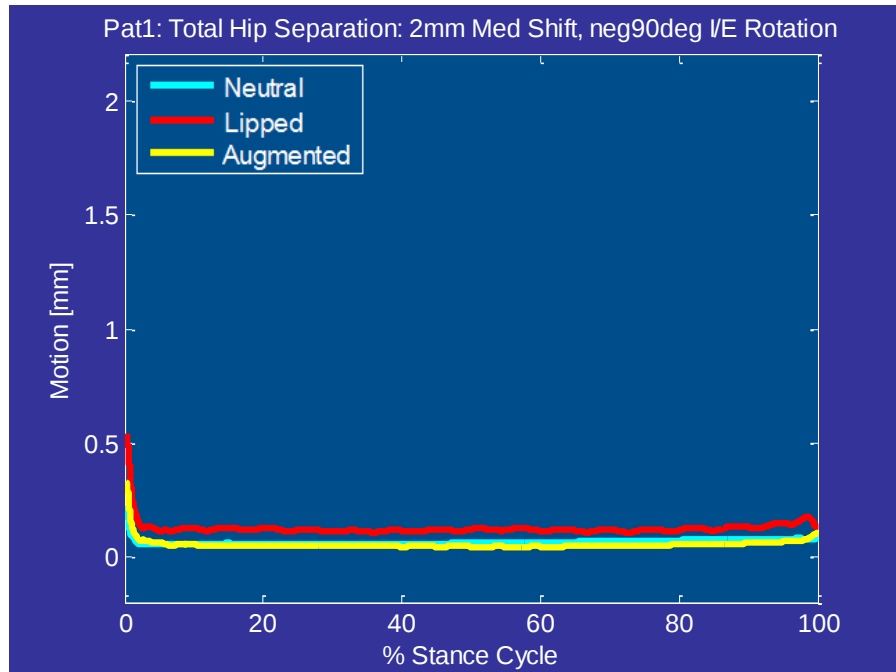


(a)

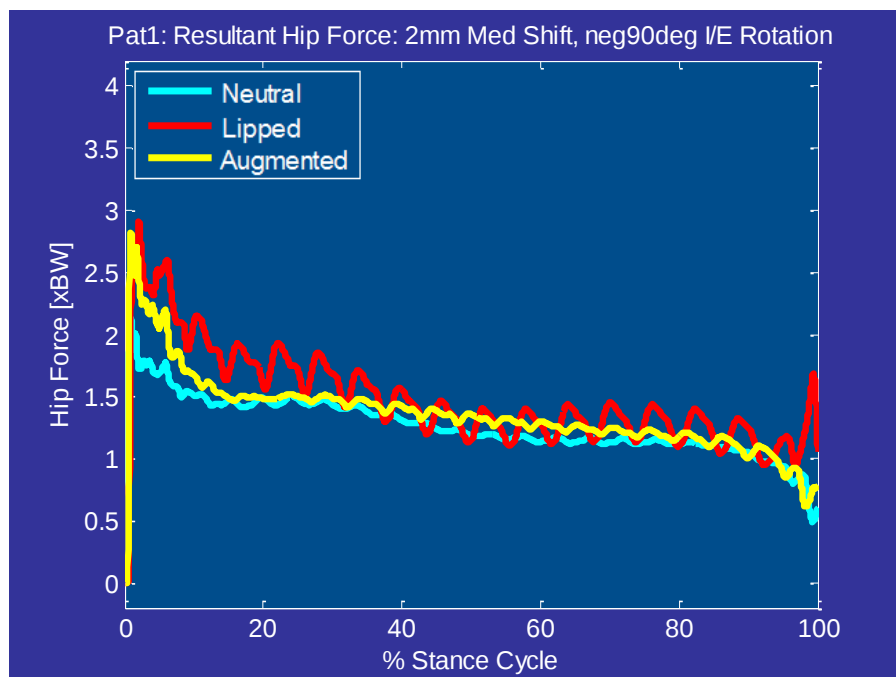


(b)

Figure D10: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

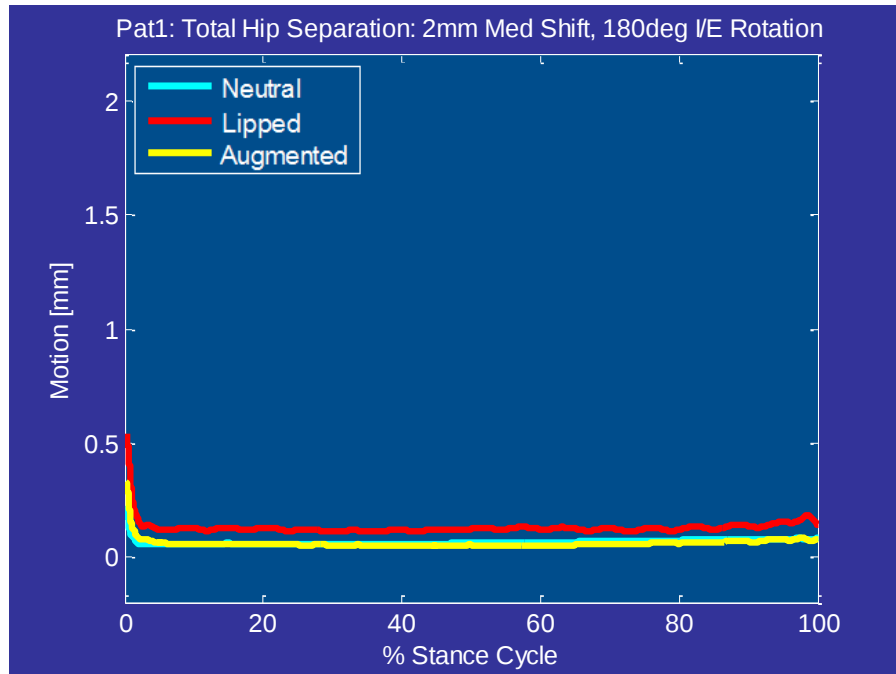


(a)

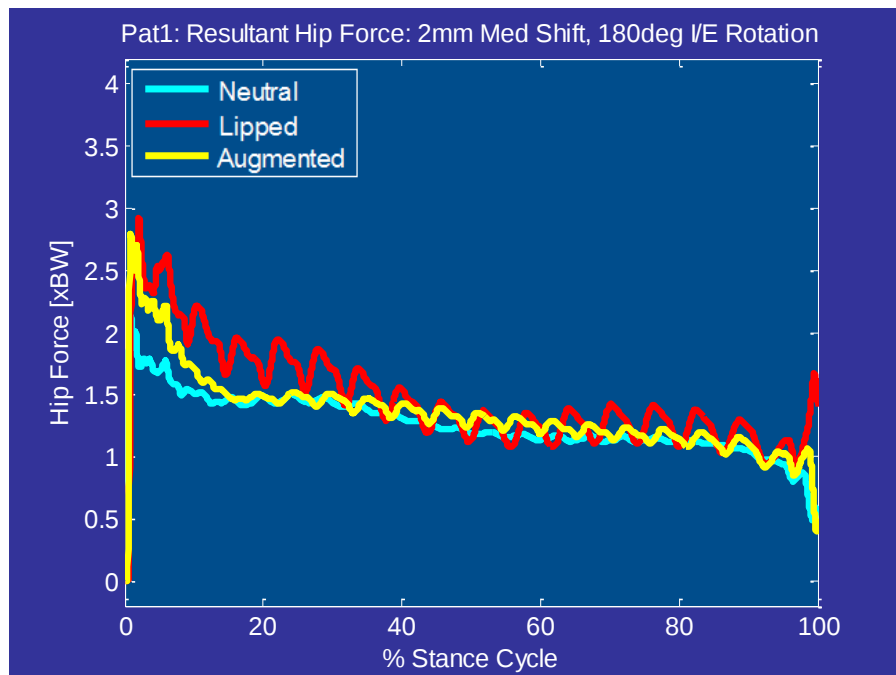


(b)

Figure D11: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

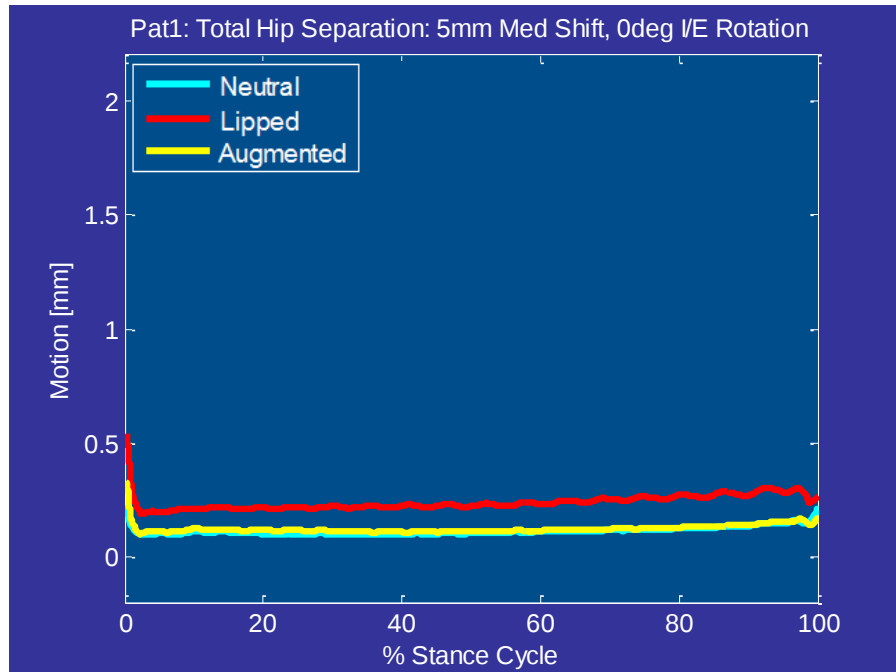


(a)

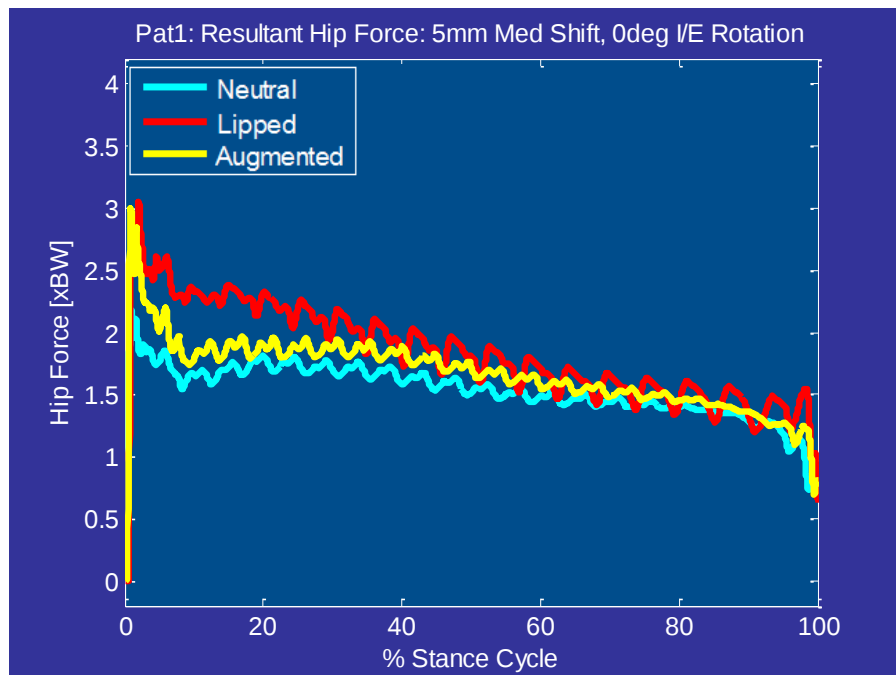


(b)

Figure D12: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

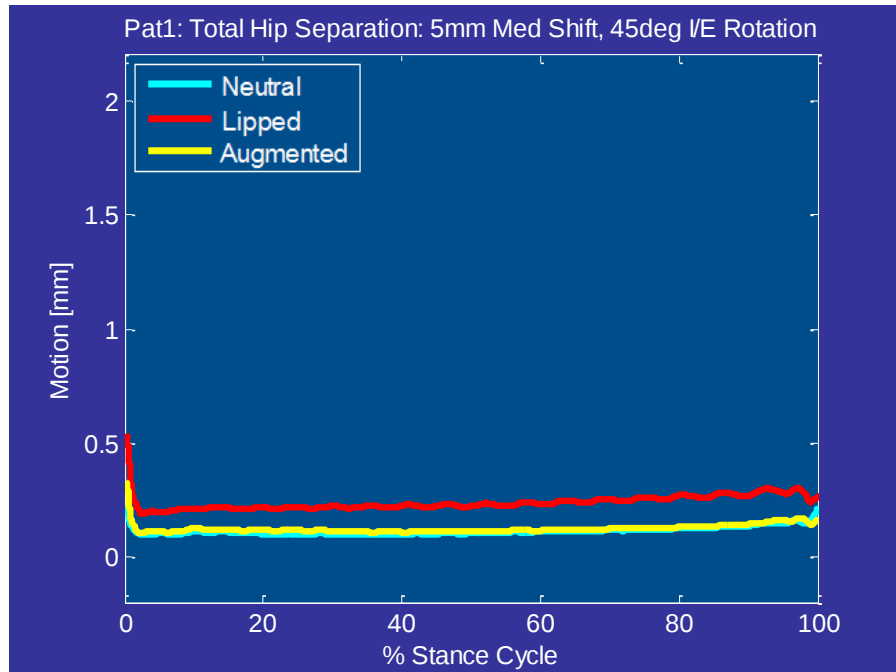


(a)

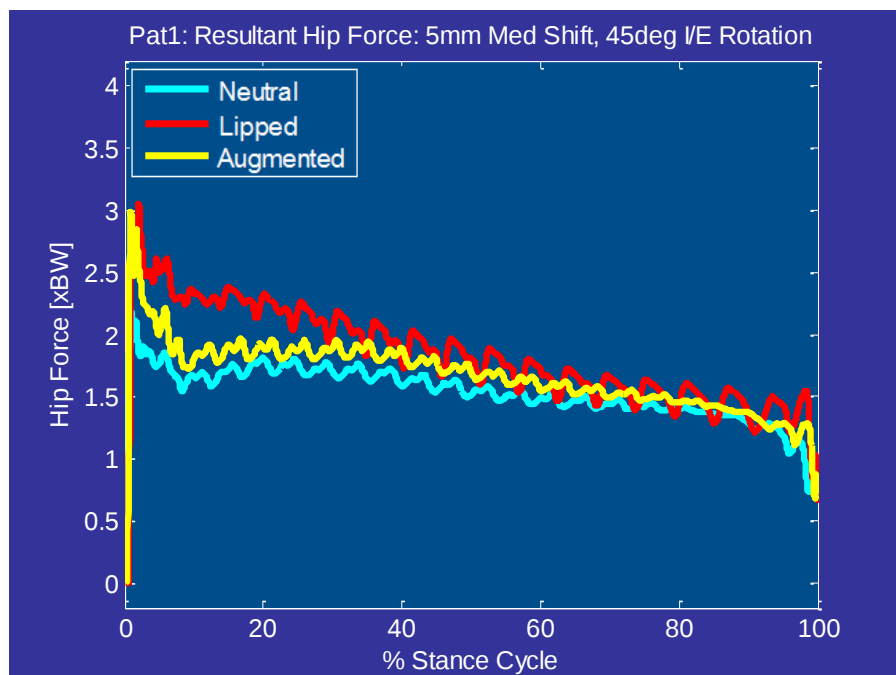


(b)

Figure D13: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

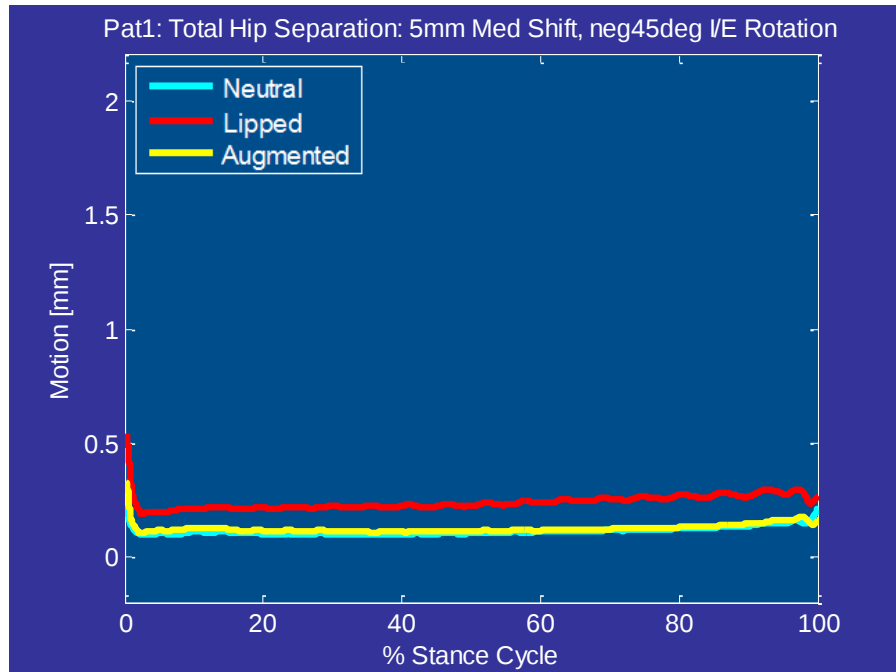


(a)

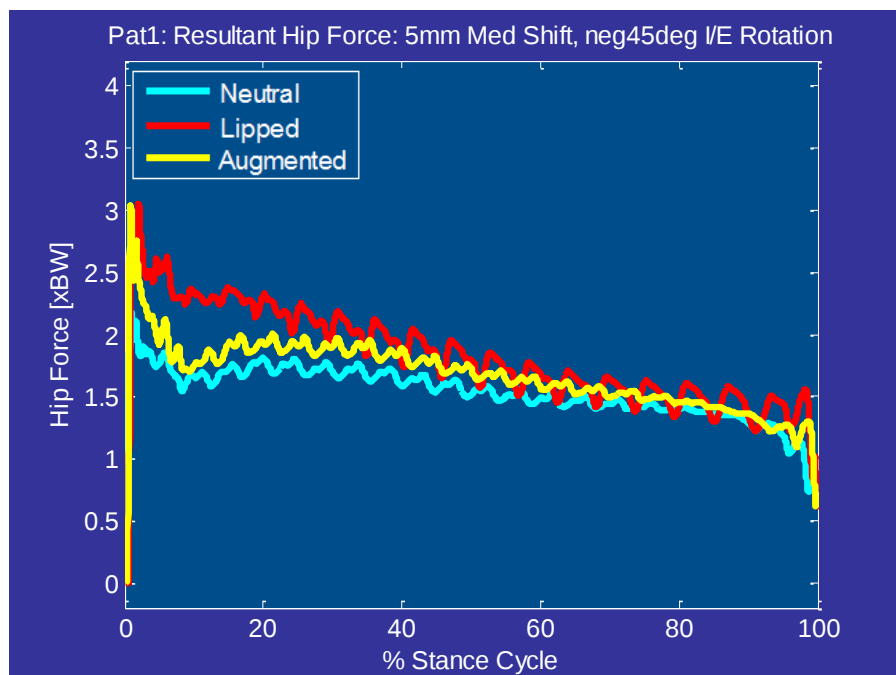


(b)

Figure D14: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

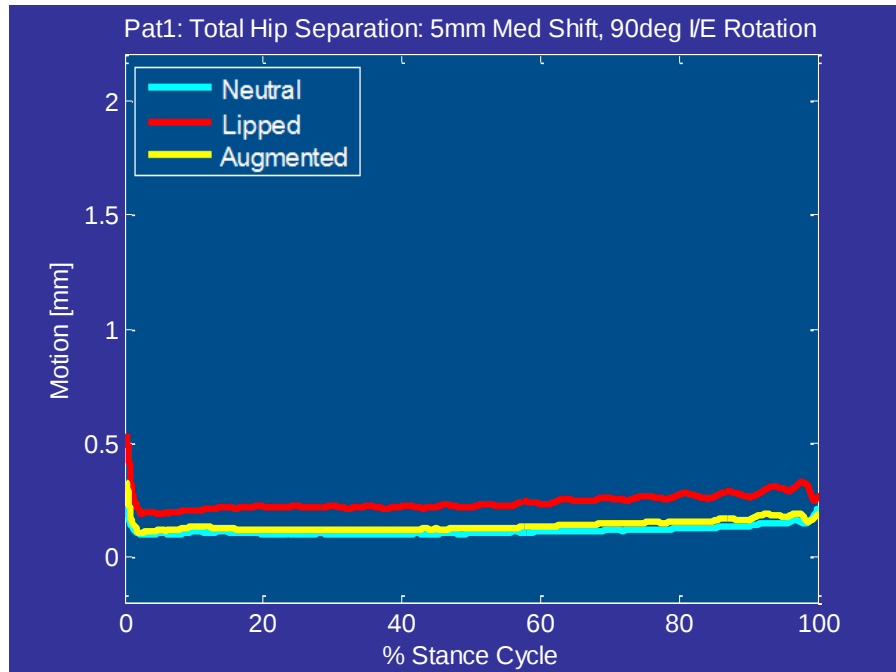


(a)

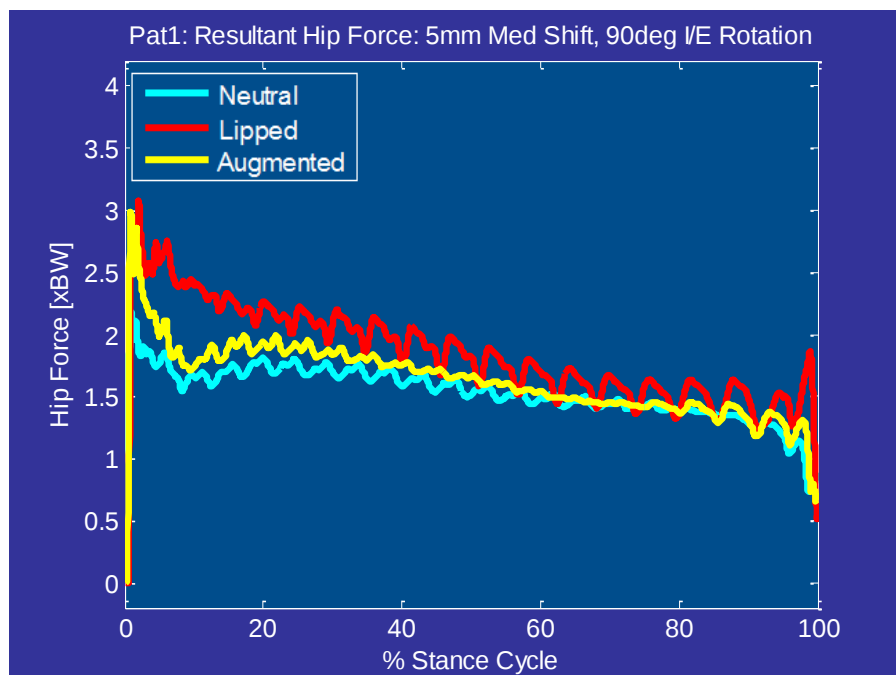


(b)

Figure D15: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

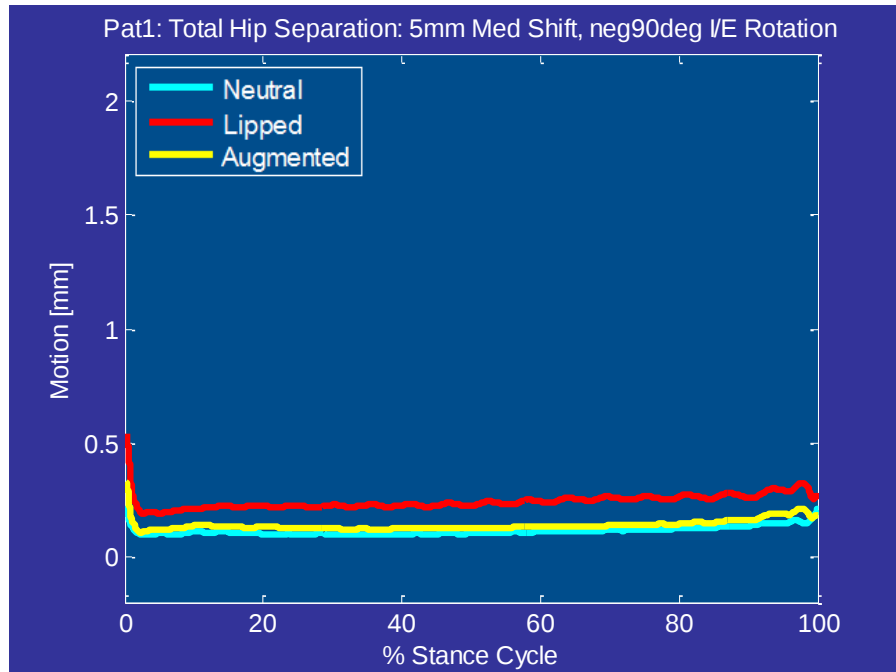


(a)

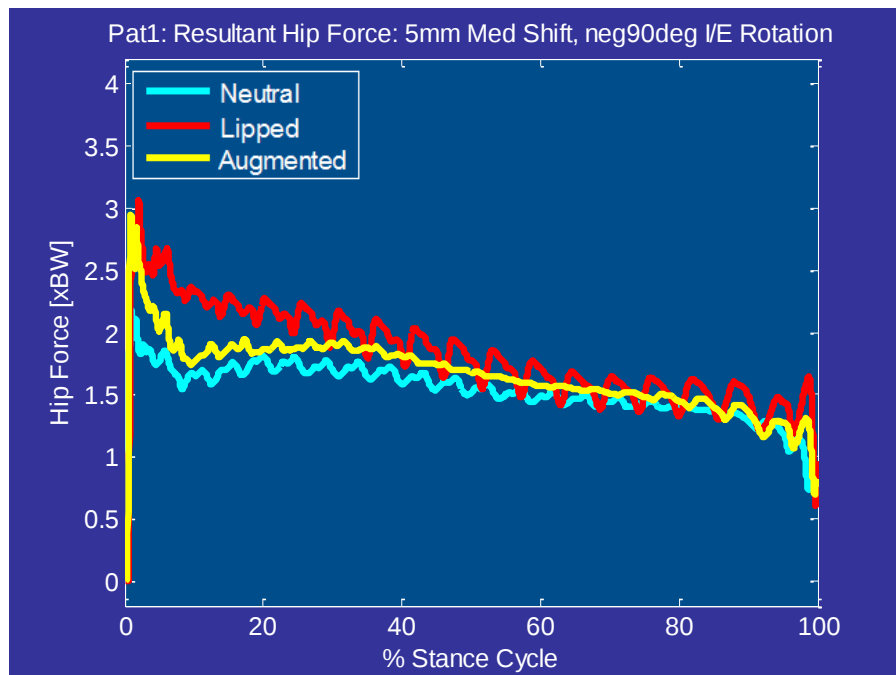


(b)

Figure D16: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

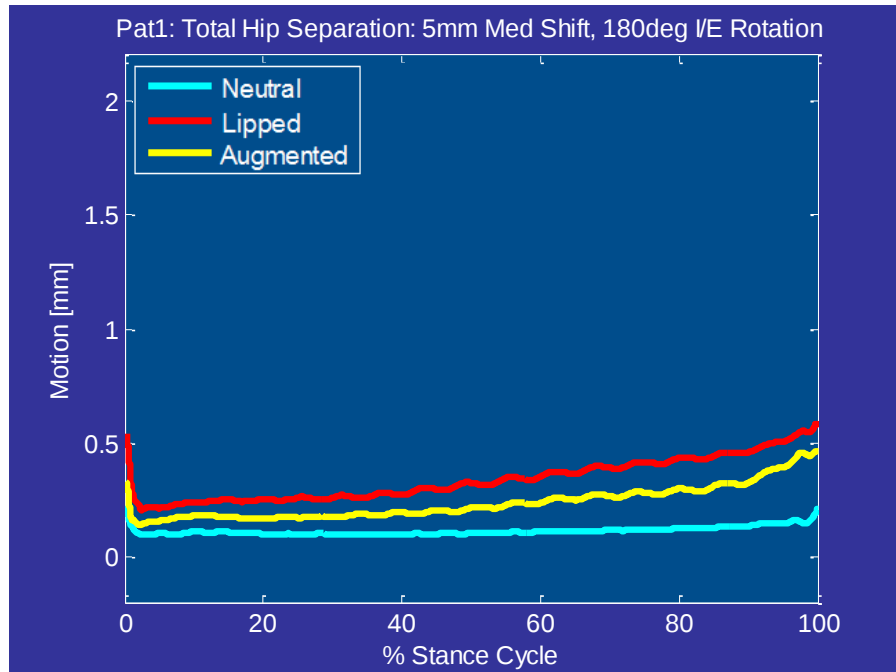


(a)

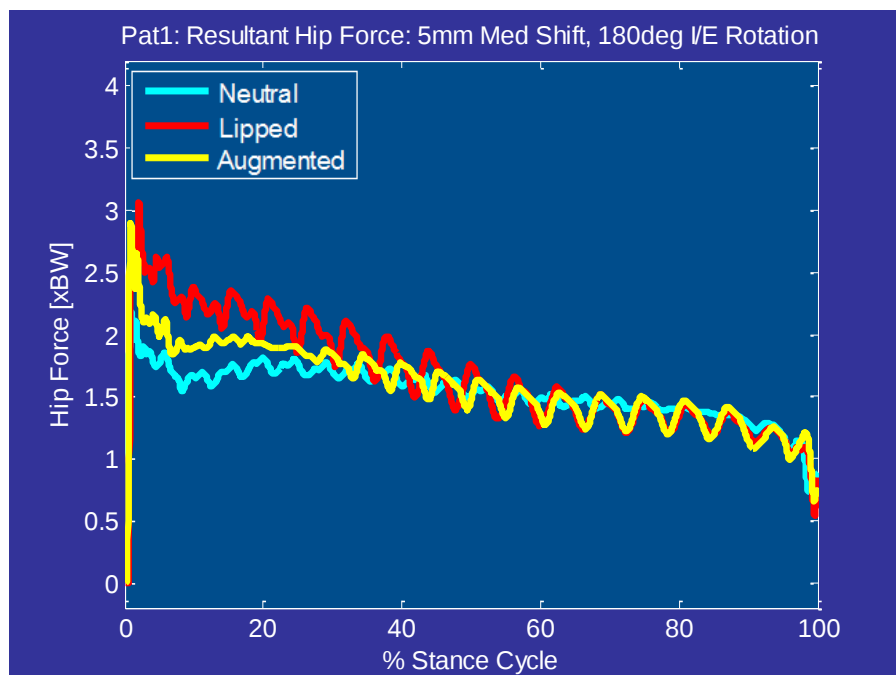


(b)

Figure D17: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

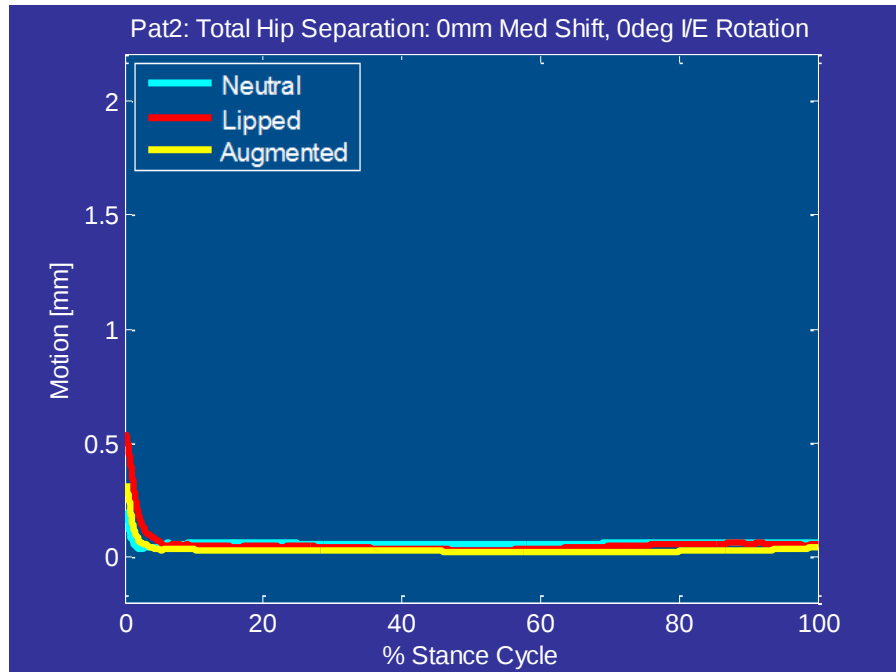


(a)

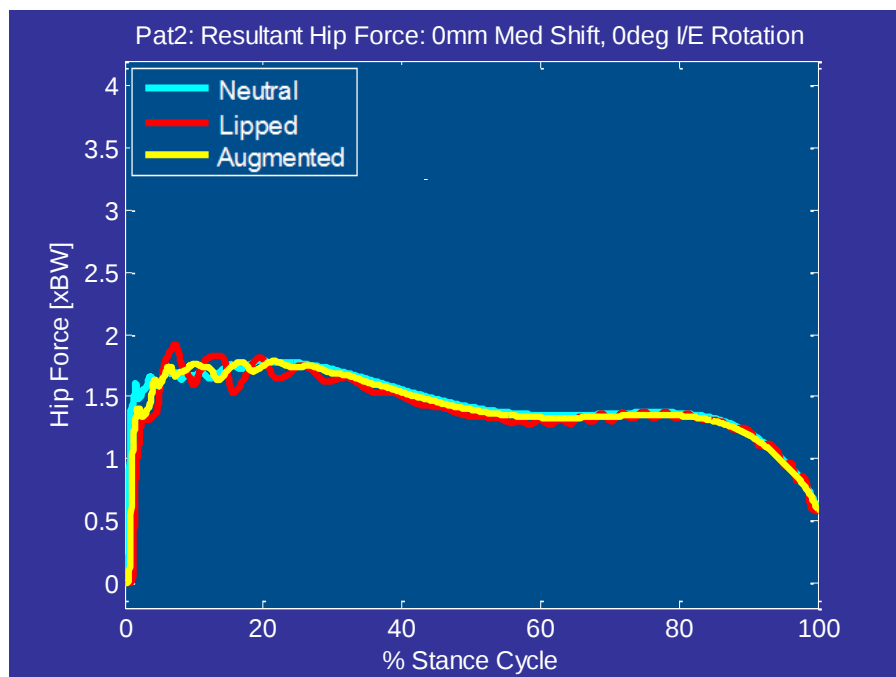


(b)

Figure D18: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

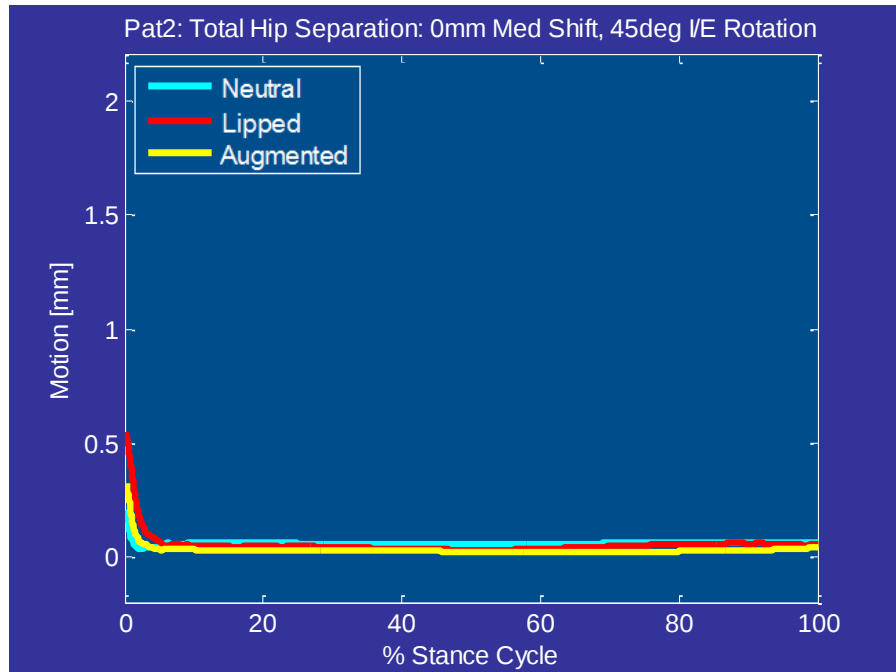


(a)

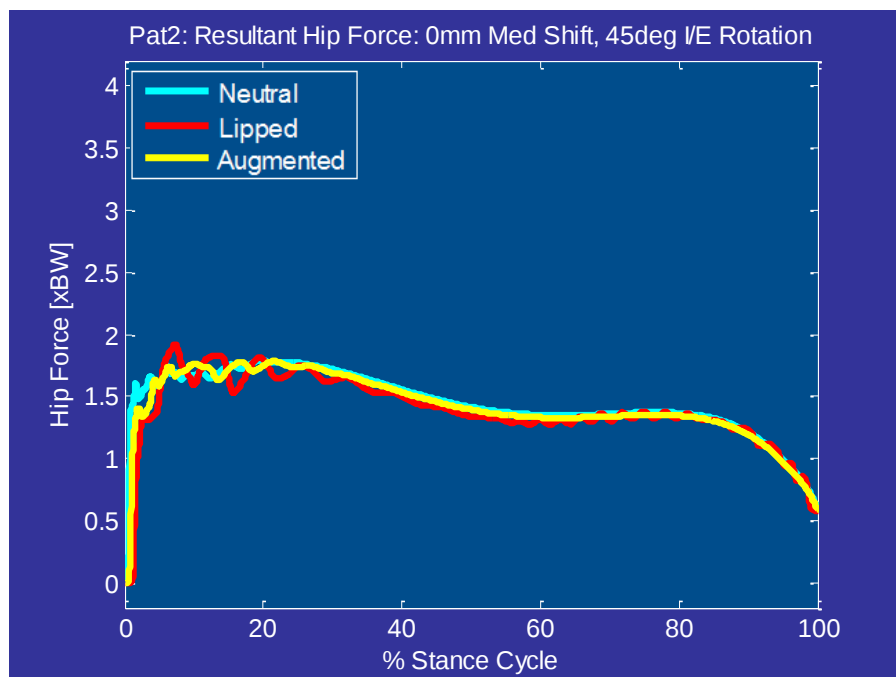


(b)

Figure D19: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

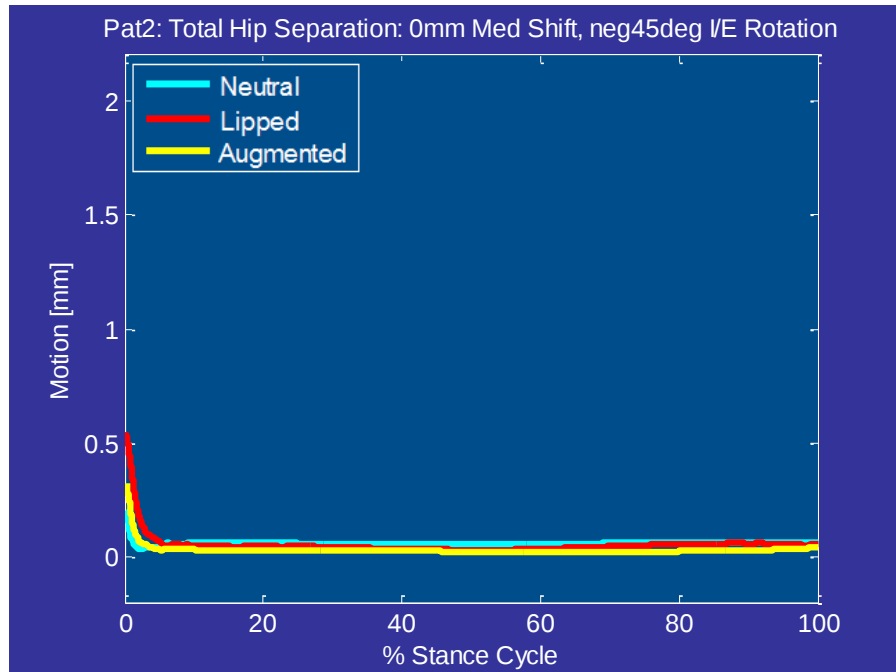


(a)

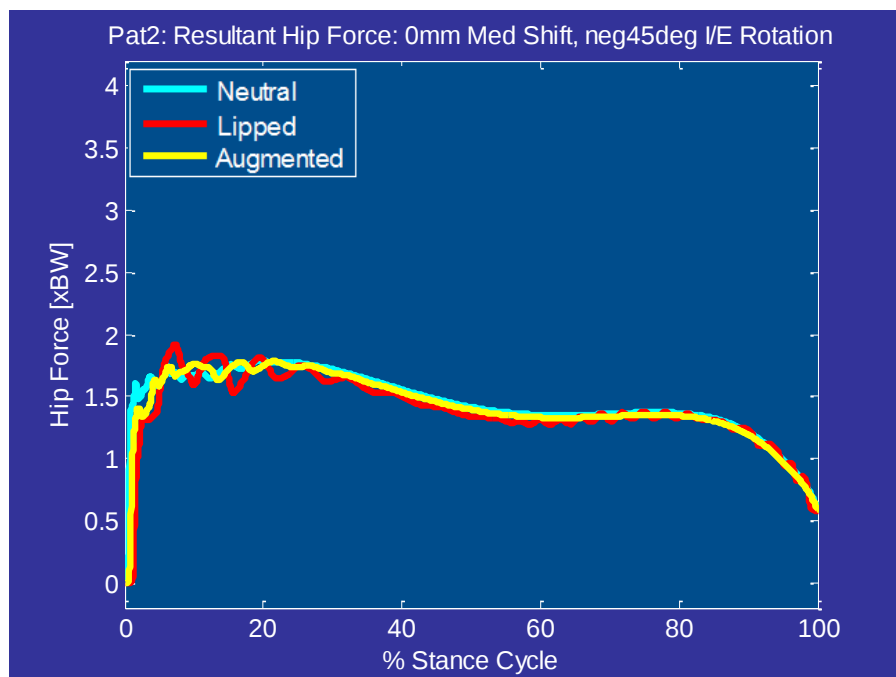


(b)

Figure D20: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

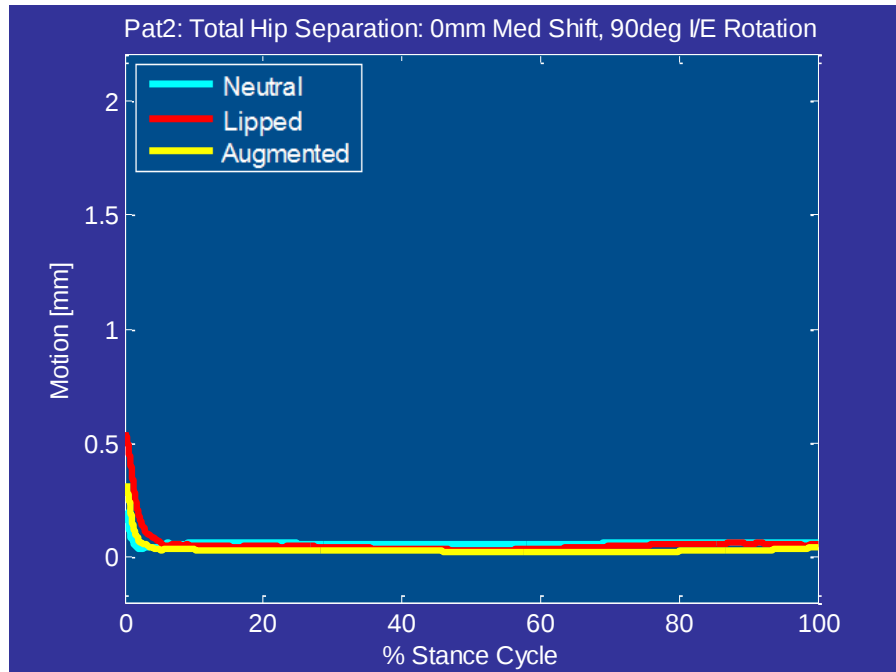


(a)

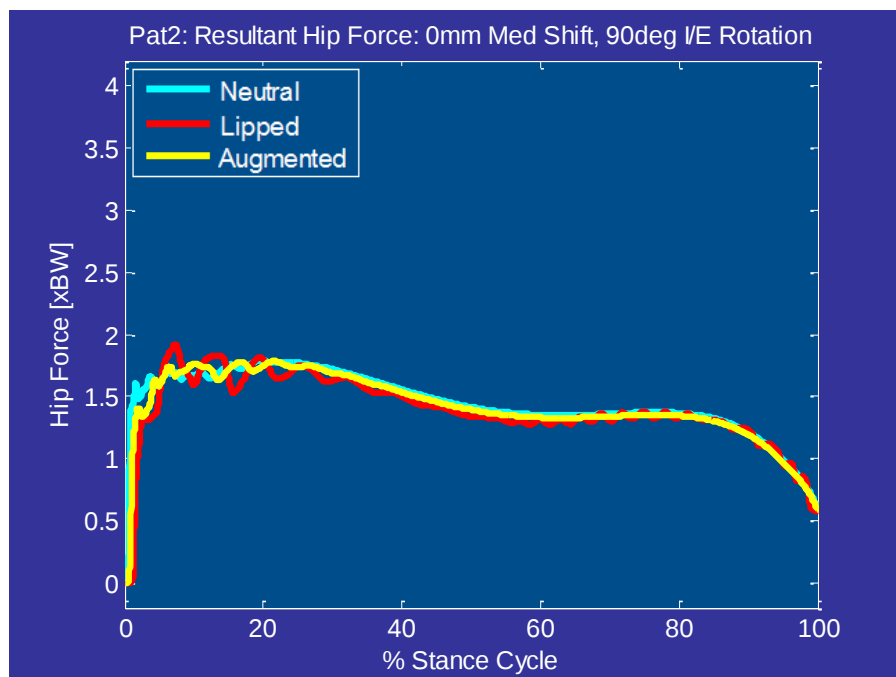


(b)

Figure D21: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

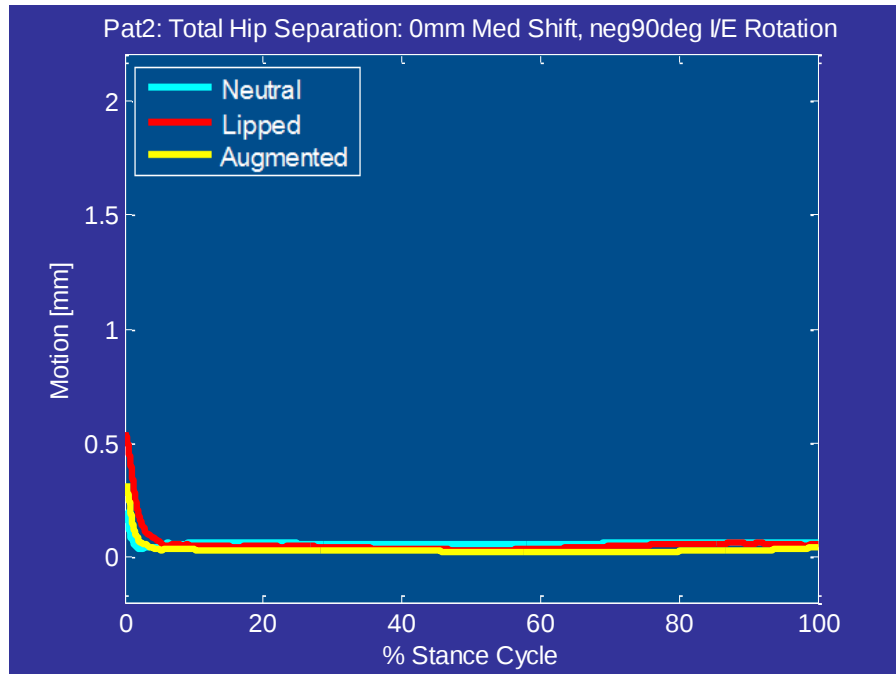


(a)

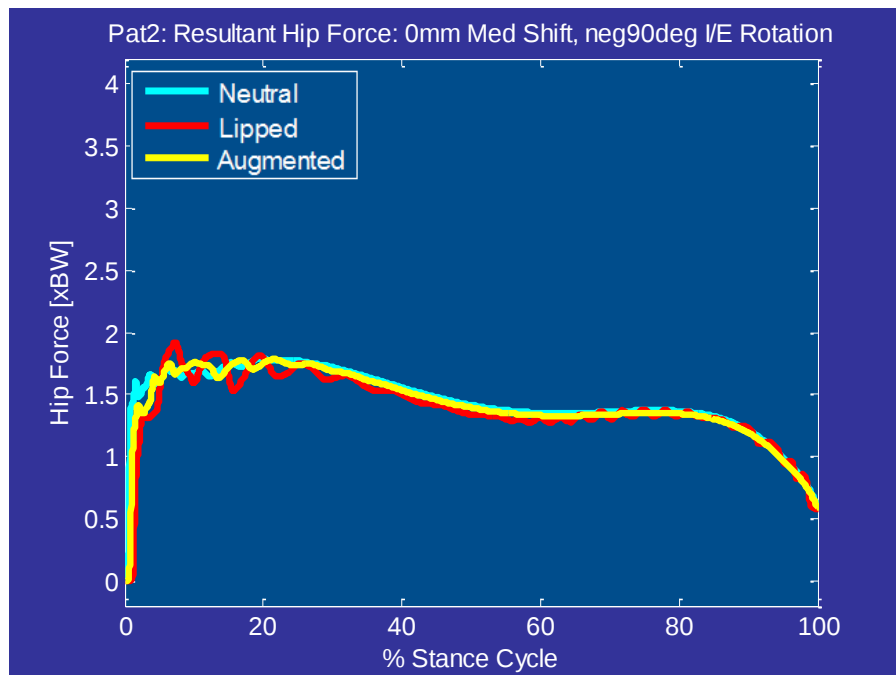


(b)

Figure D22: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

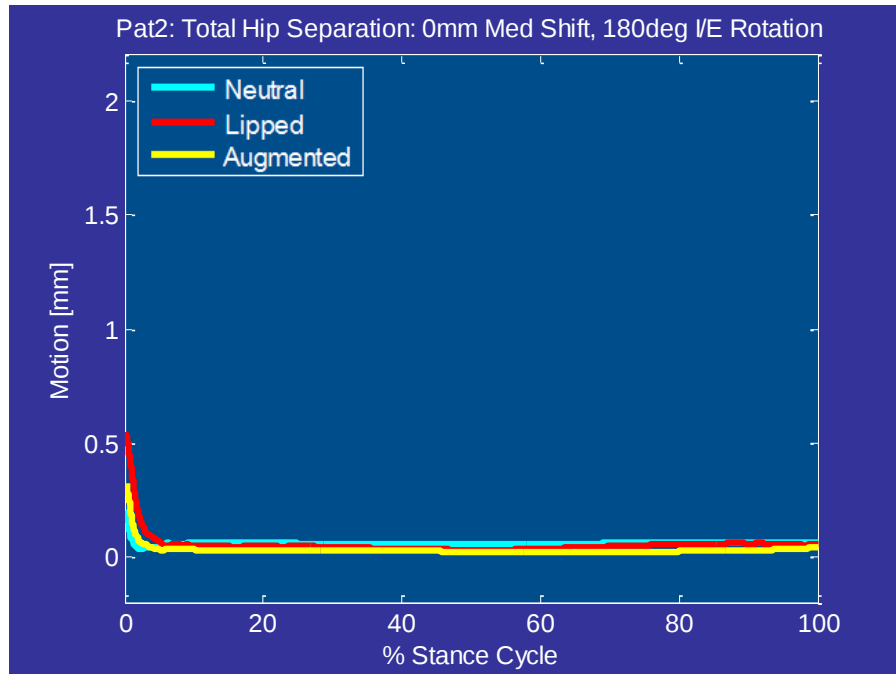


(a)

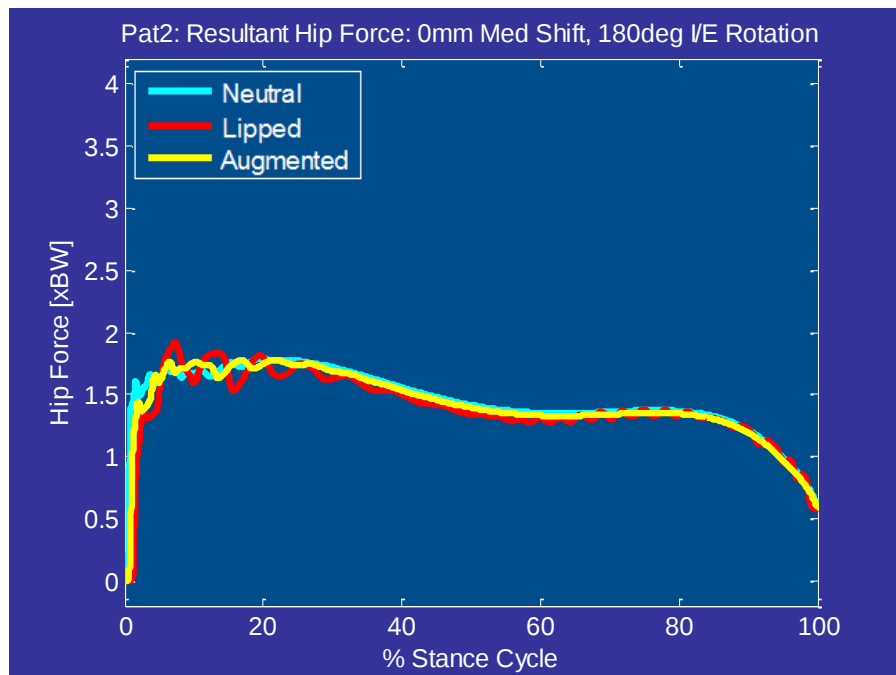


(b)

Figure D23: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

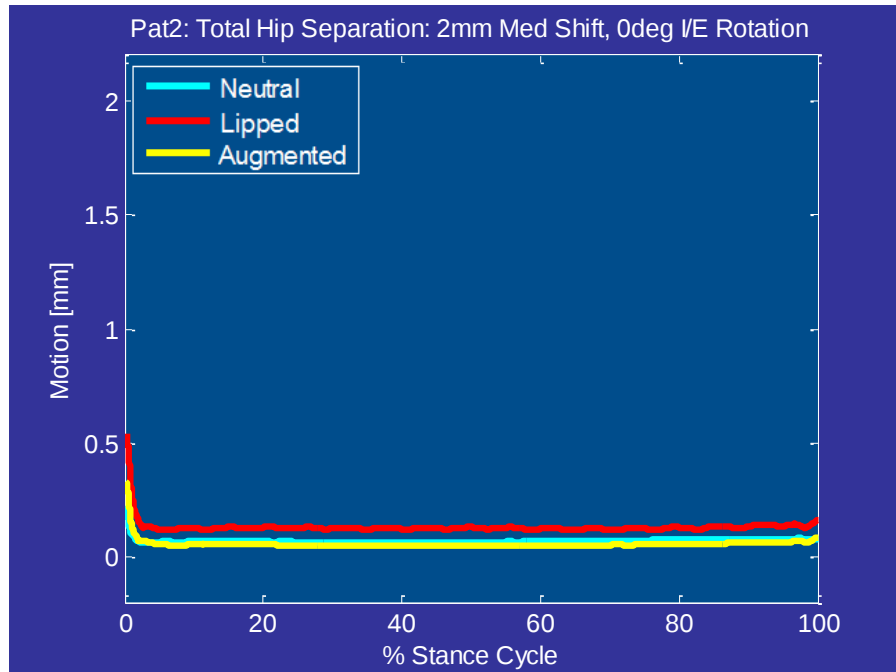


(a)

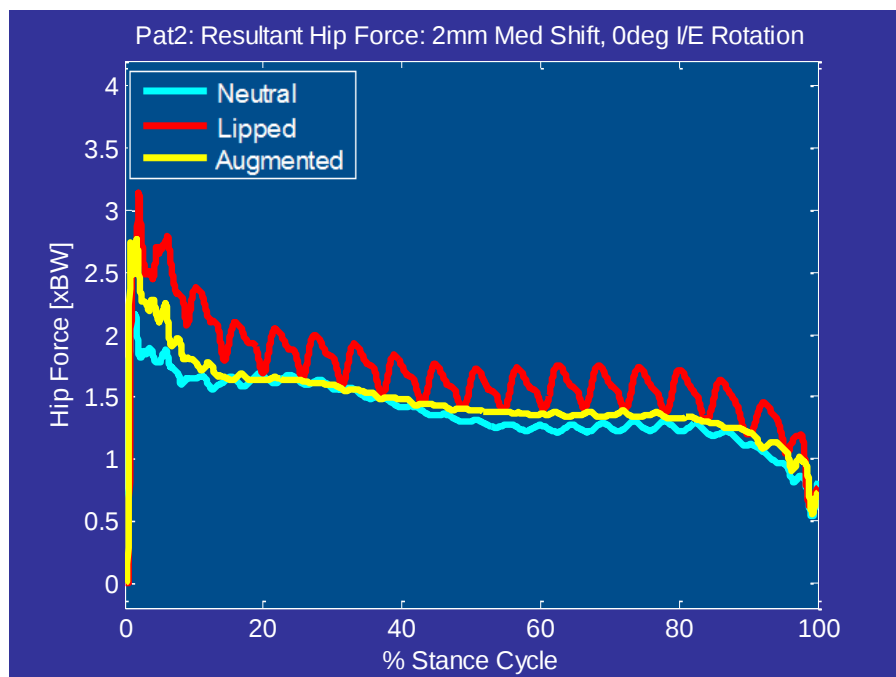


(b)

Figure D24: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

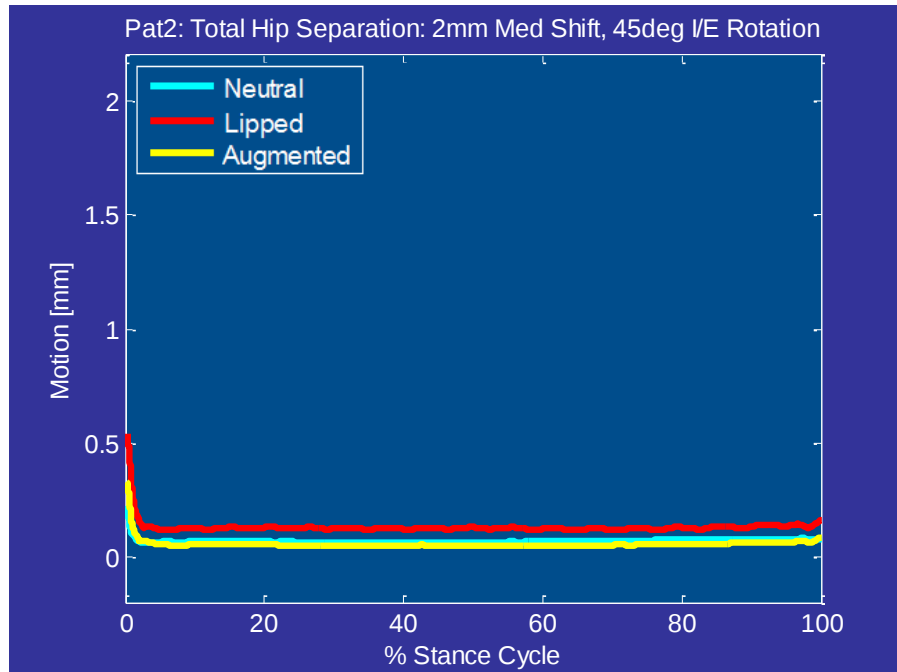


(a)

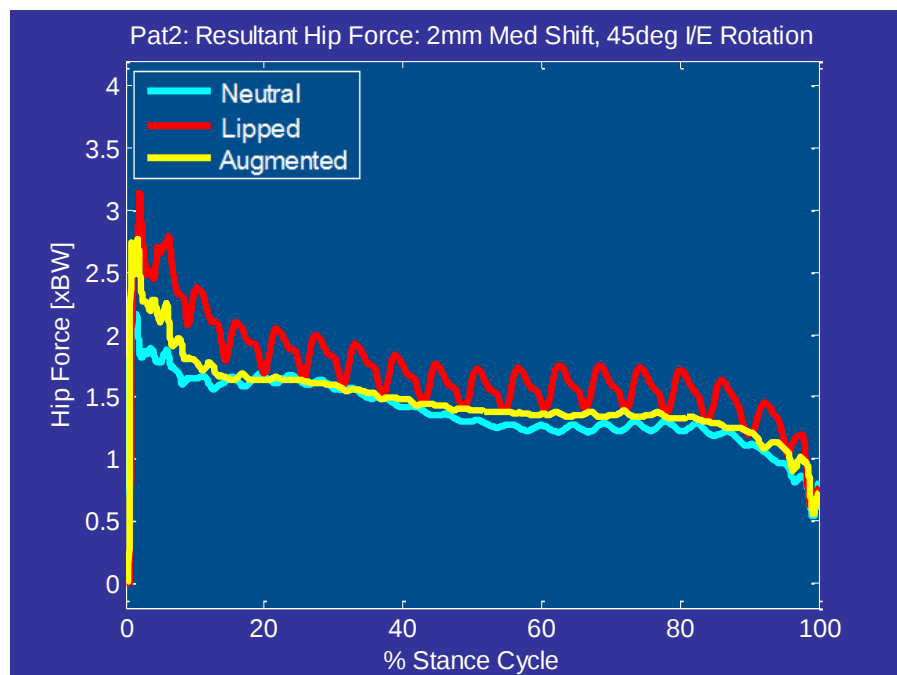


(b)

Figure D25: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

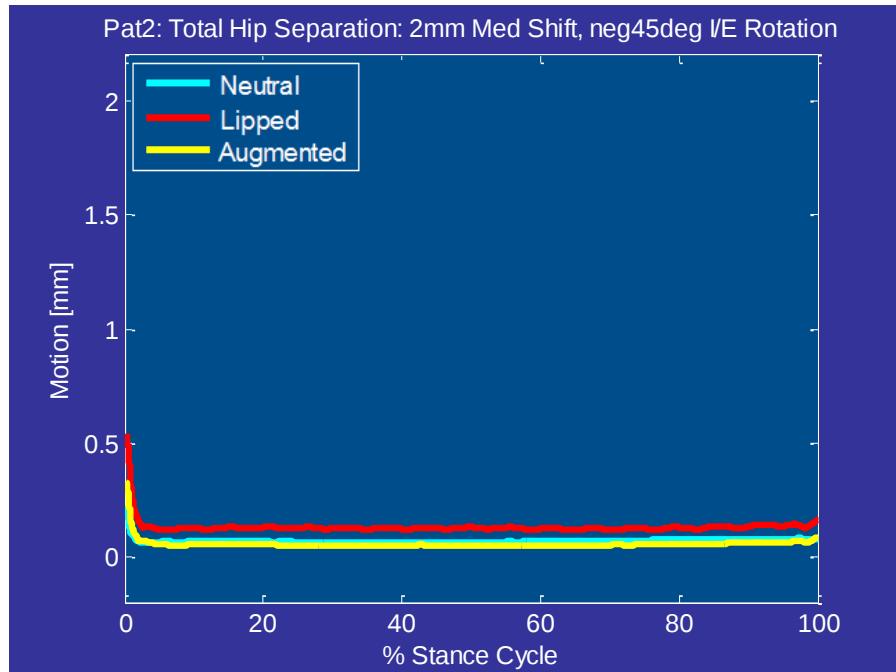


(a)

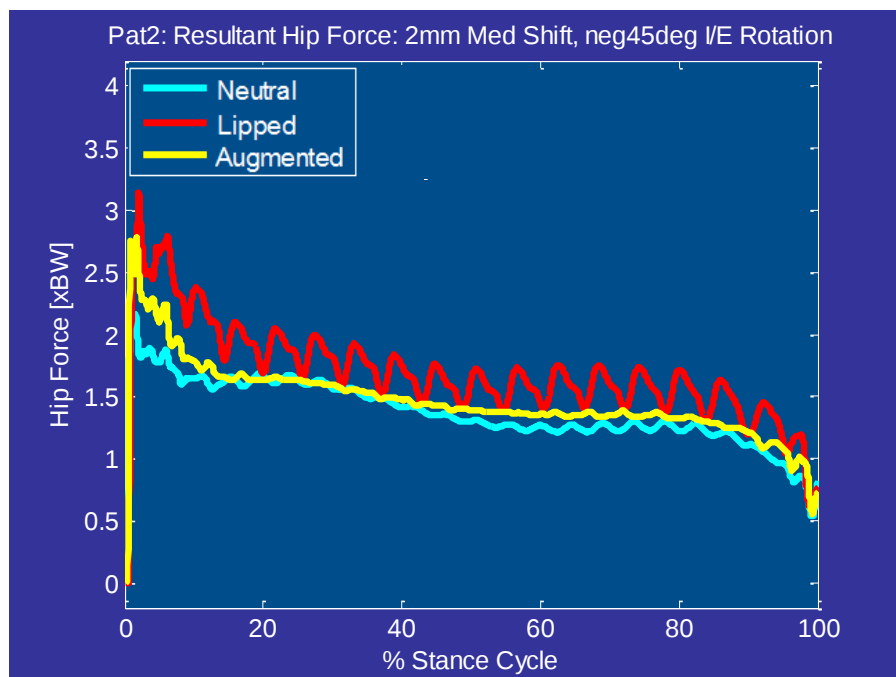


(b)

Figure D26: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

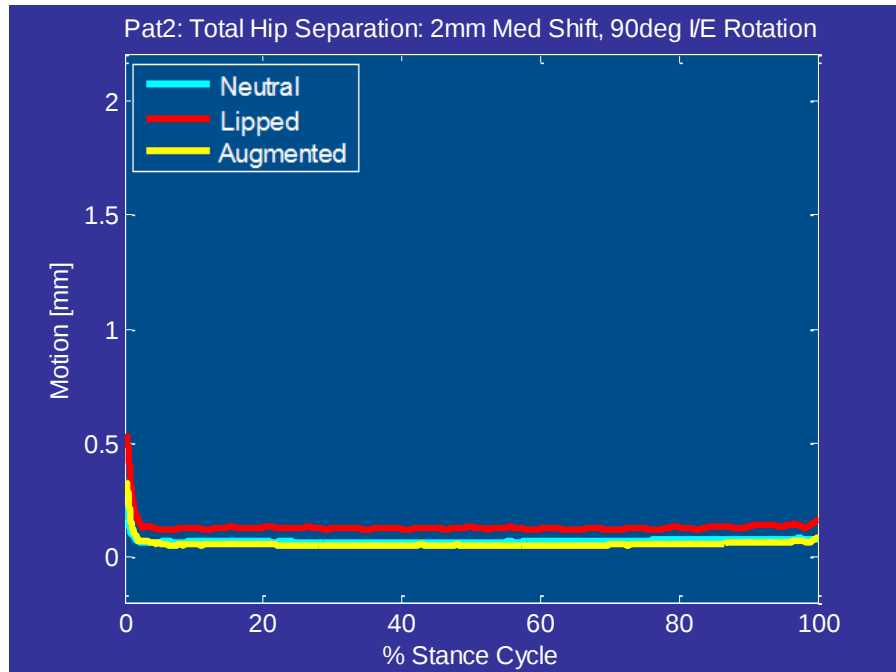


(a)

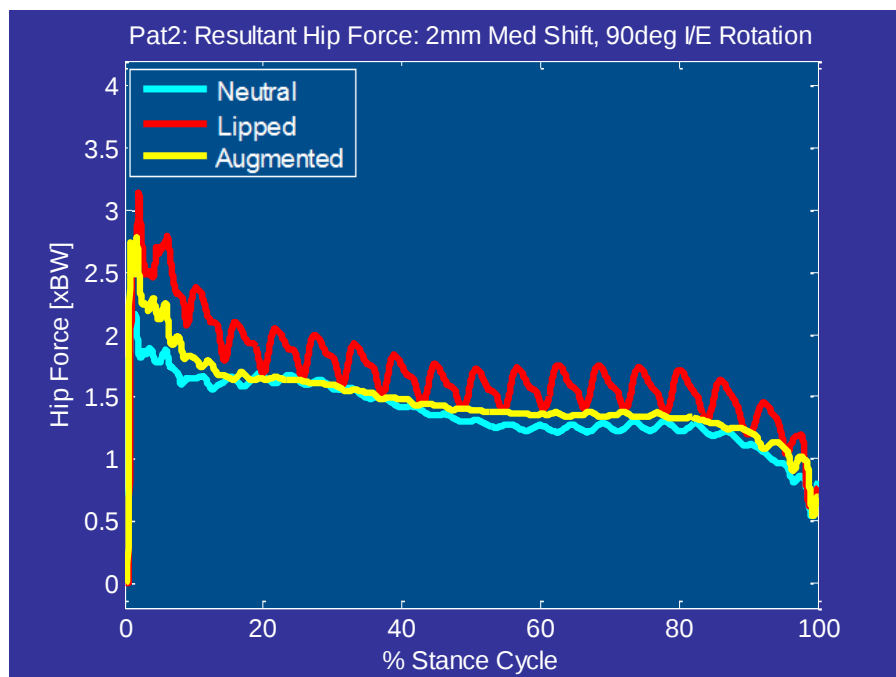


(b)

Figure D27: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

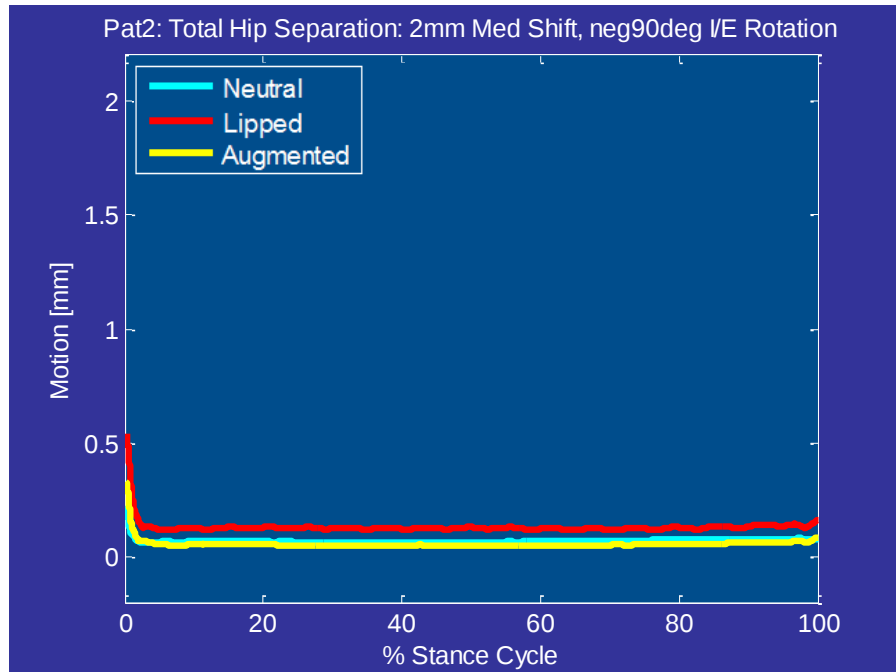


(a)

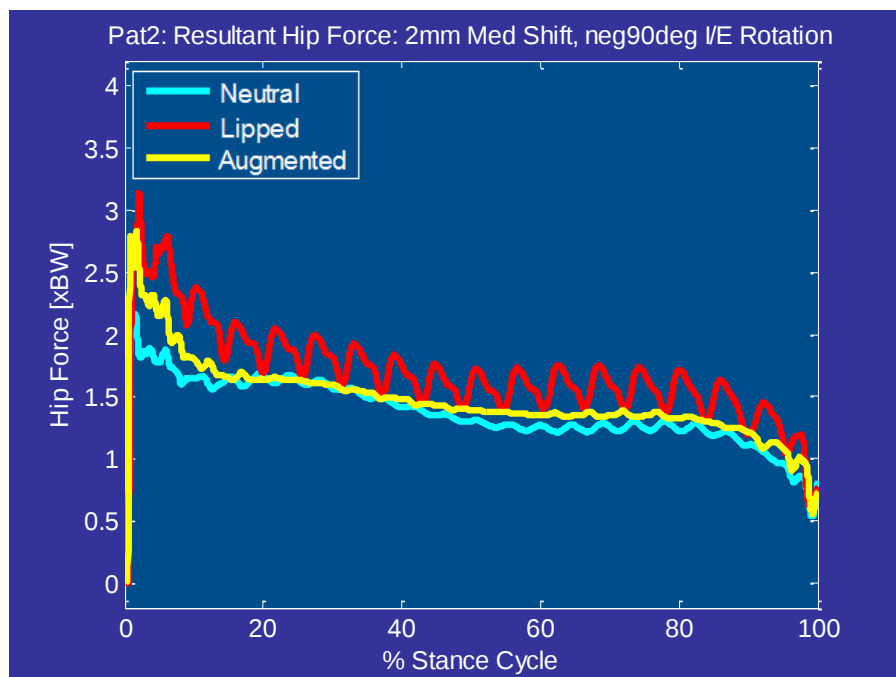


(b)

Figure D28: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

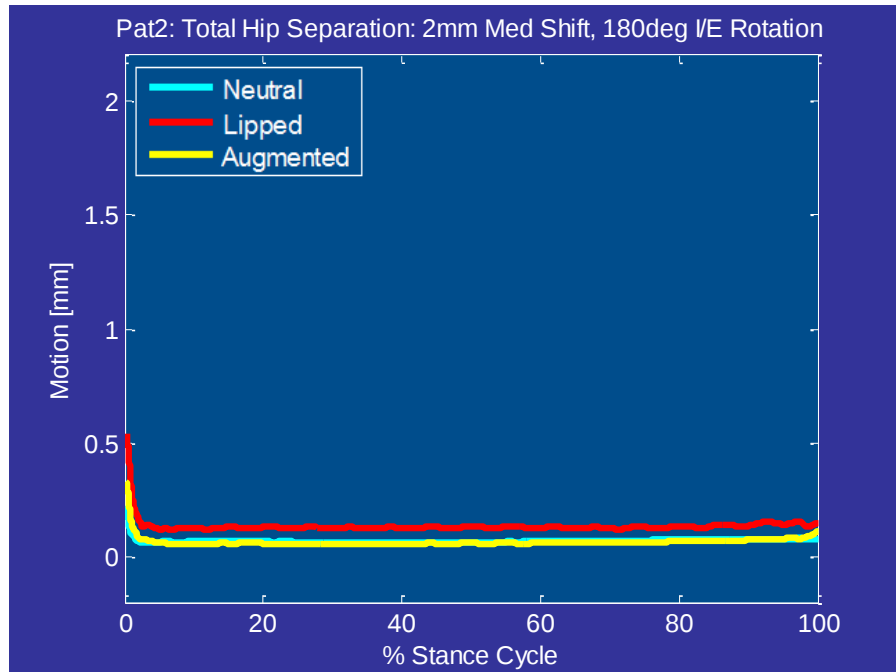


(a)

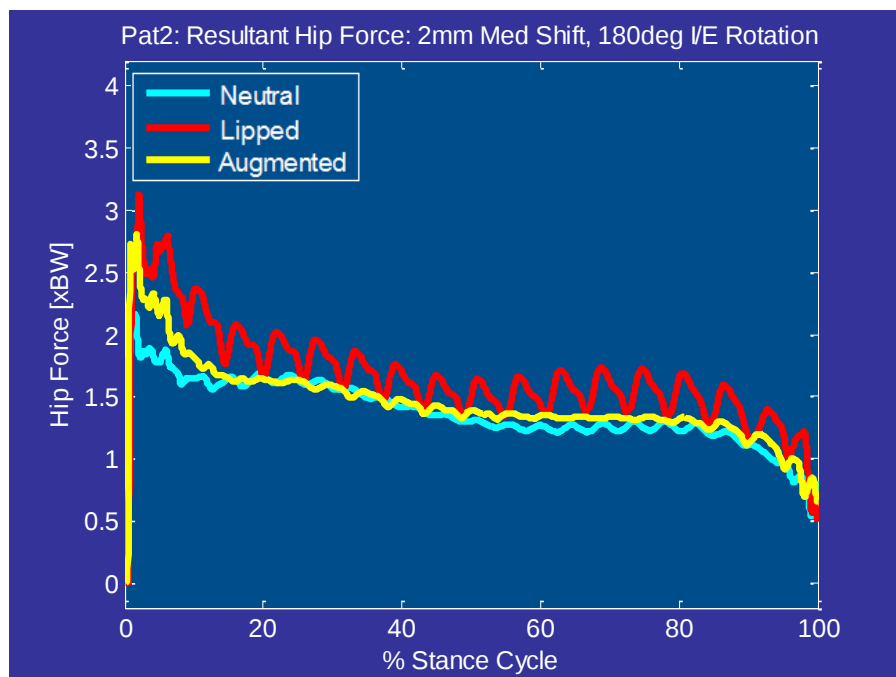


(b)

Figure D29: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

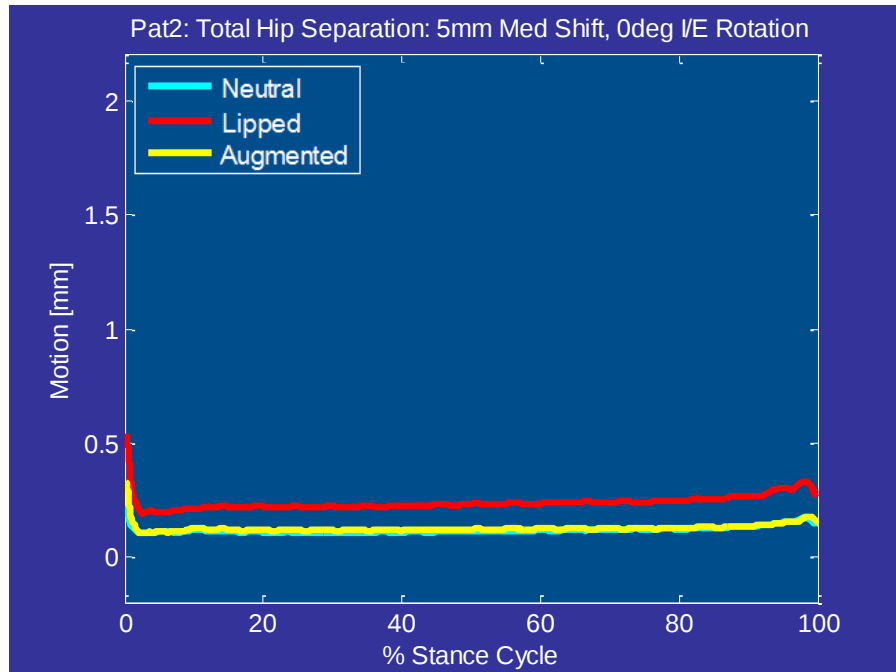


(a)

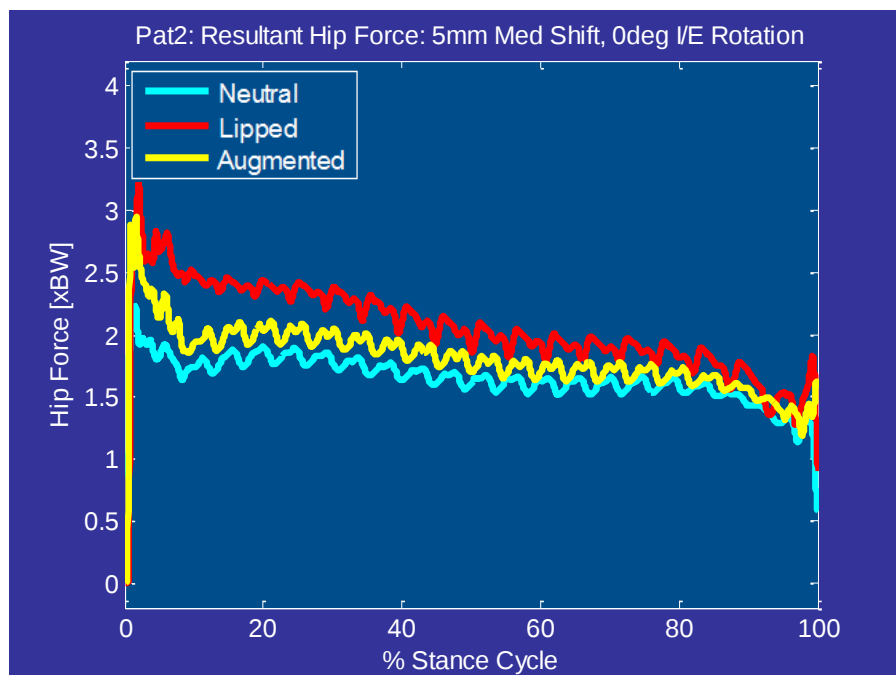


(b)

Figure D30: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

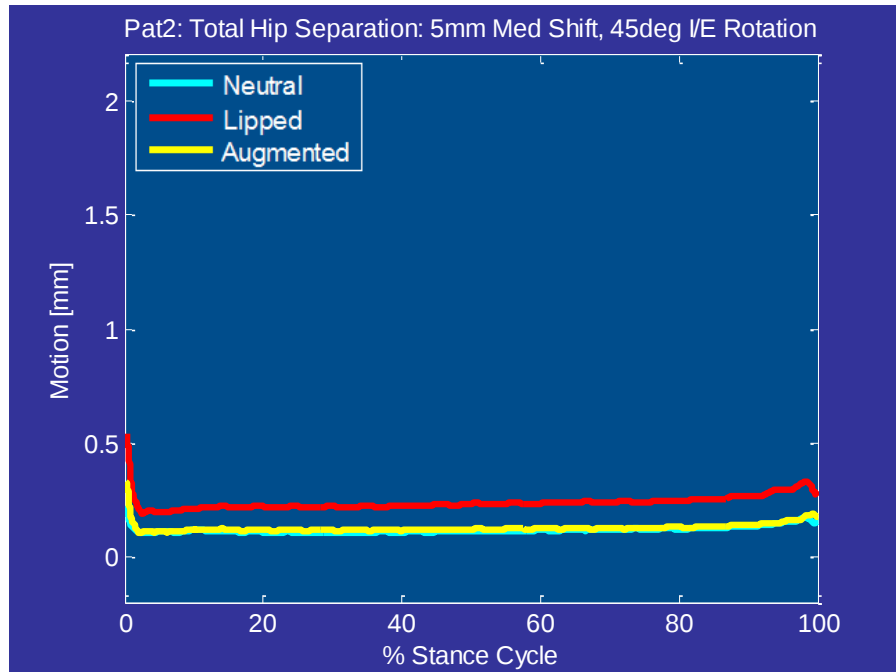


(a)

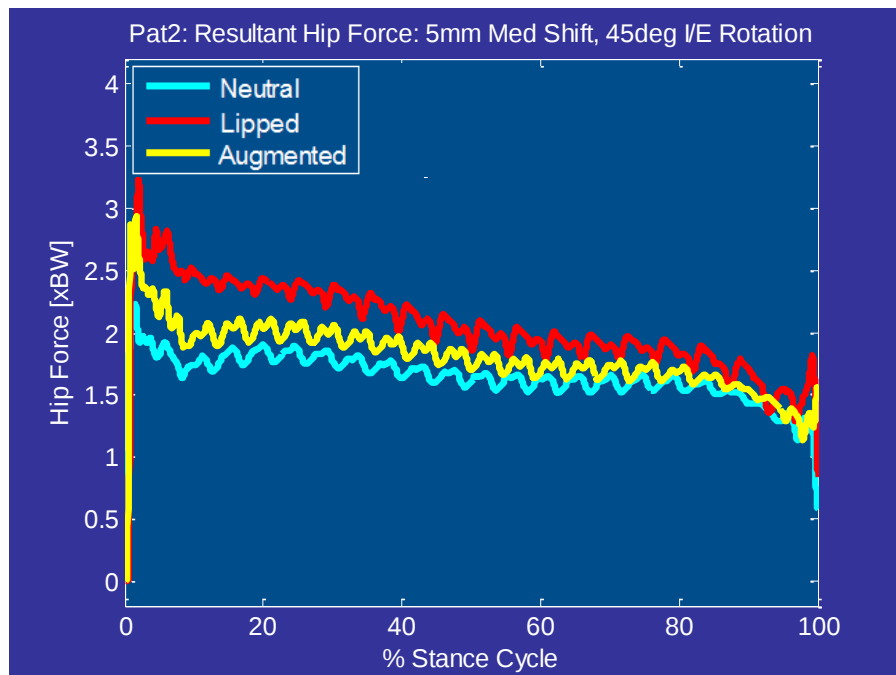


(b)

Figure D31: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

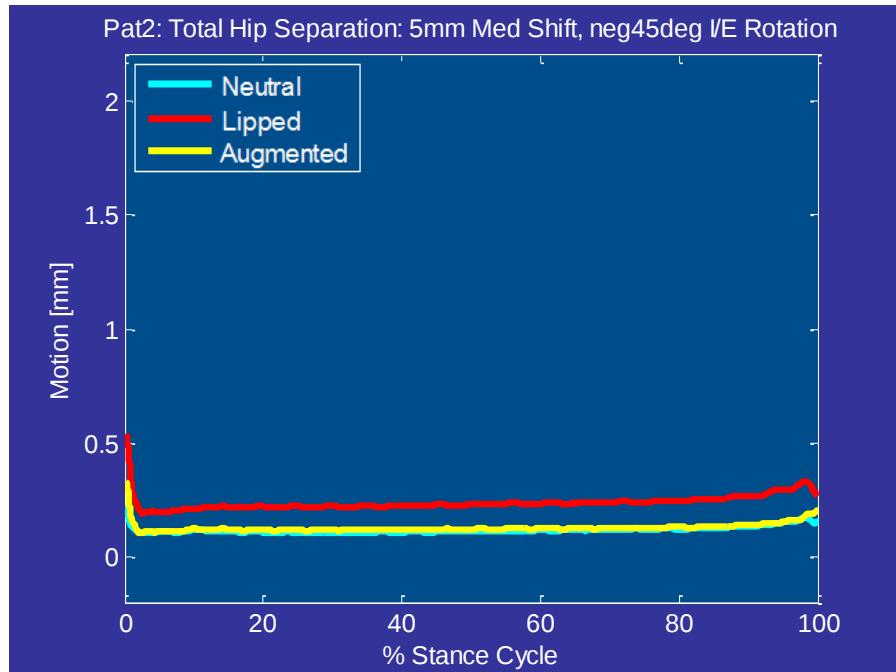


(a)

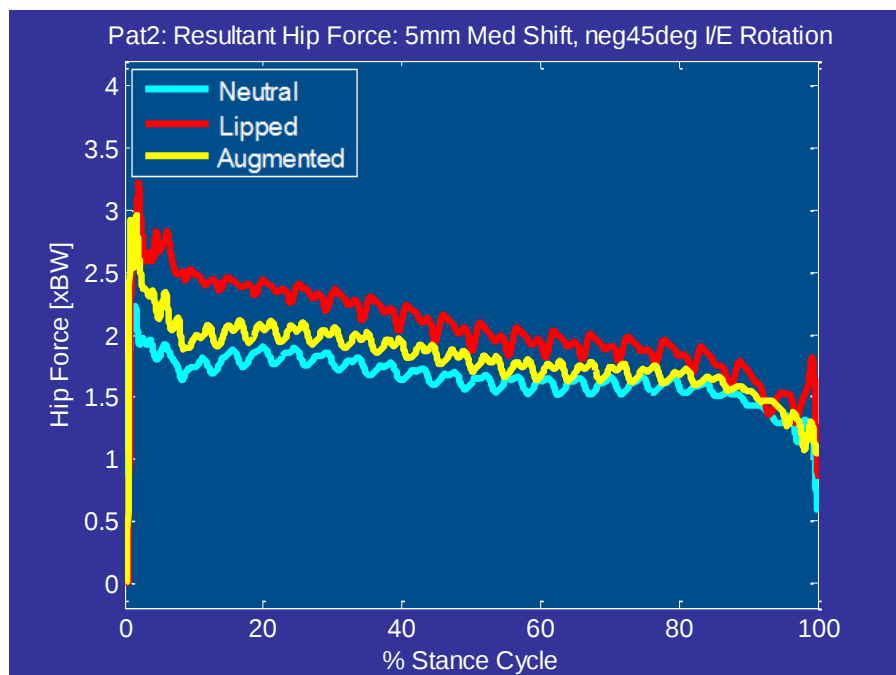


(b)

Figure D32: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

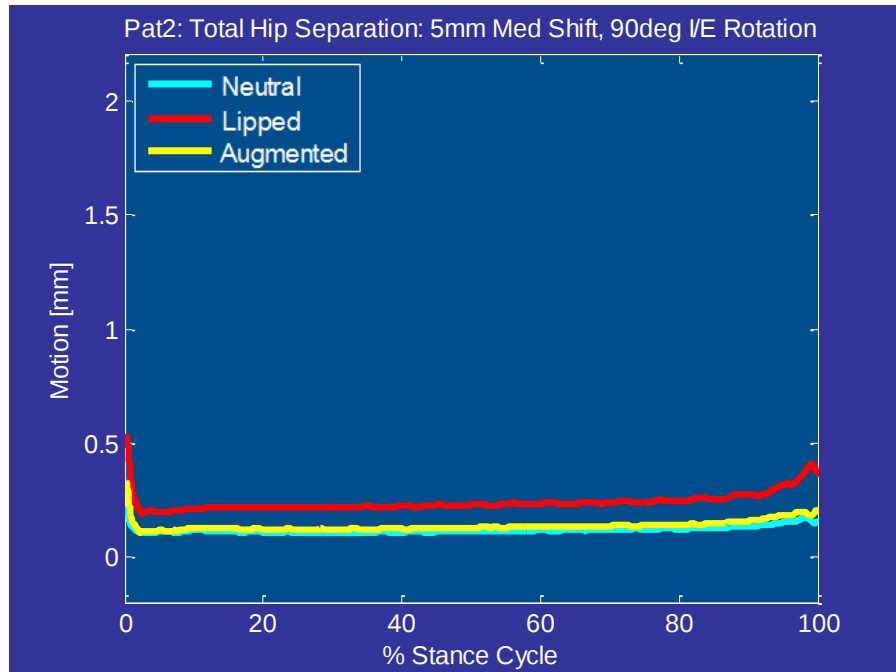


(a)

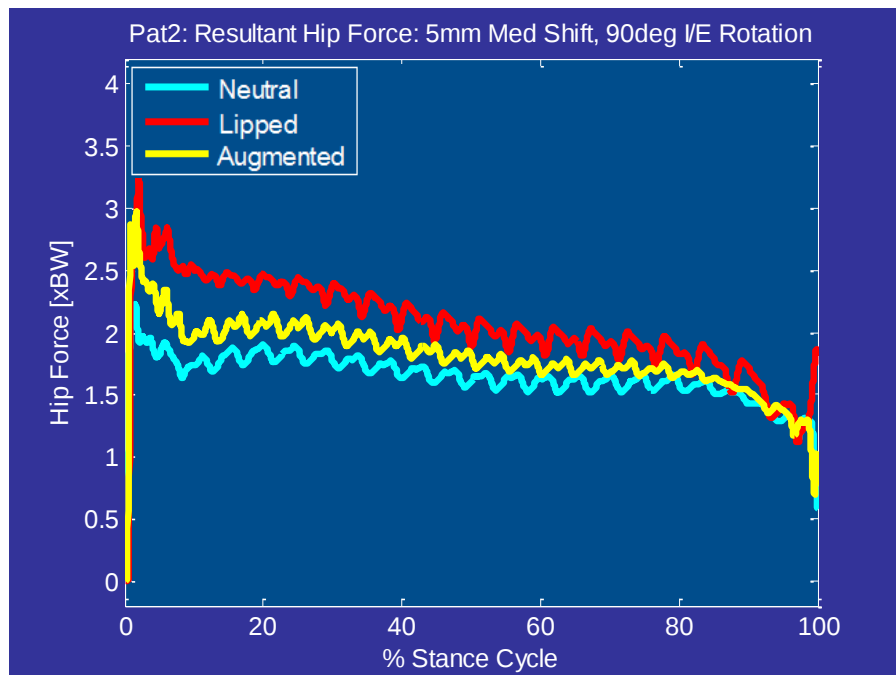


(b)

Figure D33: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
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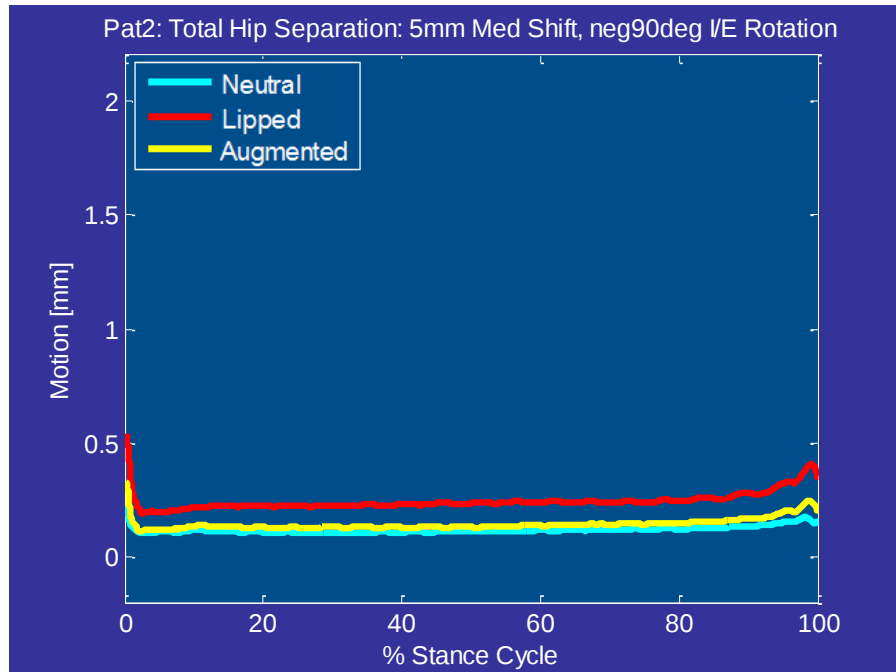


(a)

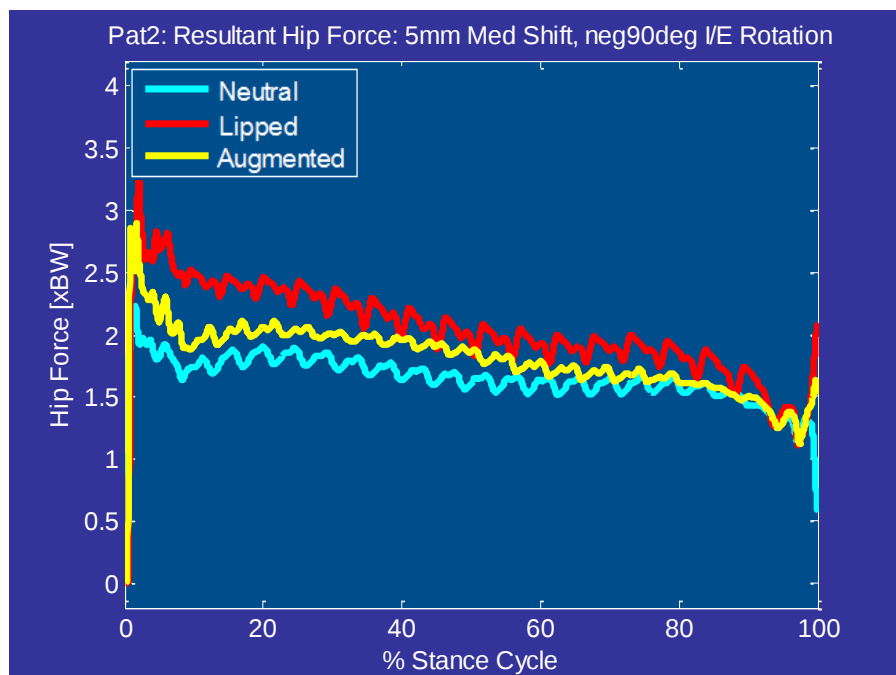


(b)

Figure D34: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

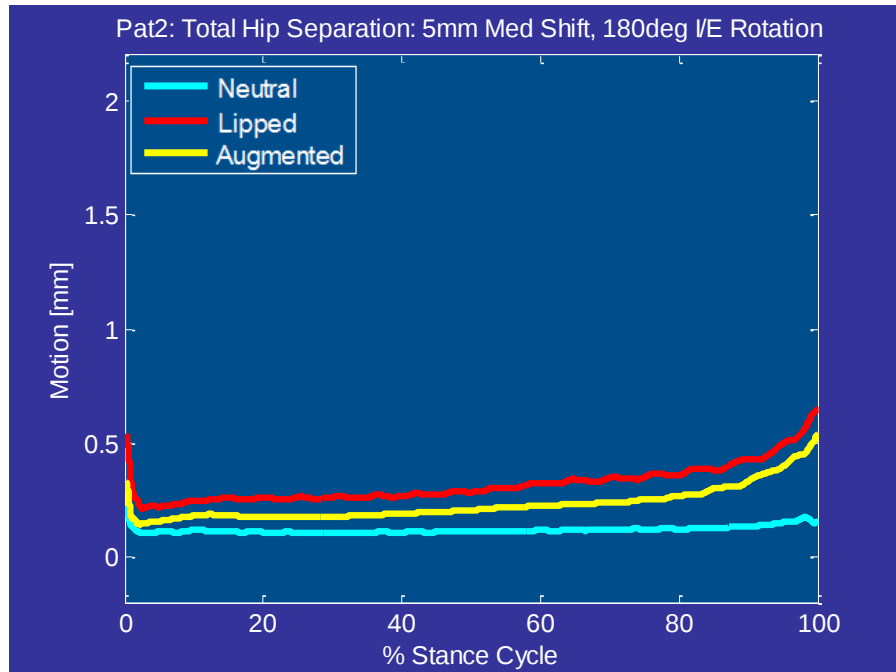


(a)

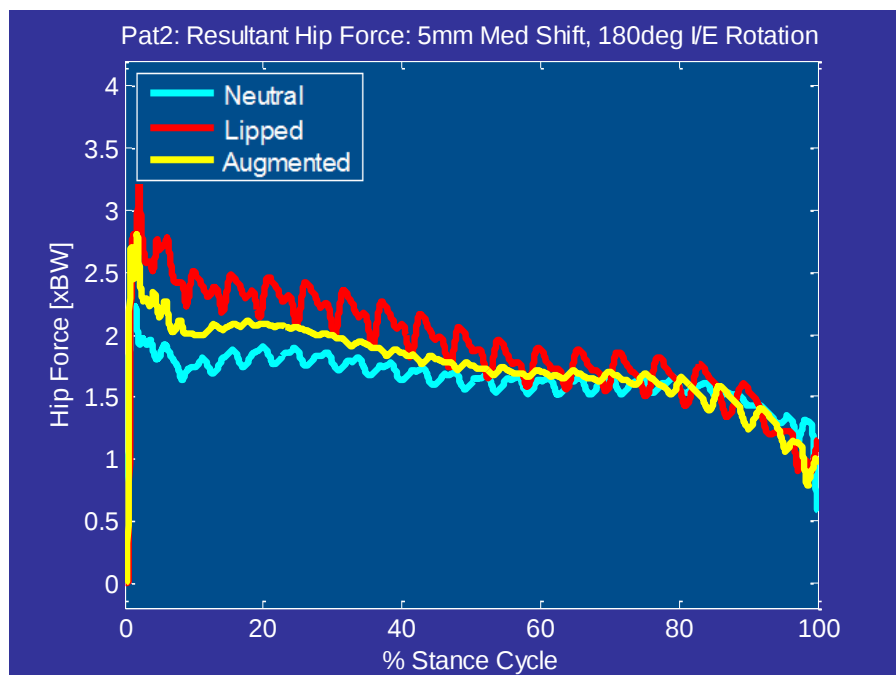


(b)

Figure D35: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

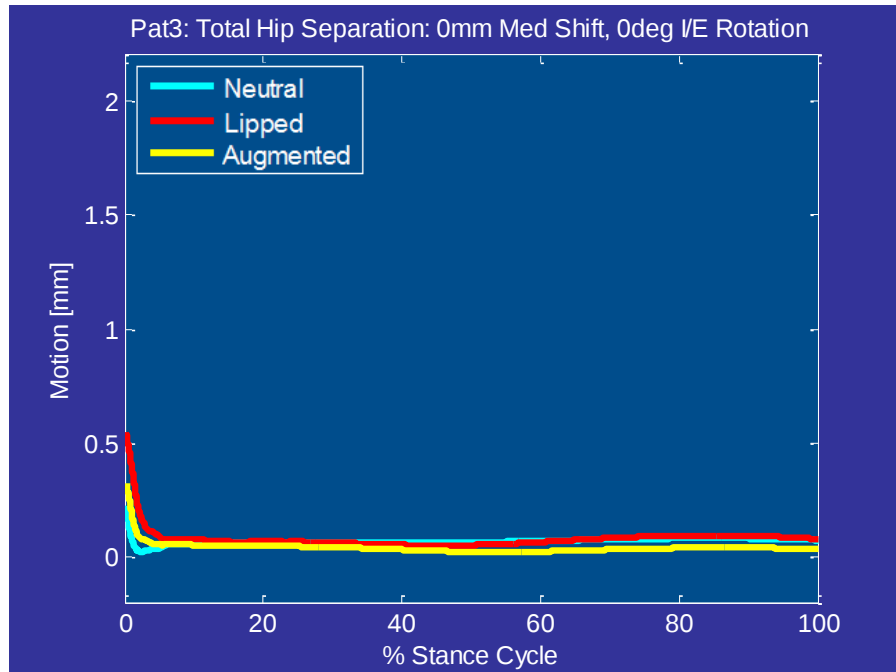


(a)

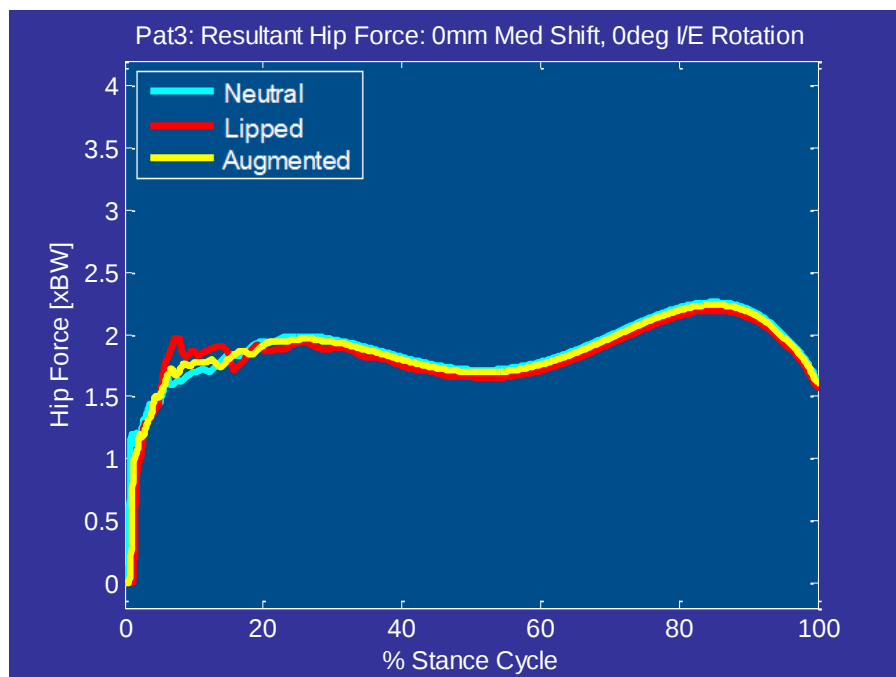


(b)

Figure D36: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

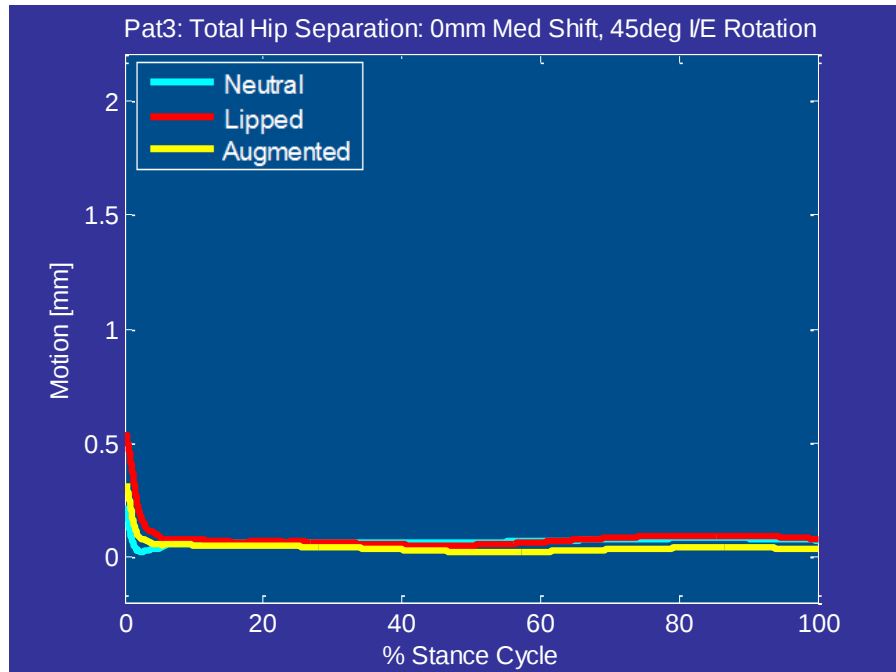


(a)

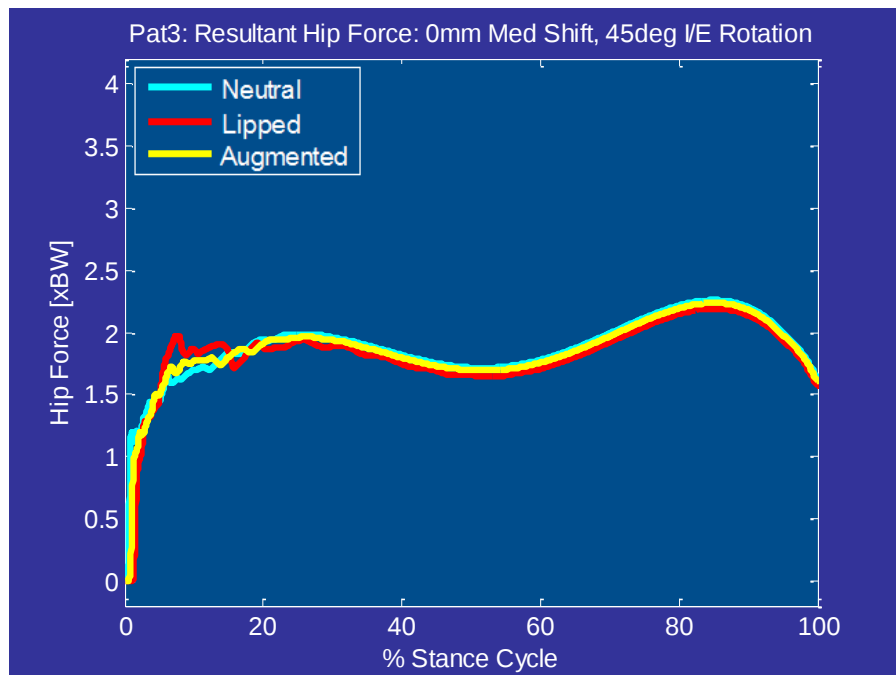


(b)

Figure D37: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

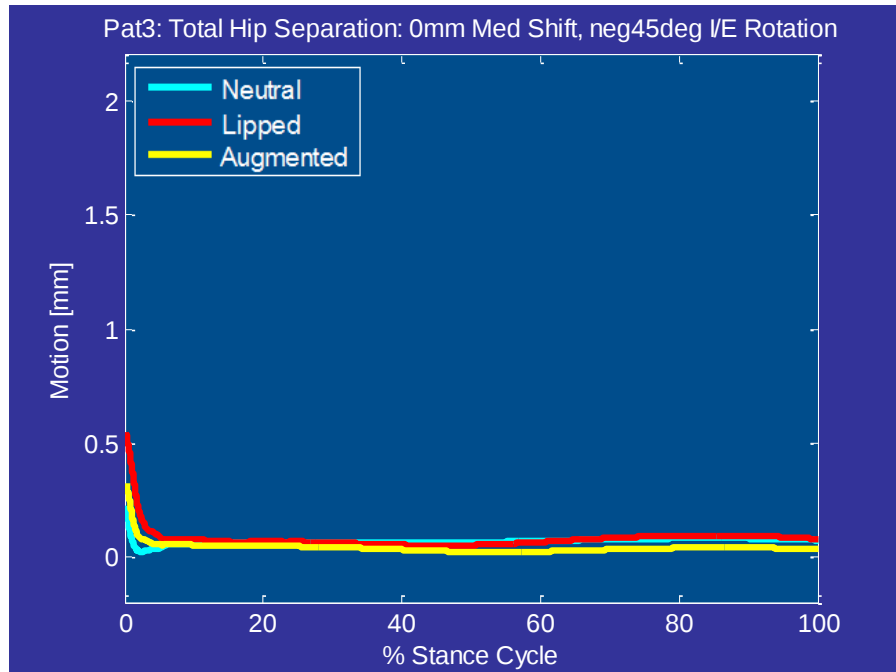


(a)

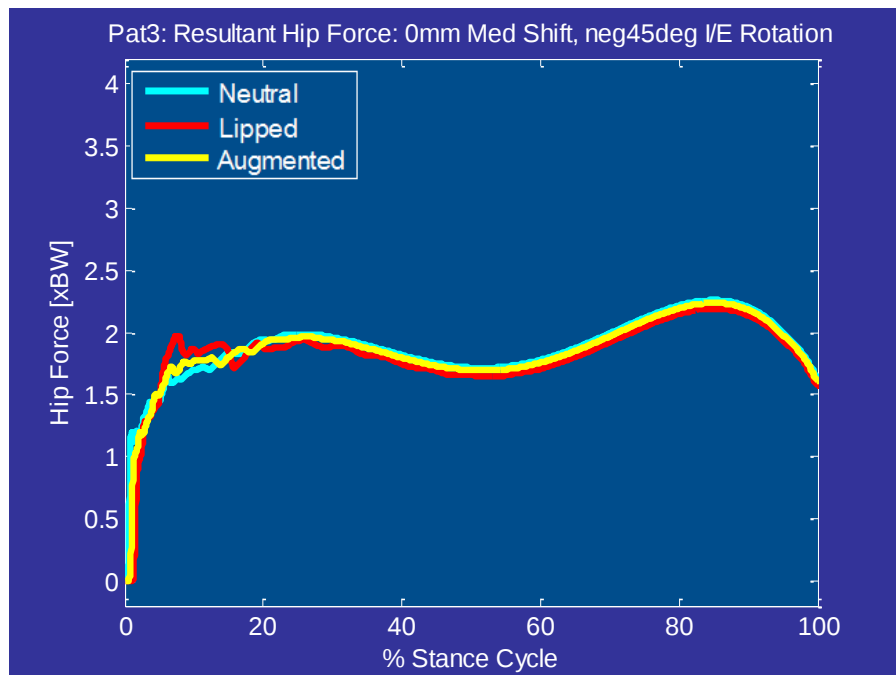


(b)

Figure D38: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

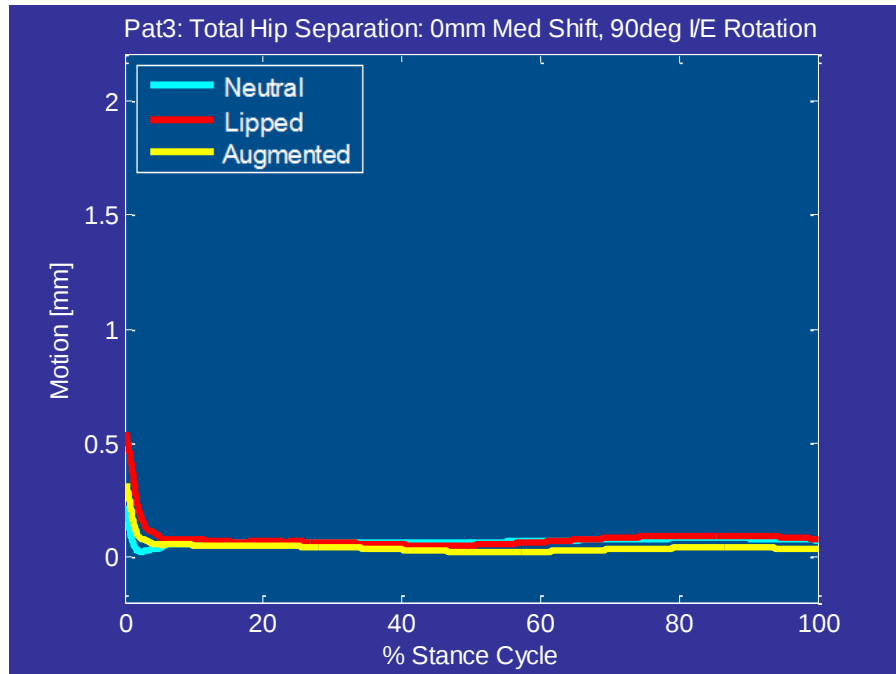


(a)

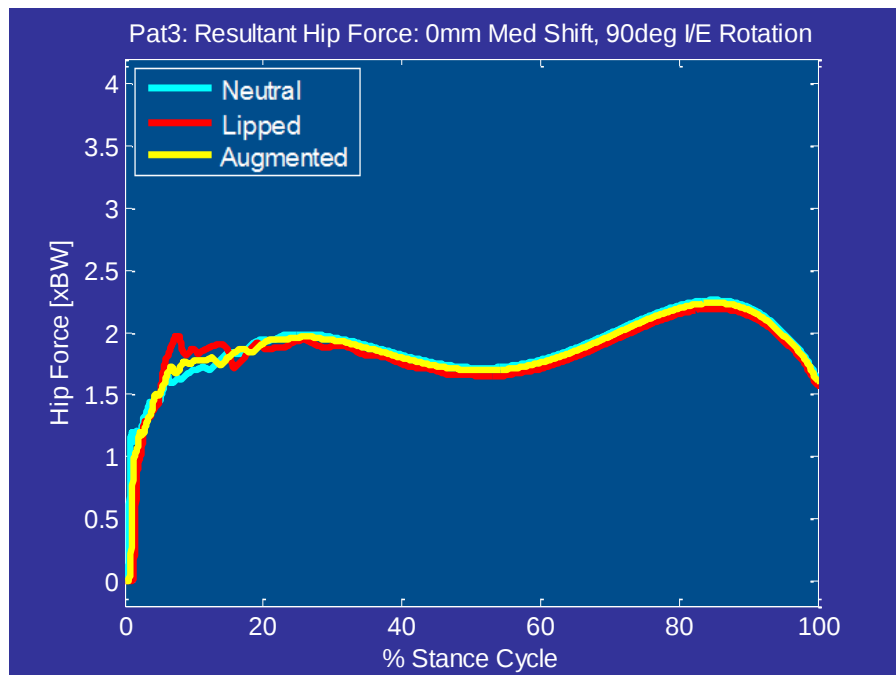


(b)

Figure D39: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

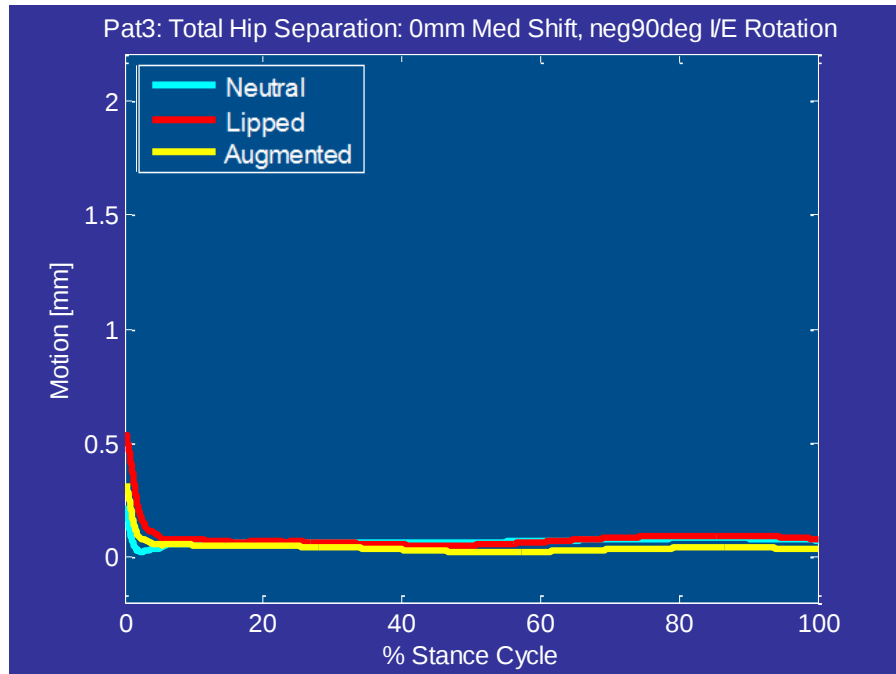


(a)

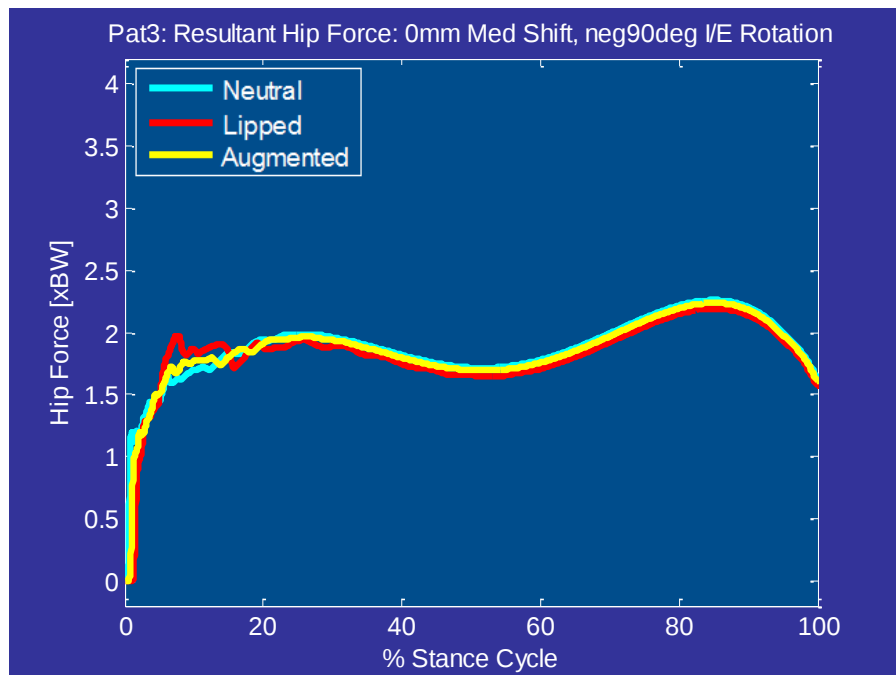


(b)

Figure D40: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

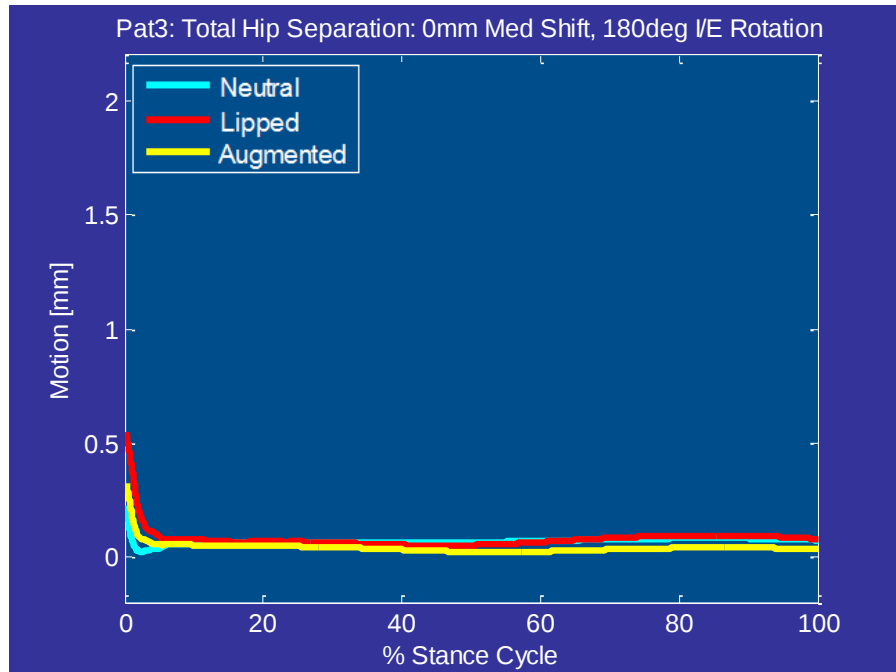


(a)

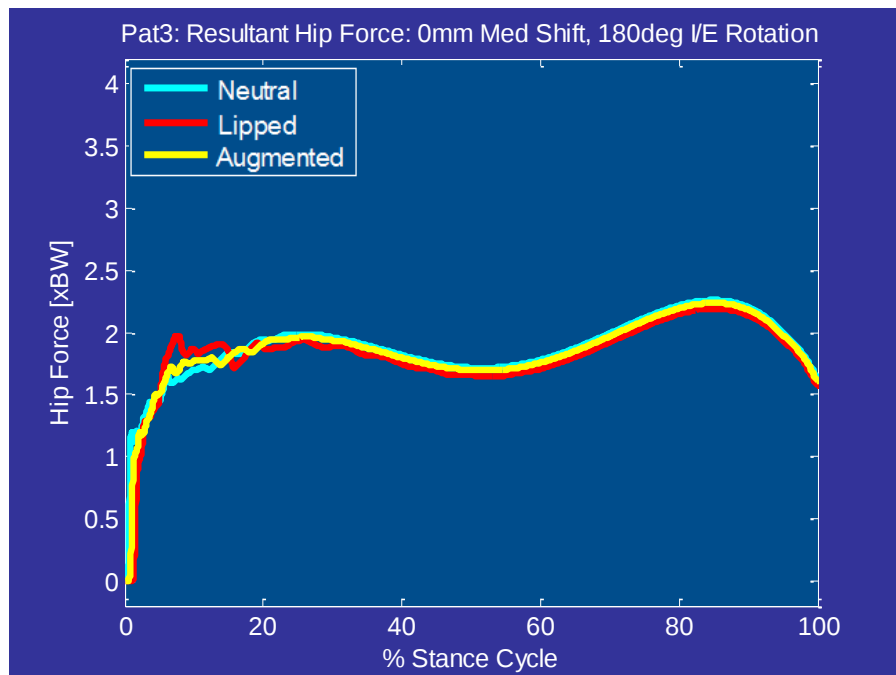


(b)

Figure D41: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

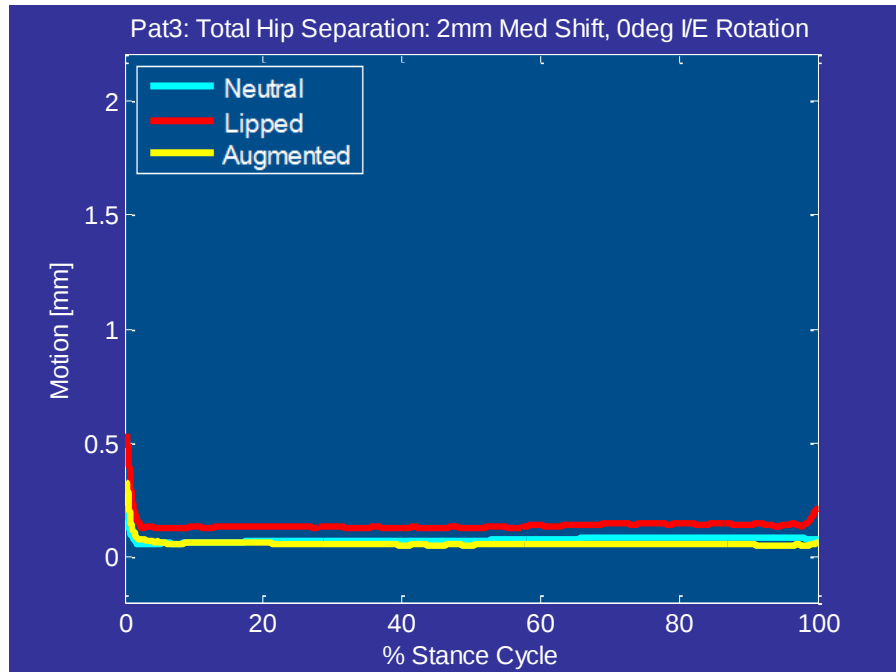


(a)



(b)

Figure D42: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

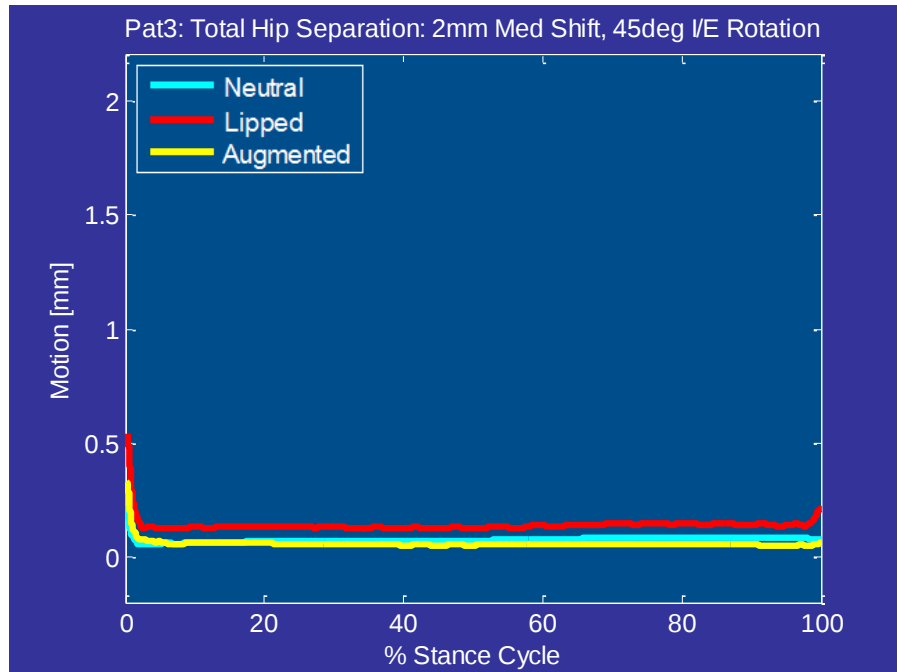


(a)



(b)

Figure D43: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

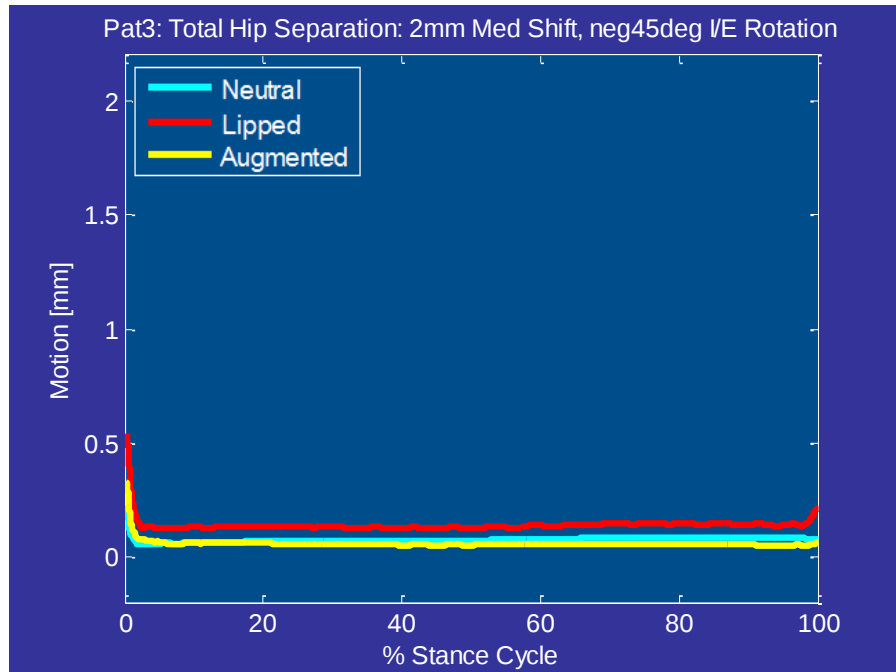


(a)



(b)

Figure D44: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

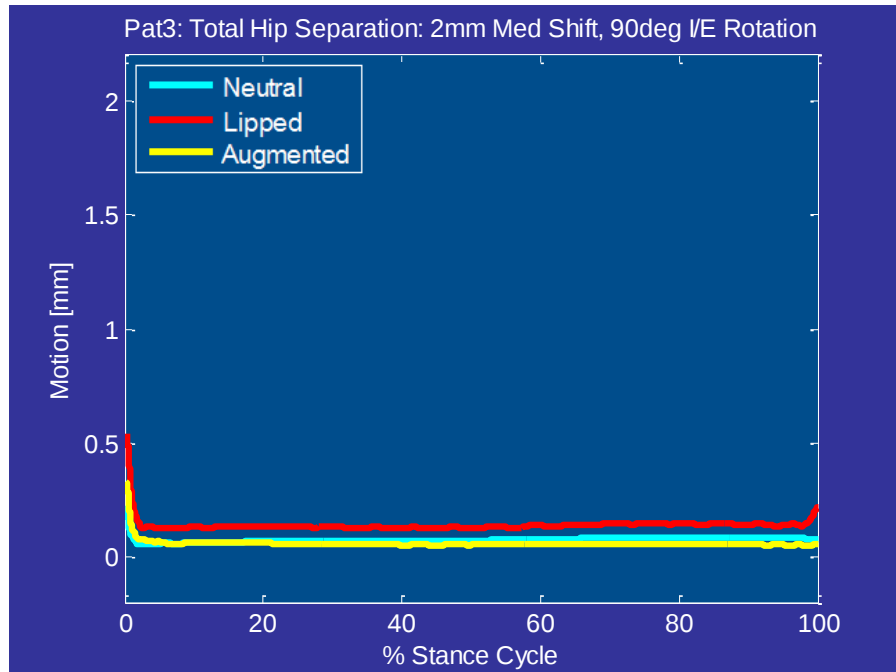


(a)

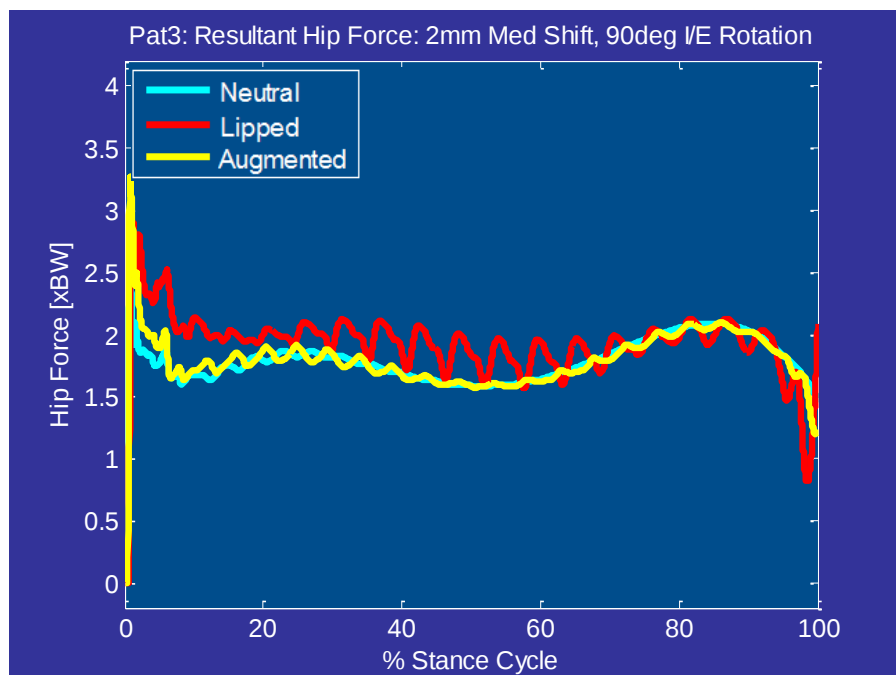


(b)

Figure D45: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

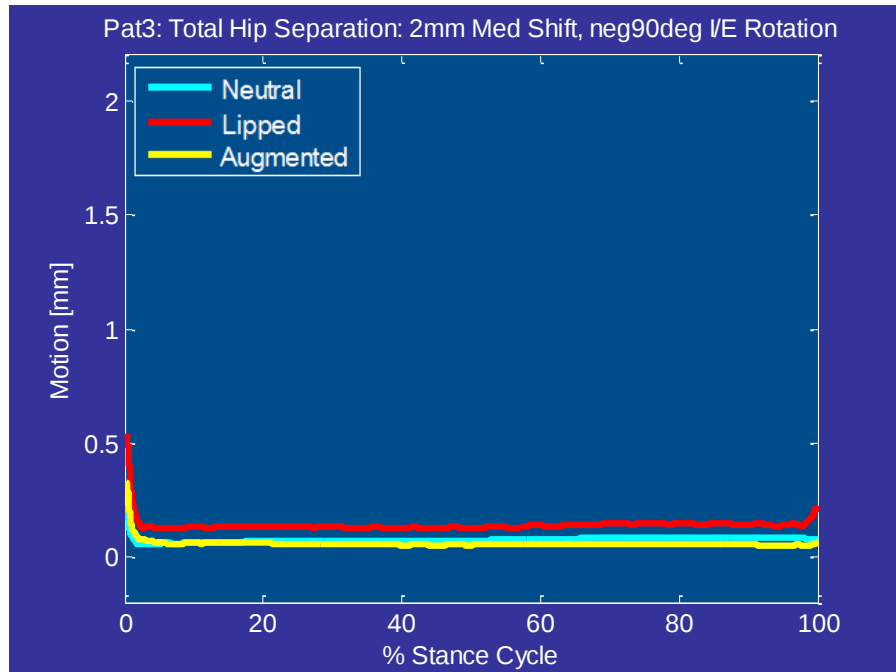


(a)

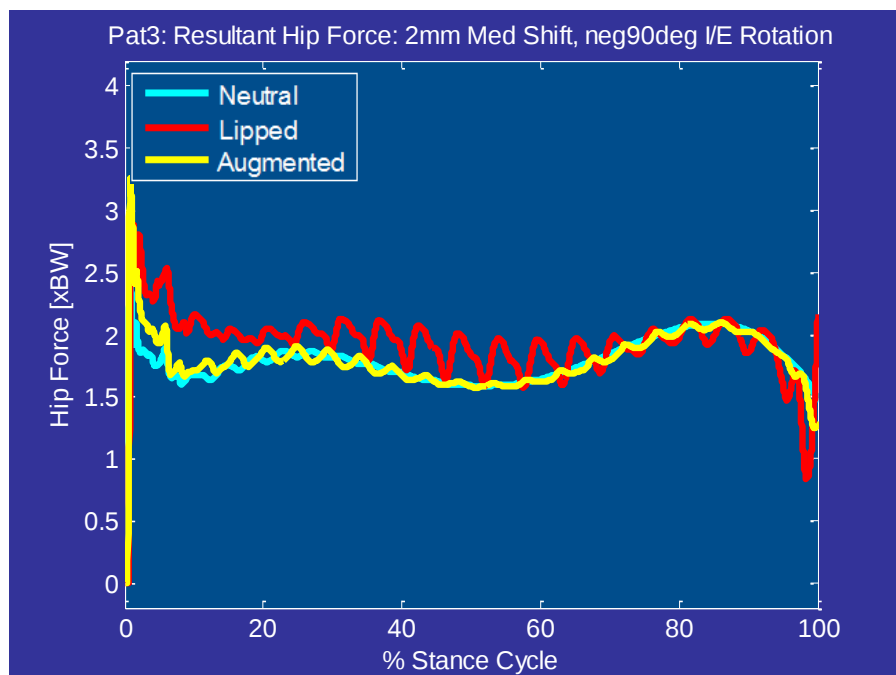


(b)

Figure D46: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

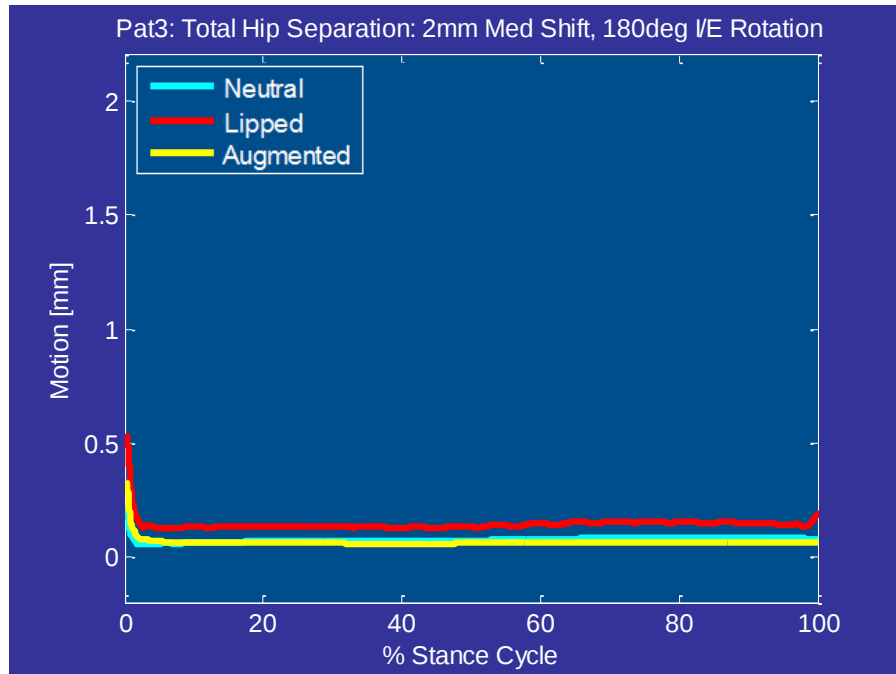


(a)

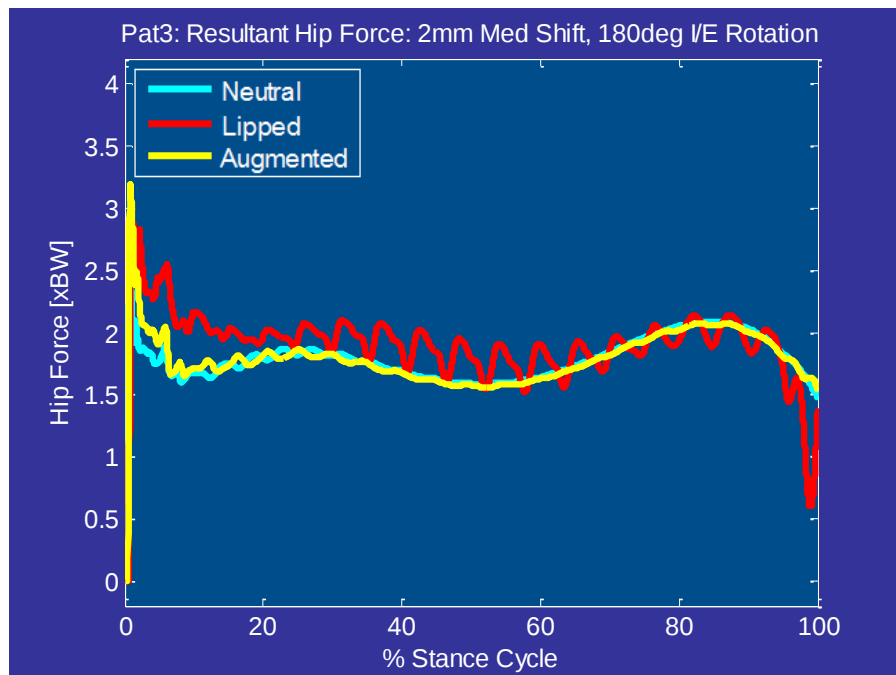


(b)

Figure D47: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

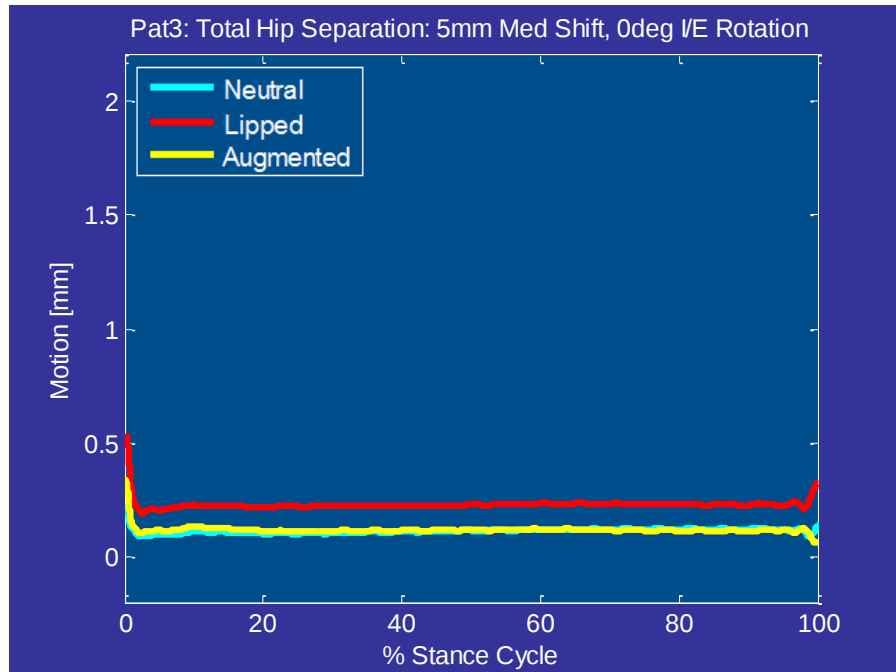


(a)

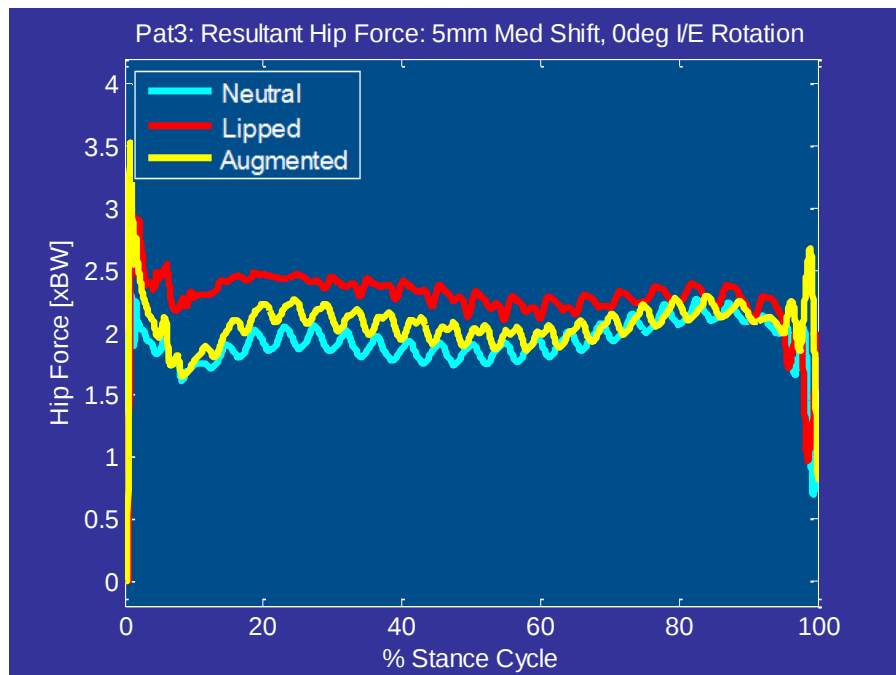


(b)

Figure D48: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

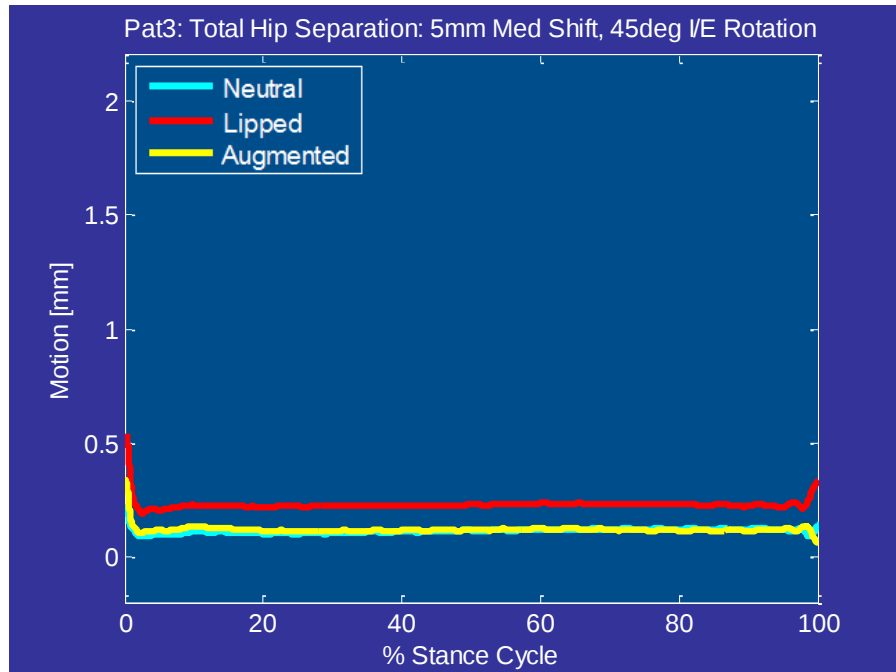


(a)

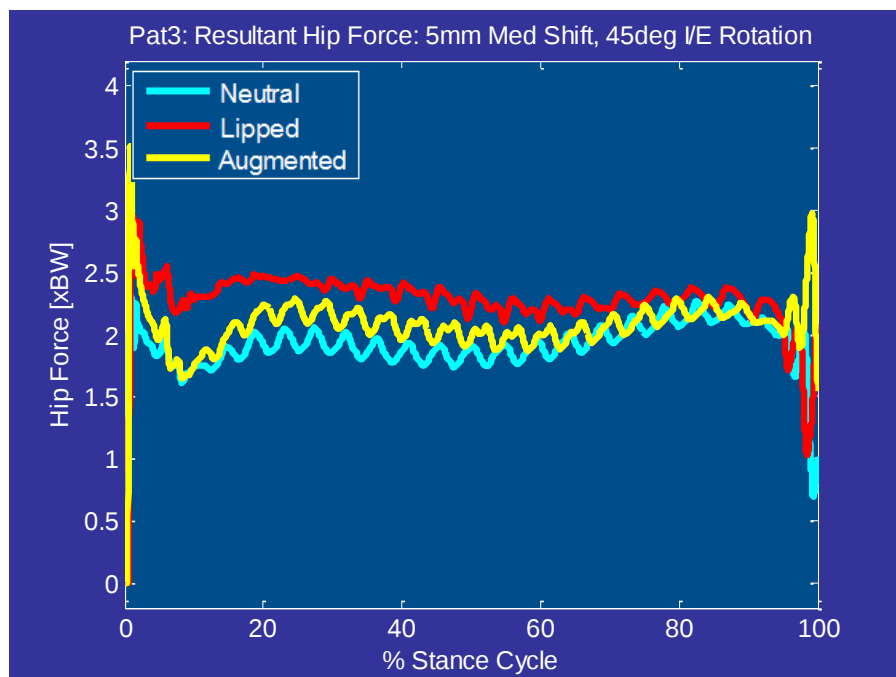


(b)

Figure D49: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

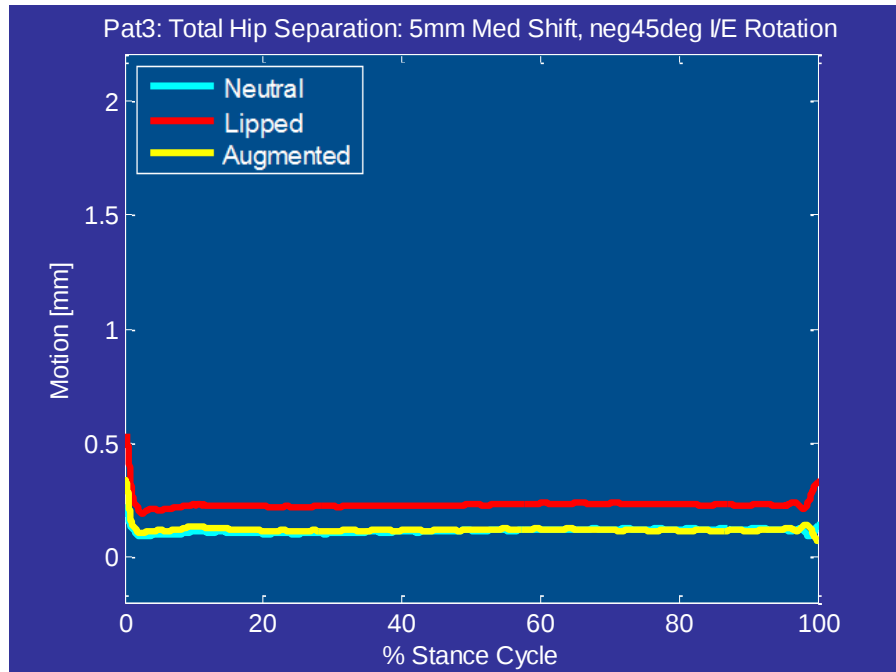


(a)

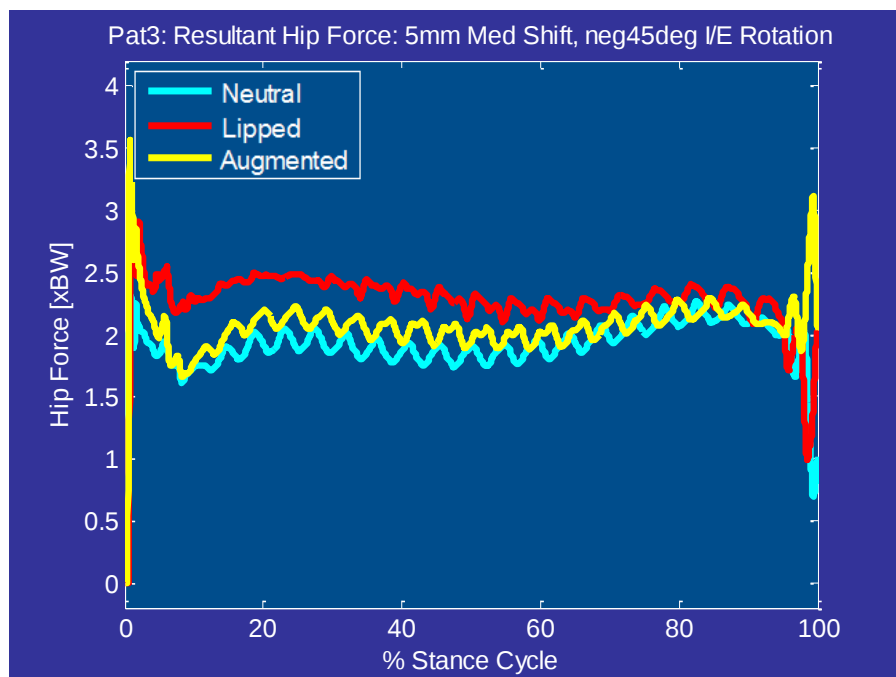


(b)

Figure D50: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

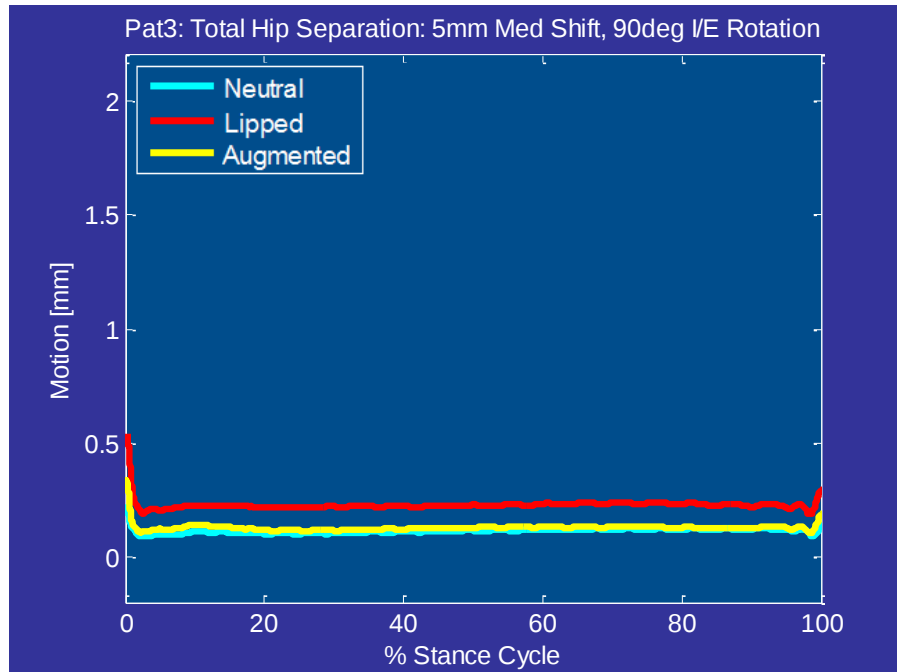


(a)

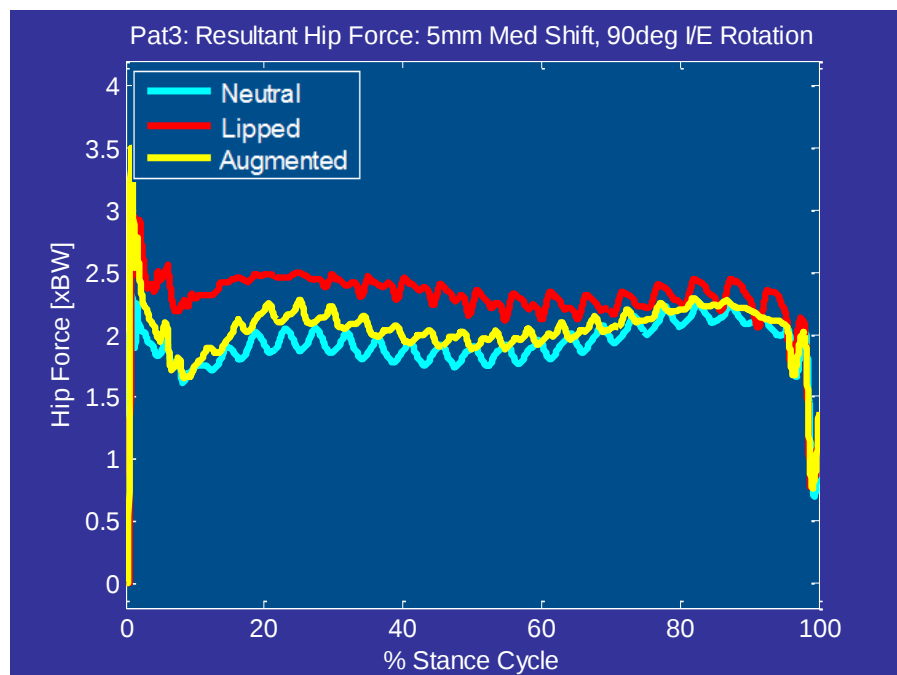


(b)

Figure D51: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

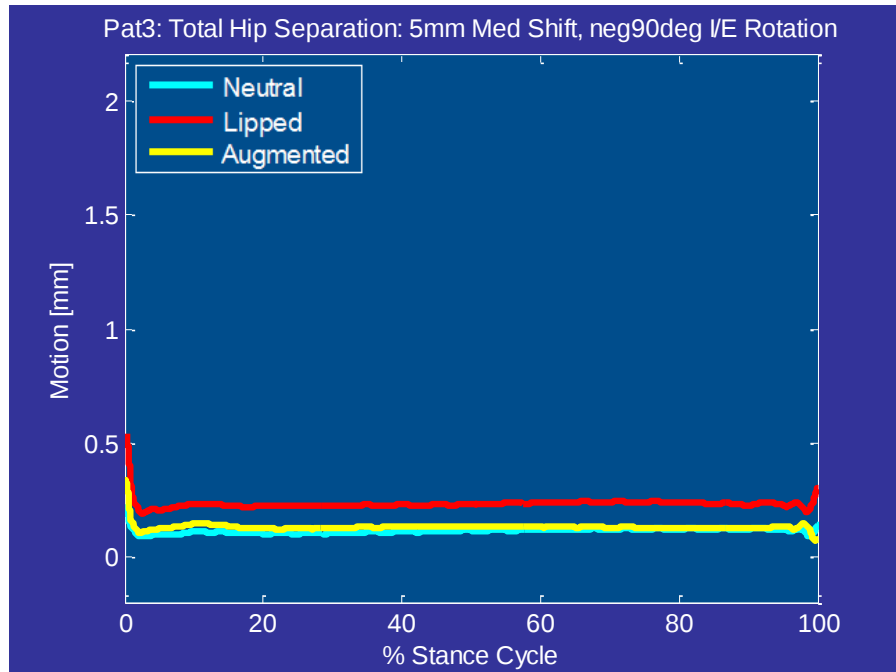


(a)

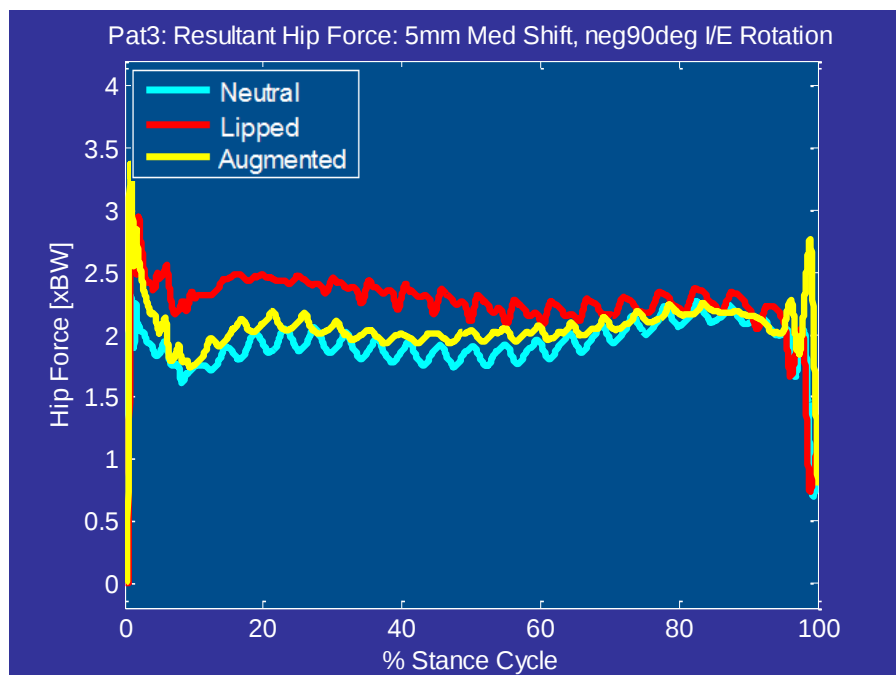


(b)

Figure D52: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

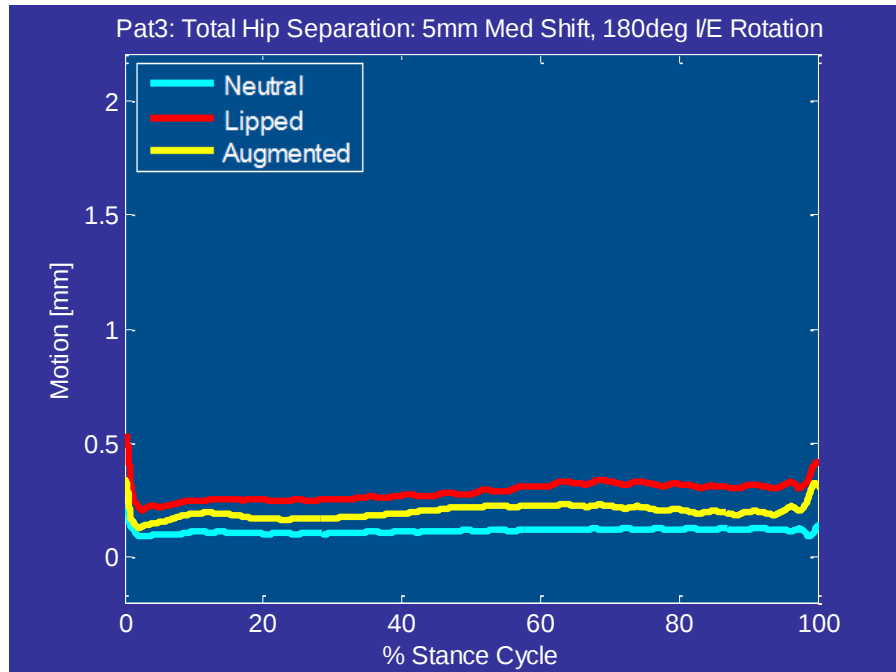


(a)

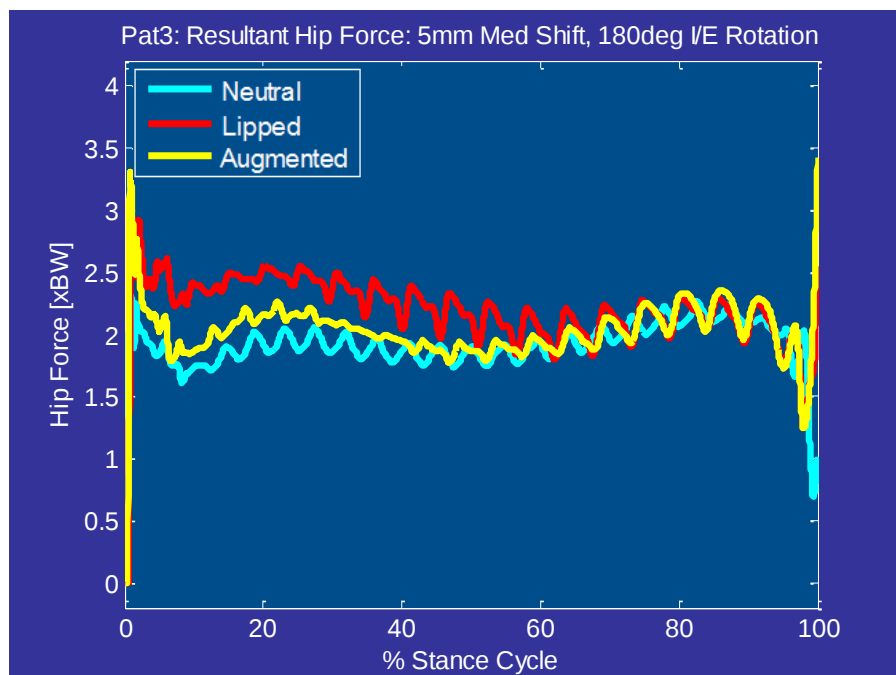


(b)

Figure D53: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

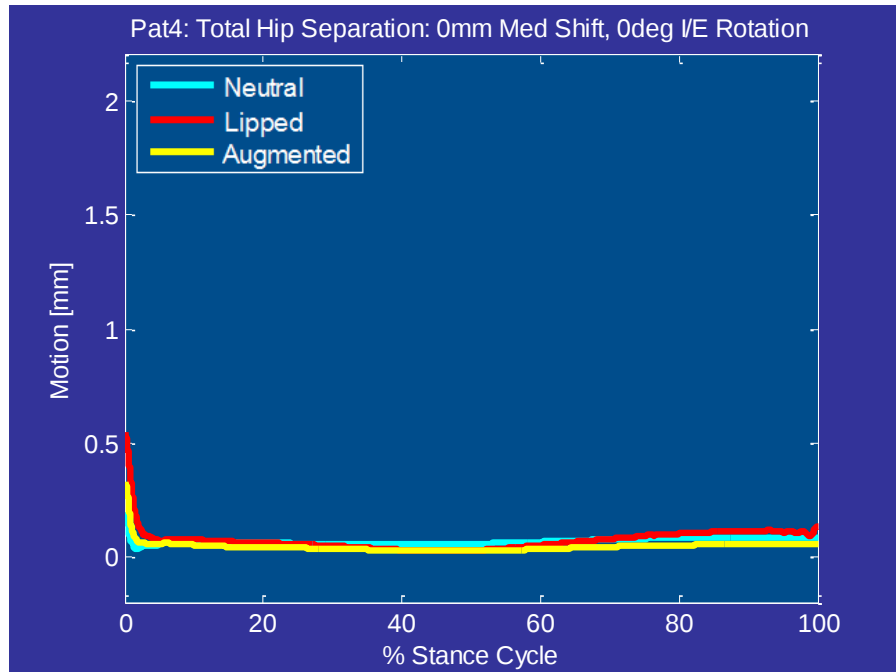


(a)

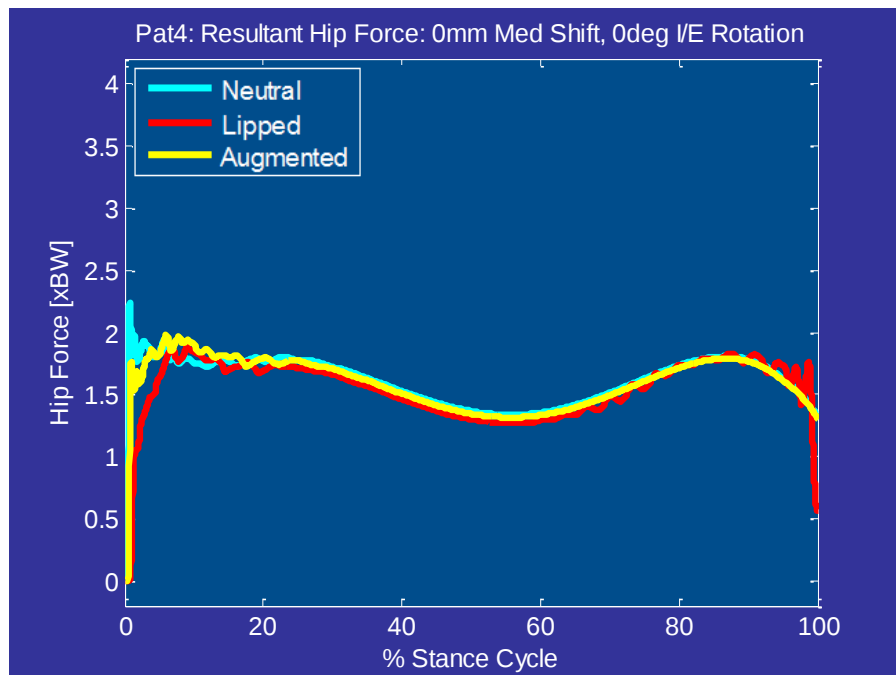


(b)

Figure D54: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

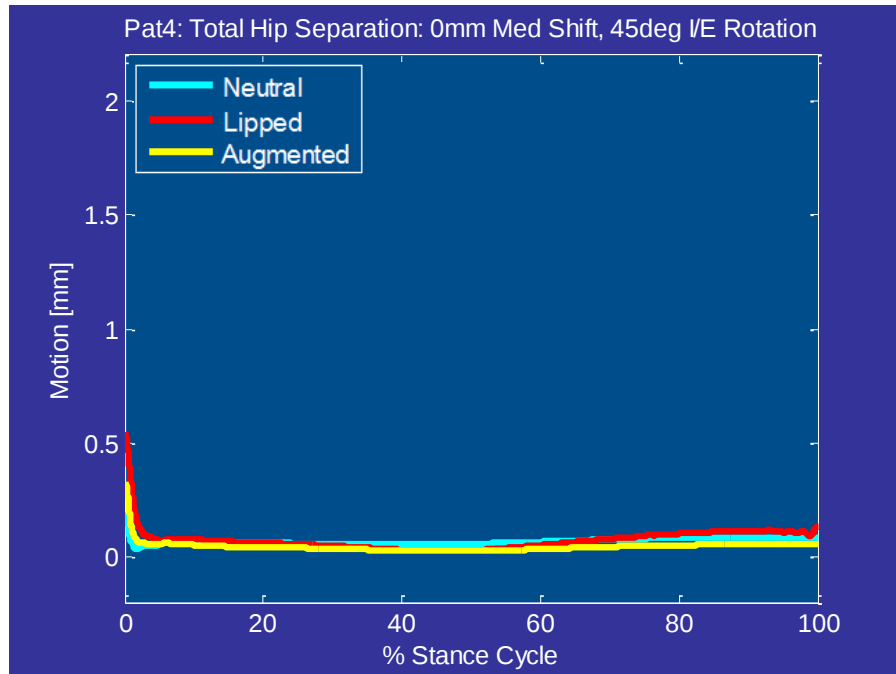


(a)

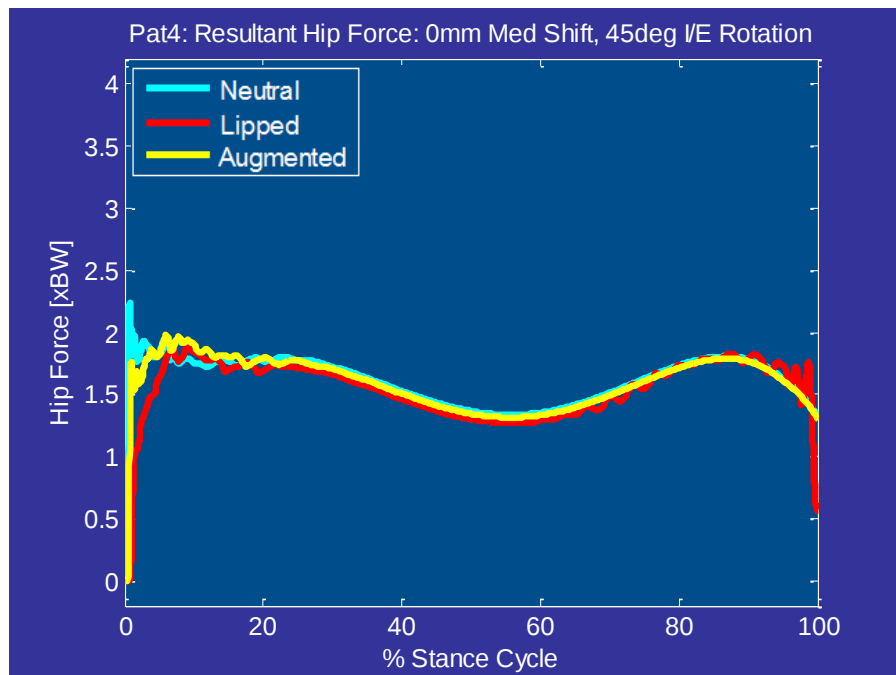


(b)

Figure D55: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

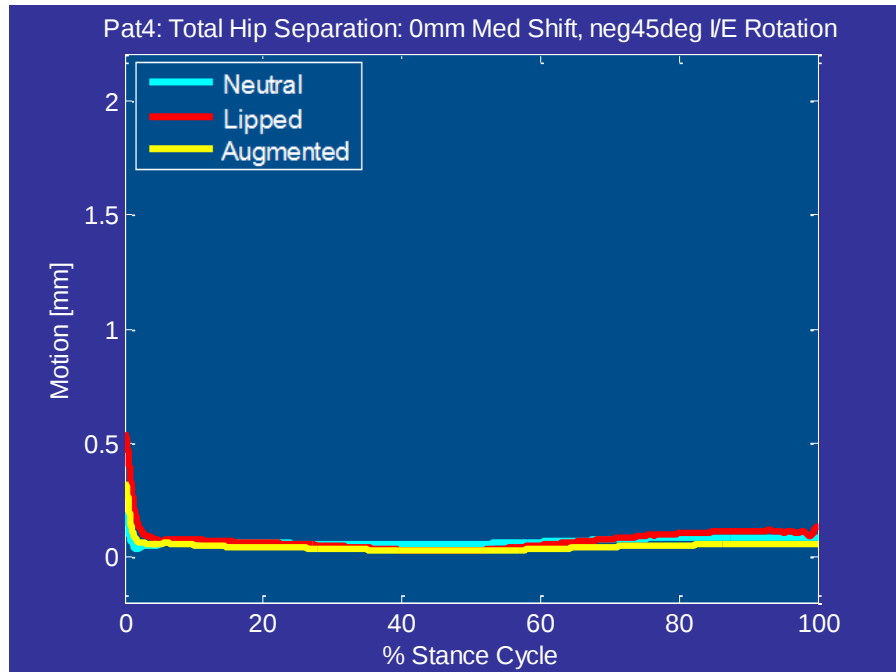


(a)

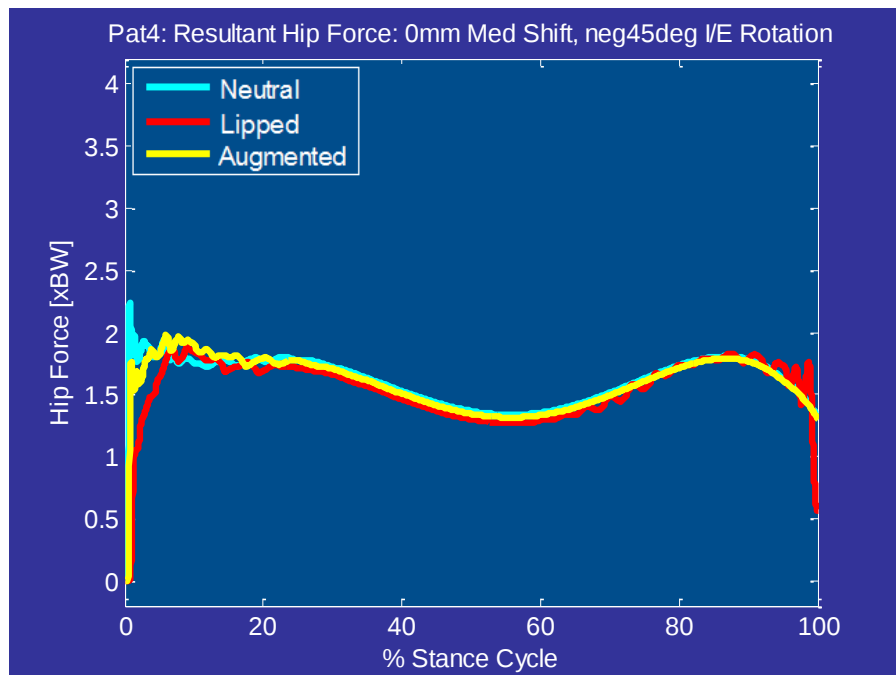


(b)

Figure D56: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

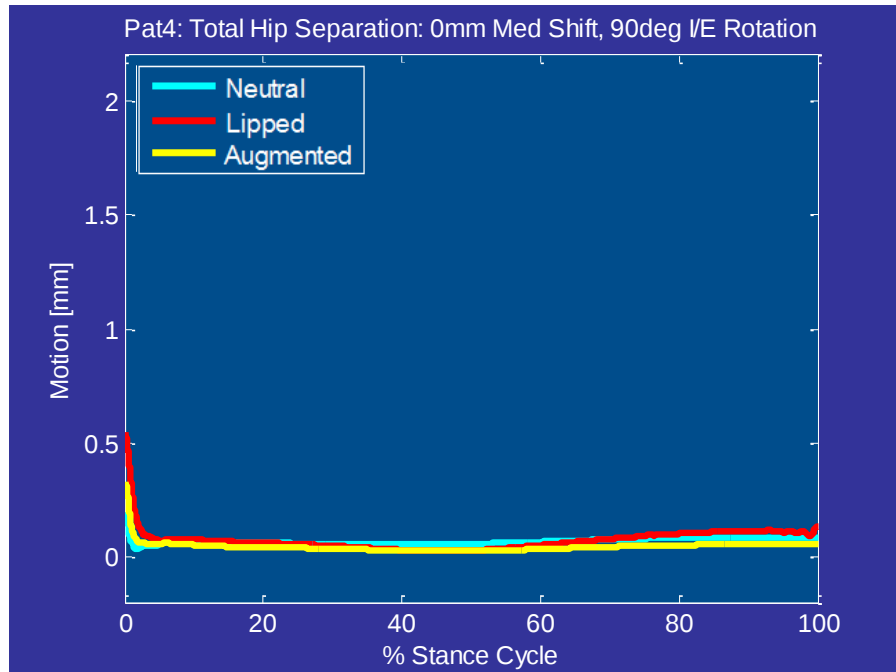


(a)

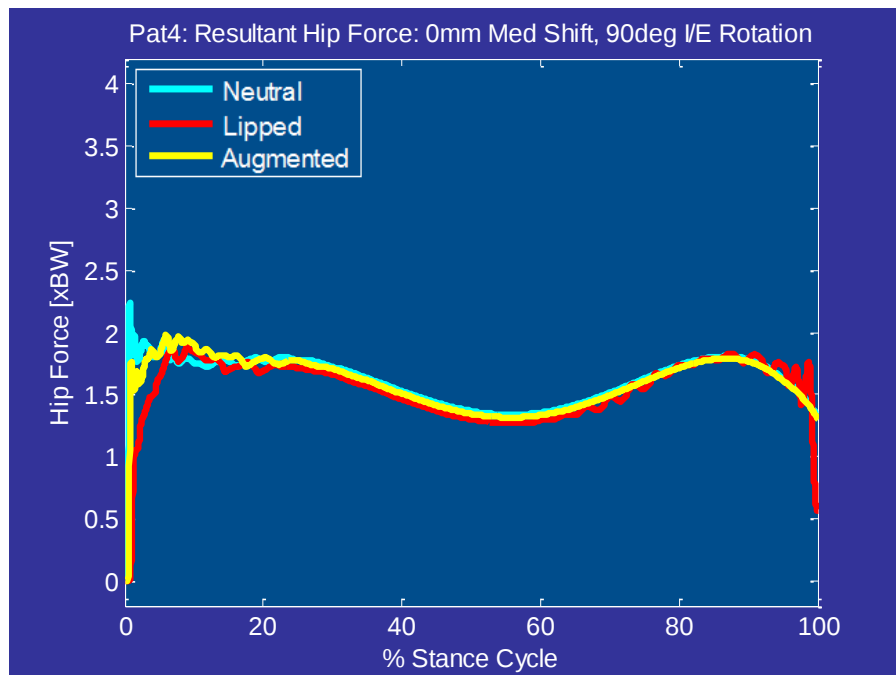


(b)

Figure D57: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

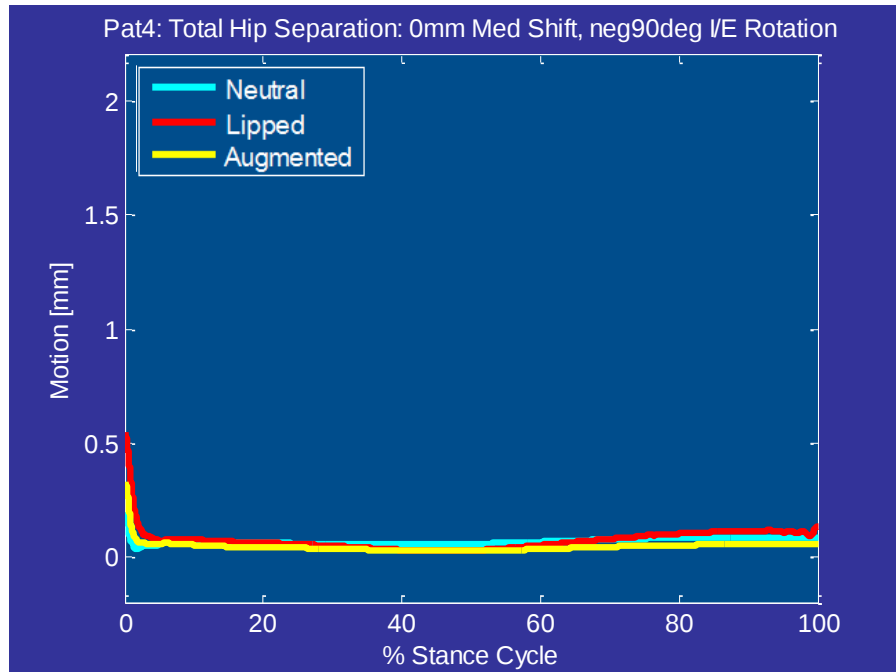


(a)

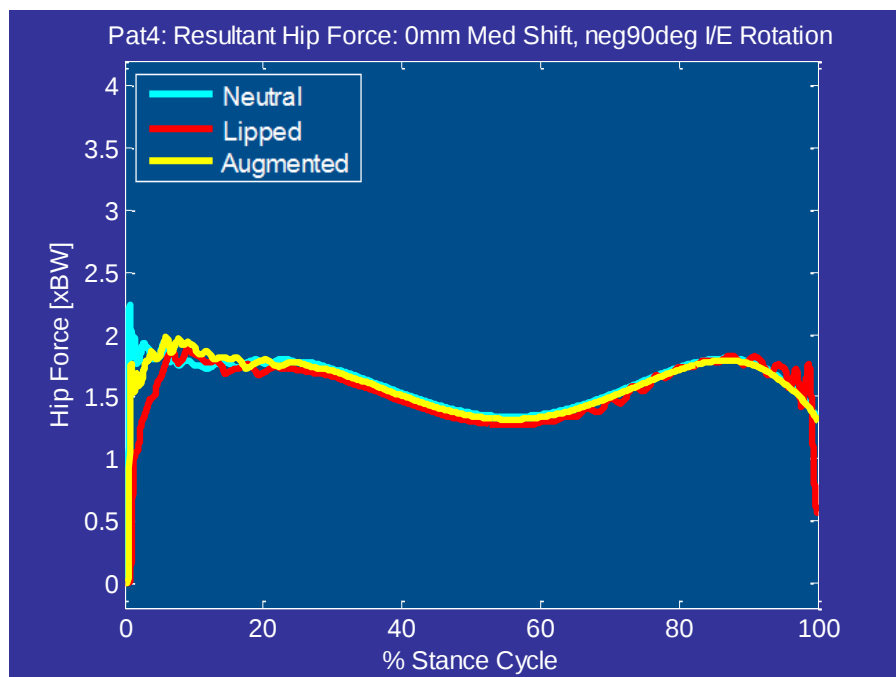


(b)

Figure D58: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

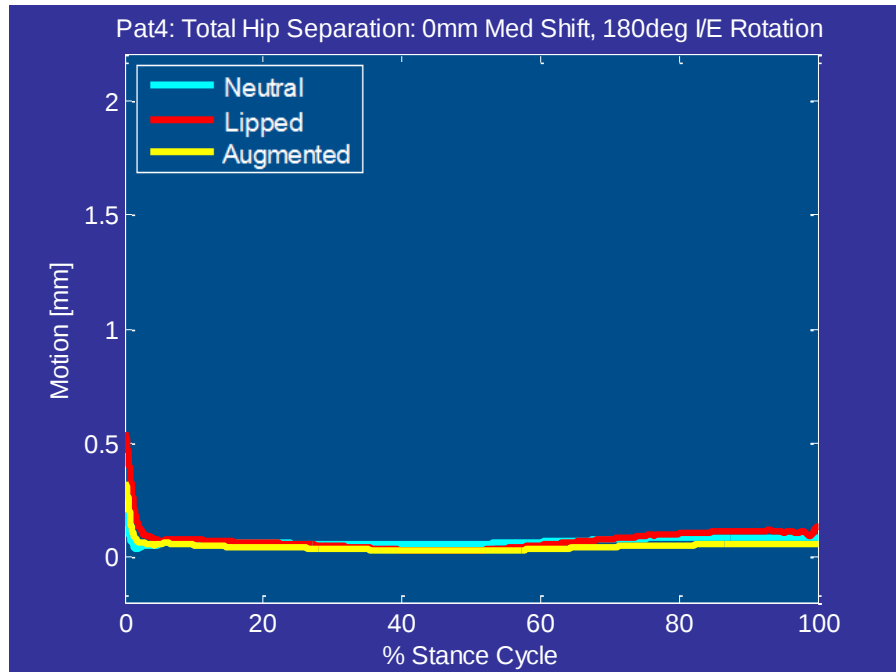


(a)

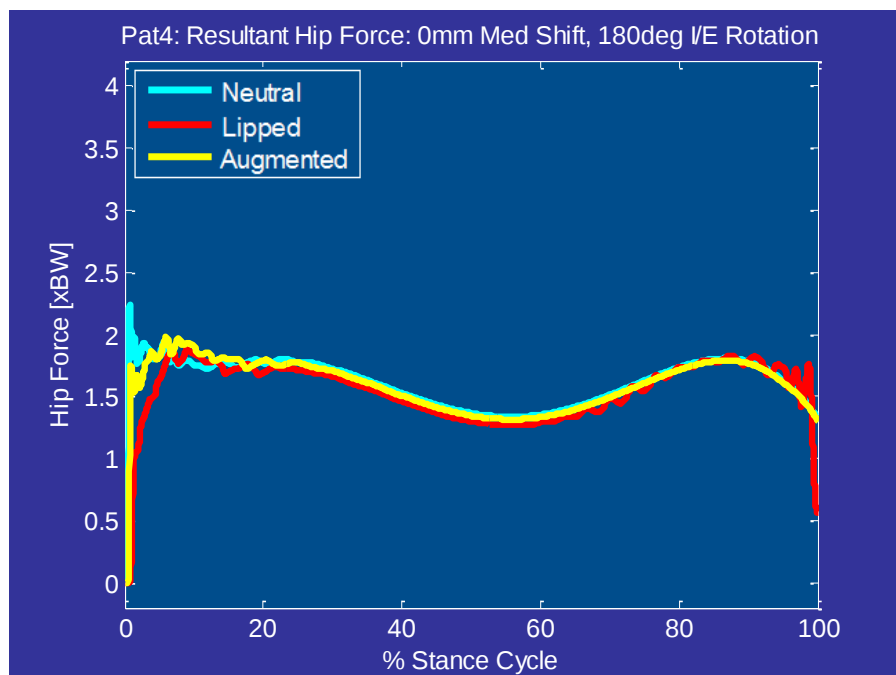


(b)

Figure D59: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

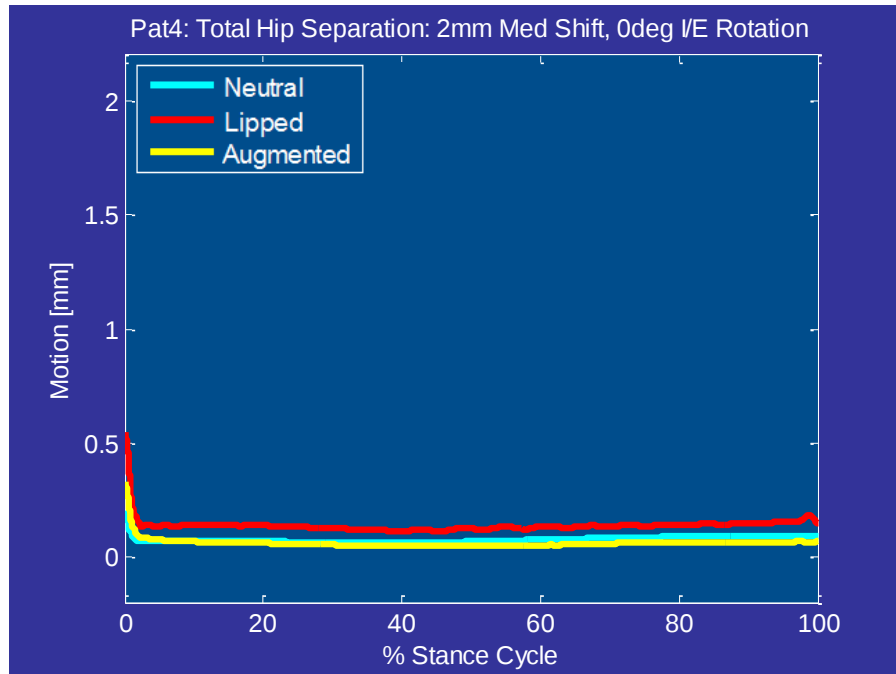


(a)

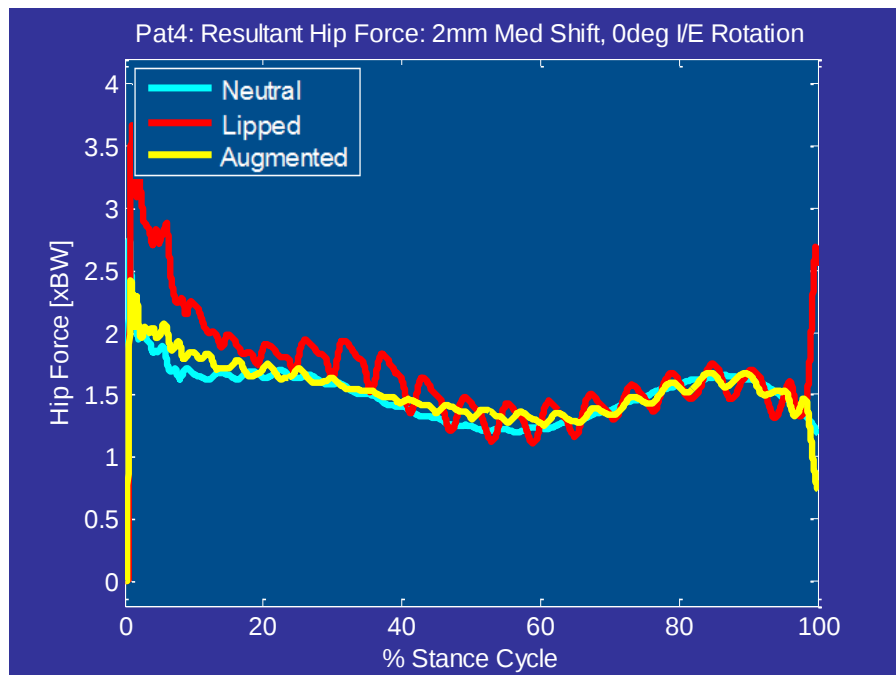


(b)

Figure D60: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

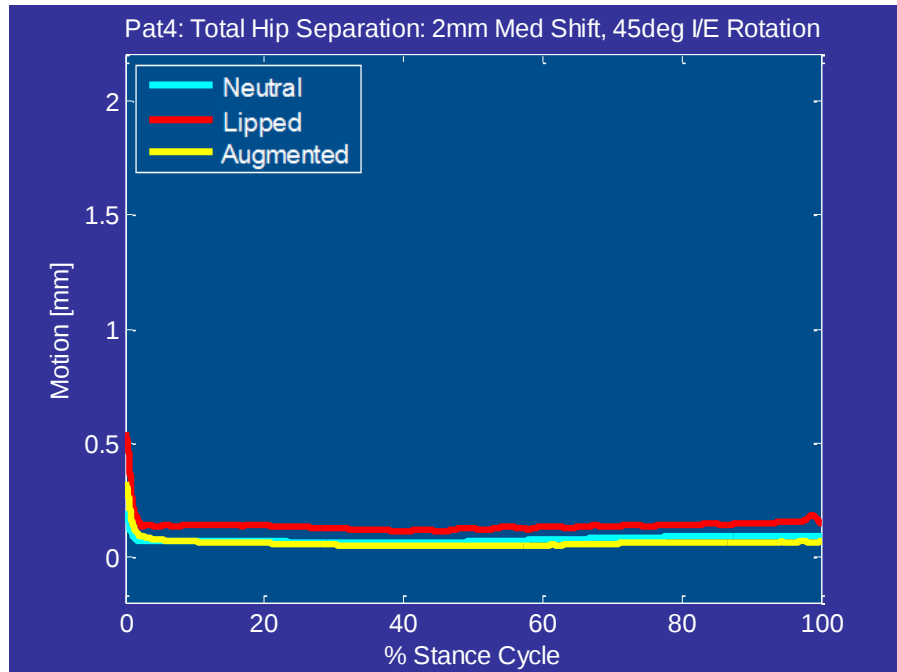


(a)

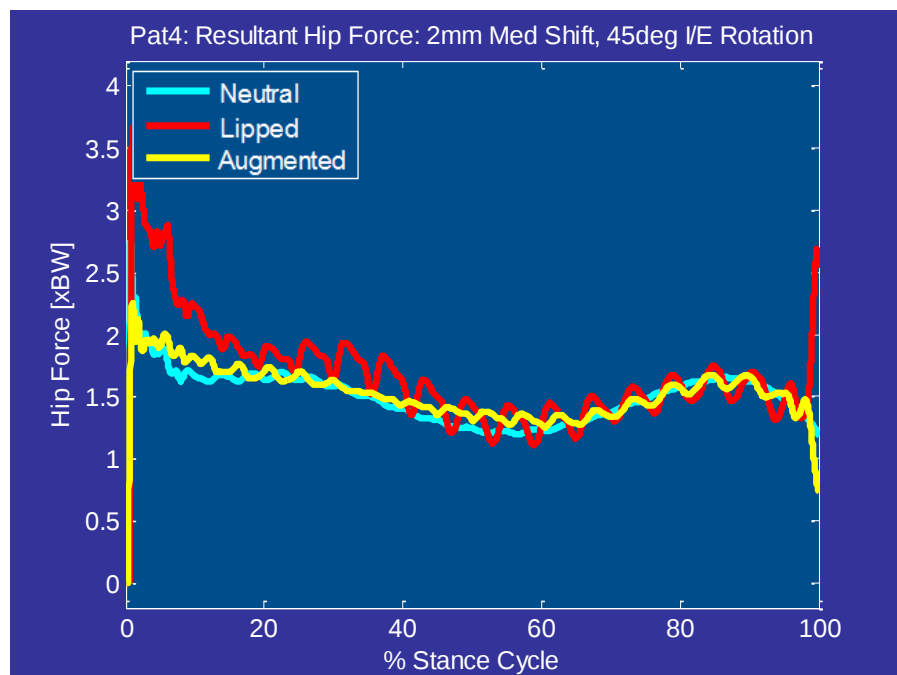


(b)

Figure D61: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

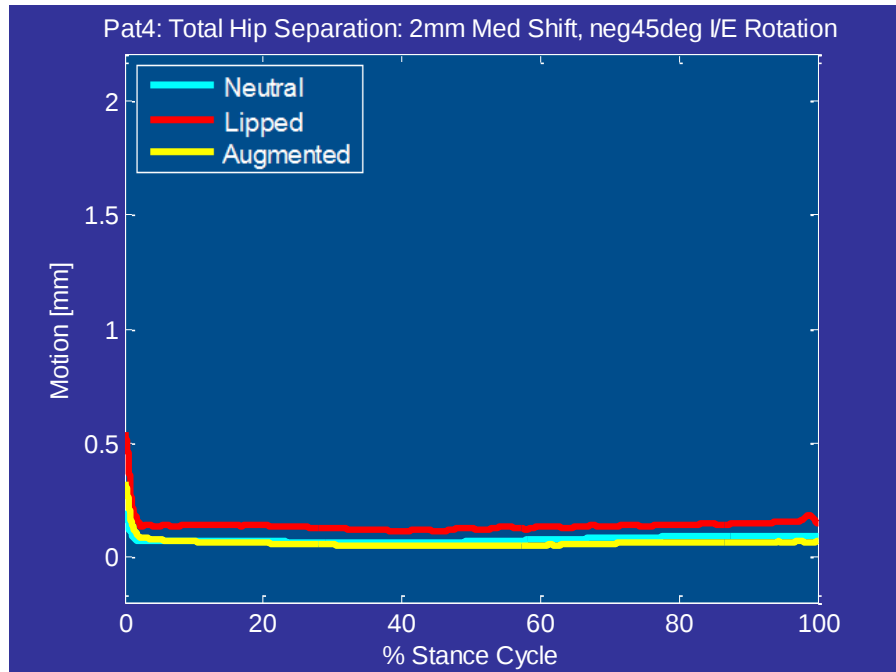


(a)

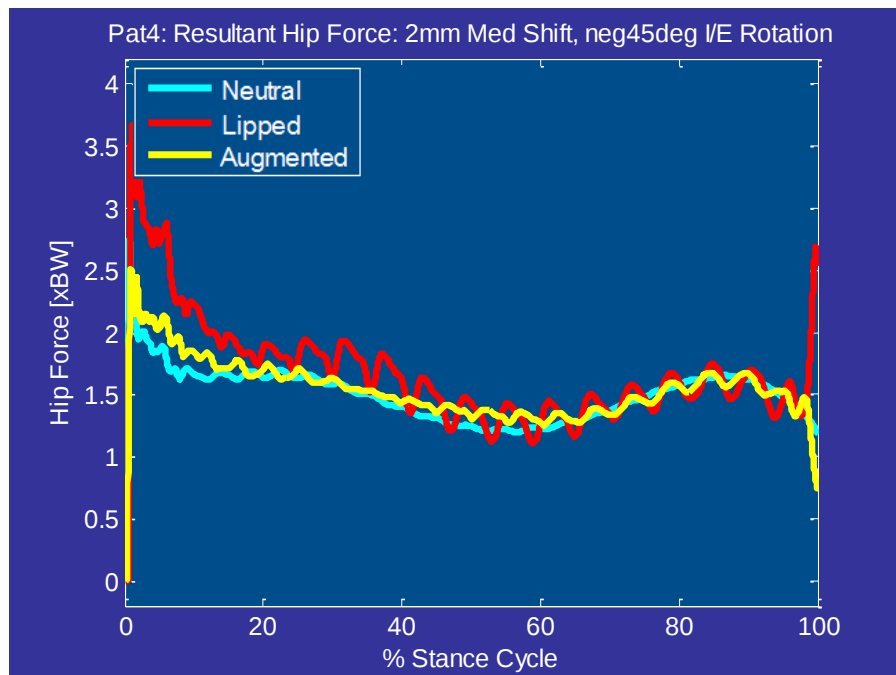


(b)

Figure D62: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

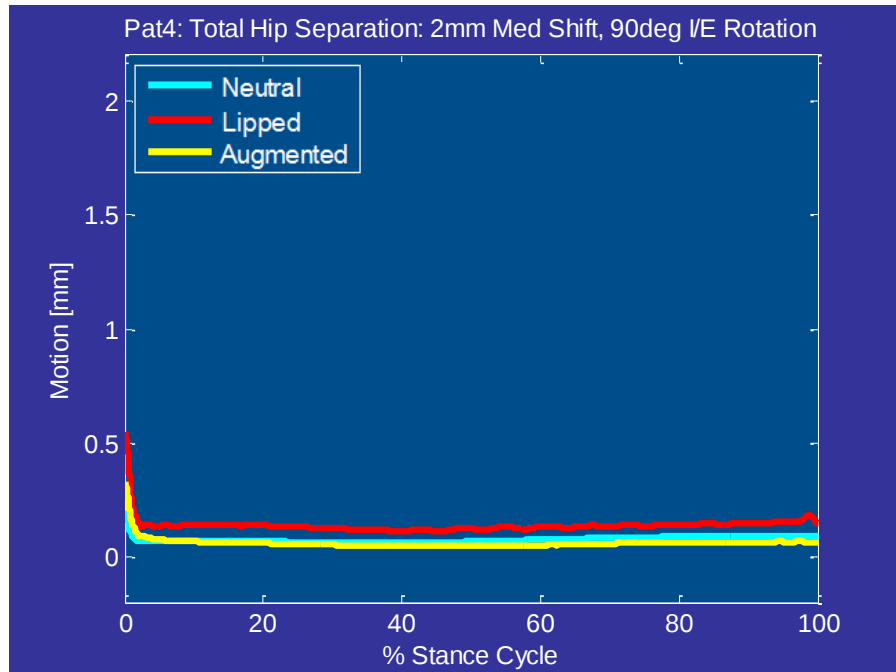


(a)

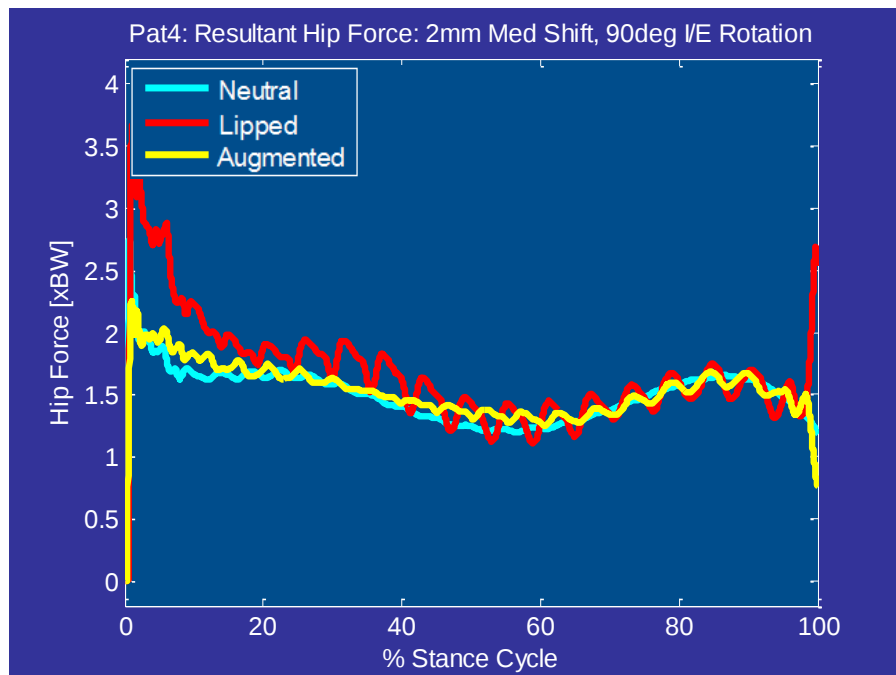


(b)

Figure D63: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

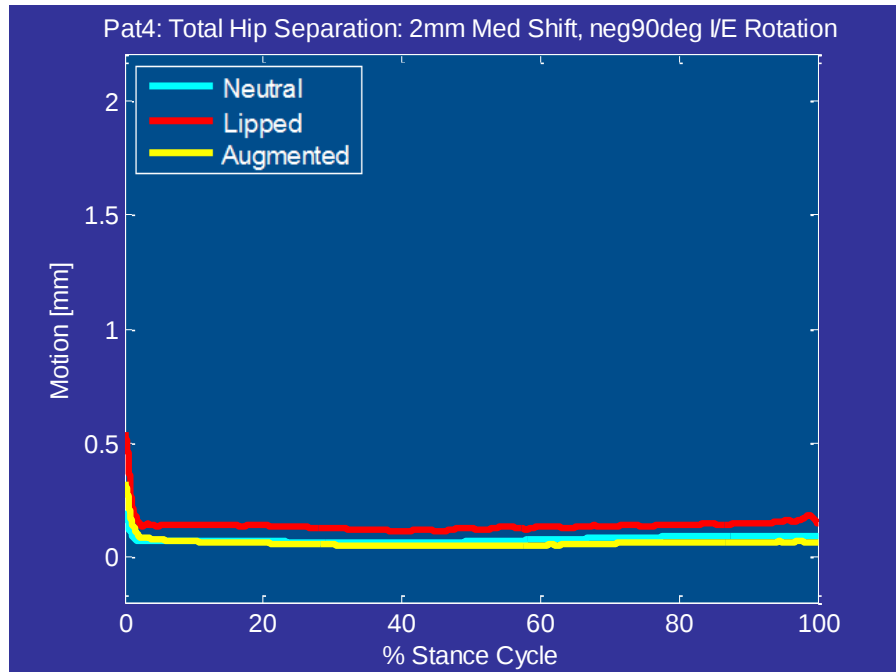


(a)

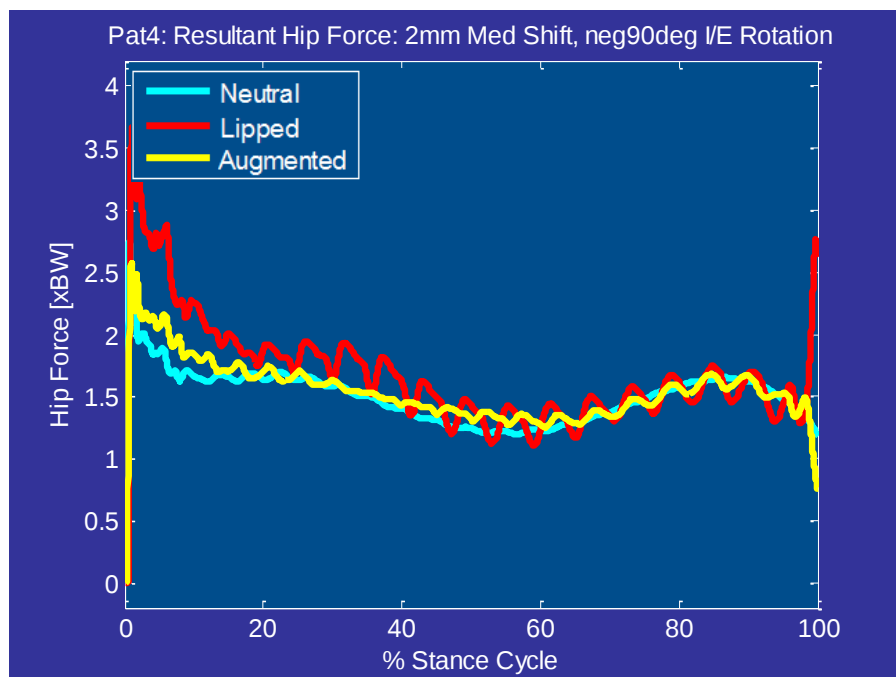


(b)

Figure D64: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

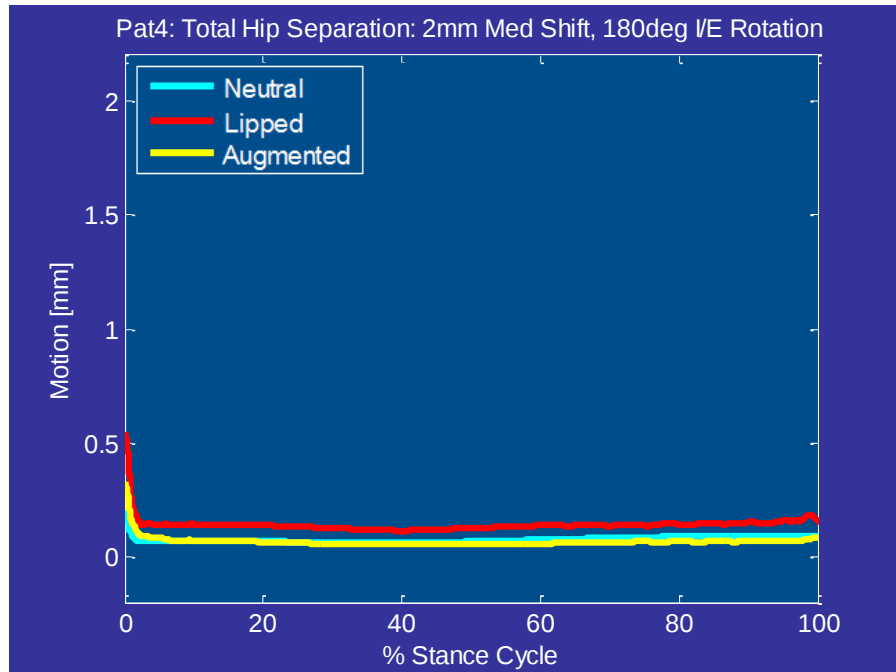


(a)

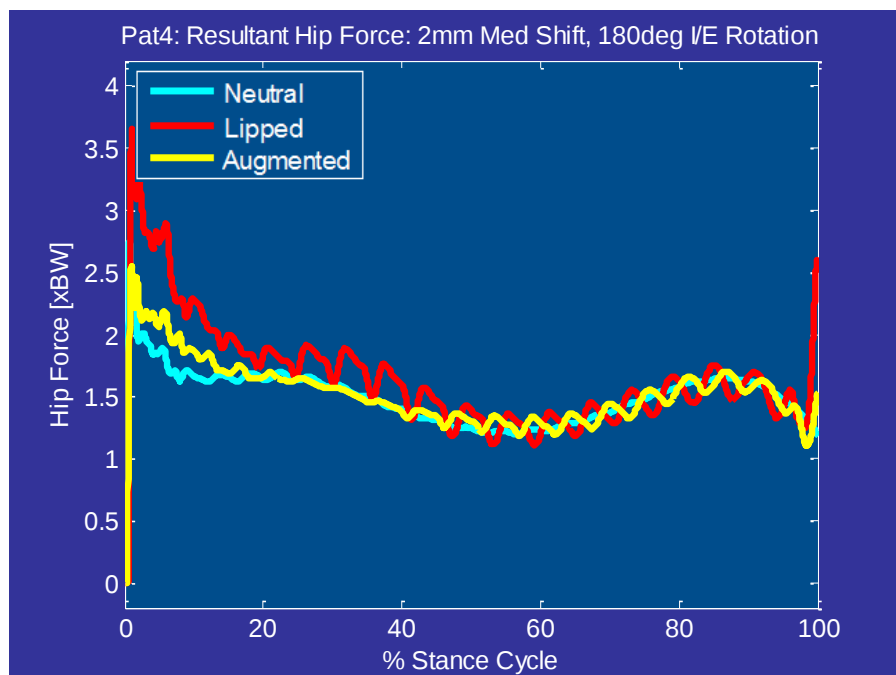


(b)

Figure D65: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

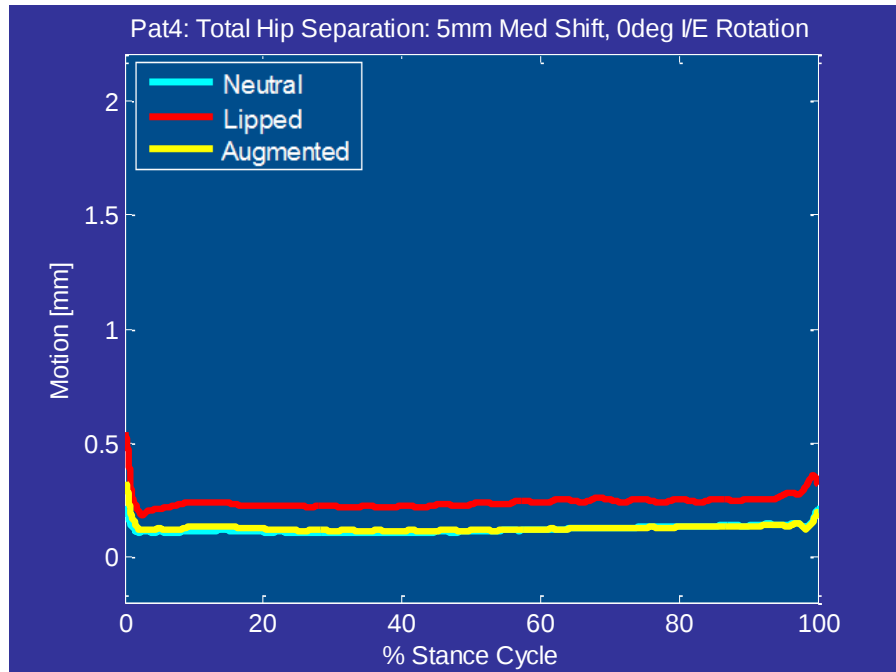


(a)

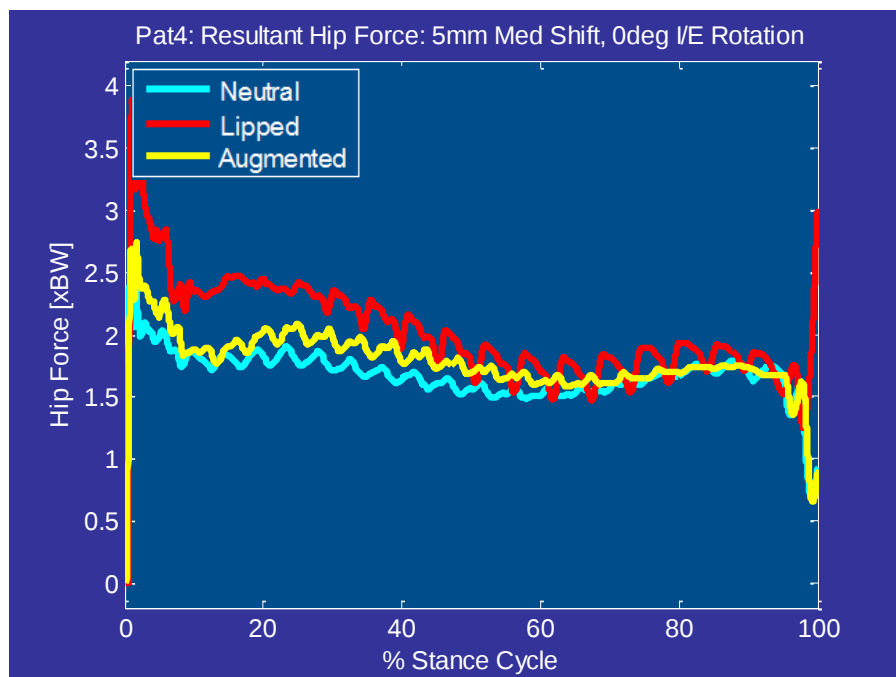


(b)

Figure D66: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

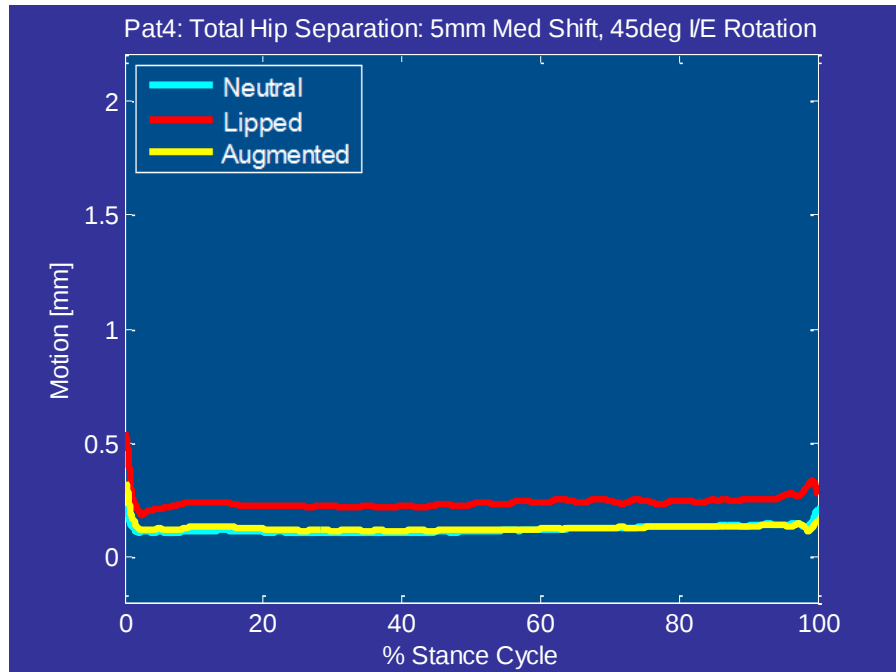


(a)

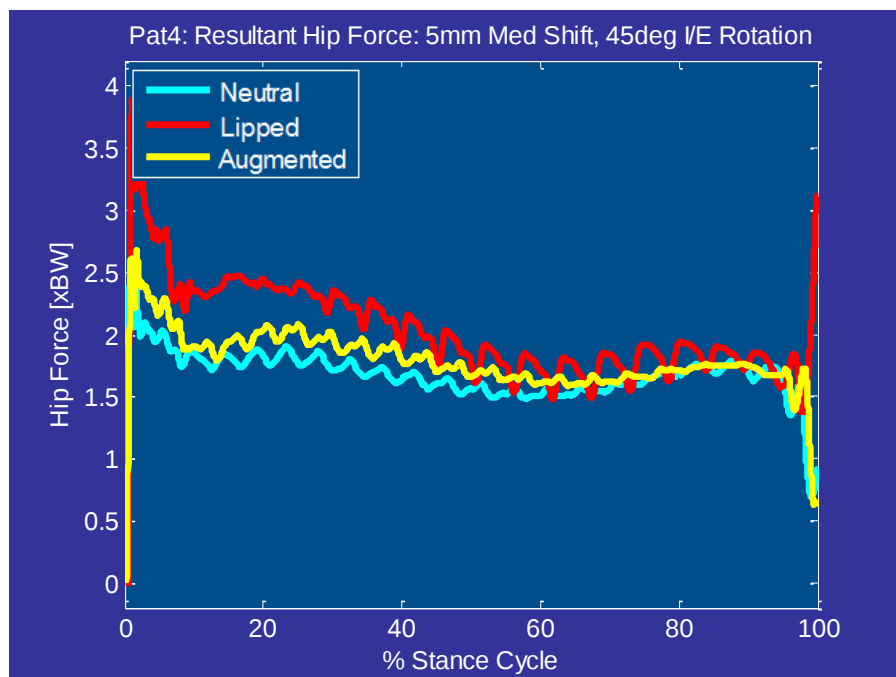


(b)

Figure D67: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

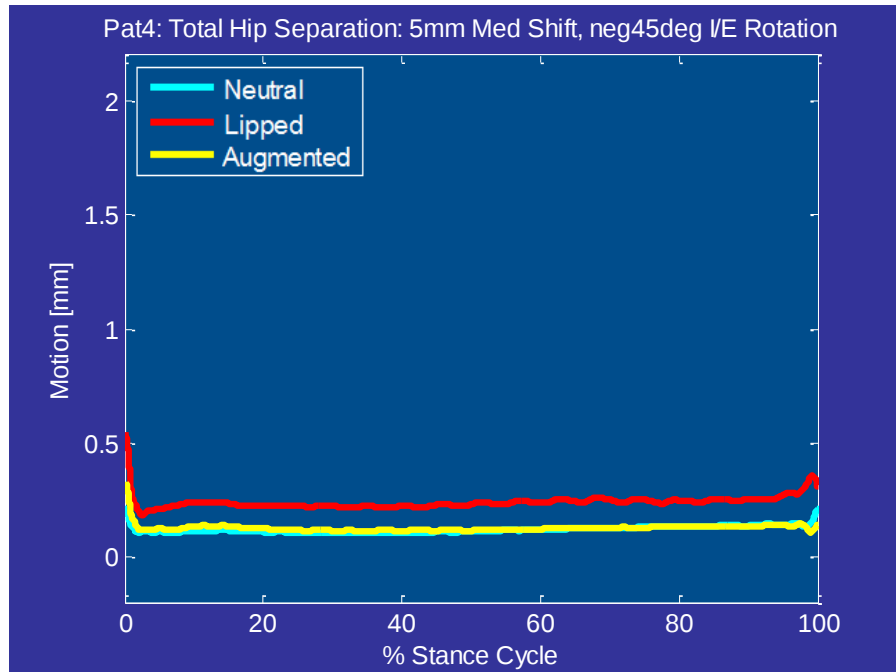


(a)

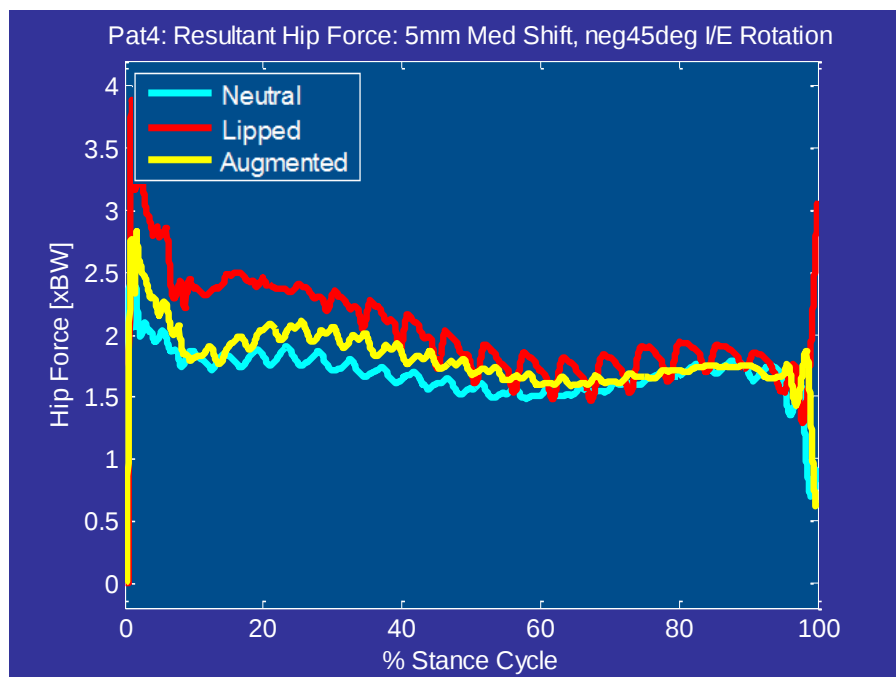


(b)

Figure D68: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

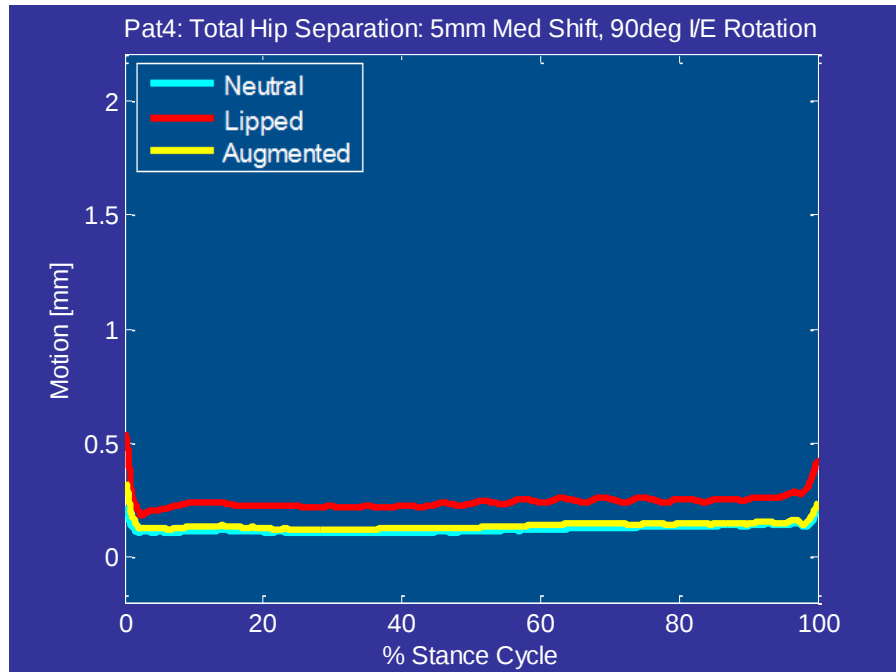


(a)

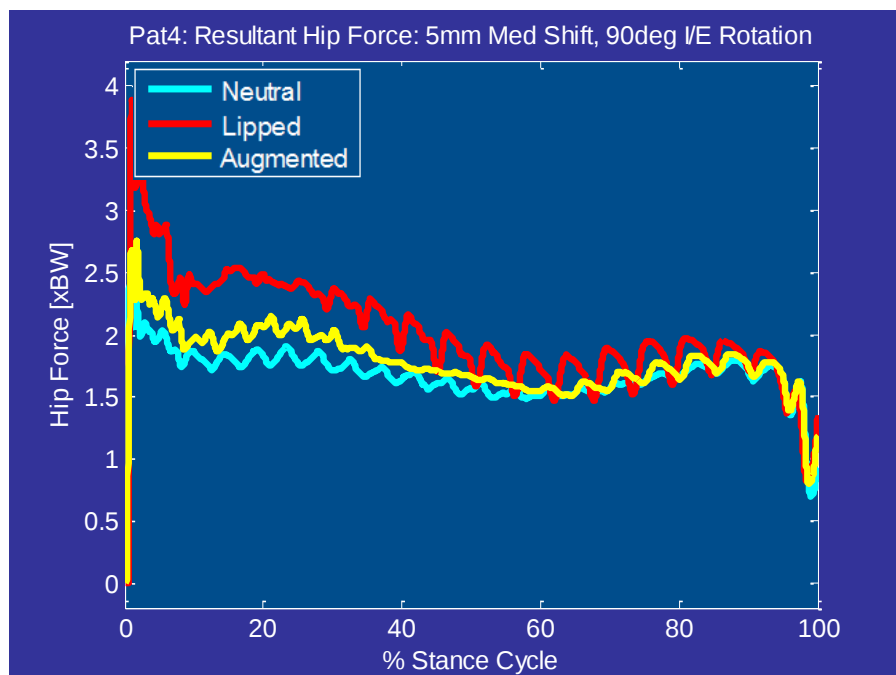


(b)

Figure D69: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

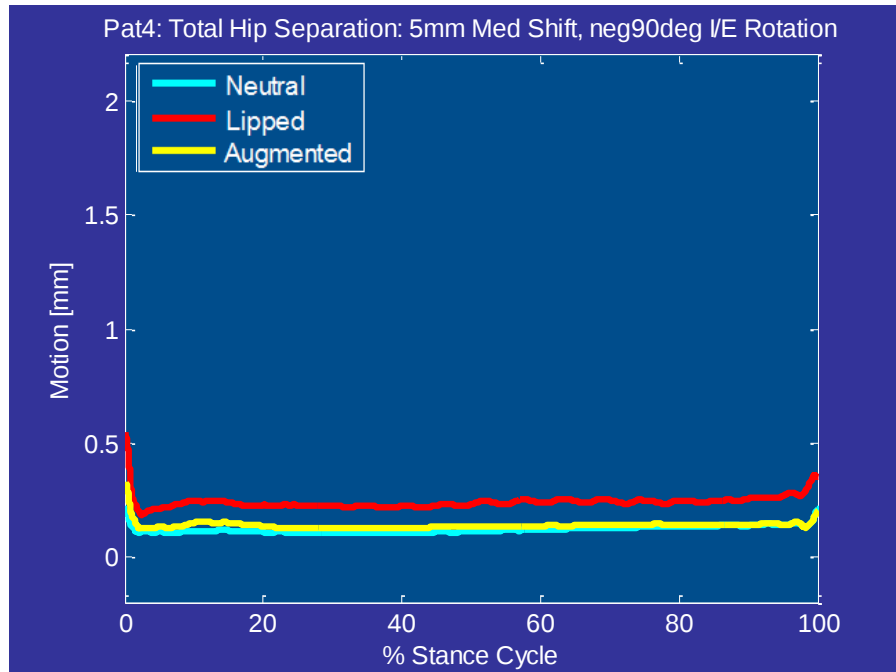


(a)

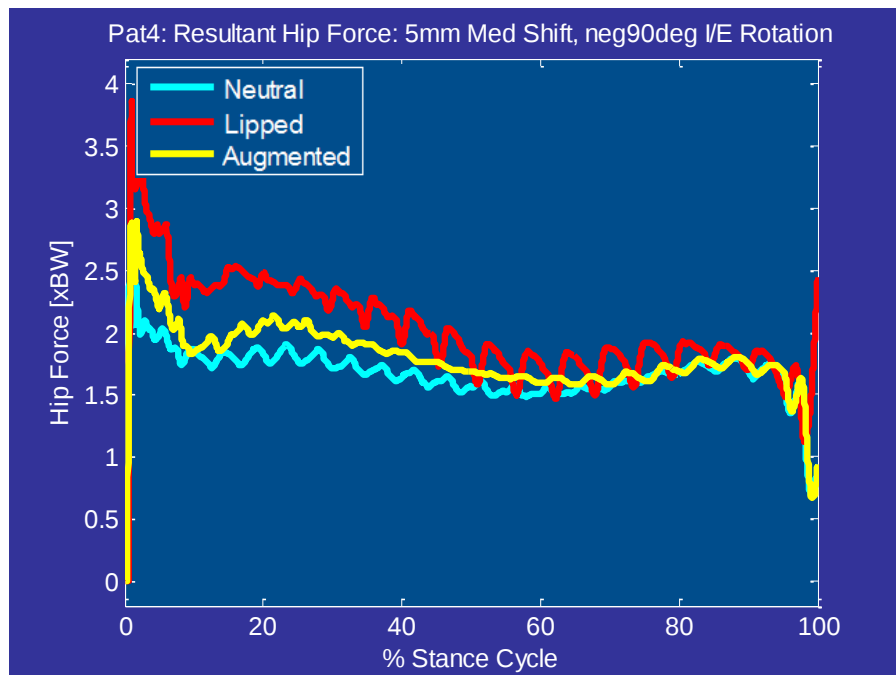


(b)

Figure D70: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

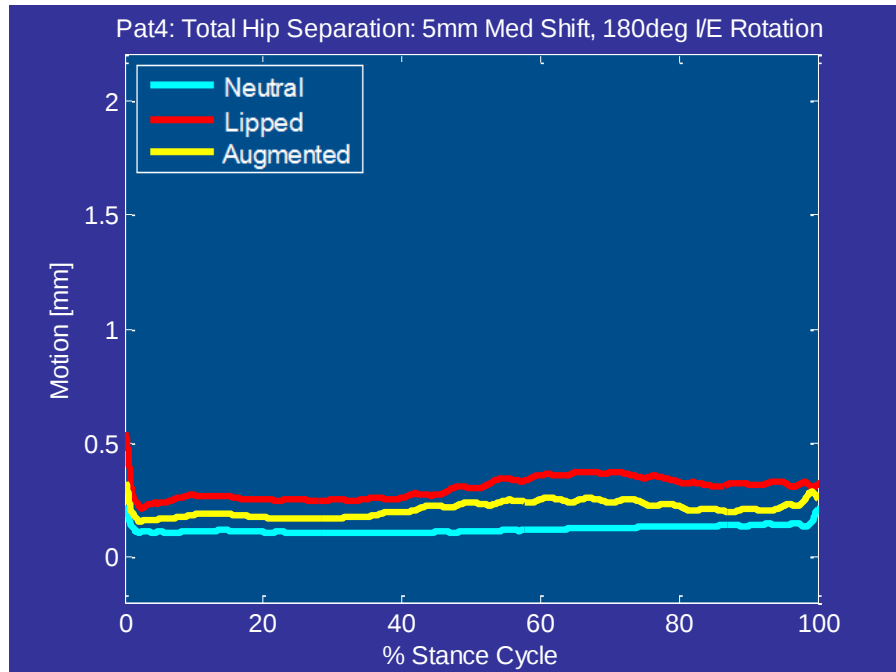


(a)

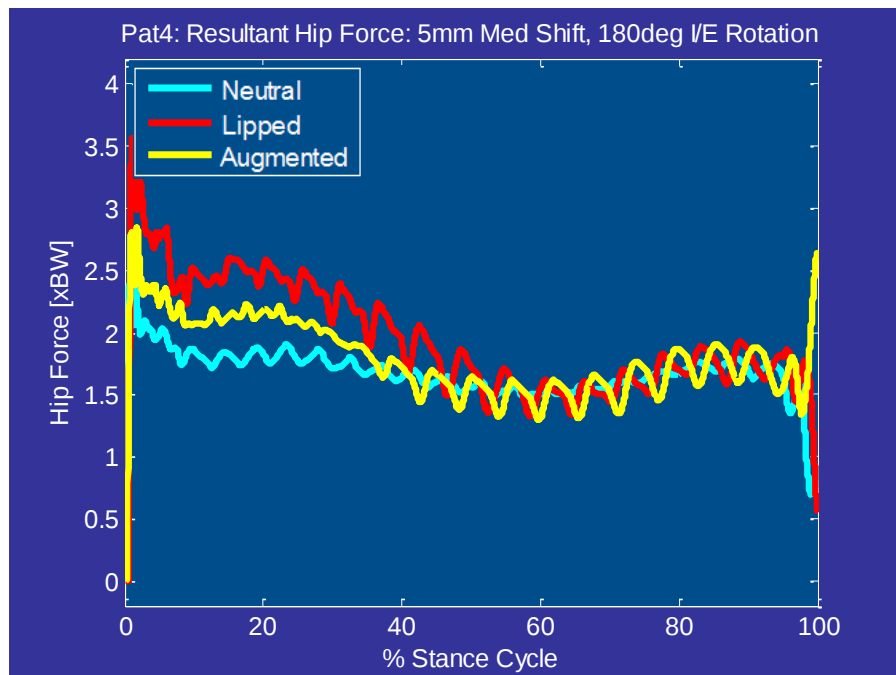


(b)

Figure D71: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

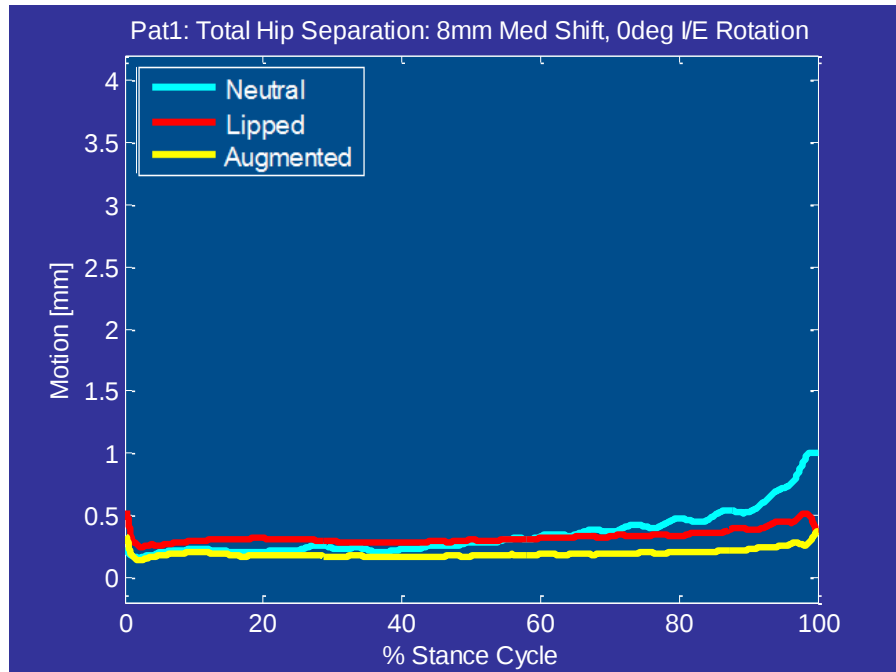


(a)



(b)

Figure D72: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

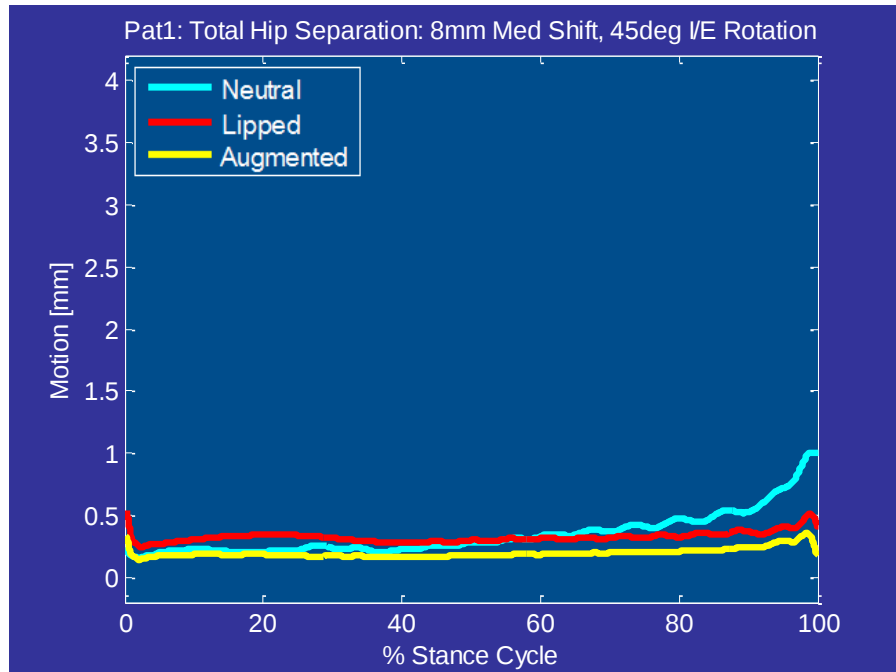


(a)

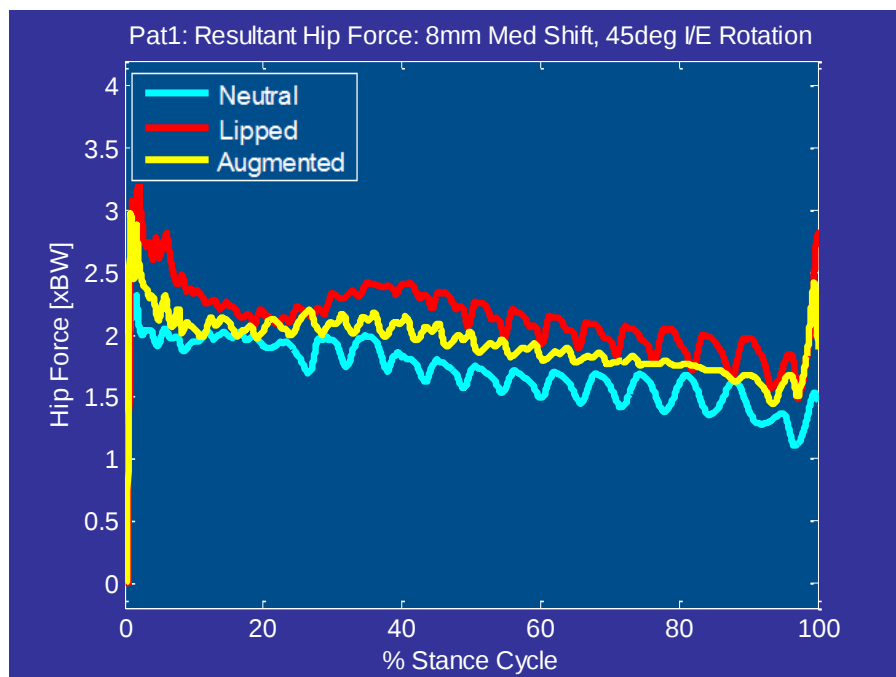


(b)

Figure D73: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

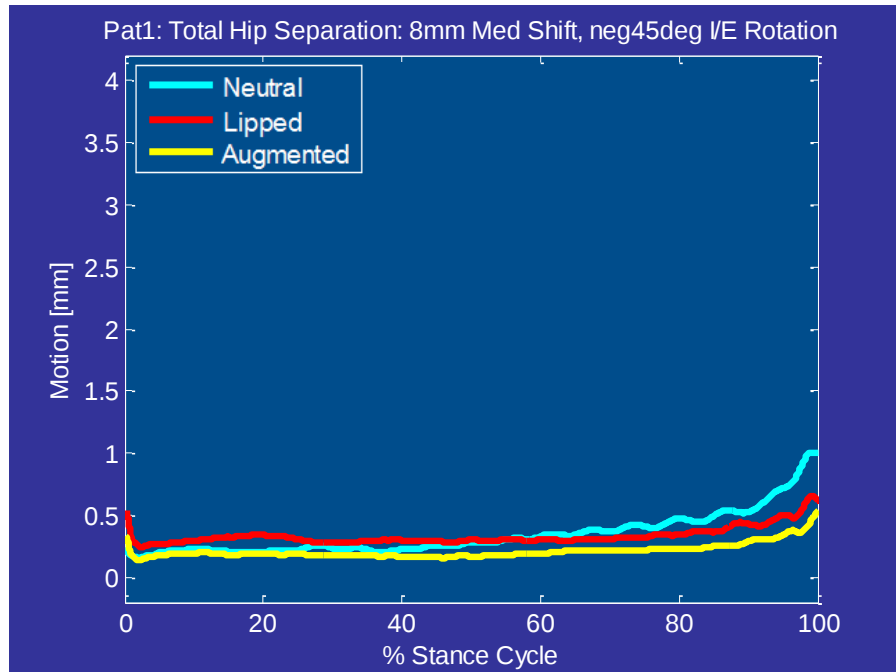


(a)



(b)

Figure D74: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

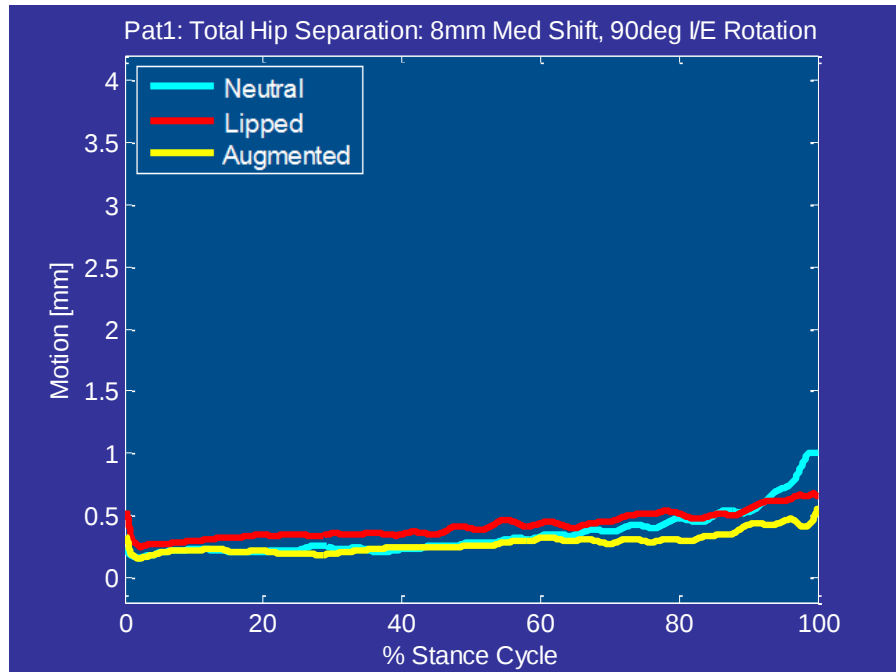


(a)

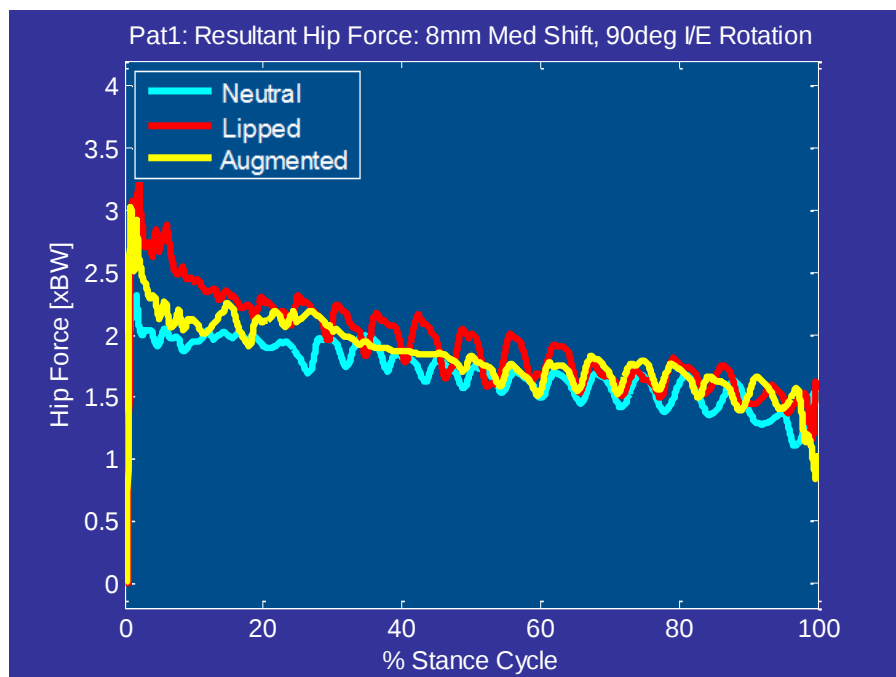


(b)

Figure D75: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

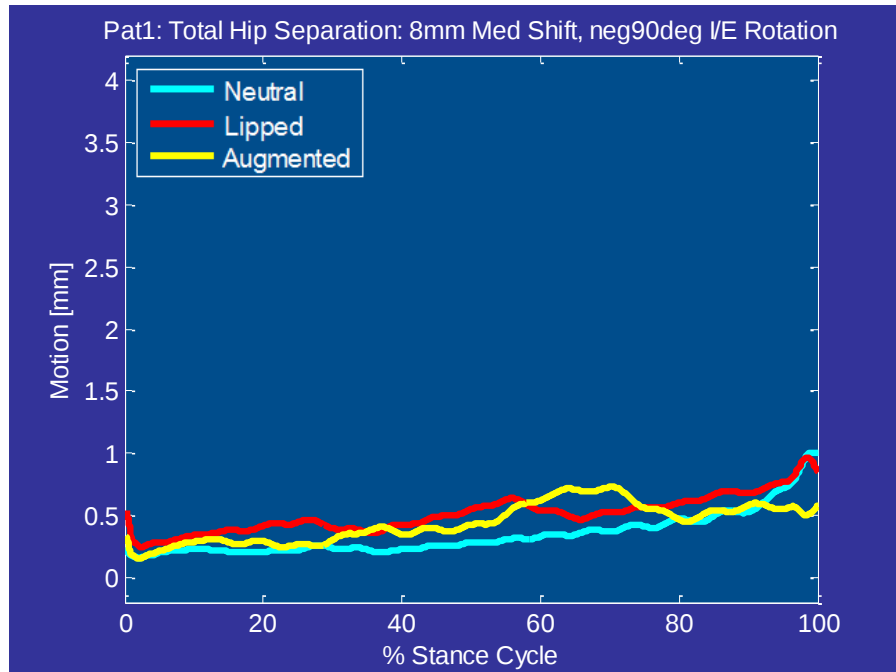


(a)

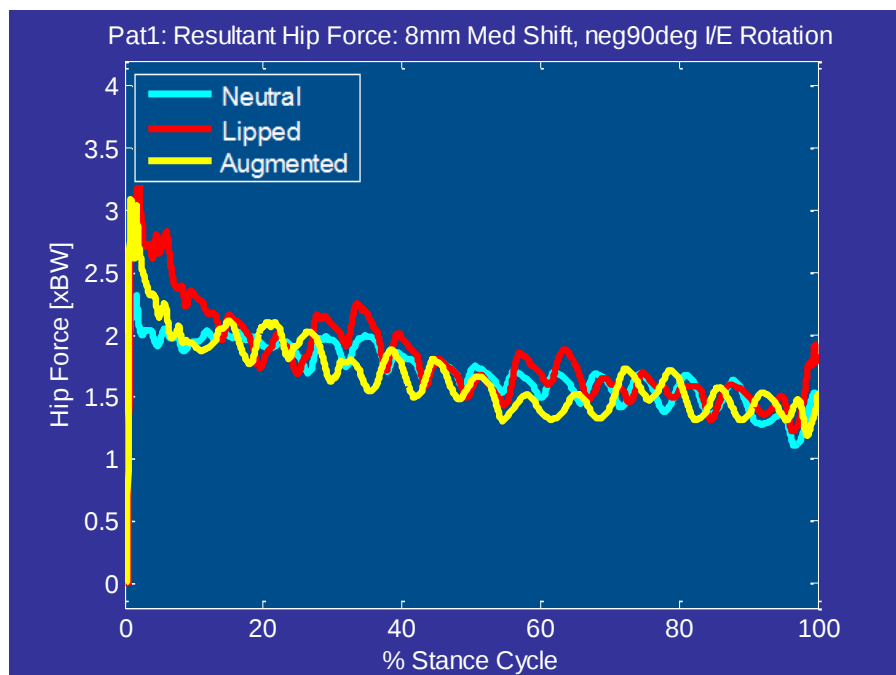


(b)

Figure D76: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

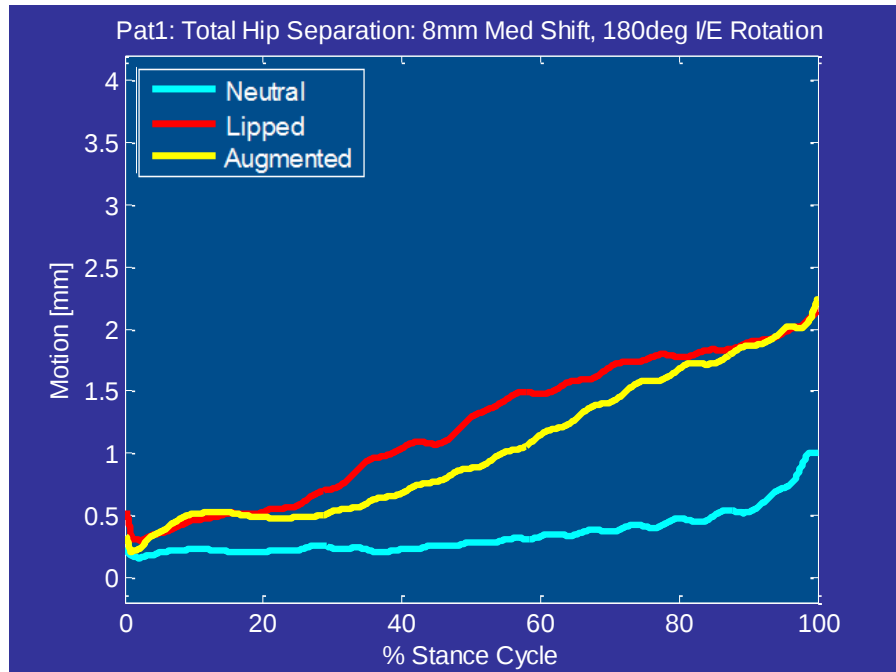


(a)

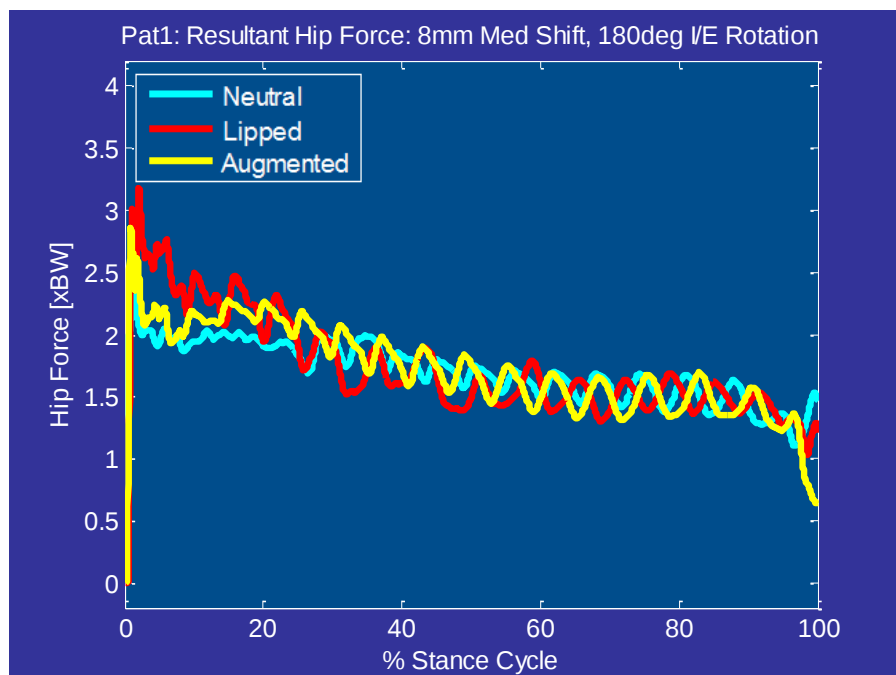


(b)

Figure D77: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

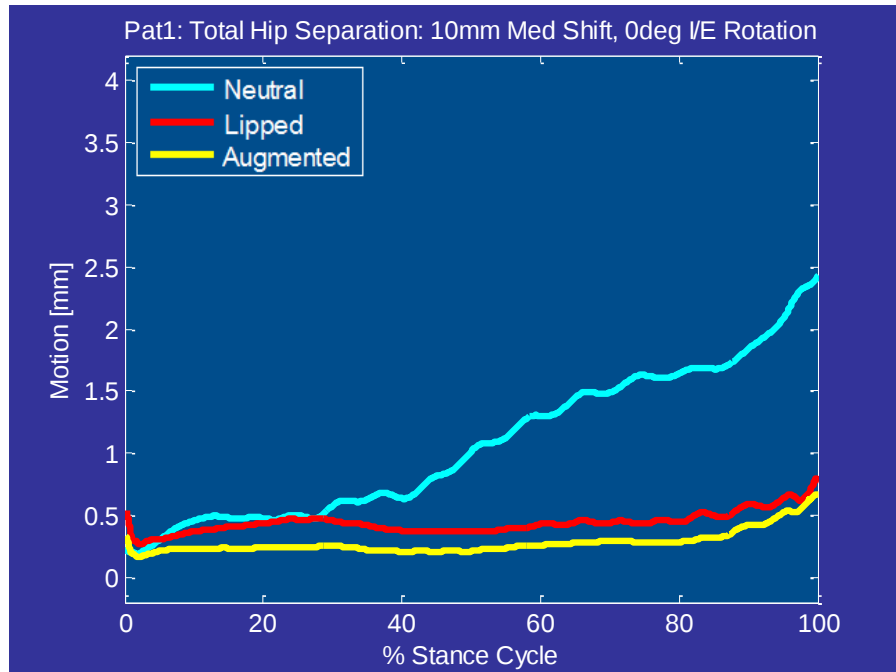


(a)

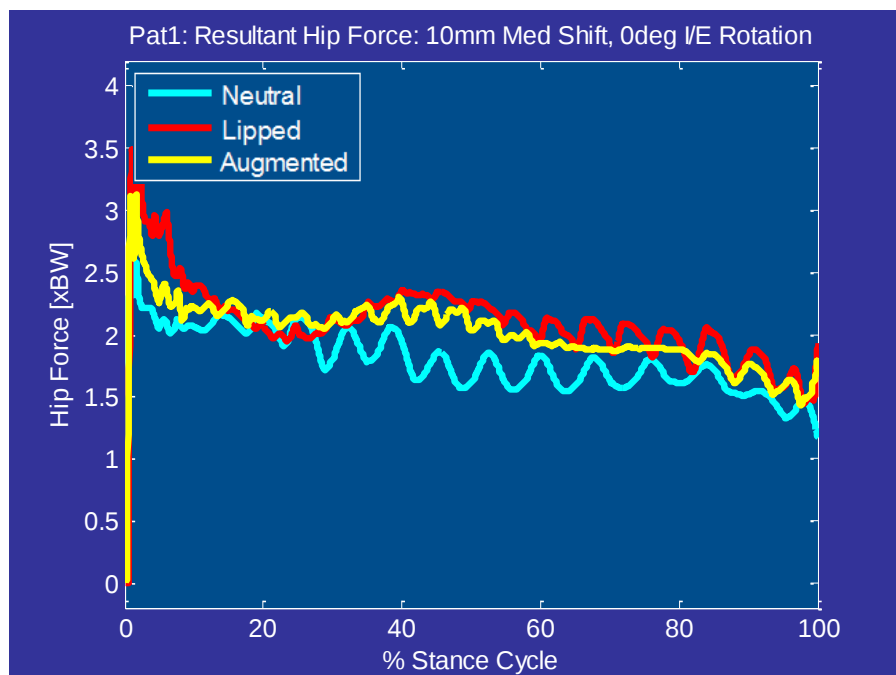


(b)

Figure D78: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

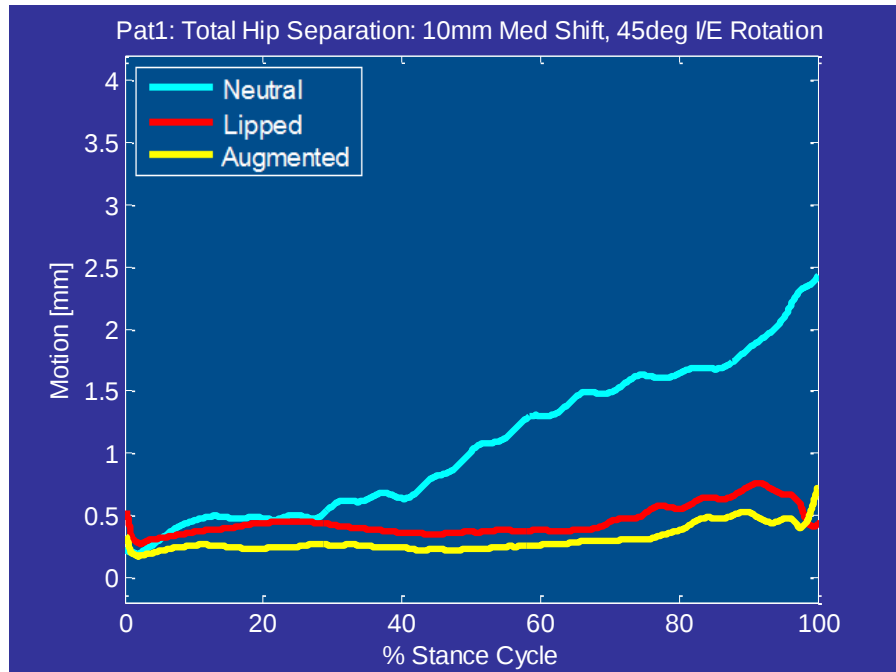


(a)

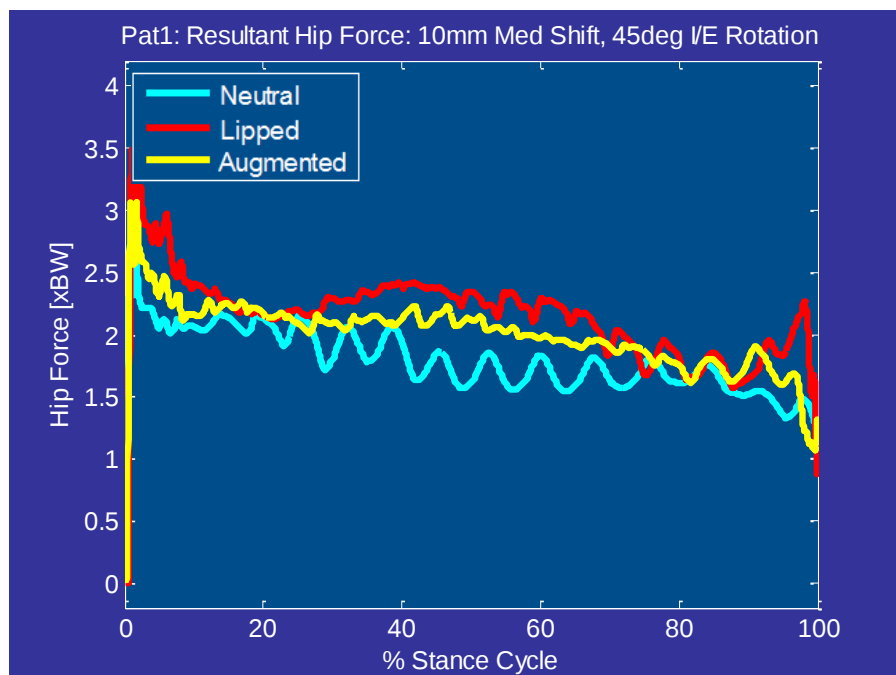


(b)

Figure D79: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

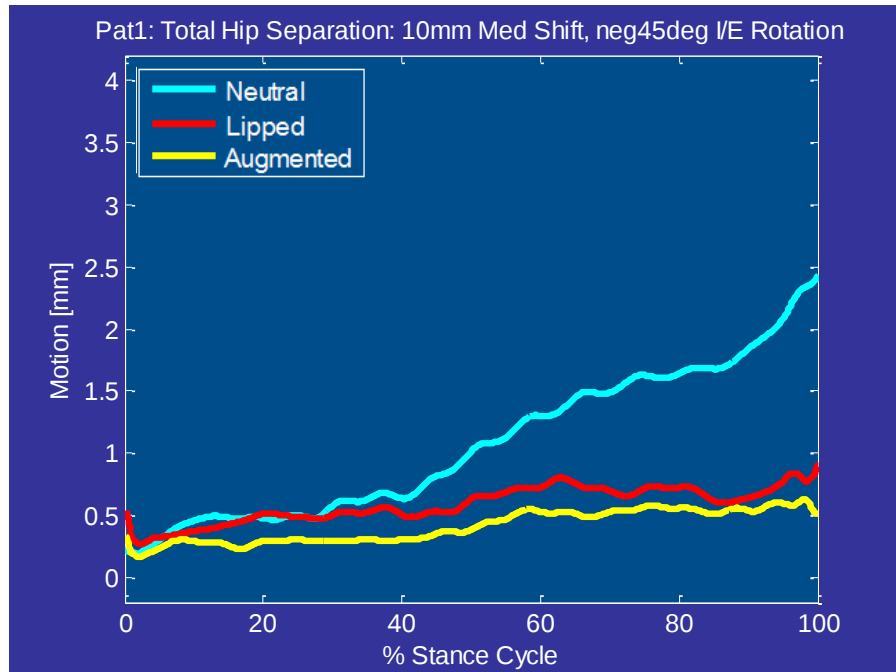


(a)

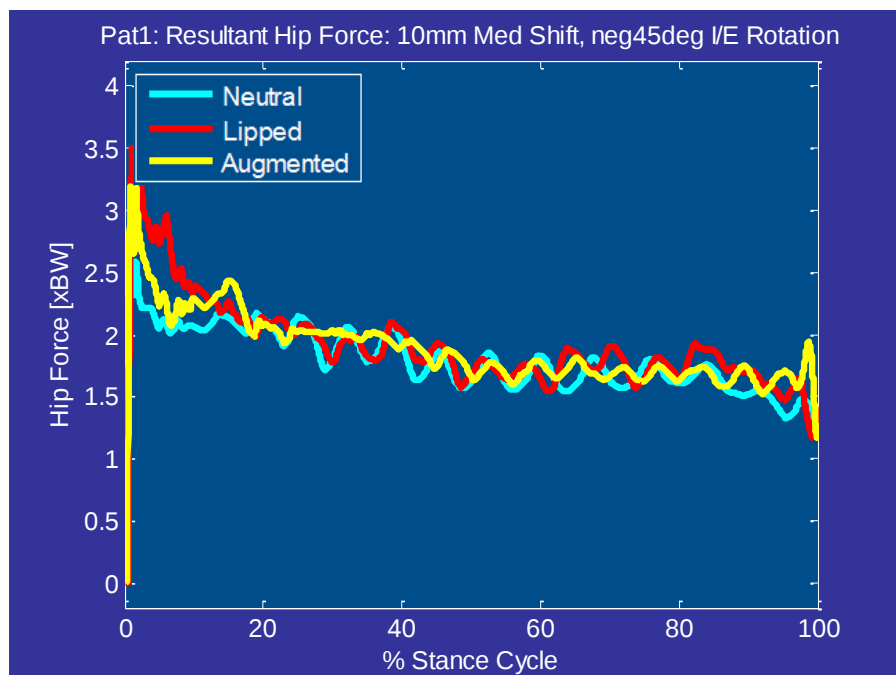


(b)

Figure D80: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

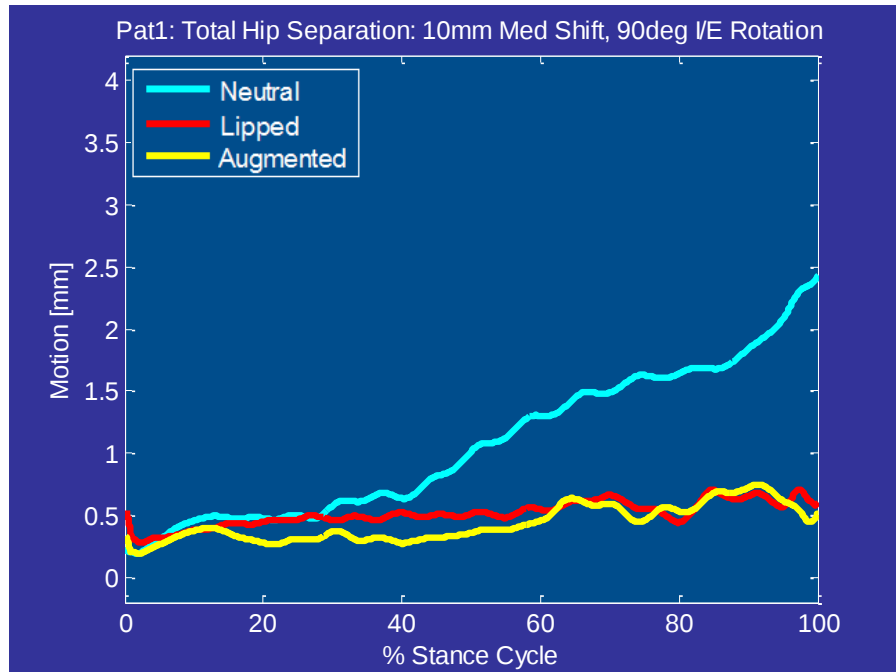


(a)

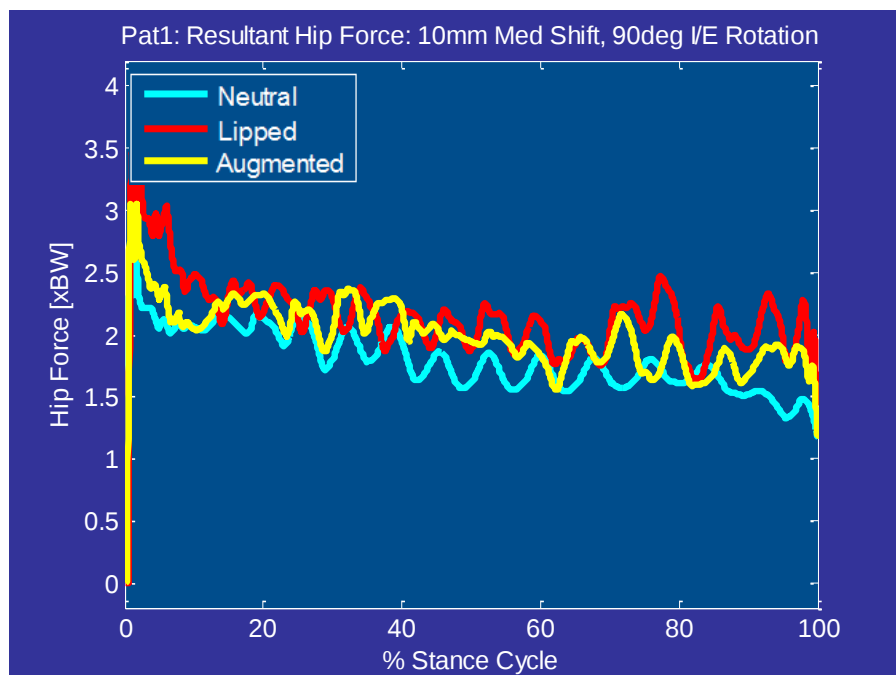


(b)

Figure D81: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

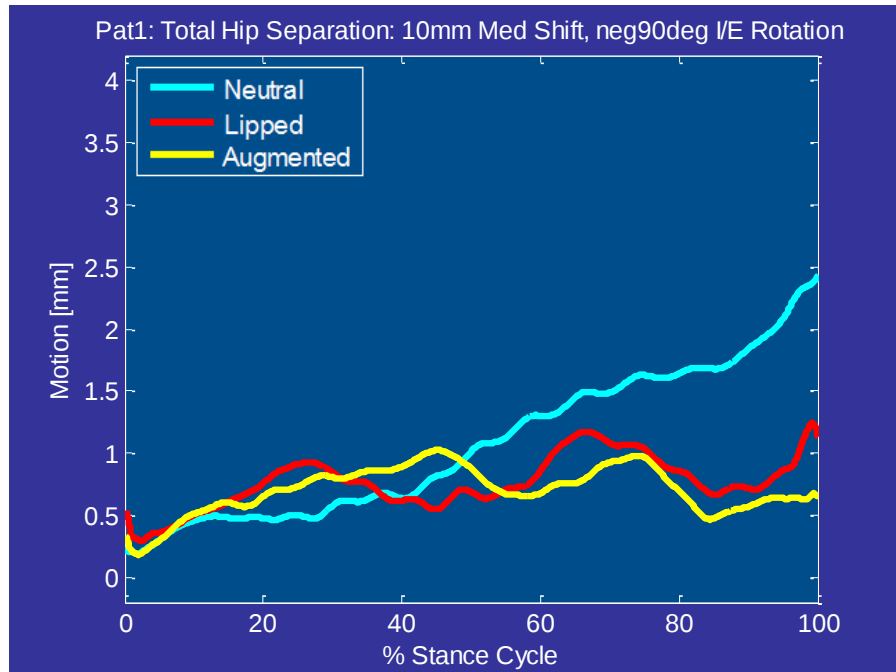


(a)

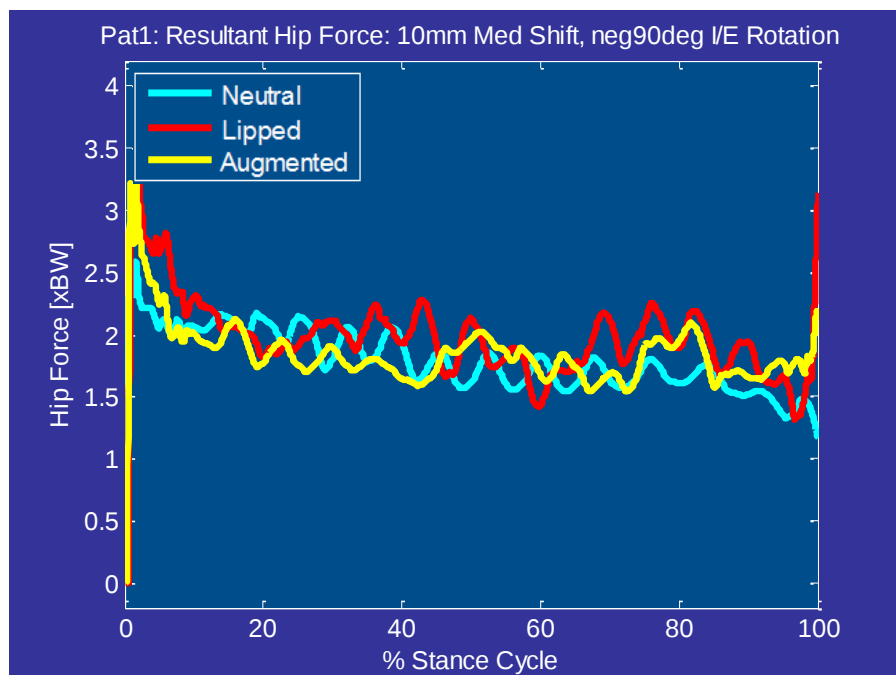


(b)

Figure D82: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

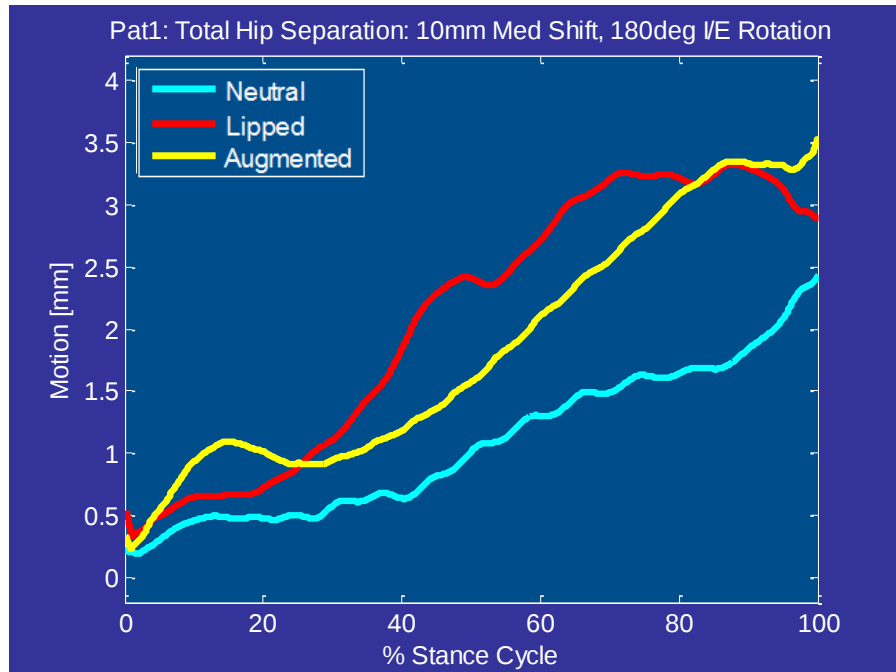


(a)

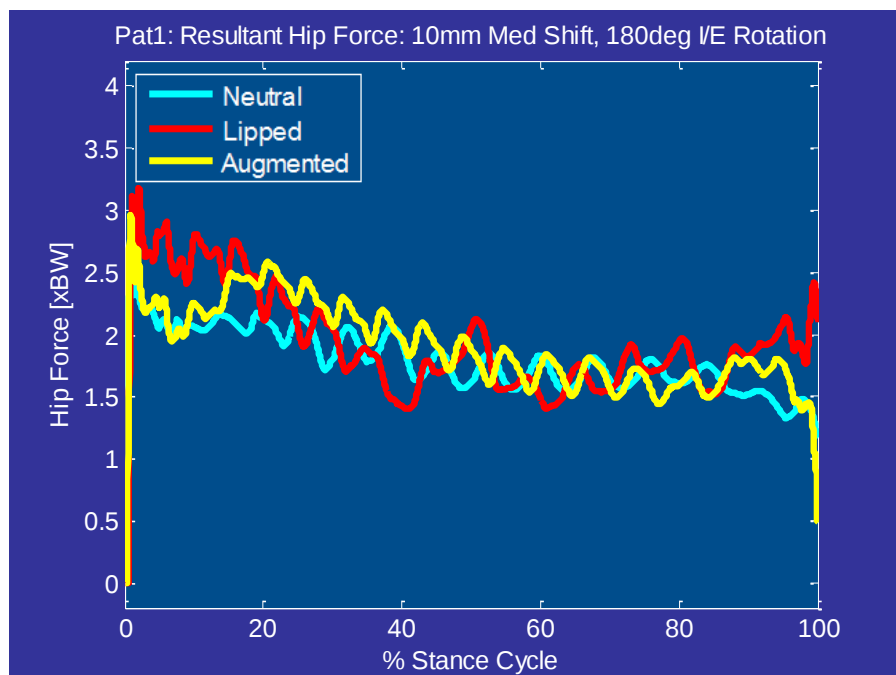


(b)

Figure D83: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

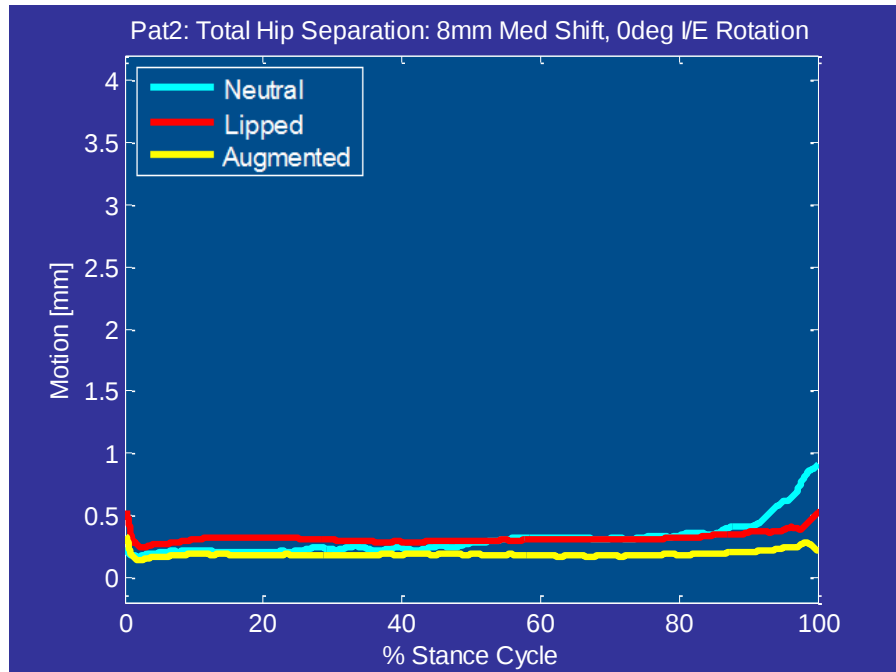


(a)



(b)

Figure D84: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

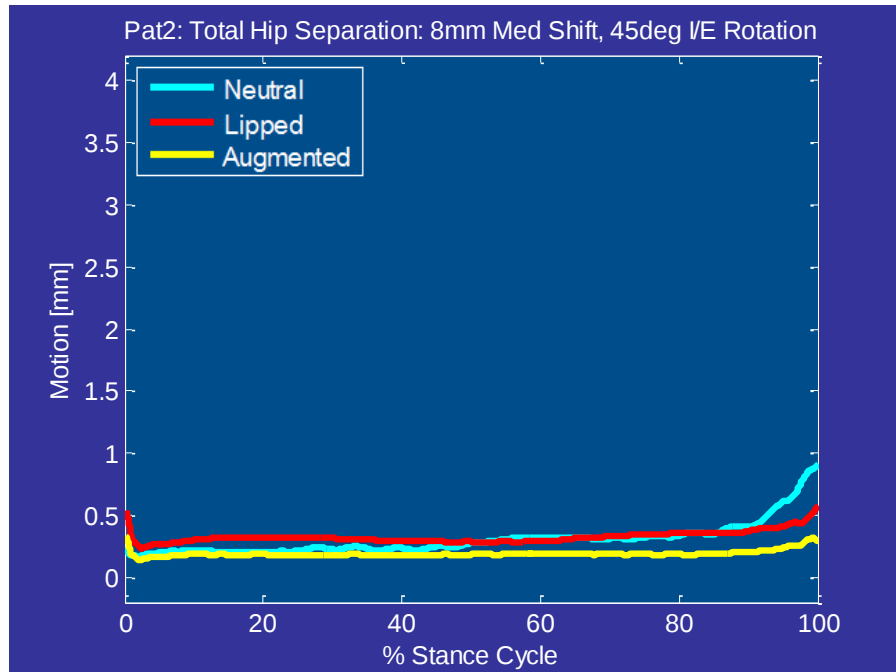


(a)



(b)

Figure D85: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

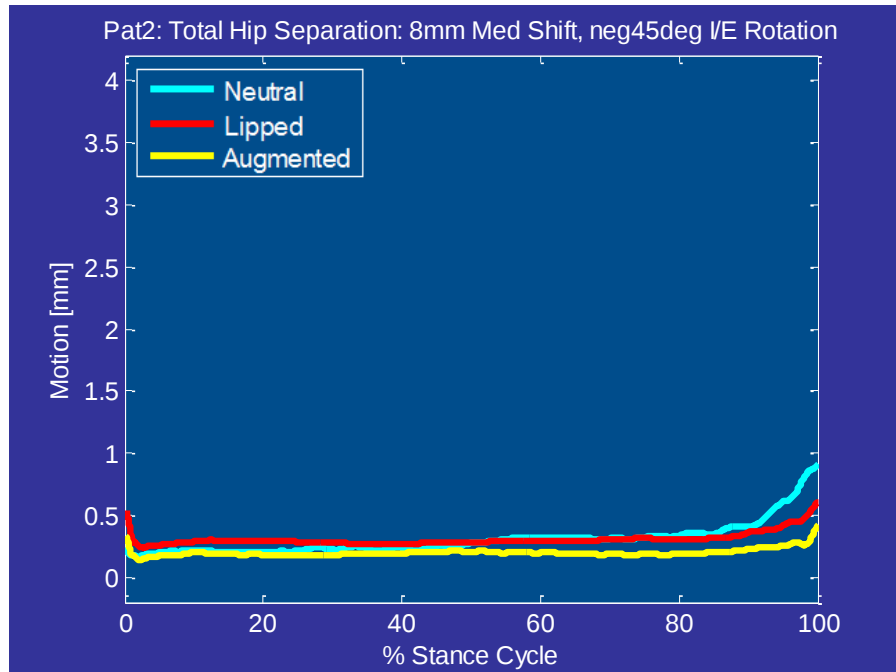


(a)

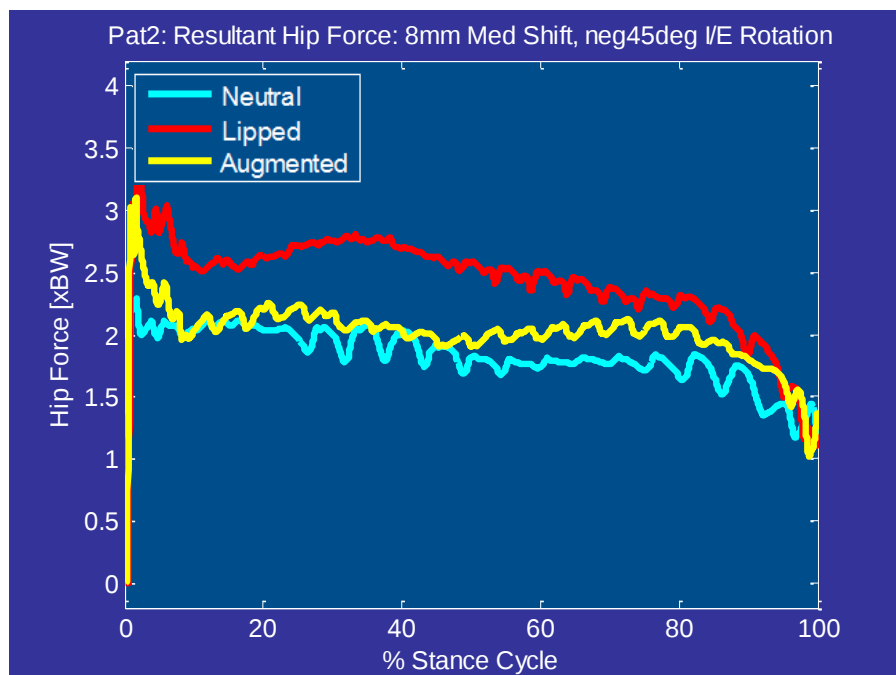


(b)

Figure D86: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

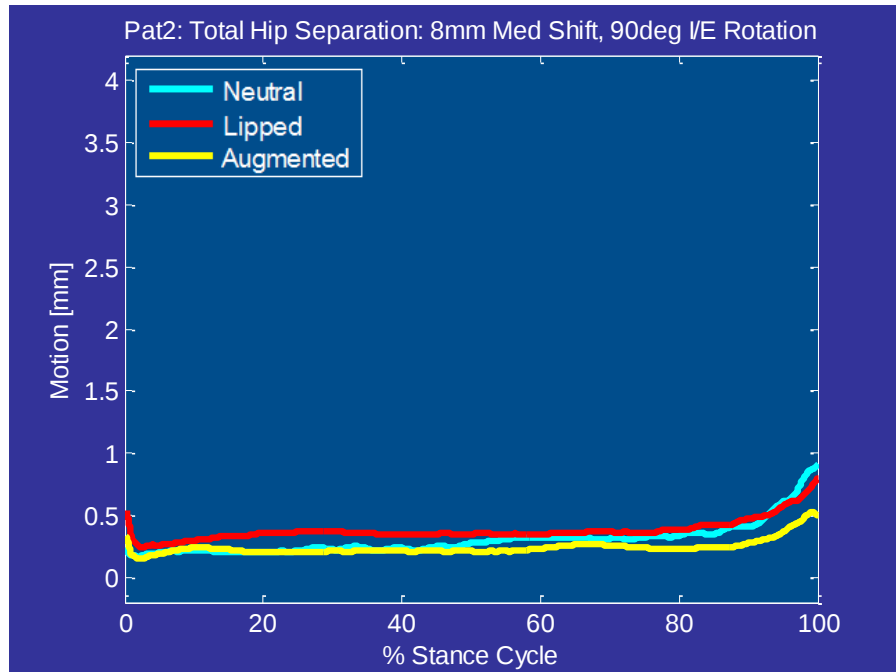


(a)

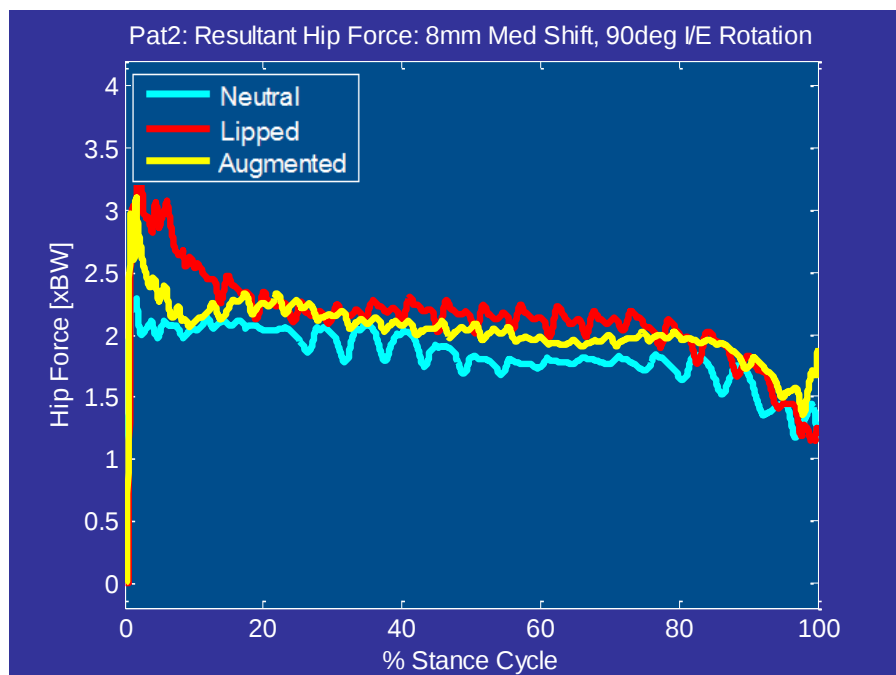


(b)

Figure D87: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

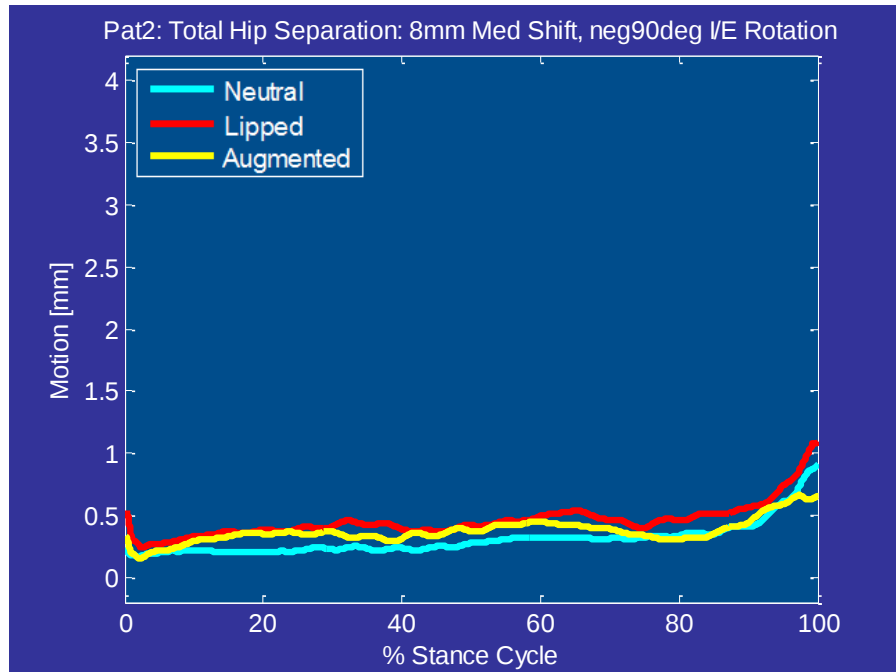


(a)

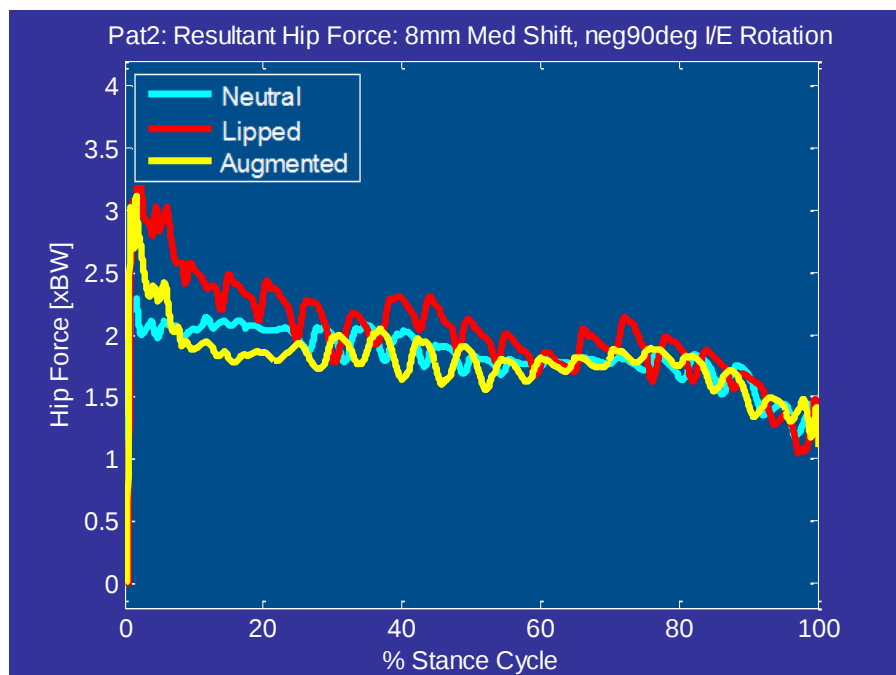


(b)

Figure D88: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

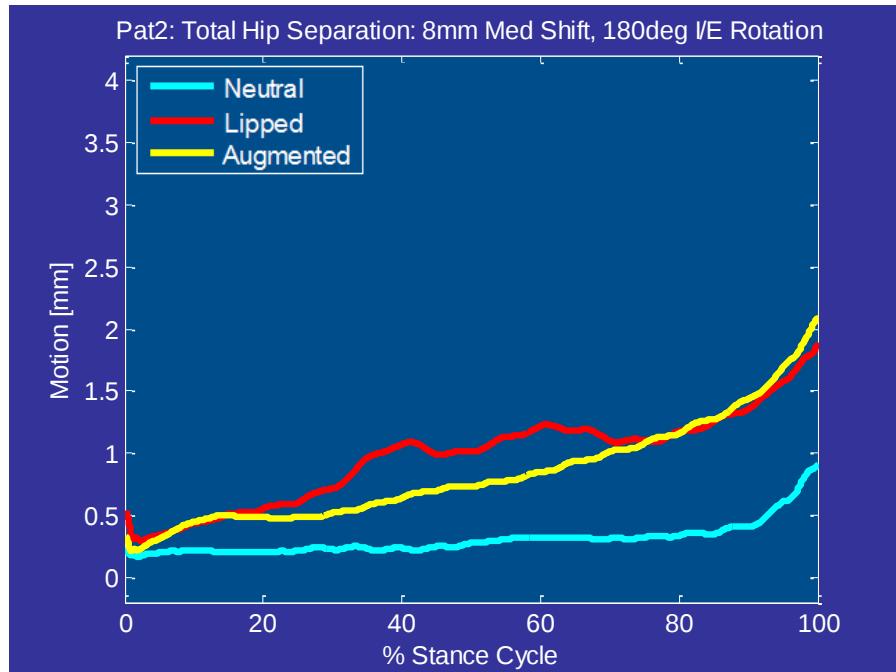


(a)

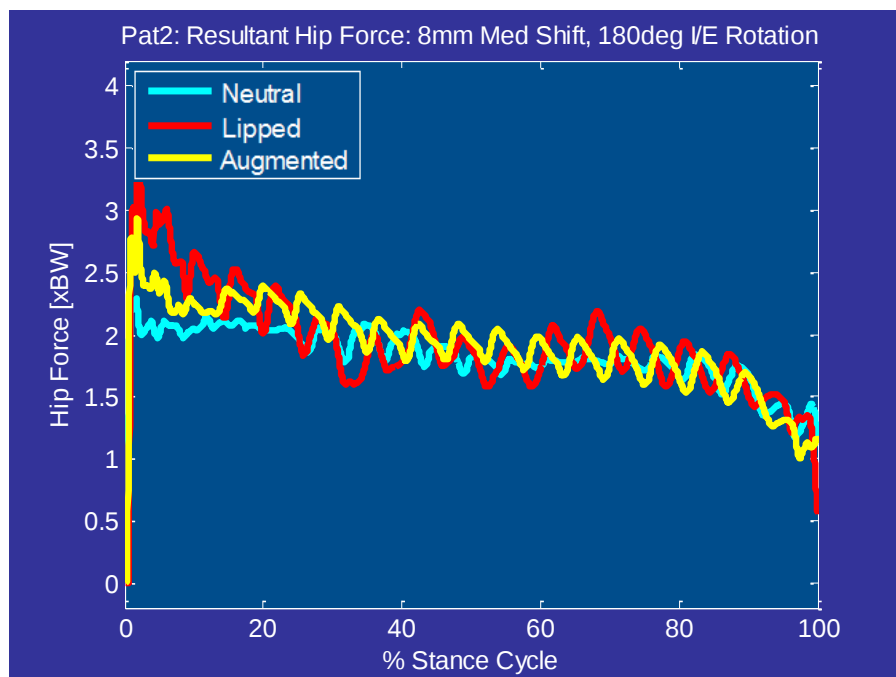


(b)

Figure D89: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

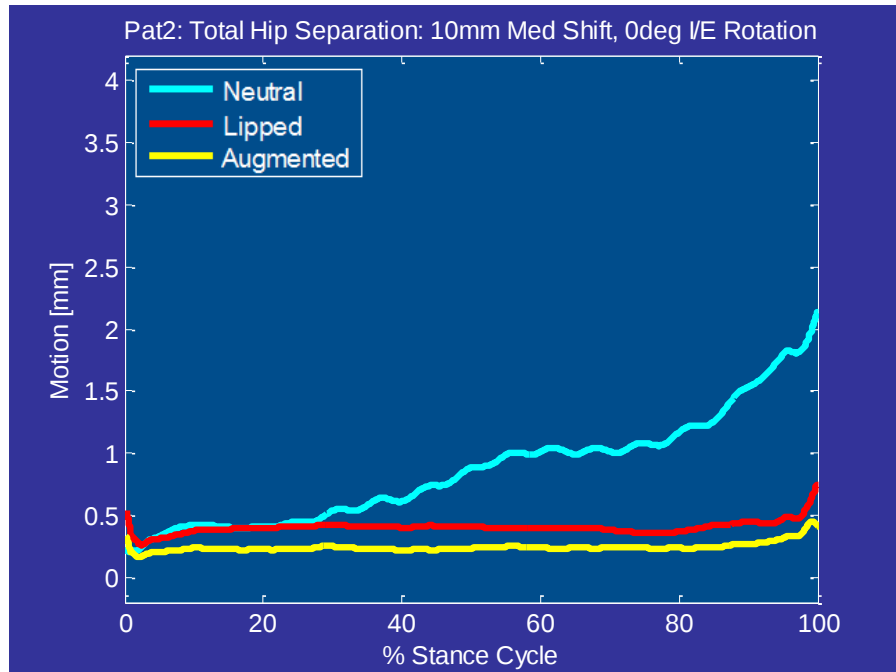


(a)

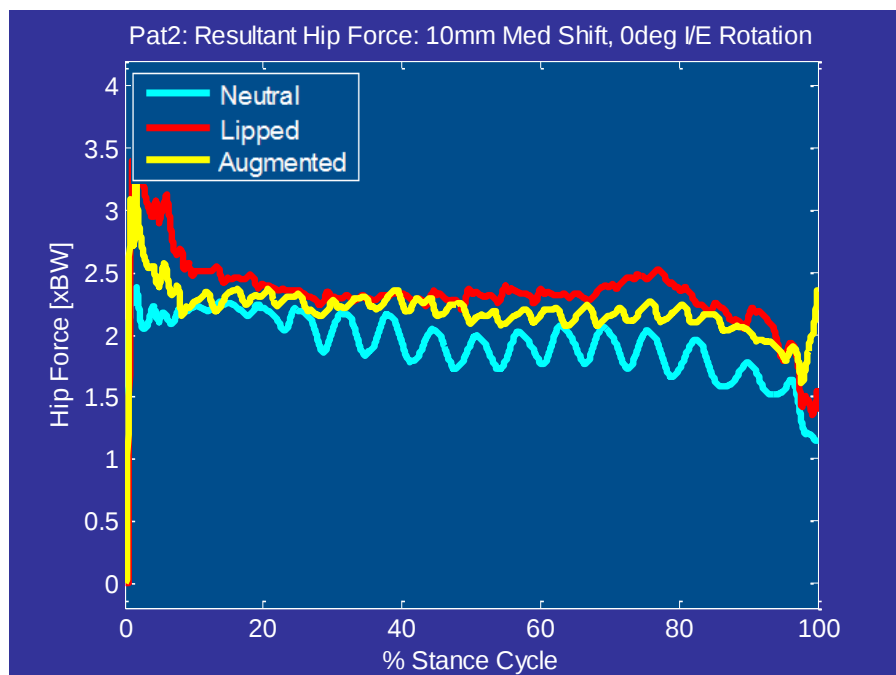


(b)

Figure D90: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

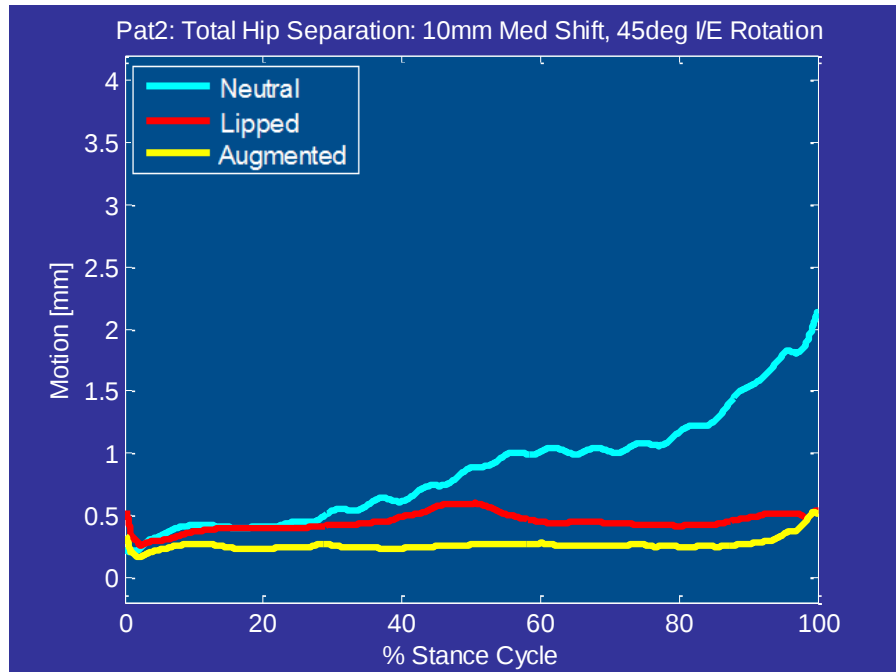


(a)

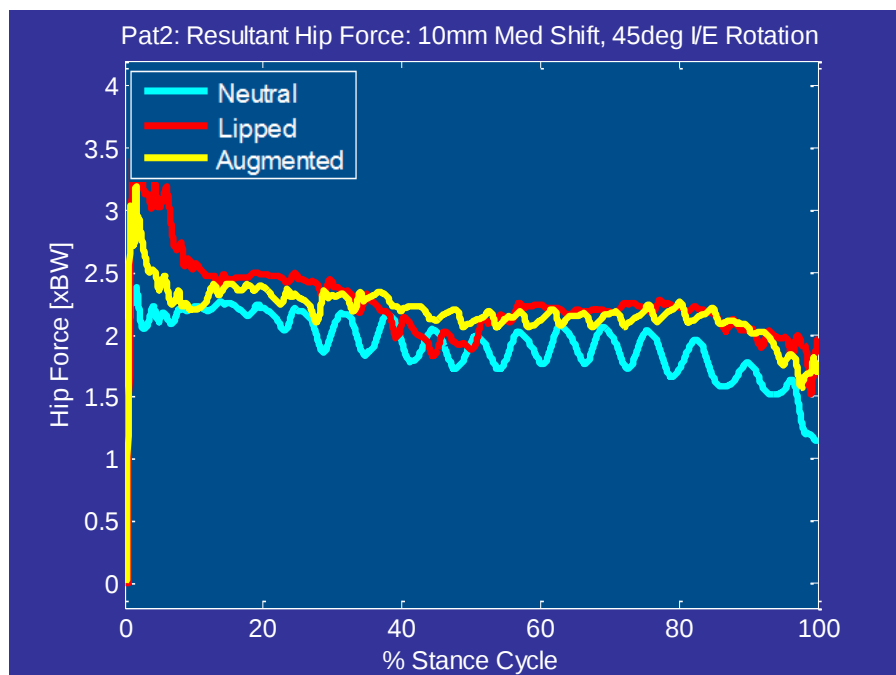


(b)

Figure D91: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

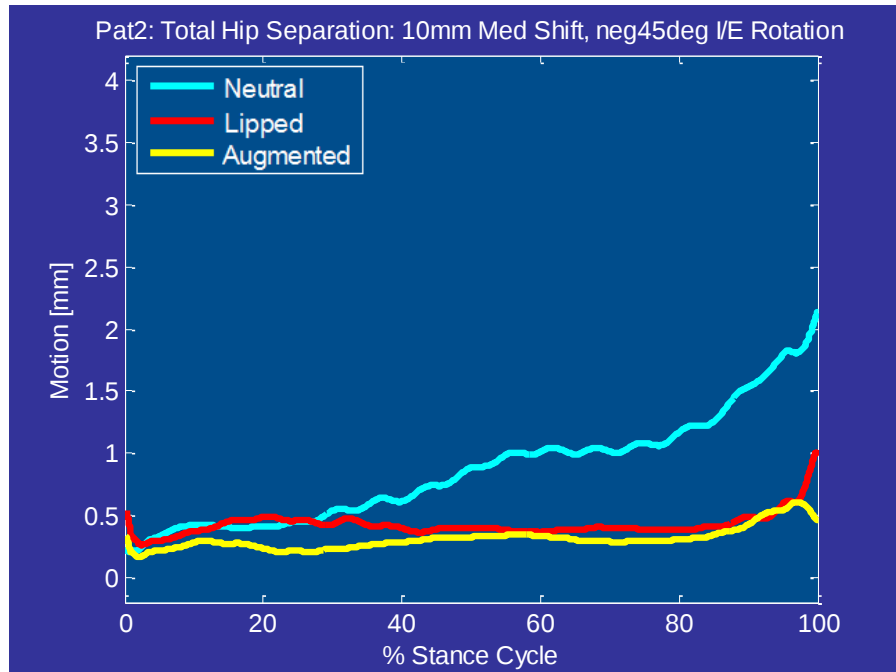


(a)

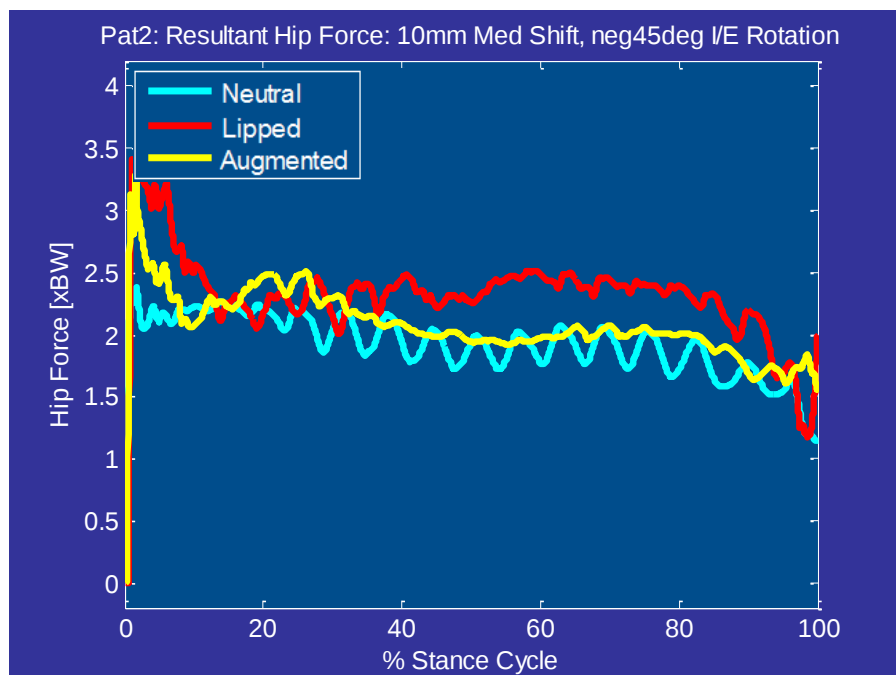


(b)

Figure D92: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

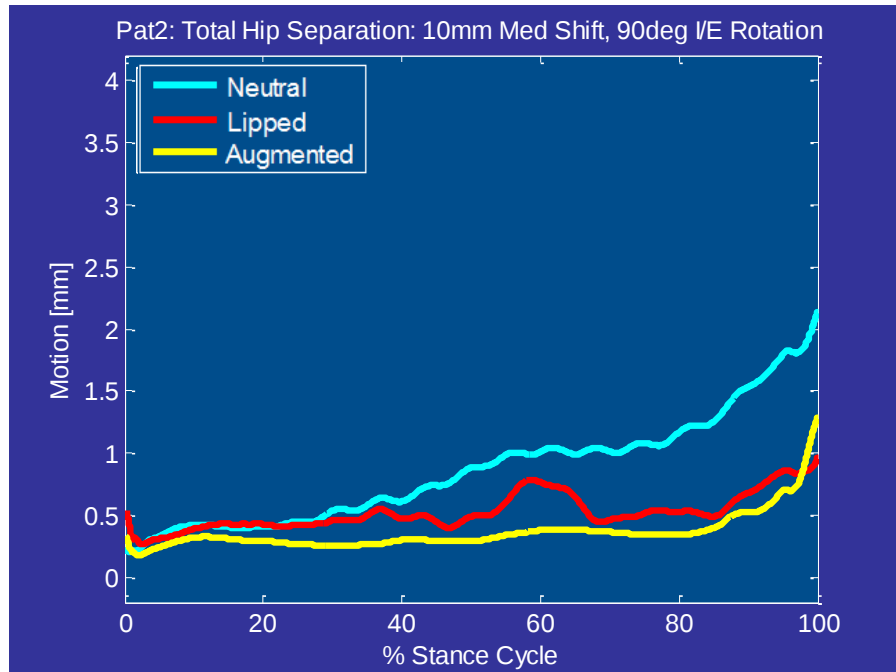


(a)

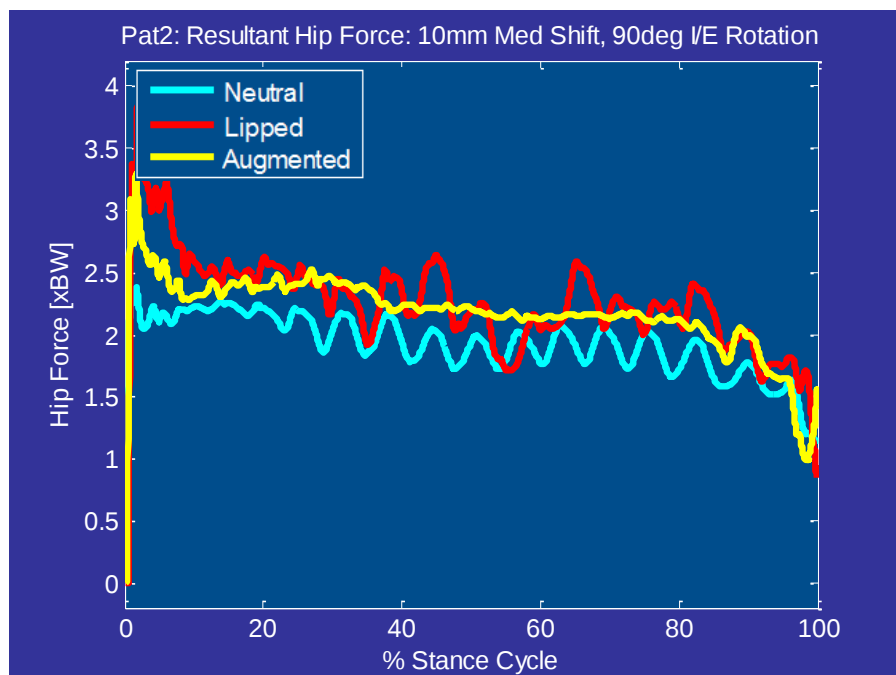


(b)

Figure D93: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

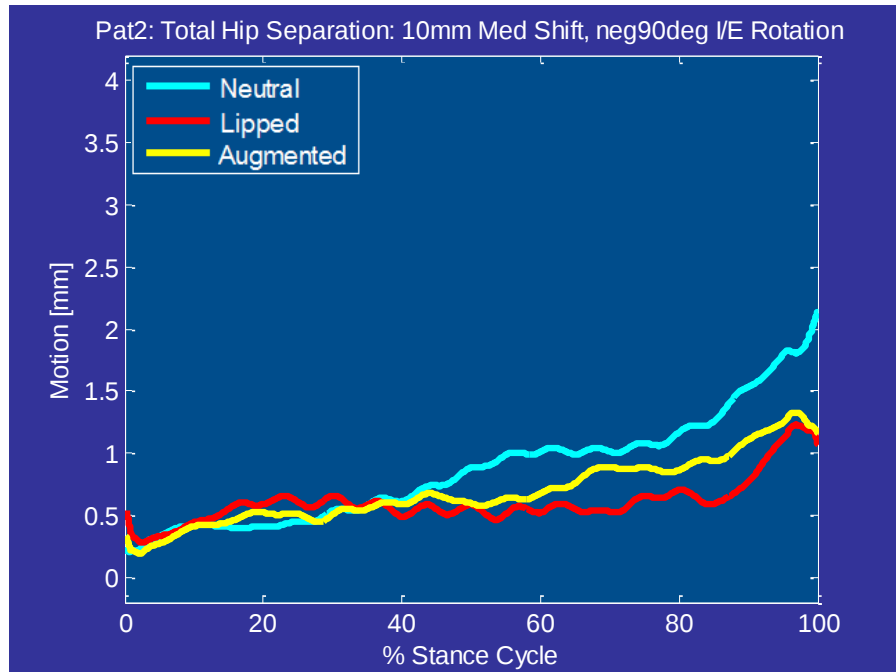


(a)

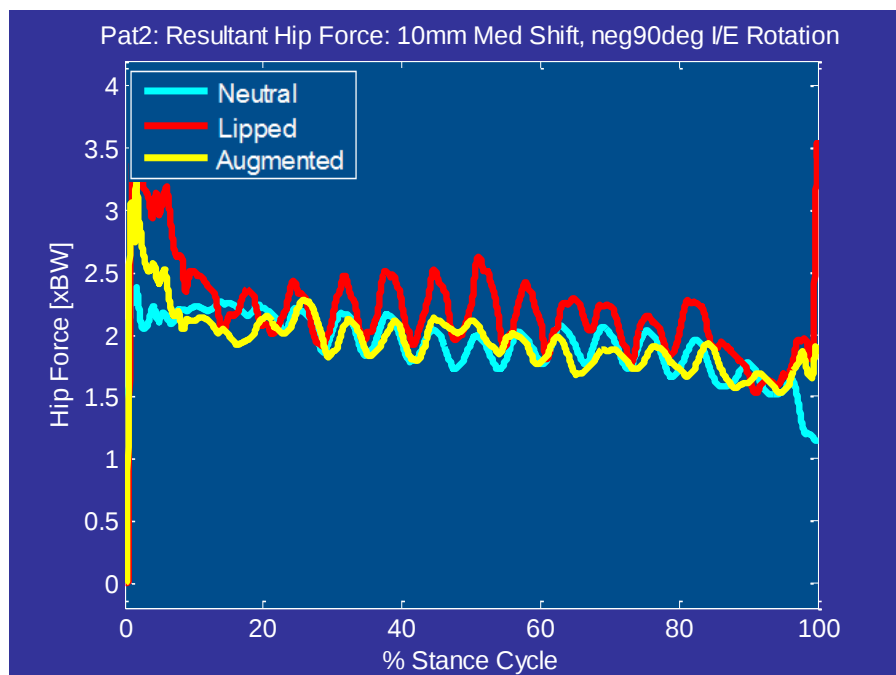


(b)

Figure D94: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

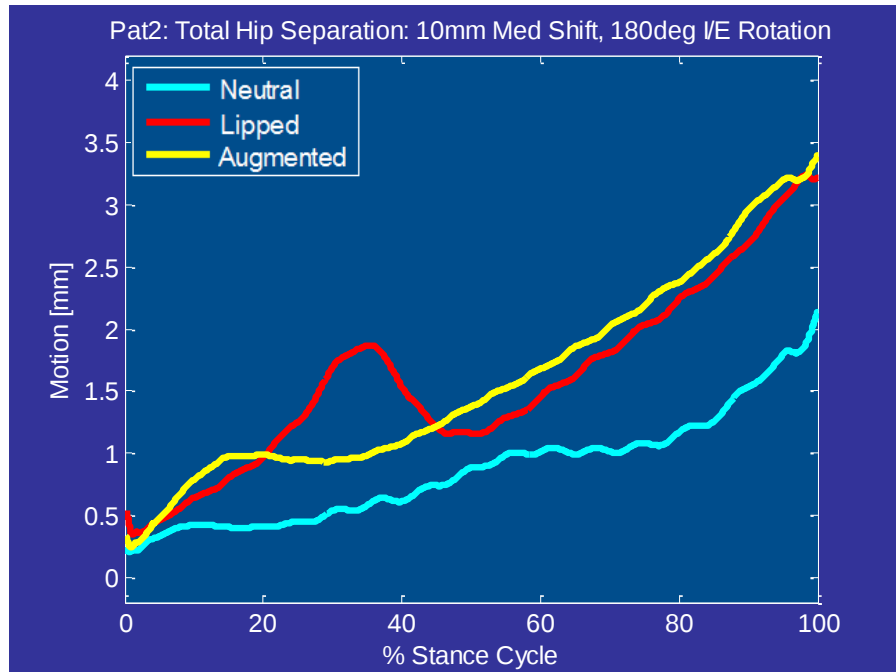


(a)

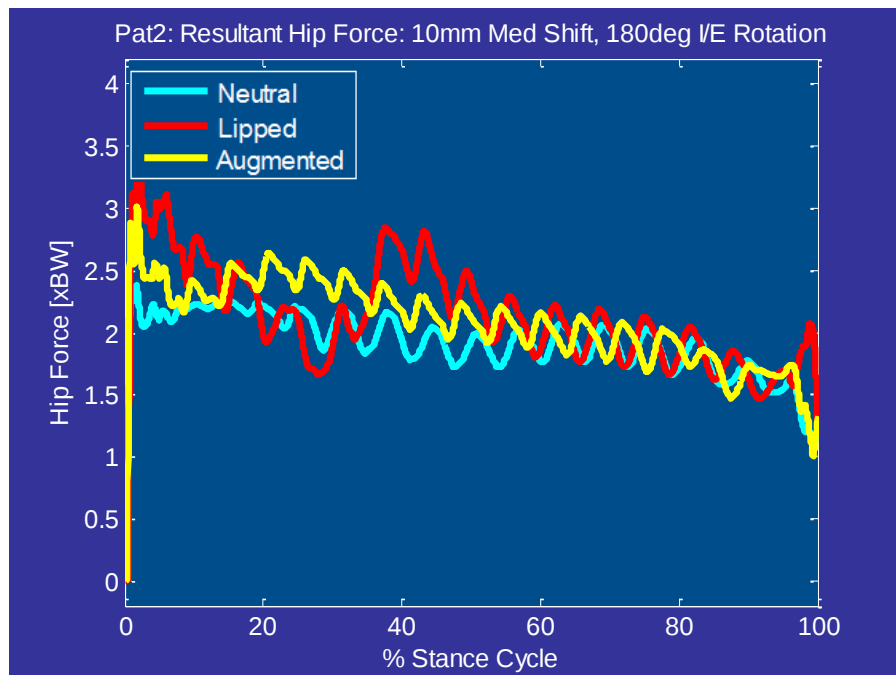


(b)

Figure D95: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

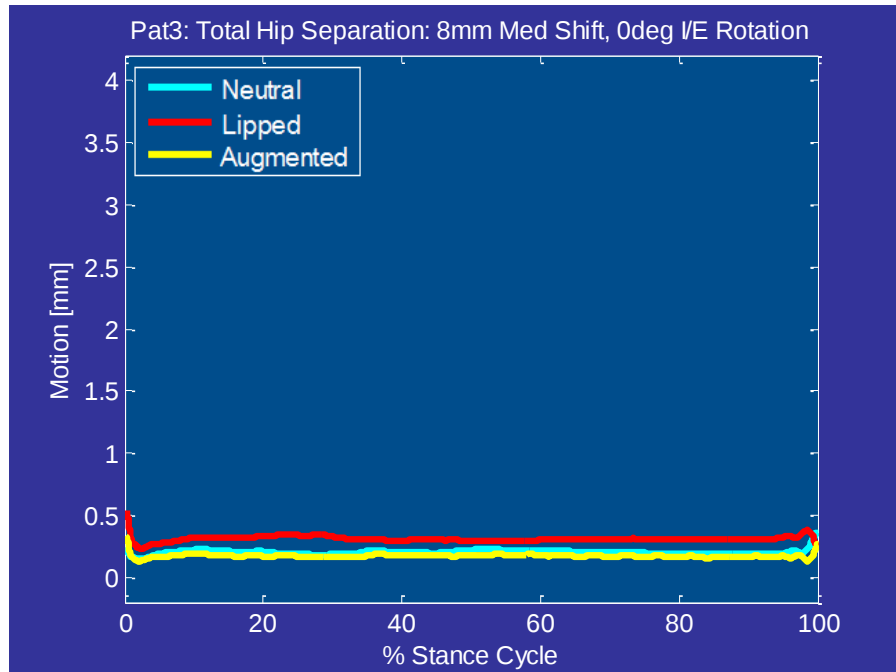


(a)



(b)

Figure D96: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

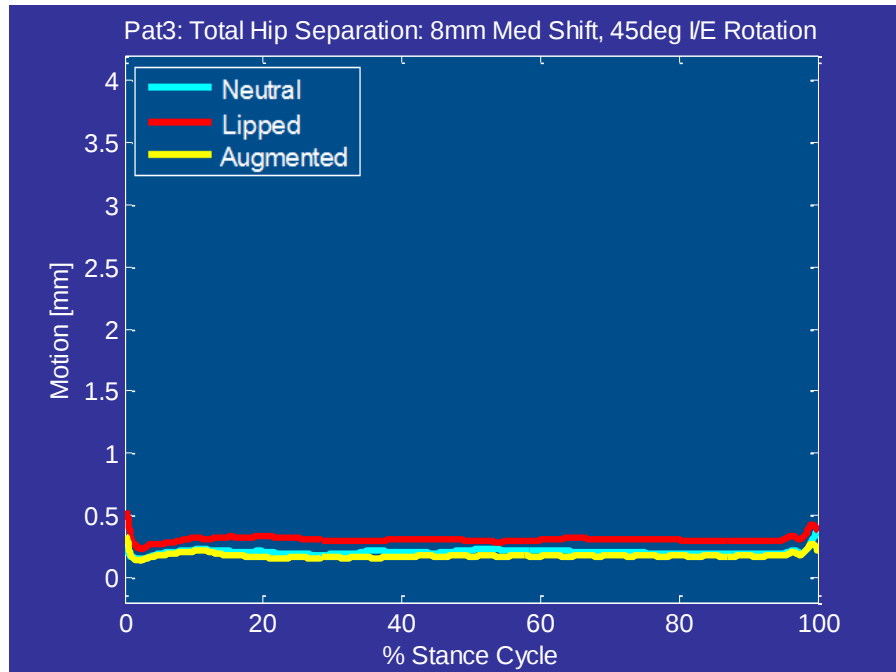


(a)

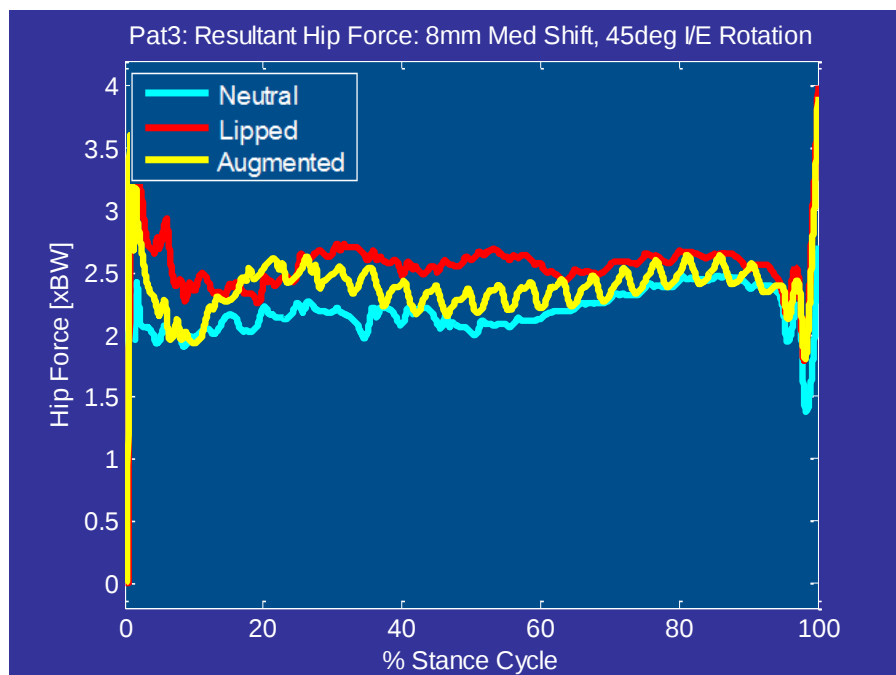


(b)

Figure D97: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

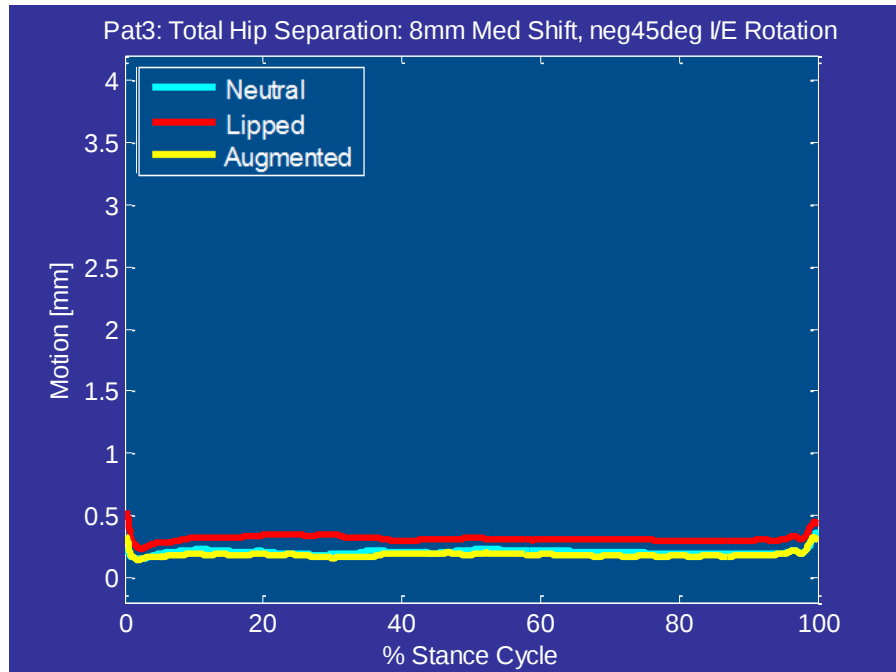


(a)

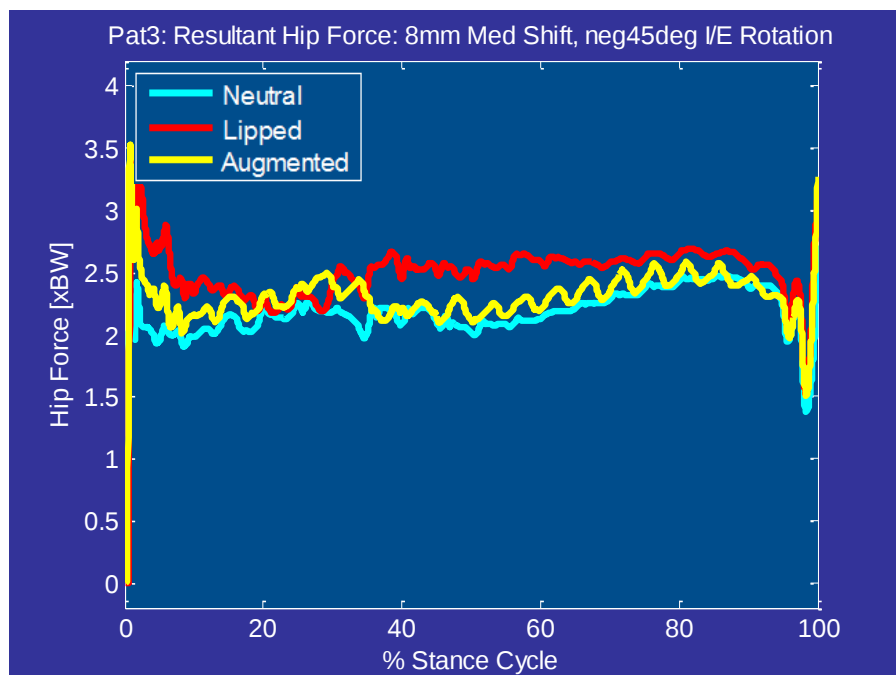


(b)

Figure D98: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

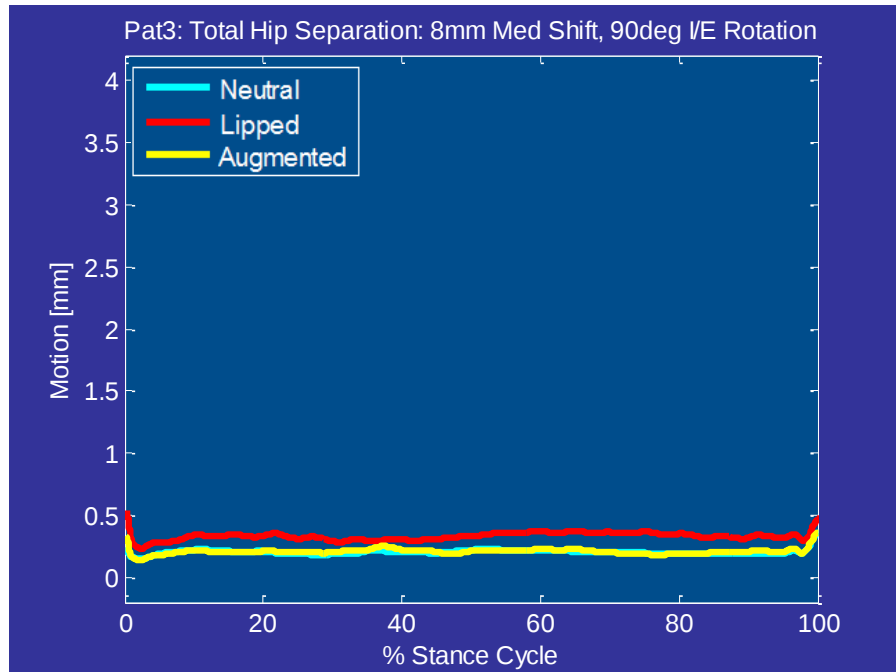


(a)

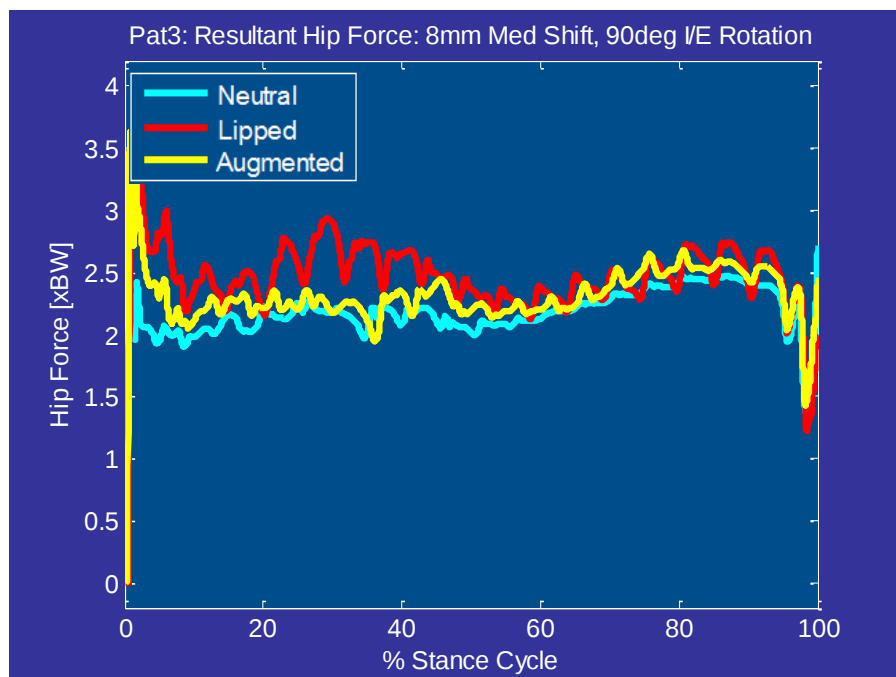


(b)

Figure D99: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

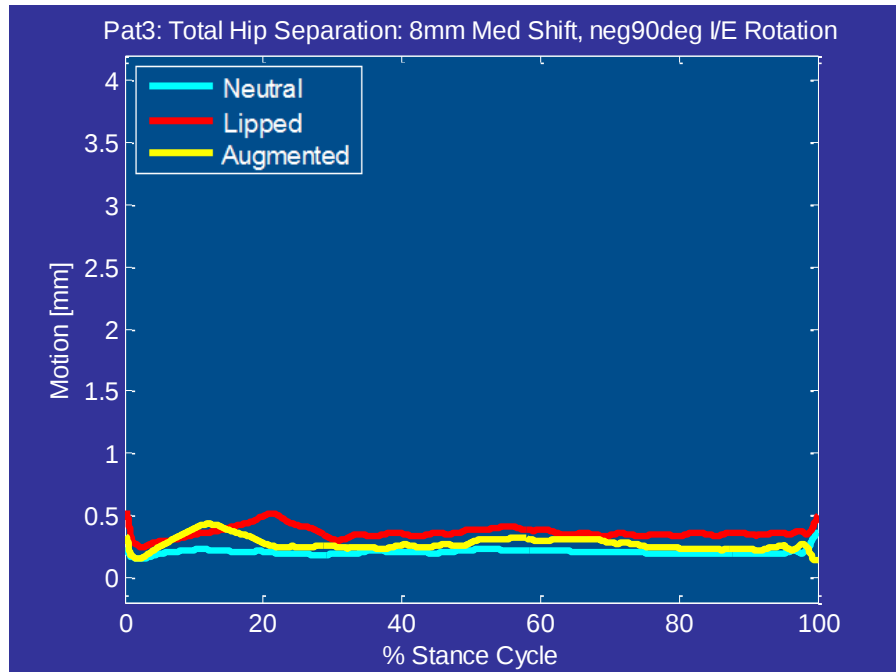


(a)

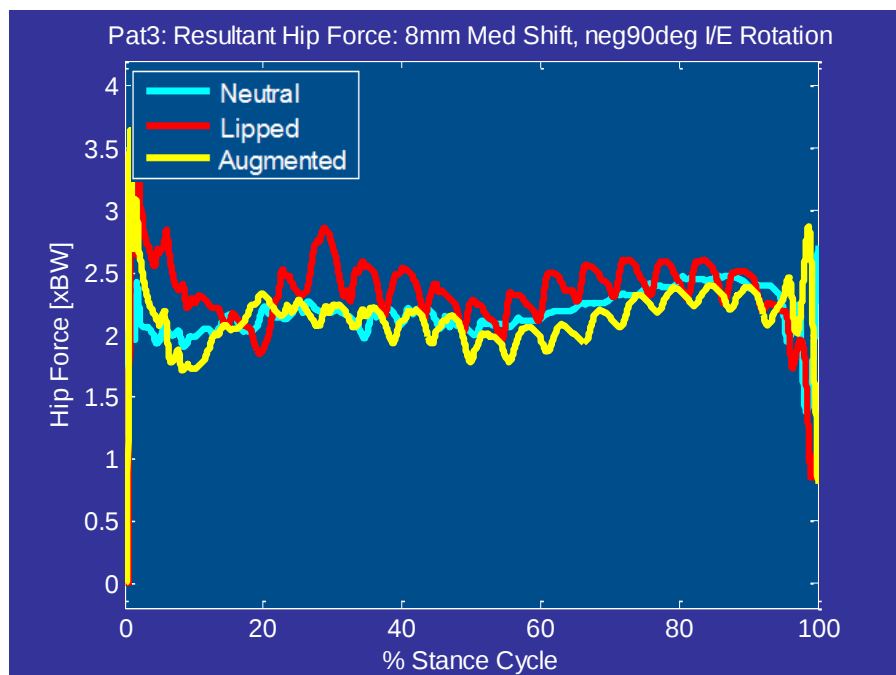


(b)

Figure D100: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

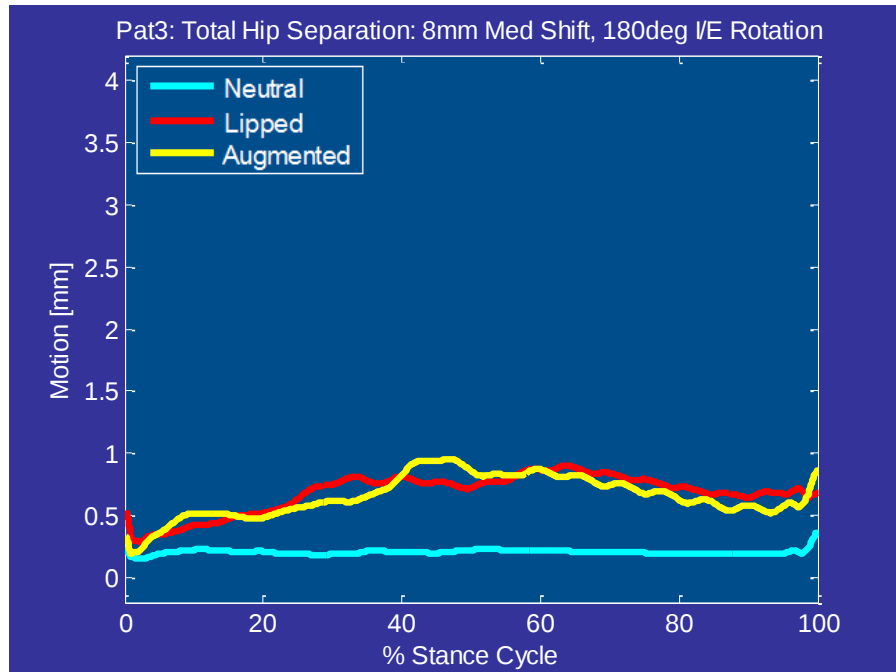


(a)

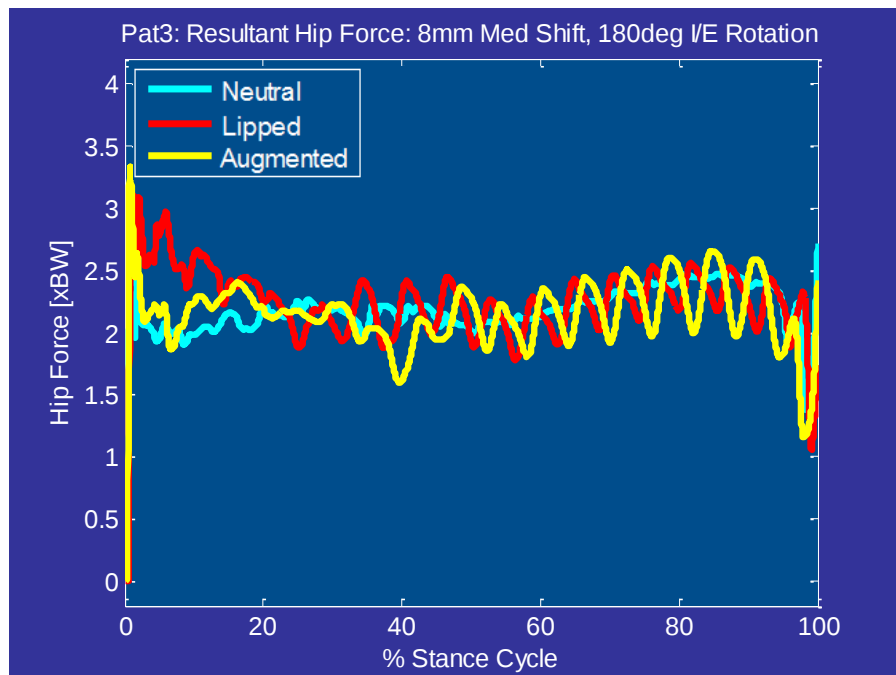


(b)

Figure D101: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

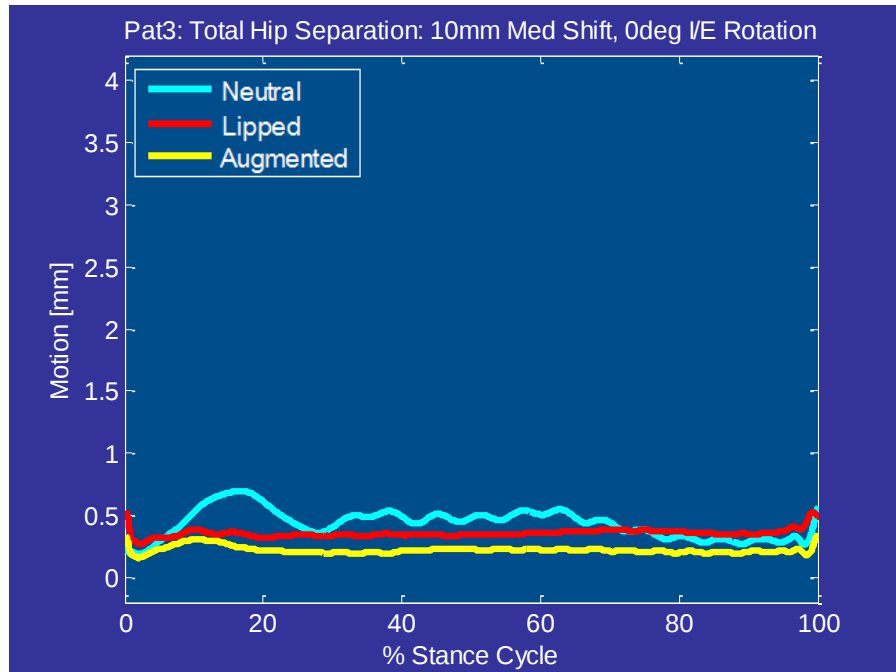


(a)

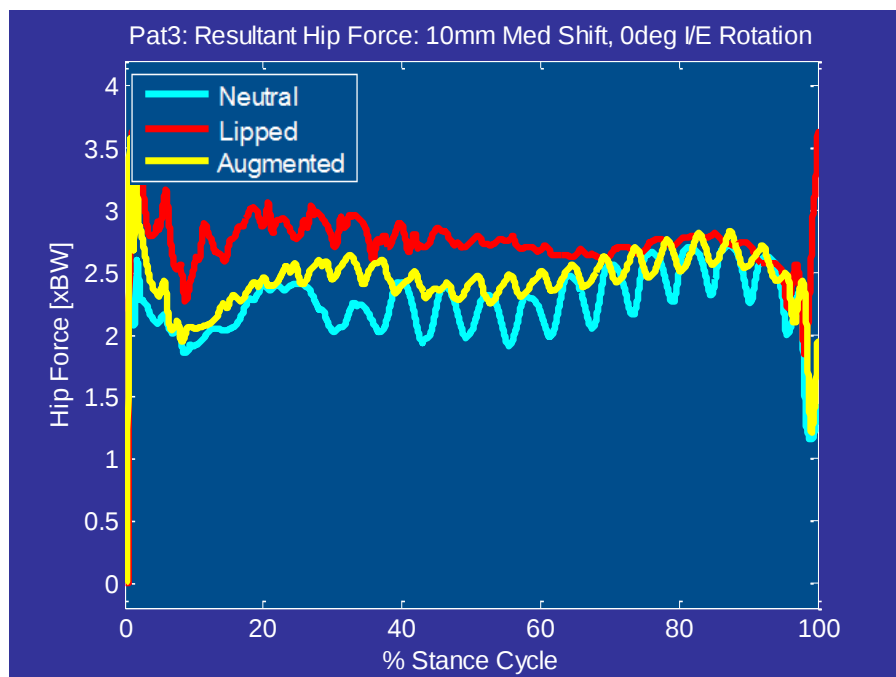


(b)

Figure D102: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

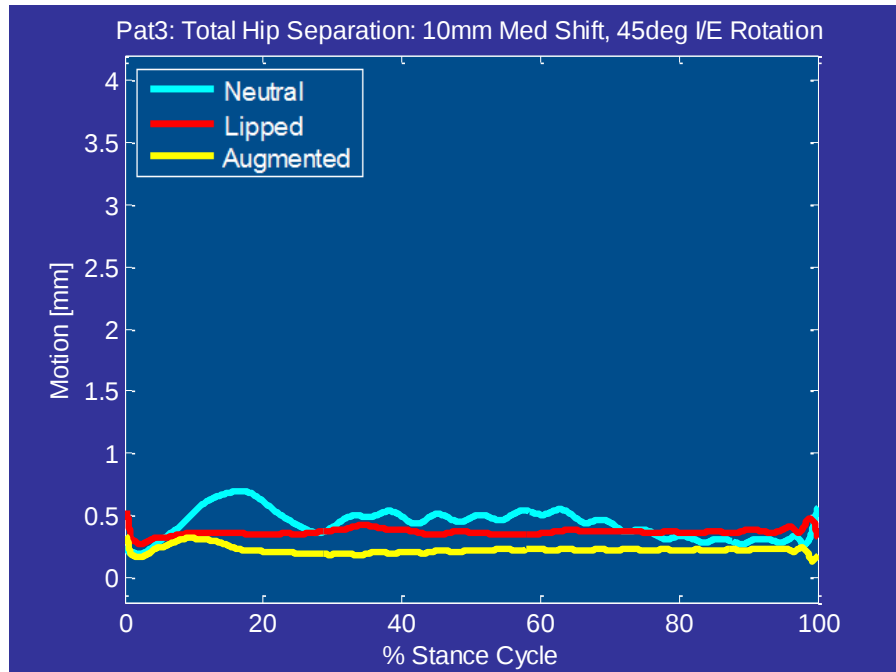


(a)

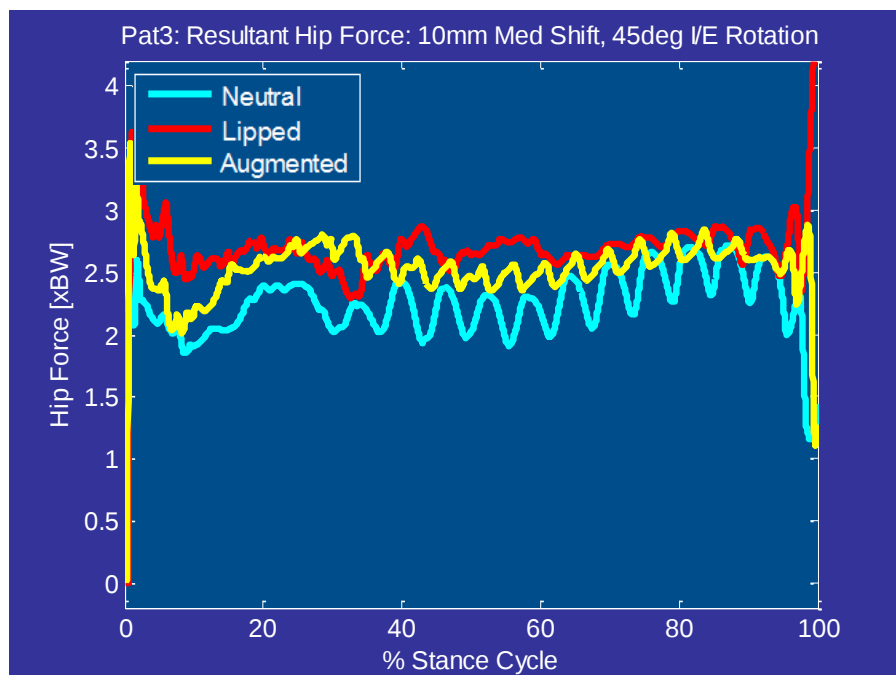


(b)

Figure D103: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

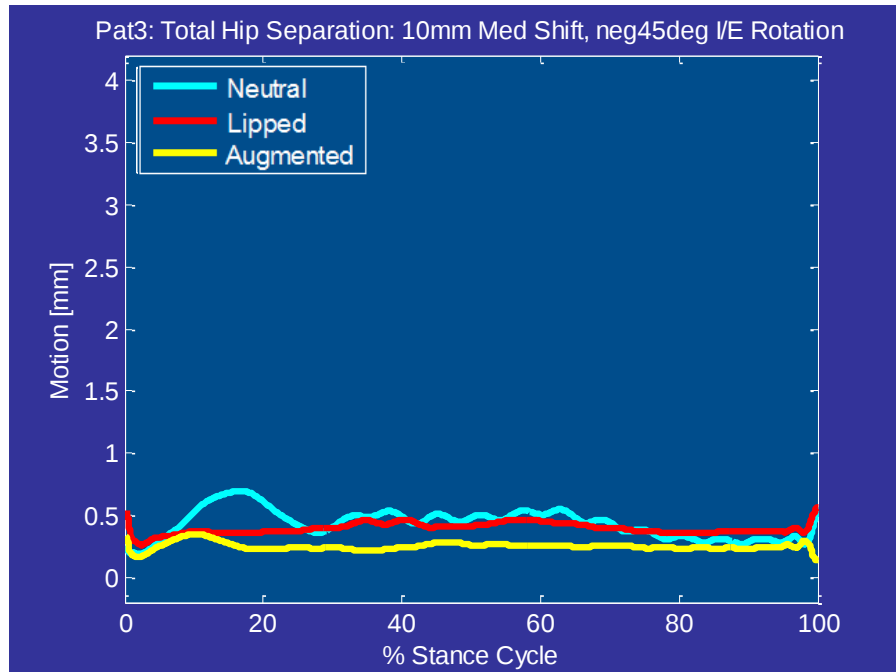


(a)

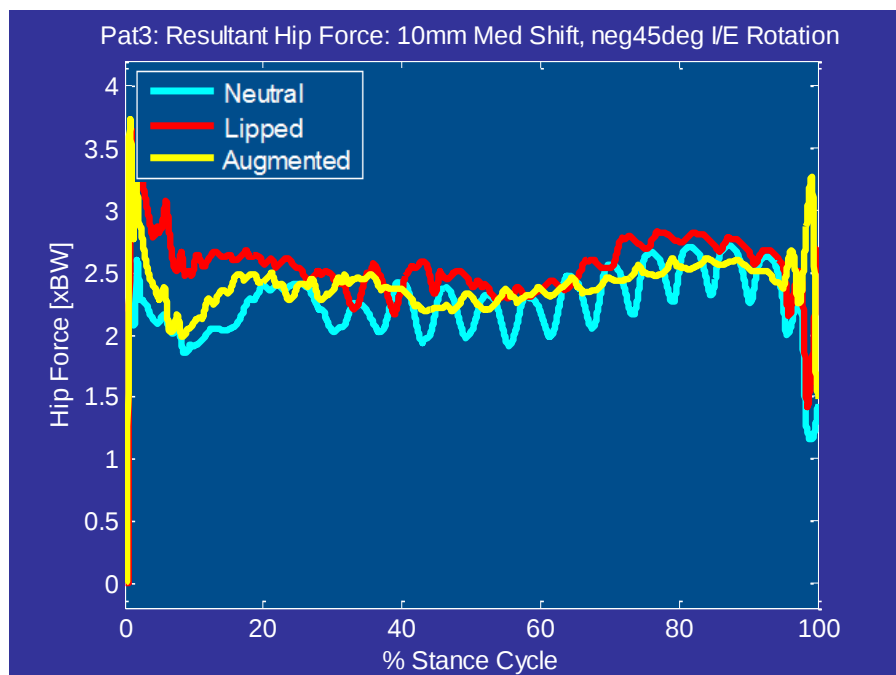


(b)

Figure D104: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

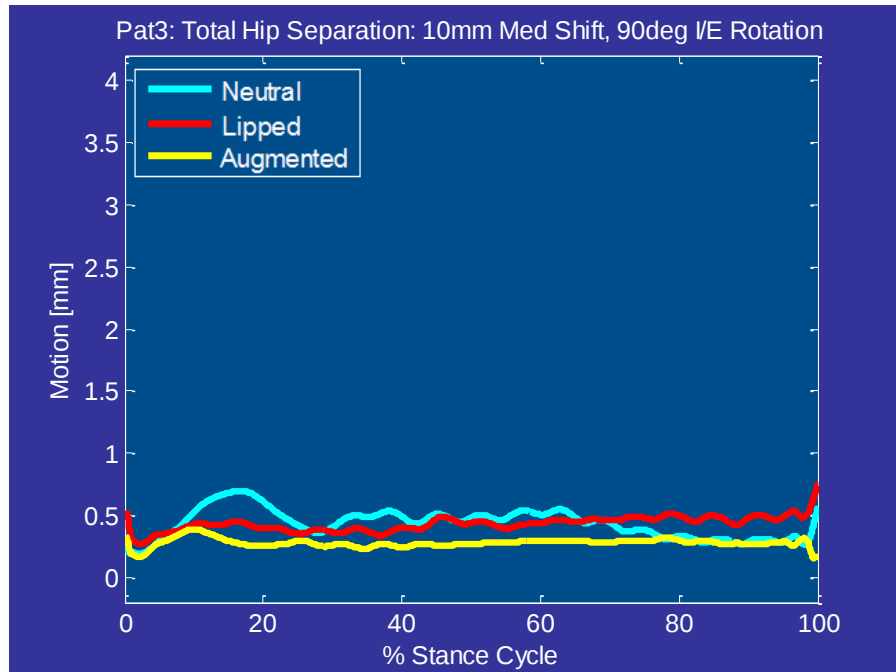


(a)

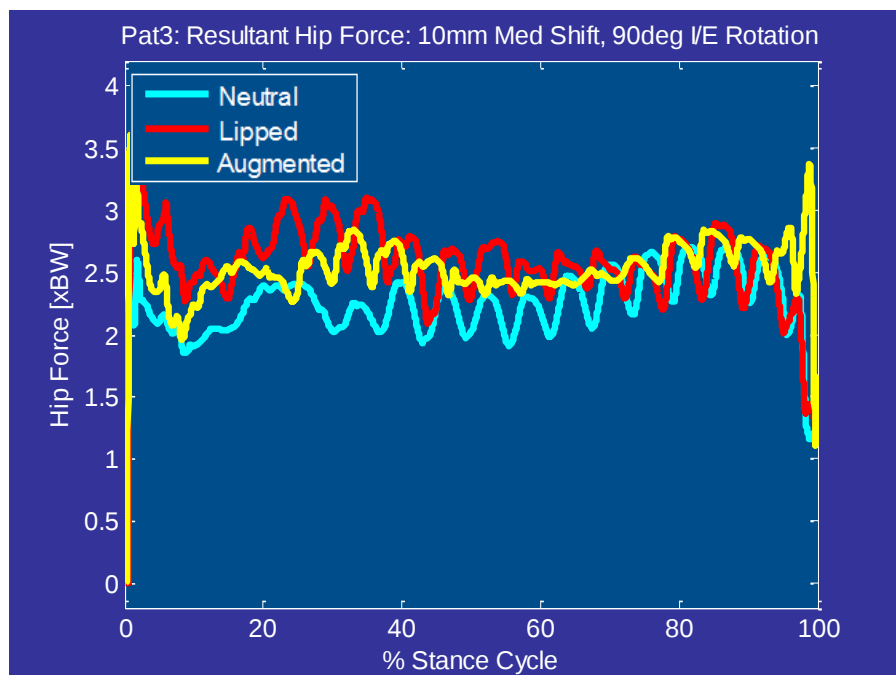


(b)

Figure D105: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

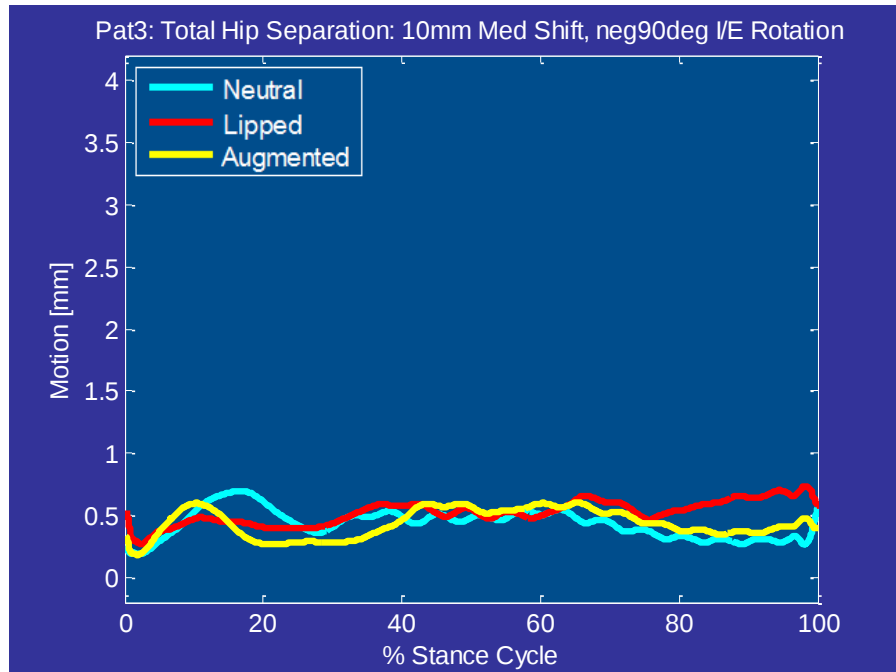


(a)

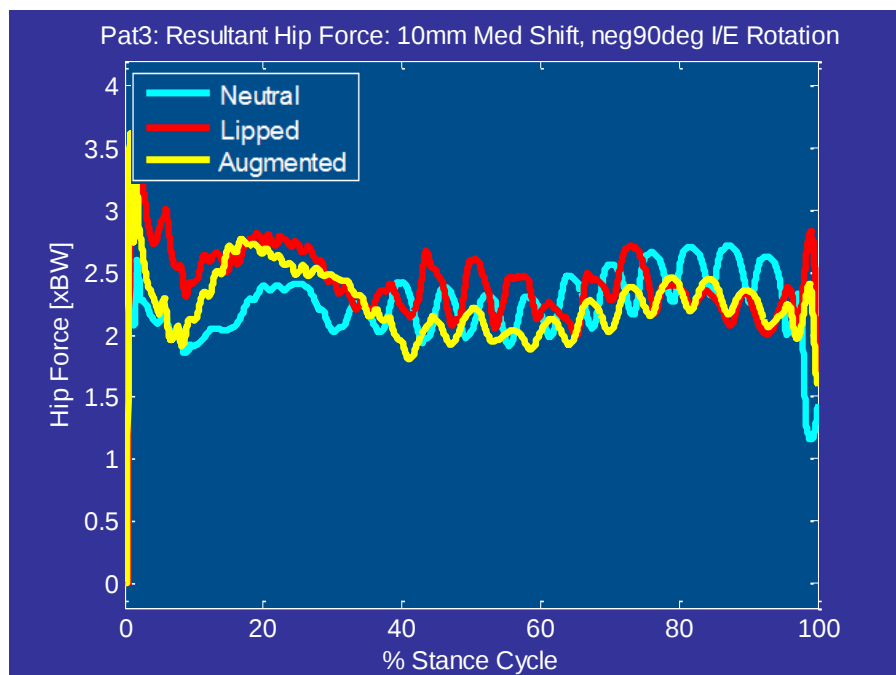


(b)

Figure D106: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

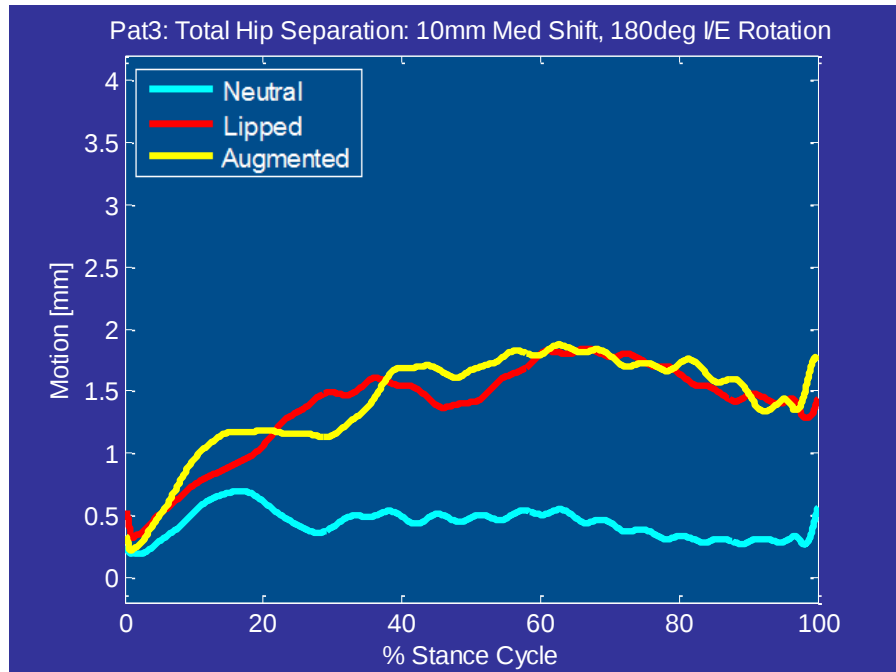


(a)

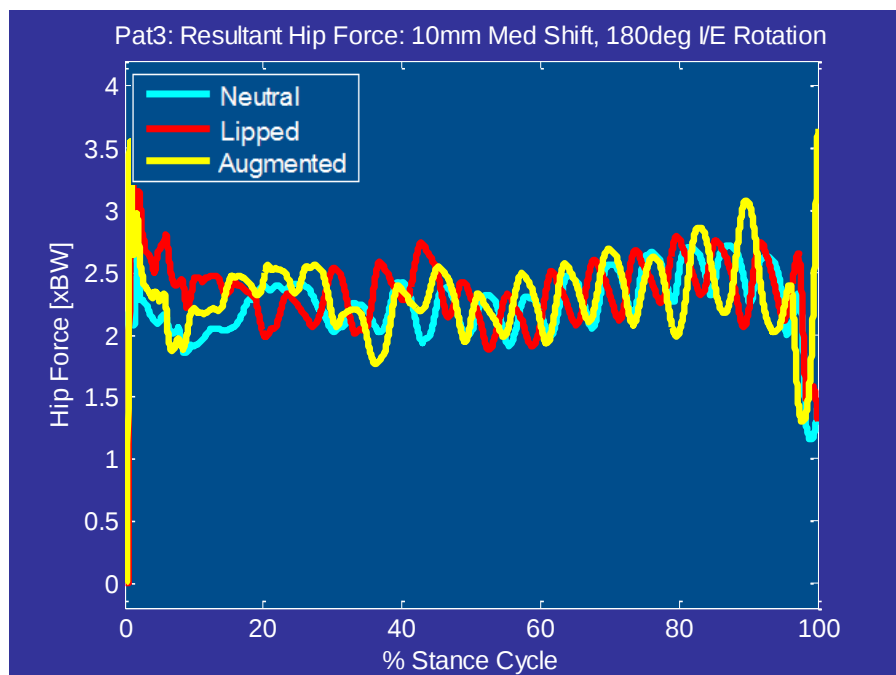


(b)

Figure D107: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

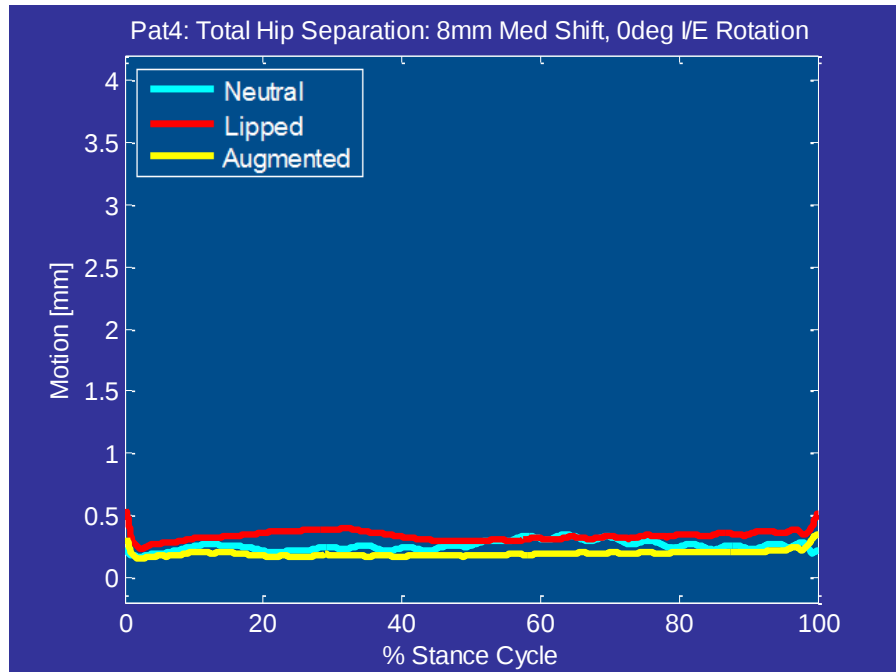


(a)



(b)

Figure D108: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

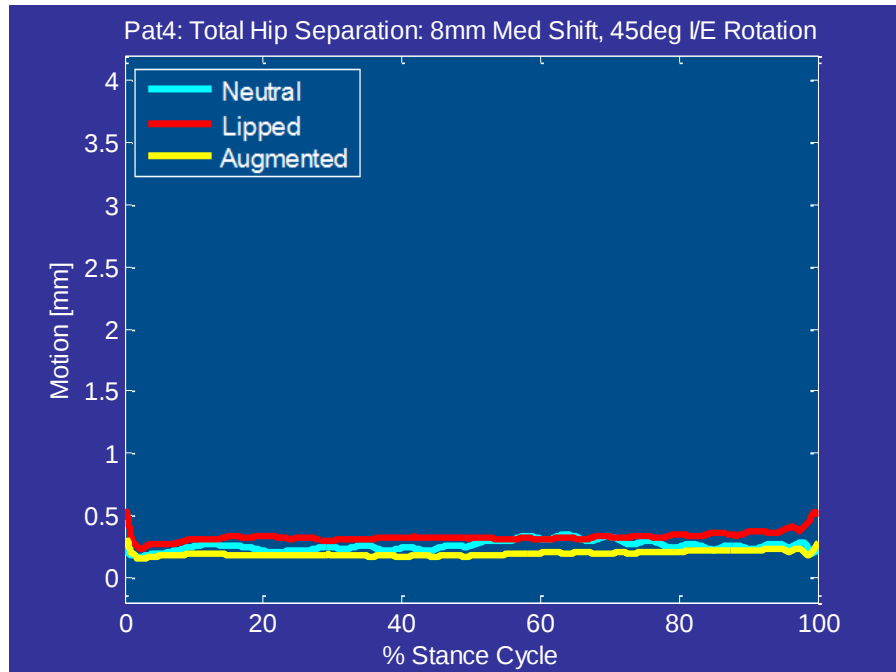


(a)

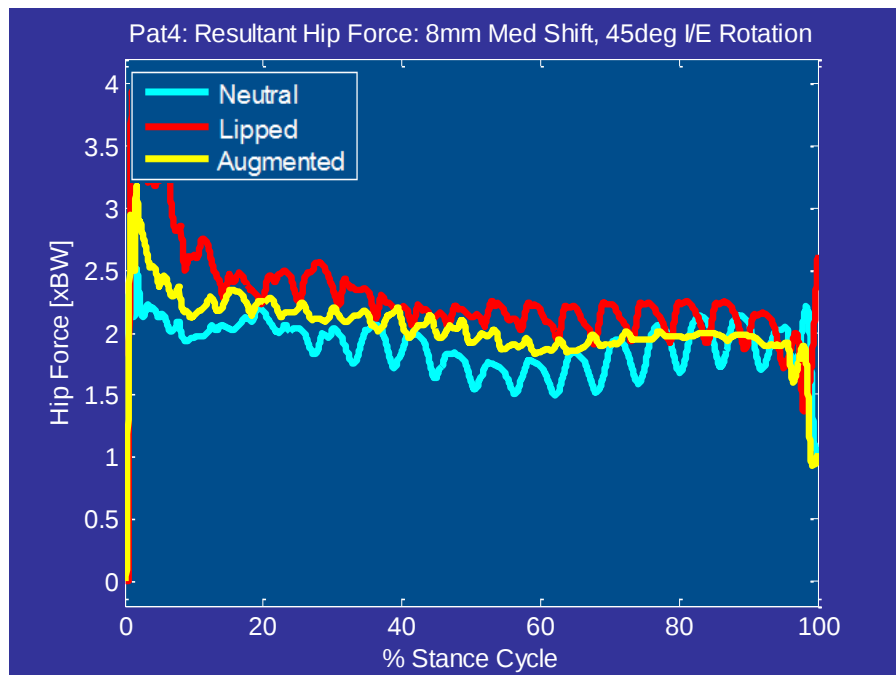


(b)

Figure D109: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

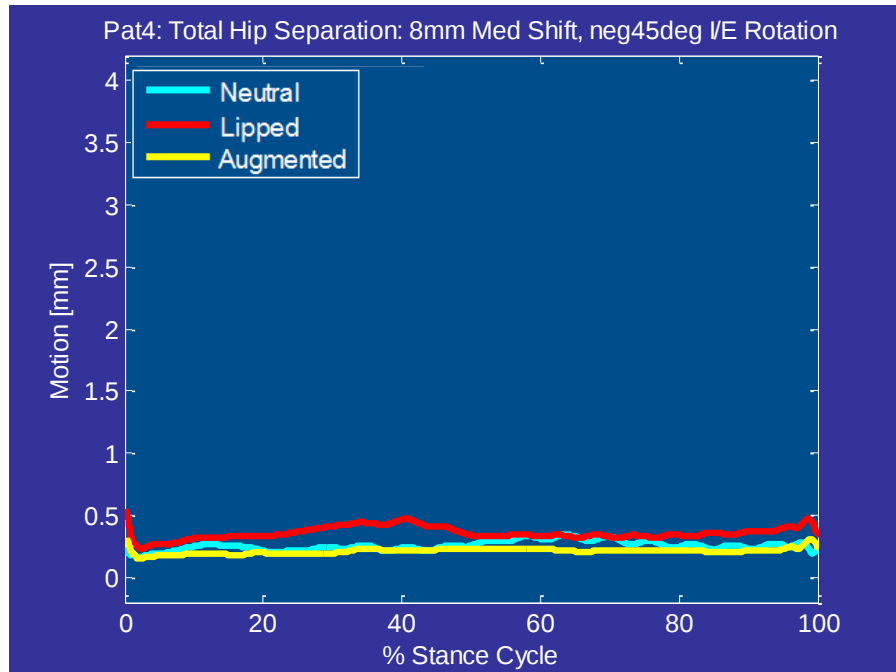


(a)



(b)

Figure D110: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

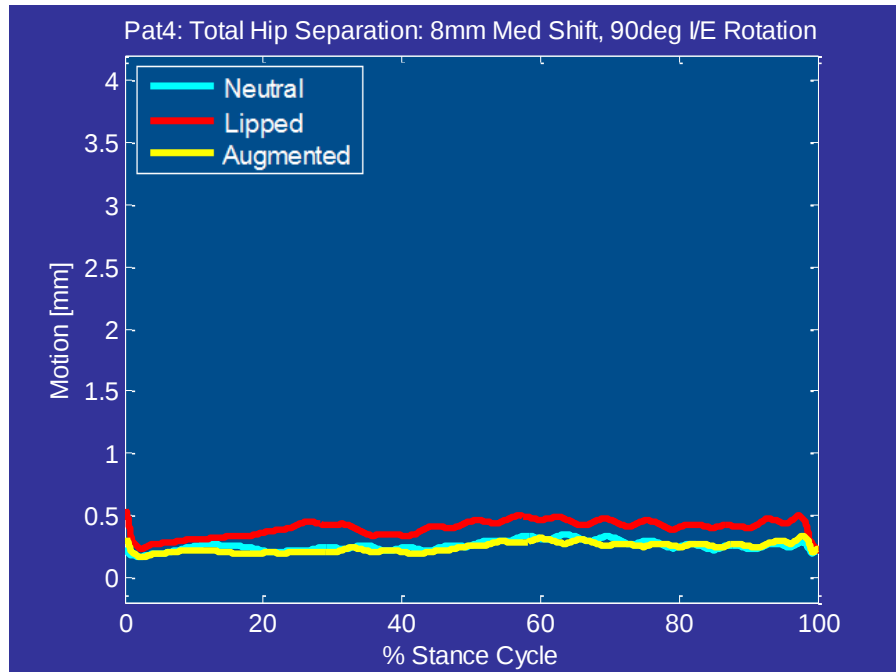


(a)

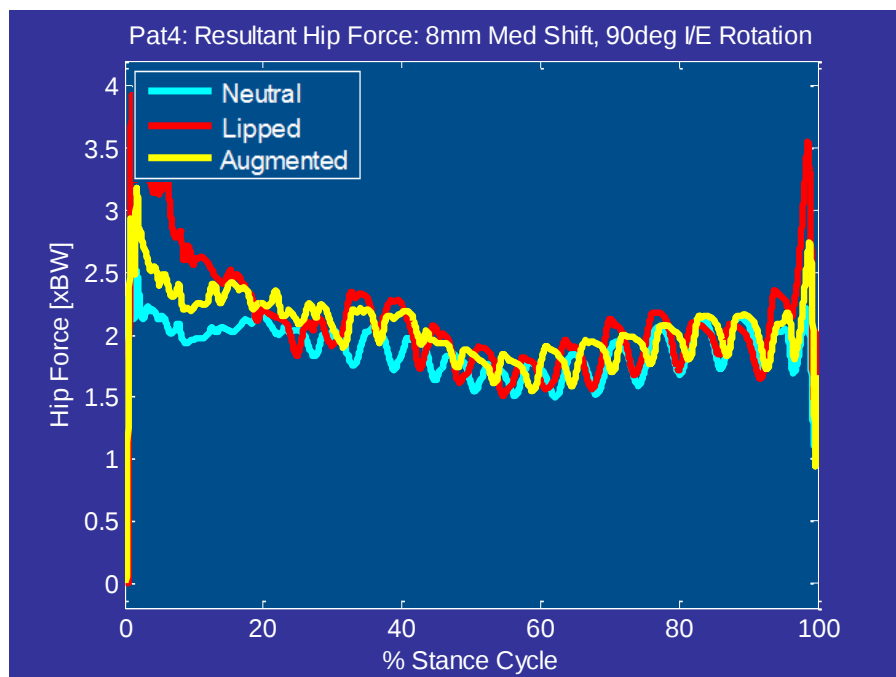


(b)

Figure D111: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

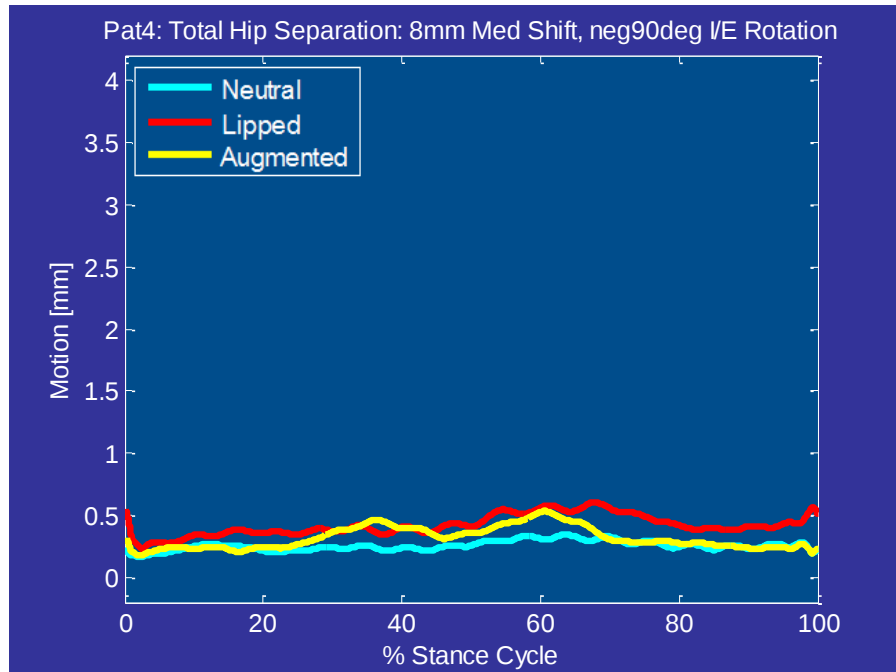


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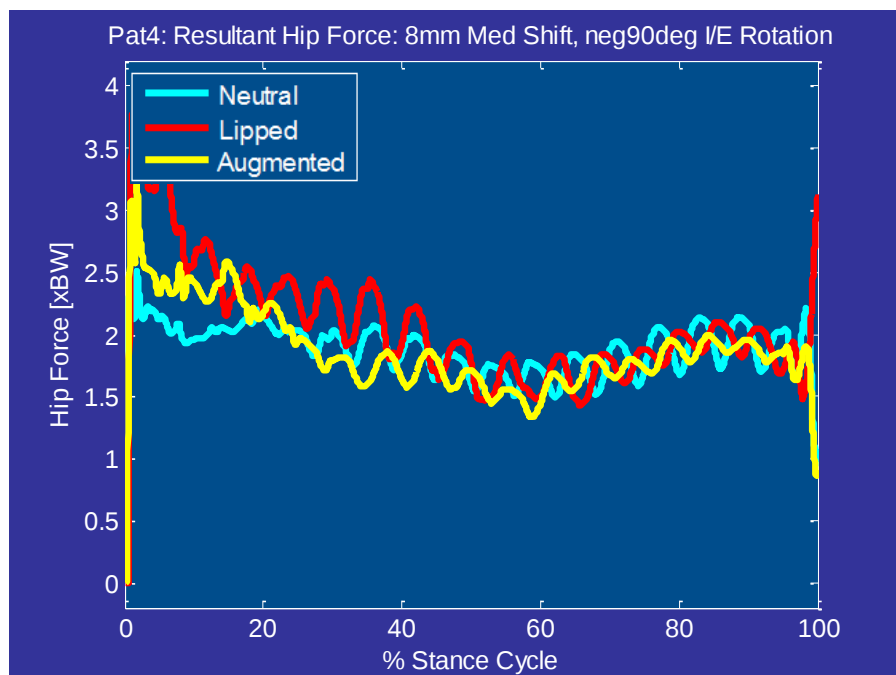


(b)

Figure D112: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

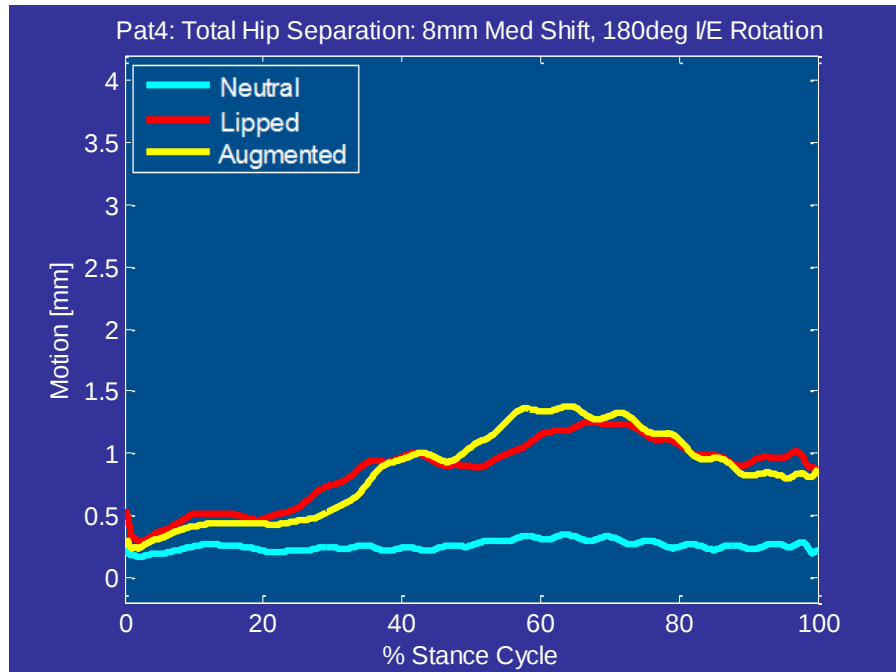


(a)



(b)

Figure D113: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.

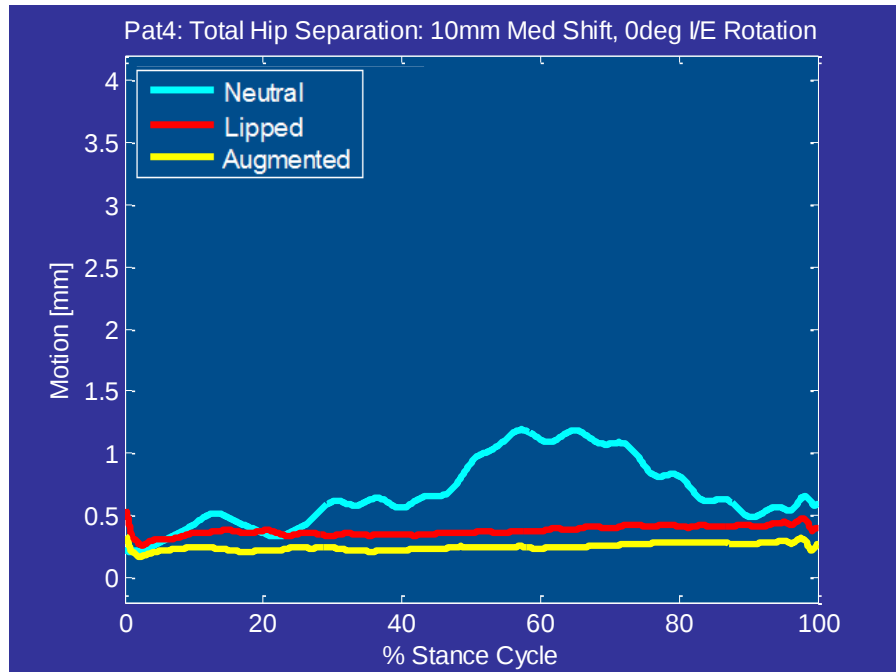


(a)

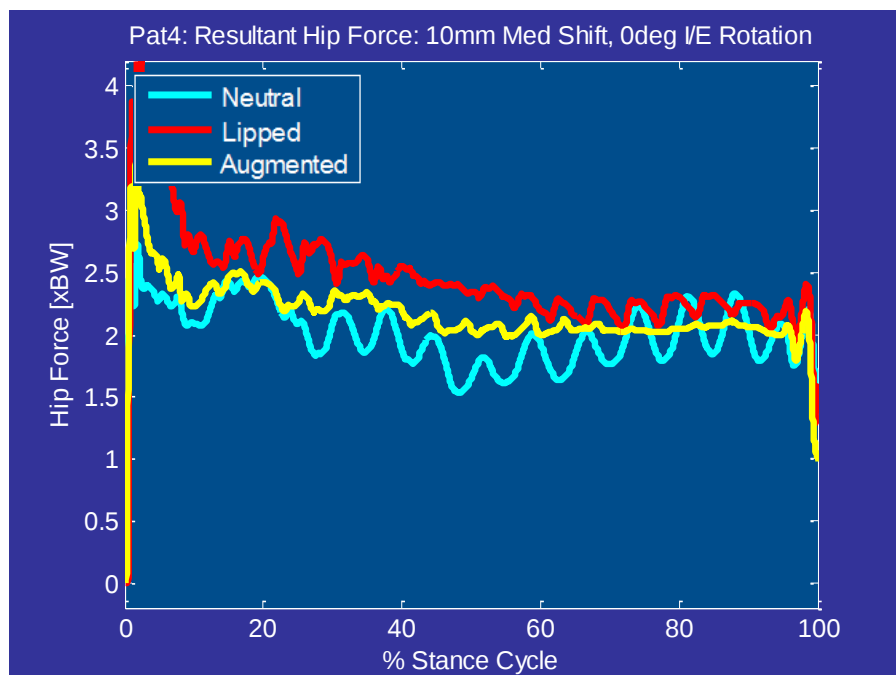


(b)

Figure D114: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

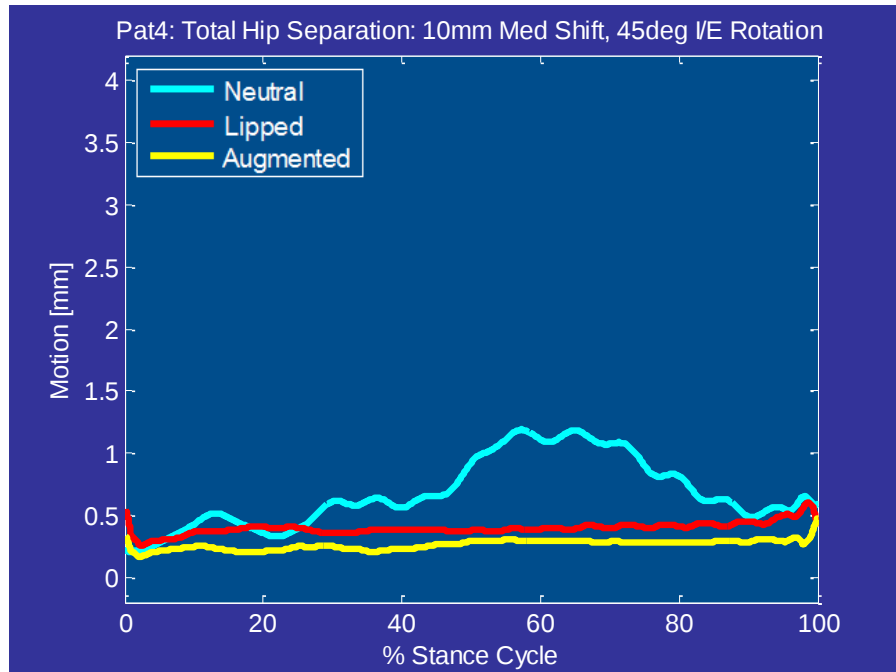


(a)

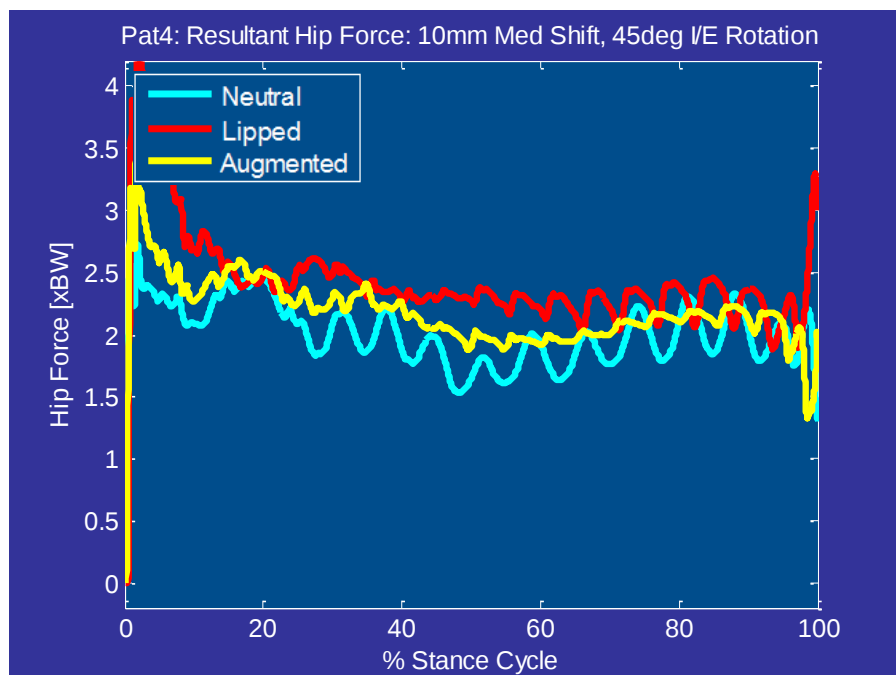


(b)

Figure D115: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
0° I/E Cup Rotation with Rotation Center (RC) alignment.

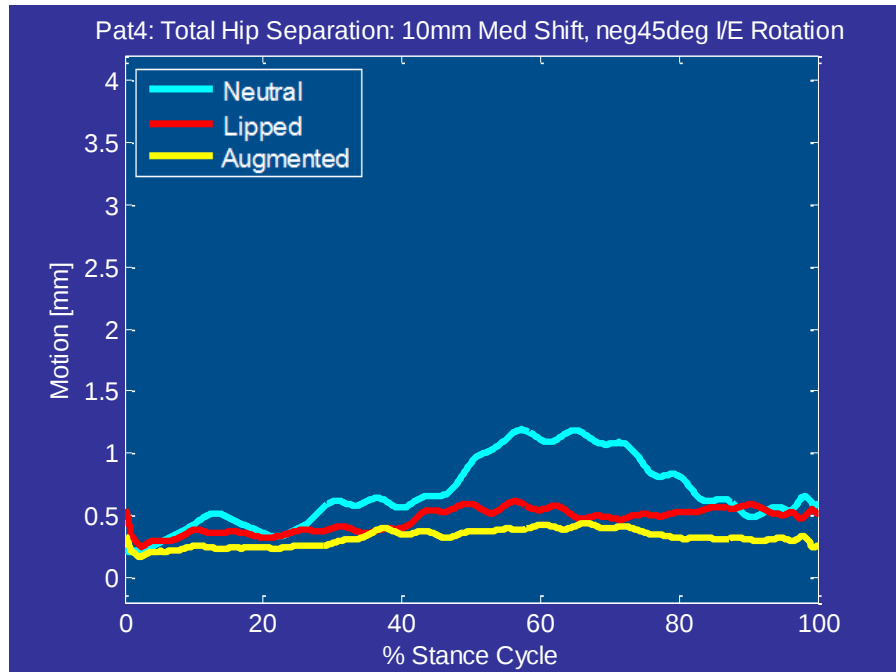


(a)

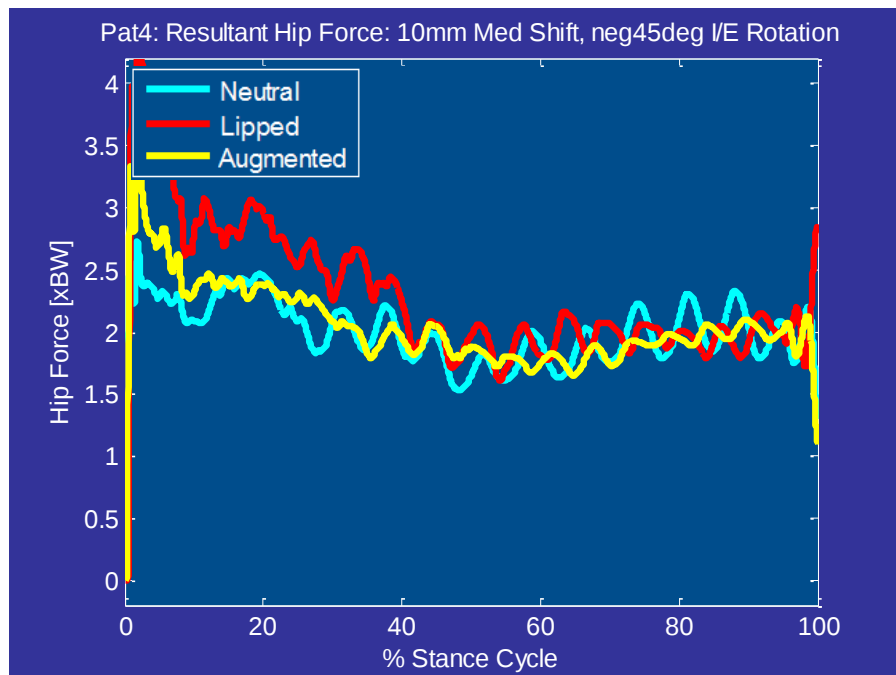


(b)

Figure D116: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
45° I/E Cup Rotation with Rotation Center (RC) alignment.

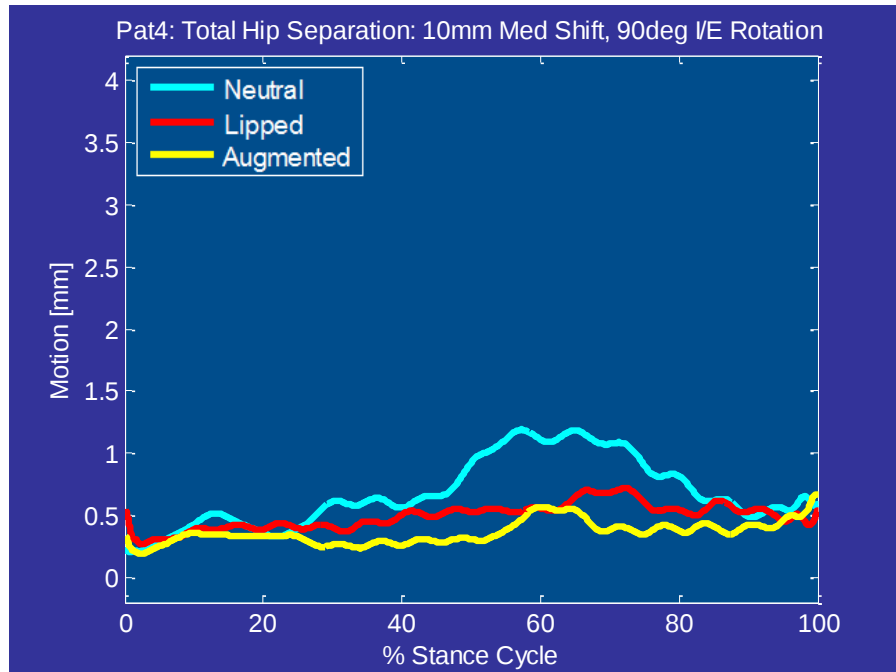


(a)

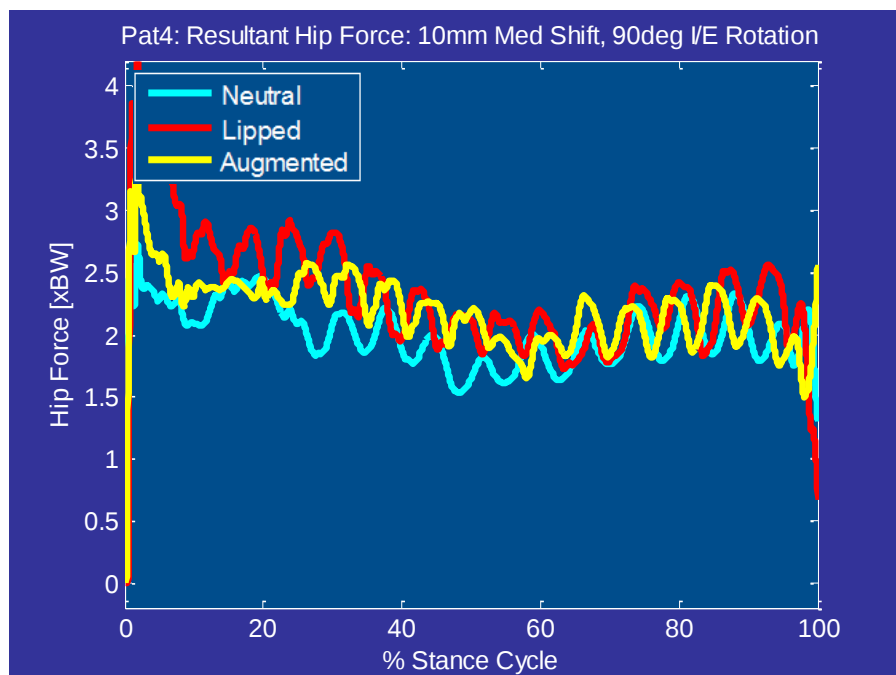


(b)

Figure D117: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
-45° I/E Cup Rotation with Rotation Center (RC) alignment.

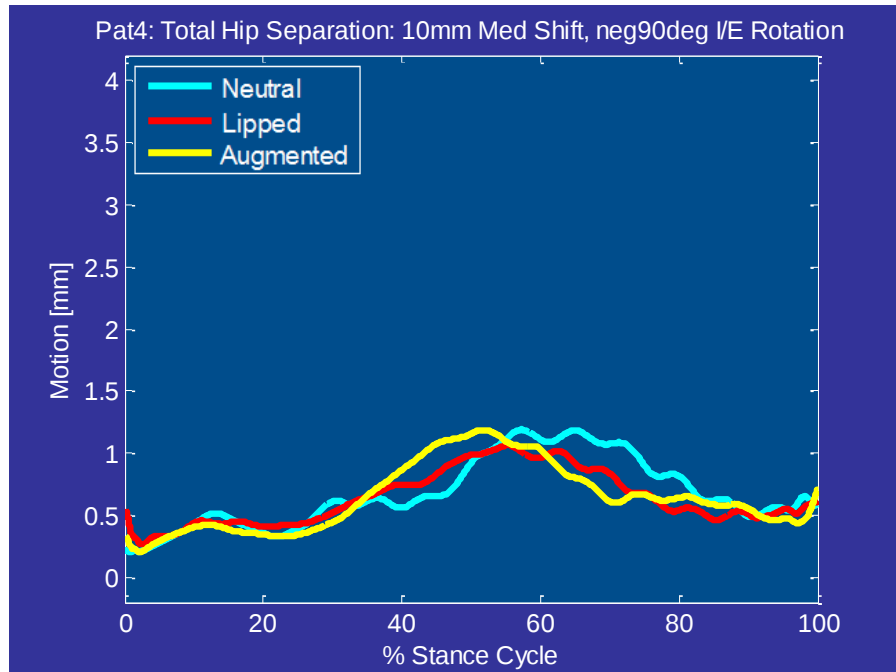


(a)

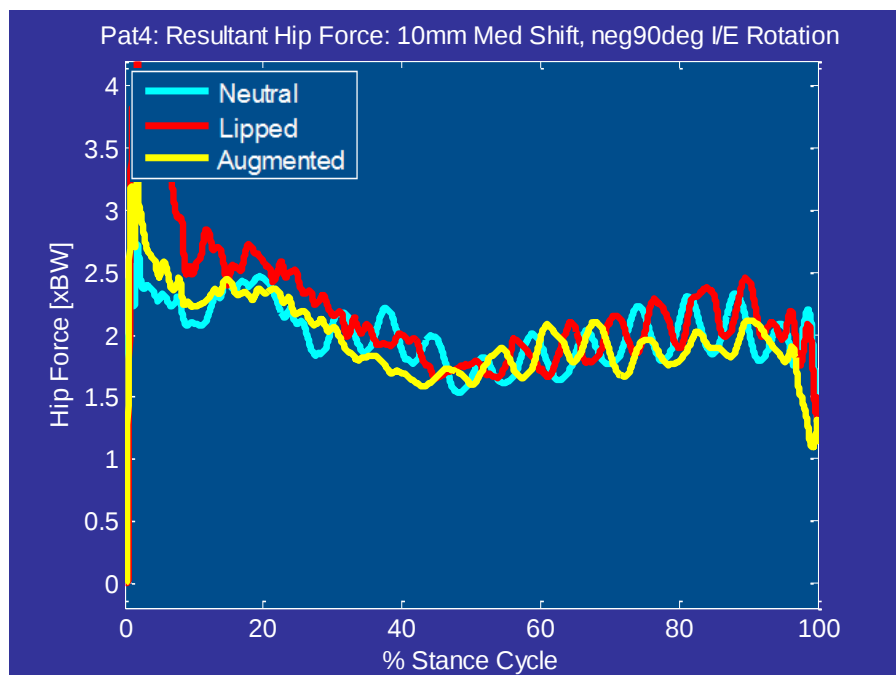


(b)

Figure D118: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
90° I/E Cup Rotation with Rotation Center (RC) alignment.

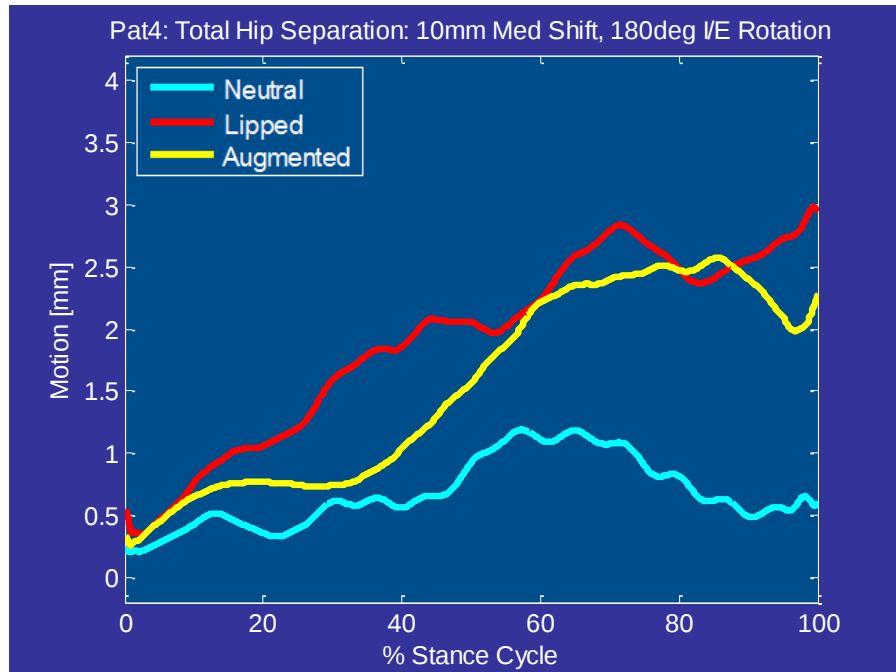


(a)

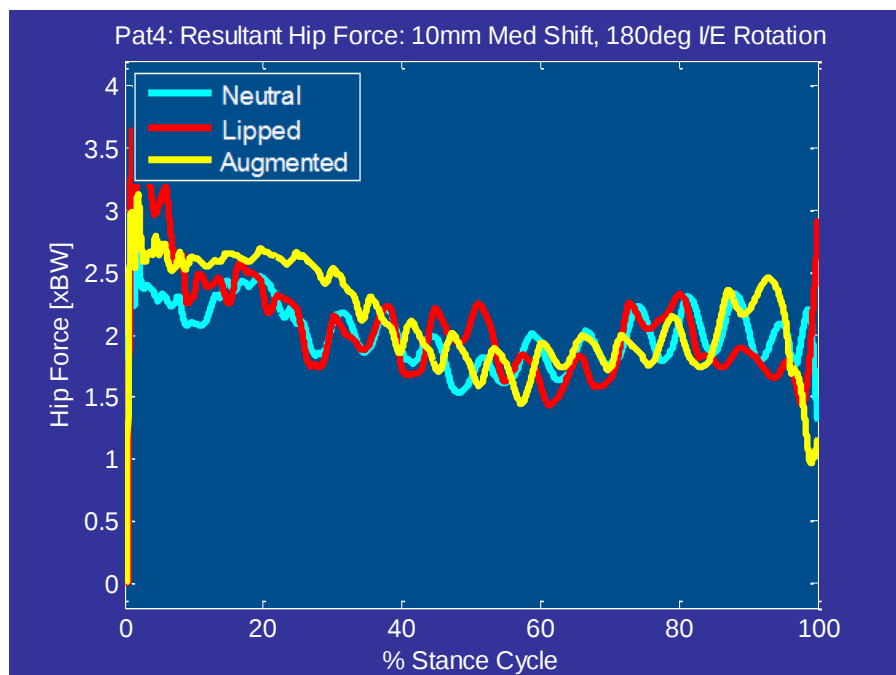


(b)

Figure D119: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
-90° I/E Cup Rotation with Rotation Center (RC) alignment.



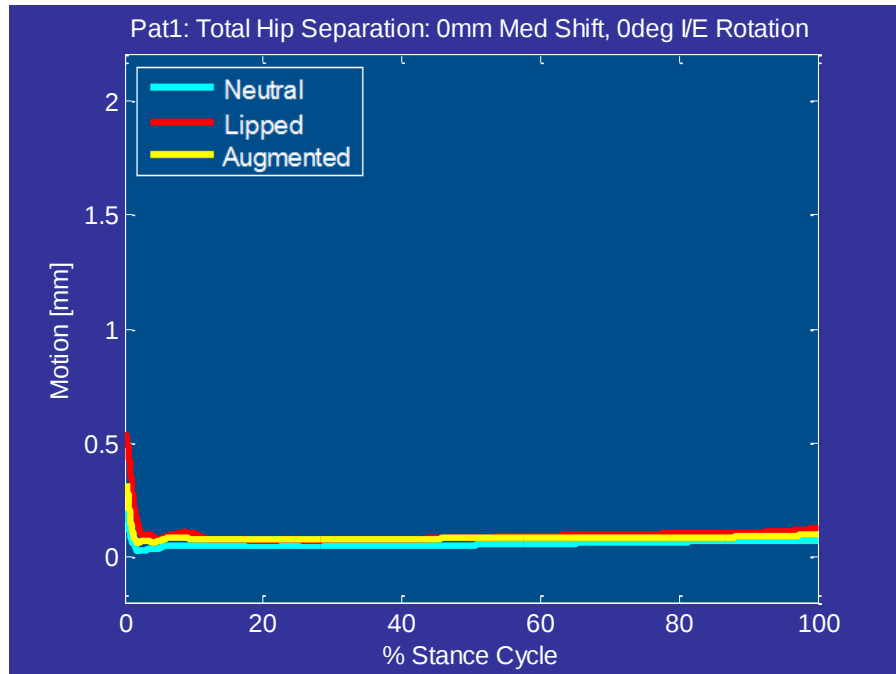
(a)



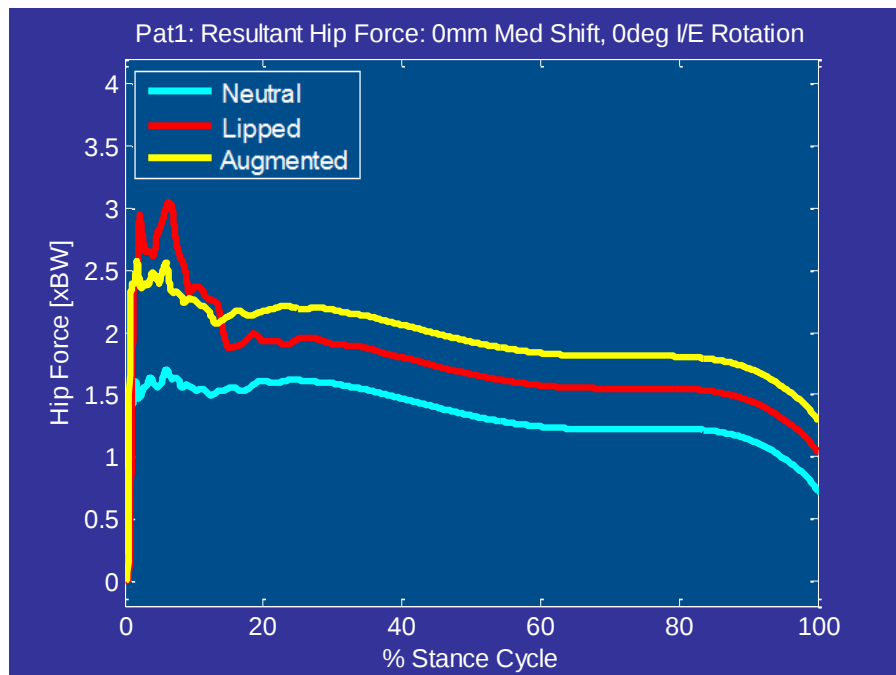
(b)

Figure D120: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
180° I/E Cup Rotation with Rotation Center (RC) alignment.

Appendix E: Cup Medialization Figures with Liner Center Alignment

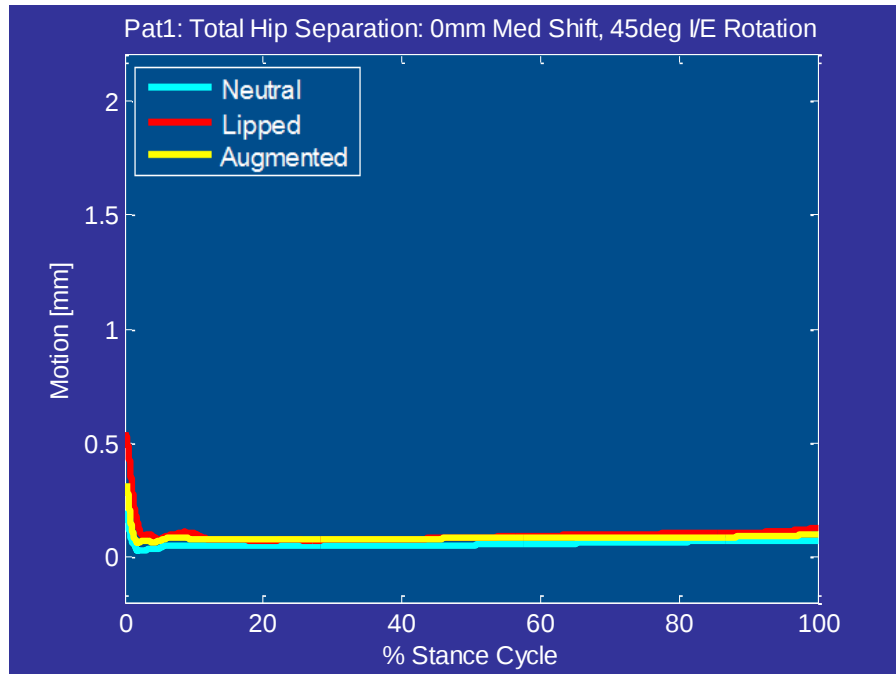


(a)

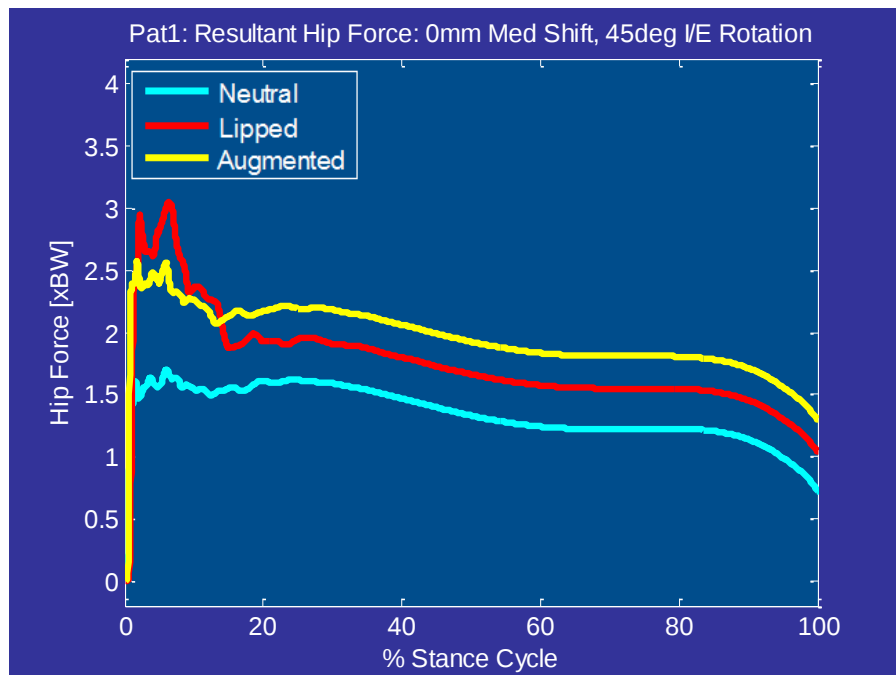


(b)

Figure E1: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

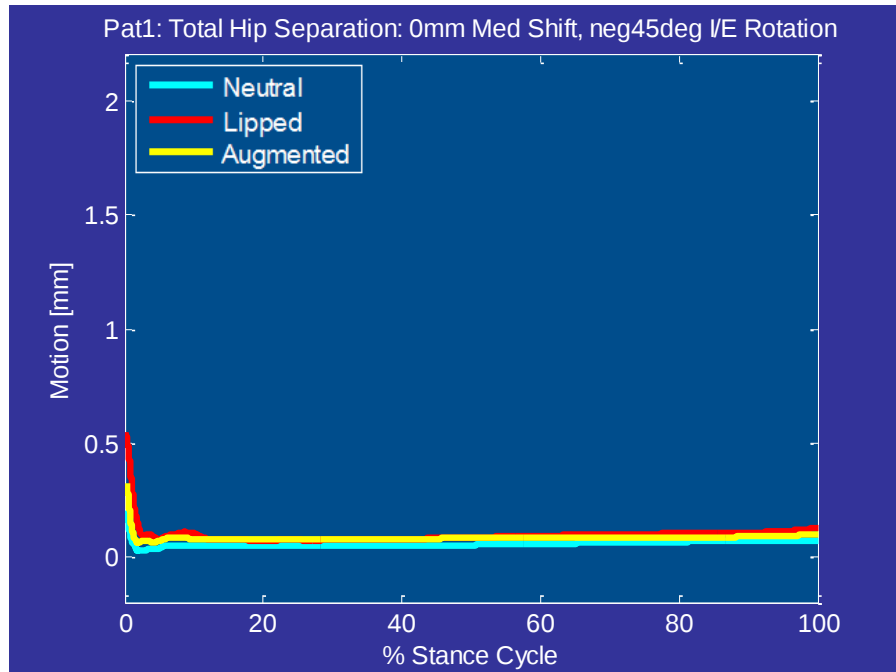


(a)

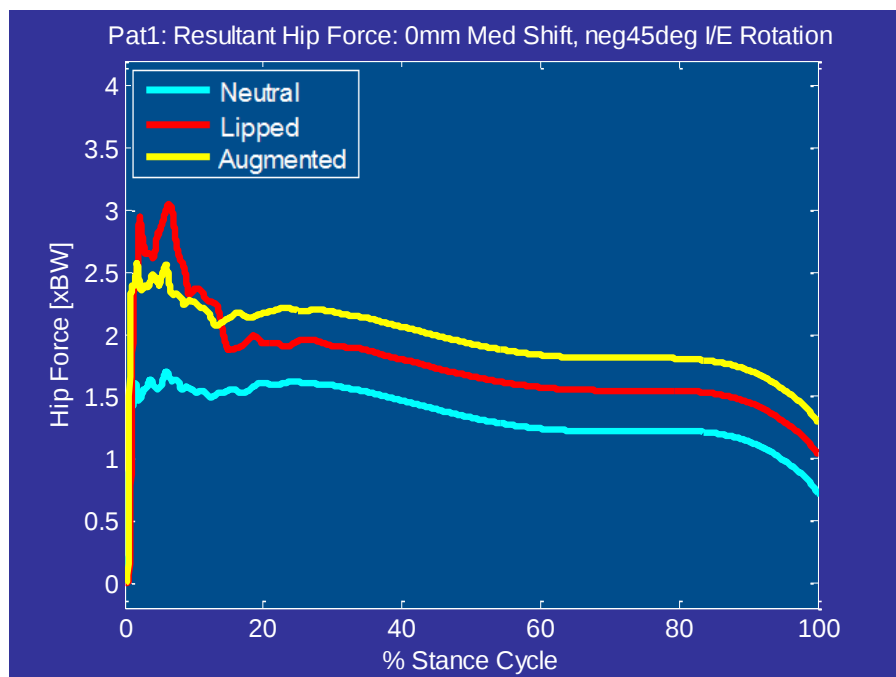


(b)

Figure E2: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

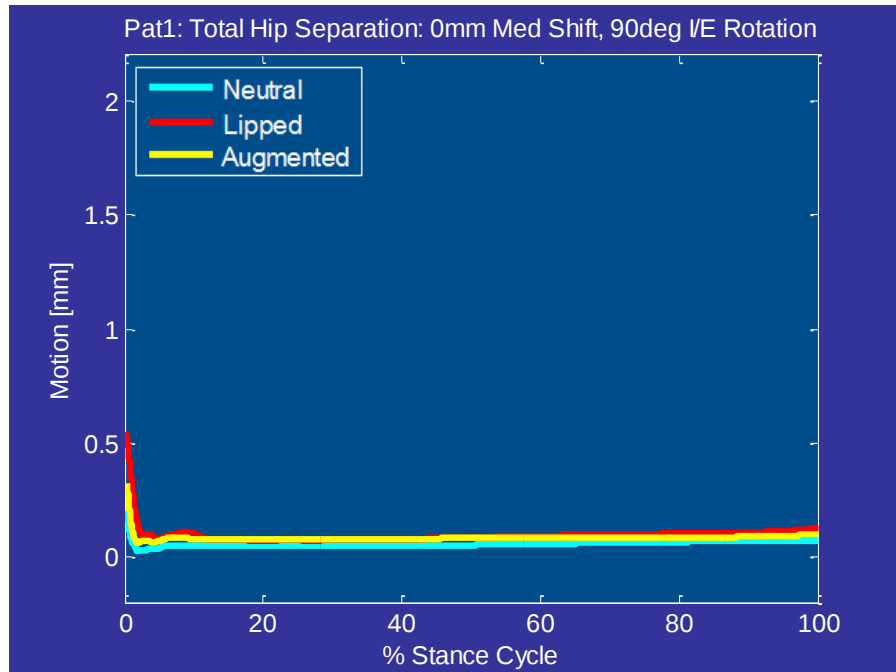


(a)

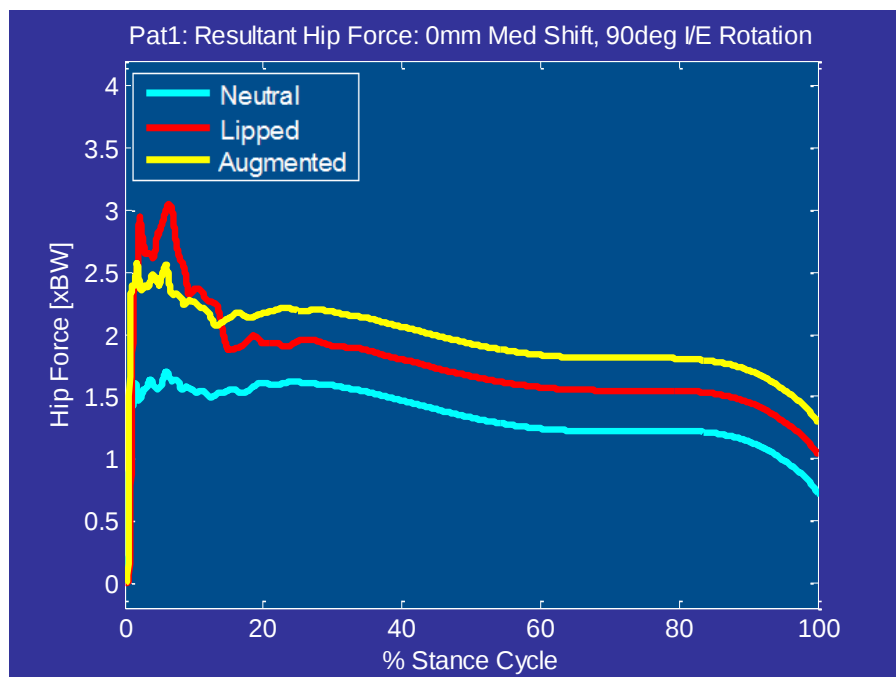


(b)

Figure E3: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

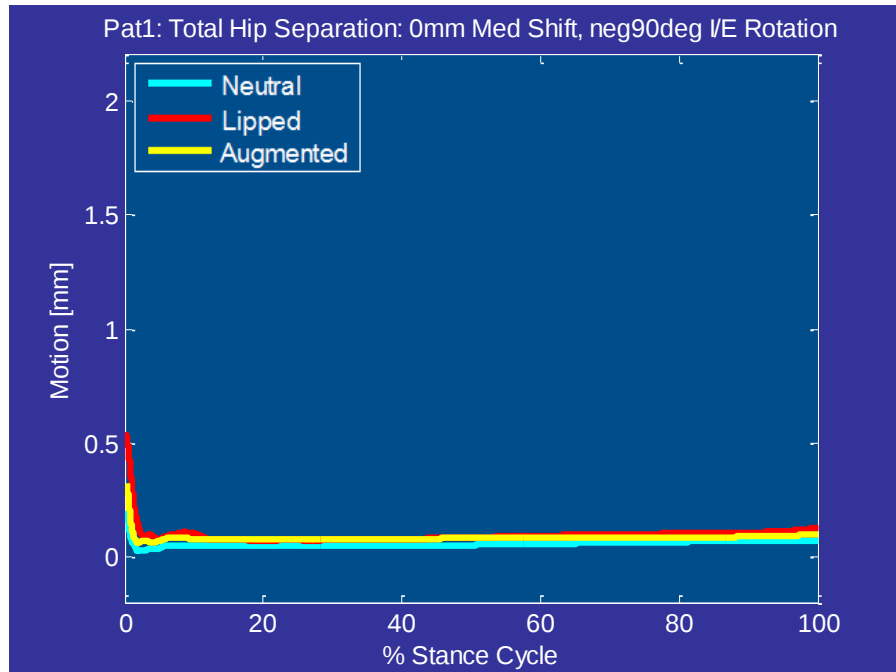


(a)

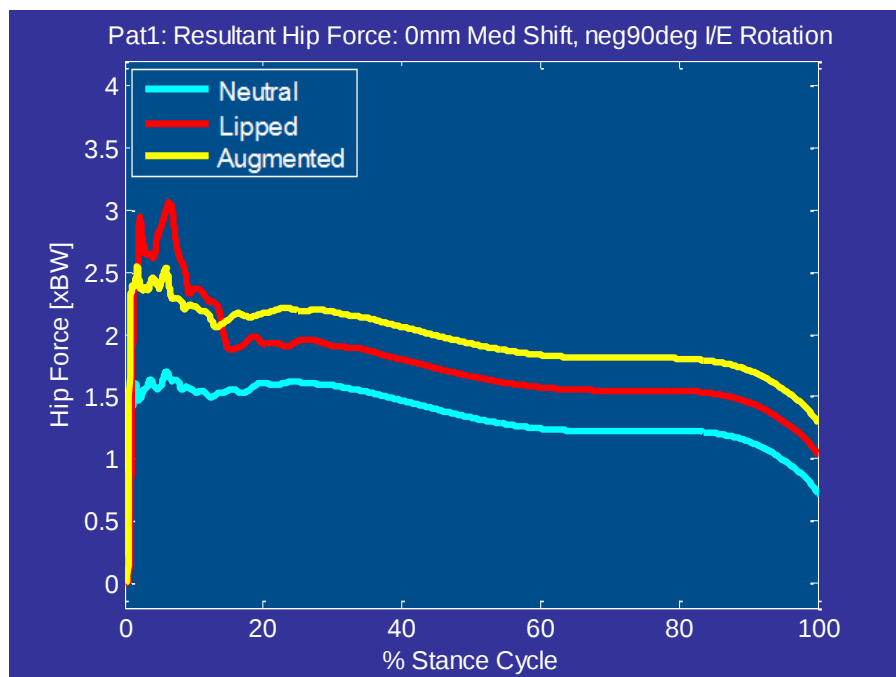


(b)

Figure E4: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

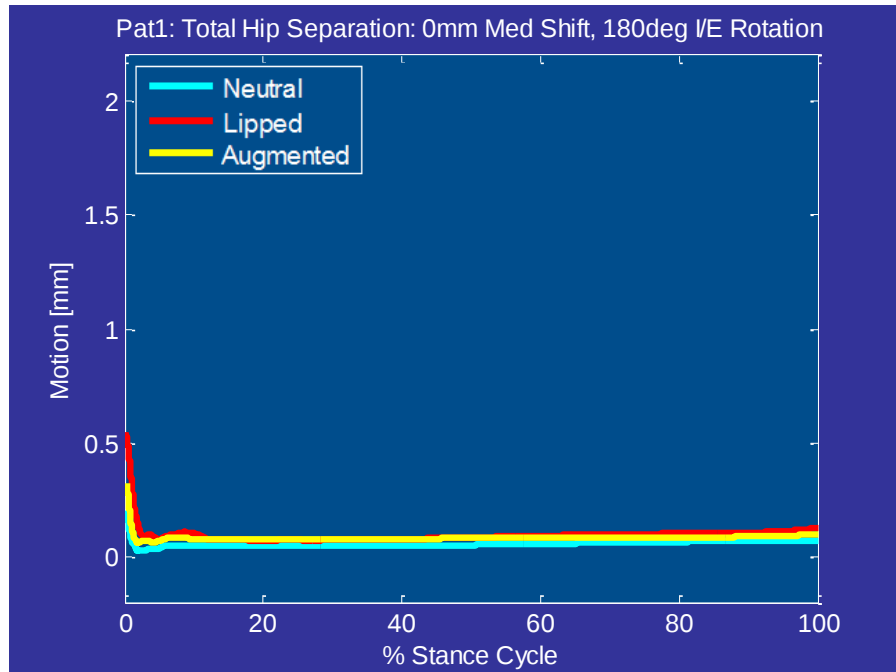


(a)

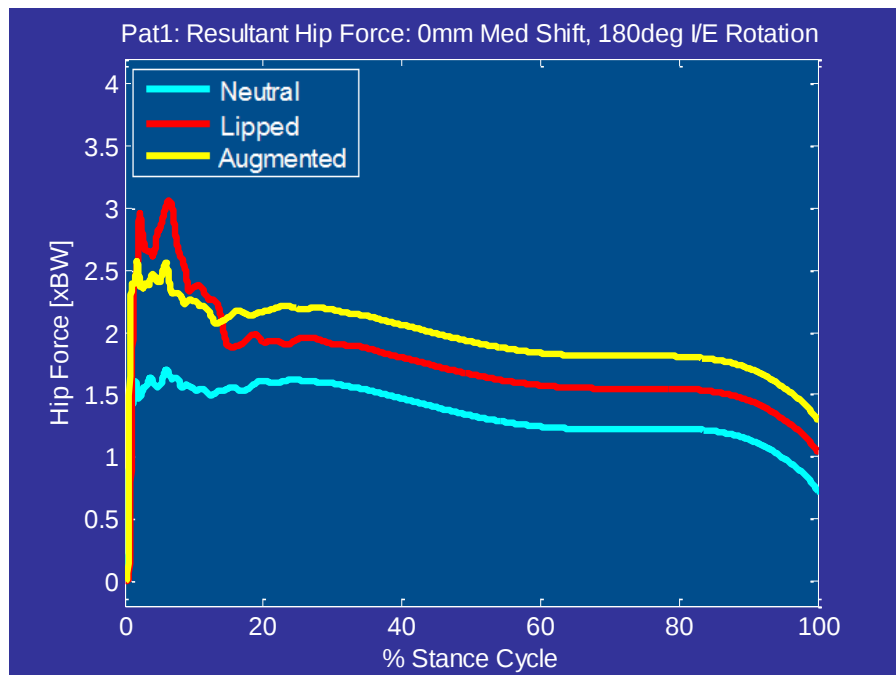


(b)

Figure E5: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

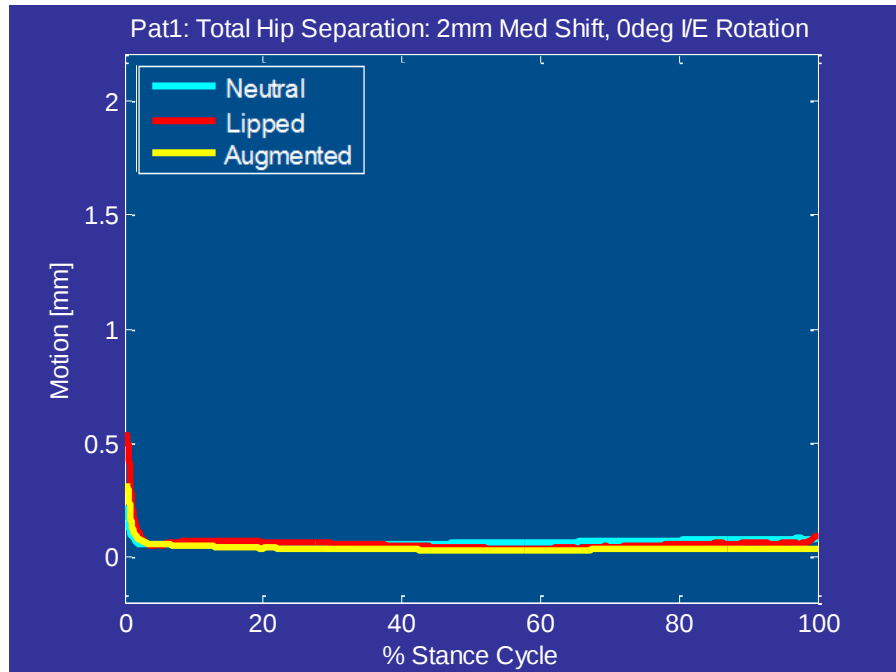


(a)

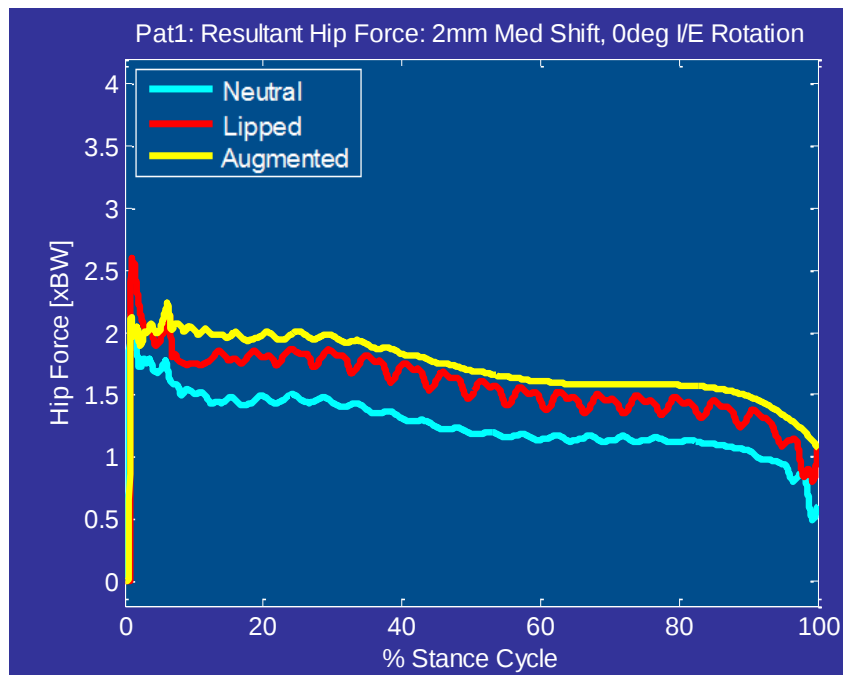


(b)

Figure E6: (a) Hip separation and (b) hip force Pat 1: 0mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

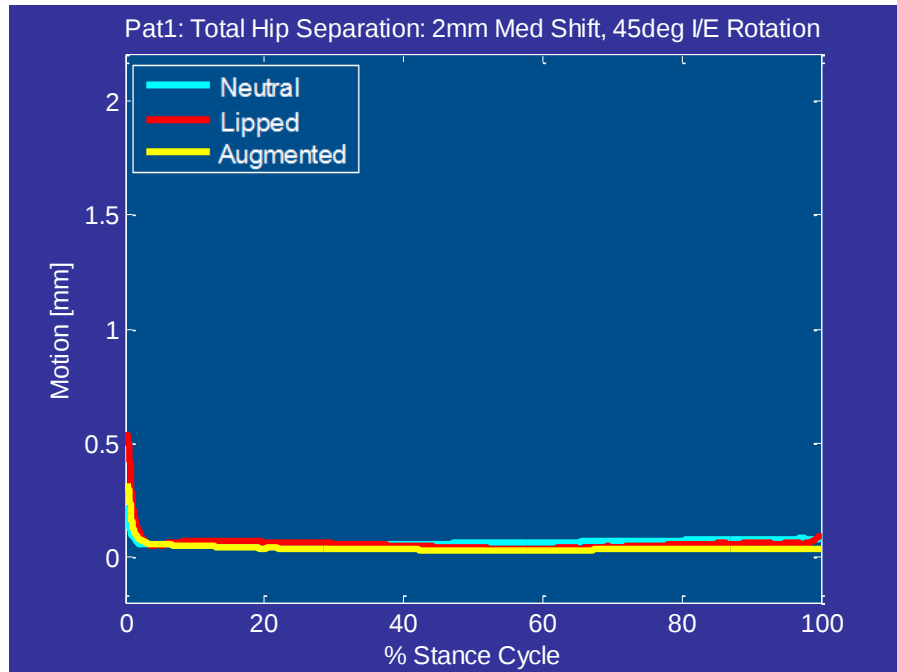


(a)

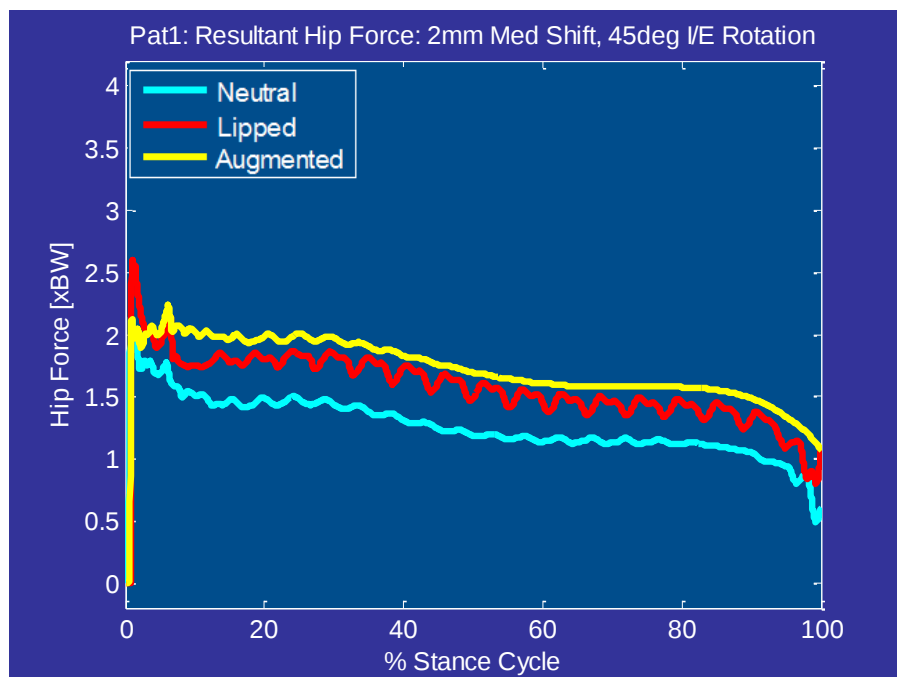


(b)

Figure E7: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

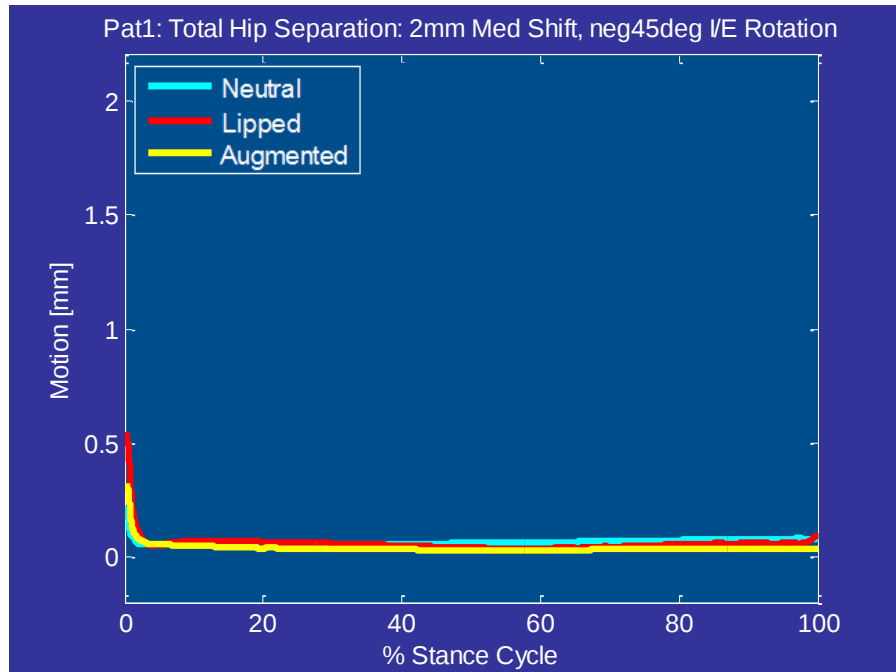


(a)

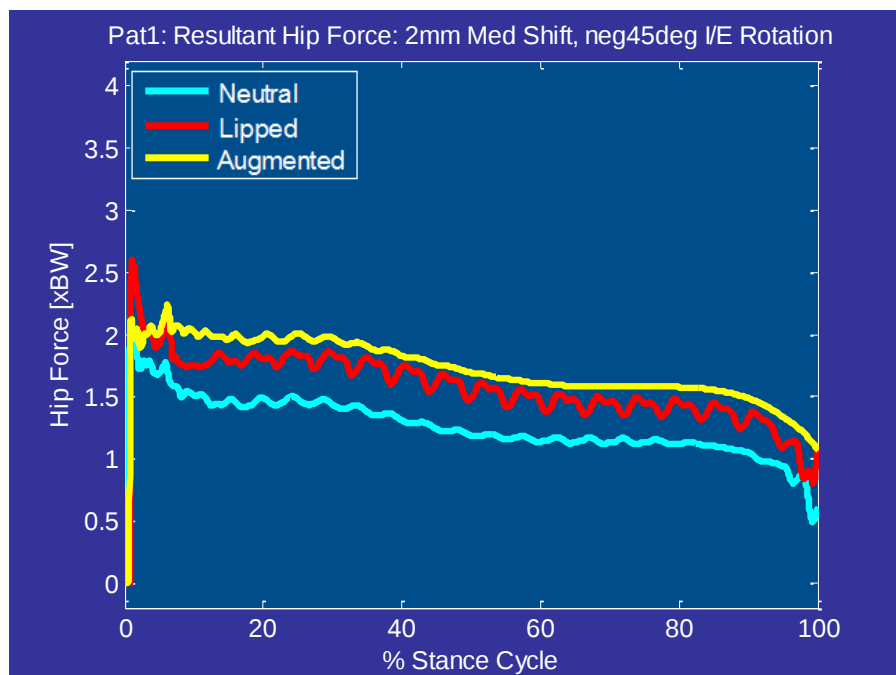


(b)

Figure E8: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

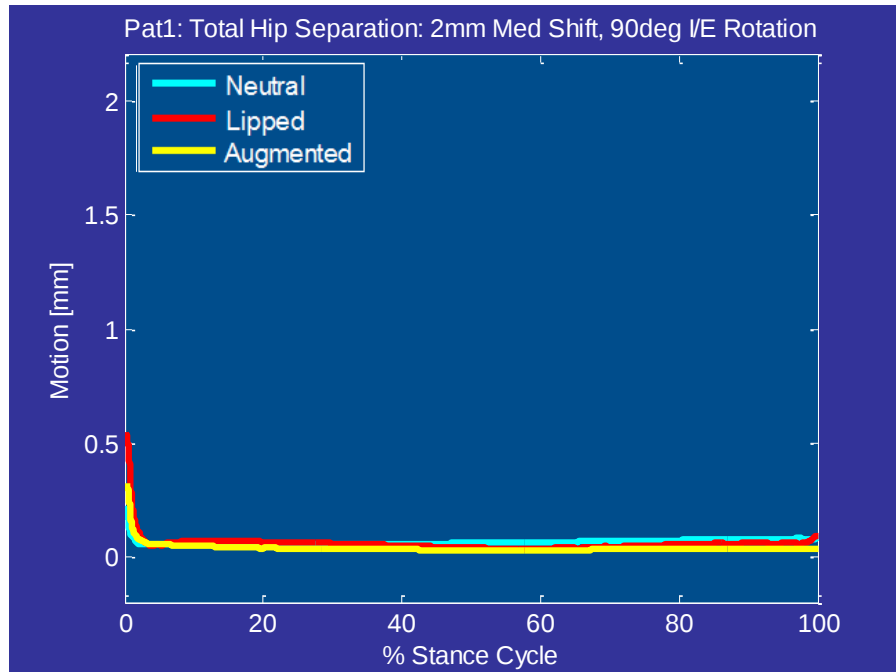


(a)

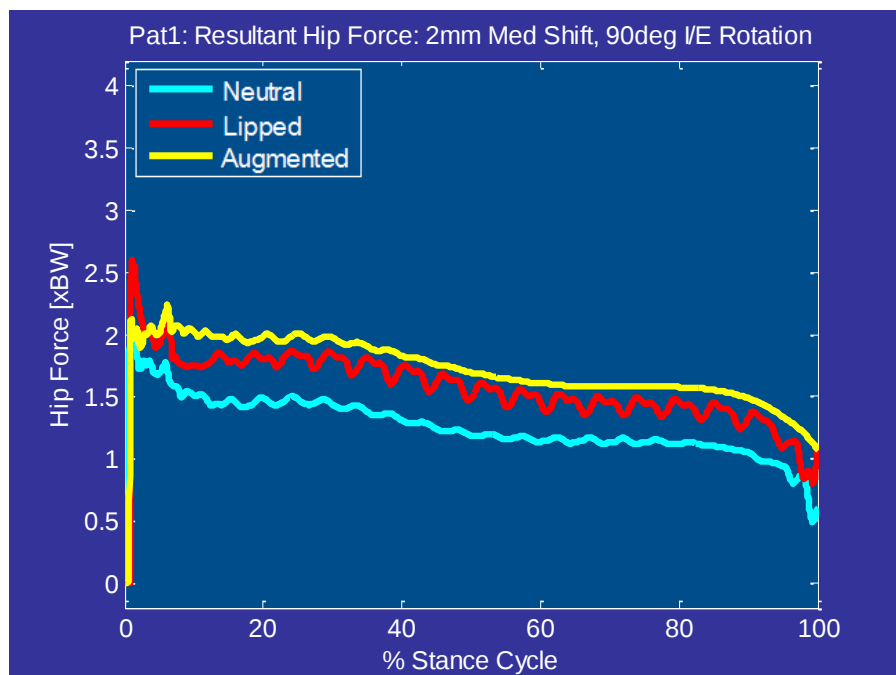


(b)

Figure E9: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

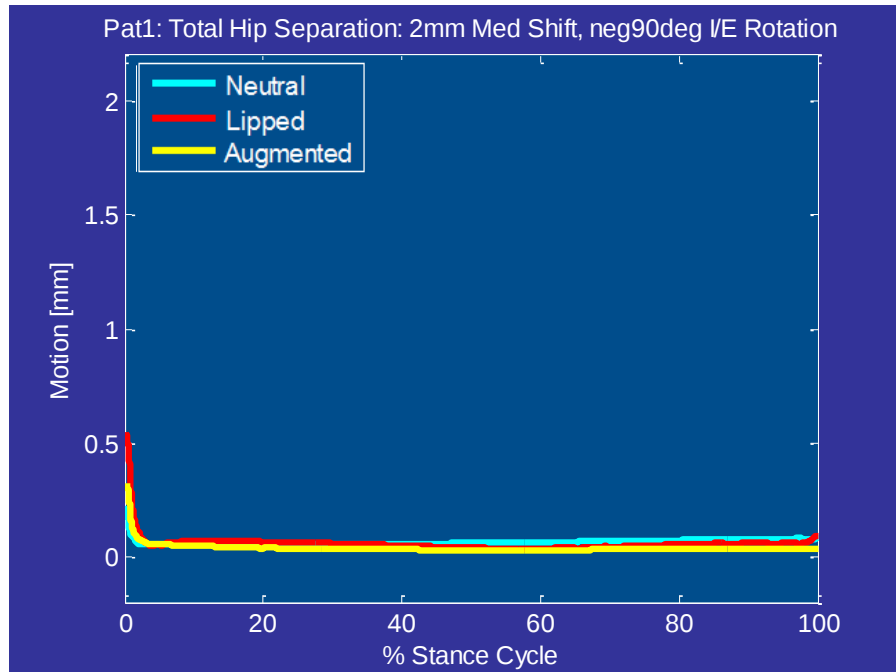


(a)

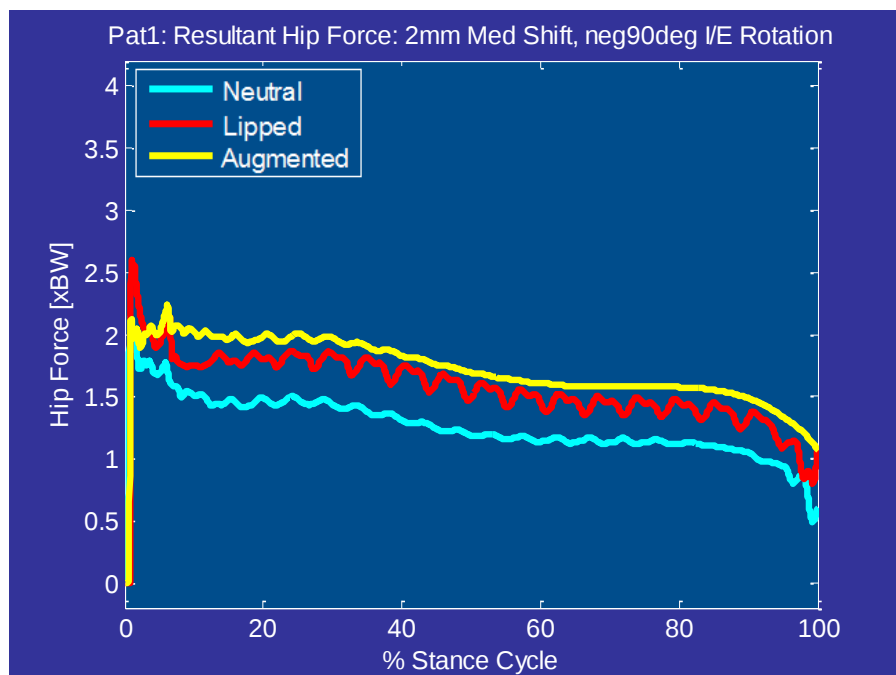


(b)

Figure E10: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

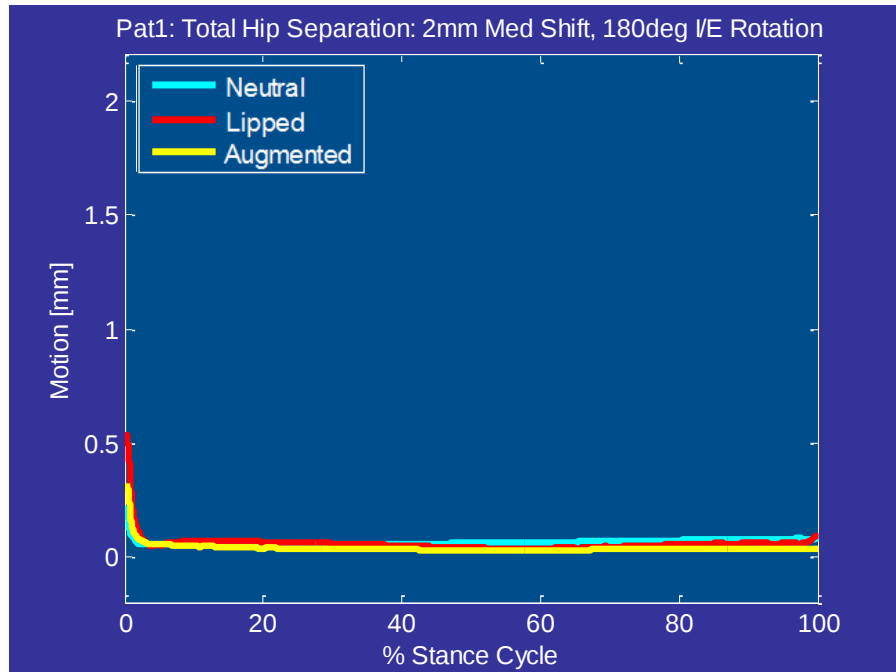


(a)

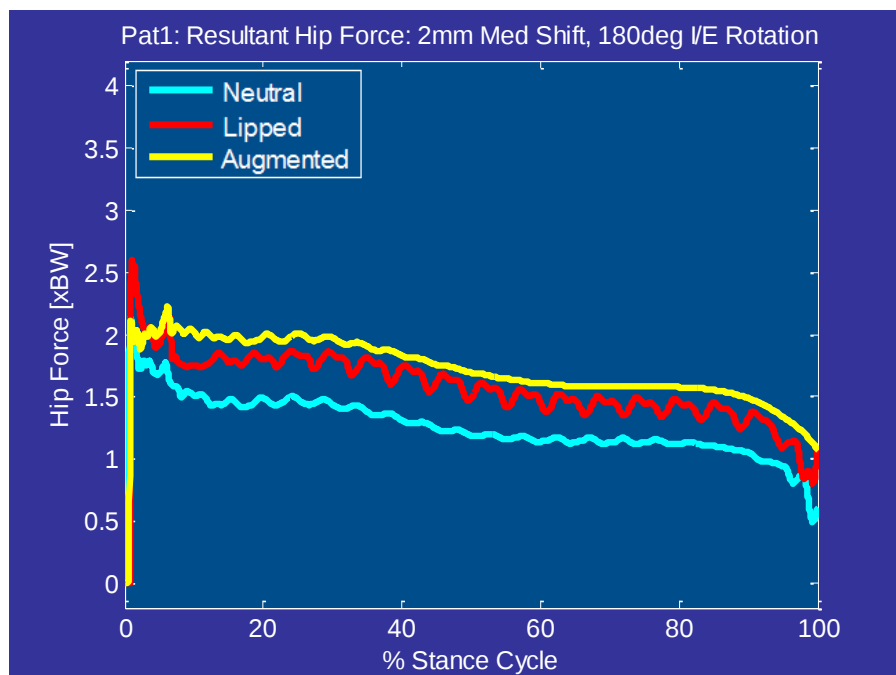


(b)

Figure E11: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

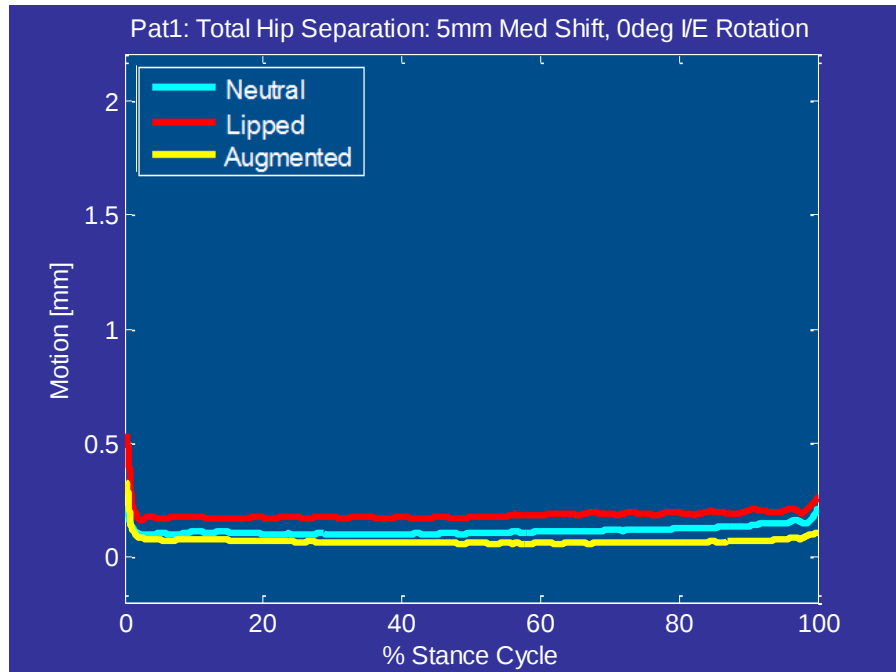


(a)

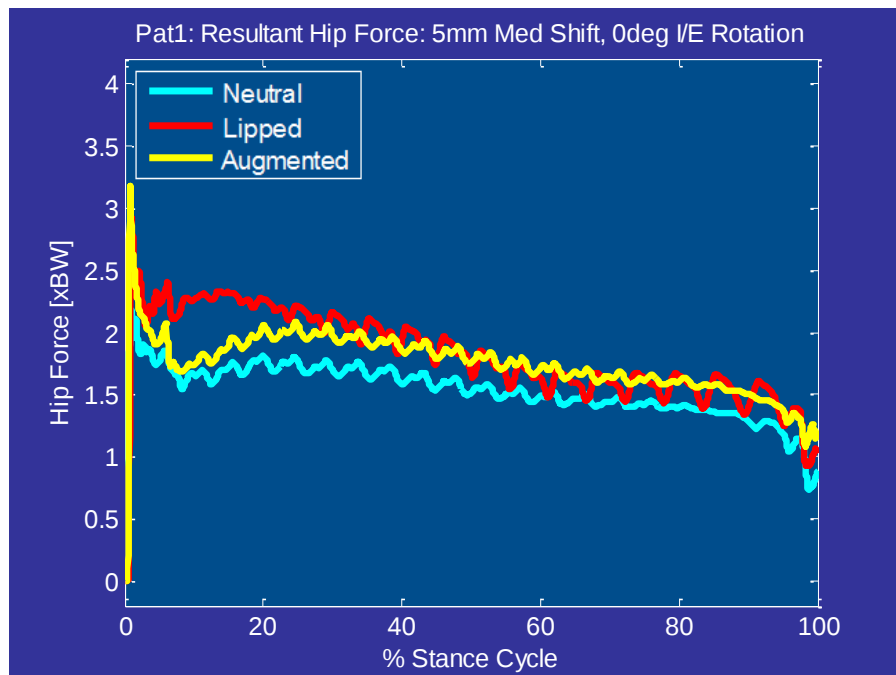


(b)

Figure E12: (a) Hip separation and (b) hip force Pat 1: 2mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

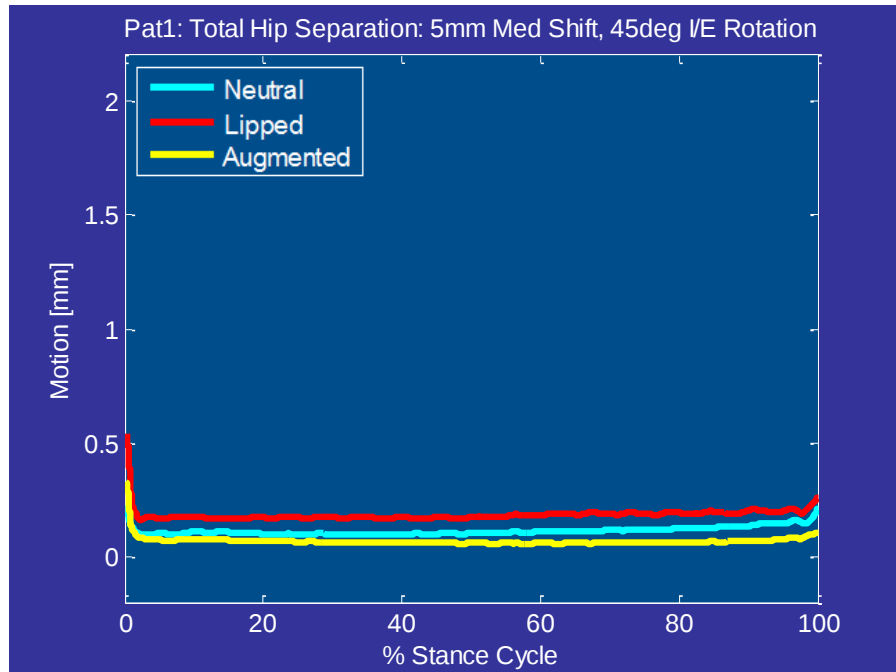


(a)

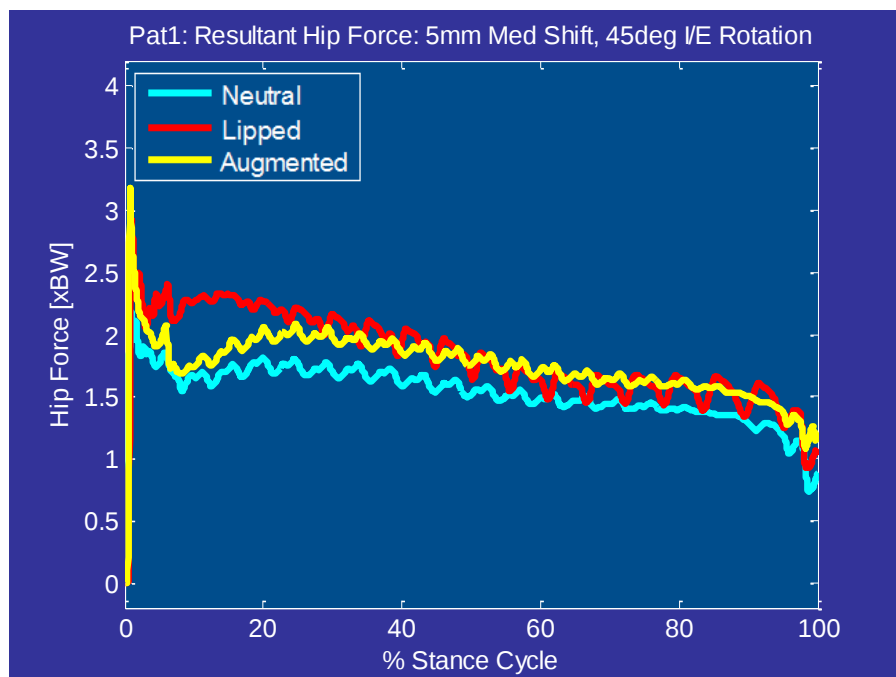


(b)

Figure E13: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

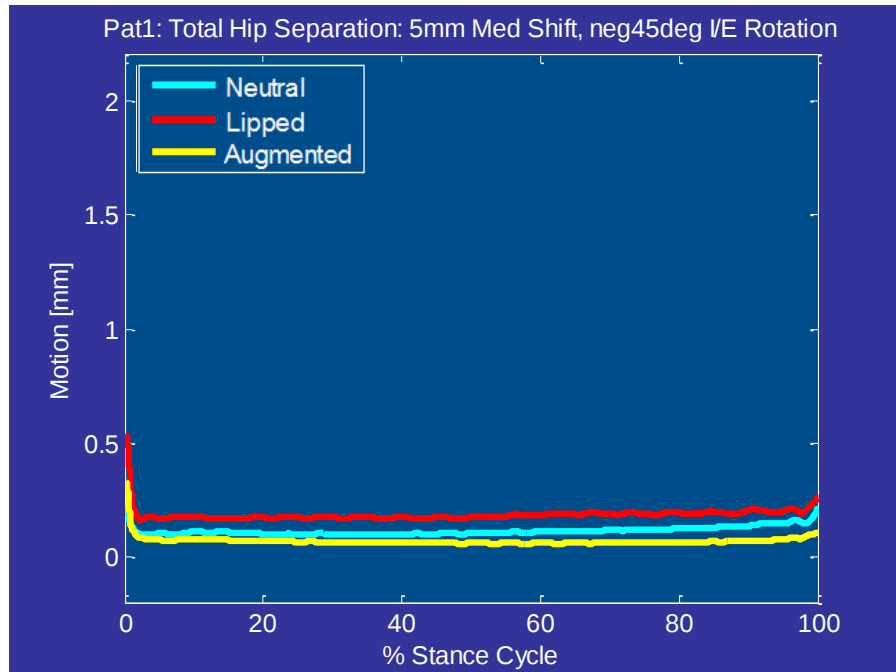


(a)

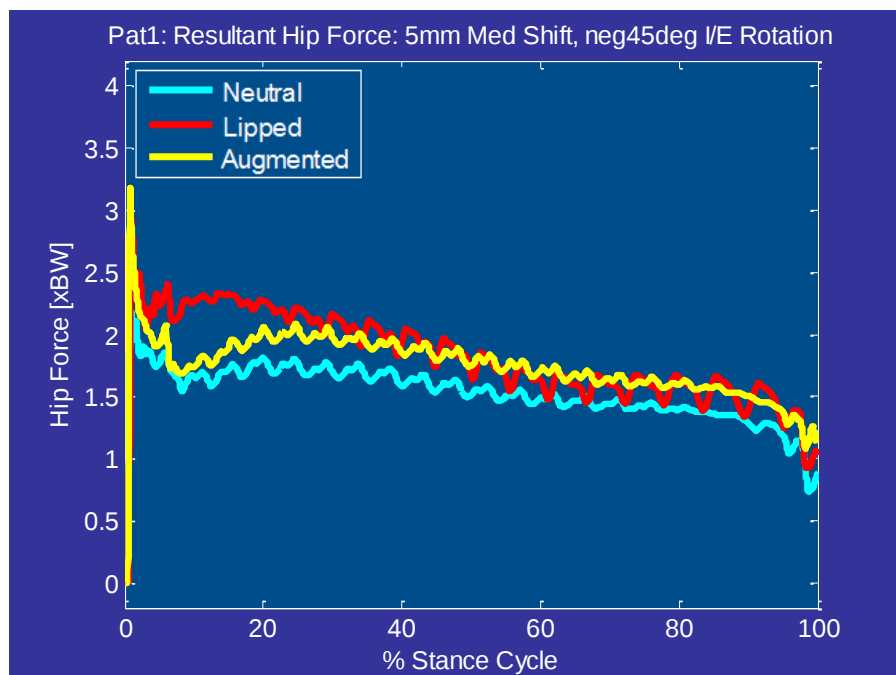


(b)

Figure E14: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

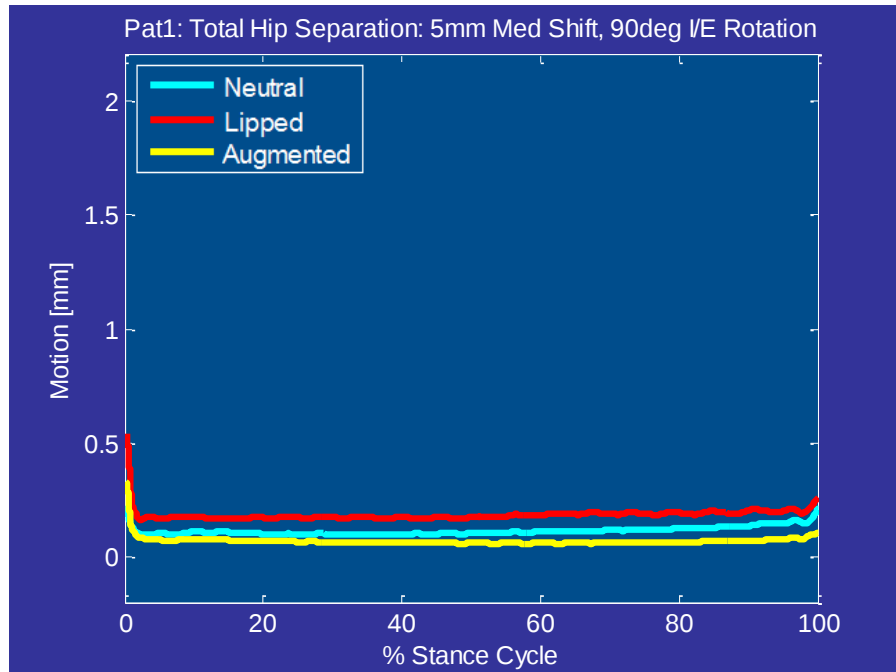


(a)

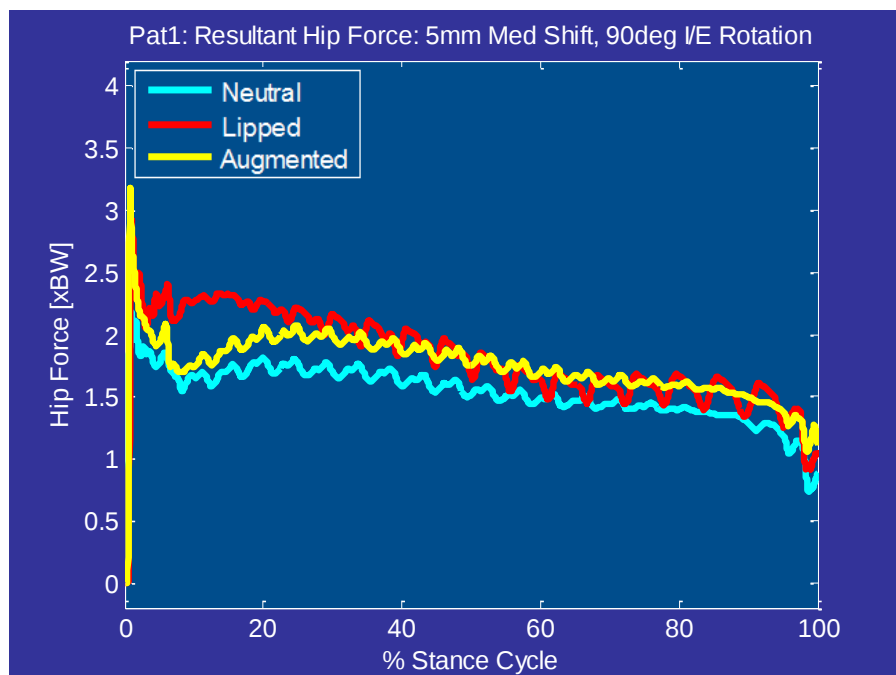


(b)

Figure E15: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

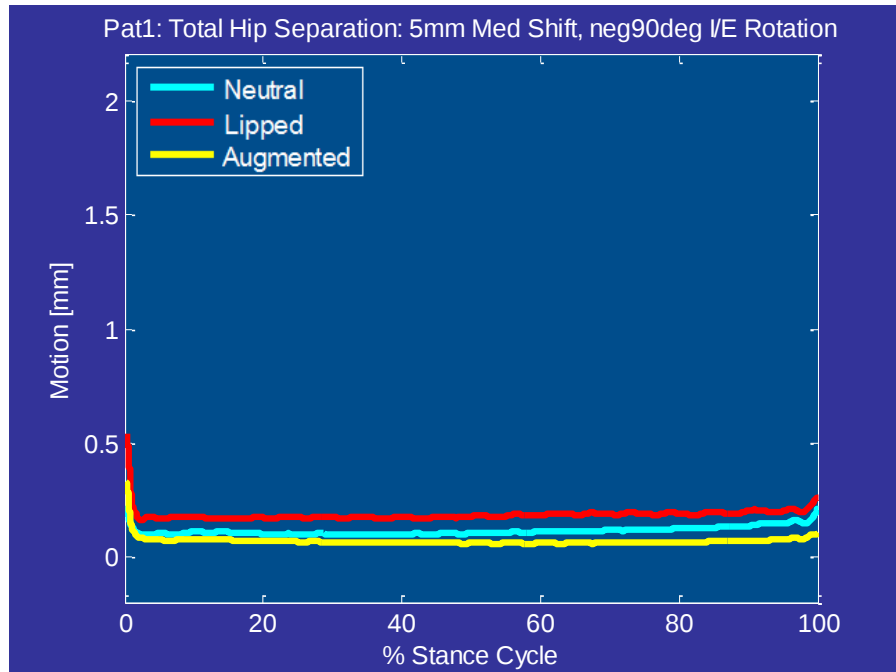


(a)

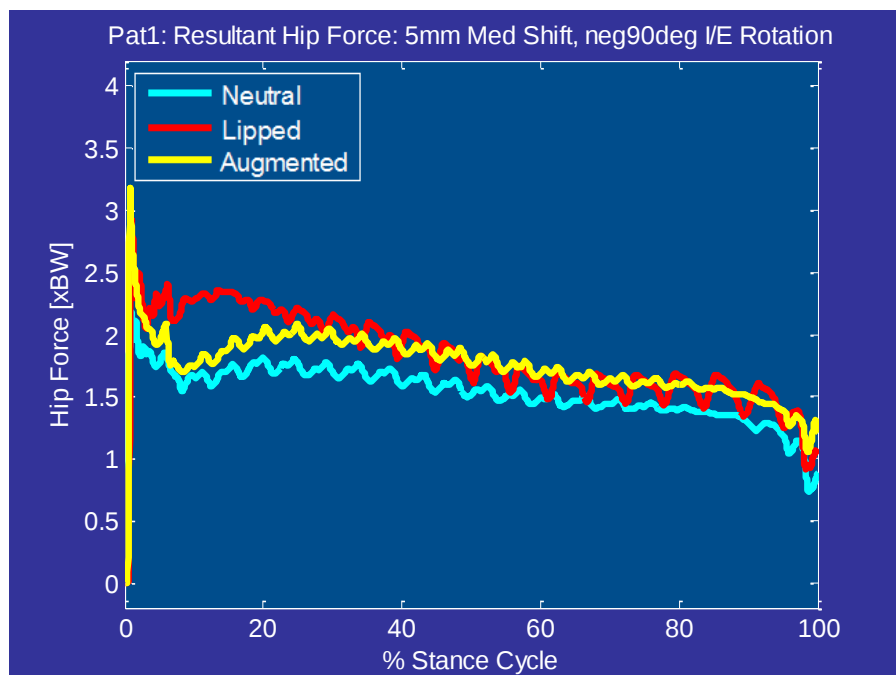


(b)

Figure E16: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

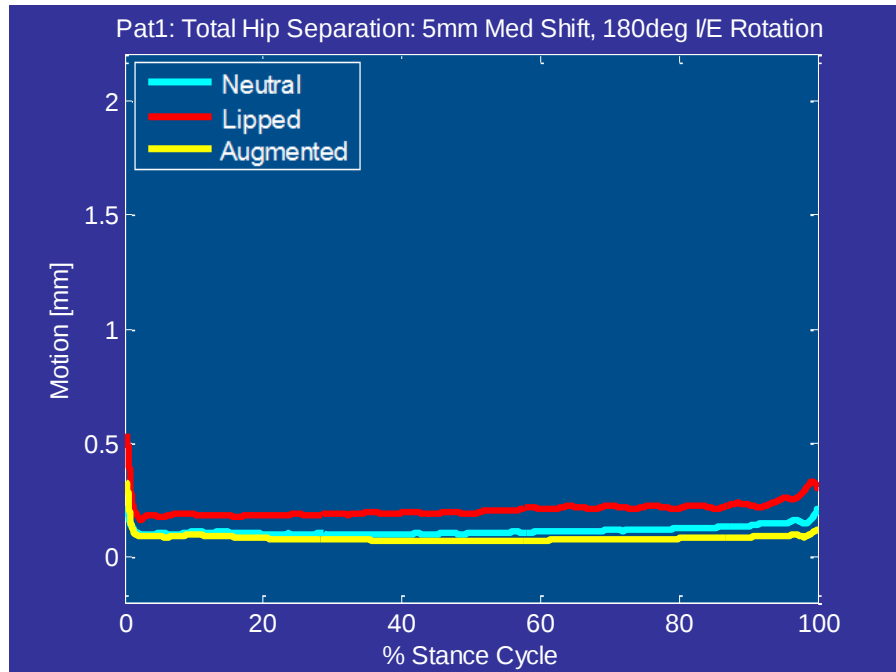


(a)

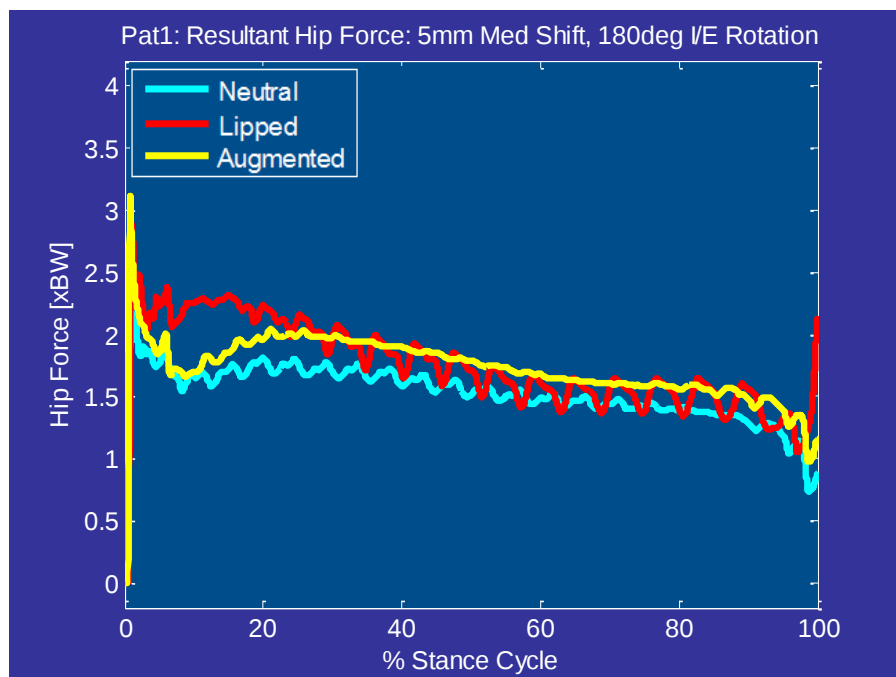


(b)

Figure E17: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

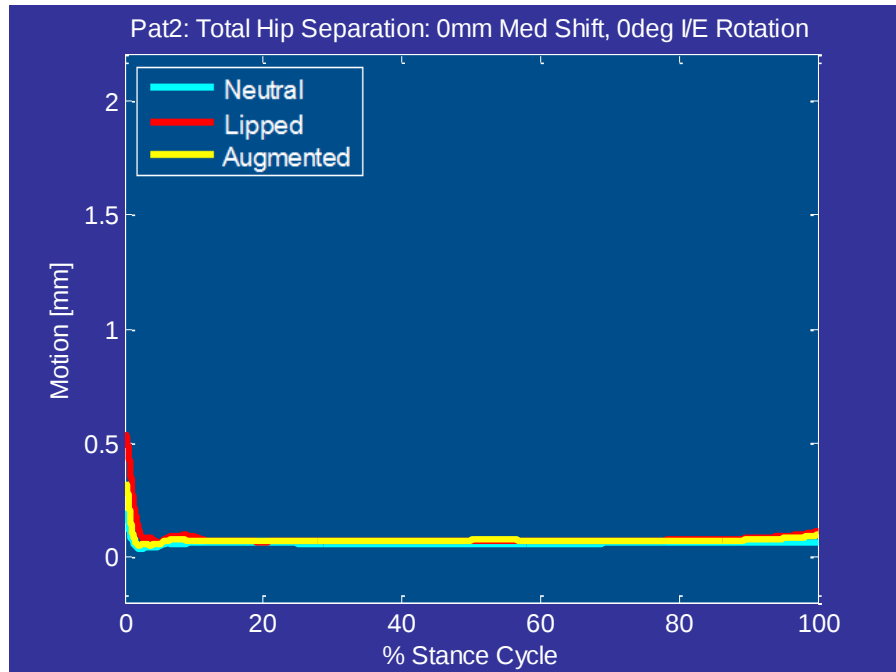


(a)

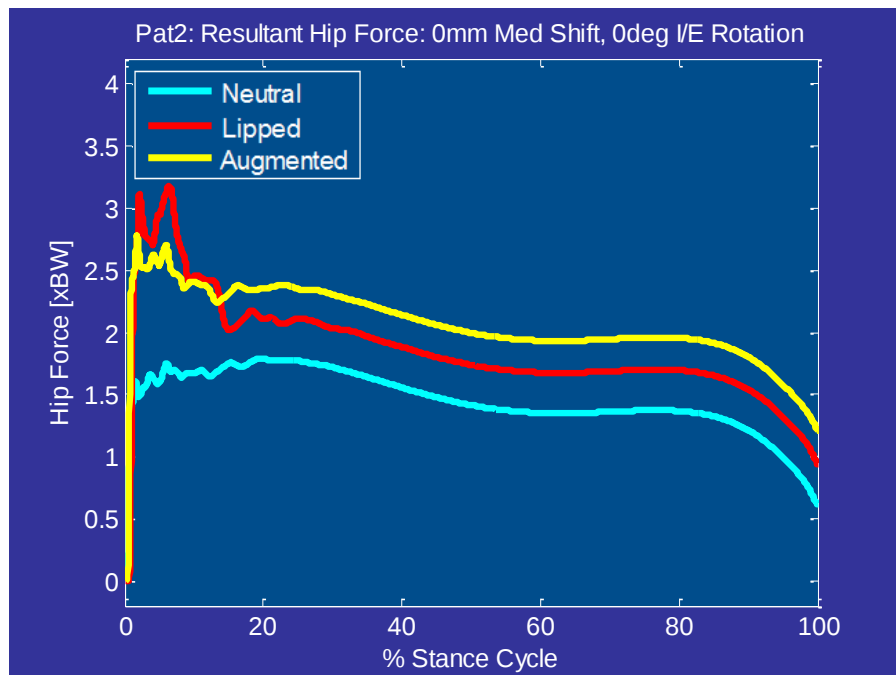


(b)

Figure E18: (a) Hip separation and (b) hip force Pat 1: 5mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

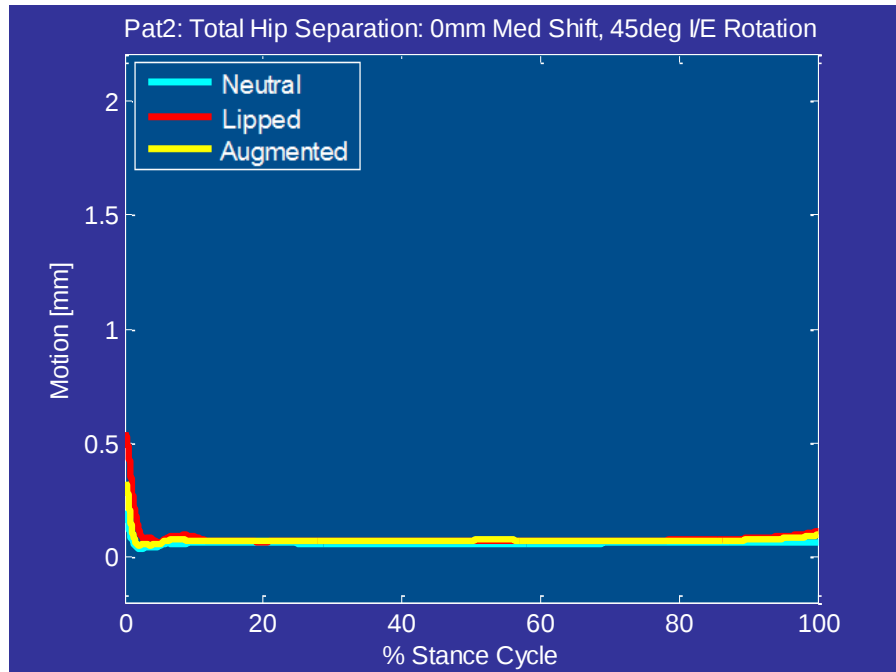


(a)

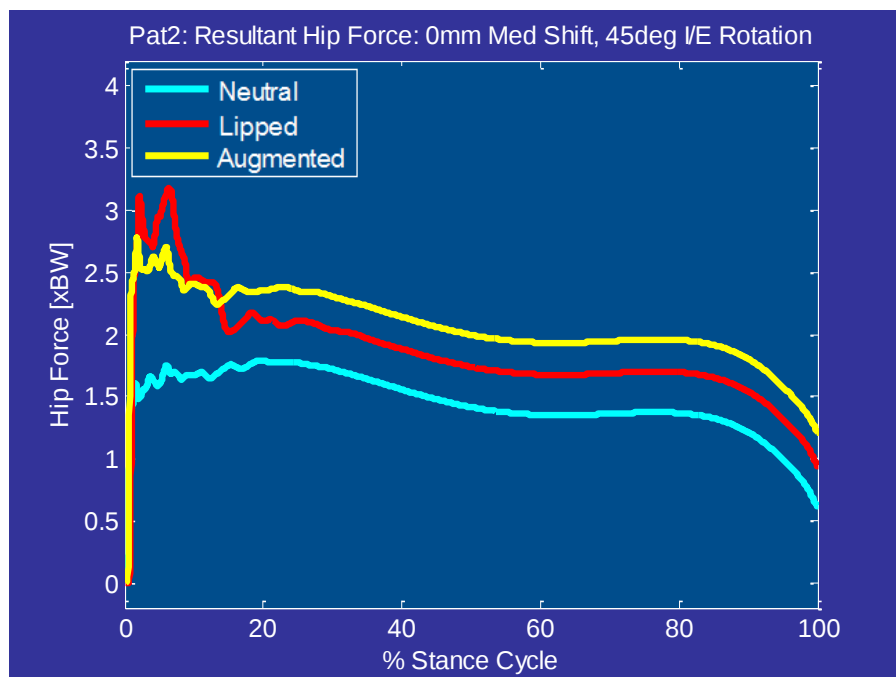


(b)

Figure E19: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

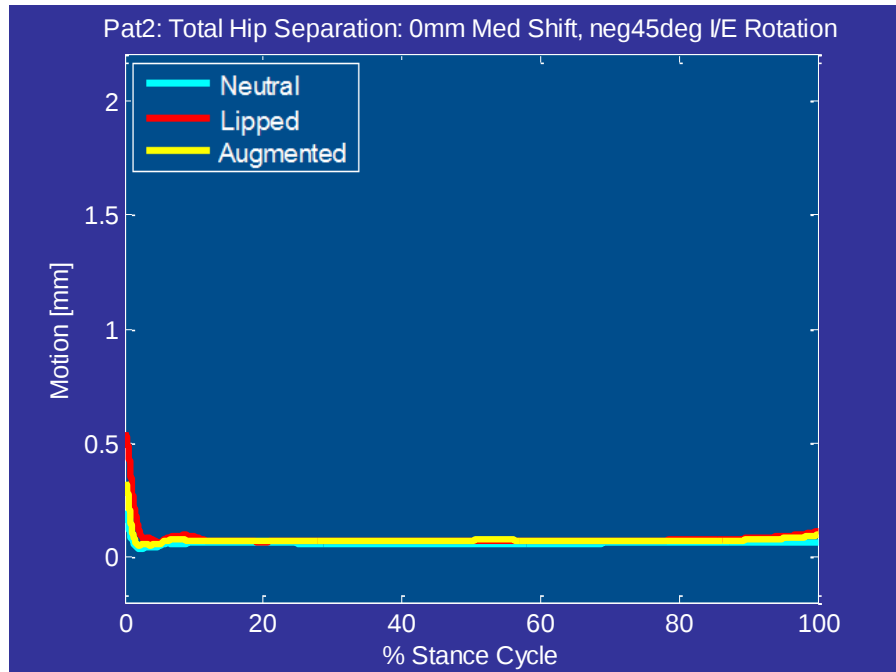


(a)

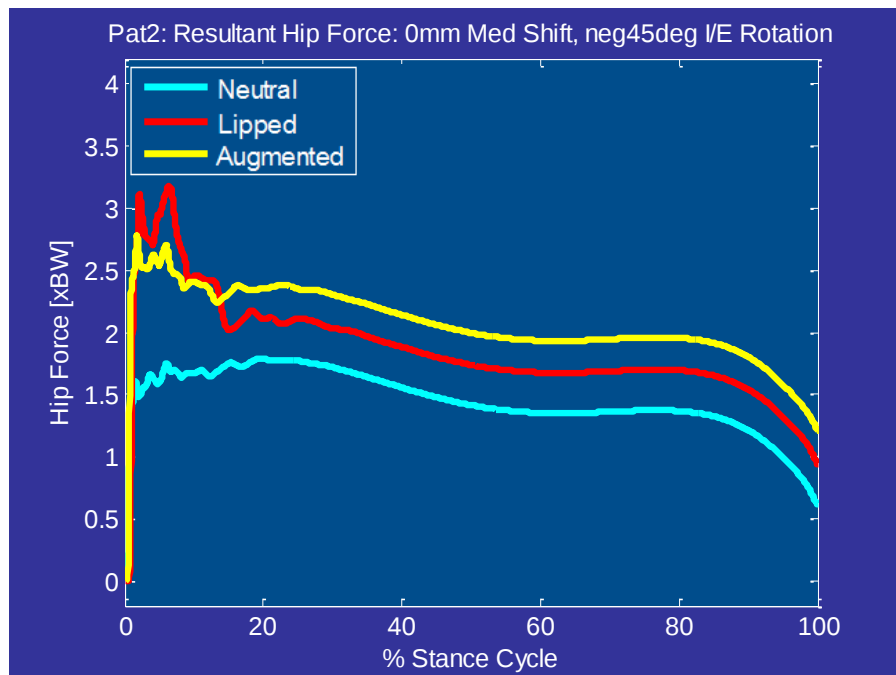


(b)

Figure E20: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

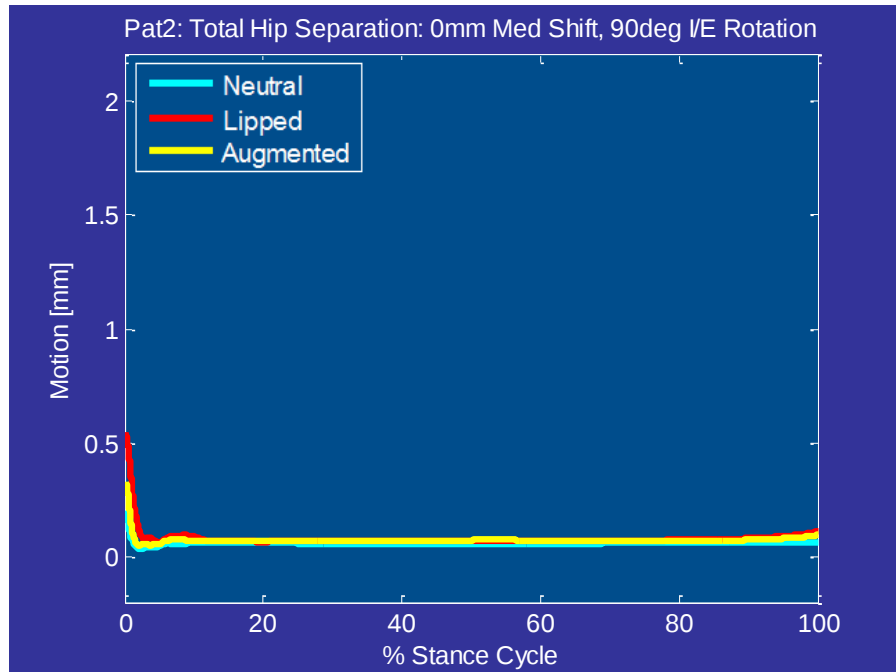


(a)

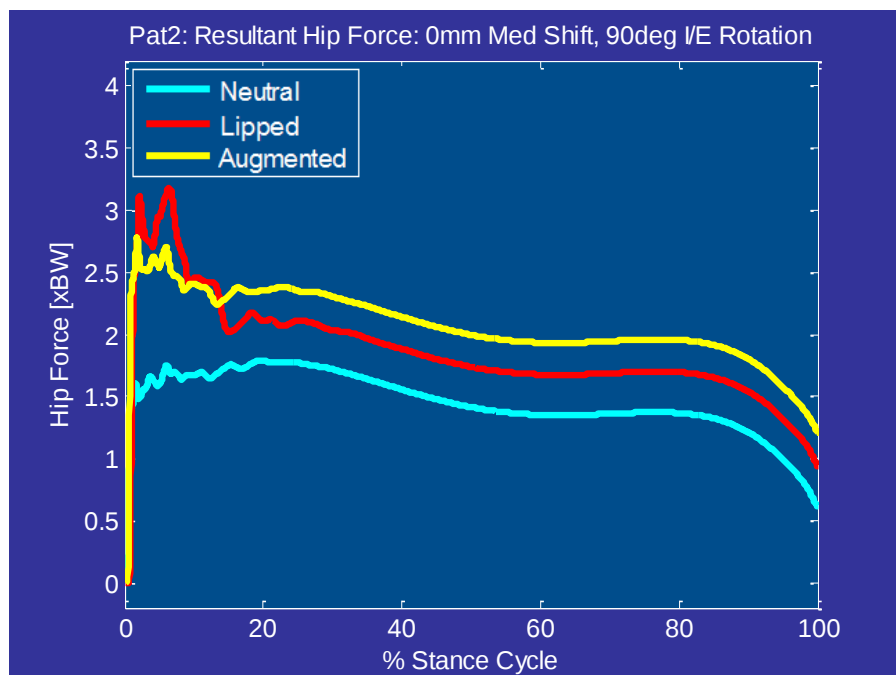


(b)

Figure E21: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

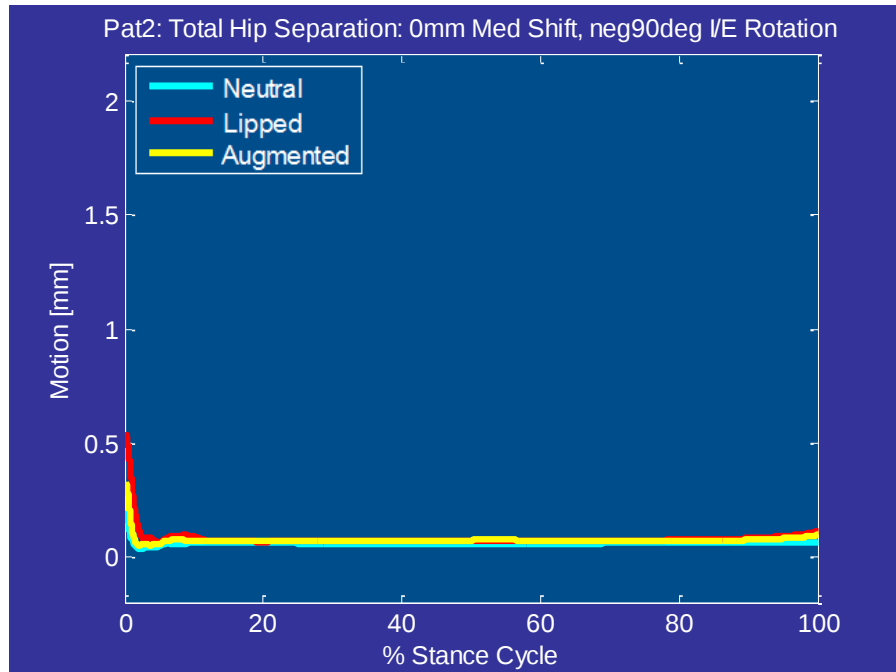


(a)

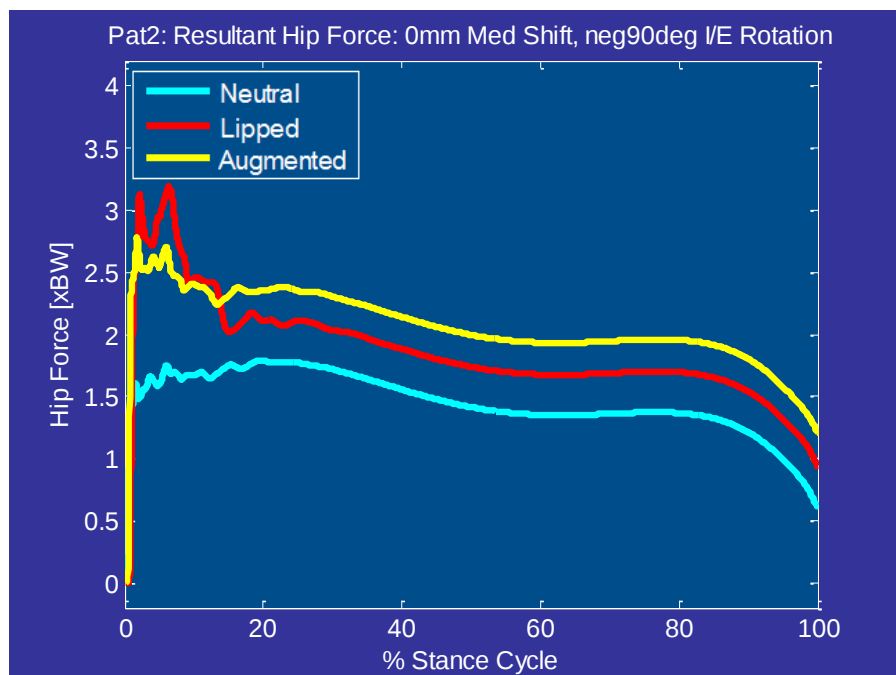


(b)

Figure E22: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

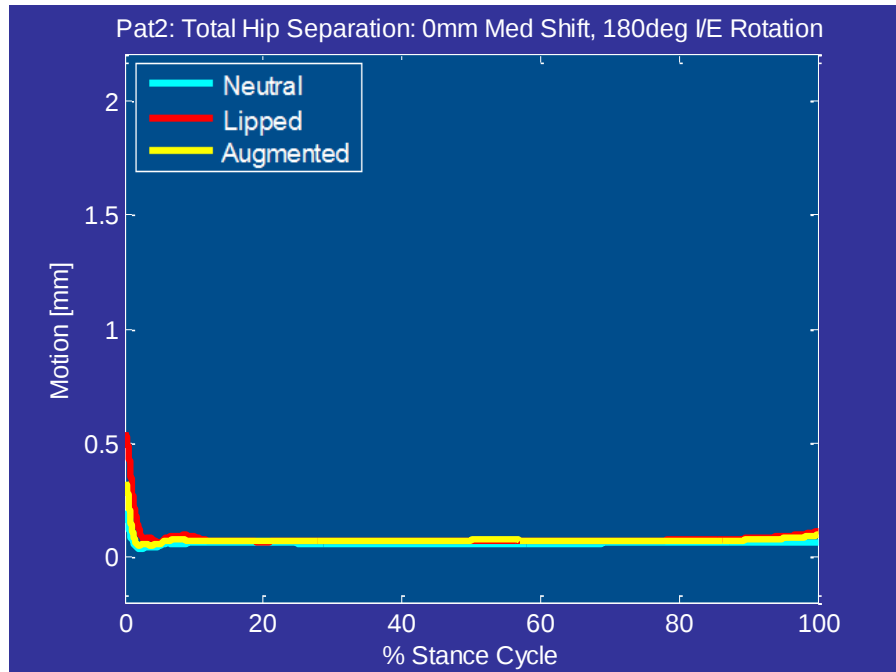


(a)

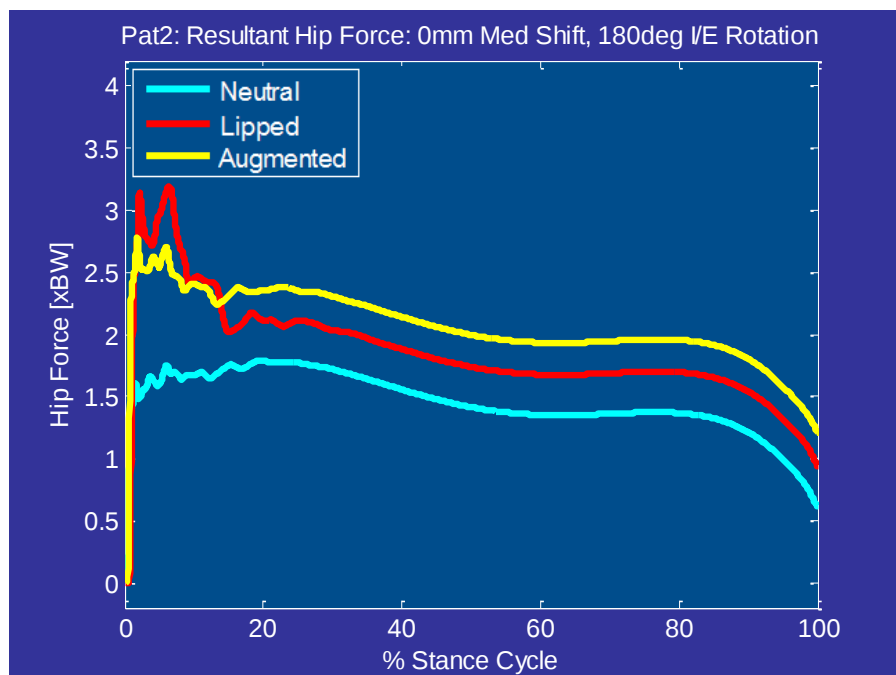


(b)

Figure E23: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

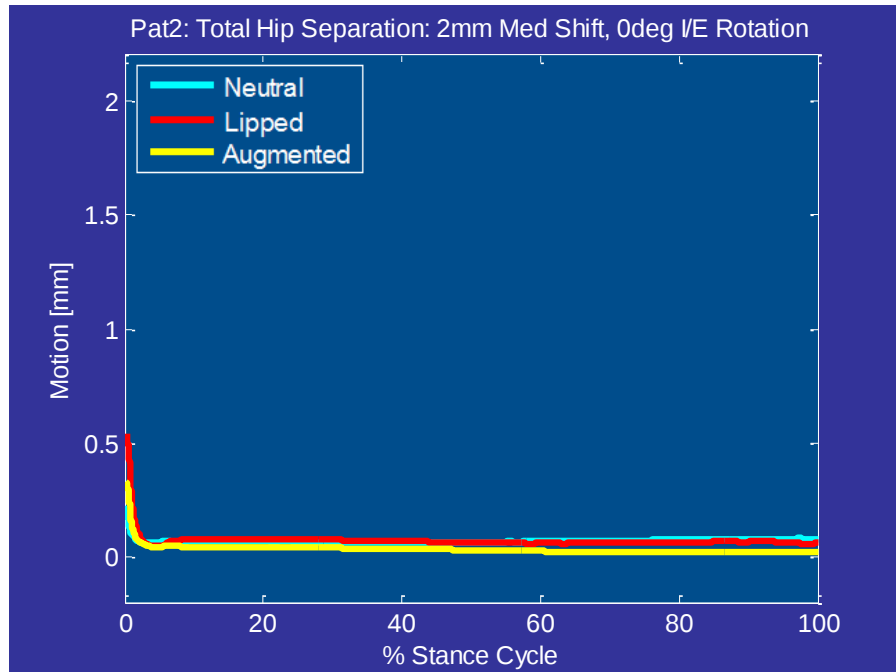


(a)

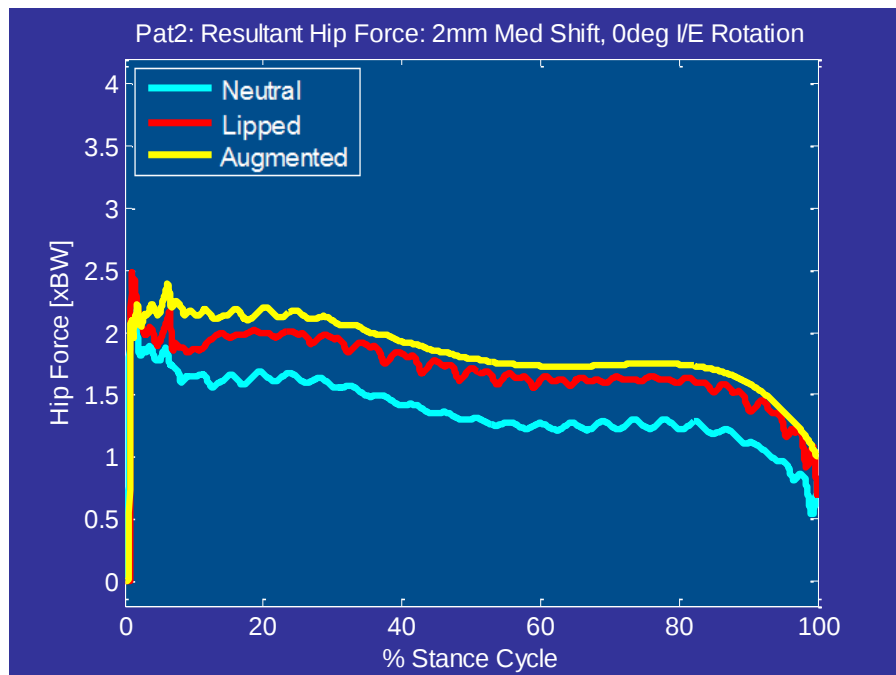


(b)

Figure E24: (a) Hip separation and (b) hip force Pat 2: 0mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

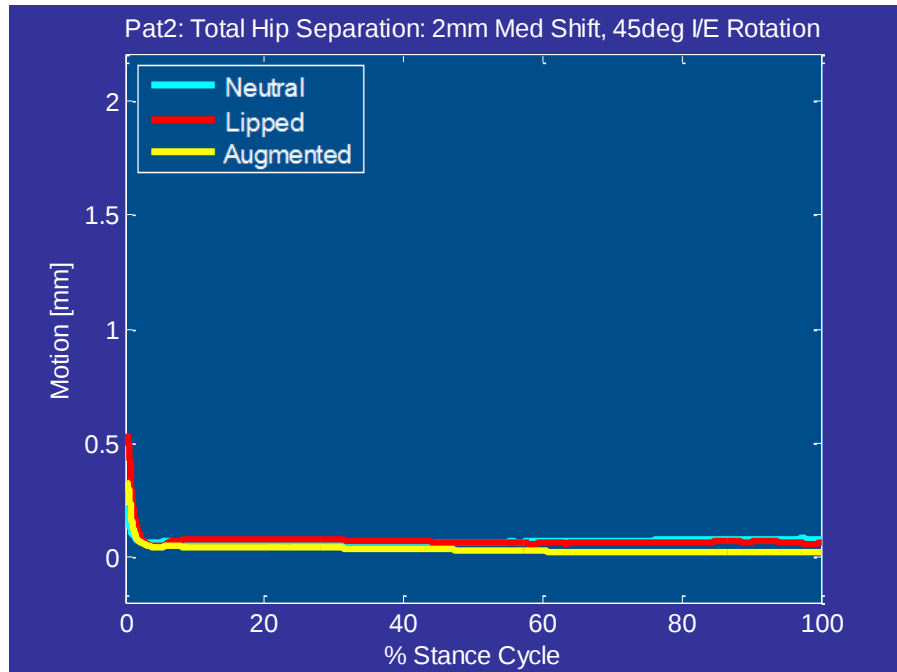


(a)

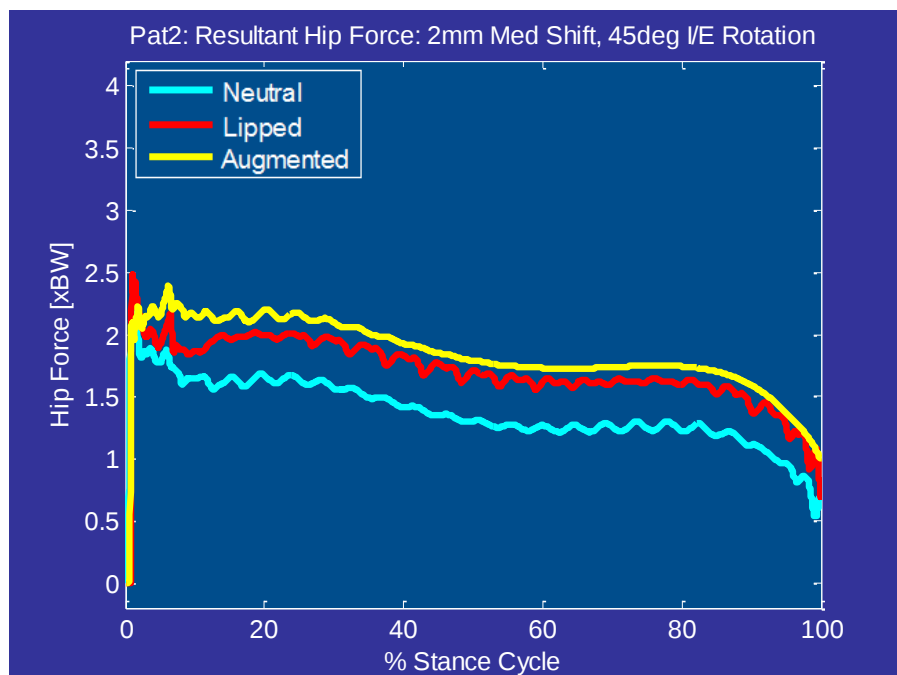


(b)

Figure E25: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

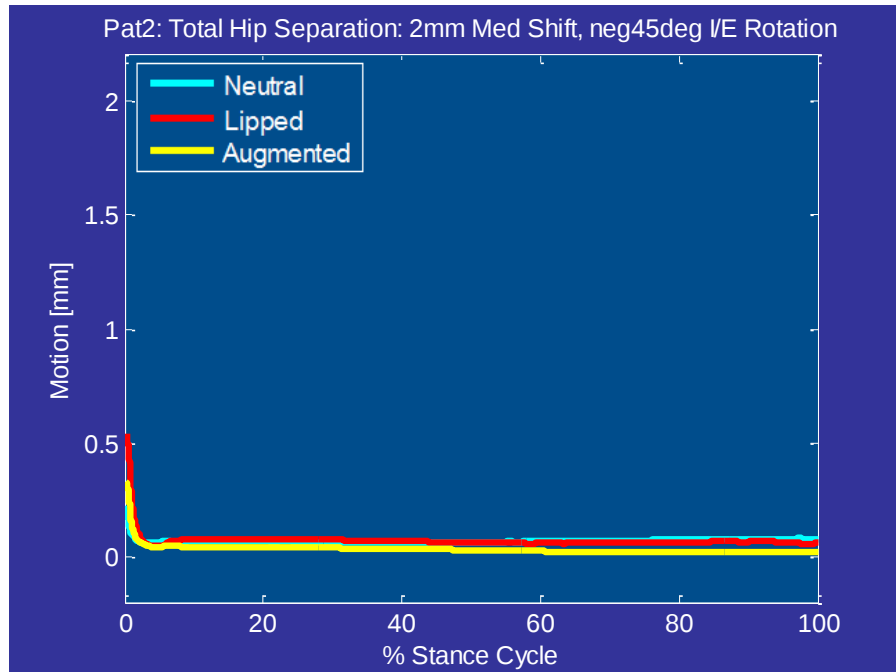


(a)

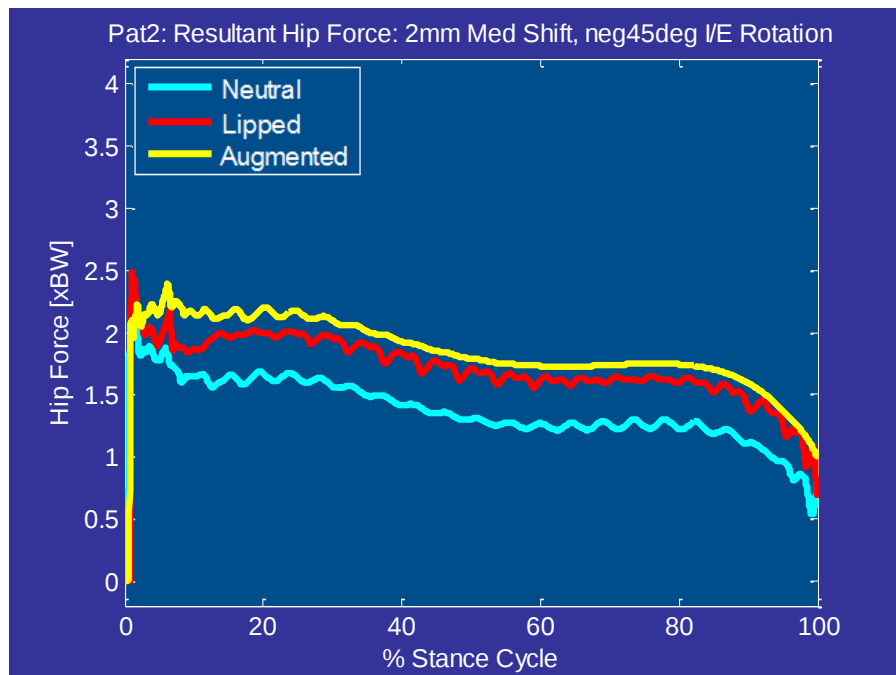


(b)

Figure E26: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

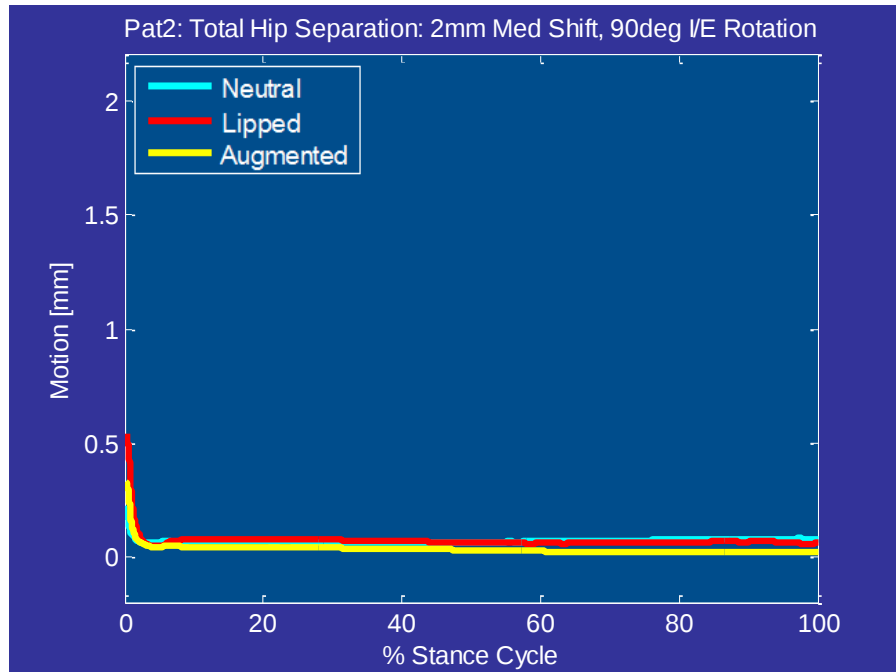


(a)

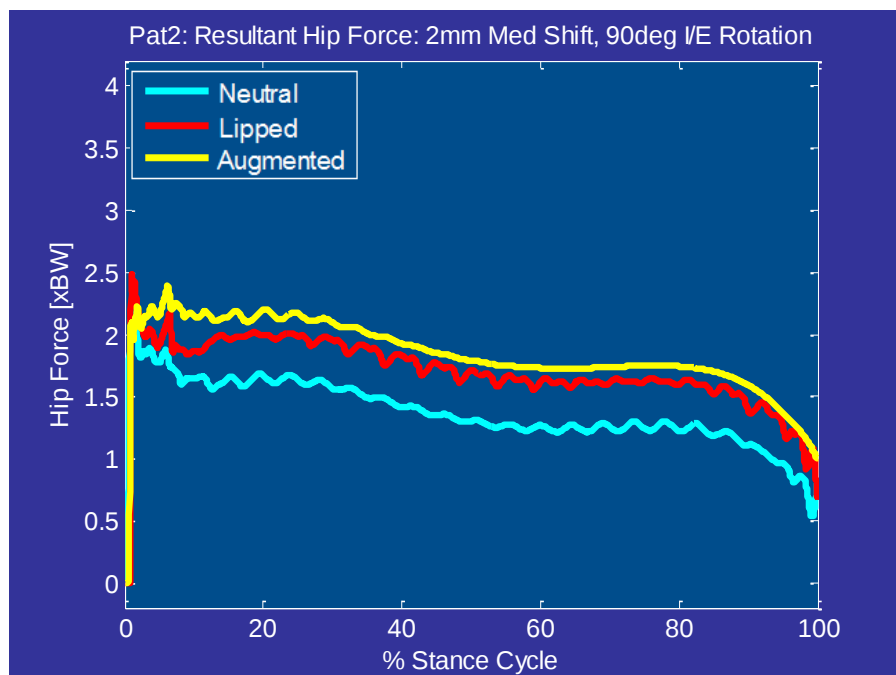


(b)

Figure E27: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

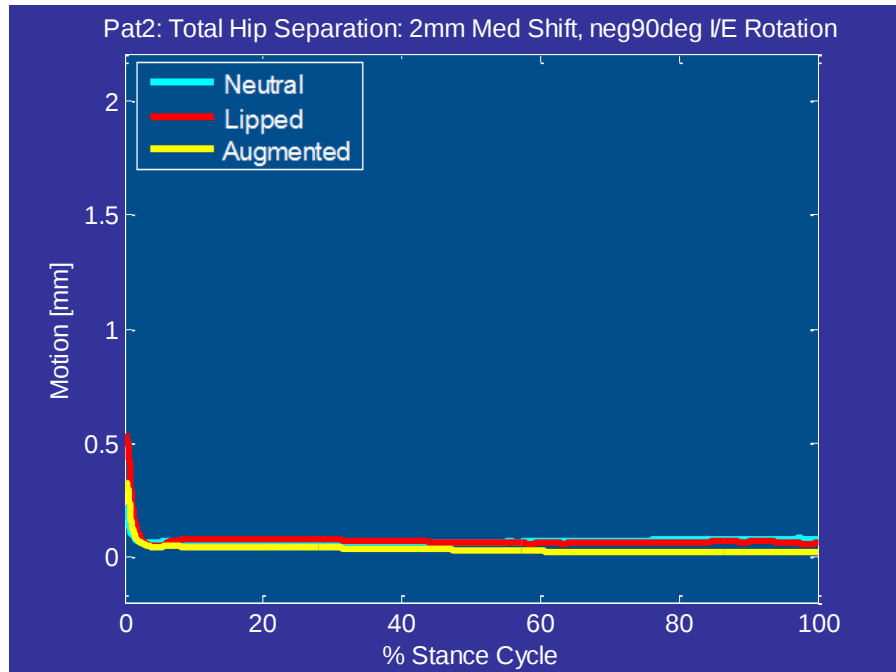


(a)

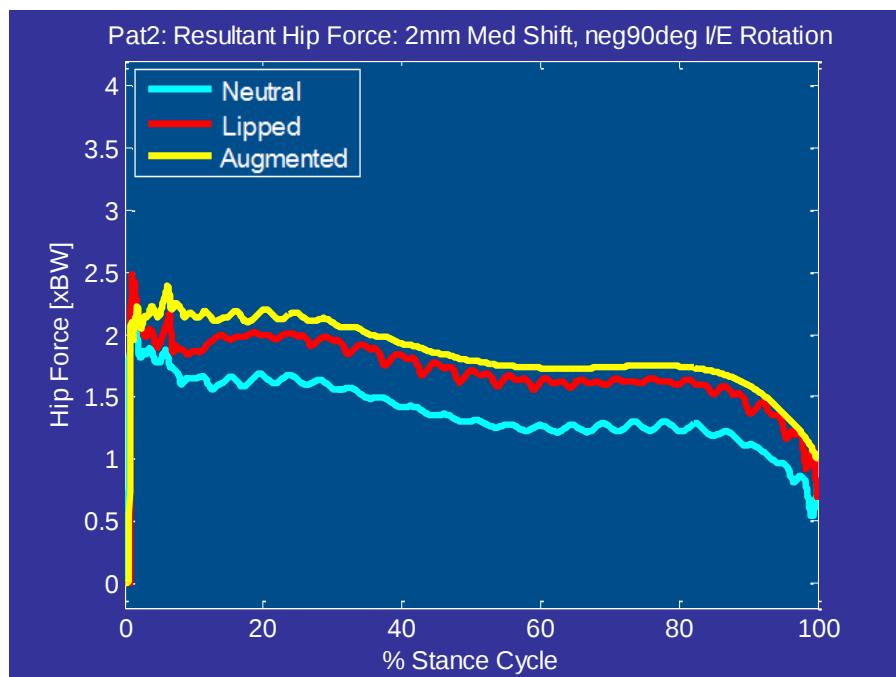


(b)

Figure E28: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

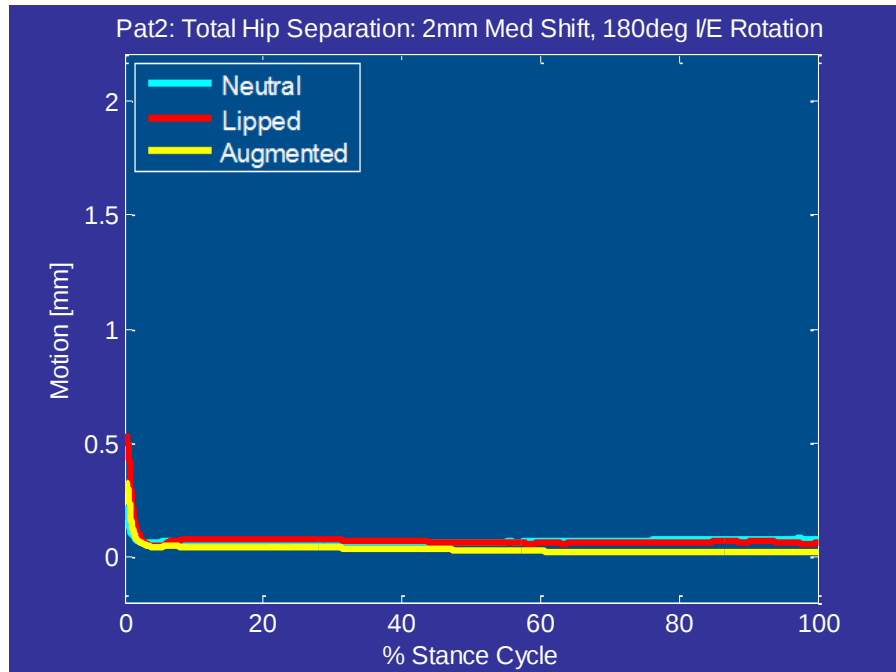


(a)

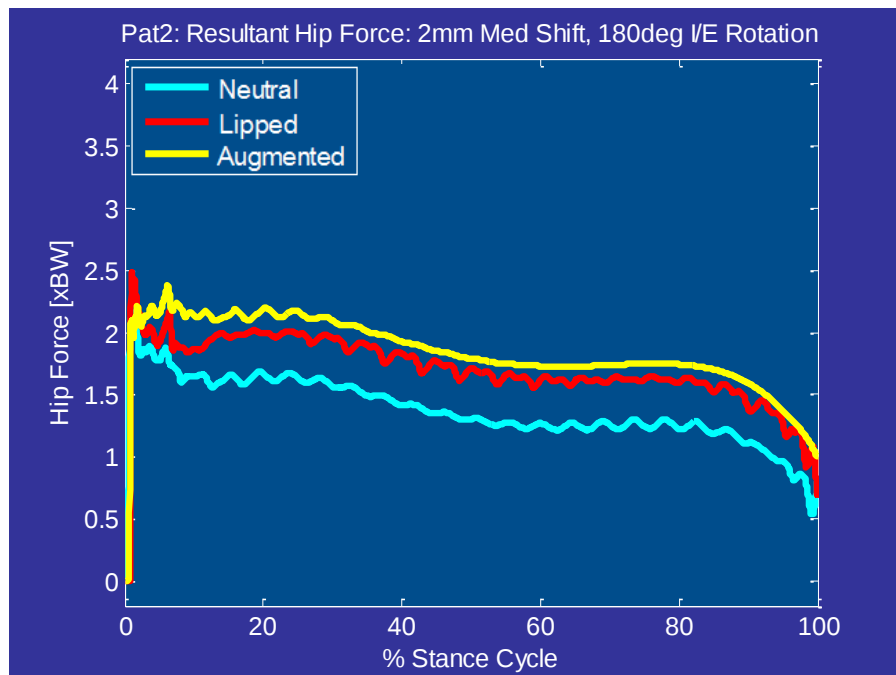


(b)

Figure E29: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

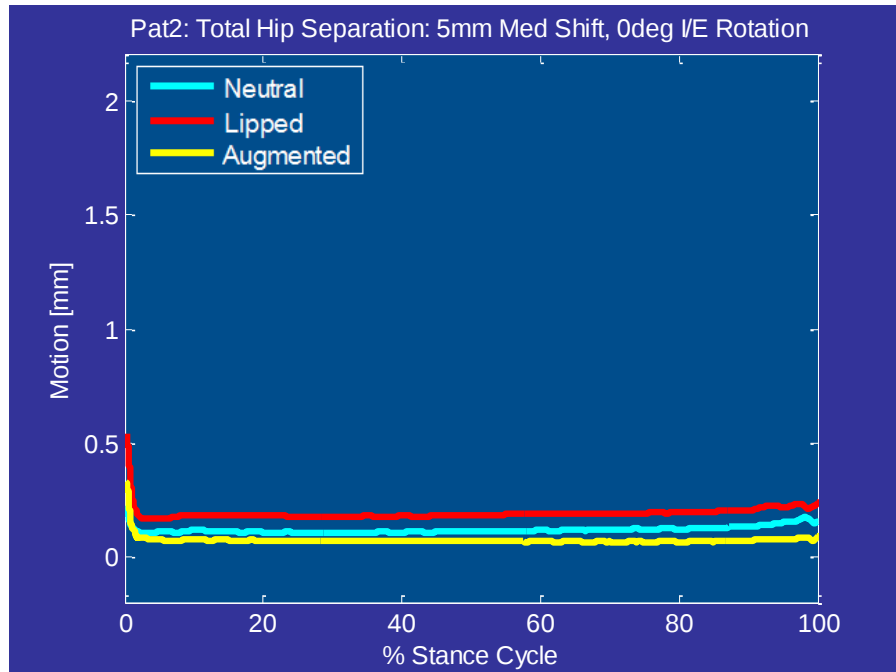


(a)

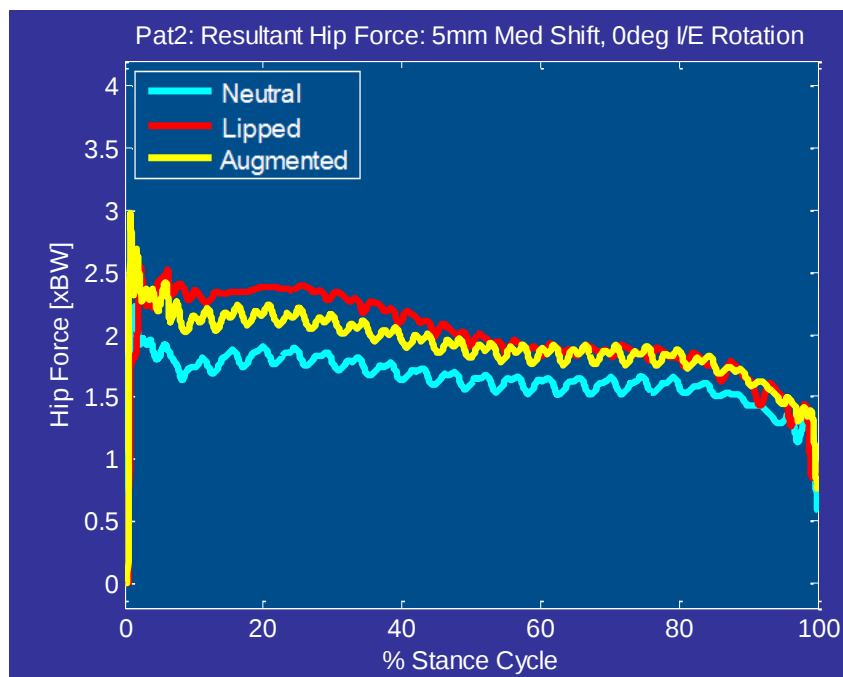


(b)

Figure E30: (a) Hip separation and (b) hip force Pat 2: 2mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

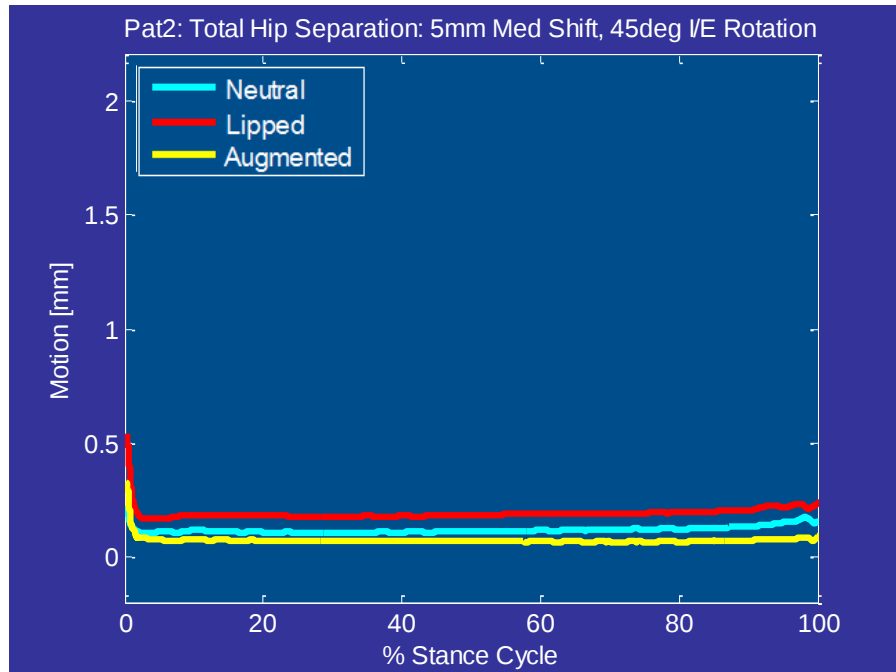


(a)

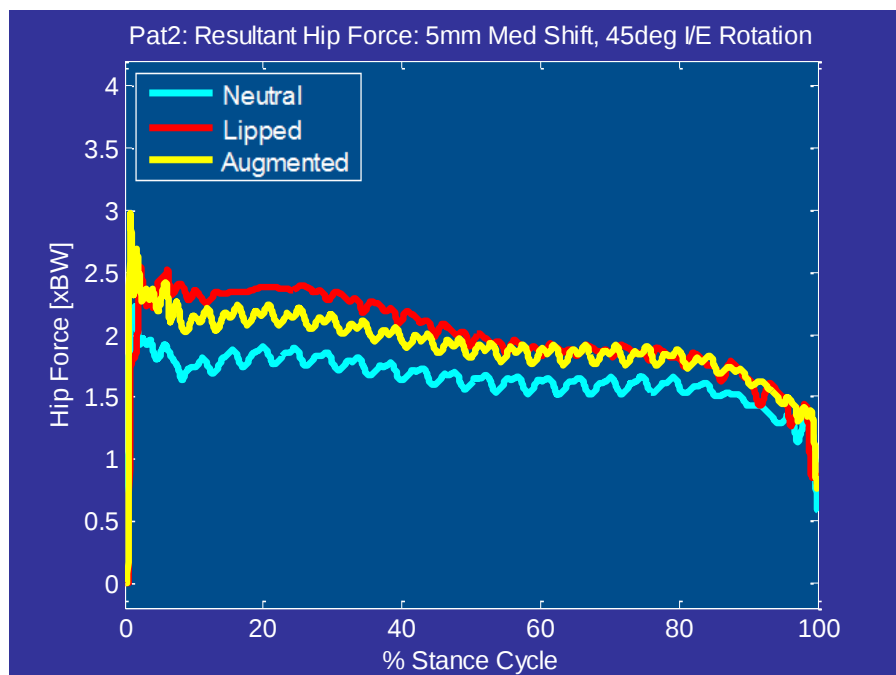


(b)

Figure E31: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

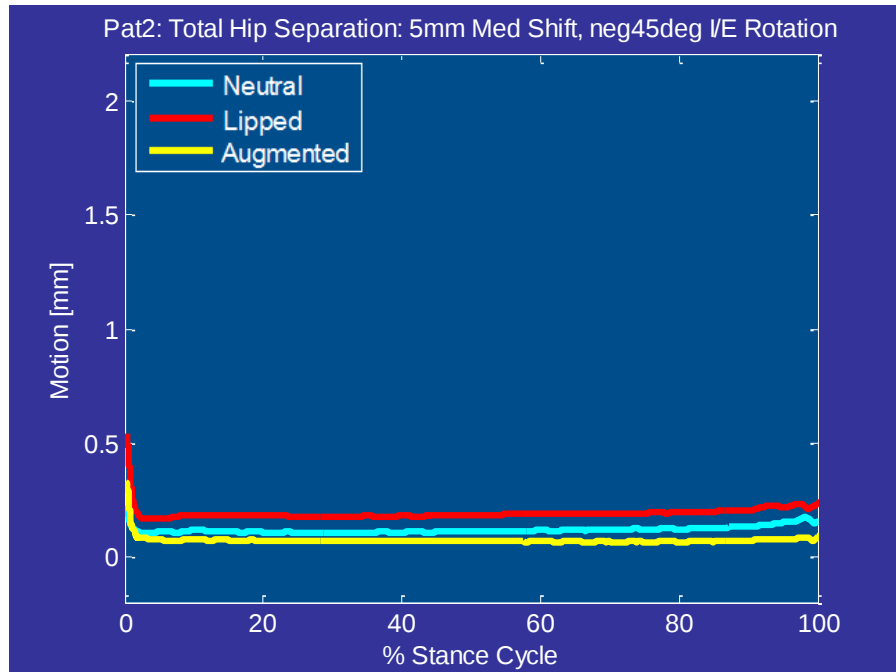


(a)

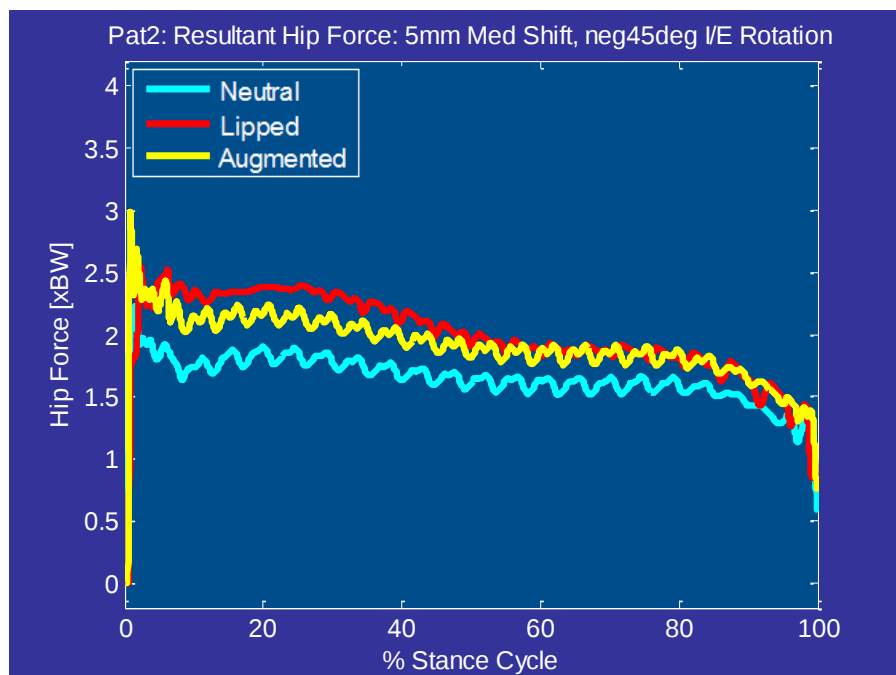


(b)

Figure E32: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

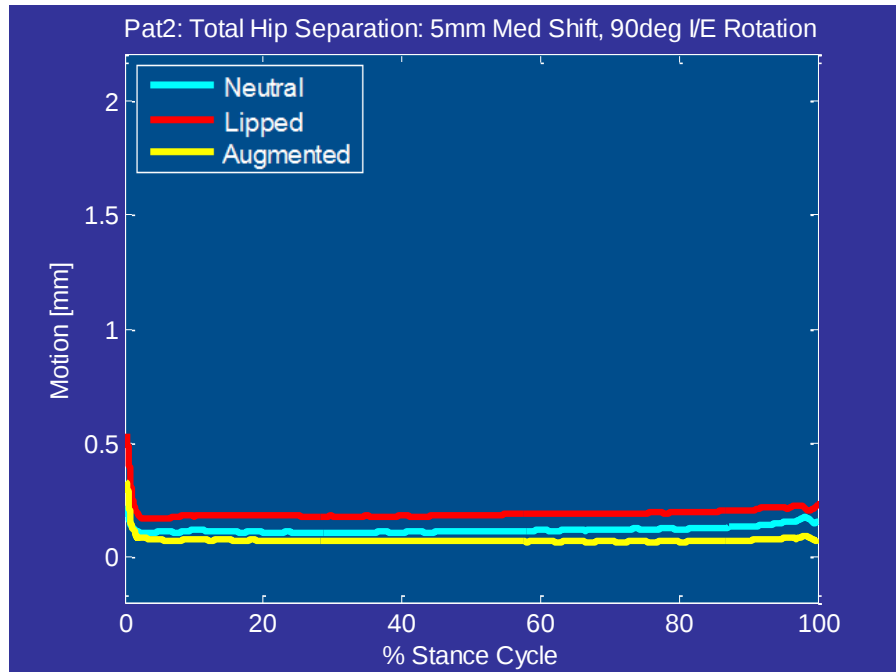


(a)

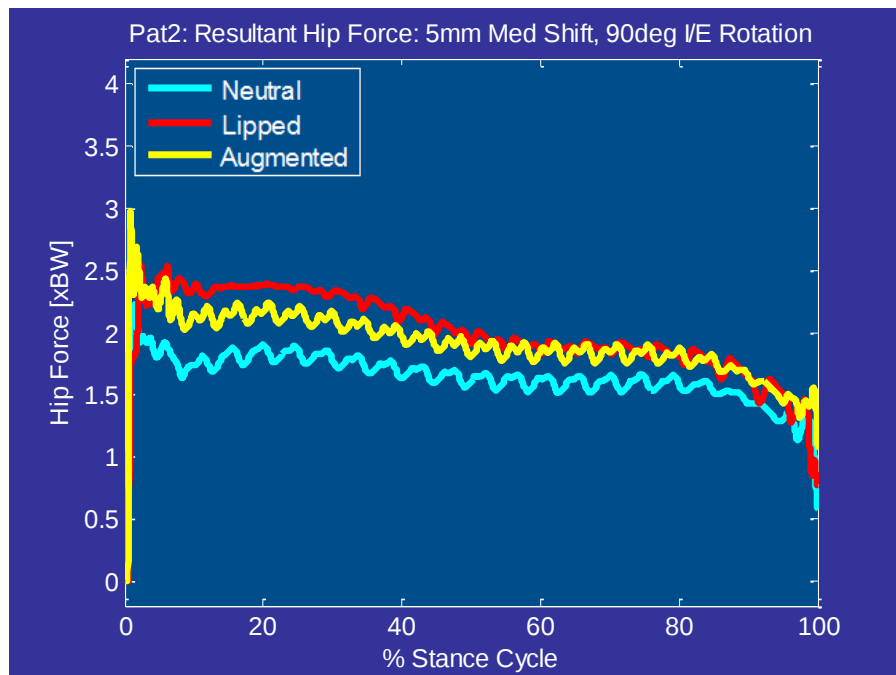


(b)

Figure E33: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

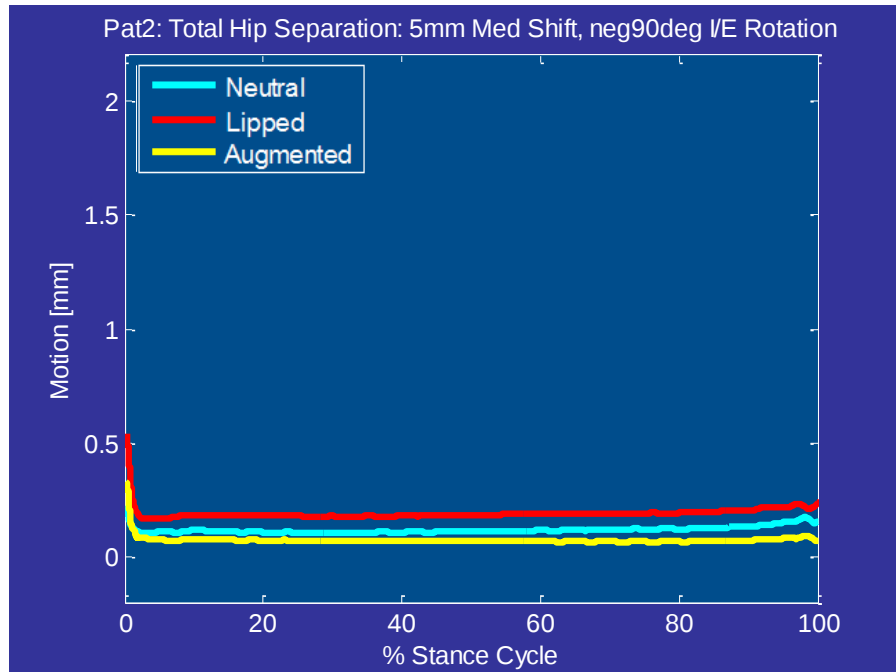


(a)

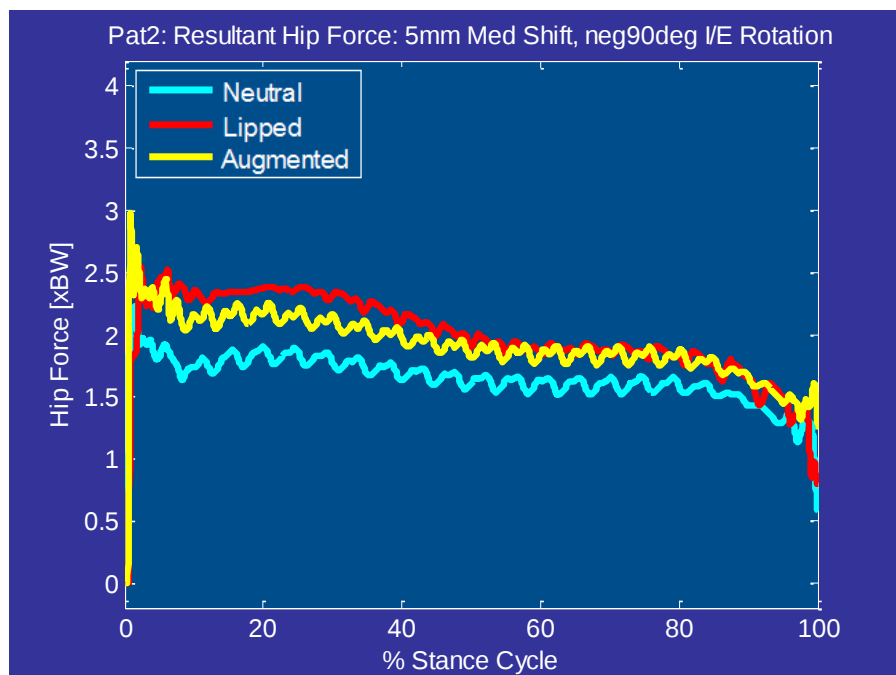


(b)

Figure E34: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

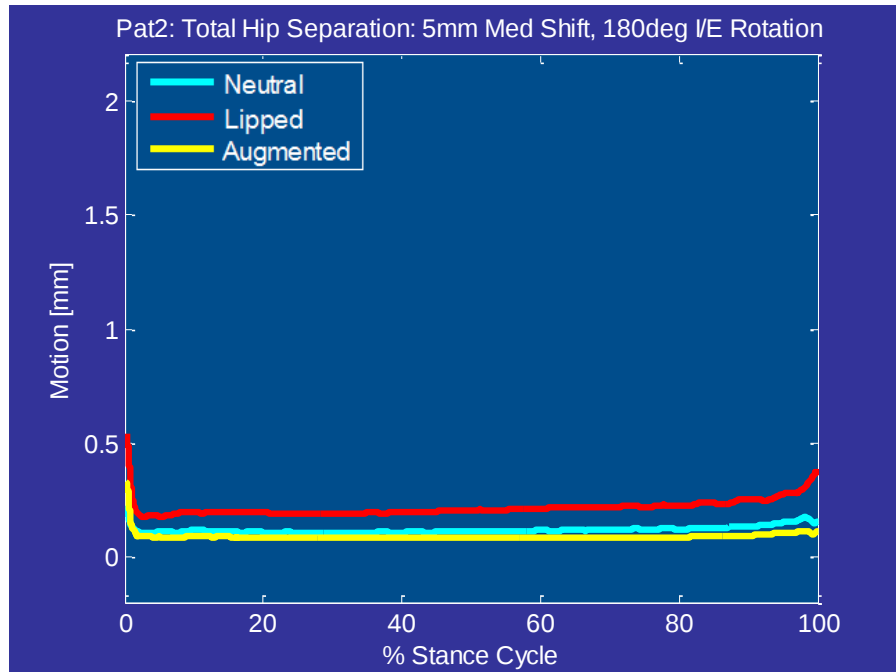


(a)

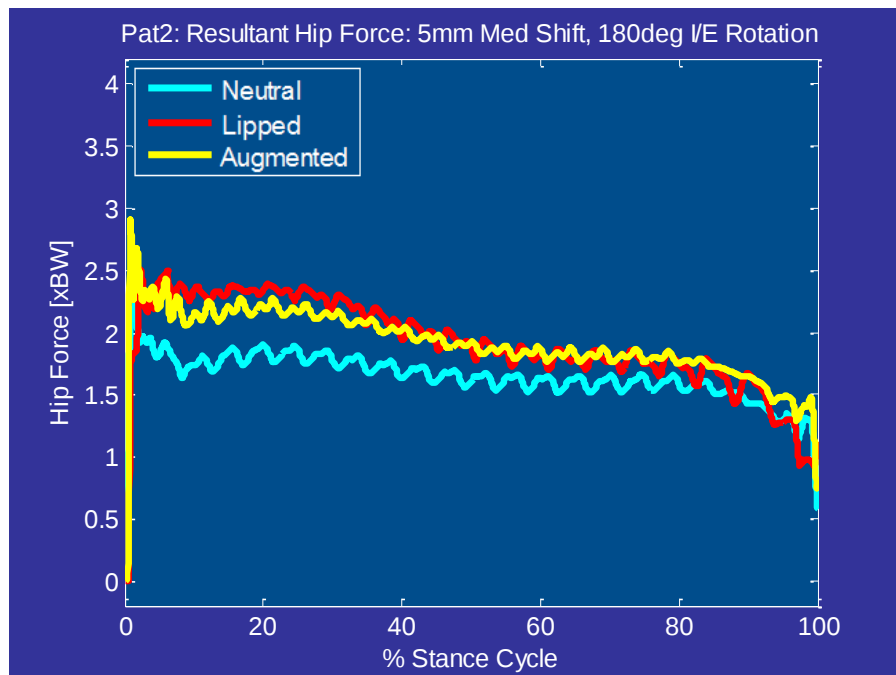


(b)

Figure E35: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

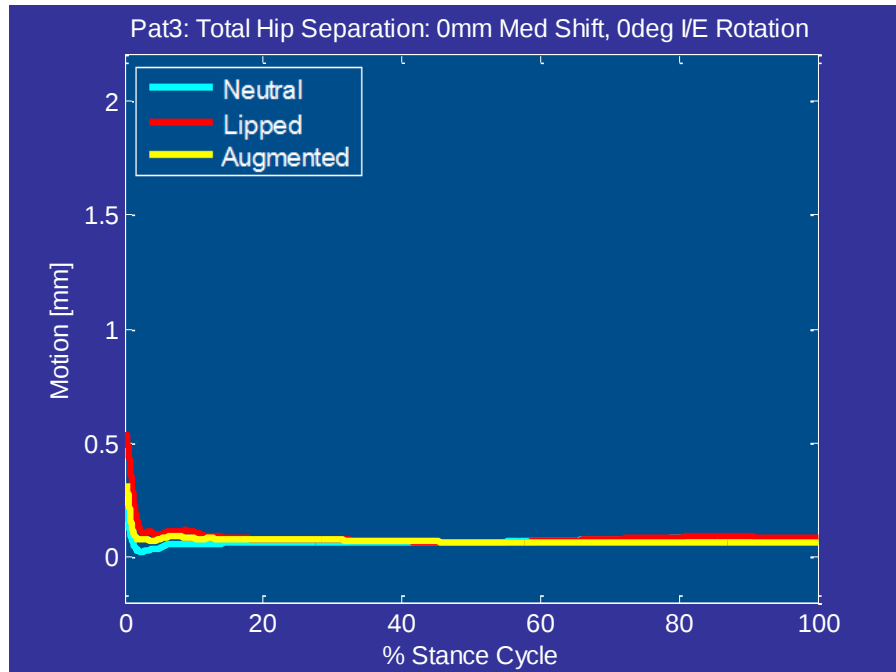


(a)

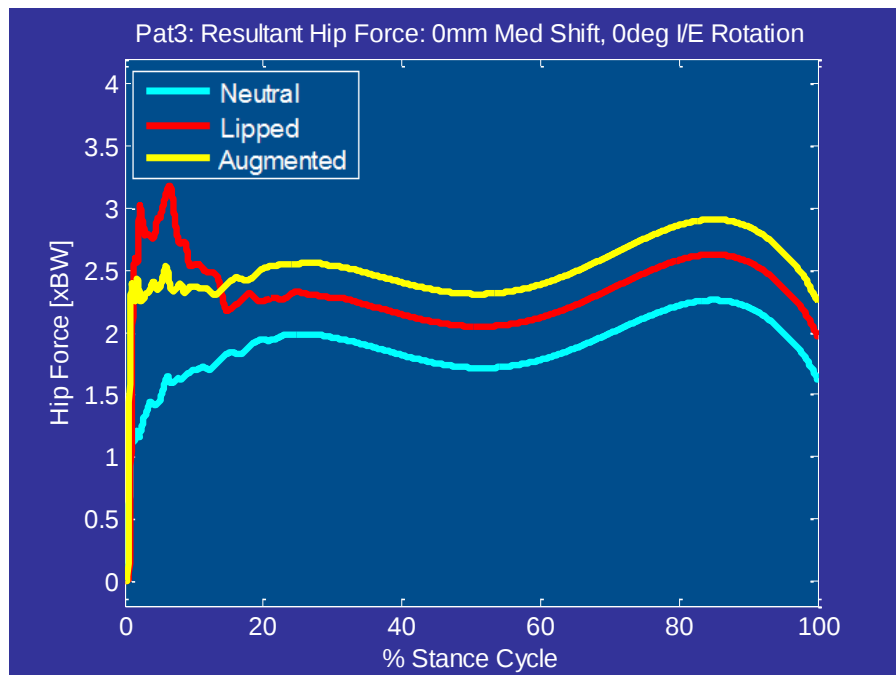


(b)

Figure E36: (a) Hip separation and (b) hip force Pat 2: 5mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

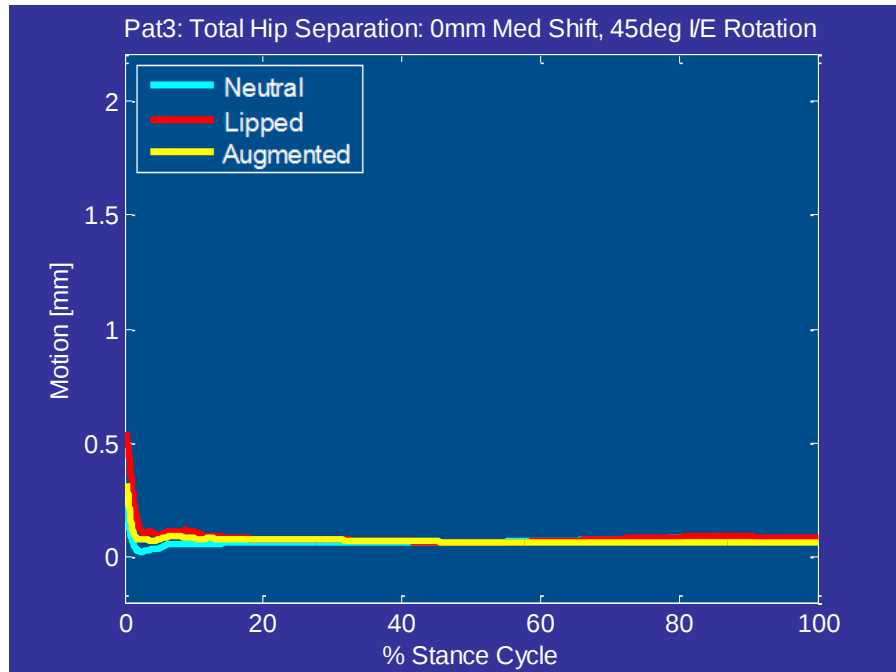


(a)

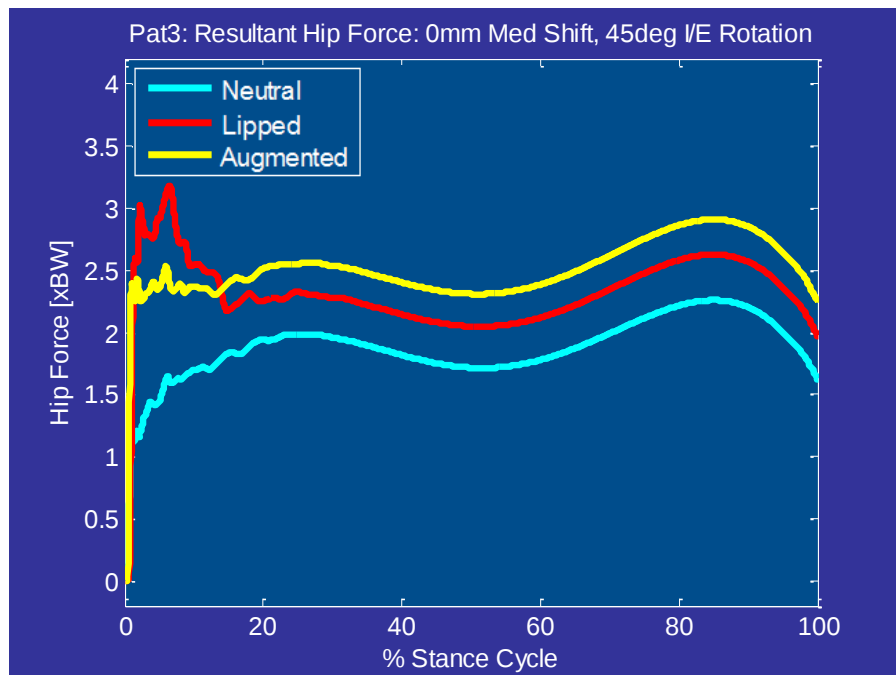


(b)

Figure E37: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

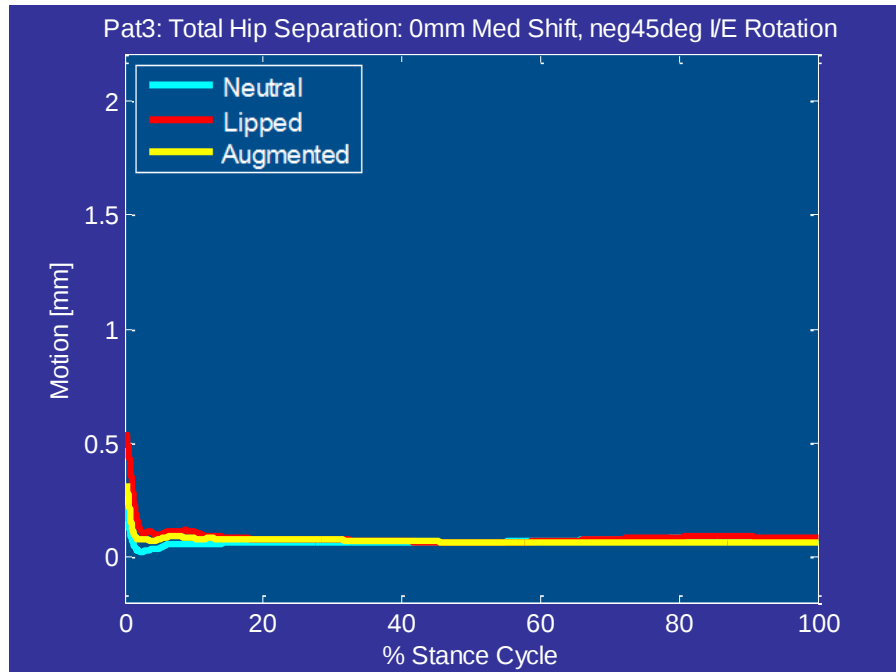


(a)

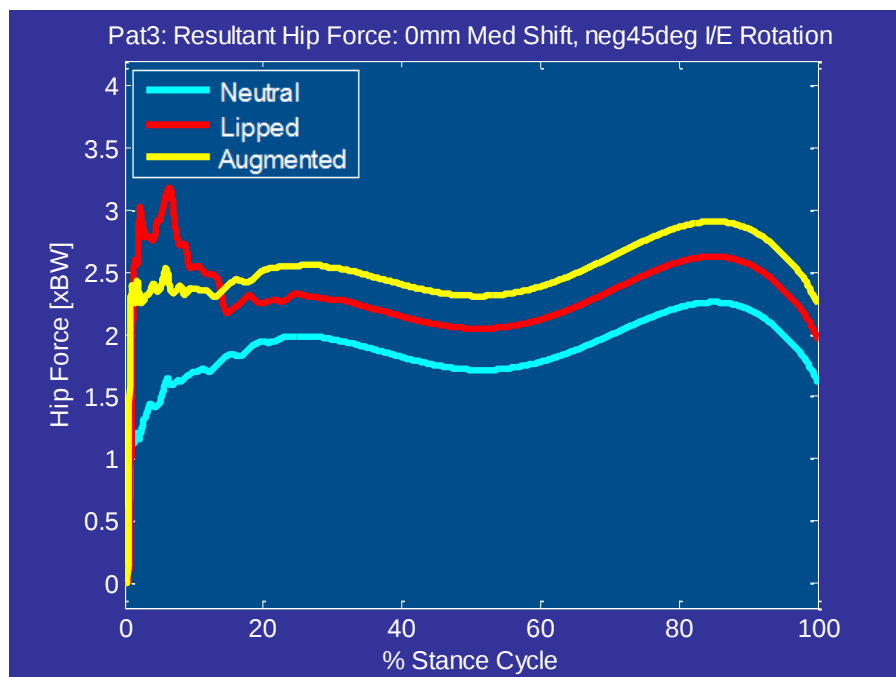


(b)

Figure E38: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

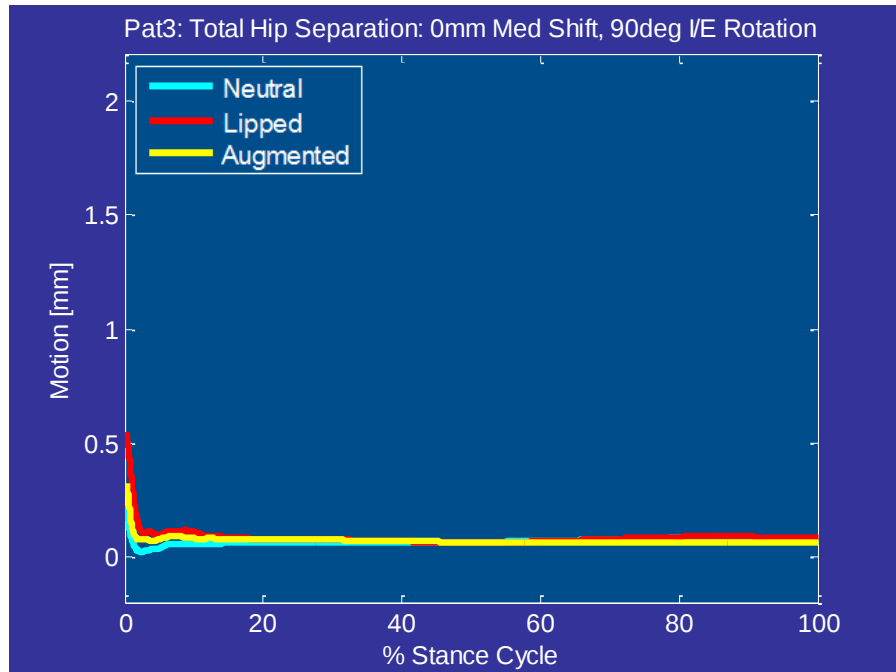


(a)

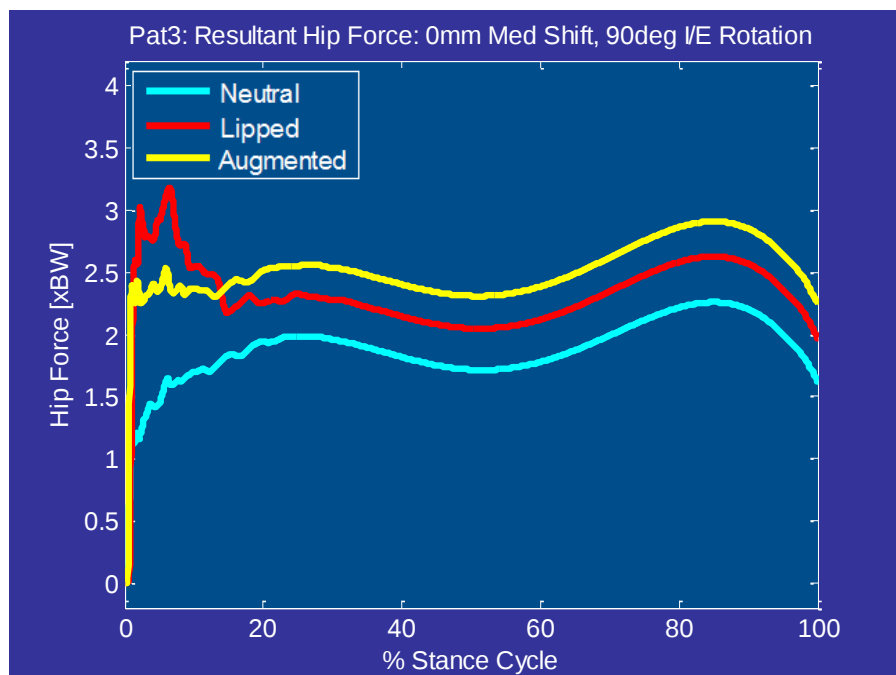


(b)

Figure E39: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

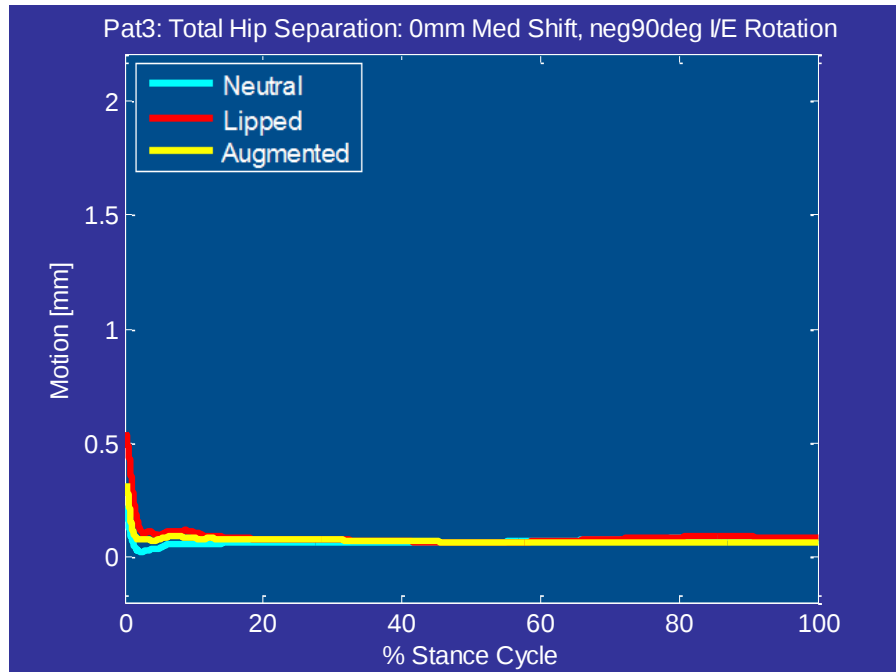


(a)

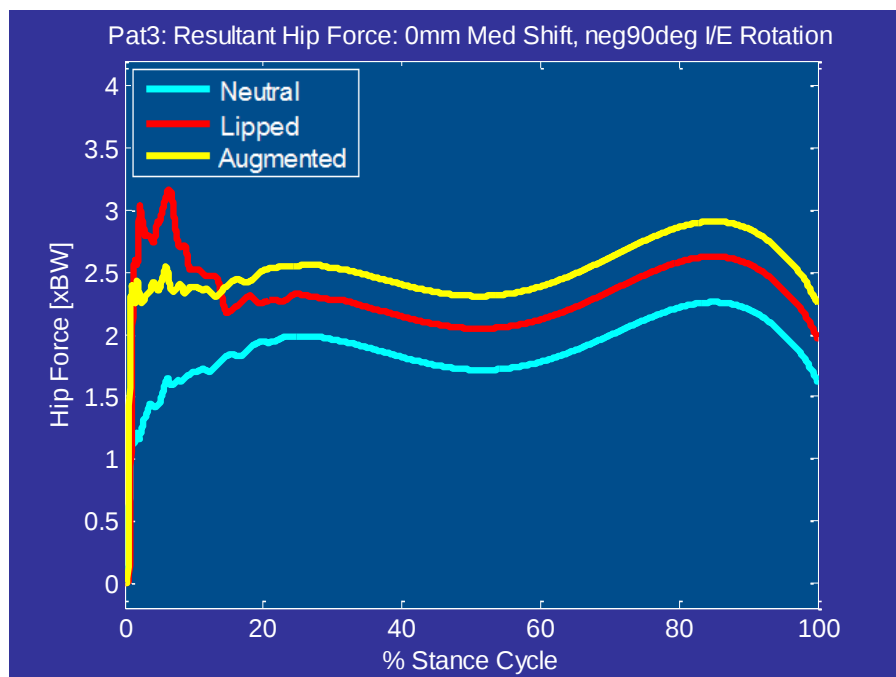


(b)

Figure E40: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

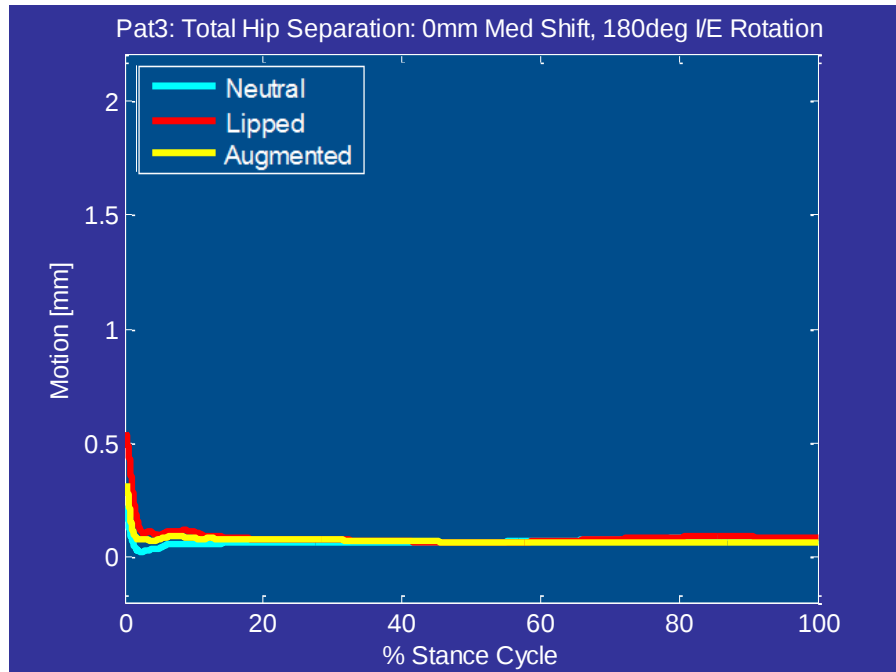


(a)

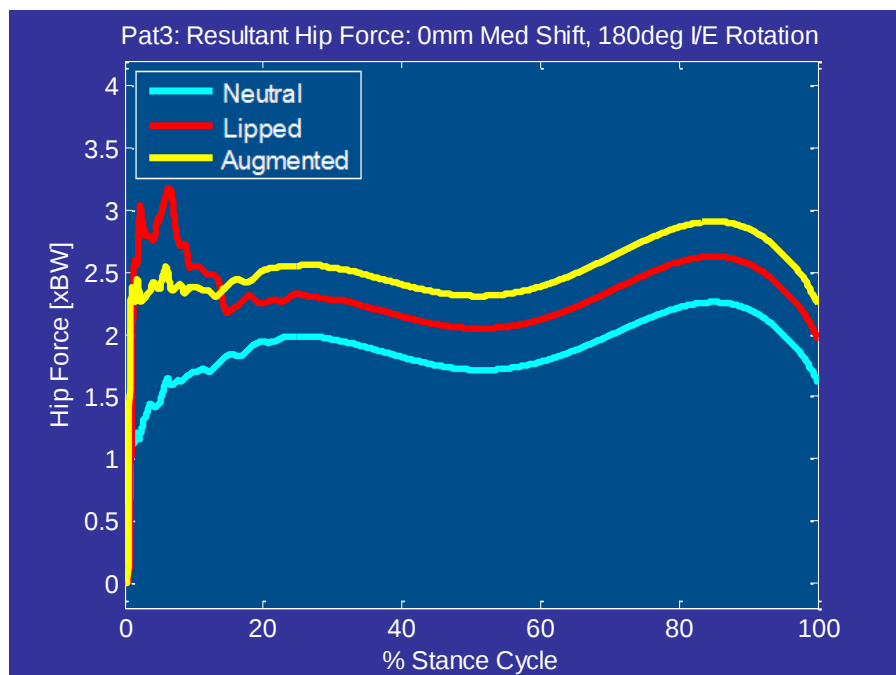


(b)

Figure E41: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

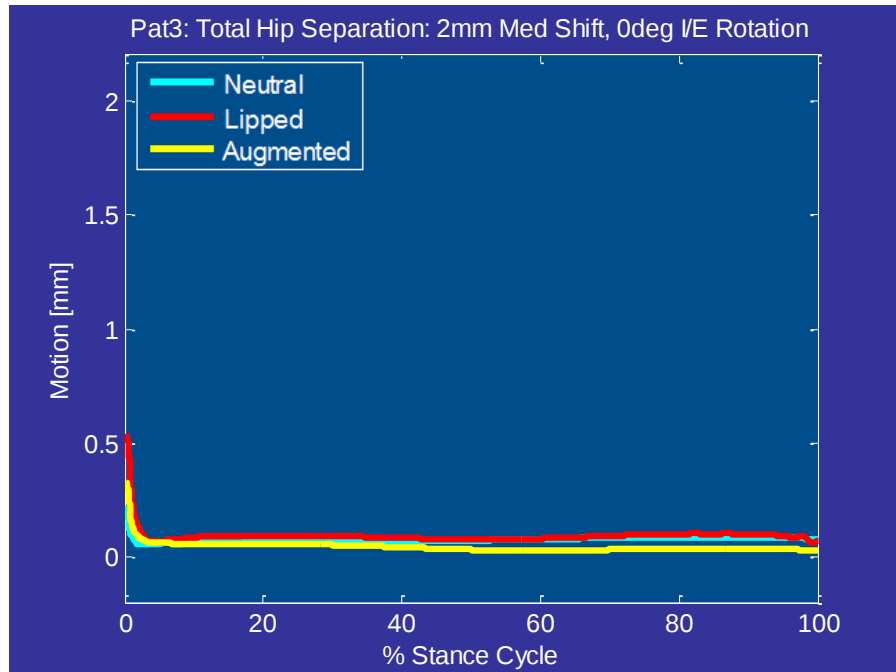


(a)

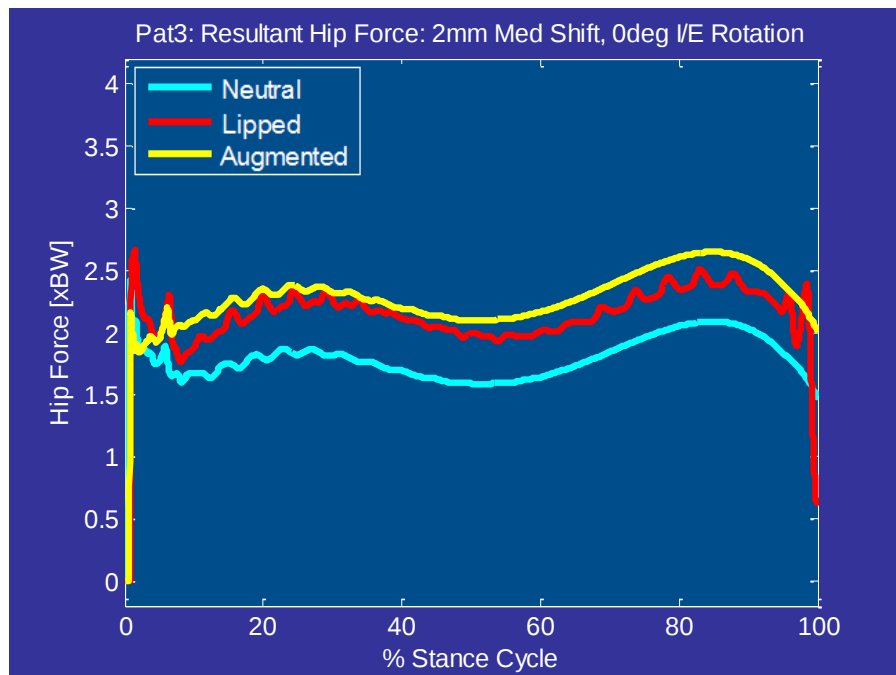


(b)

Figure E42: (a) Hip separation and (b) hip force Pat 3: 0mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

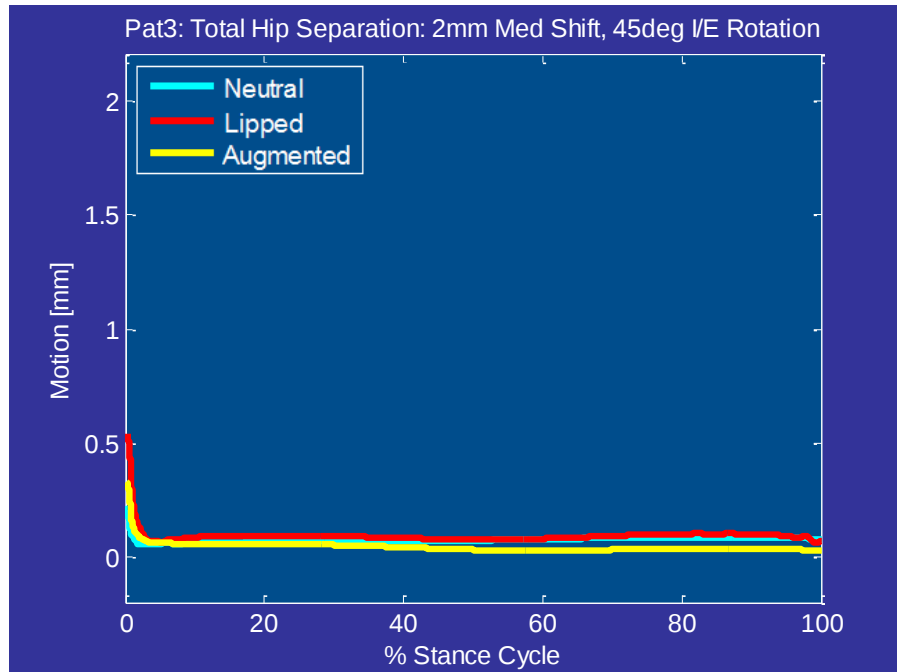


(a)

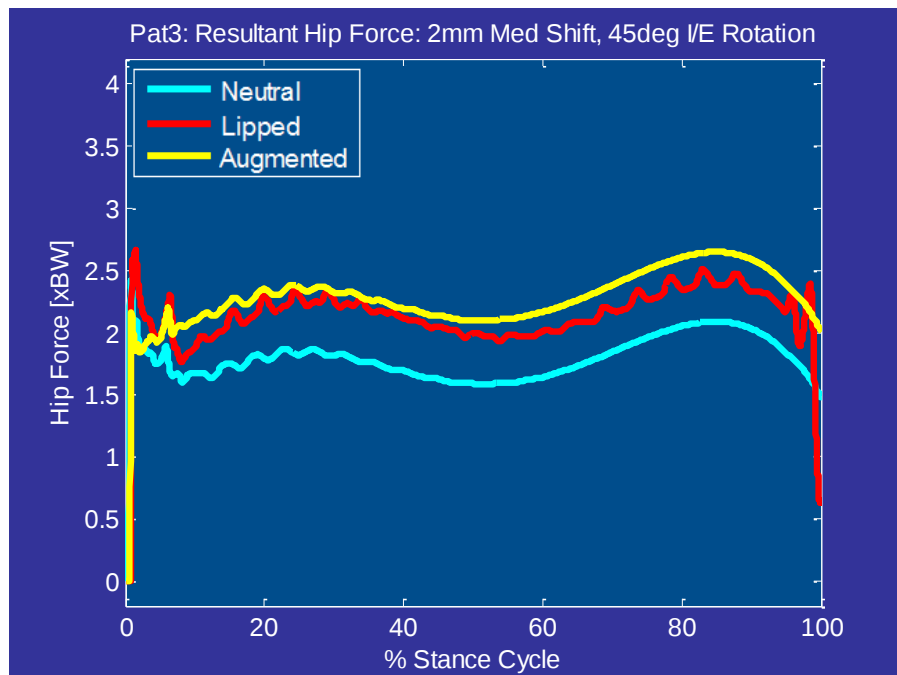


(b)

Figure E43: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

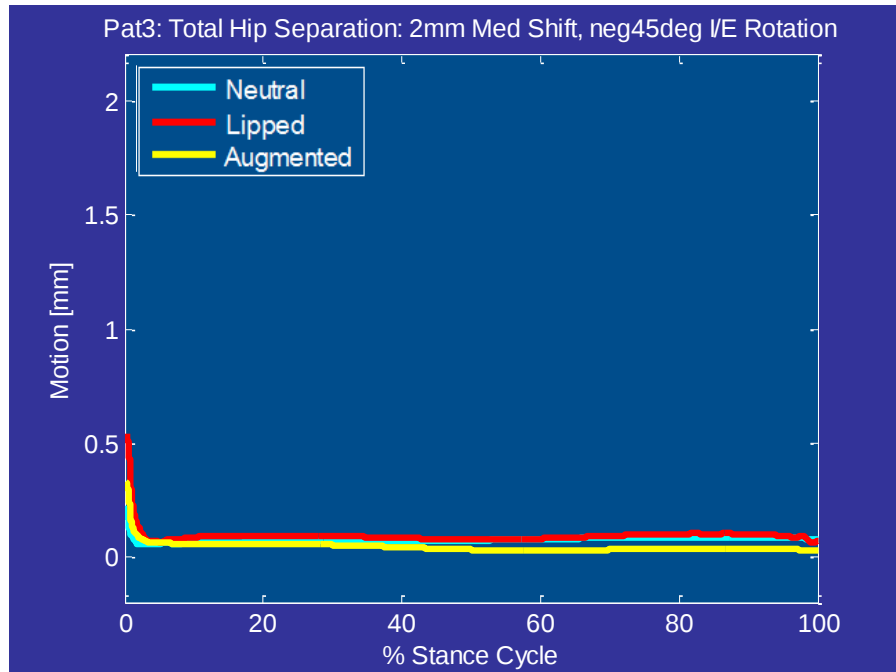


(a)

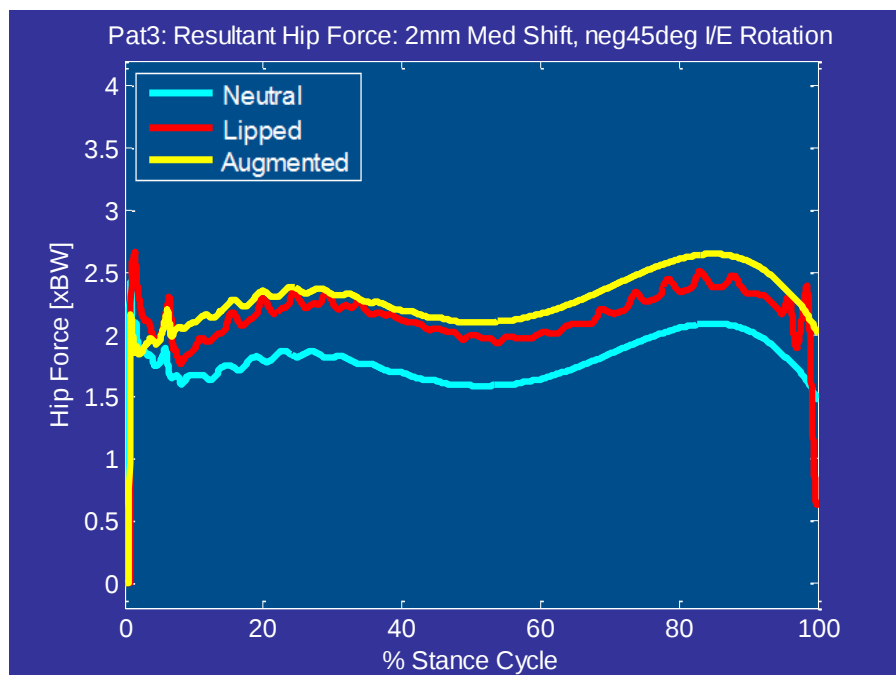


(b)

Figure E44: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

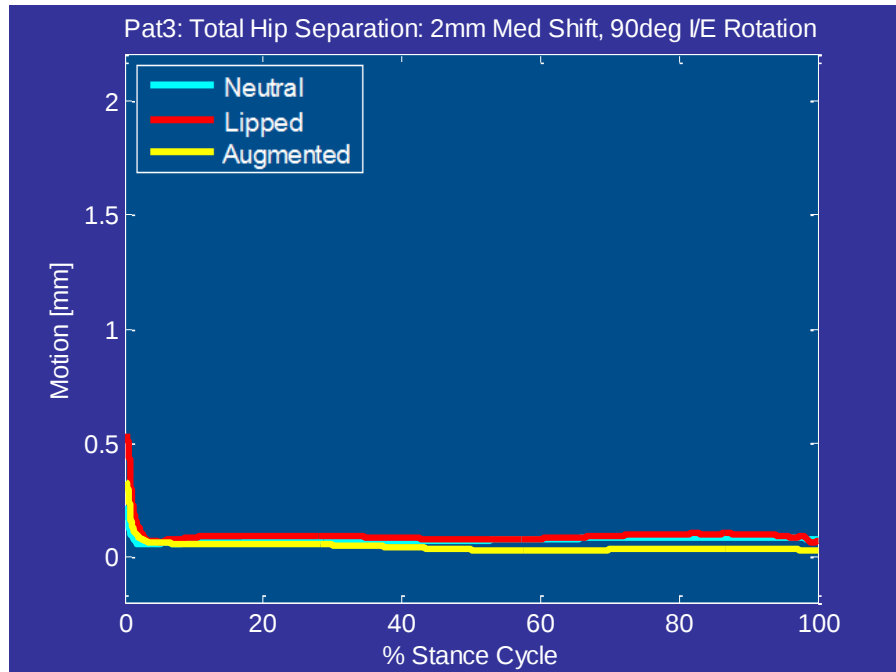


(a)

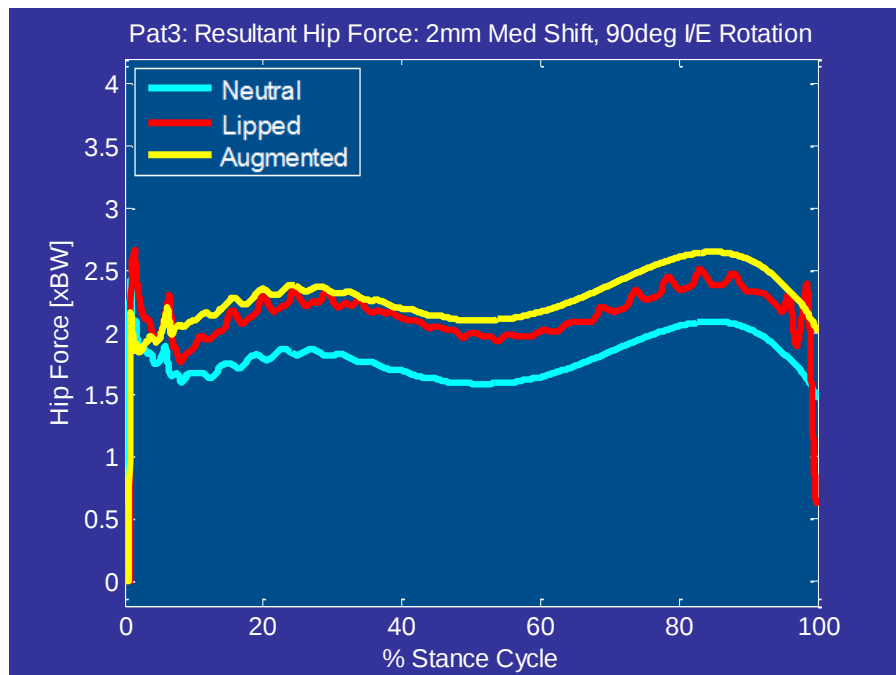


(b)

Figure E45: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

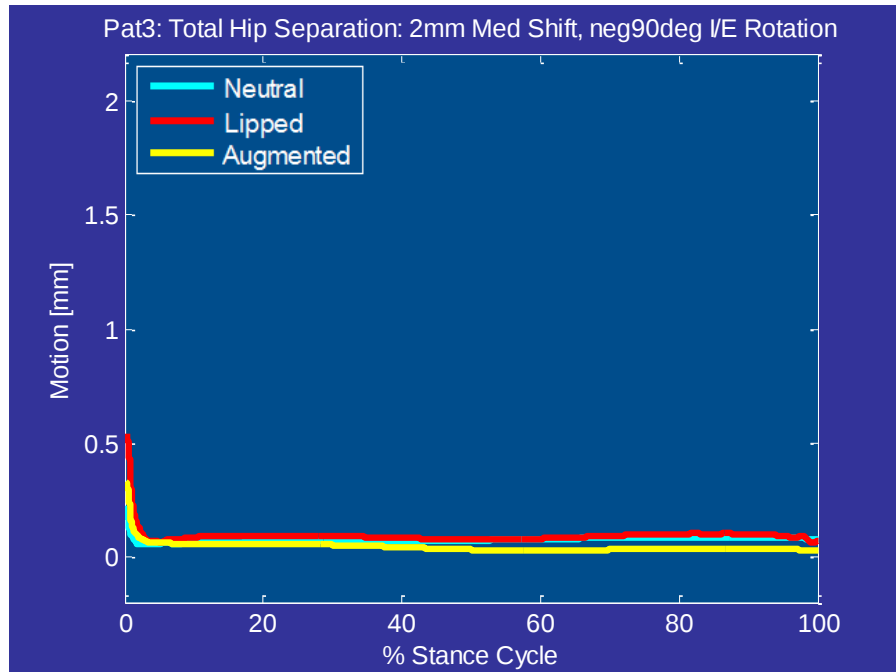


(a)

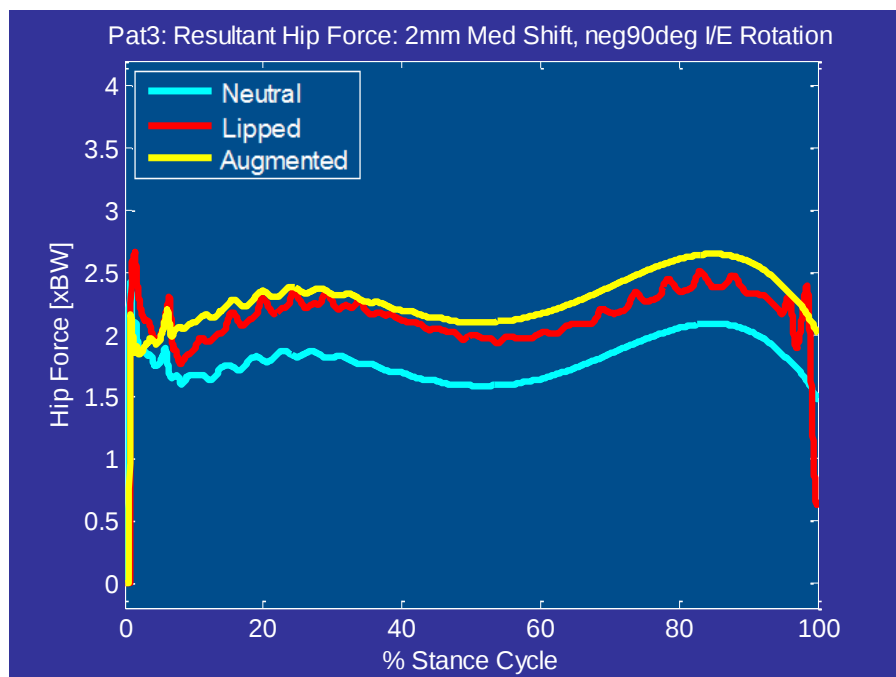


(b)

Figure E46: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

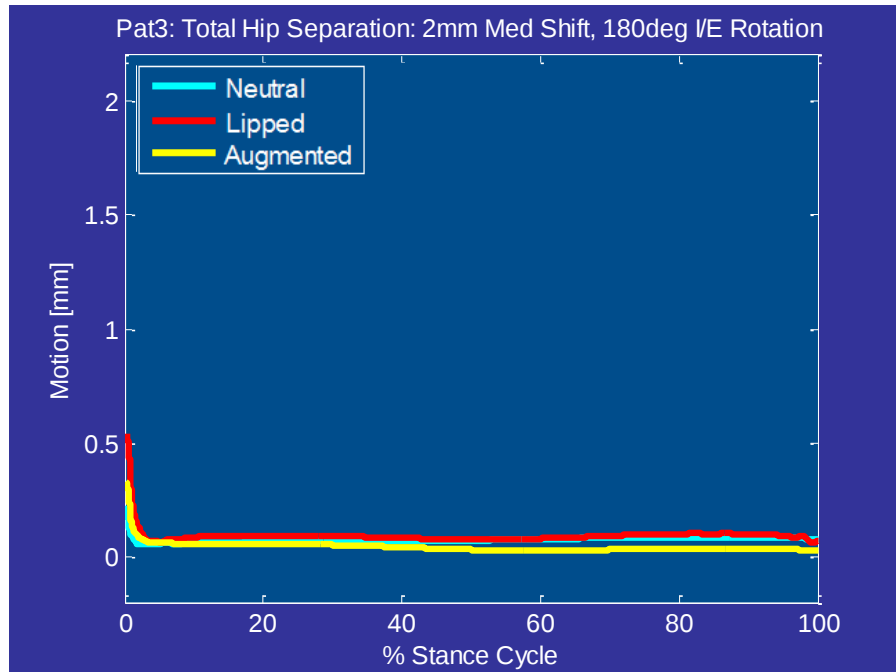


(a)

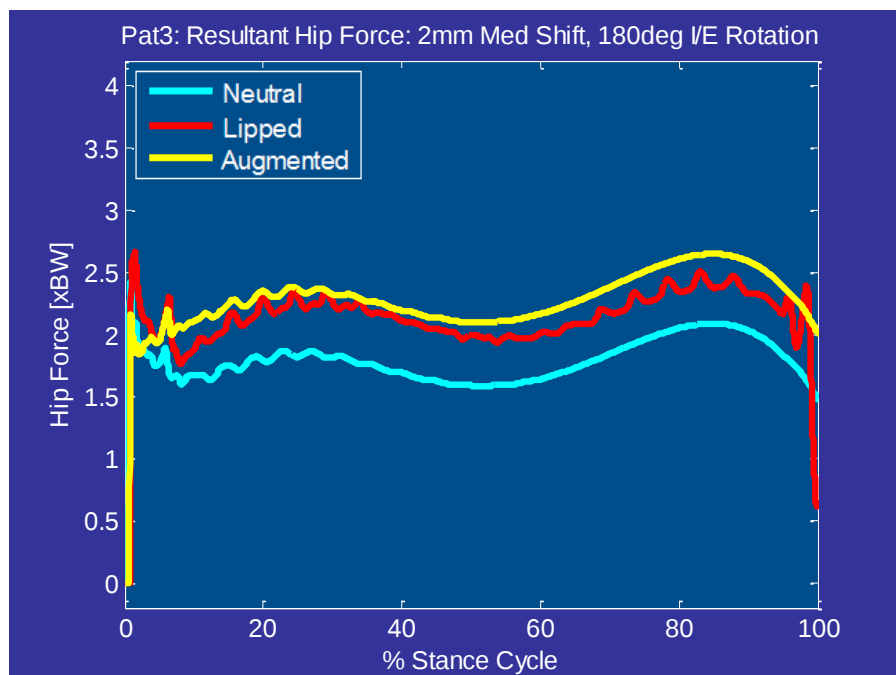


(b)

Figure E47: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

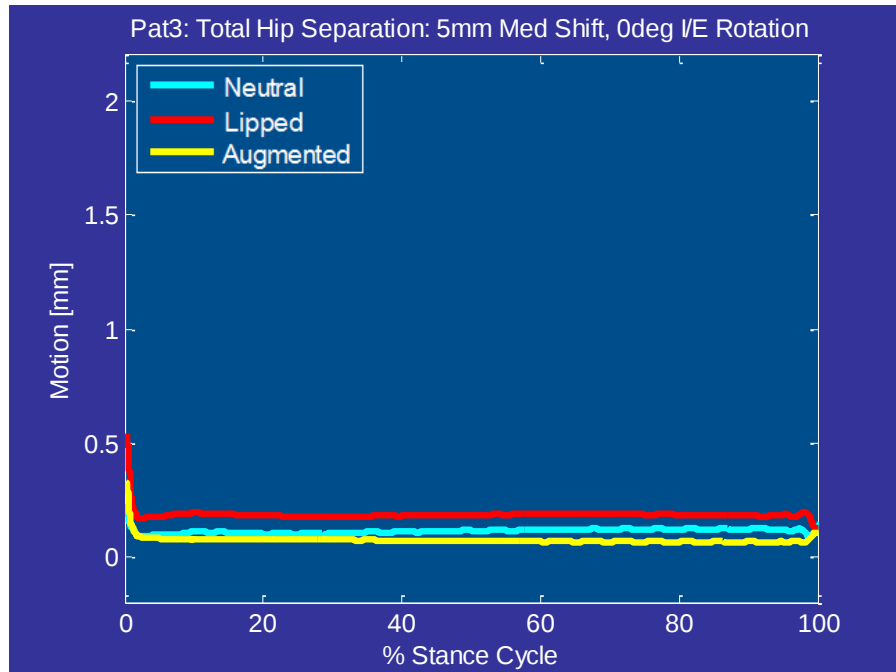


(a)

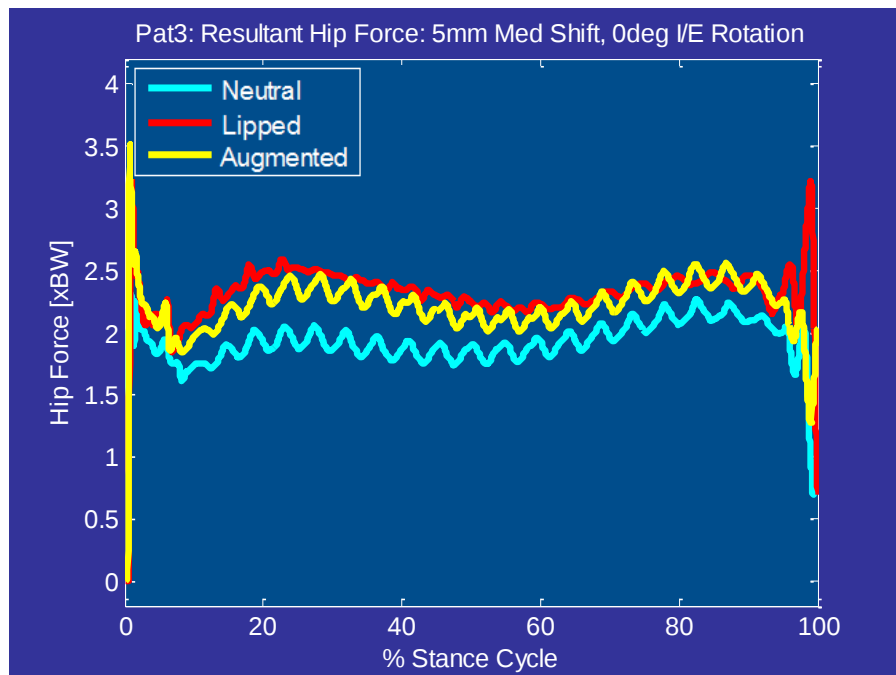


(b)

Figure E48: (a) Hip separation and (b) hip force Pat 3: 2mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

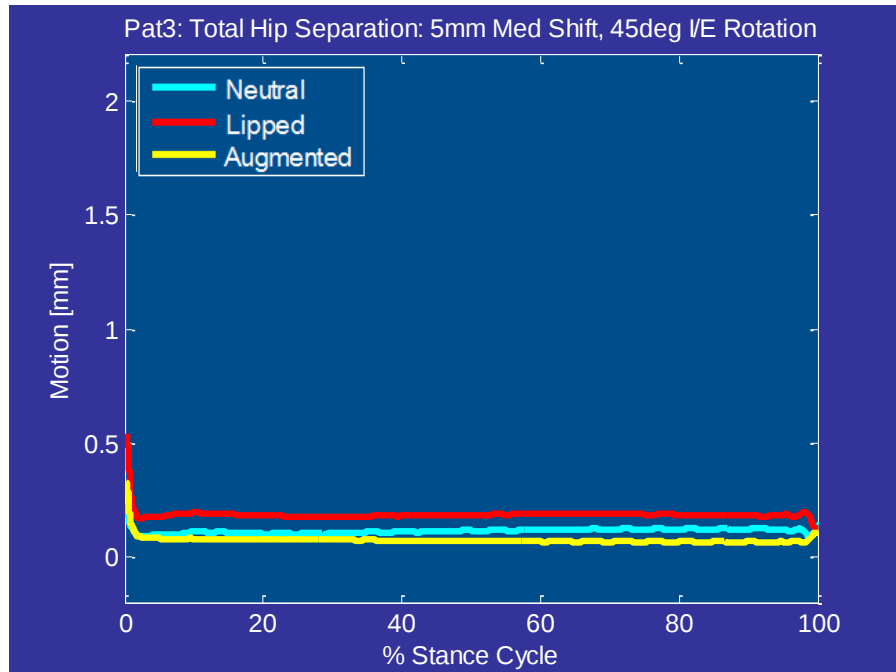


(a)

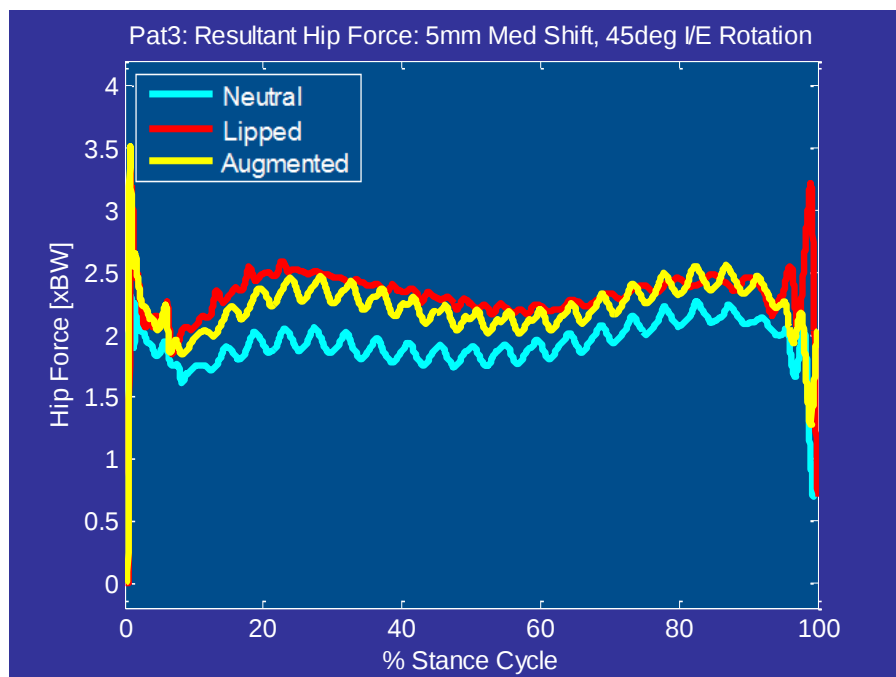


(b)

Figure E49: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

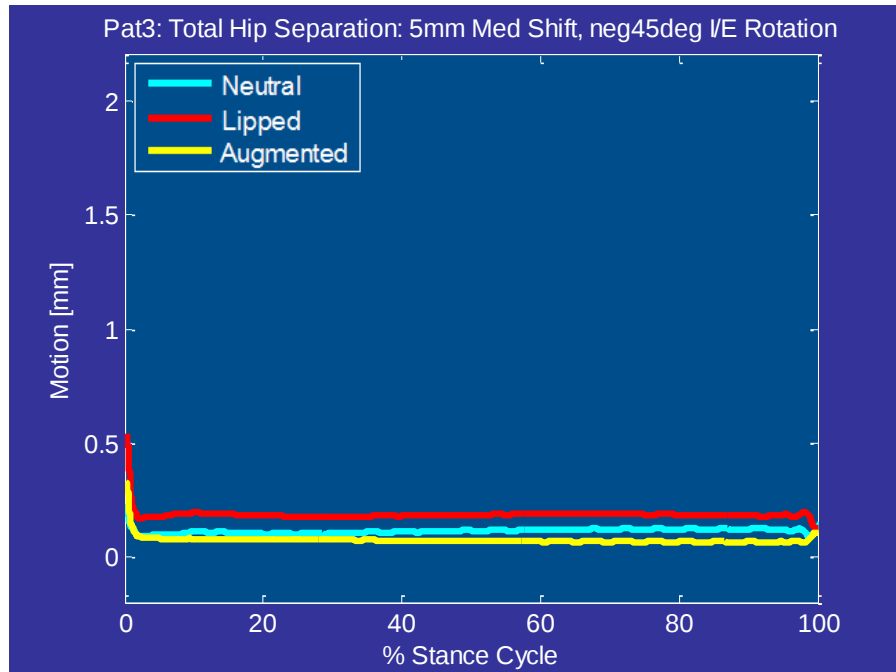


(a)

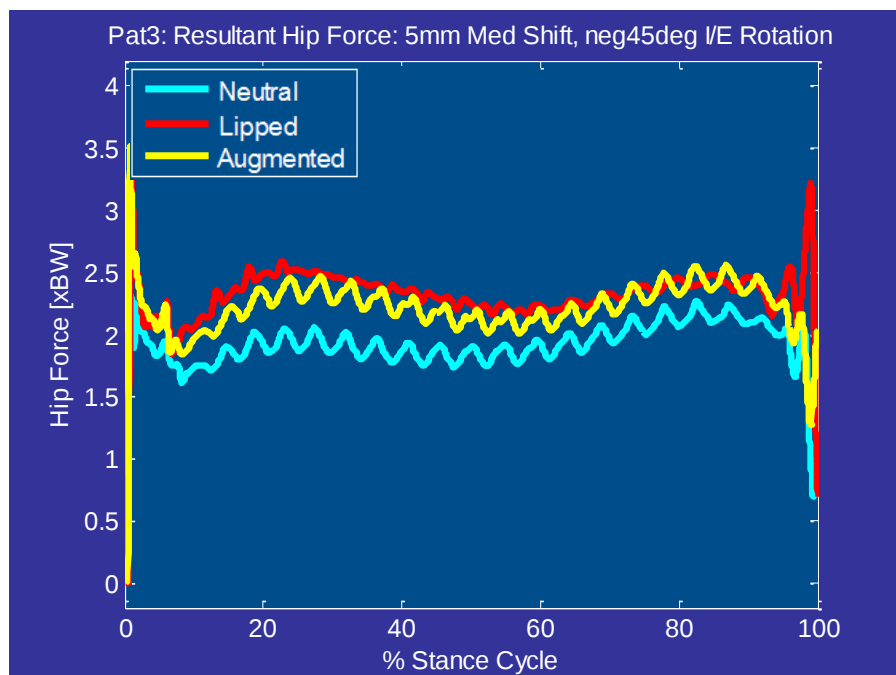


(b)

Figure E50: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

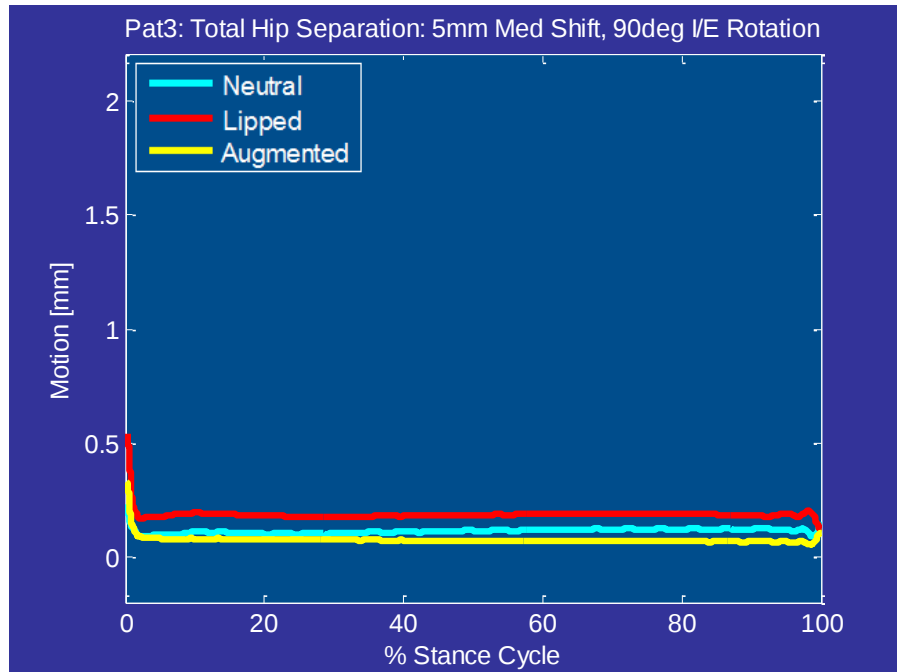


(a)

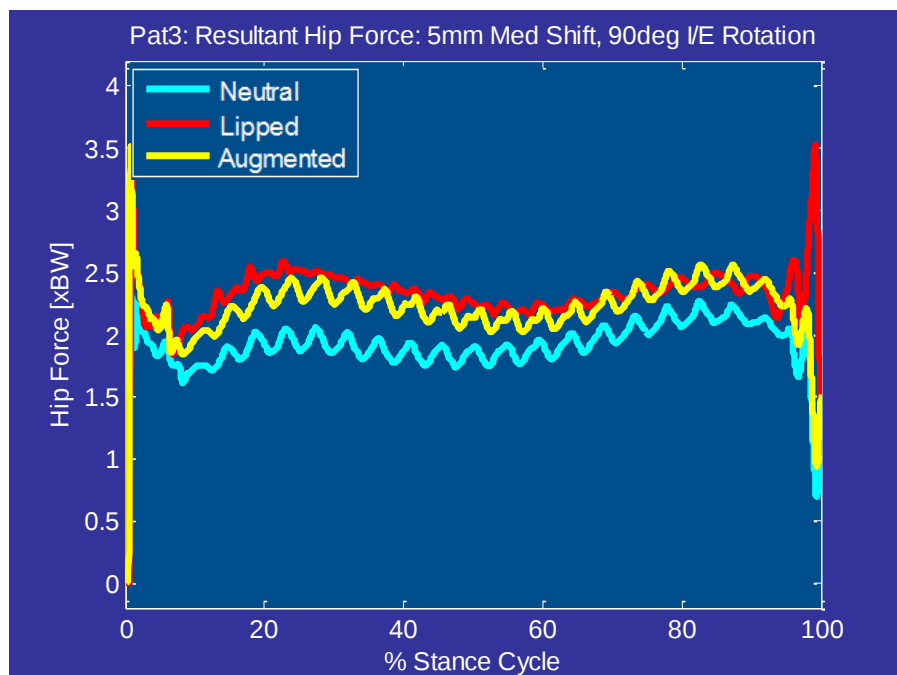


(b)

Figure E51: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

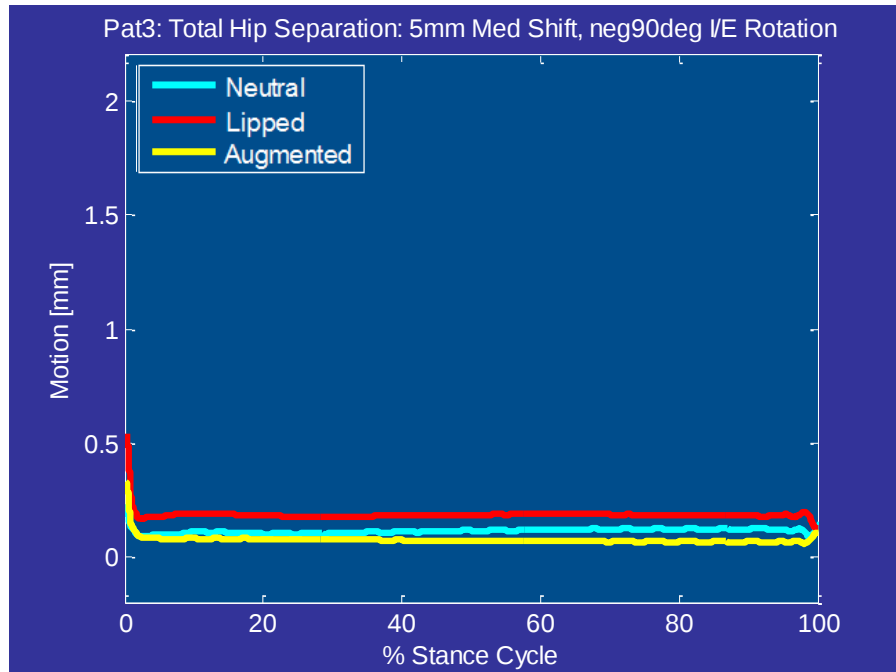


(a)

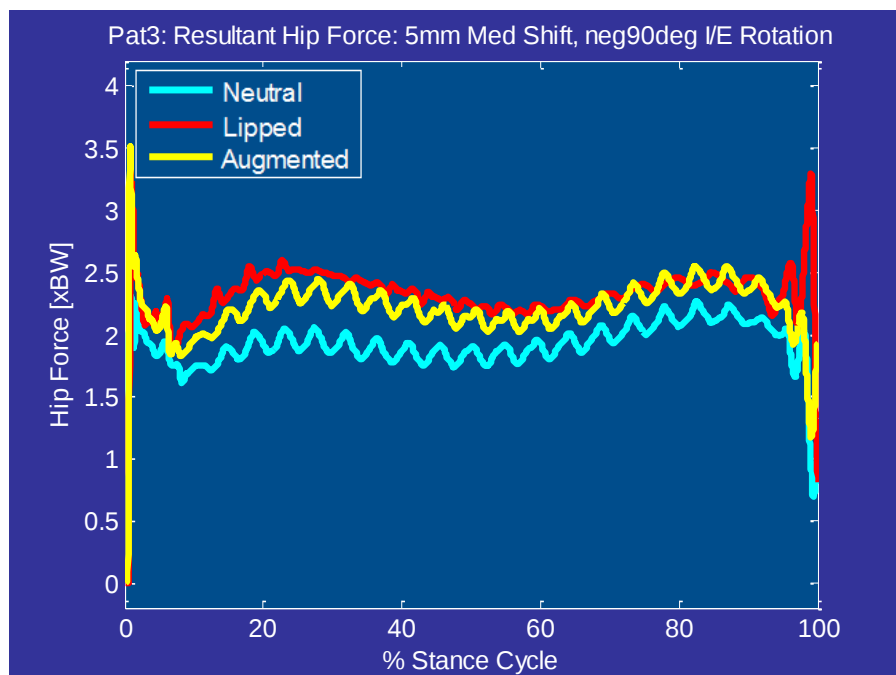


(b)

Figure E52: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

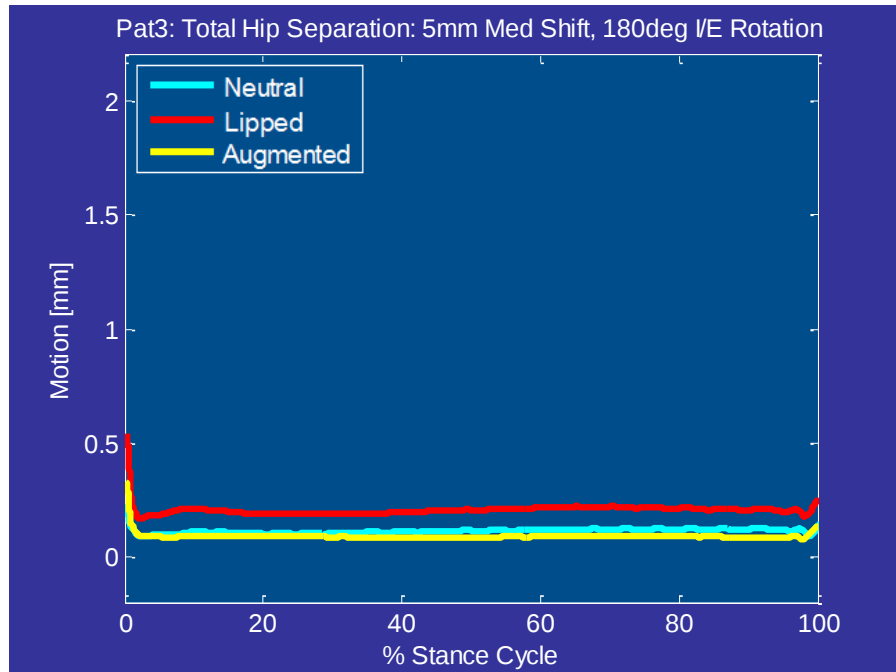


(a)

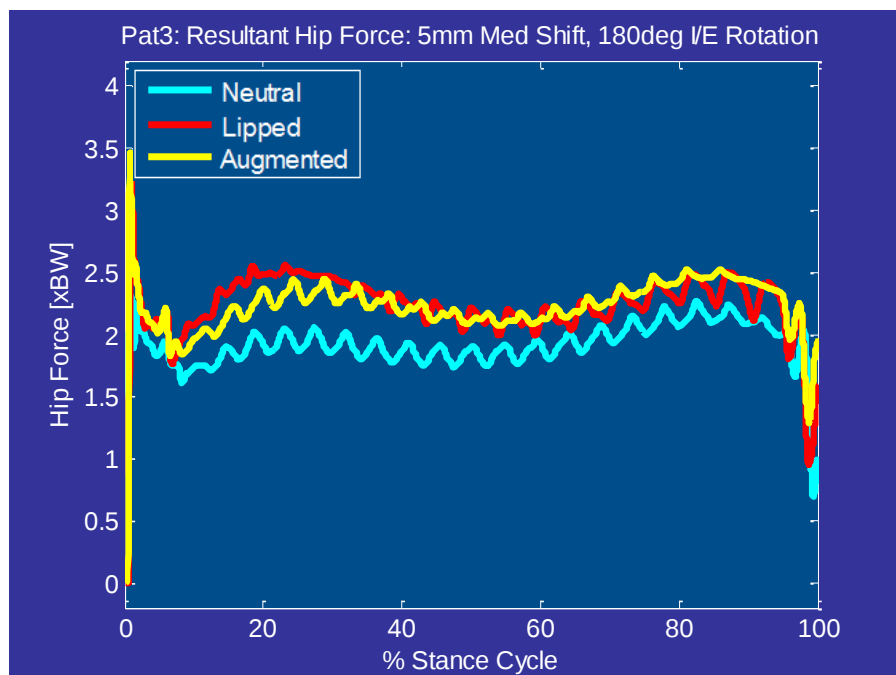


(b)

Figure E53: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

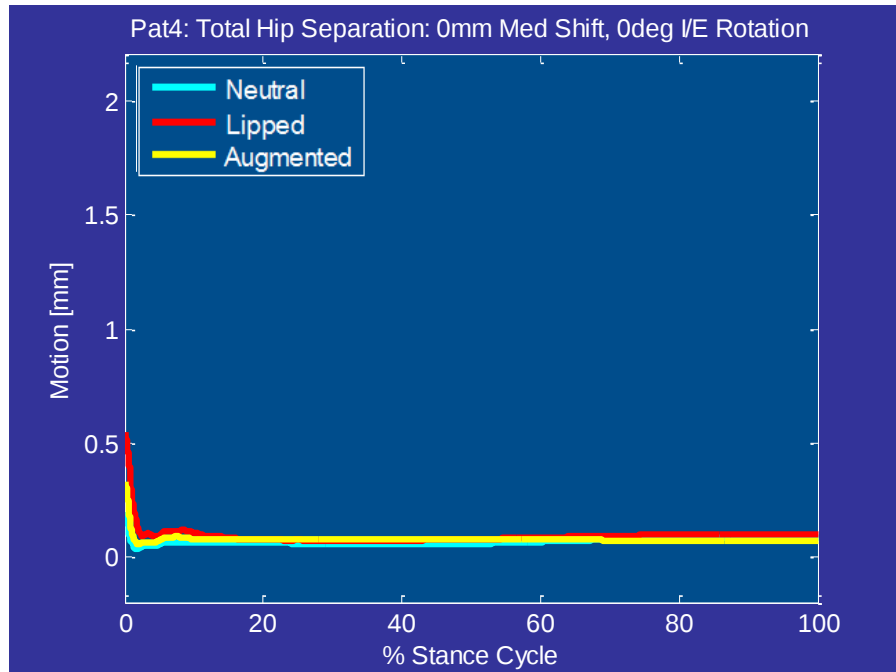


(a)

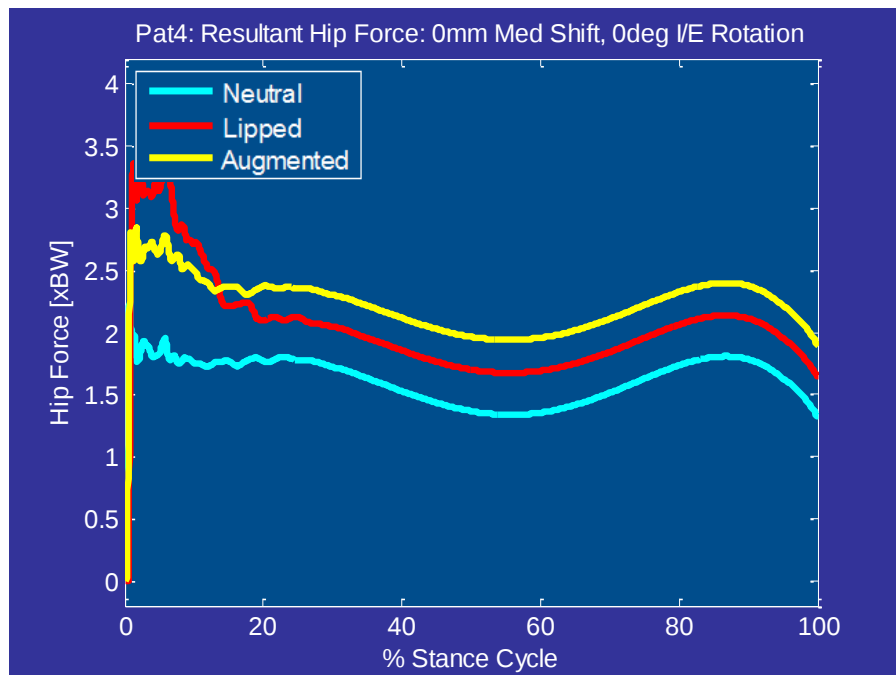


(b)

Figure E54: (a) Hip separation and (b) hip force Pat 3: 5mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

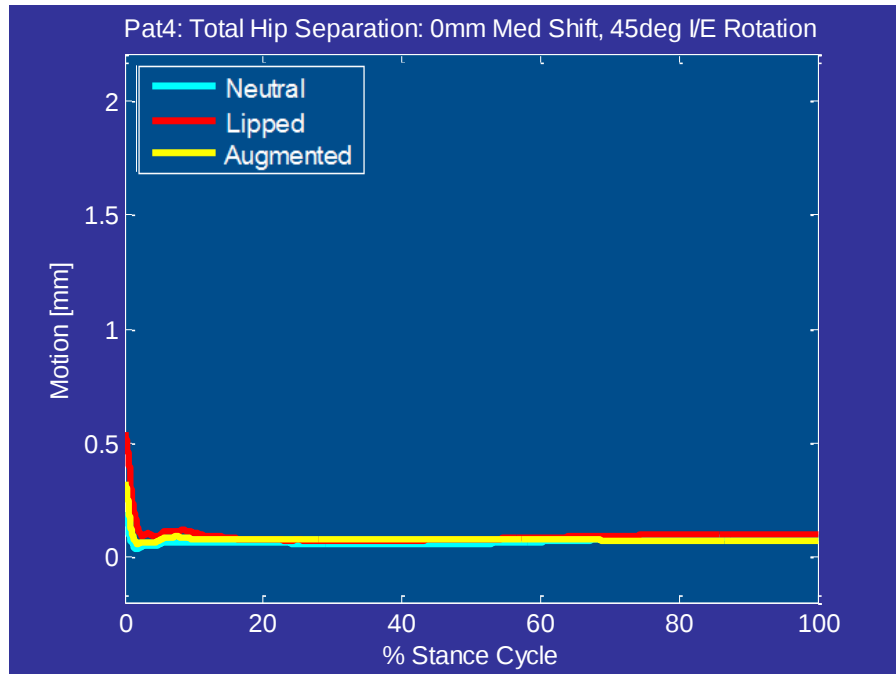


(a)

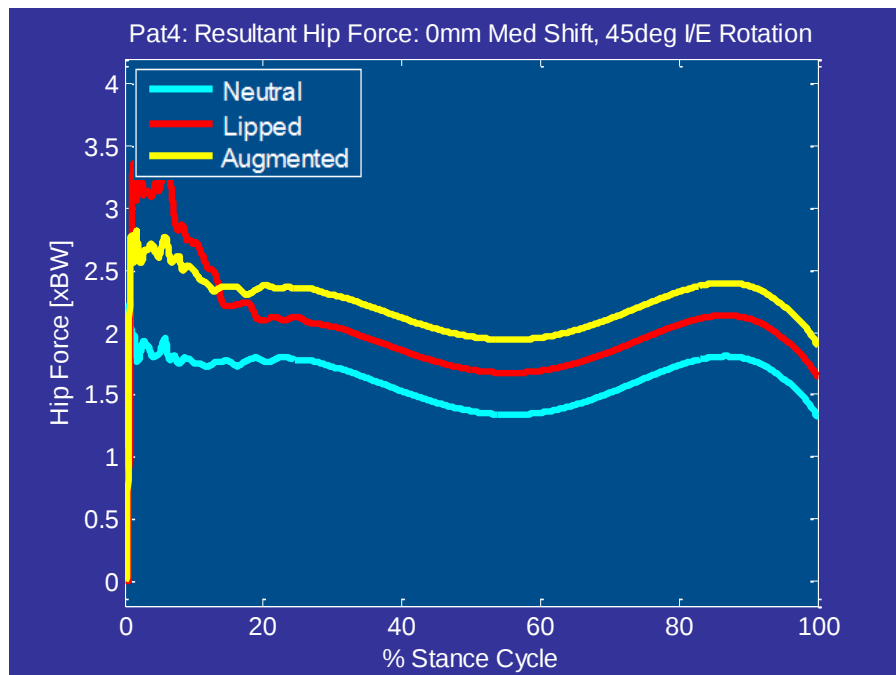


(b)

Figure E55: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

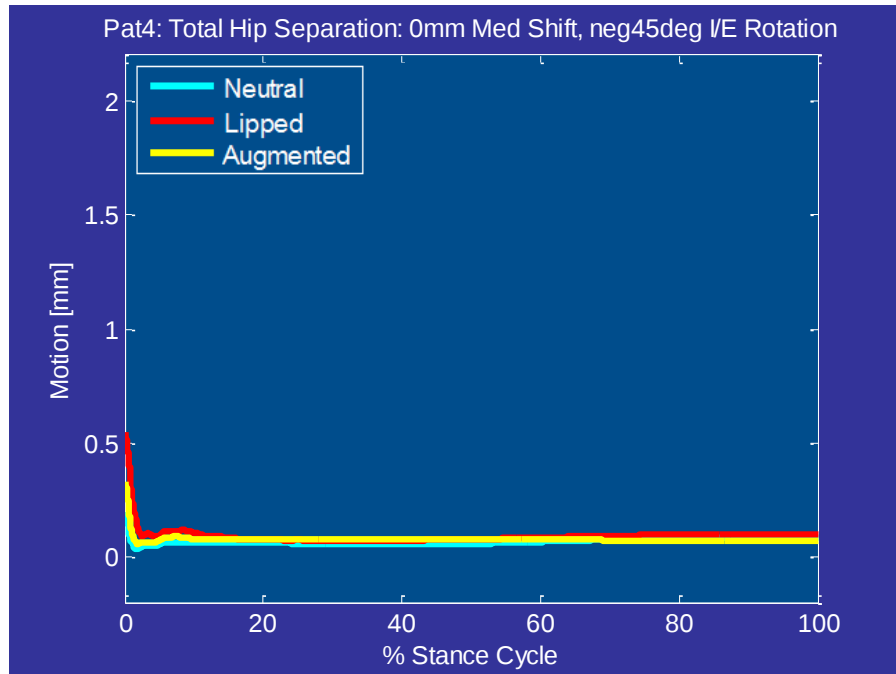


(a)

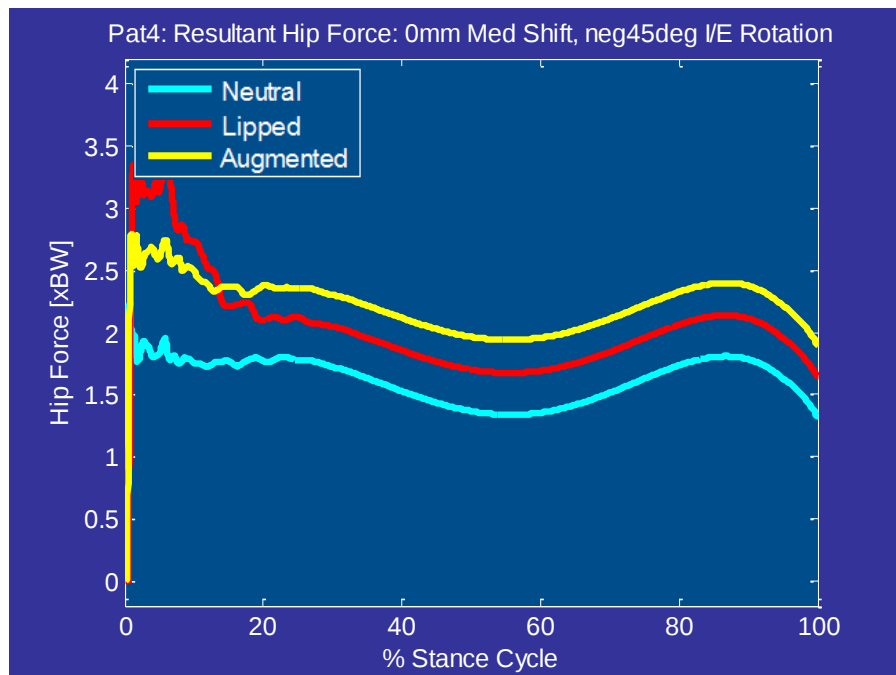


(b)

Figure E56: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

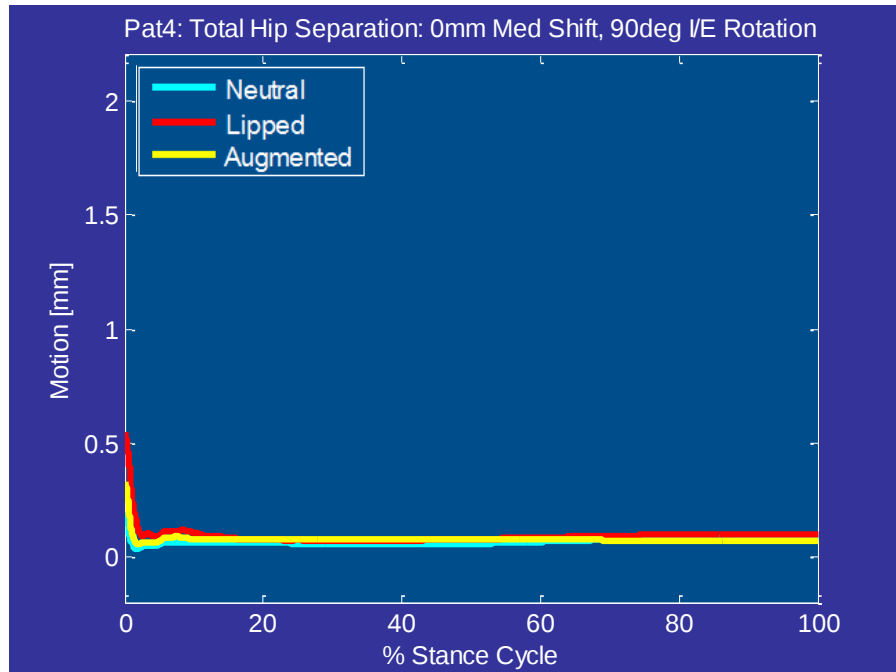


(a)

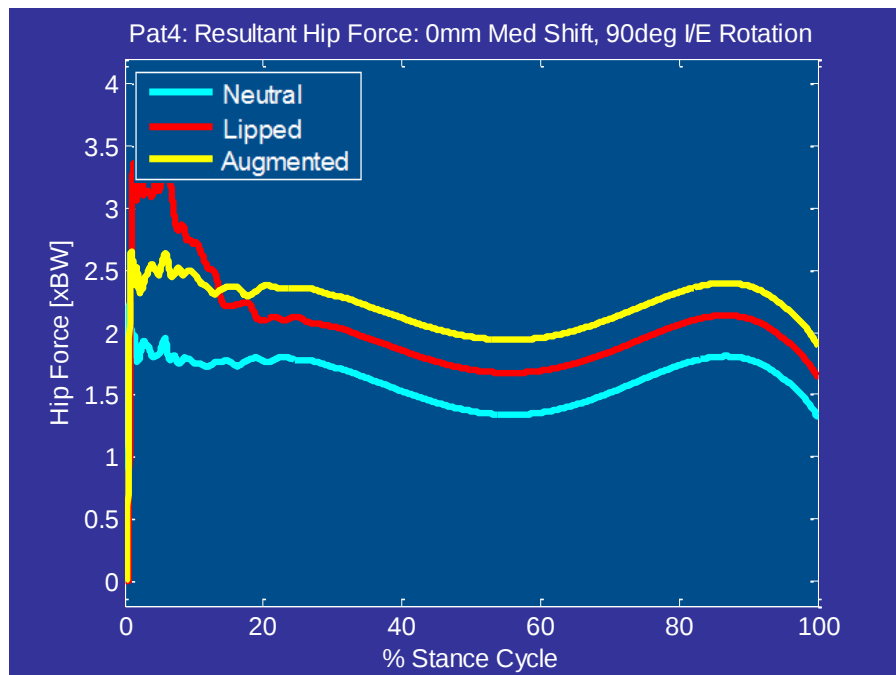


(b)

Figure E57: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

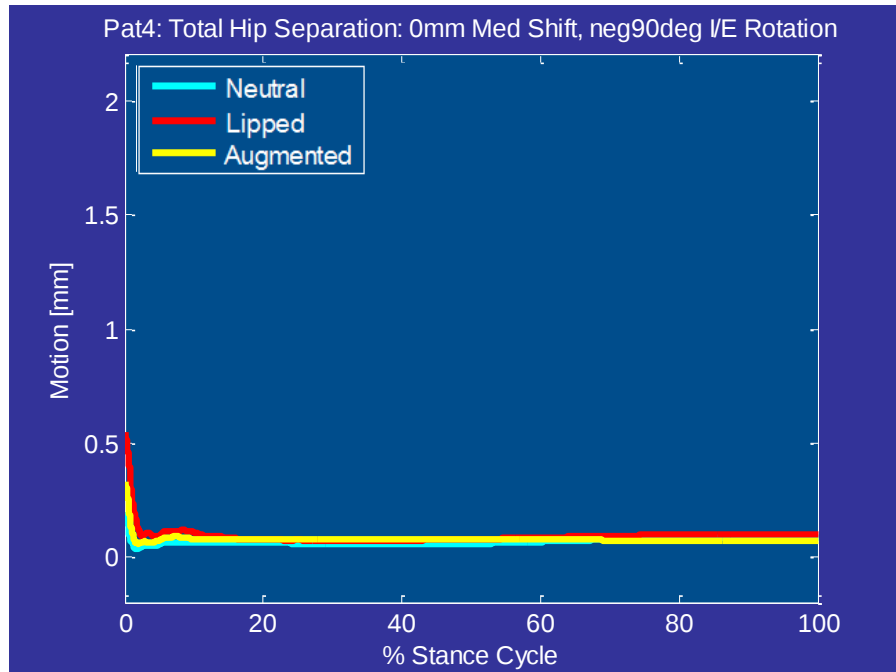


(a)

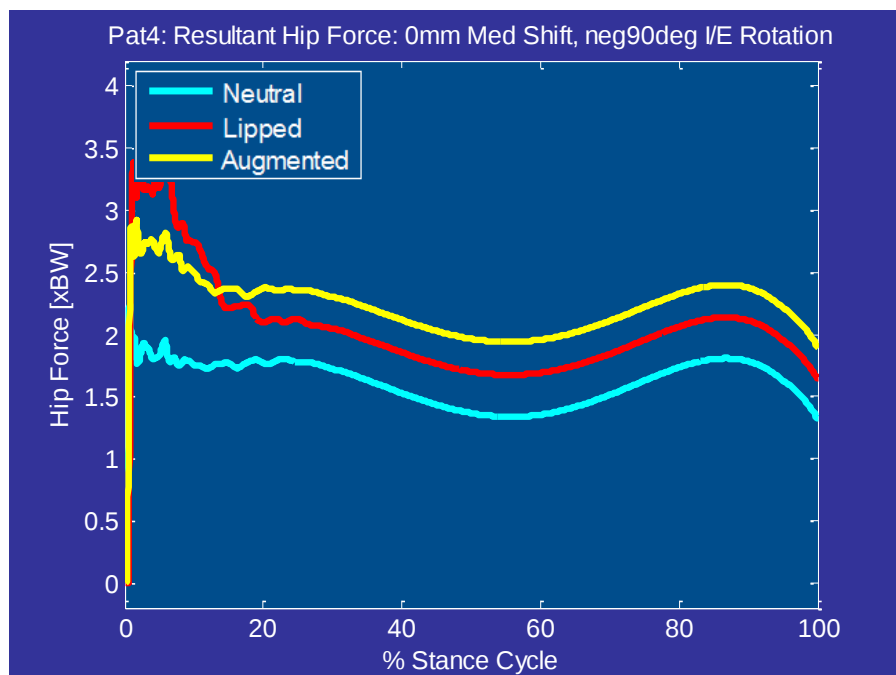


(b)

Figure E58: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

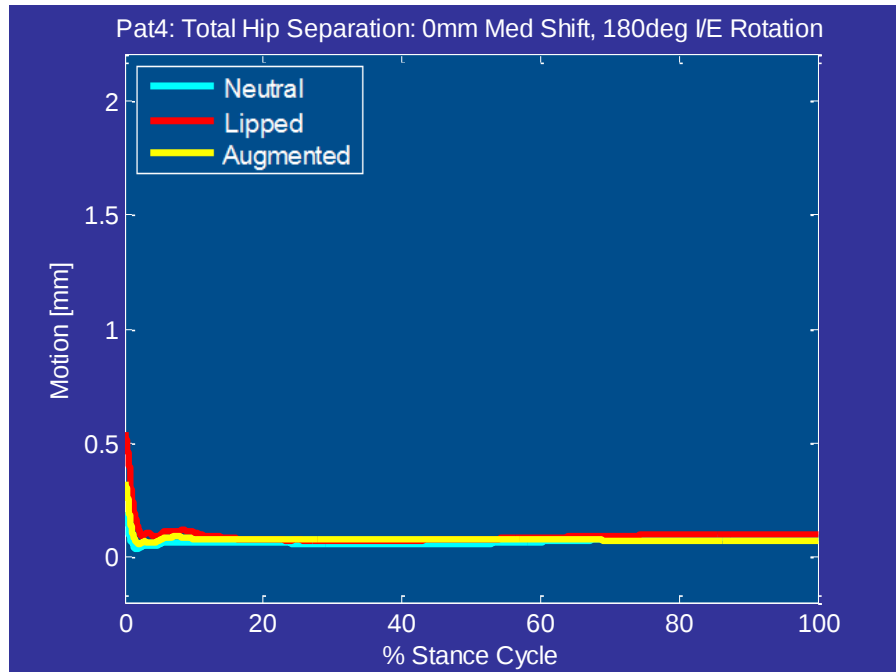


(a)

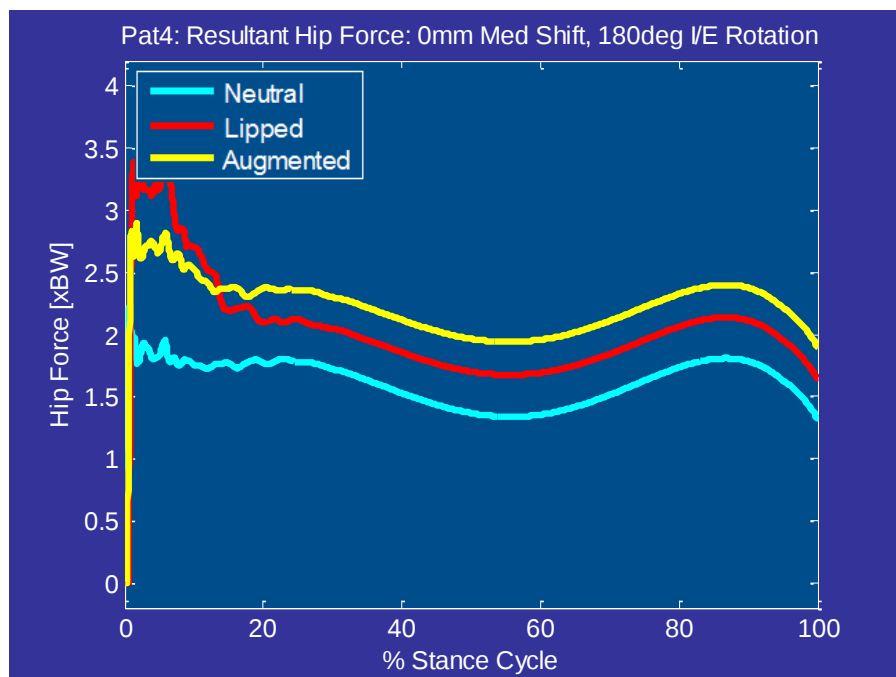


(b)

Figure E59: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

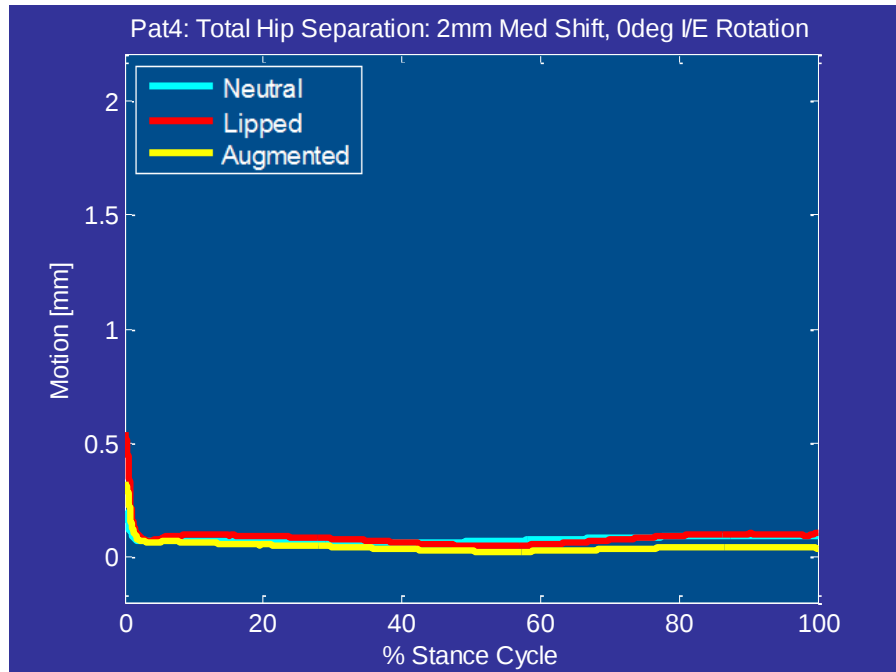


(a)

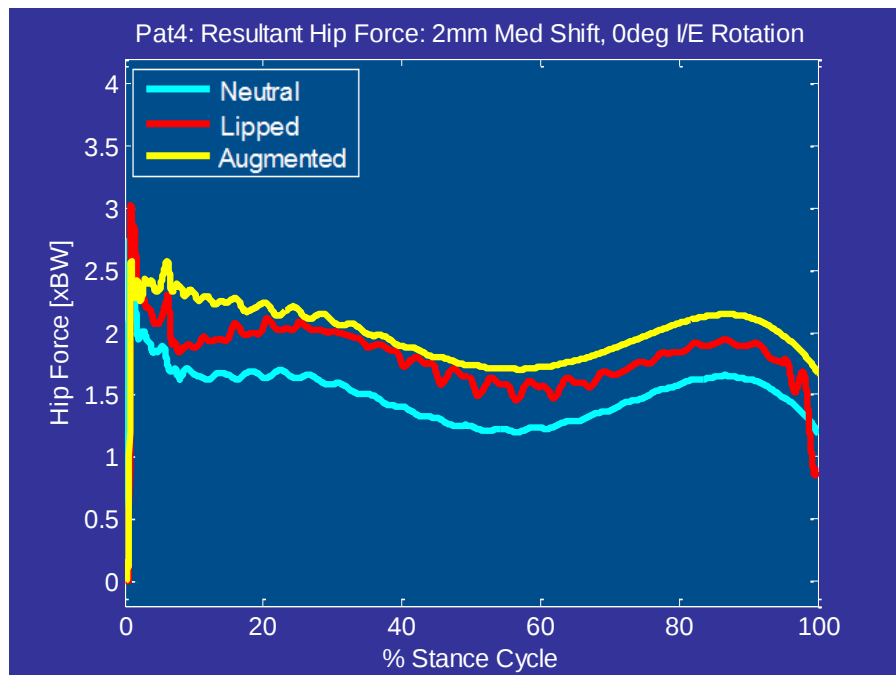


(b)

Figure E60: (a) Hip separation and (b) hip force Pat 4: 0mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

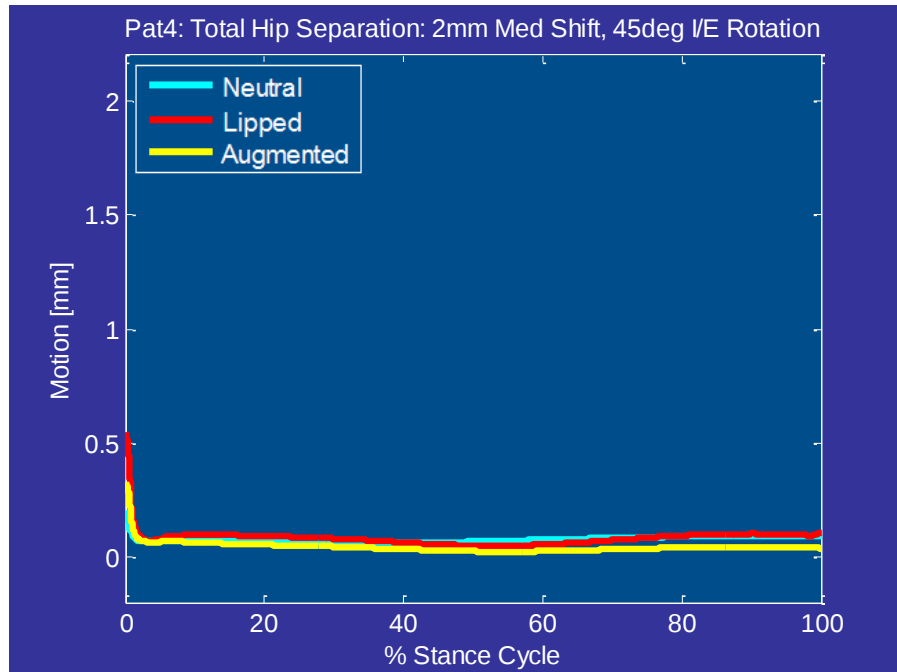


(a)

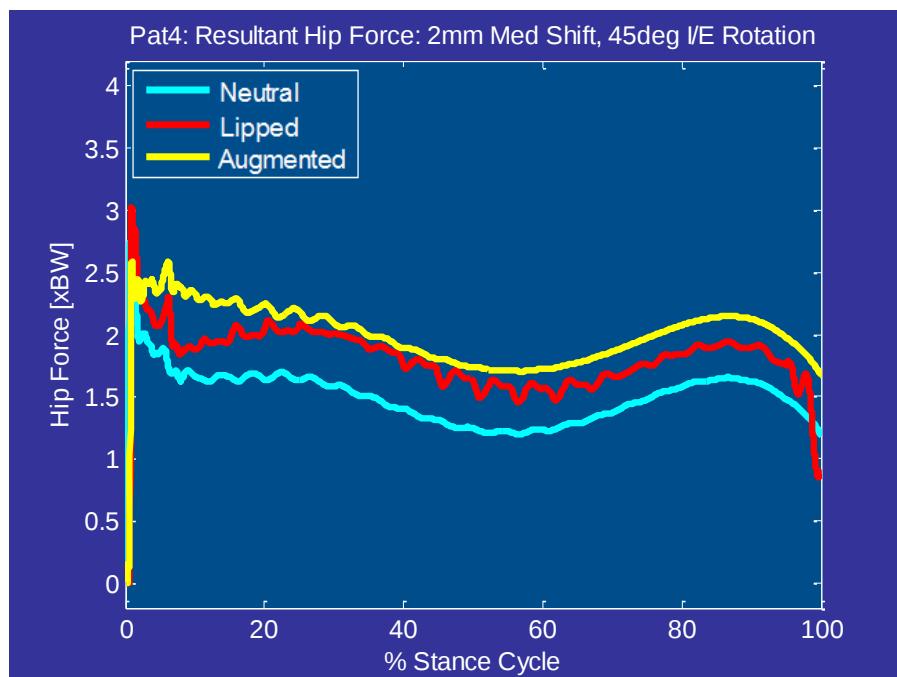


(b)

Figure E61: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

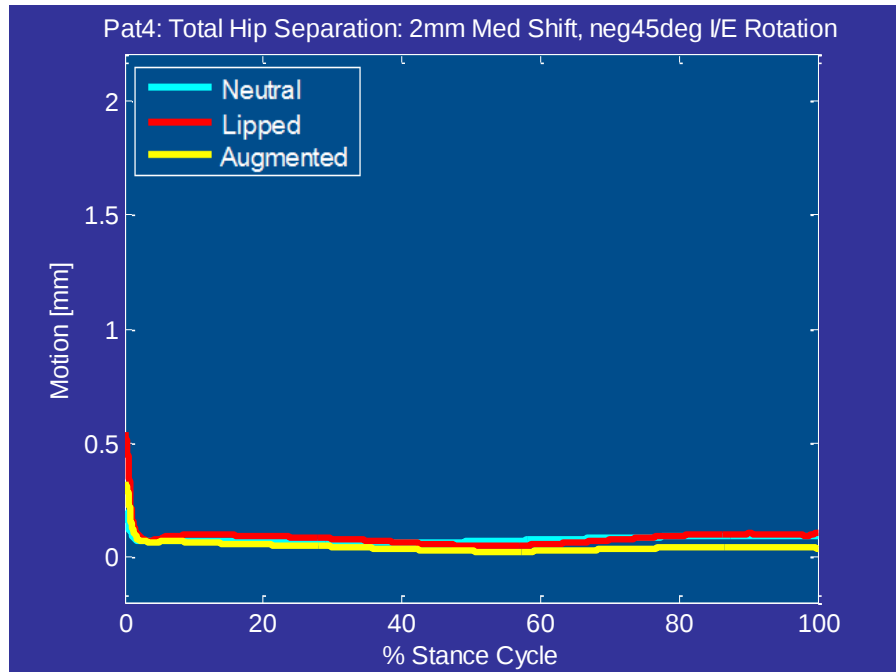


(a)

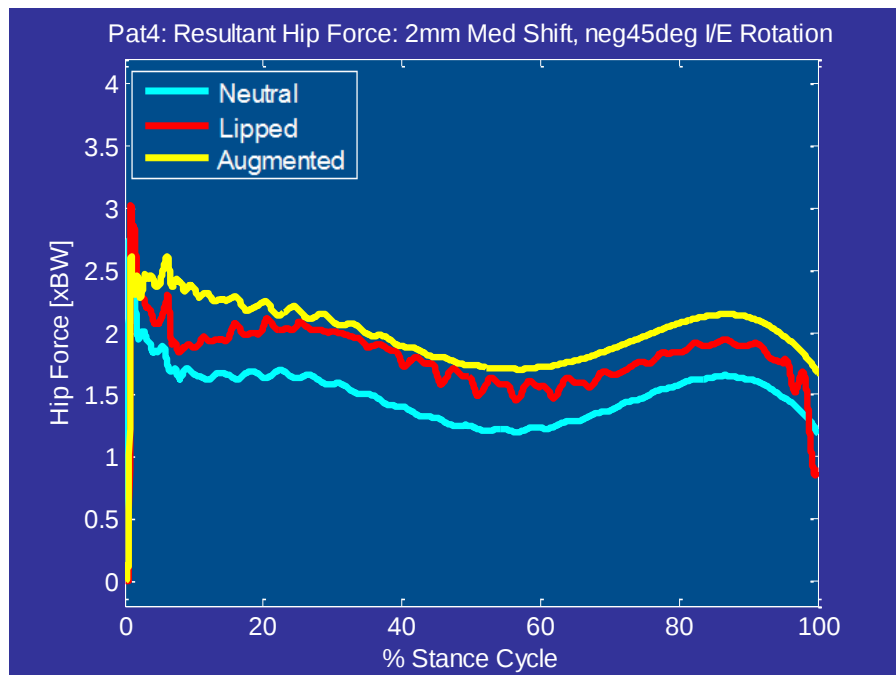


(b)

Figure E62: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

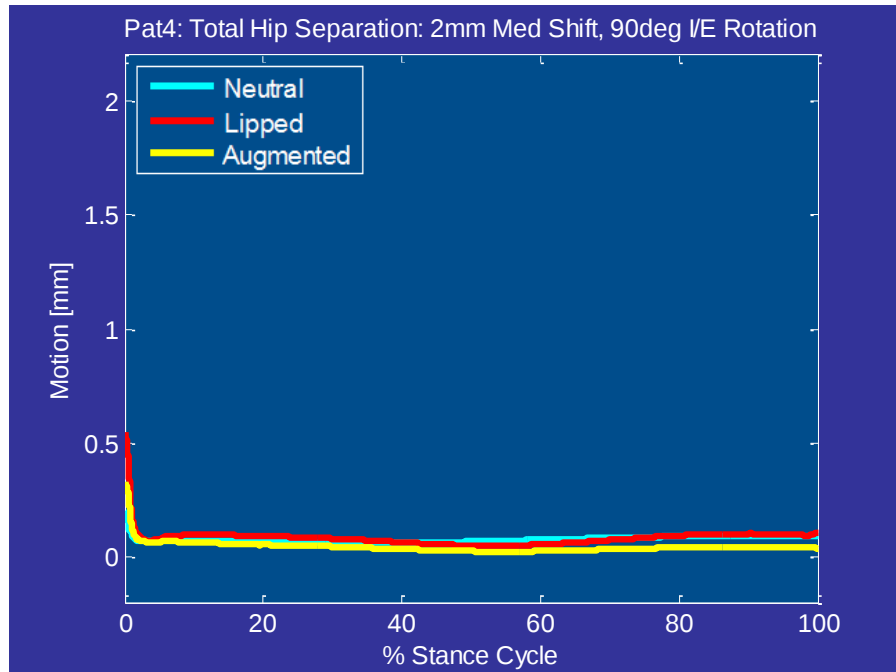


(a)

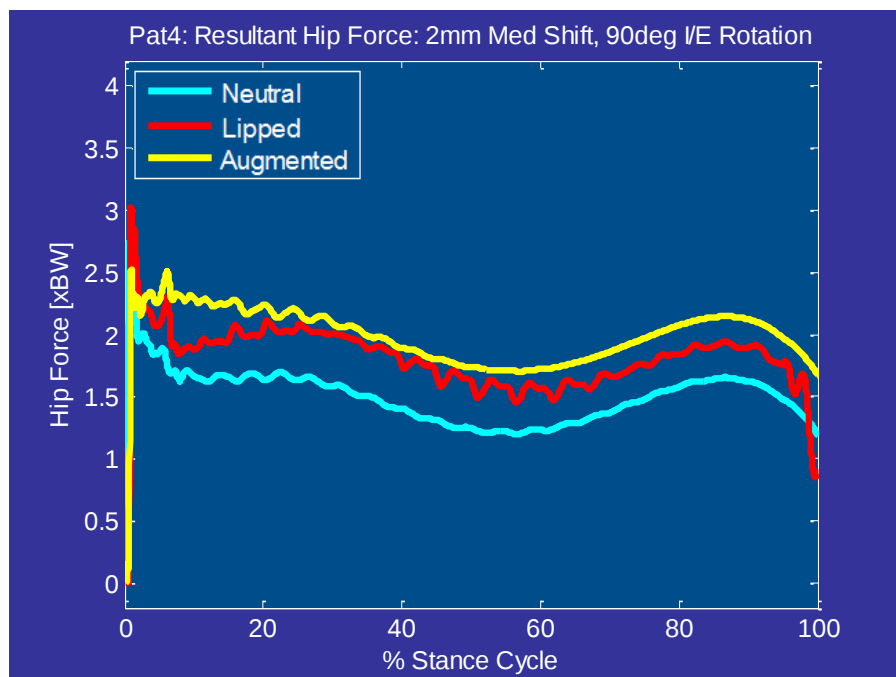


(b)

Figure E63: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

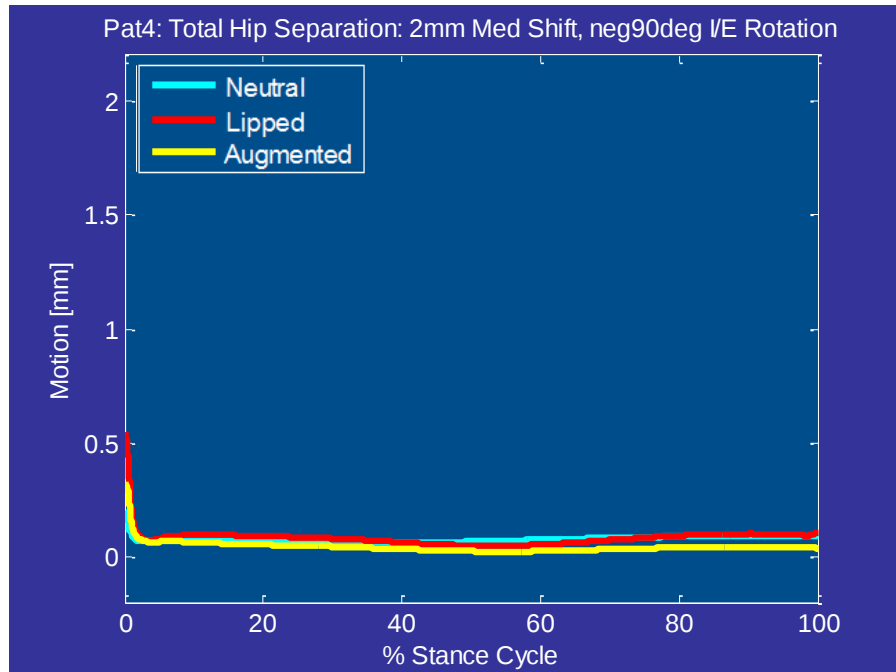


(a)

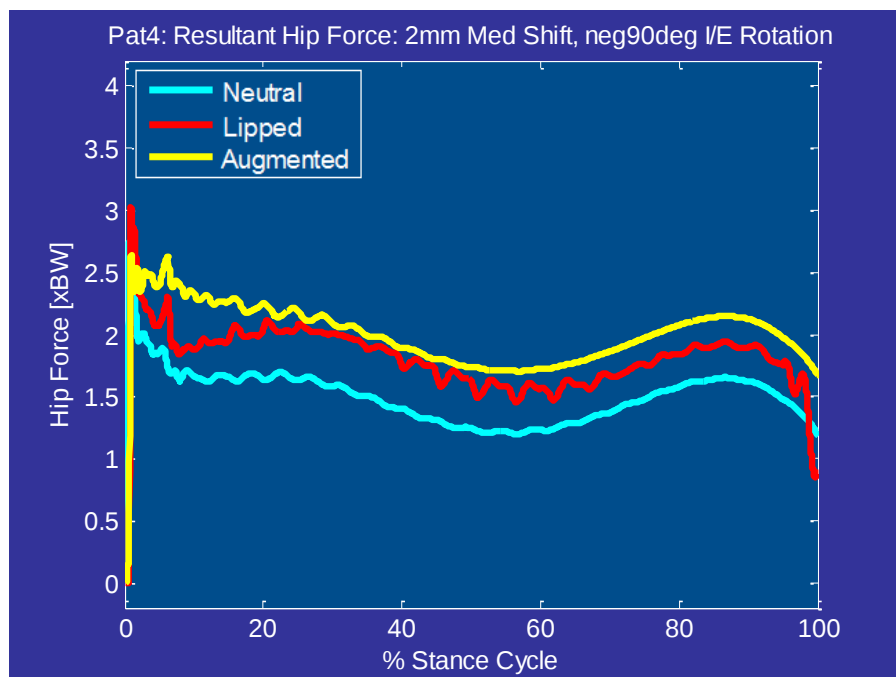


(b)

Figure E64: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

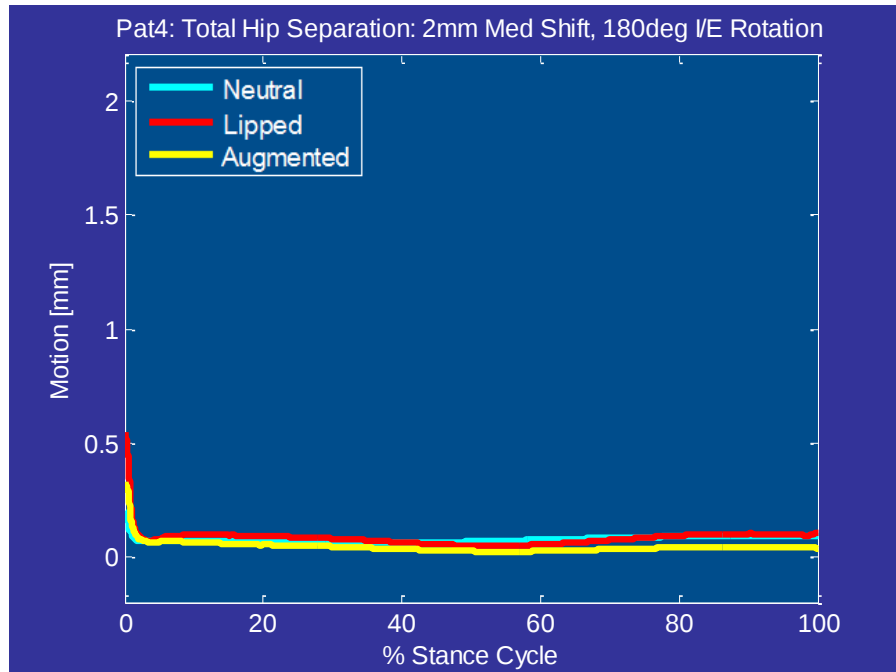


(a)

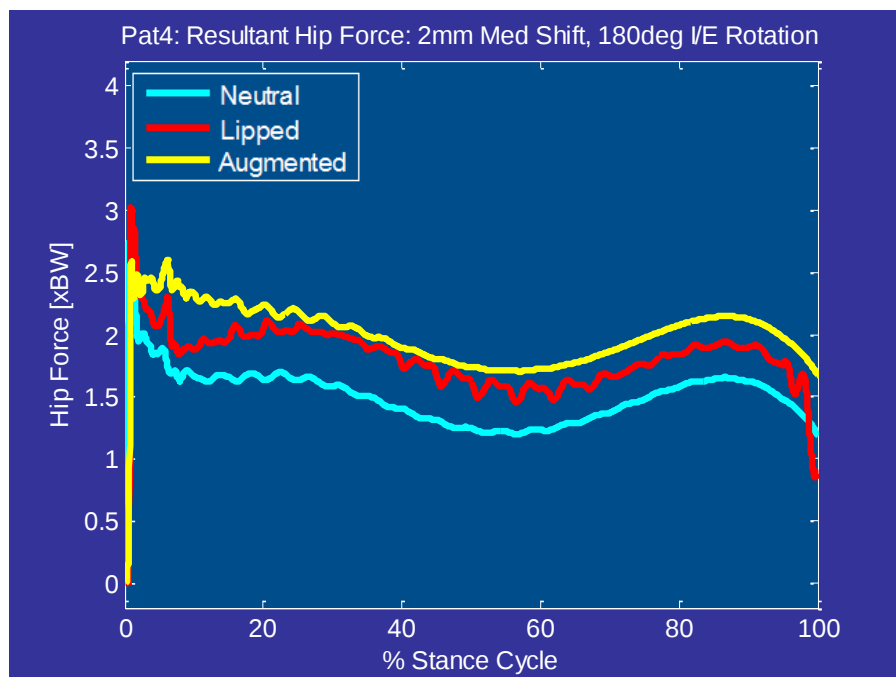


(b)

Figure E65: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

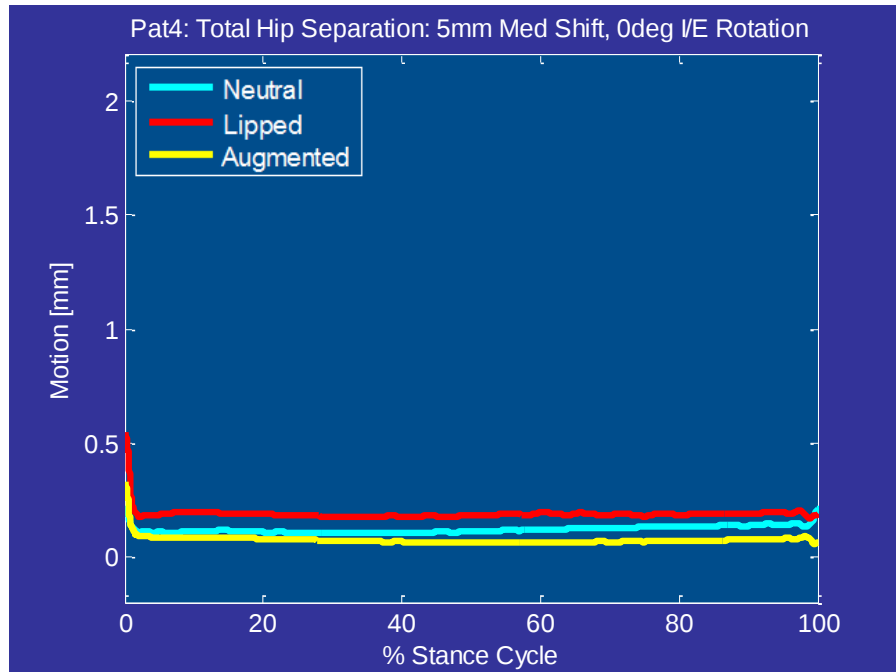


(a)

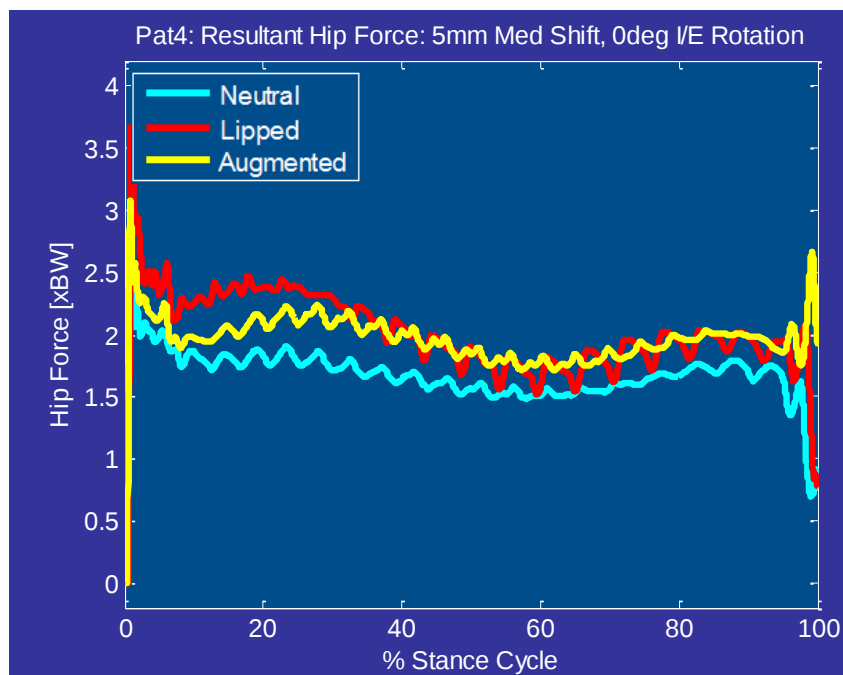


(b)

Figure E66: (a) Hip separation and (b) hip force Pat 4: 2mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

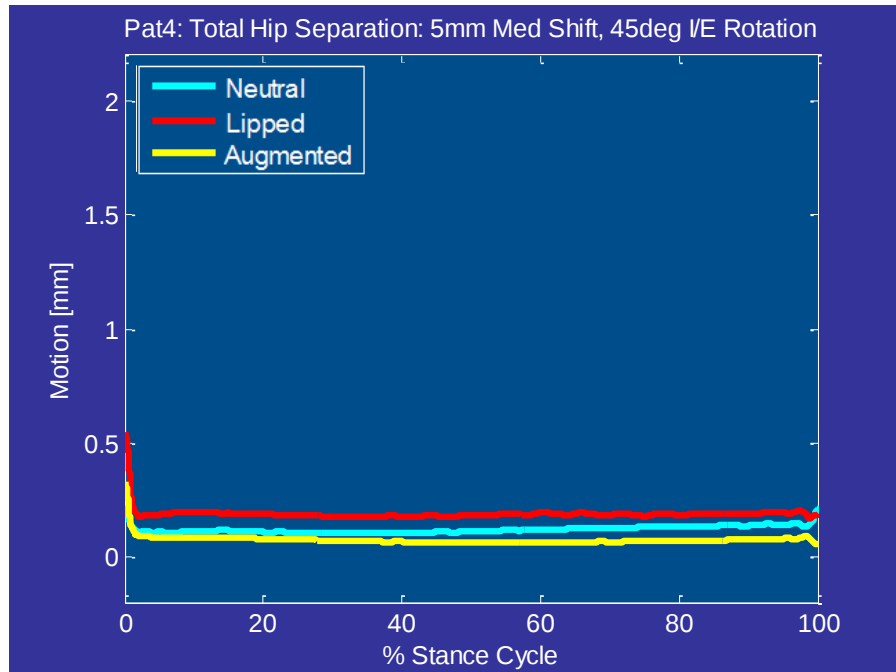


(a)

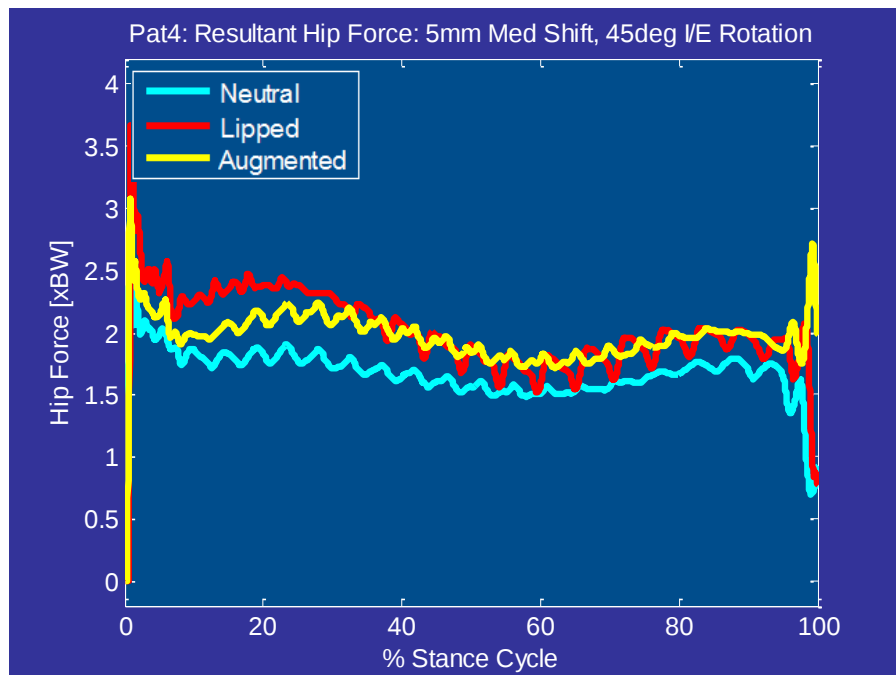


(b)

Figure E67: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

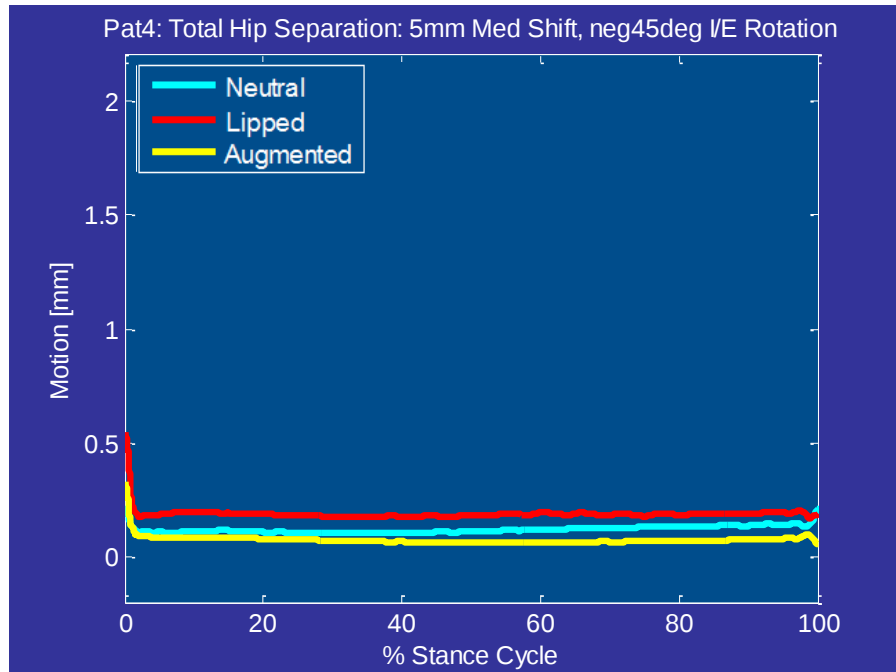


(a)

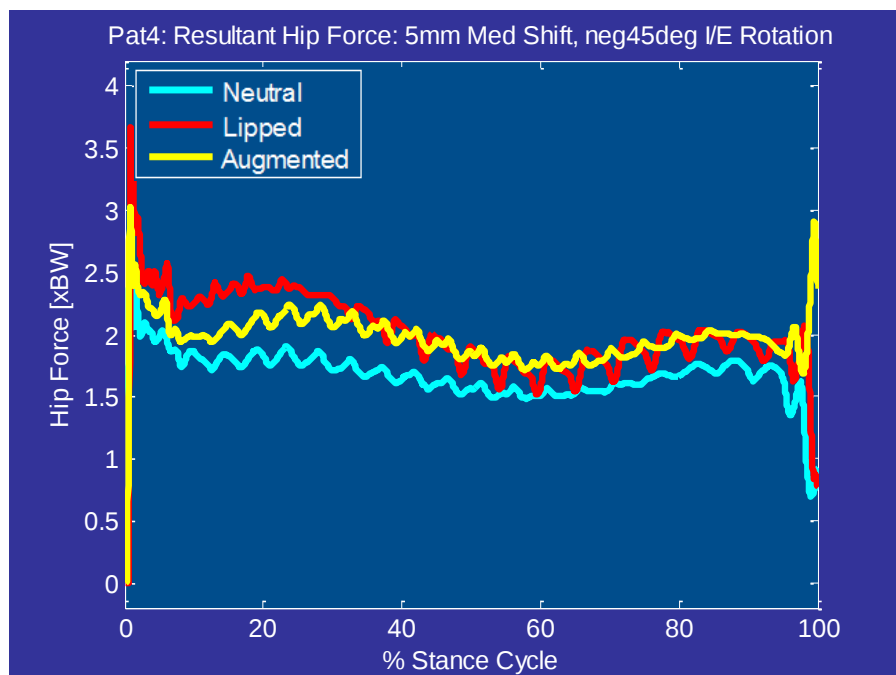


(b)

Figure E68: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

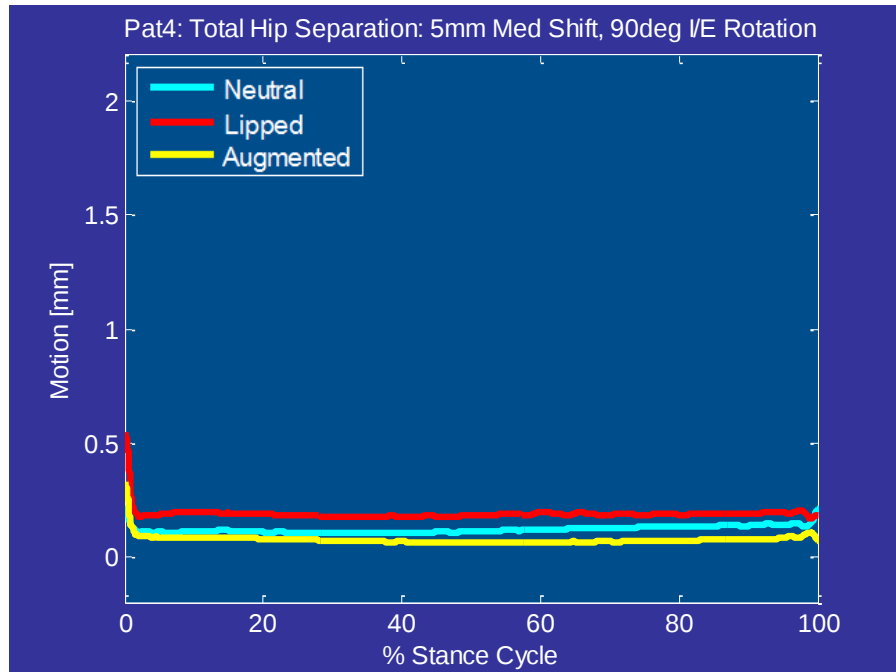


(a)

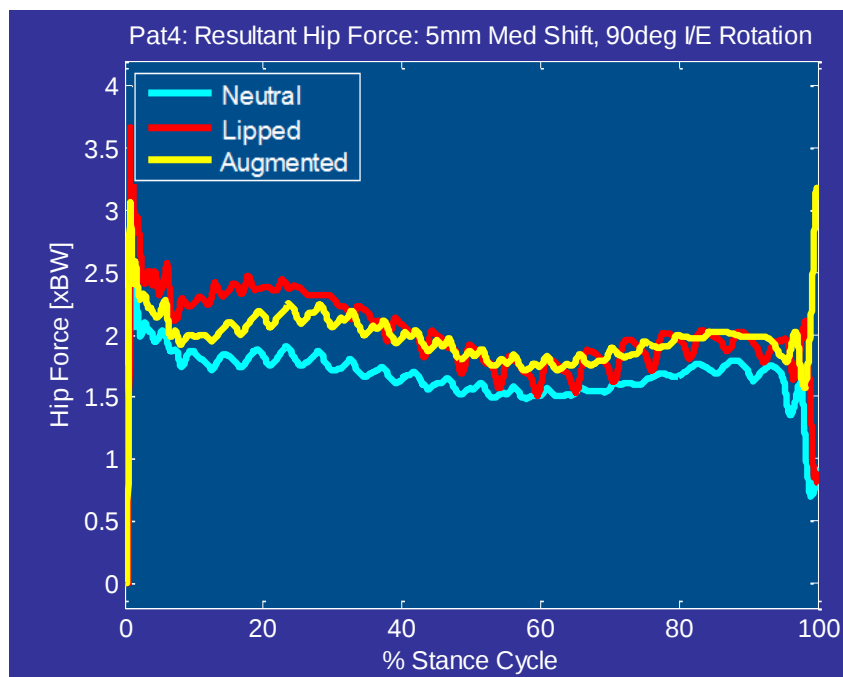


(b)

Figure E69: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

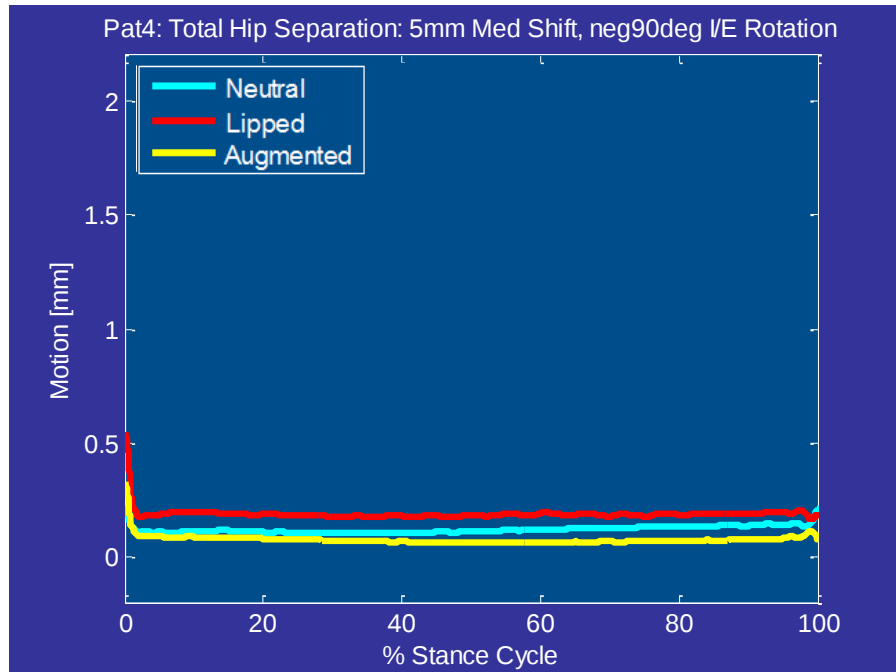


(a)

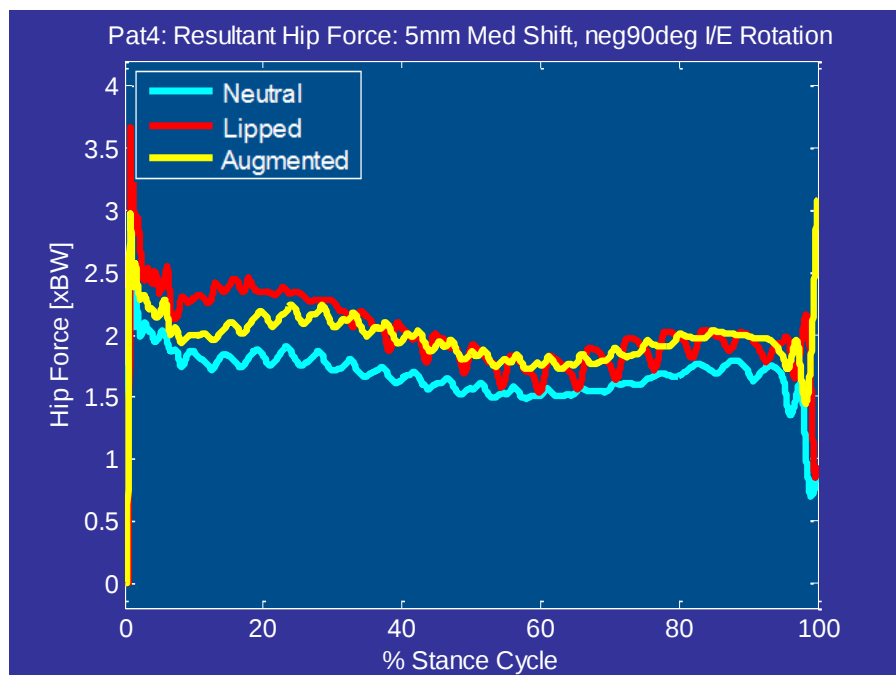


(b)

Figure E70: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

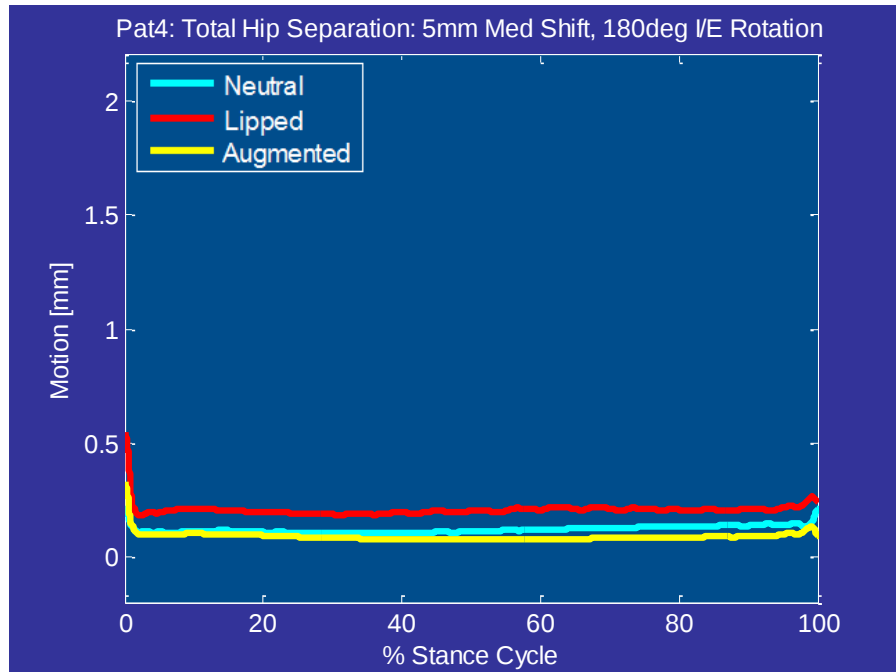


(a)

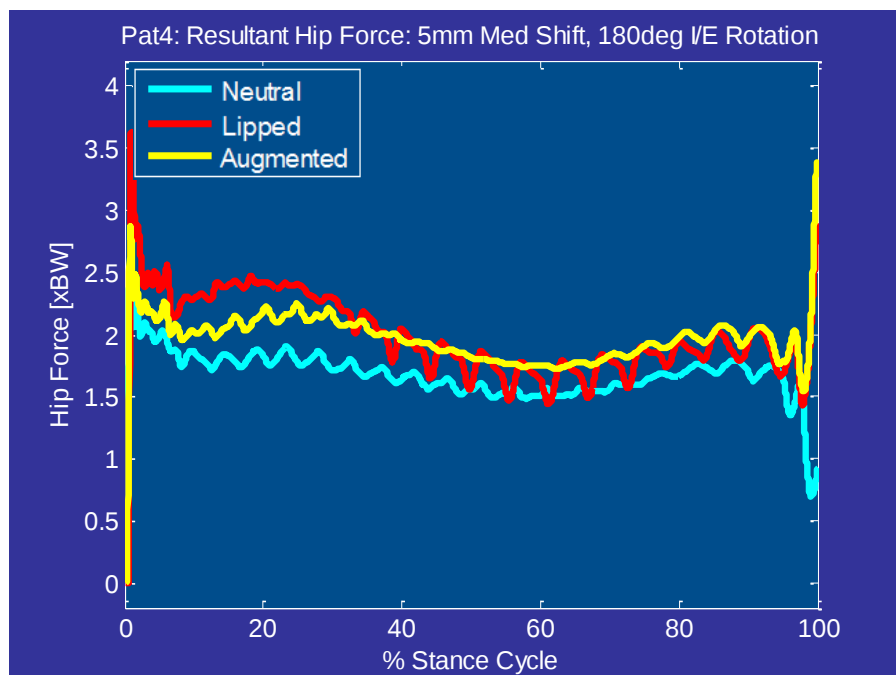


(b)

Figure E71: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

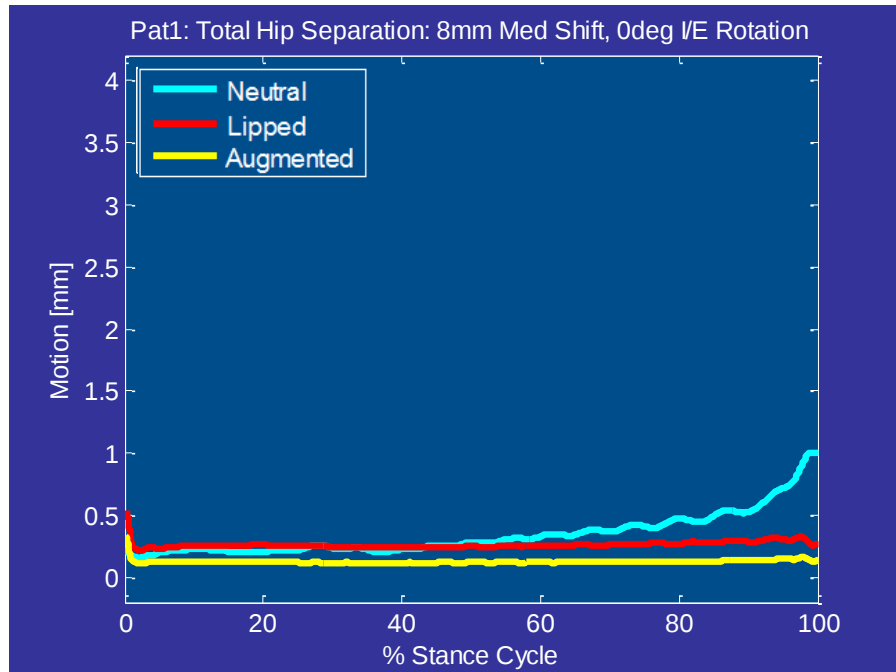


(a)

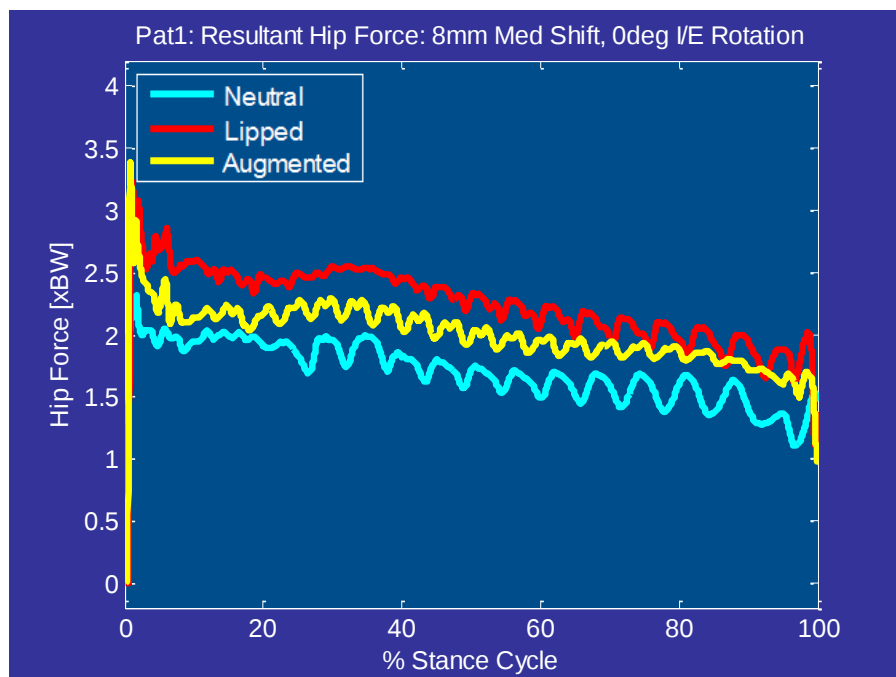


(b)

Figure E72: (a) Hip separation and (b) hip force Pat 4: 5mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

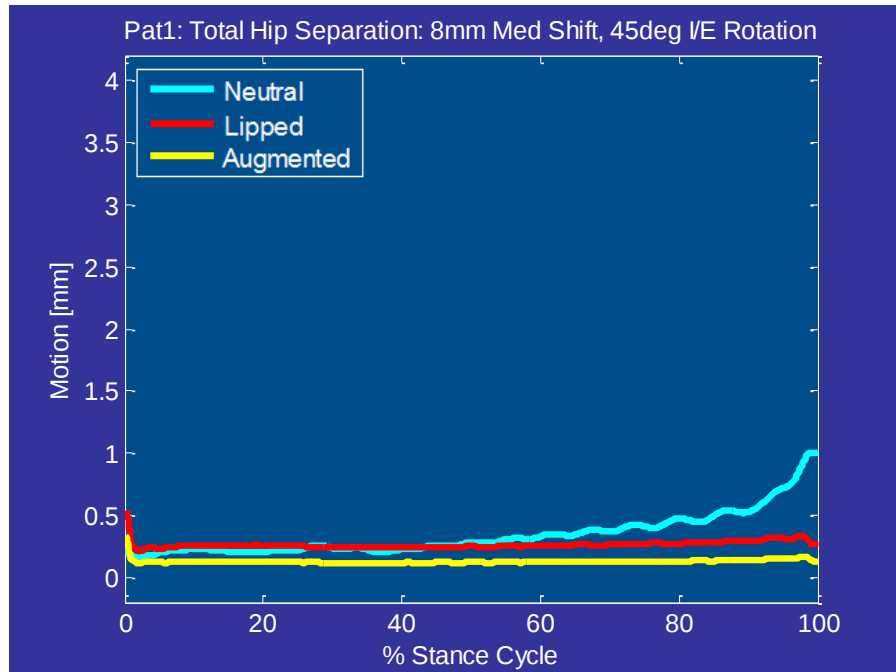


(a)

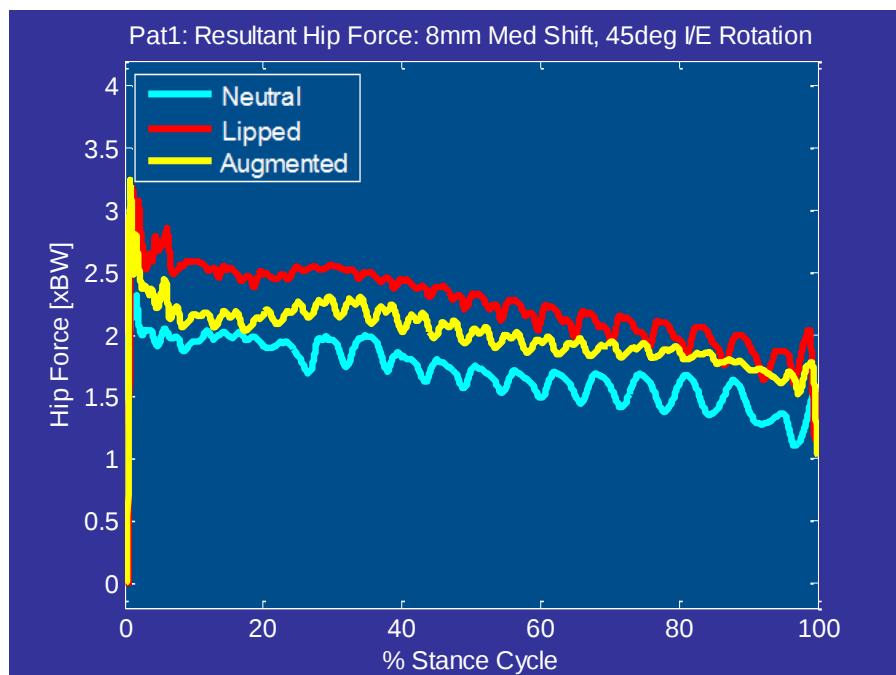


(b)

Figure E73: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

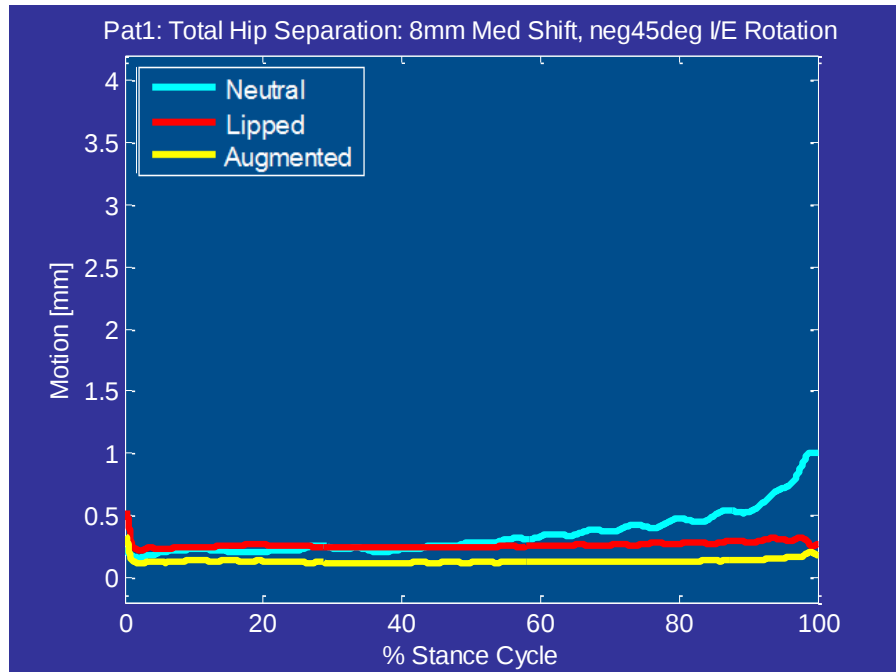


(a)



(b)

Figure E74: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

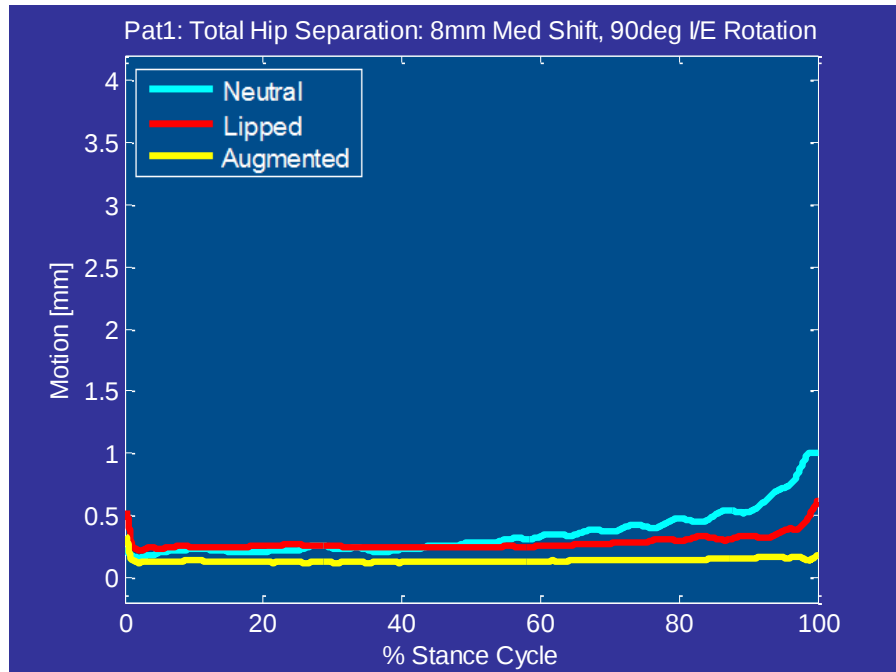


(a)

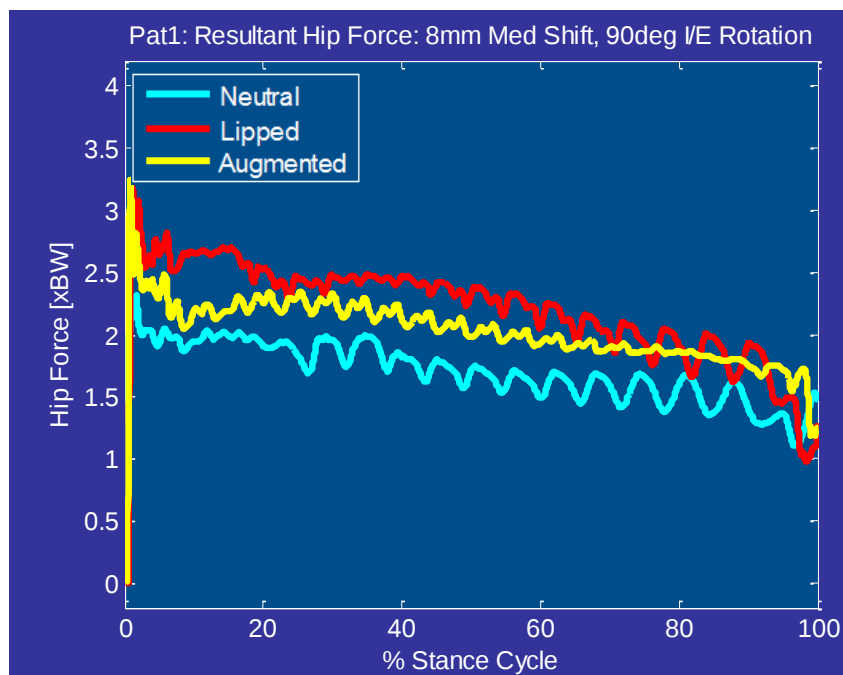


(b)

Figure E75: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

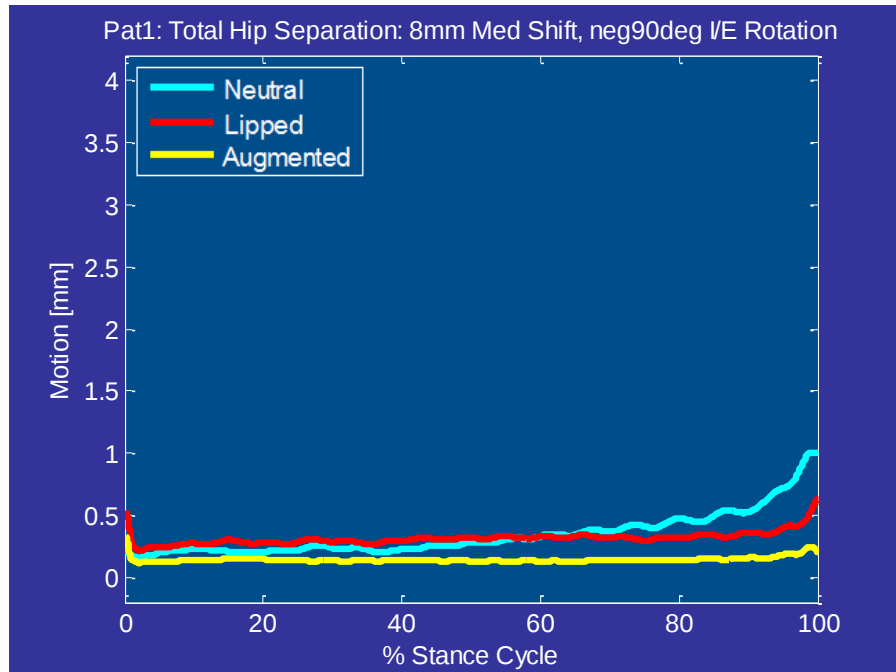


(a)

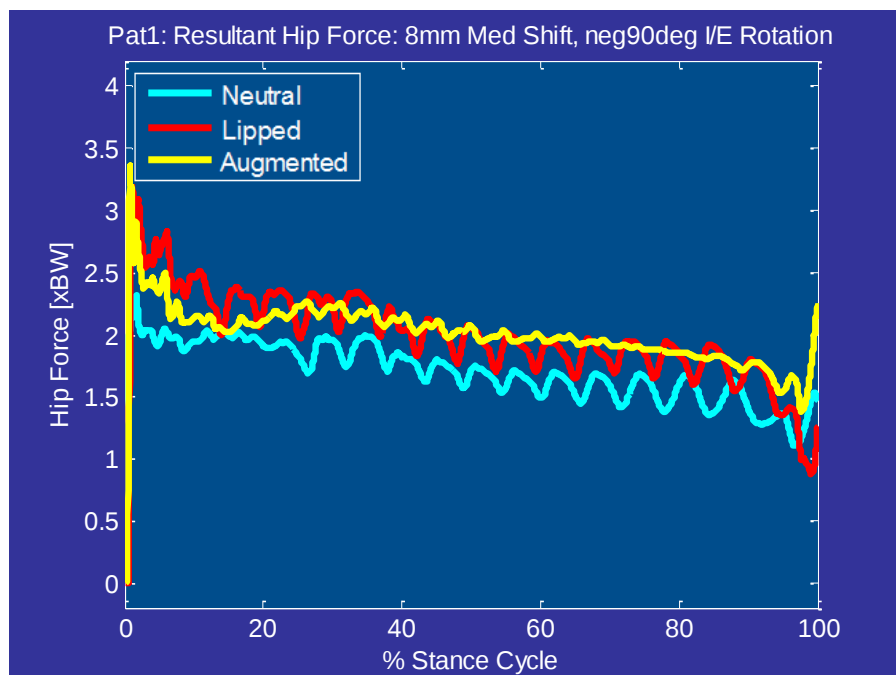


(b)

Figure E76: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

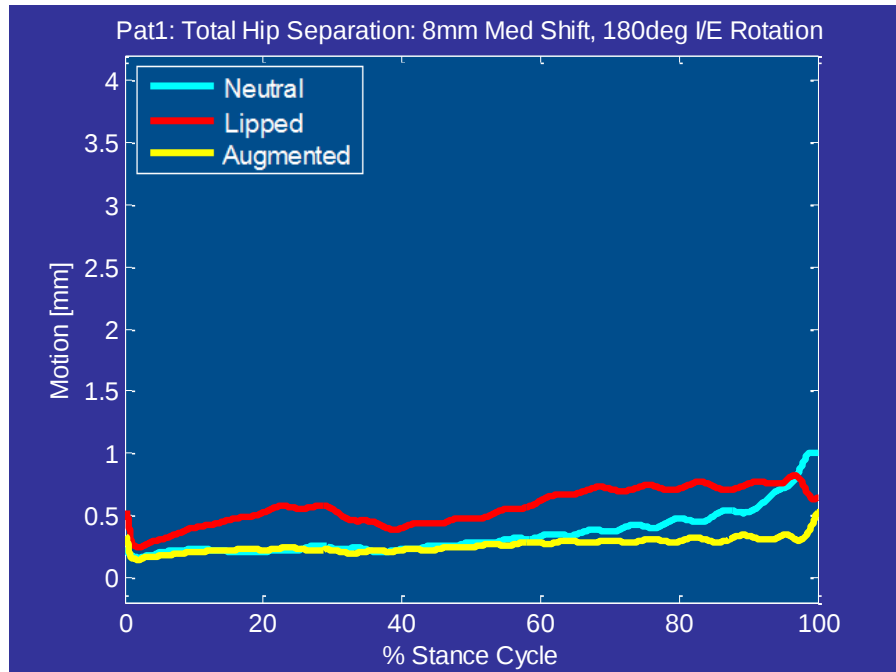


(a)

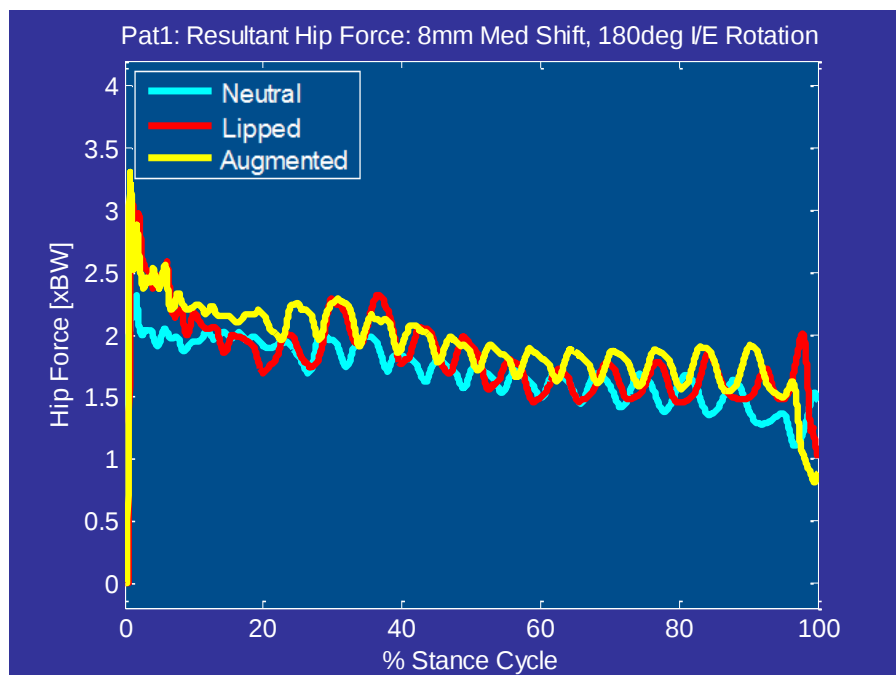


(b)

Figure E77: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

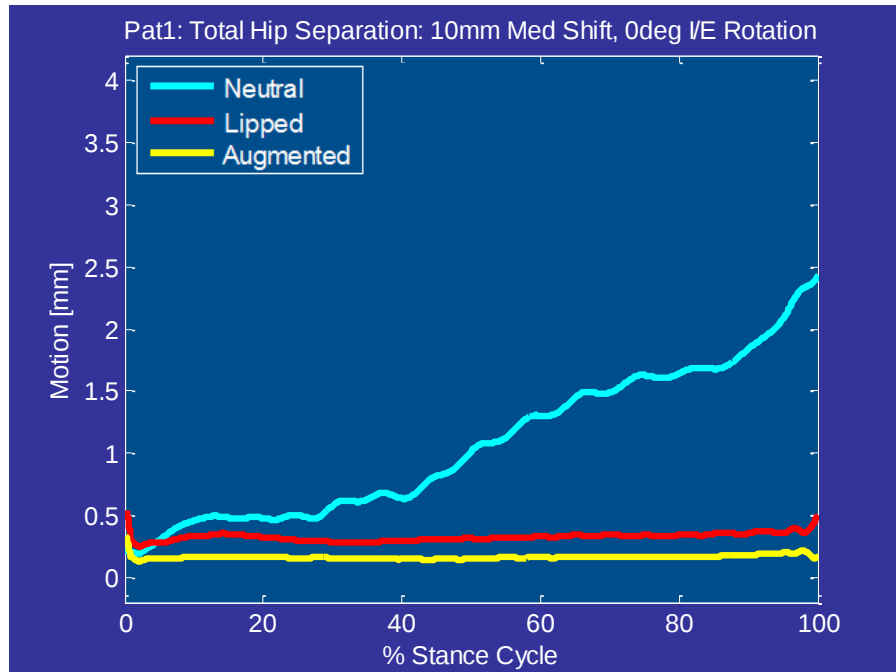


(a)

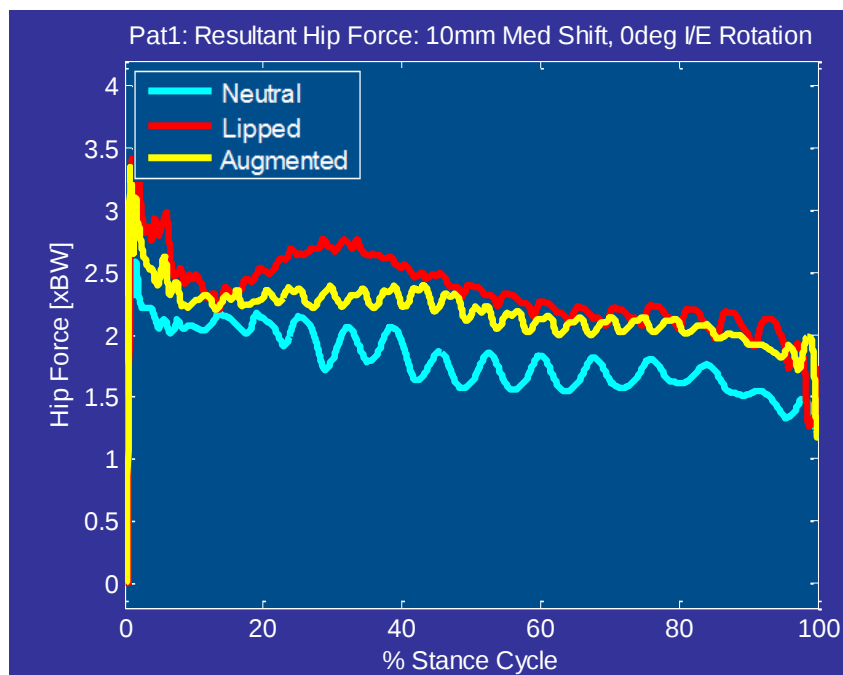


(b)

Figure E78: (a) Hip separation and (b) hip force Pat 1: 8mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

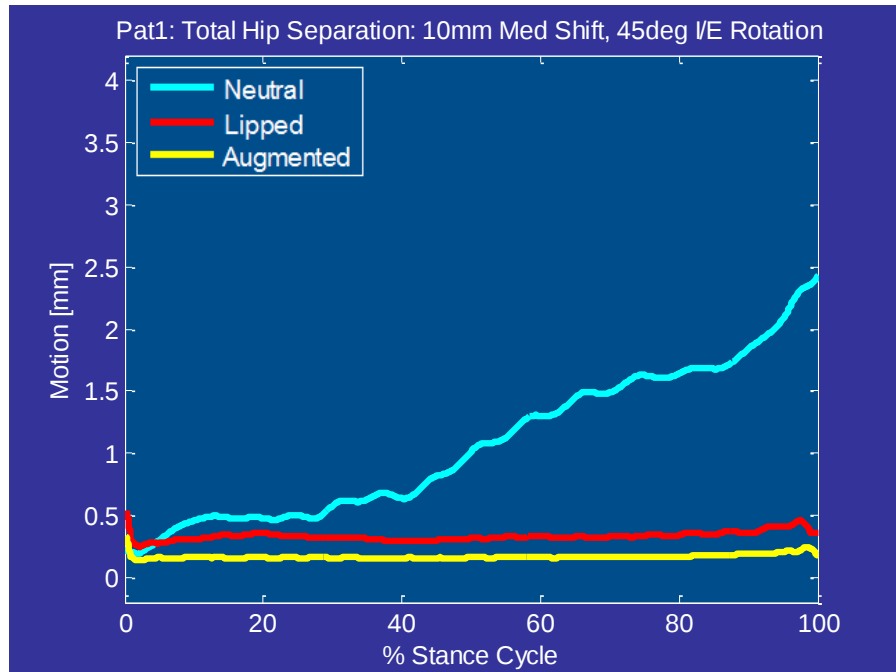


(a)

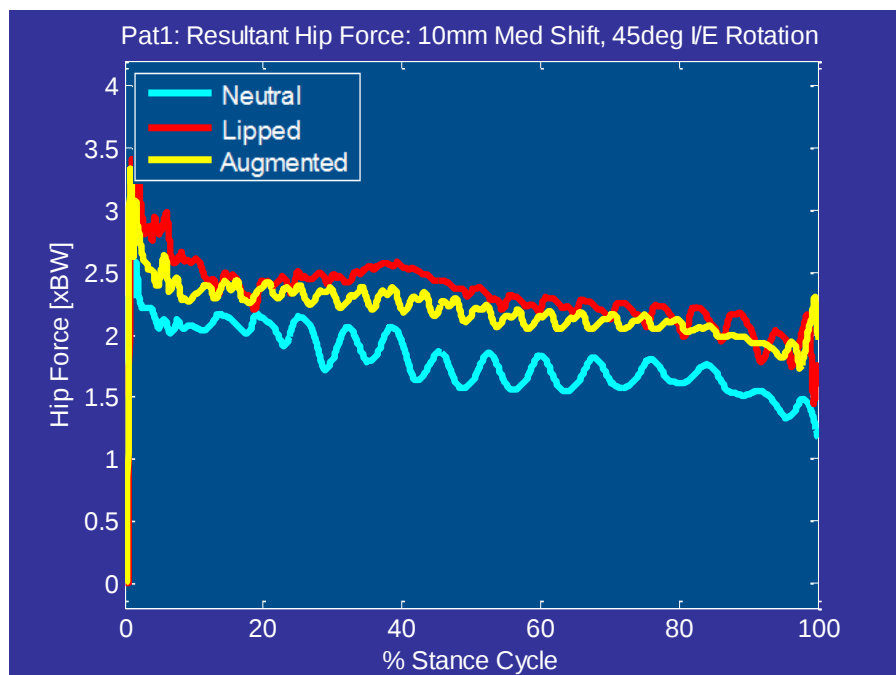


(b)

Figure E79: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

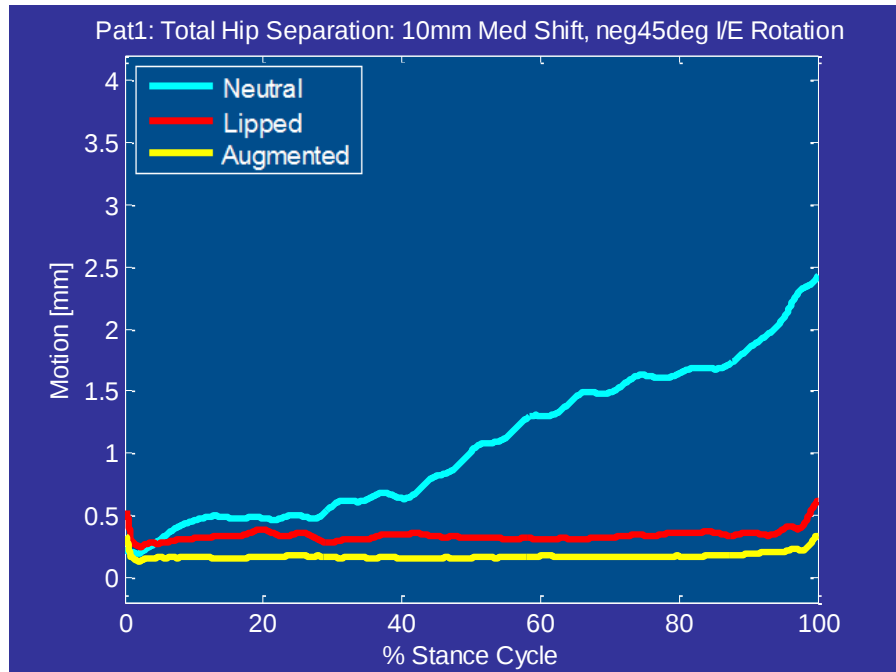


(a)

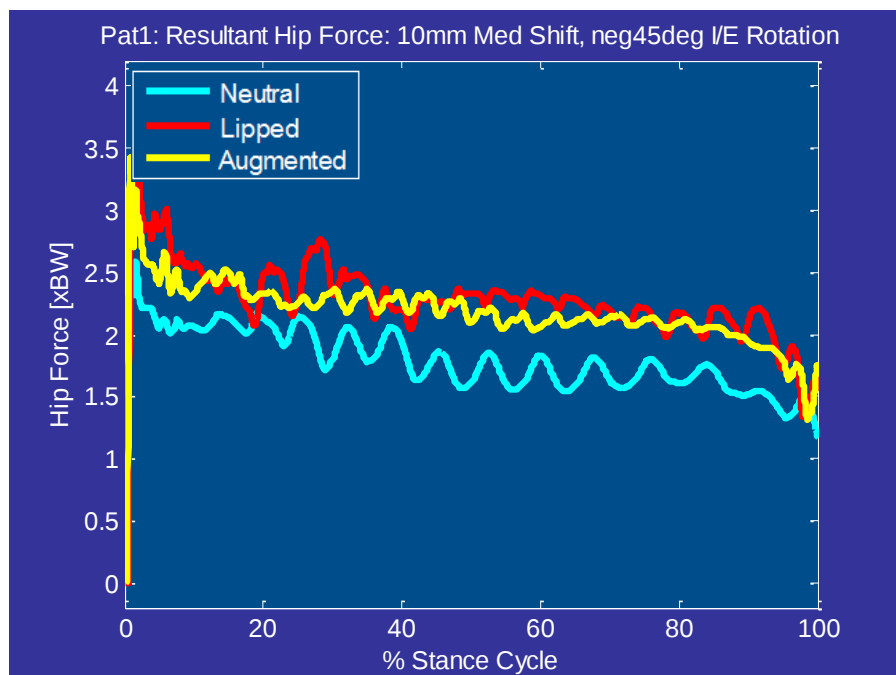


(b)

Figure E80: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

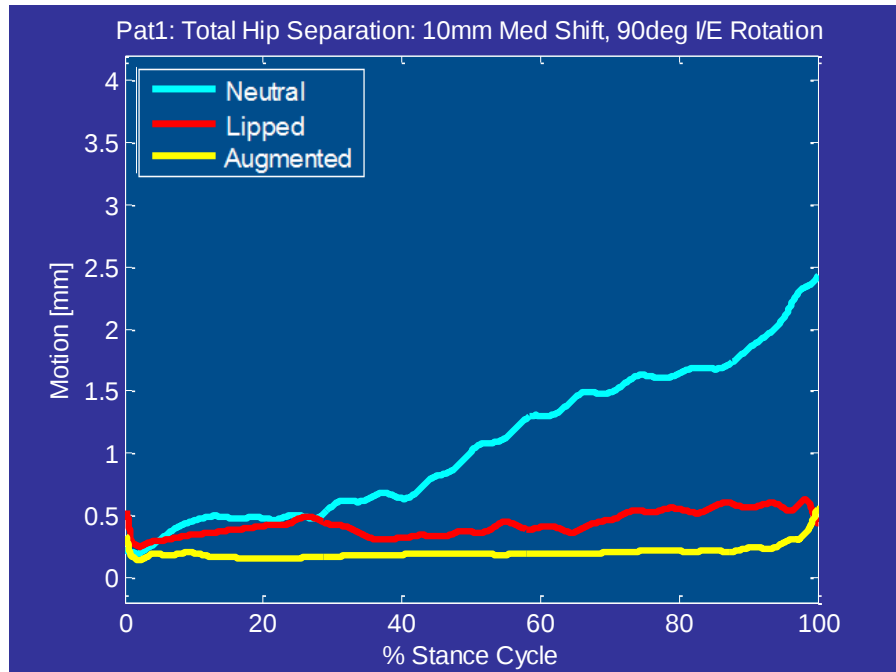


(a)

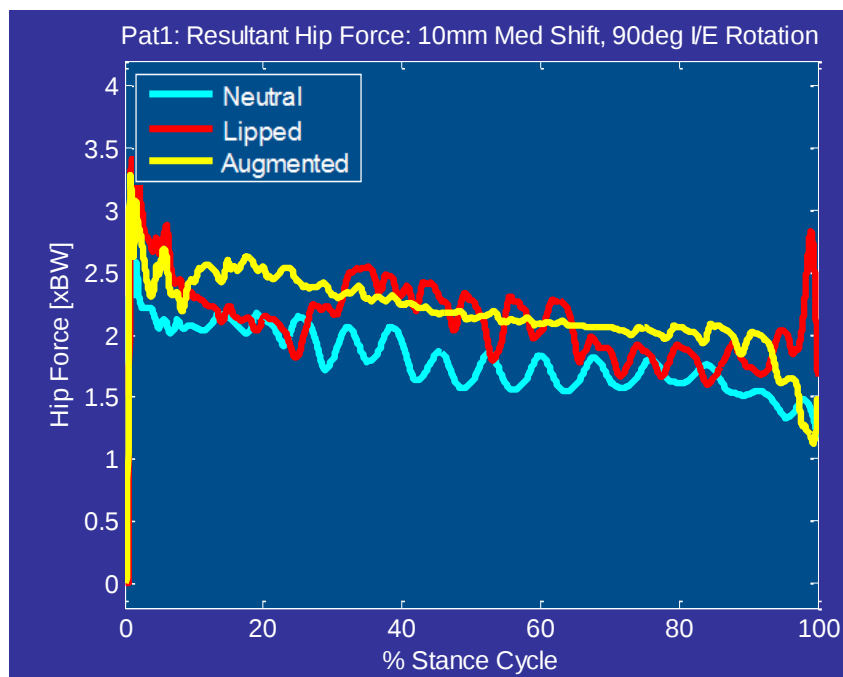


(b)

Figure E81: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

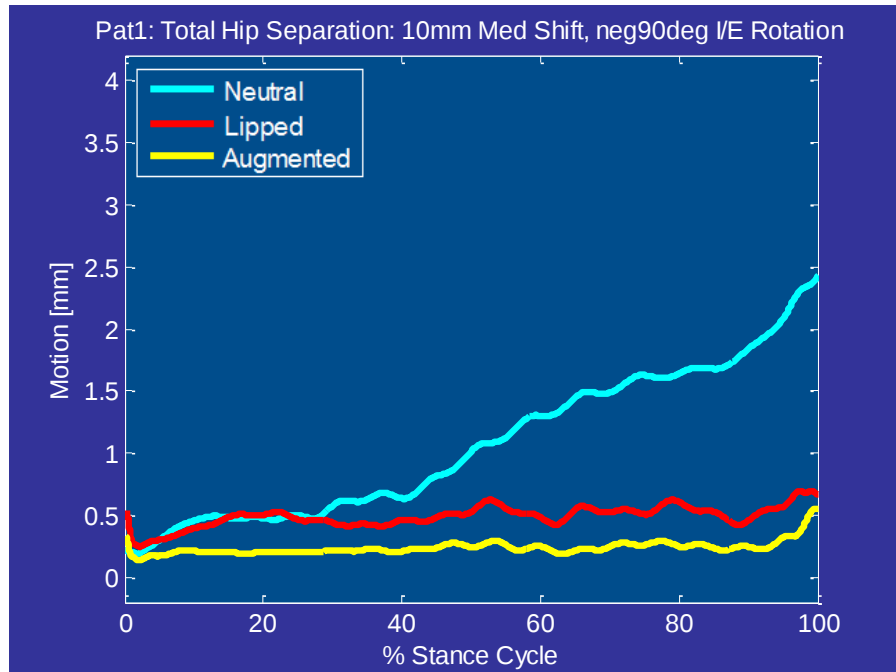


(a)

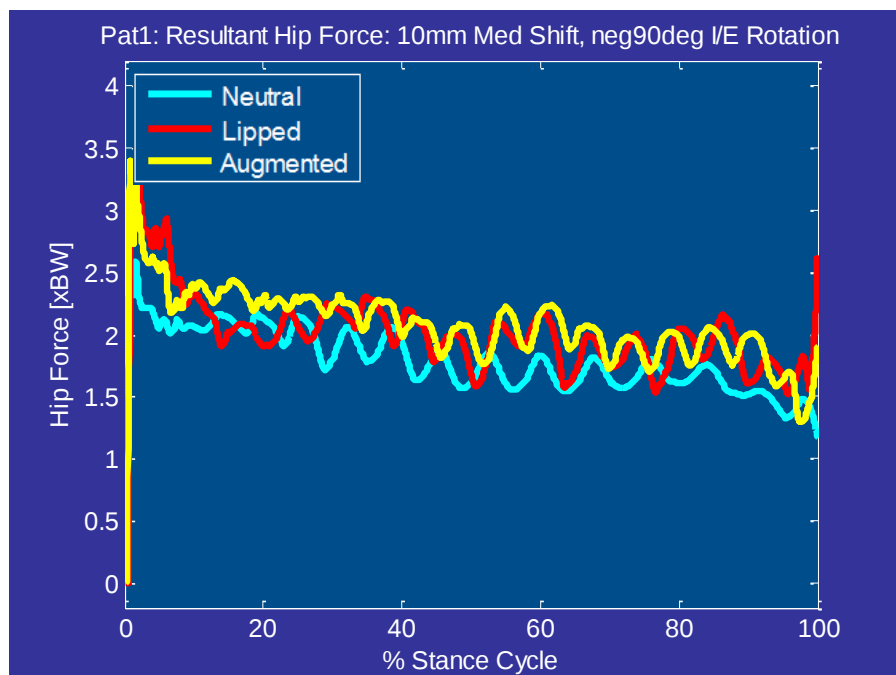


(b)

Figure E82: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

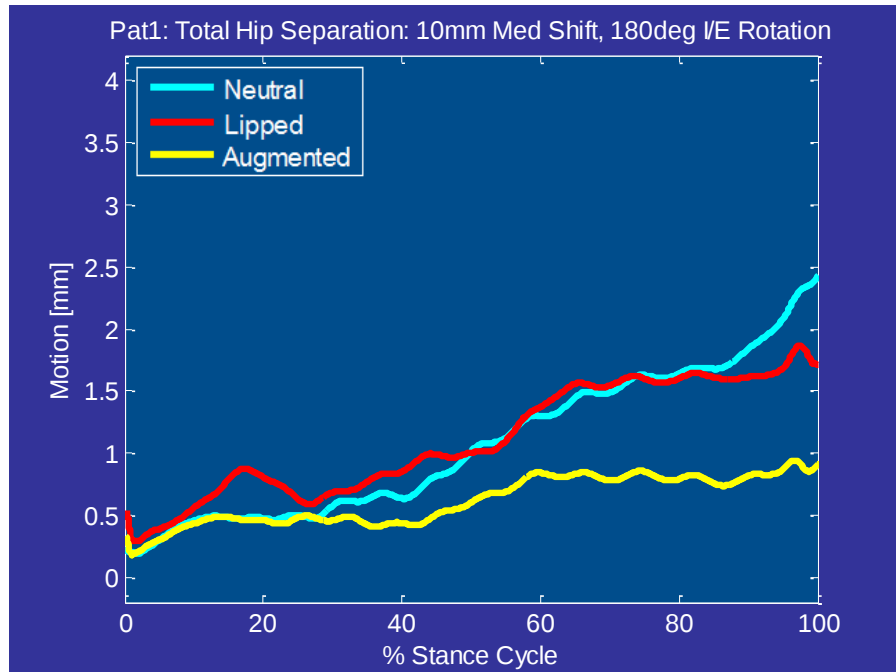


(a)

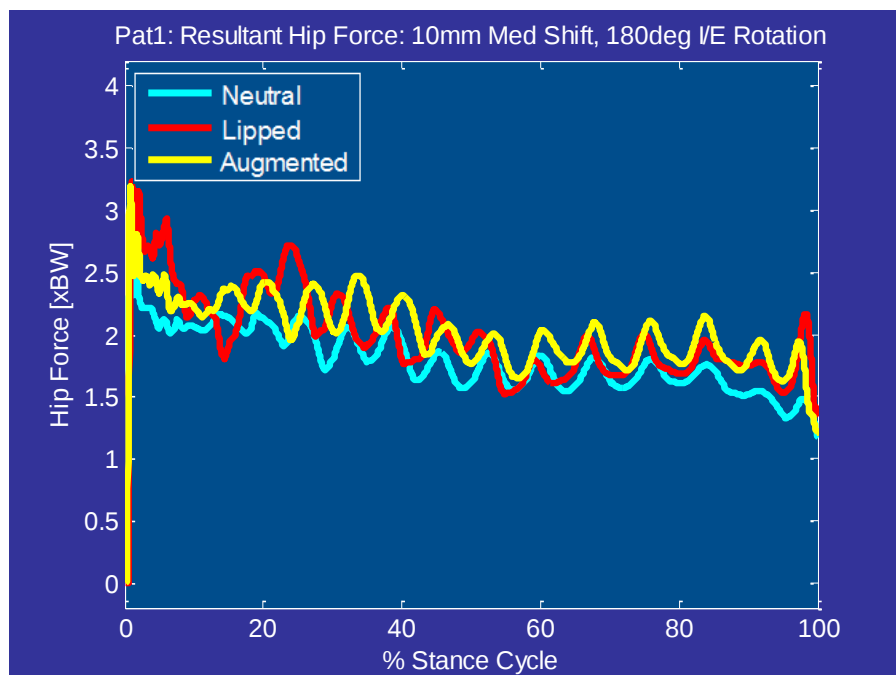


(b)

Figure E83: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

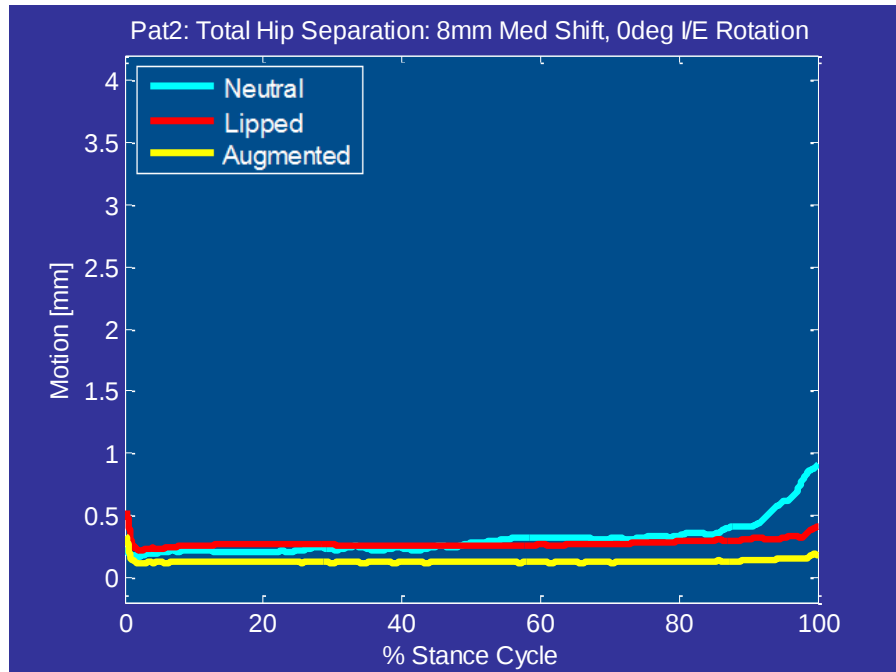


(a)

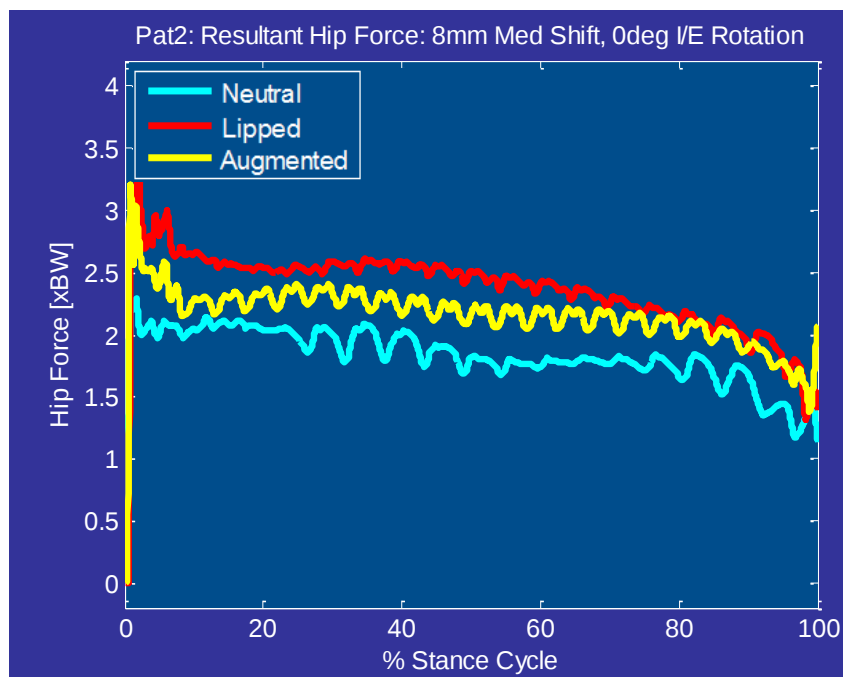


(b)

Figure E84: (a) Hip separation and (b) hip force Pat 1: 10mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

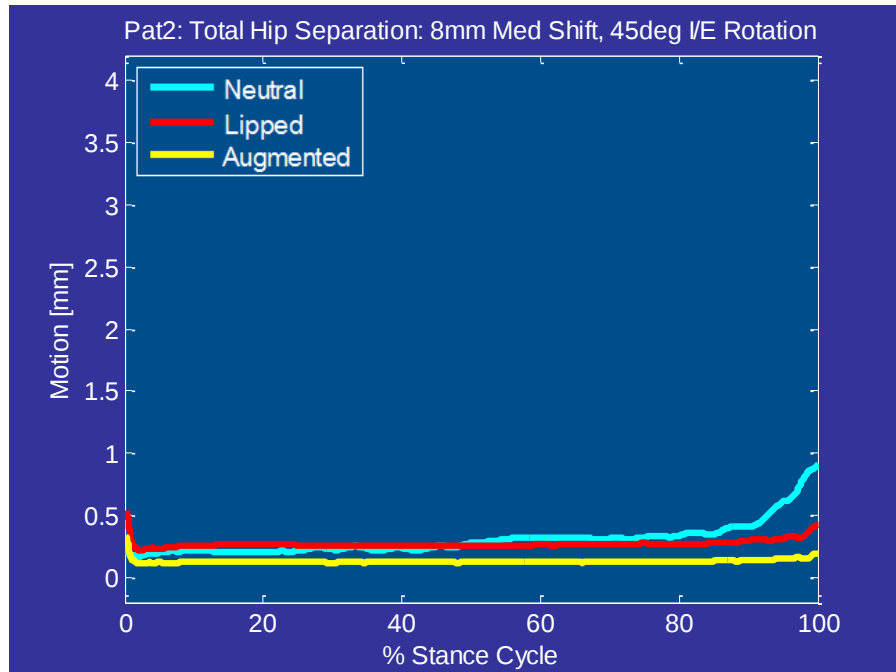


(a)

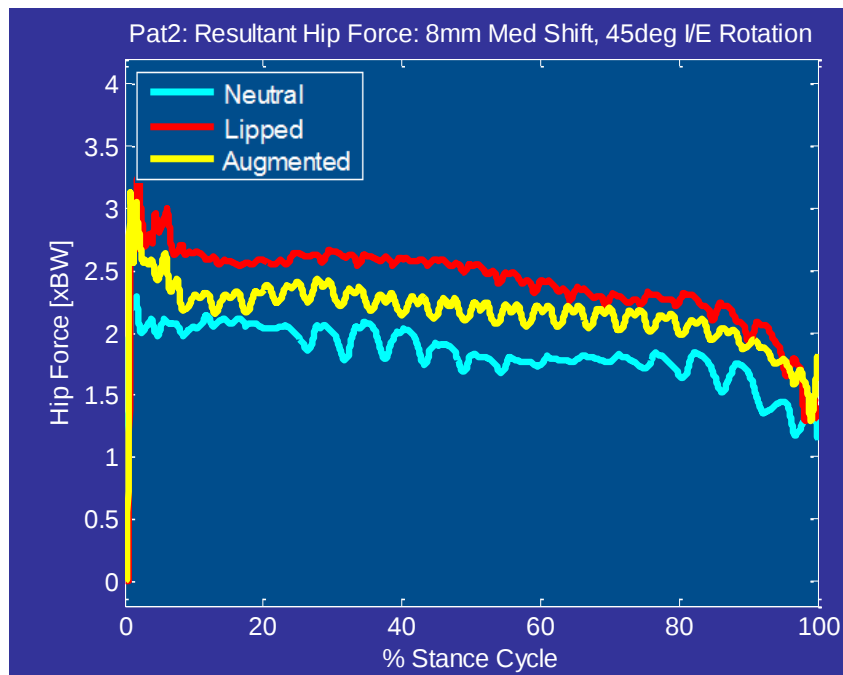


(b)

Figure E85: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

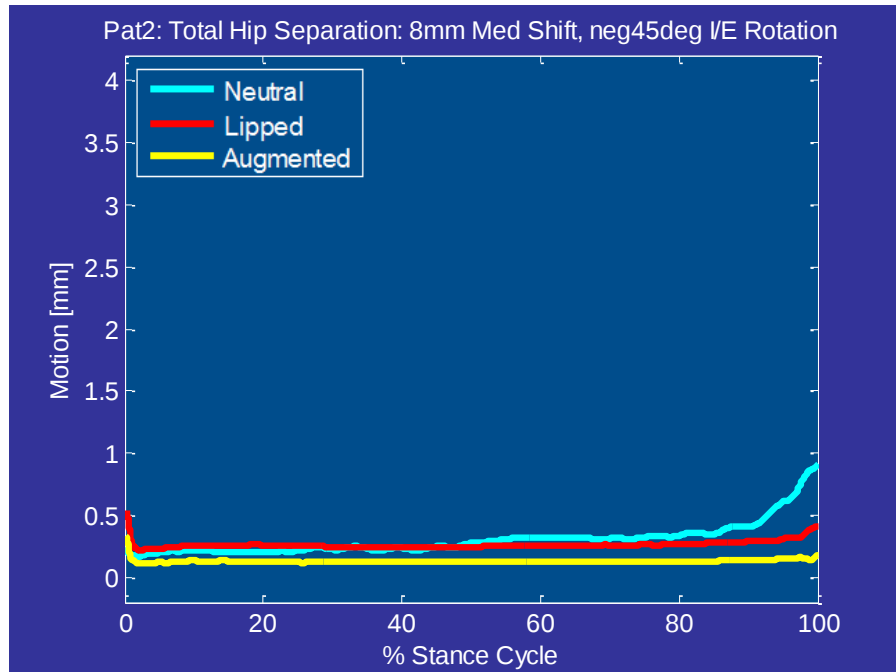


(a)



(b)

Figure E86: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

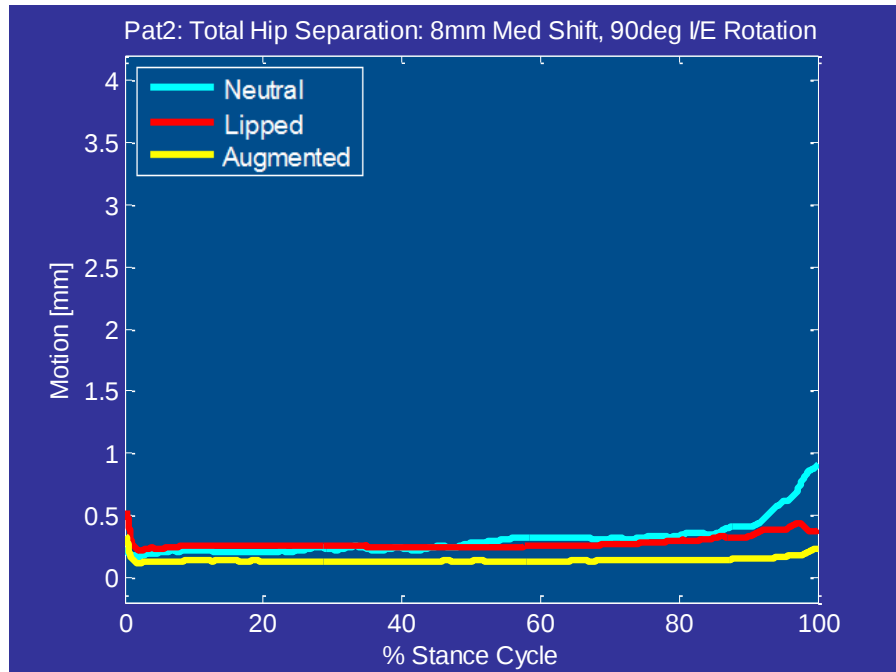


(a)

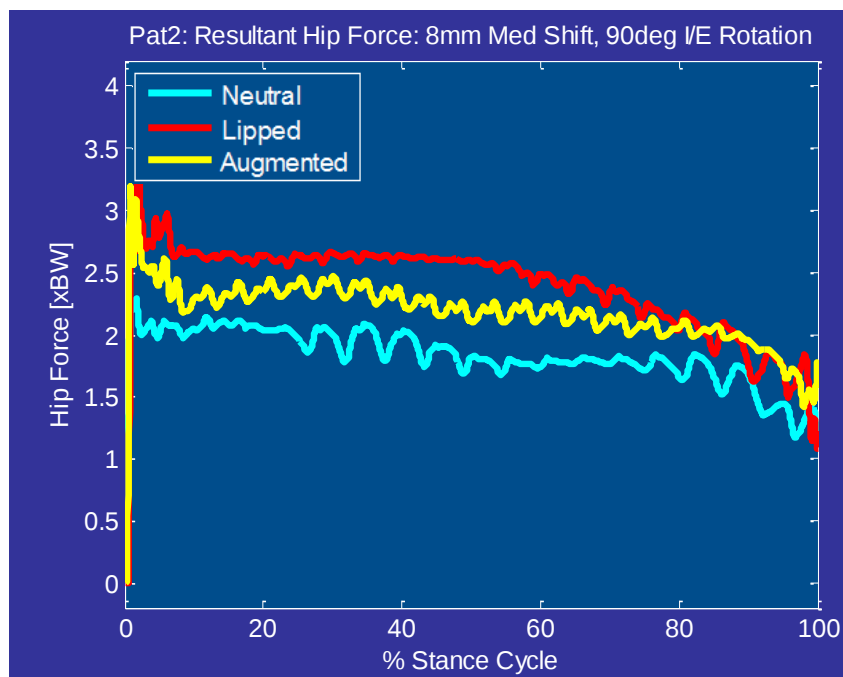


(b)

Figure E87: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

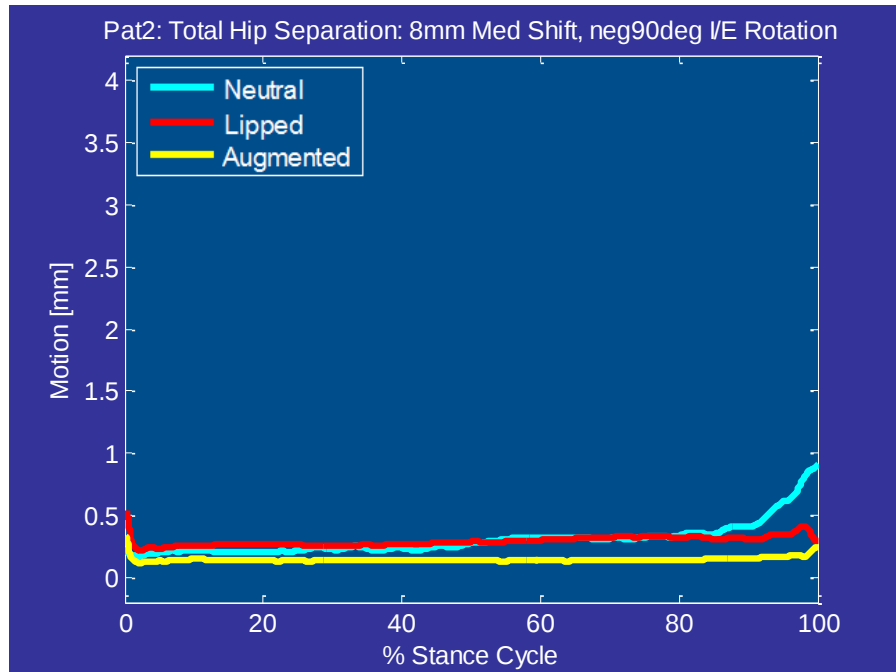


(a)

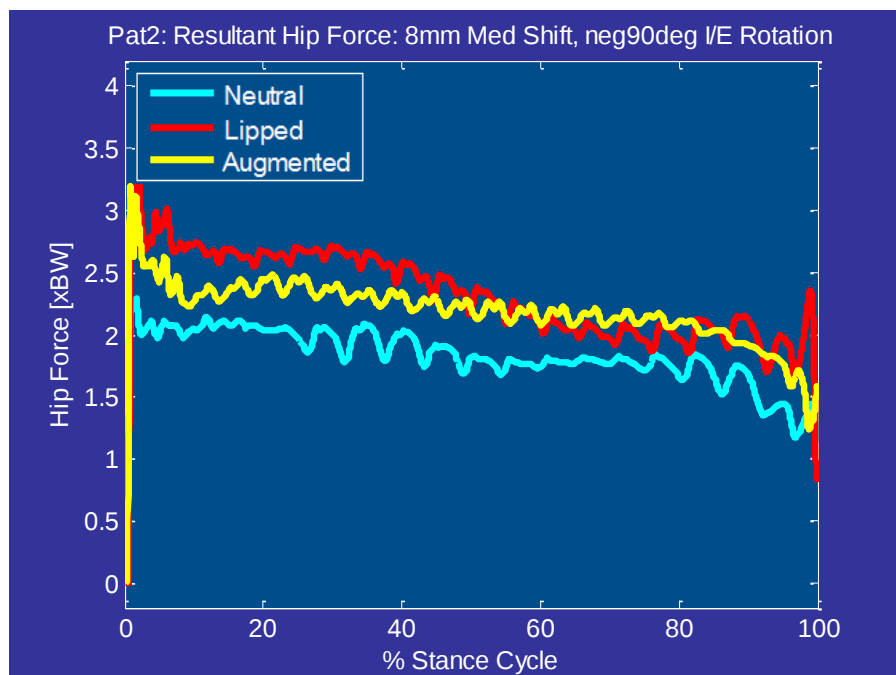


(b)

Figure E88: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

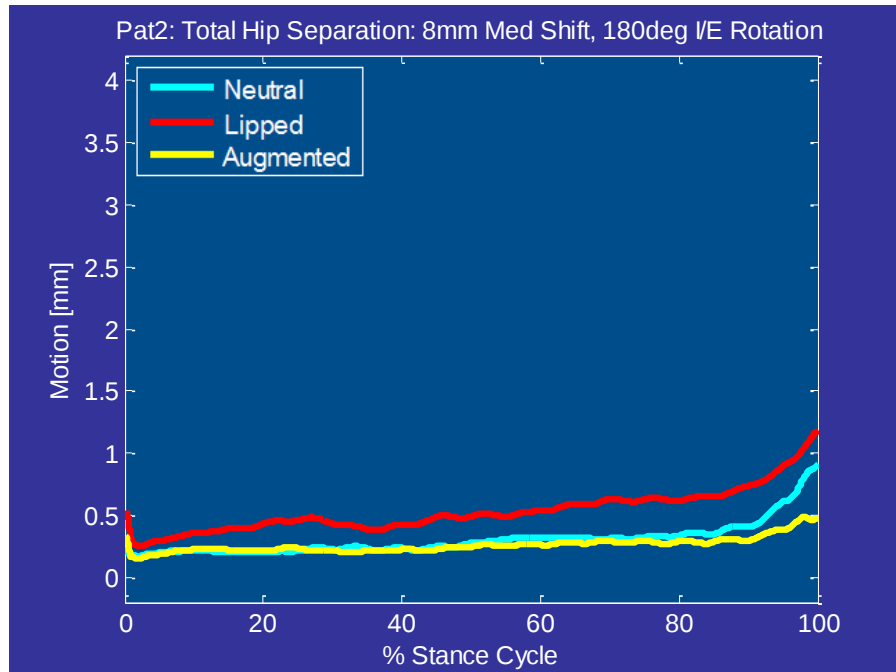


(a)

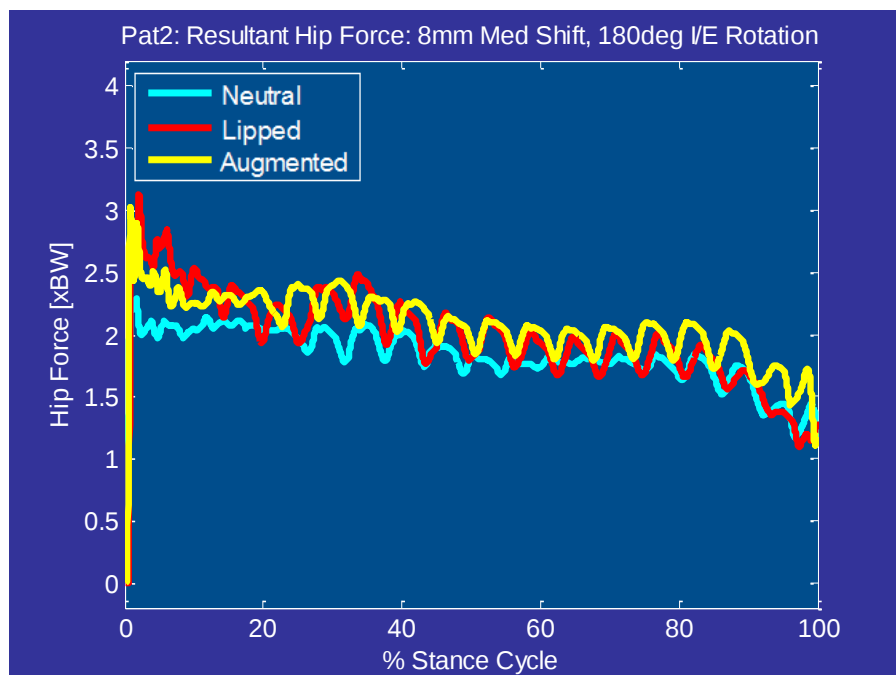


(b)

Figure E89: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

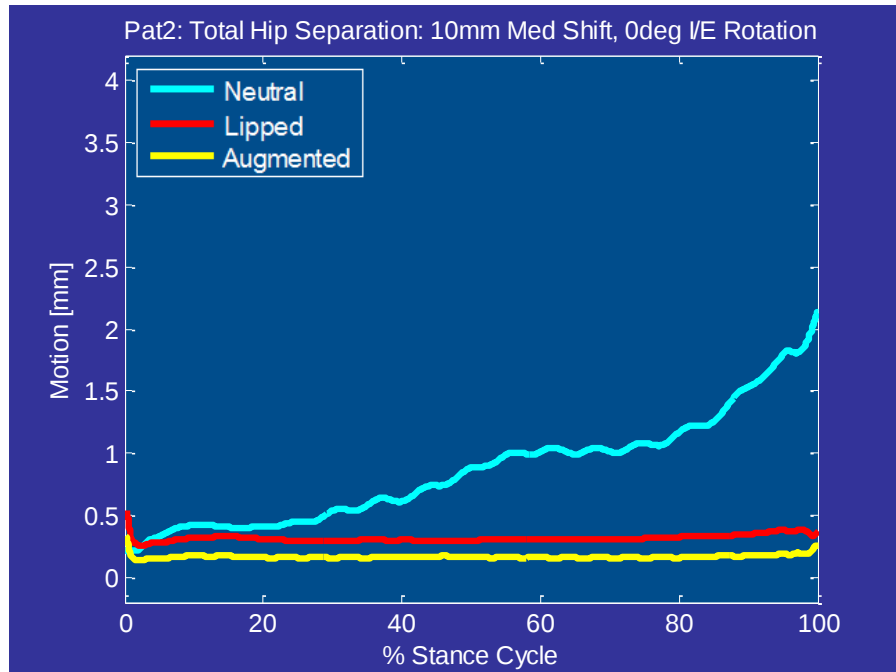


(a)

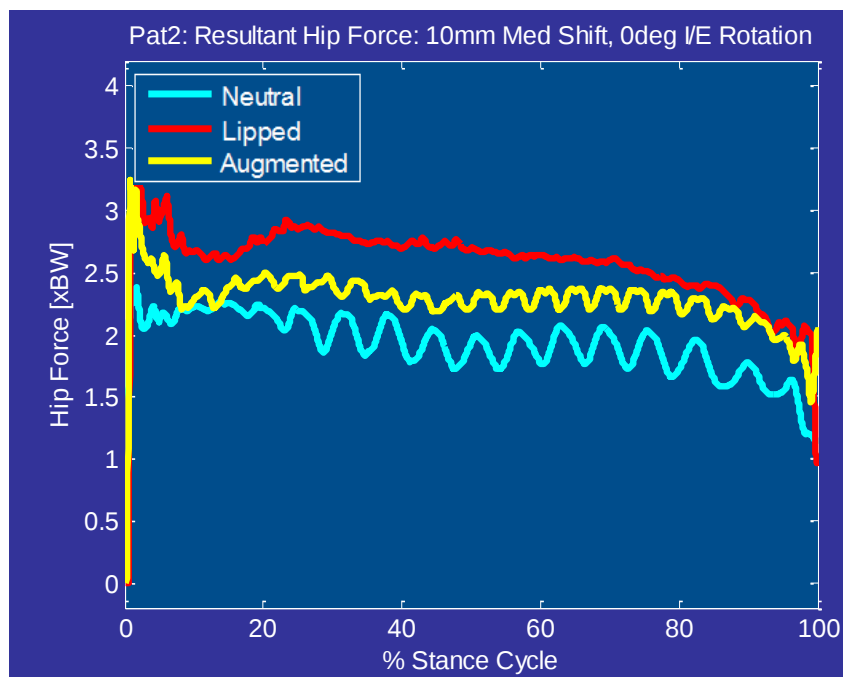


(b)

Figure E90: (a) Hip separation and (b) hip force Pat 2: 8mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

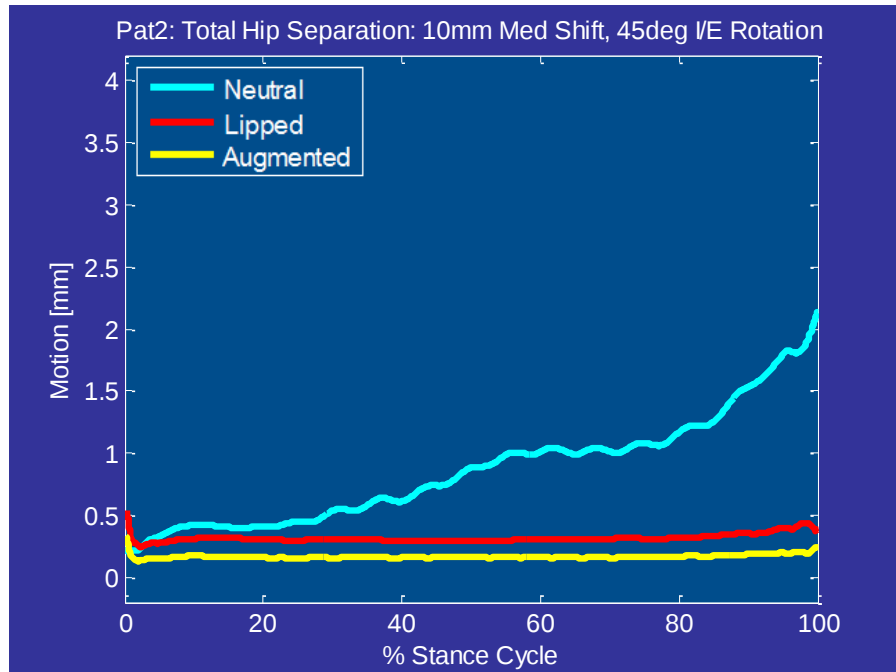


(a)

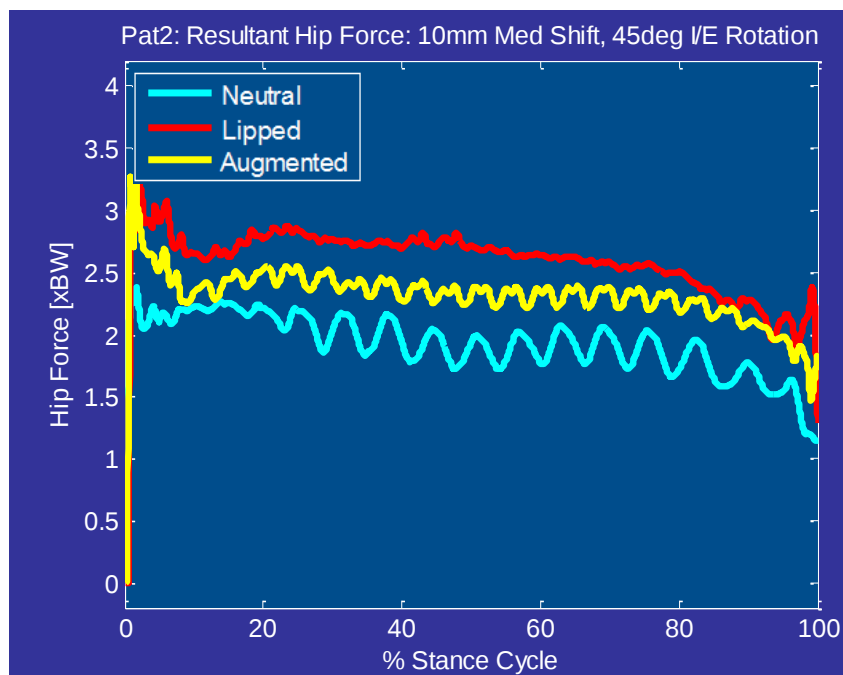


(b)

Figure E91: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

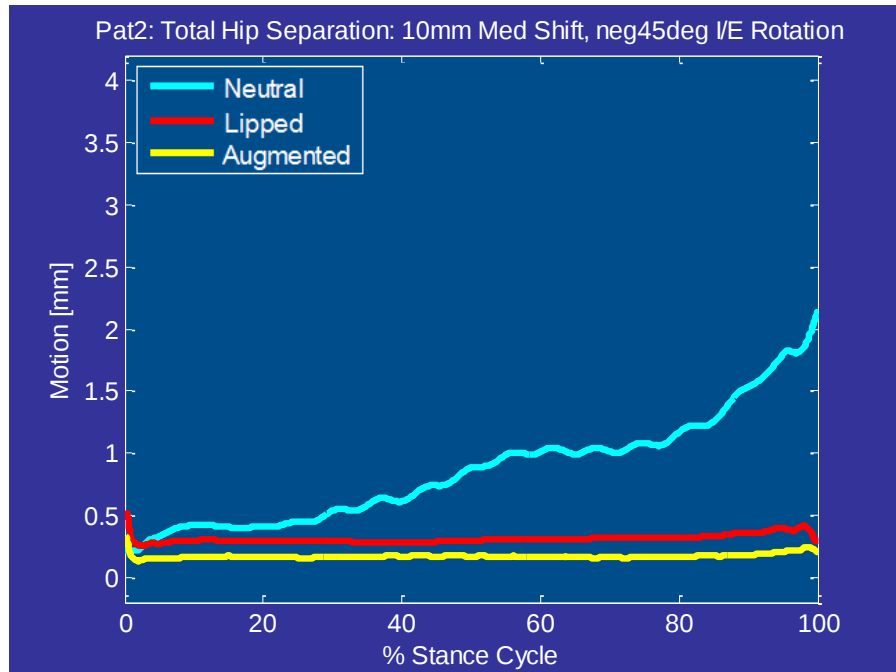


(a)

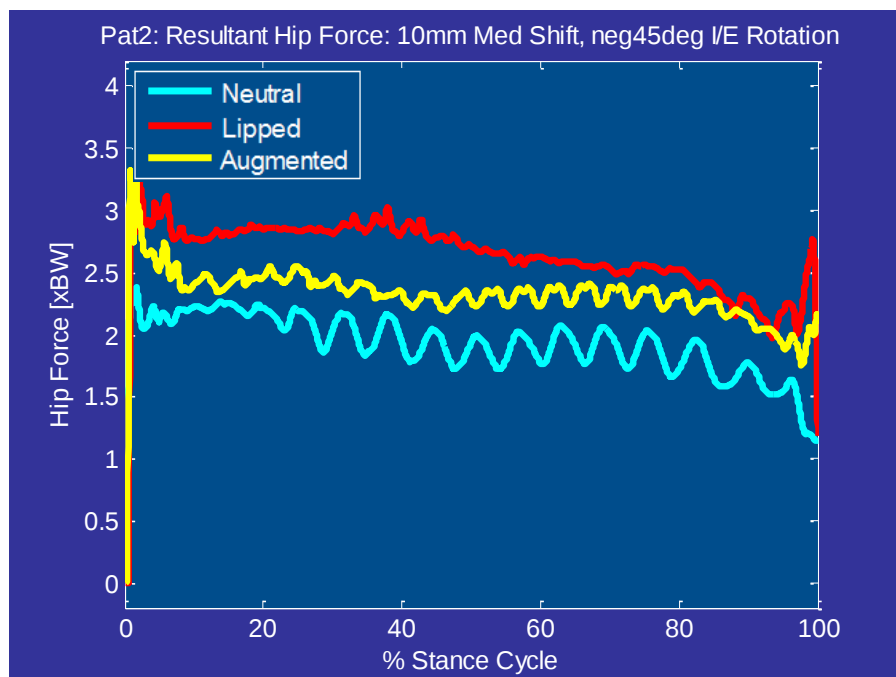


(b)

Figure E92: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

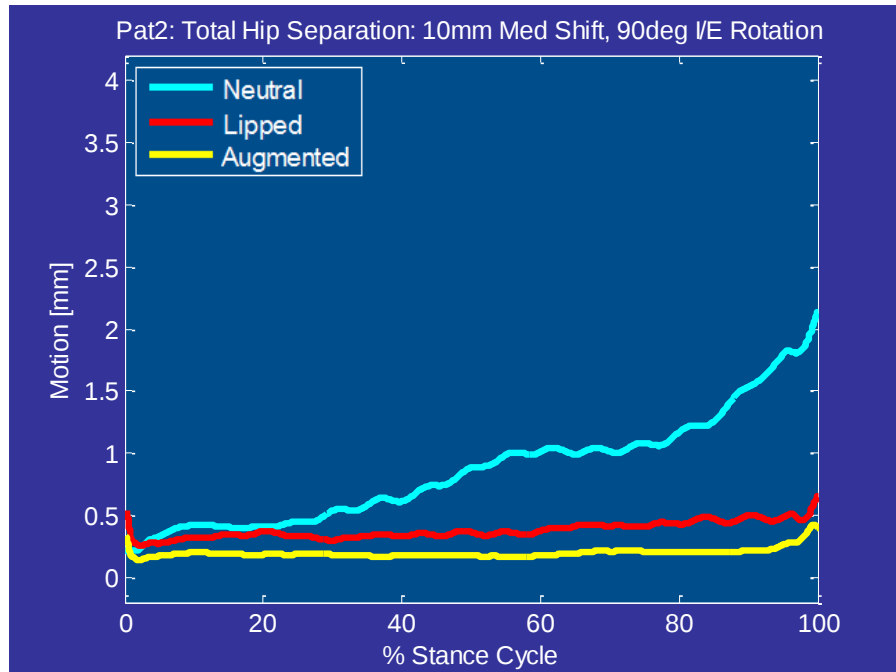


(a)

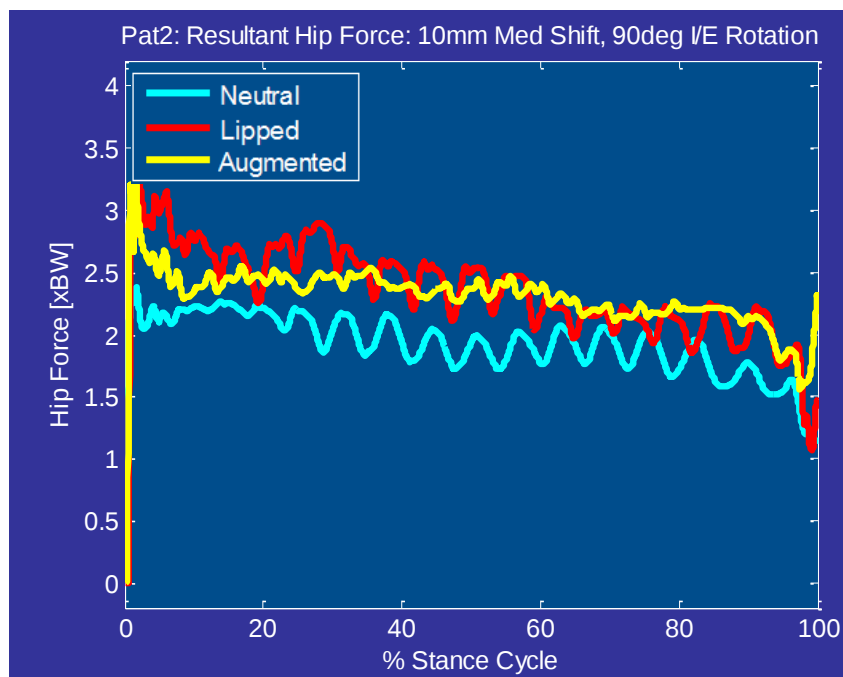


(b)

Figure E93: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

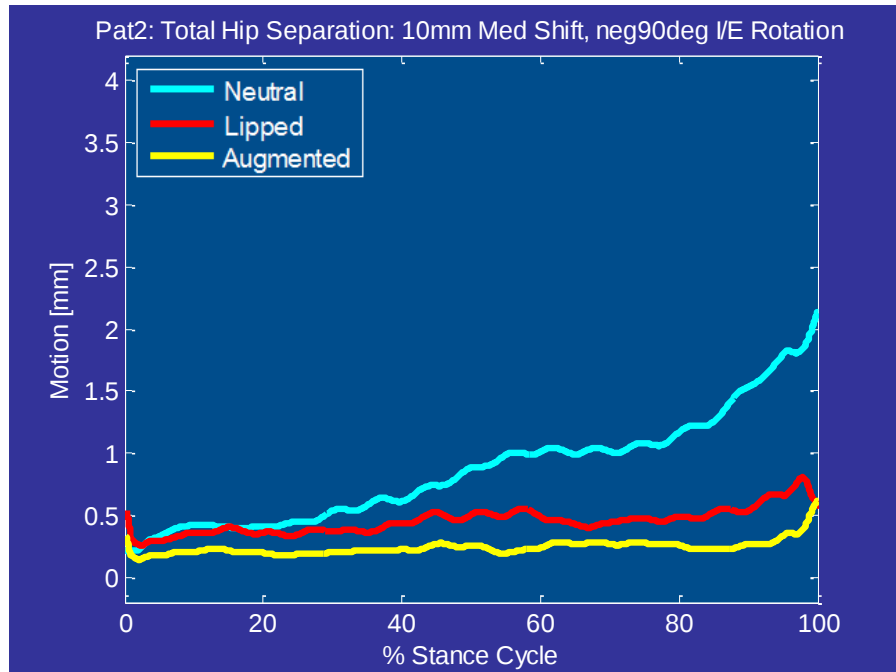


(a)

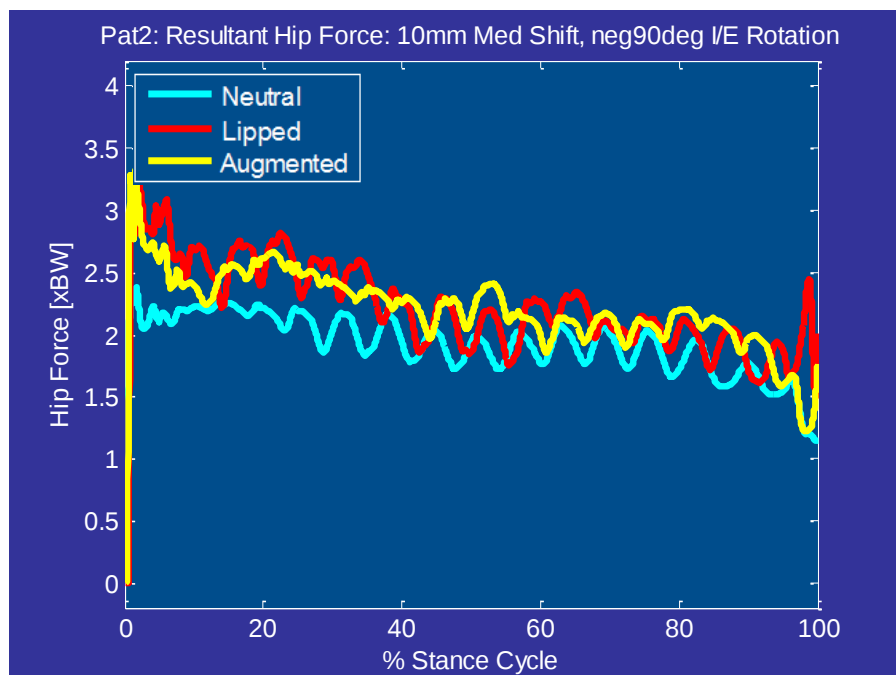


(b)

Figure E94: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

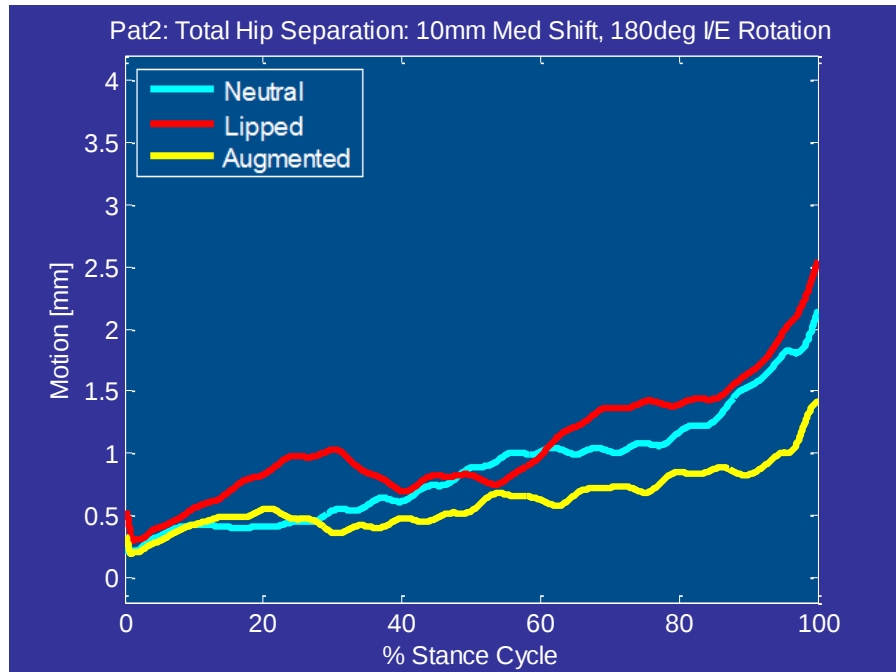


(a)

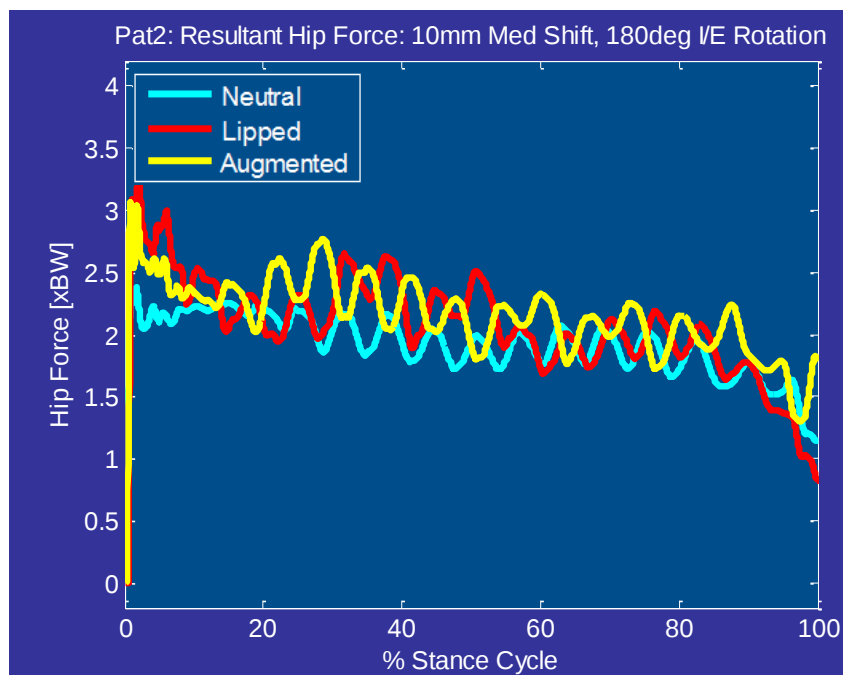


(b)

Figure E95: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

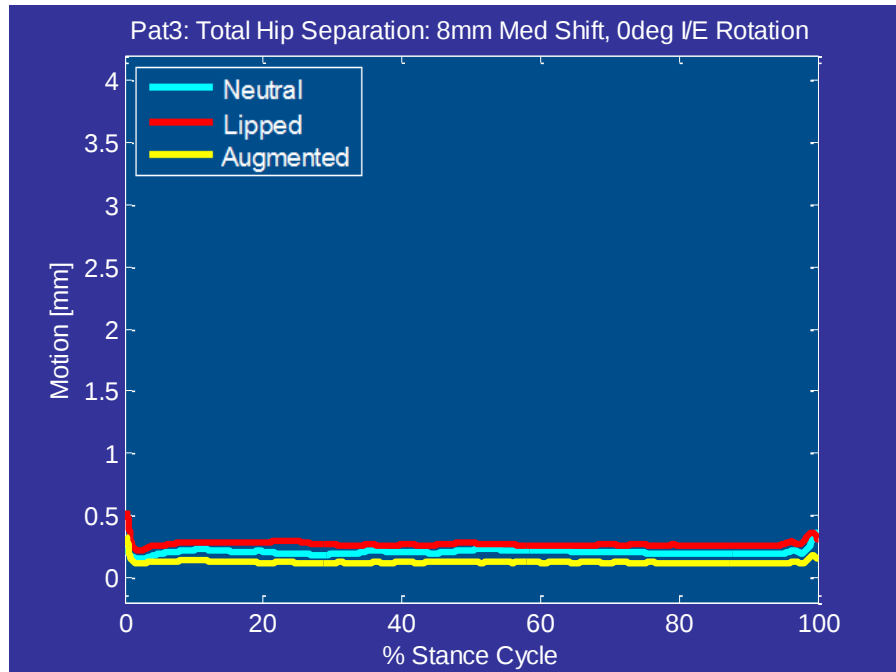


(a)



(b)

Figure E96: (a) Hip separation and (b) hip force Pat 2: 10mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

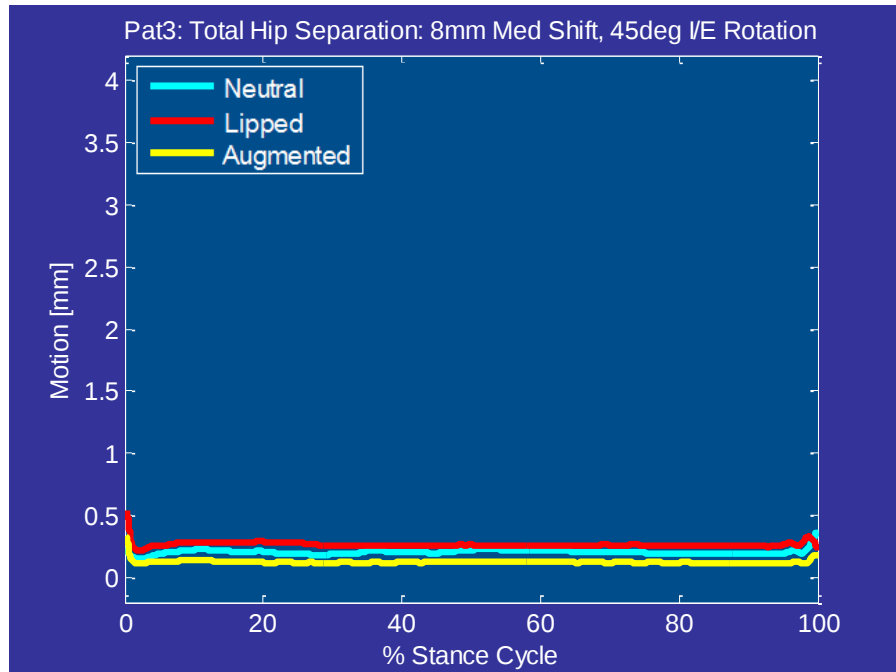


(a)

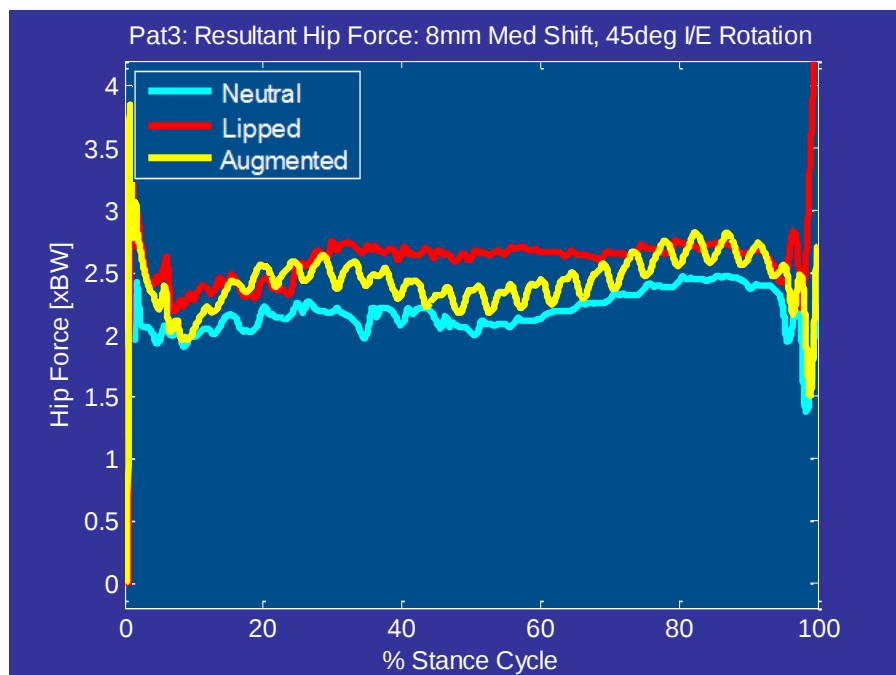


(b)

Figure E97: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

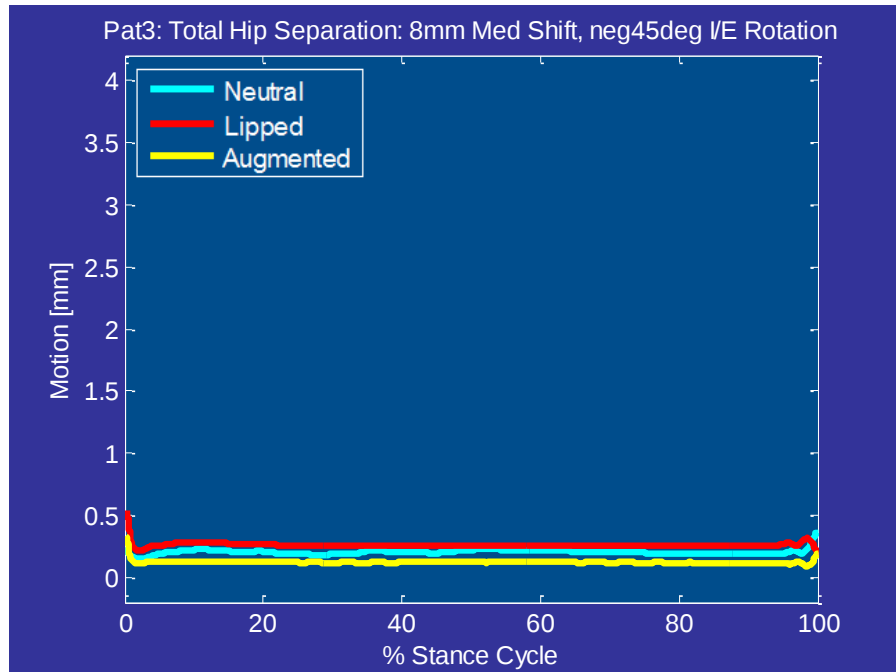


(a)

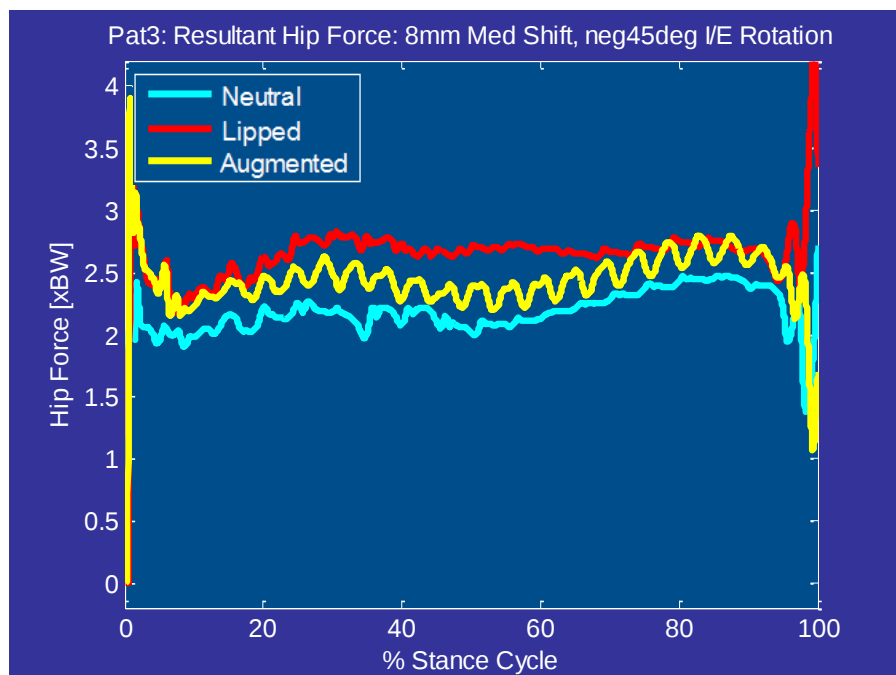


(b)

Figure E98: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

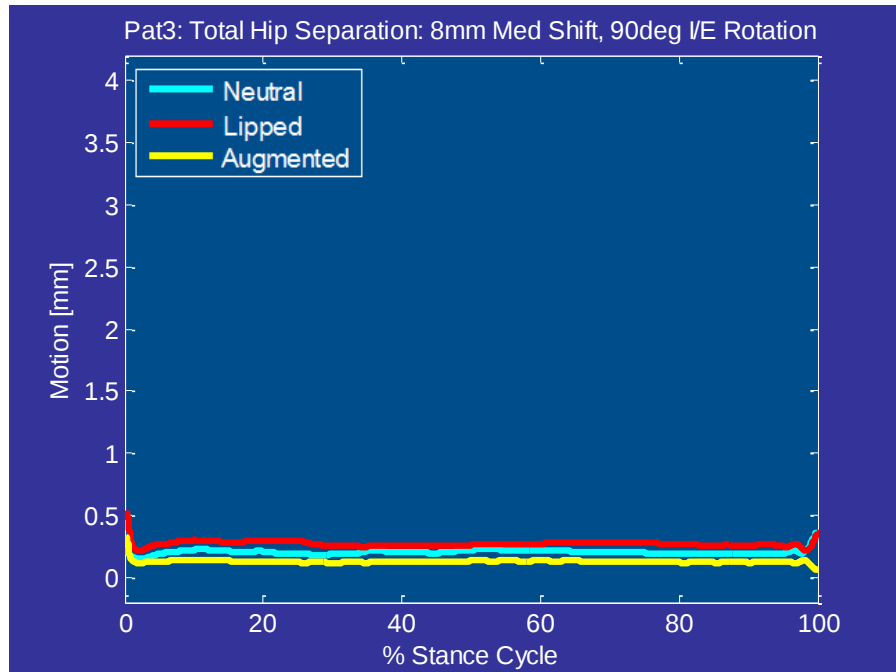


(a)

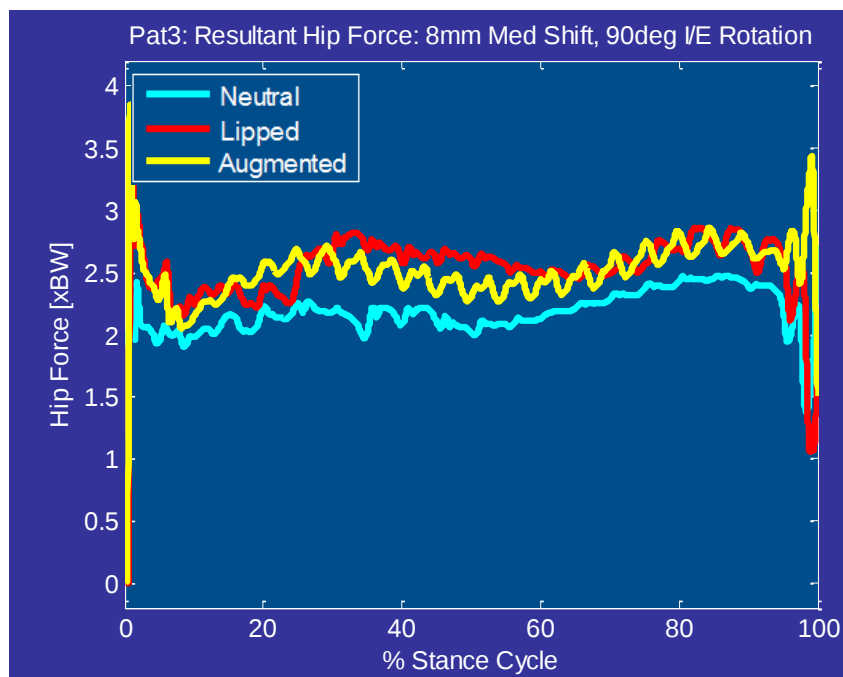


(b)

Figure E99: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

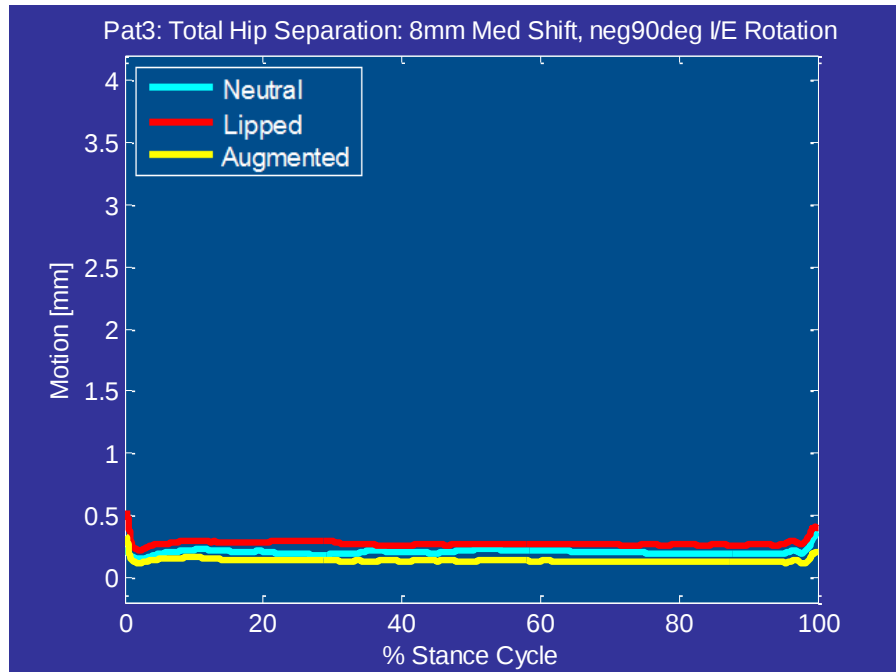


(a)

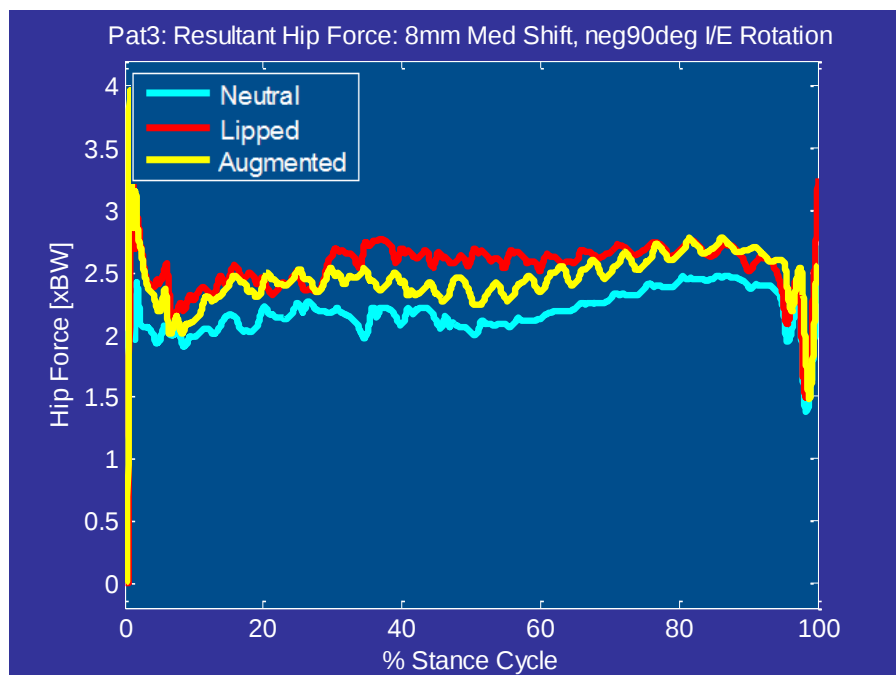


(b)

Figure E100: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

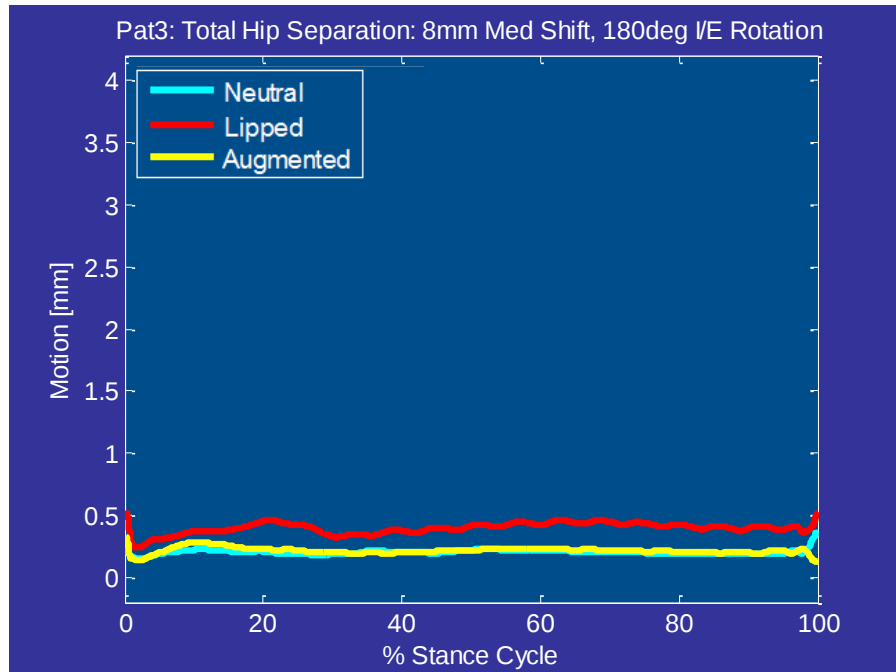


(a)

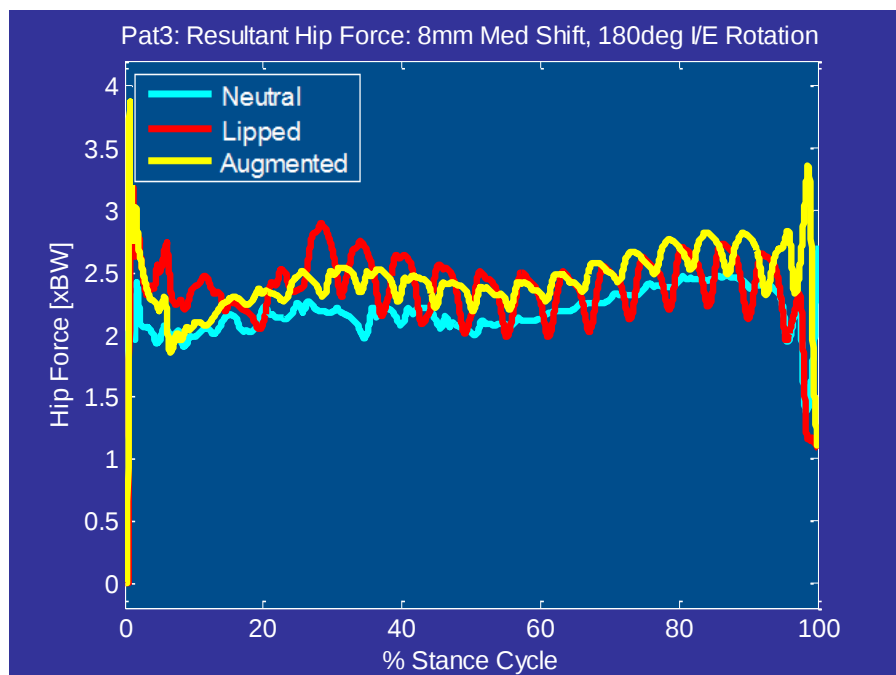


(b)

Figure E101: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

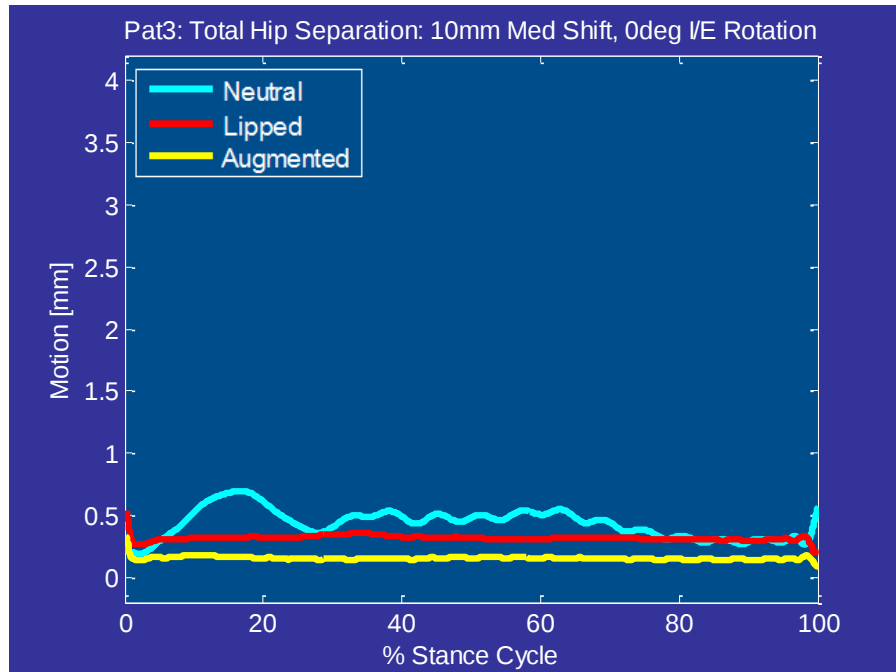


(a)

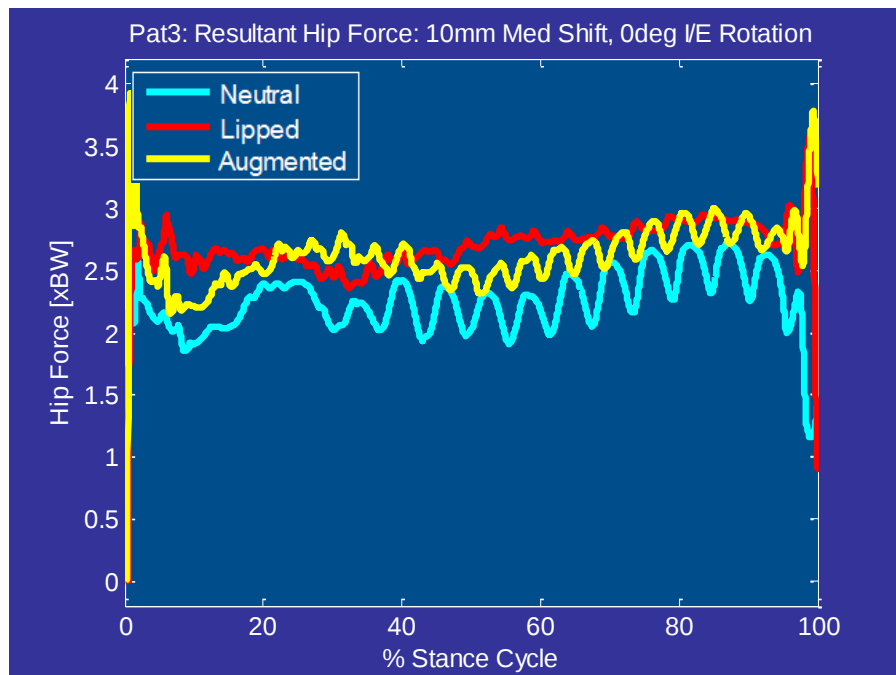


(b)

Figure E102: (a) Hip separation and (b) hip force Pat 3: 8mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

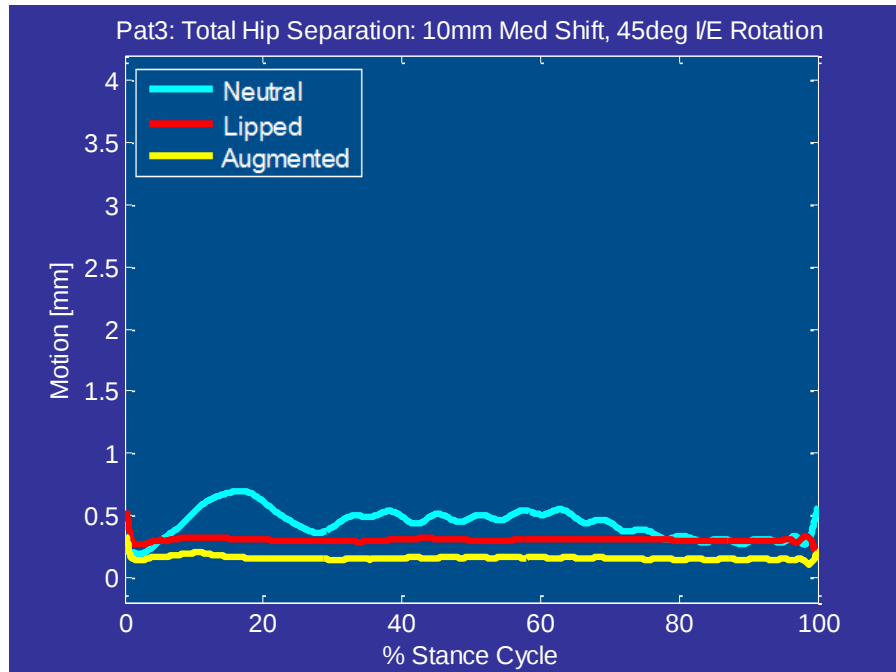


(a)

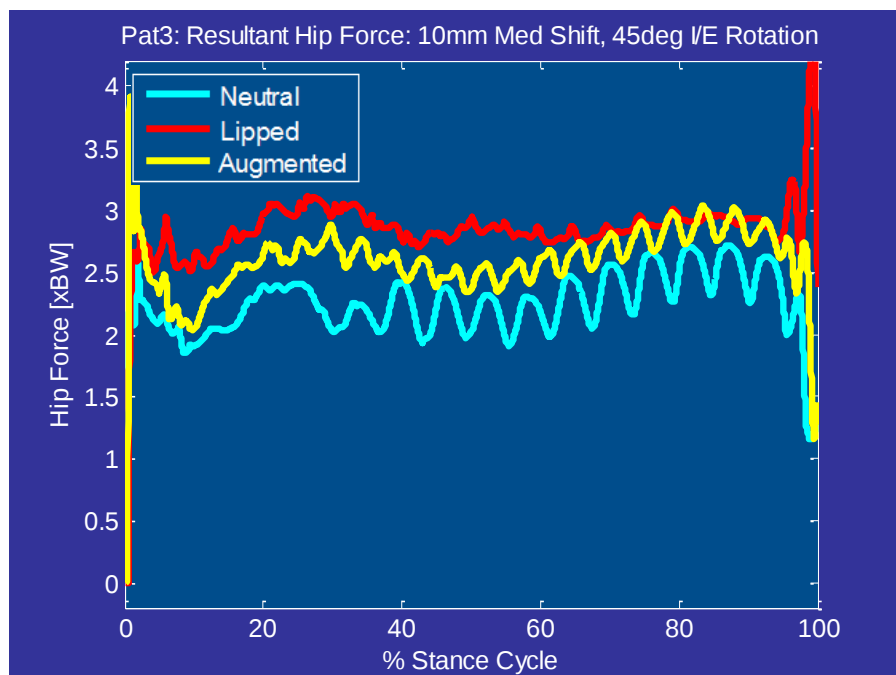


(b)

Figure E103: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

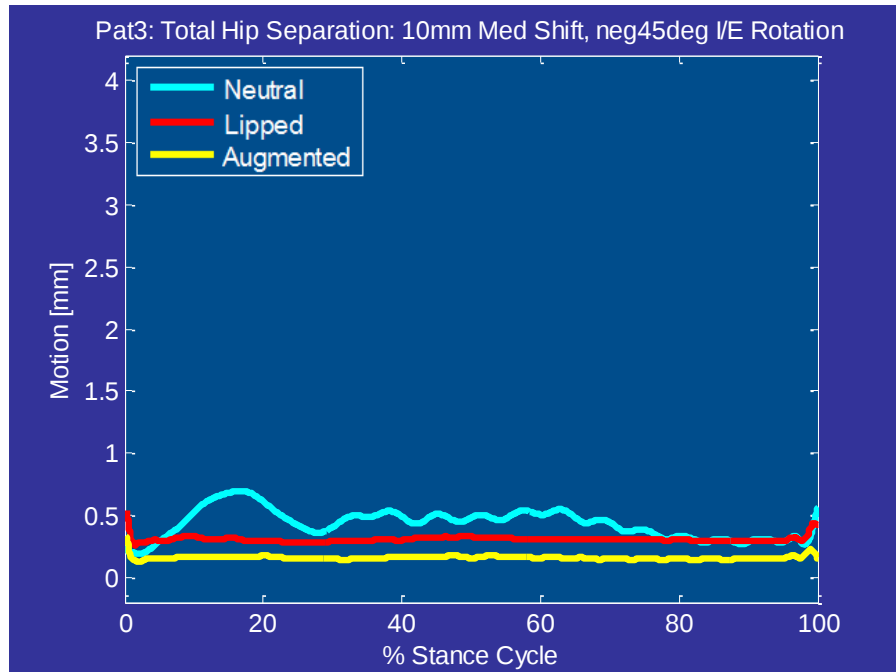


(a)

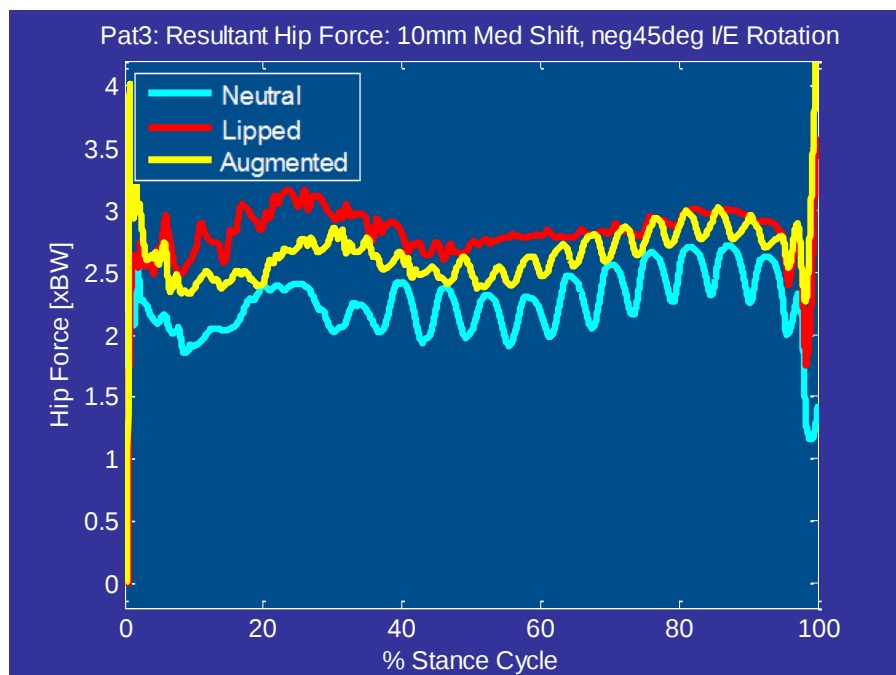


(b)

Figure E104: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

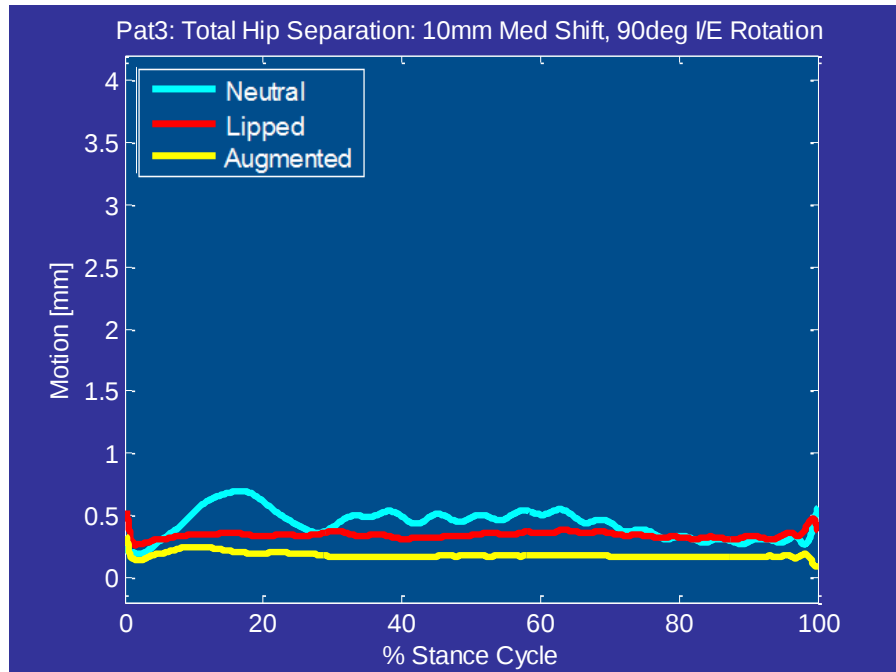


(a)



(b)

Figure E105: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

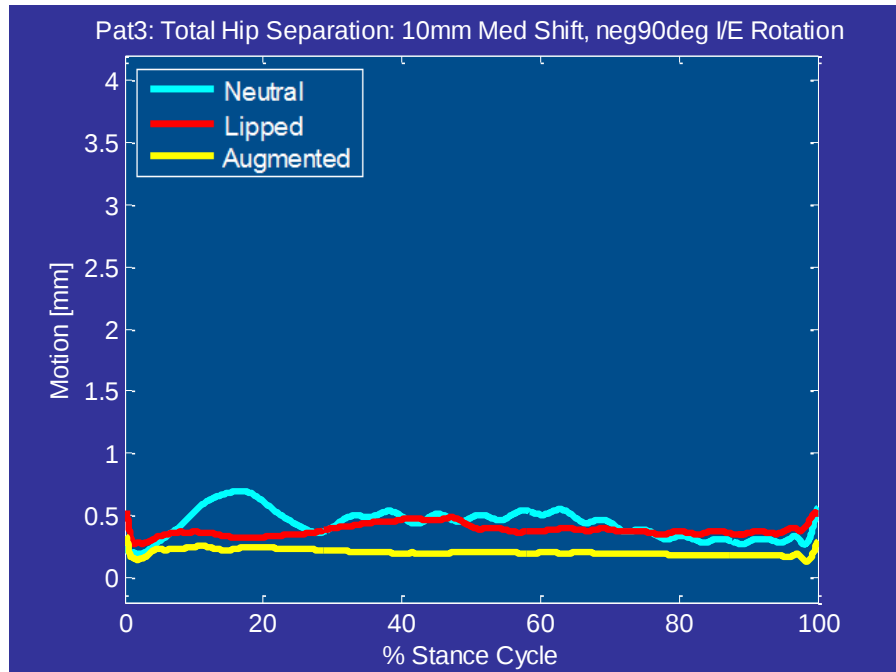


(a)

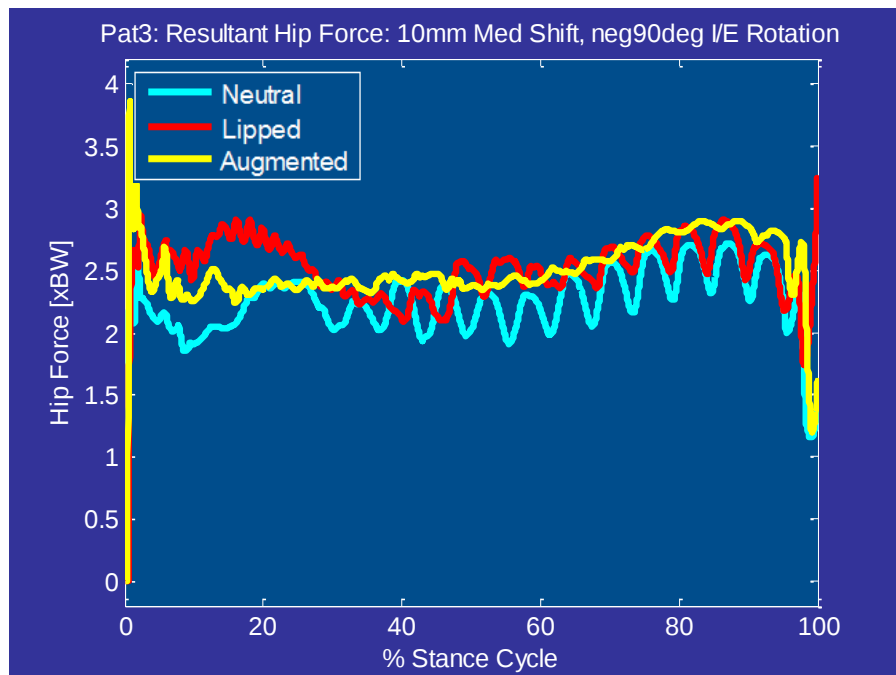


(b)

Figure E106: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

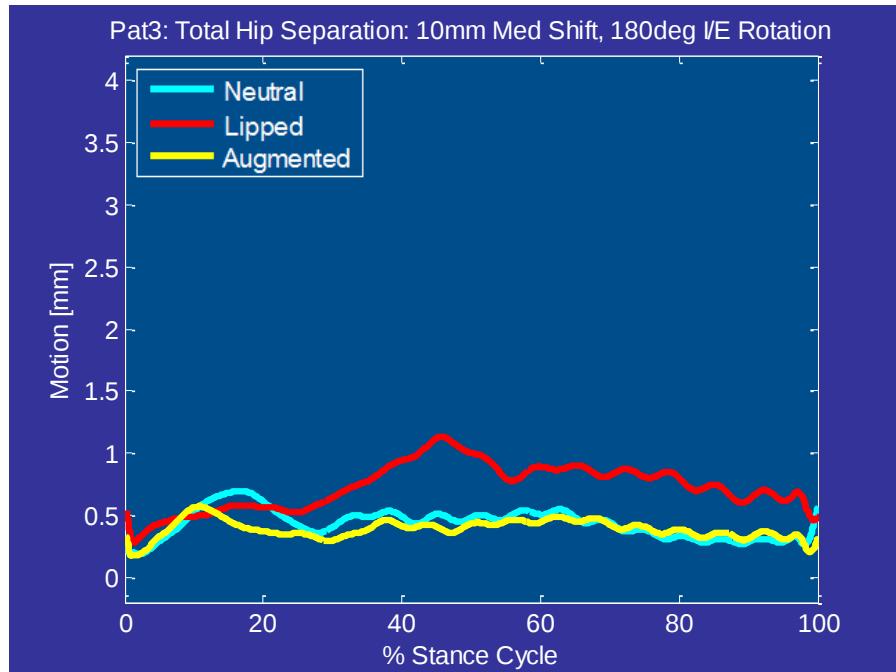


(a)

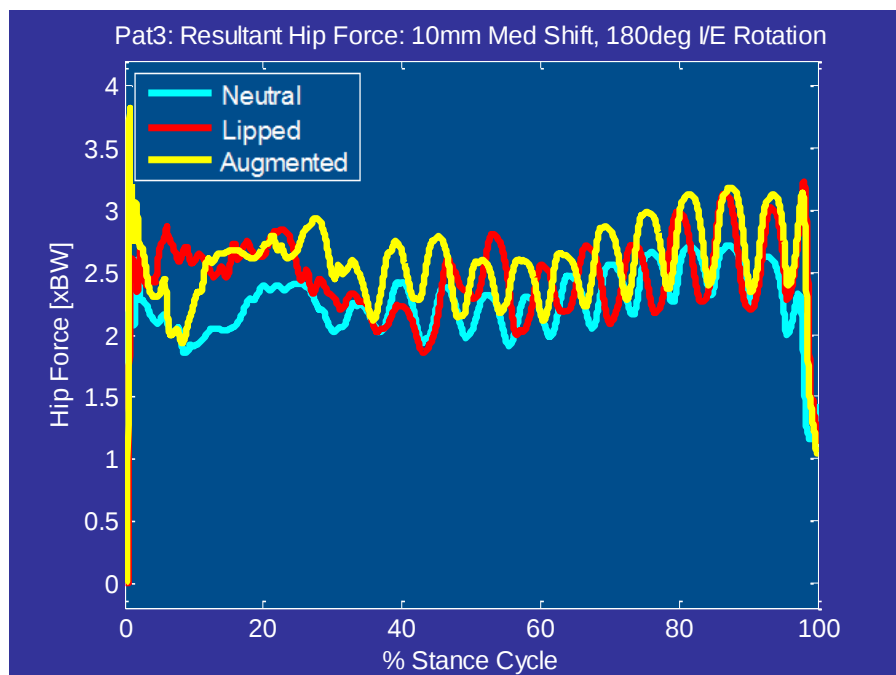


(b)

Figure E107: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

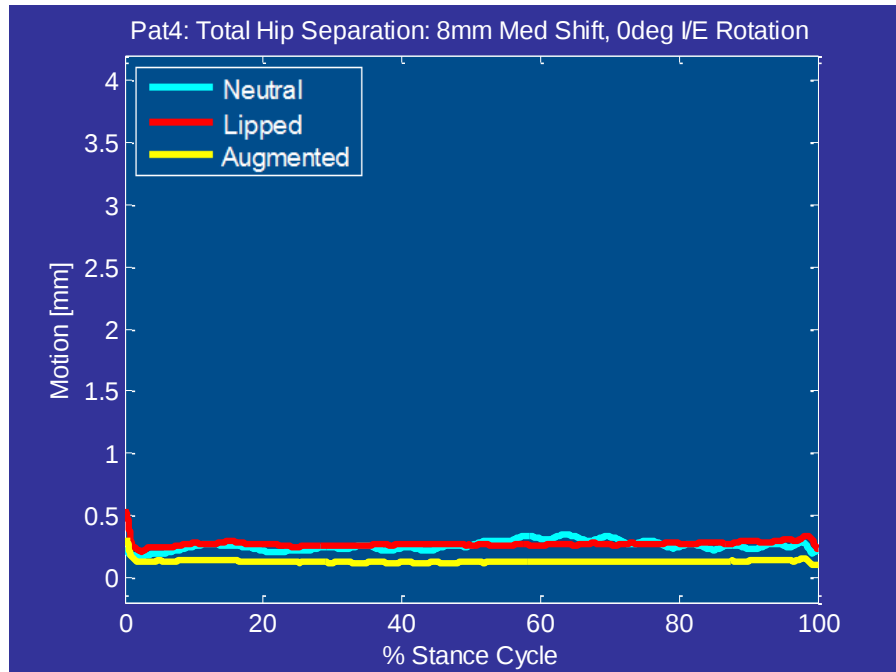


(a)

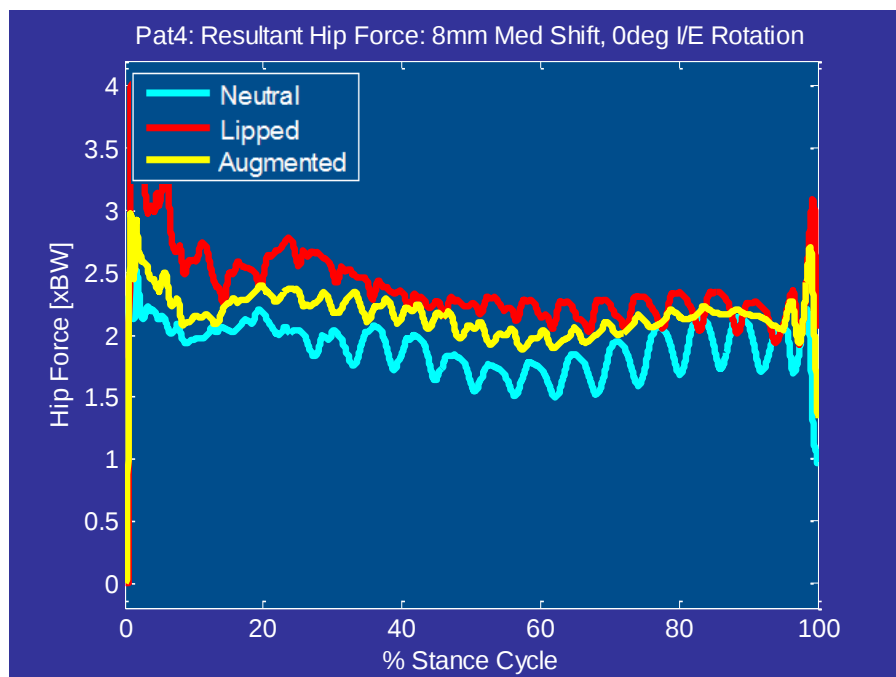


(b)

Figure E108: (a) Hip separation and (b) hip force Pat 3: 10mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

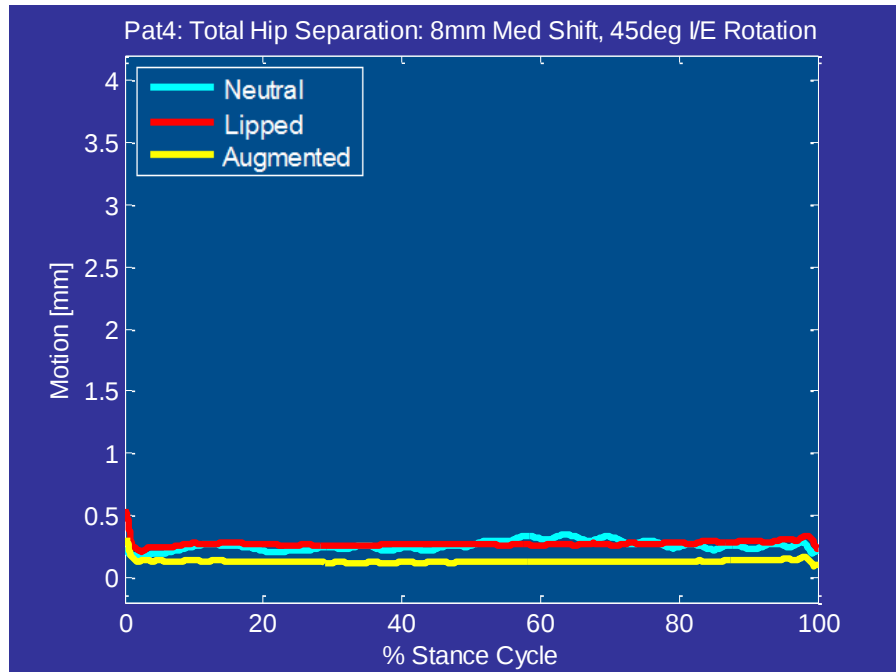


(a)

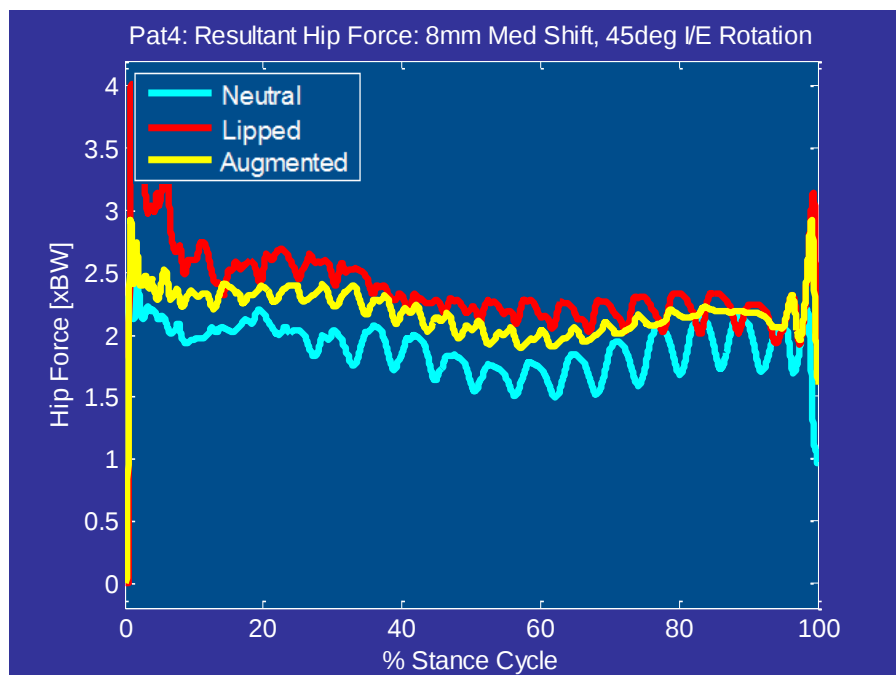


(b)

Figure E109: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

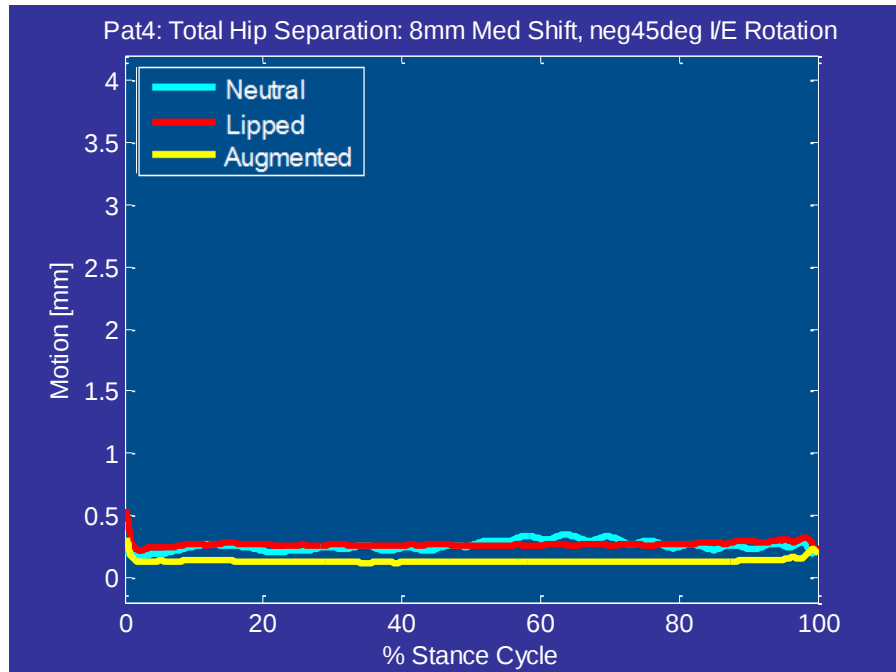


(a)



(b)

Figure E110: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

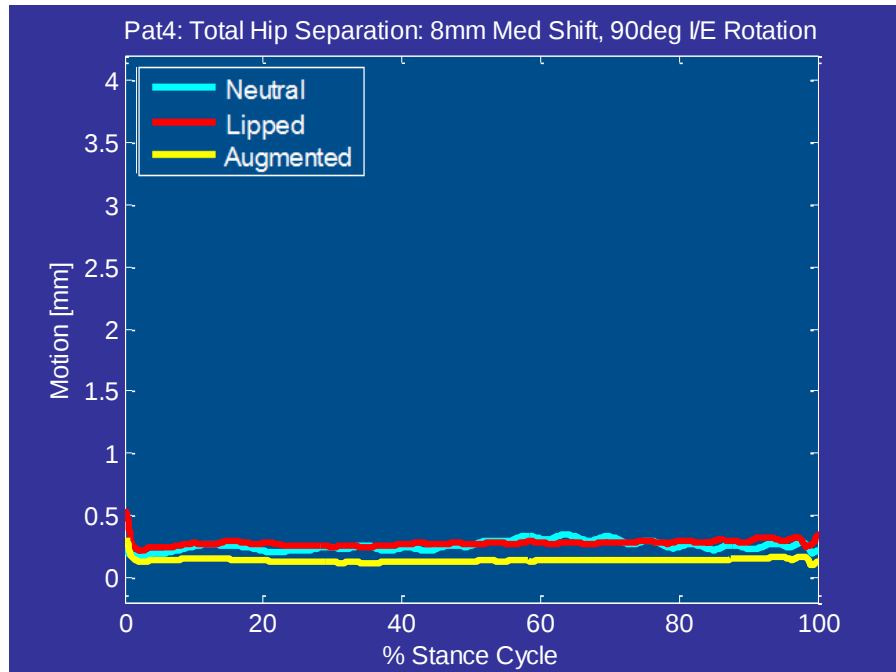


(a)

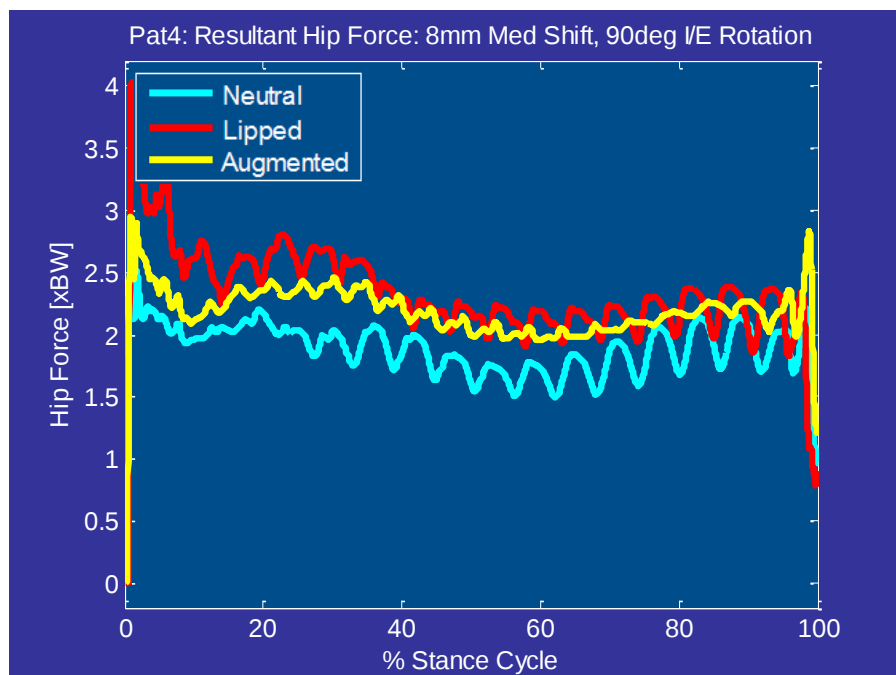


(b)

Figure E111: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

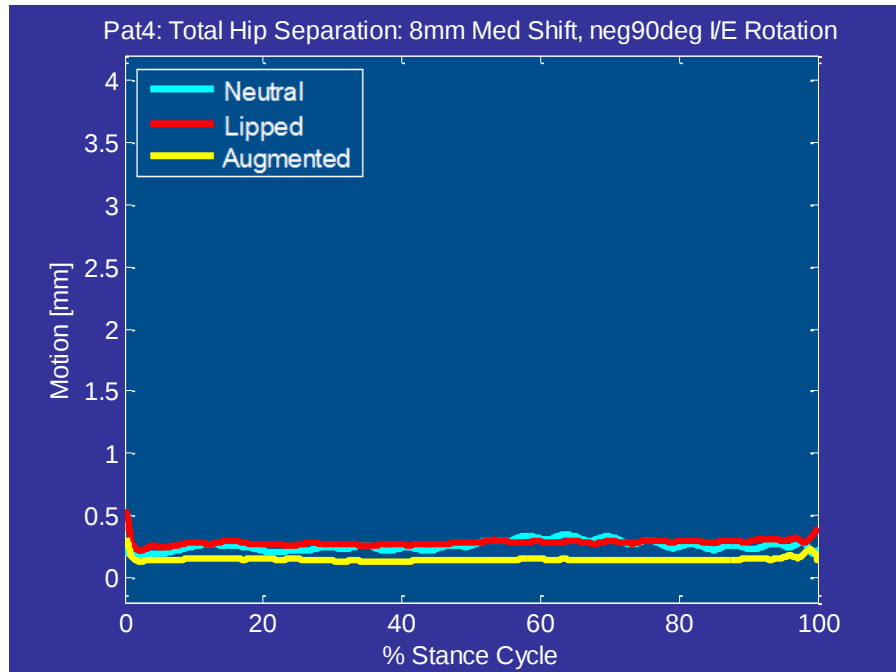


(a)

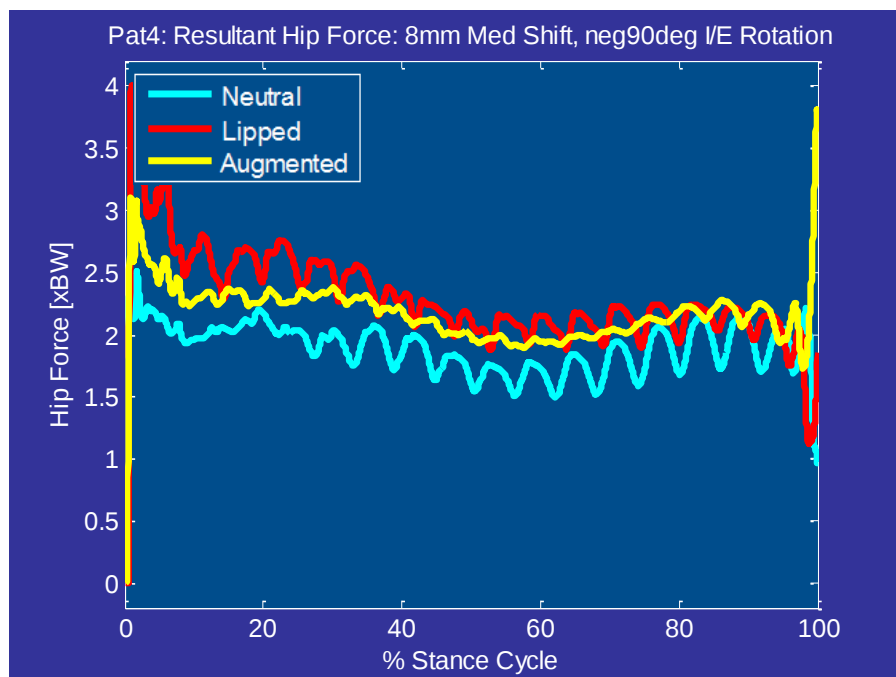


(b)

Figure E112: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

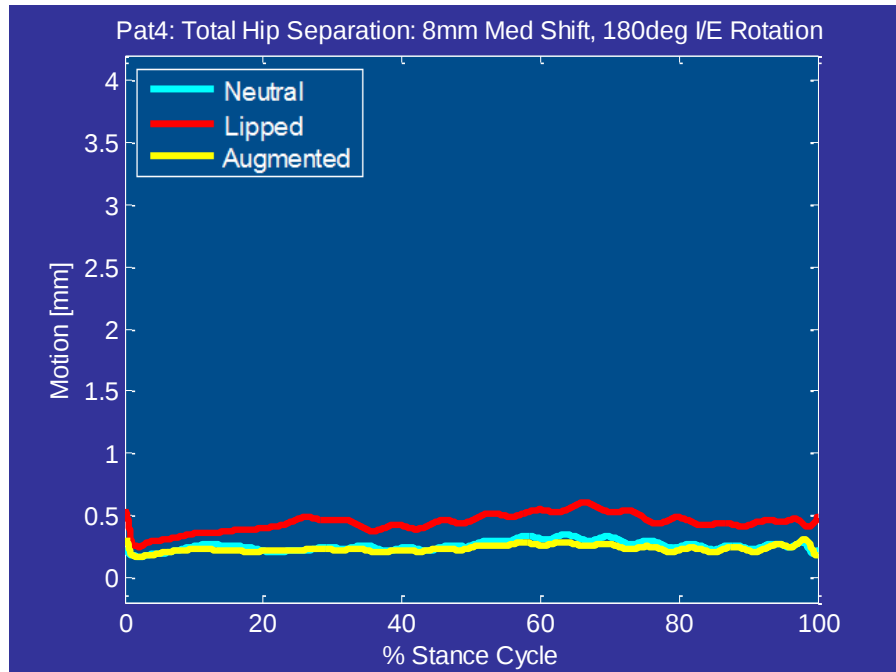


(a)

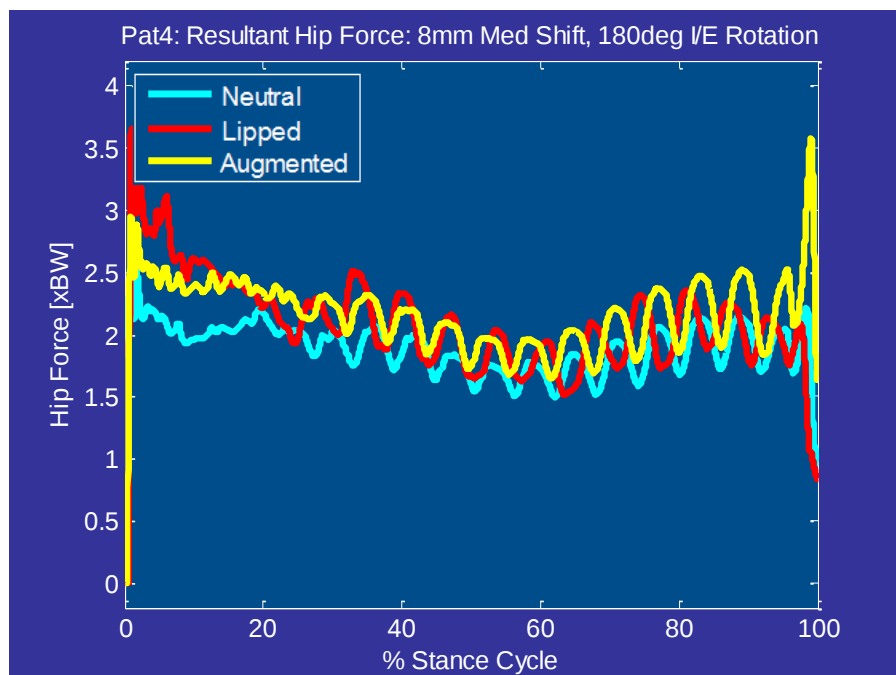


(b)

Figure E113: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.

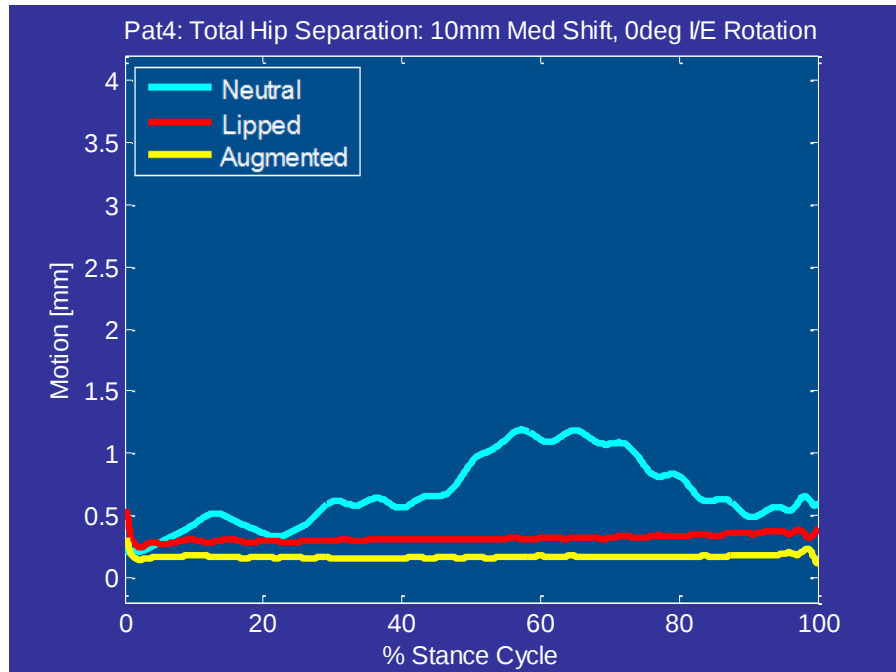


(a)

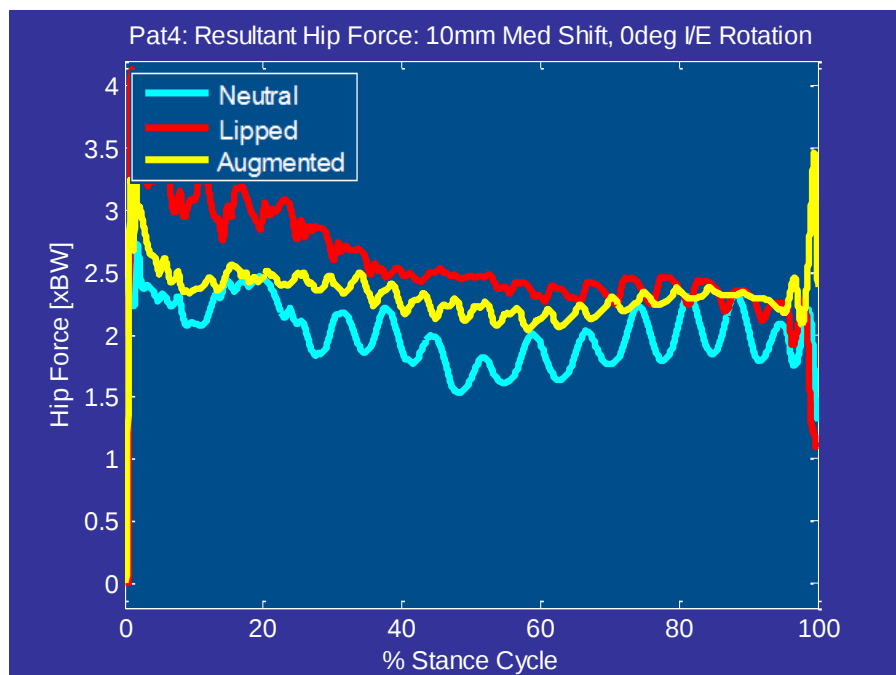


(b)

Figure E114: (a) Hip separation and (b) hip force Pat 4: 8mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

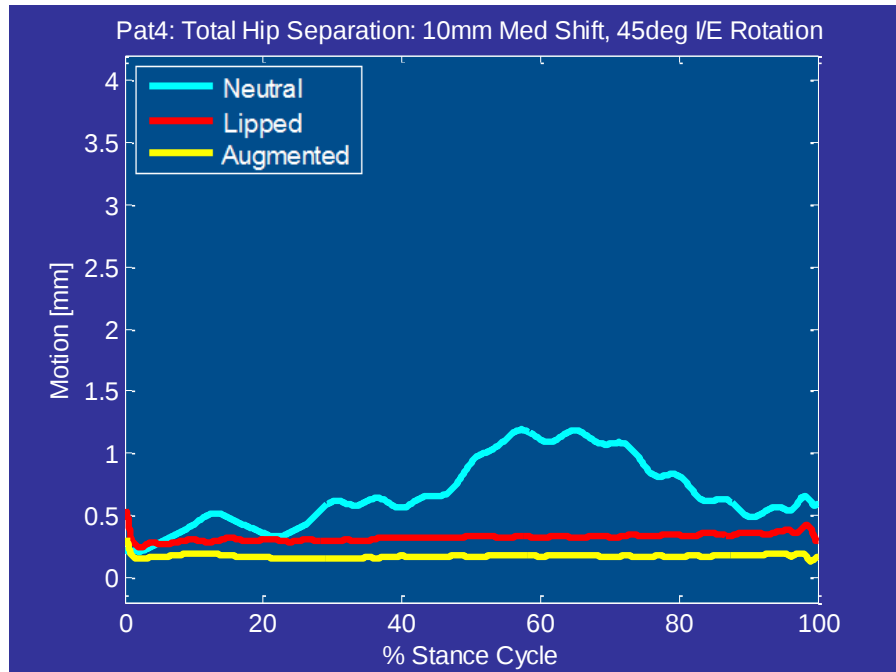


(a)

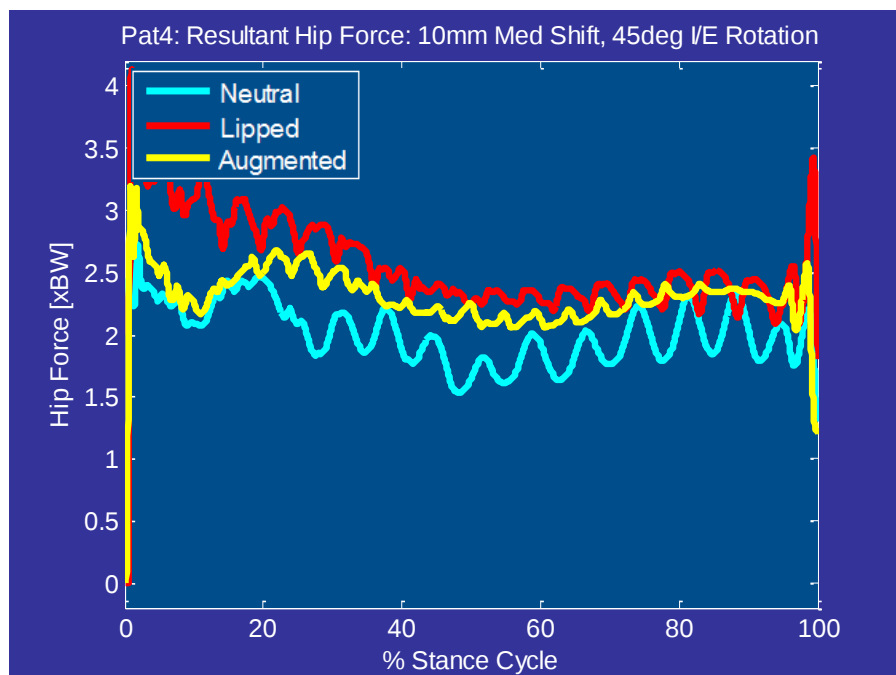


(b)

Figure E115: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
0° I/E Cup Rotation with Liner Center (LC) alignment.

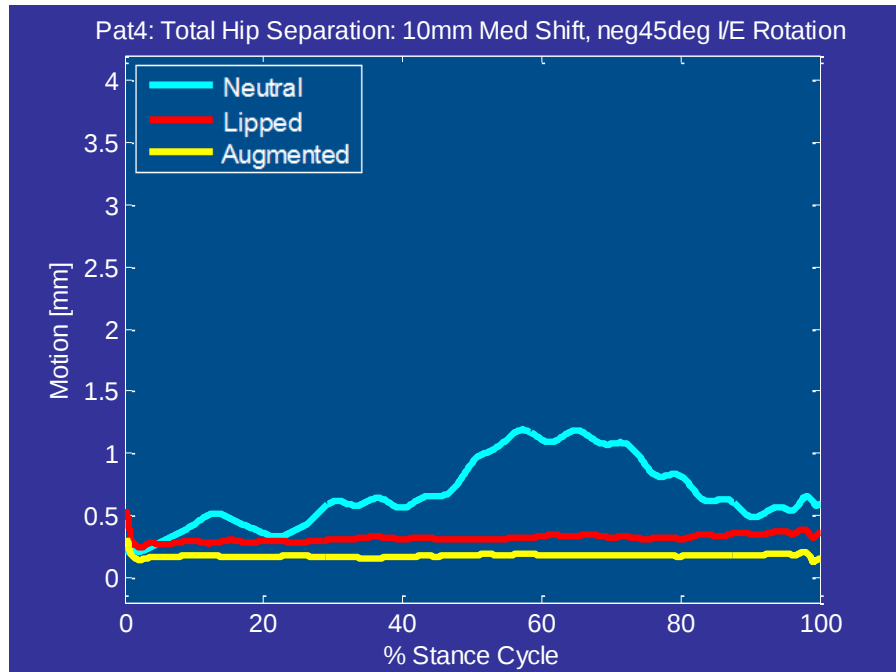


(a)



(b)

Figure E116: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
45° I/E Cup Rotation with Liner Center (LC) alignment.

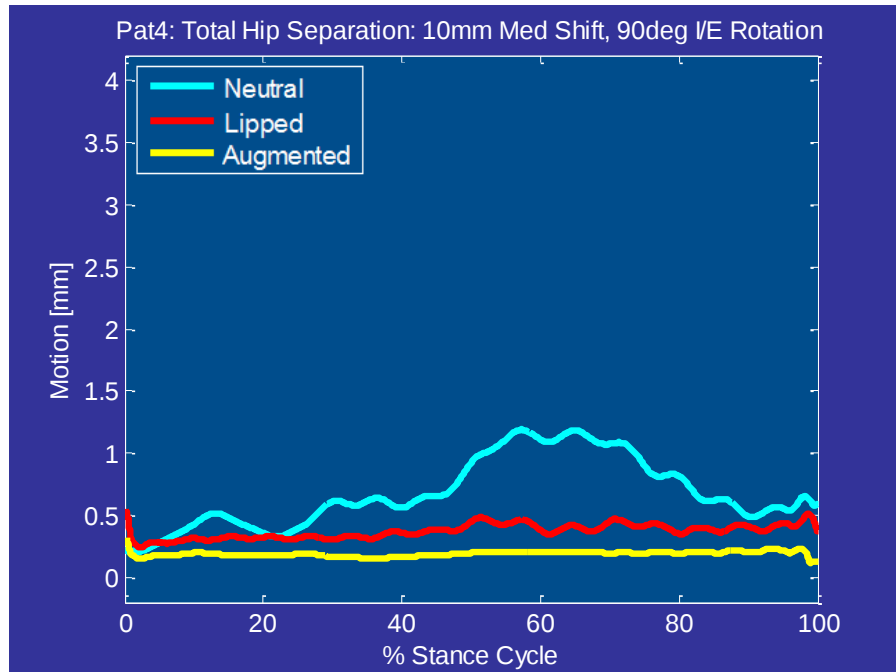


(a)

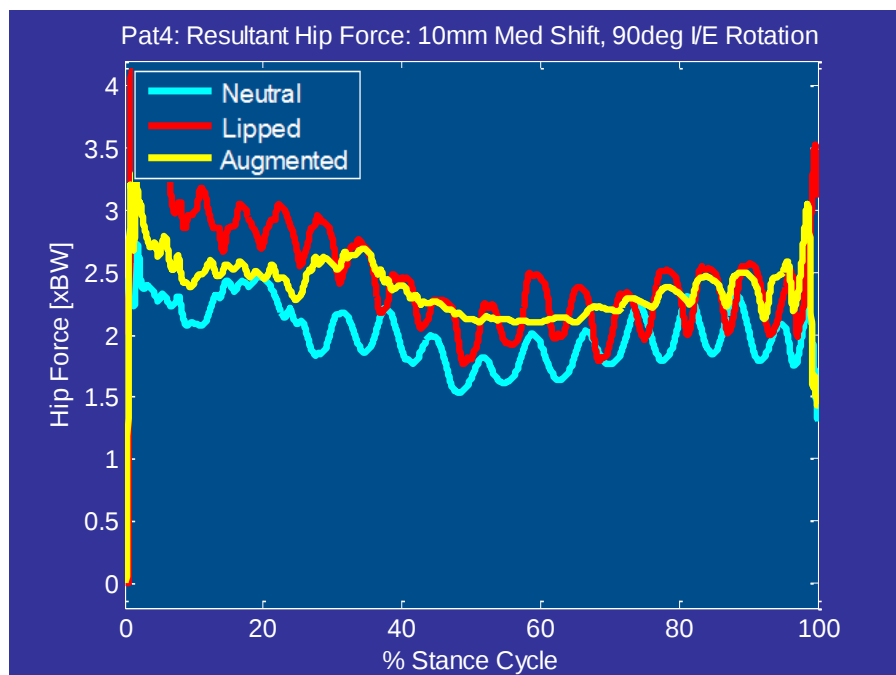


(b)

Figure E117: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
-45° I/E Cup Rotation with Liner Center (LC) alignment.

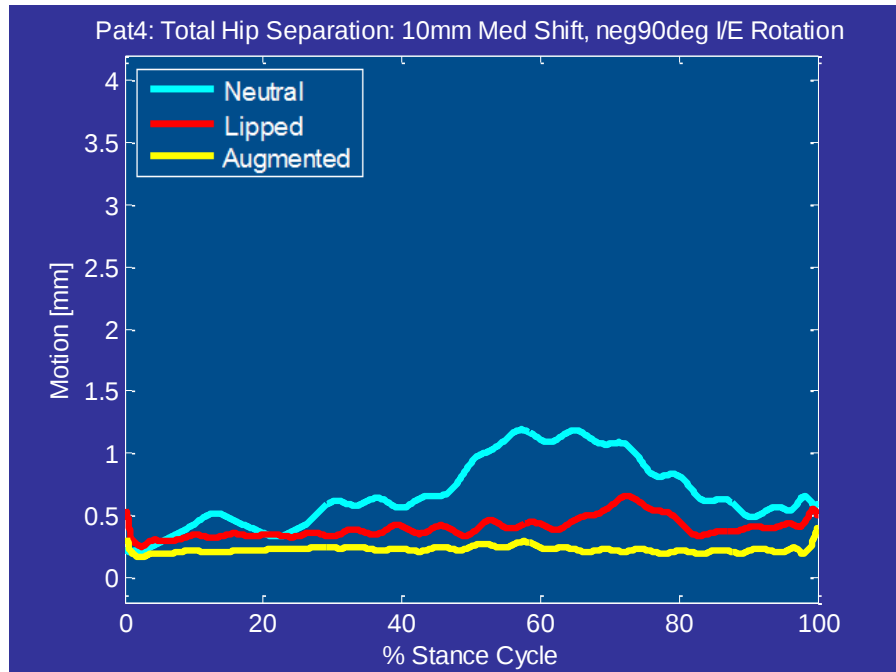


(a)

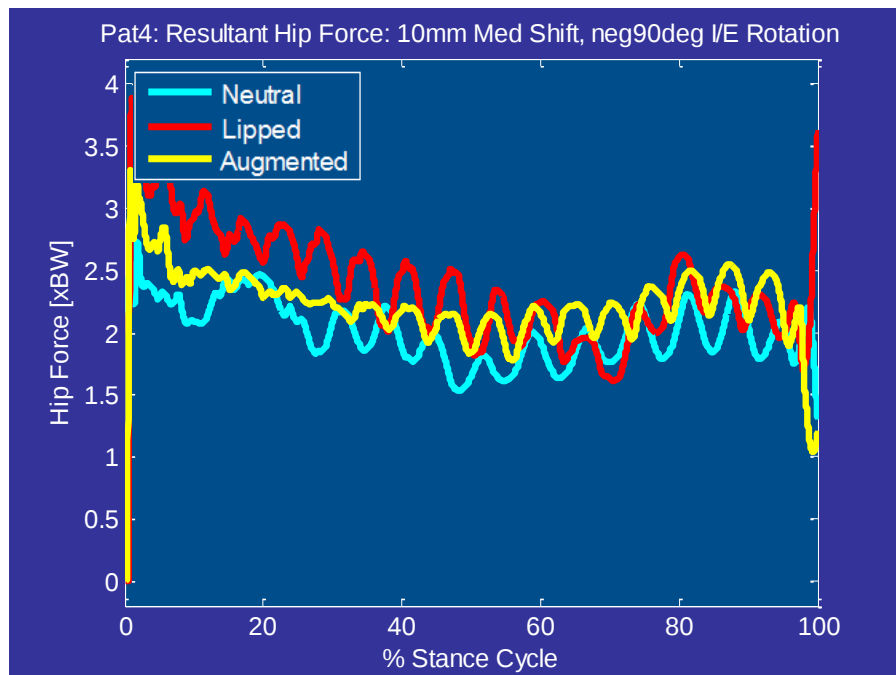


(b)

Figure E118: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
90° I/E Cup Rotation with Liner Center (LC) alignment.

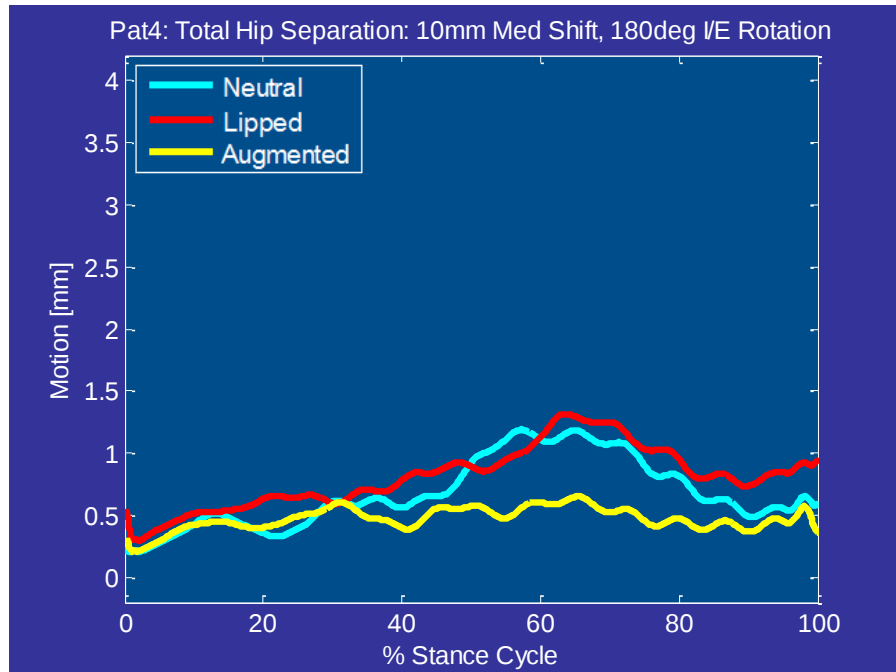


(a)

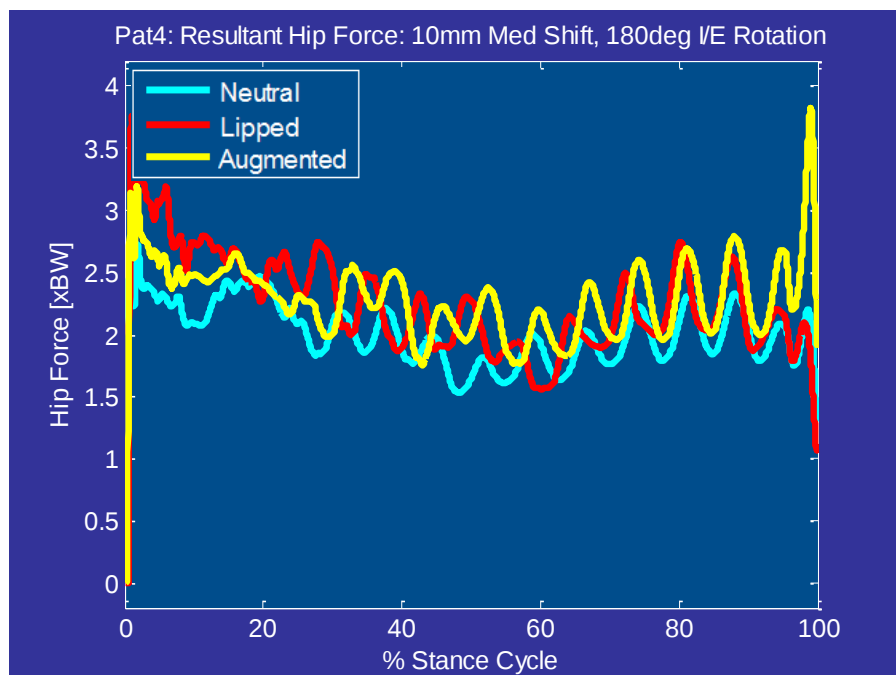


(b)

Figure E119: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
-90° I/E Cup Rotation with Liner Center (LC) alignment.



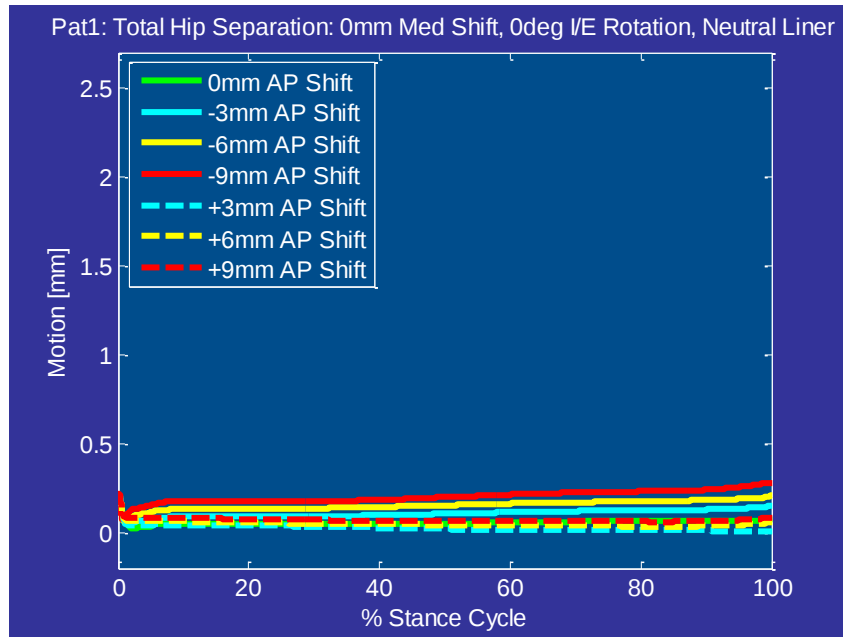
(a)



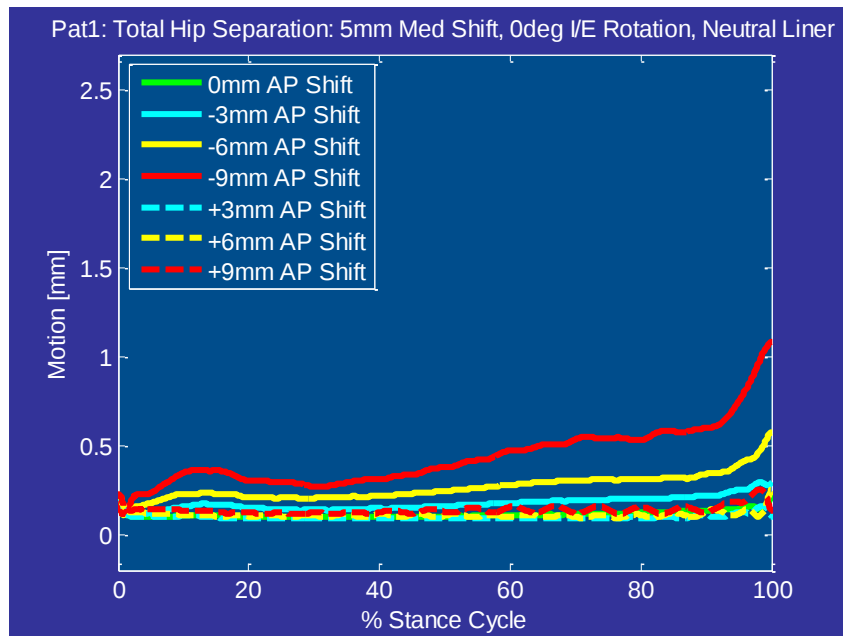
(b)

Figure E120: (a) Hip separation and (b) hip force Pat 4: 10mm Medial Cup Shift
180° I/E Cup Rotation with Liner Center (LC) alignment.

Appendix F: Anterior/Posterior Shifting Figures with Rotational Center Alignment



(a)

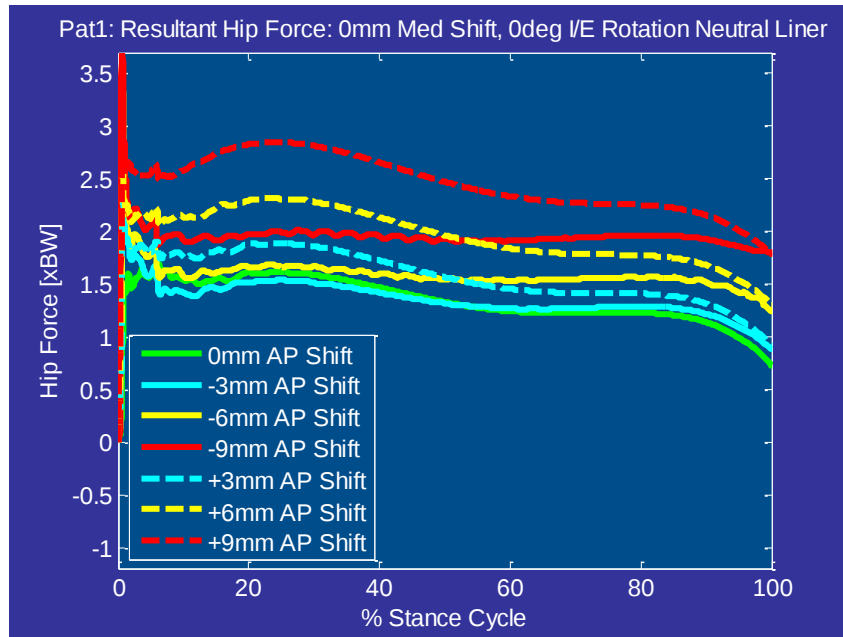


(b)

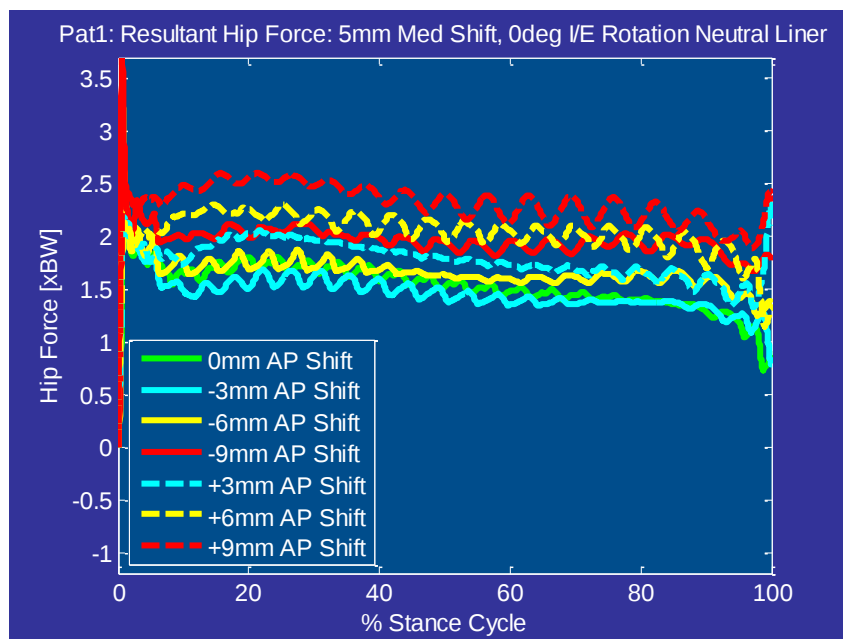
Figure F1: Pat 1: Neutral Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

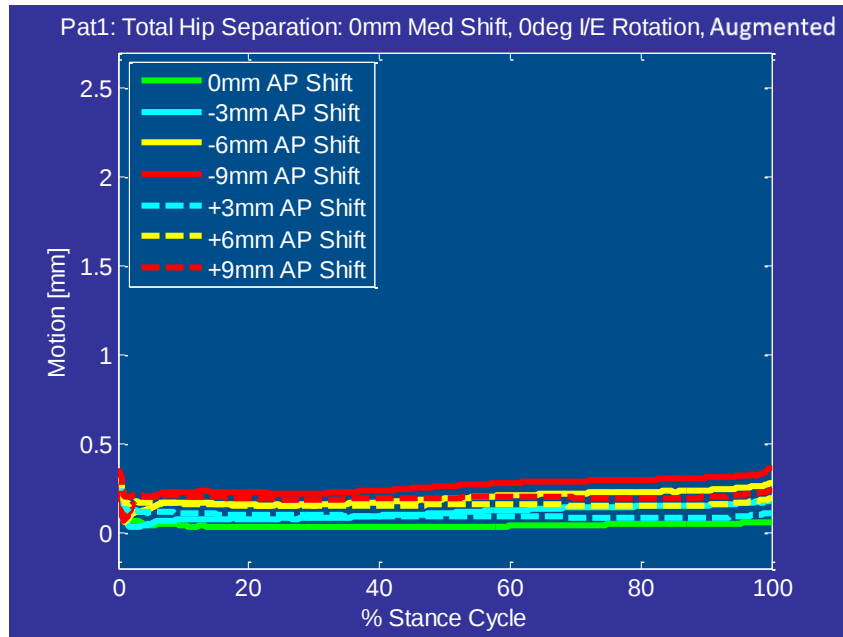


(b)

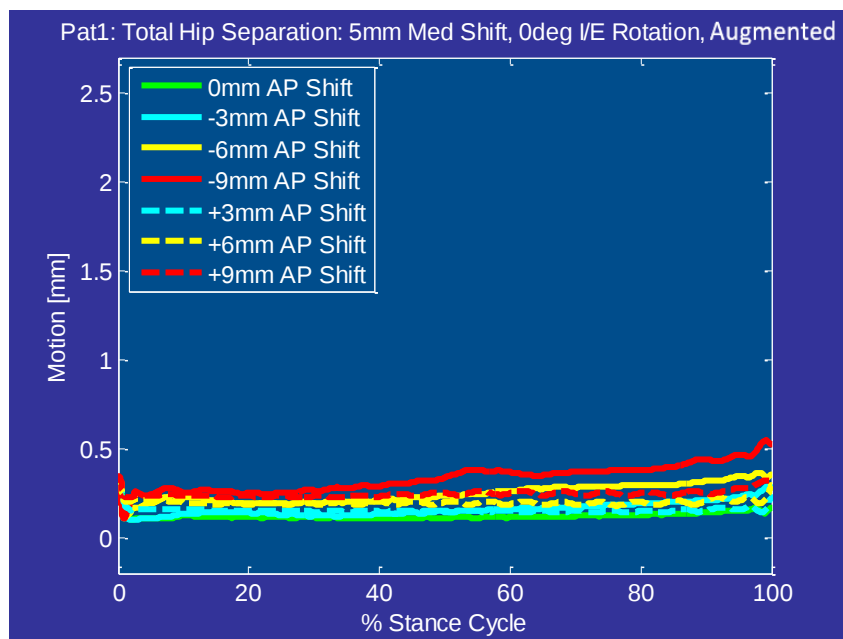
Figure F2: Pat 1: Neutral Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

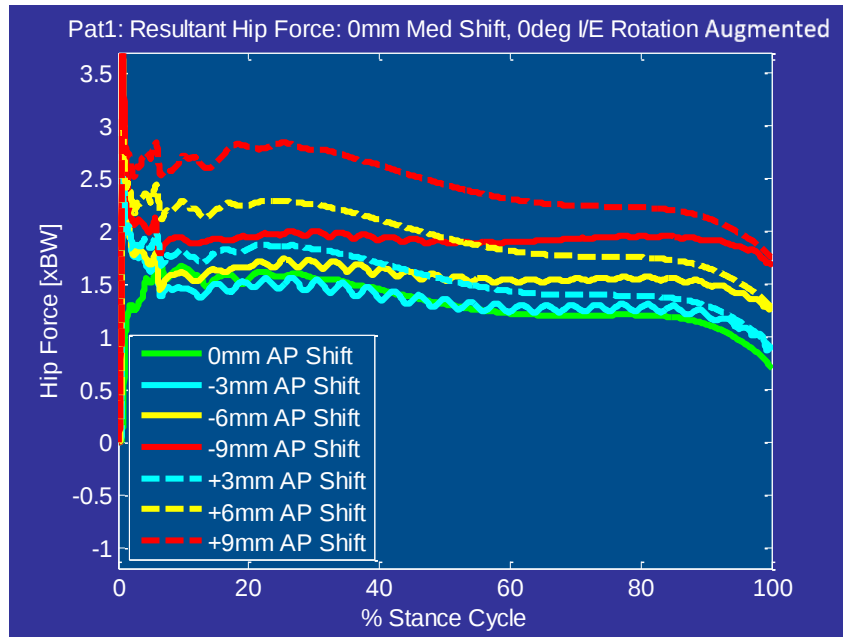


(b)

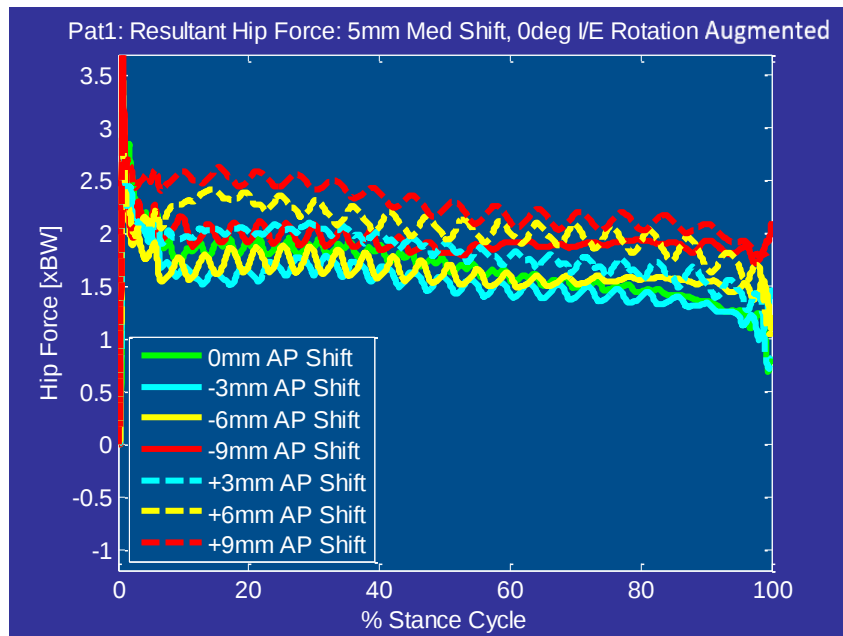
Figure F3: Pat 1: Augmented Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

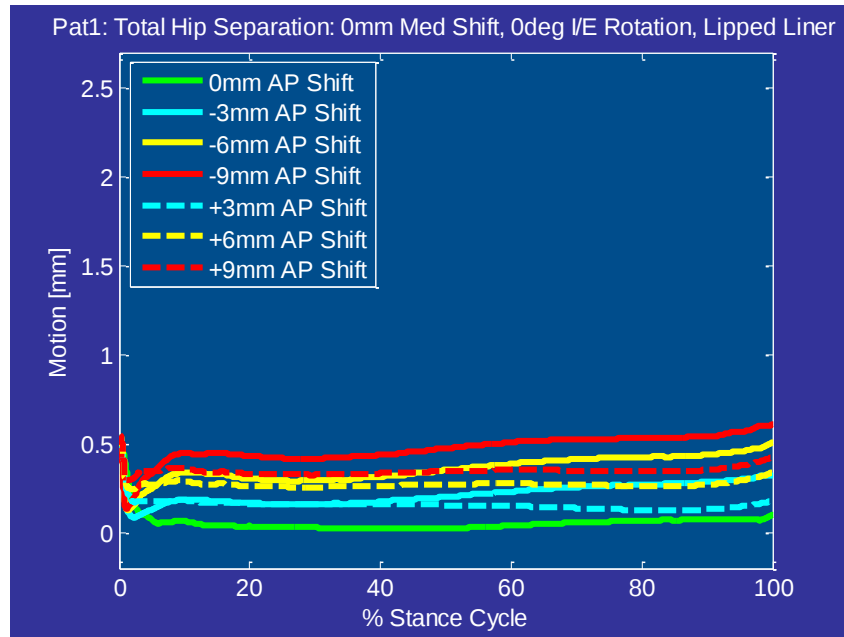


(b)

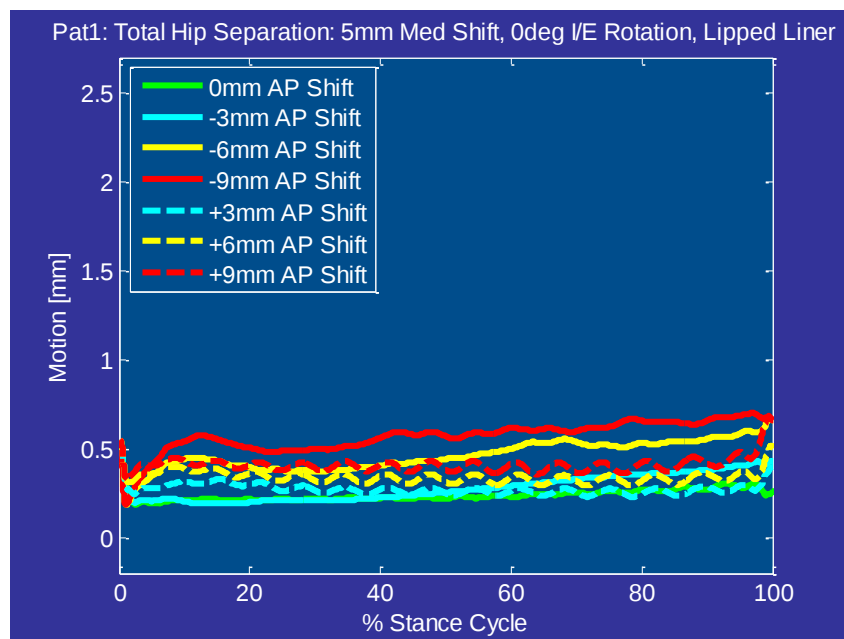
Figure F4: Pat 1: Augmented Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

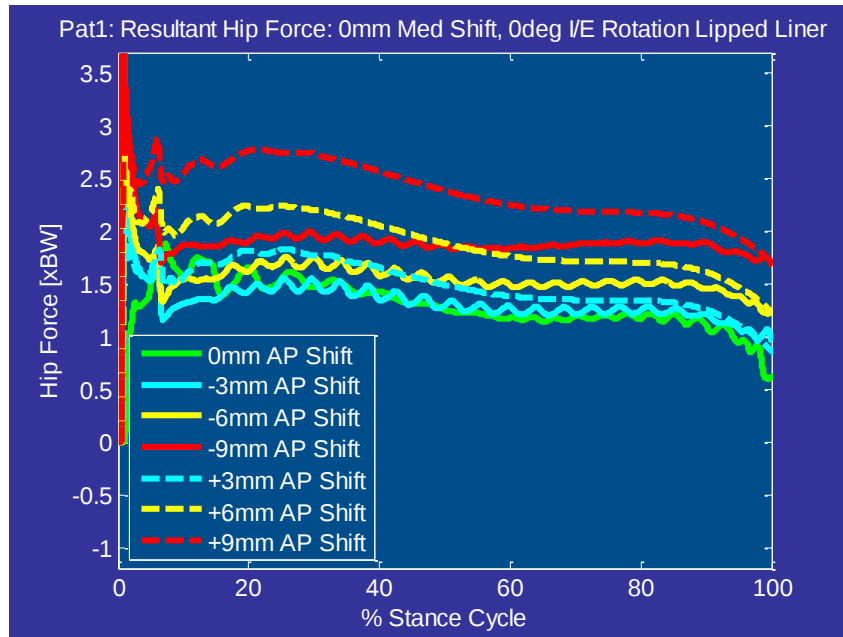


(b)

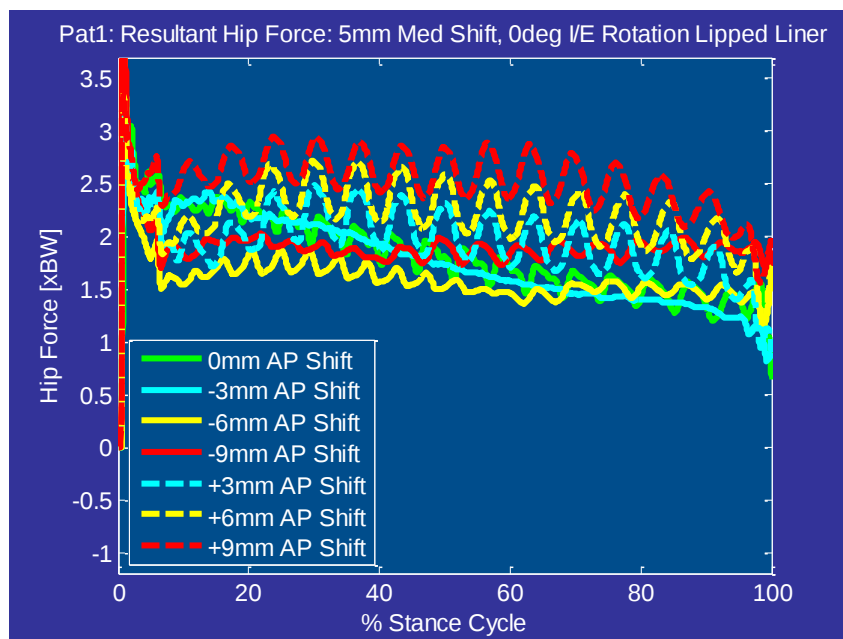
Figure F5: Pat 1: Lipped Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

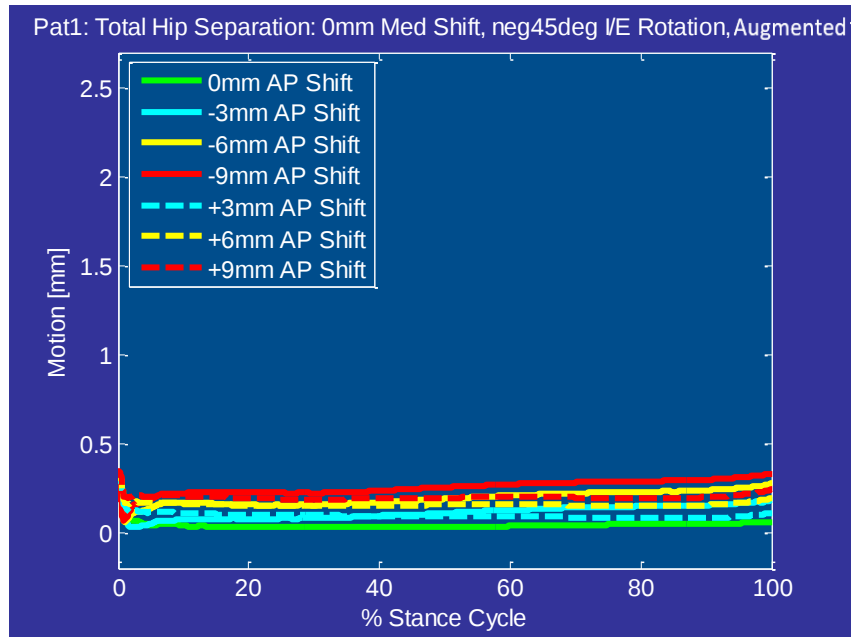


(b)

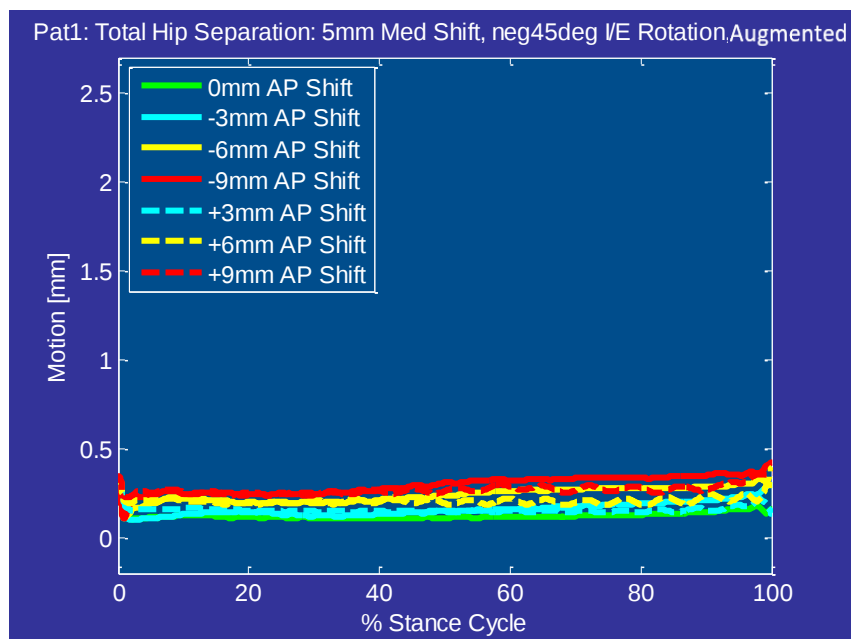
Figure F6: Pat 1: Lipped Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

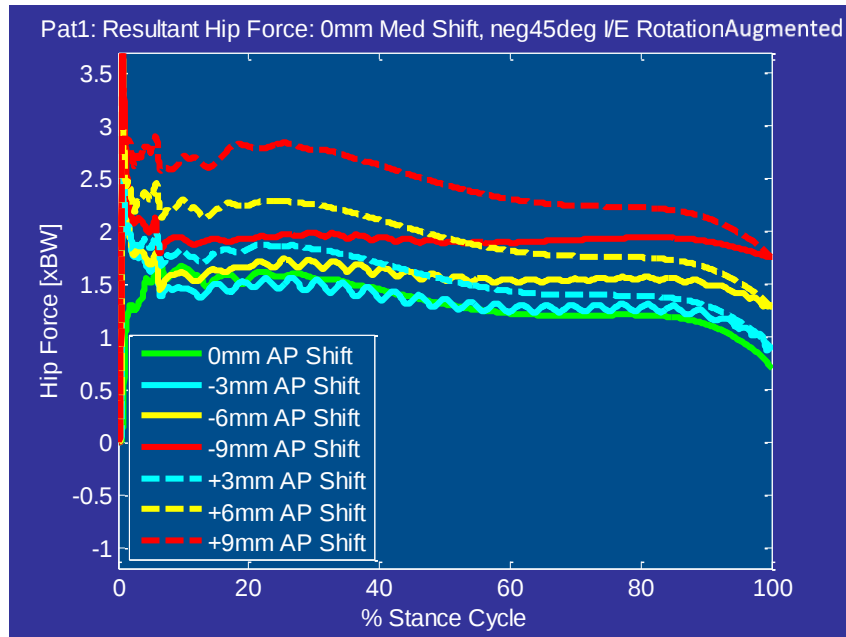


(b)

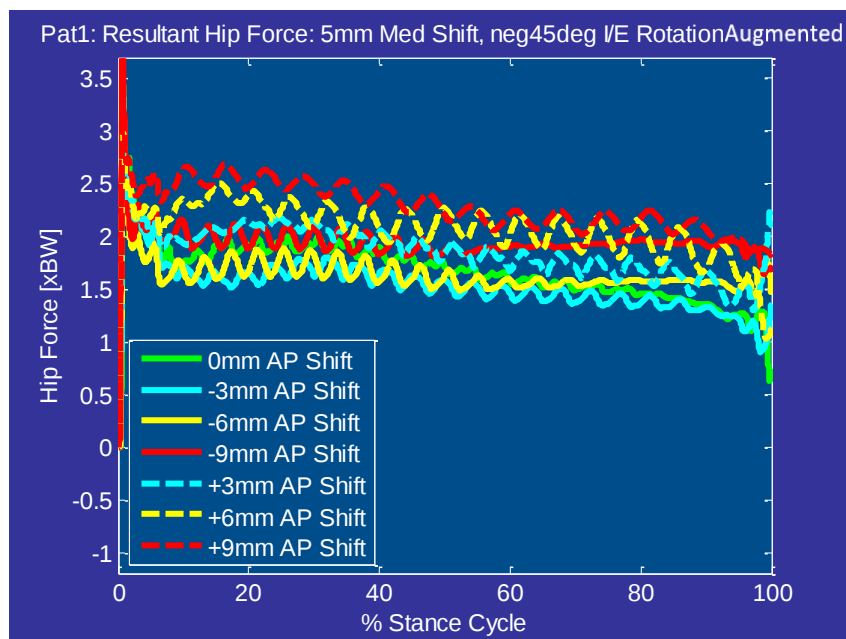
Figure F7: Pat 1: Augmented Liner: Separation

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

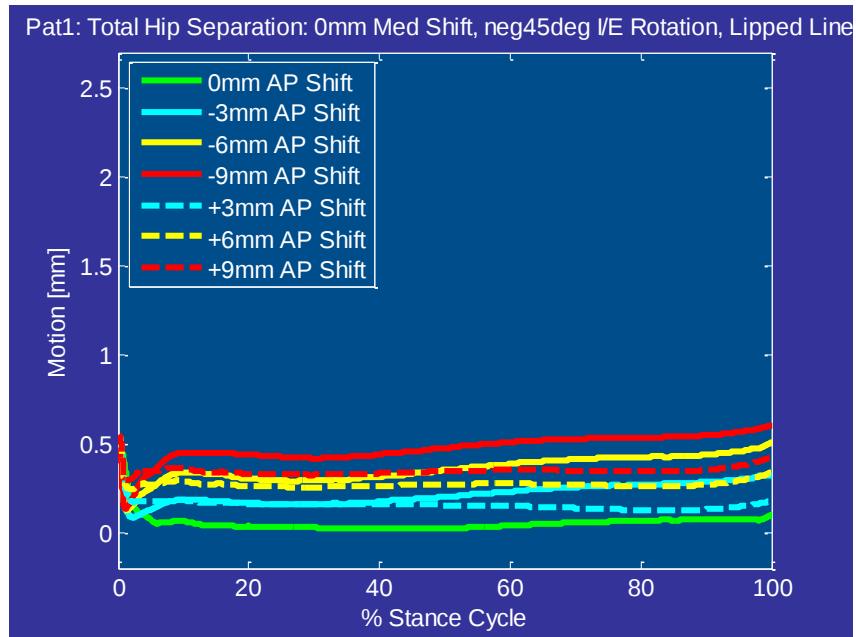


(b)

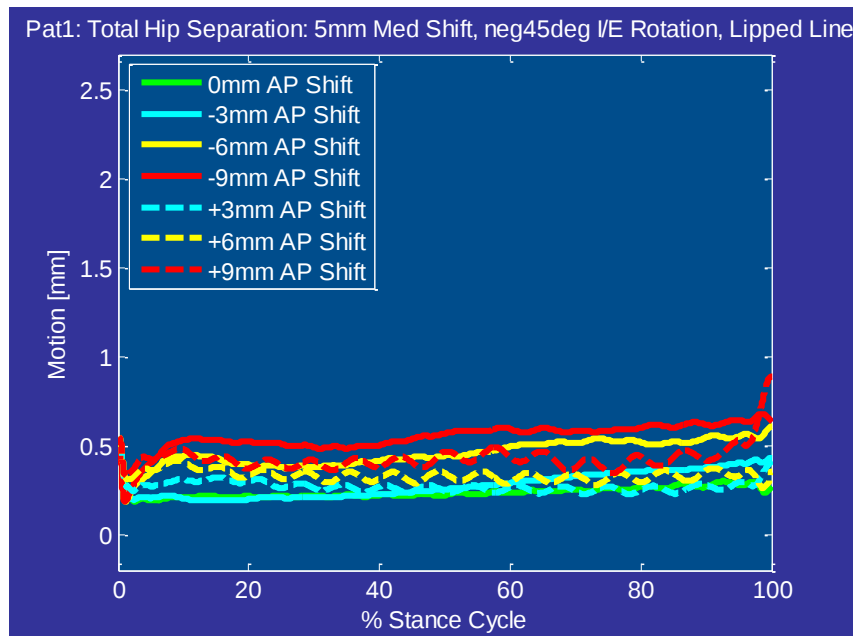
Figure F8: Pat 1: Augmented Liner: Hip Force

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

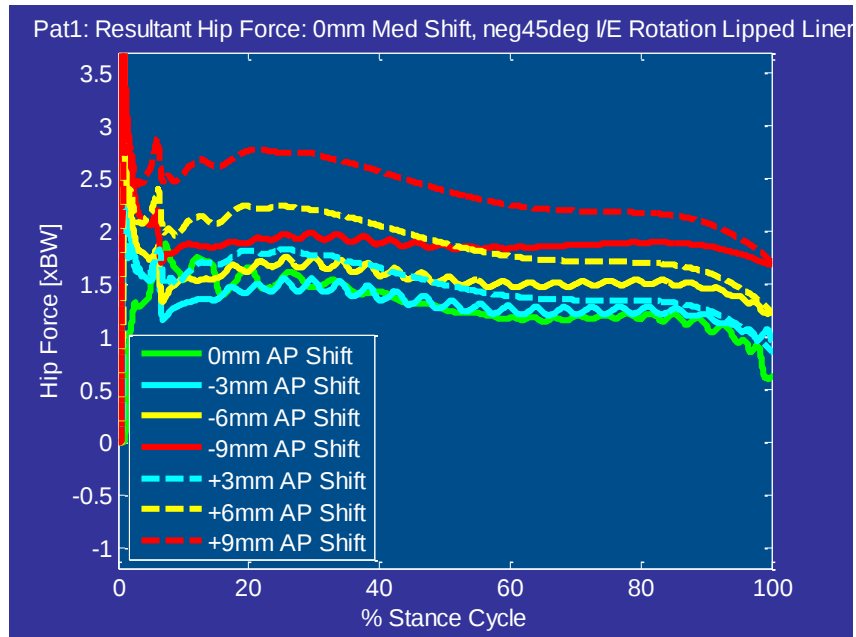


(b)

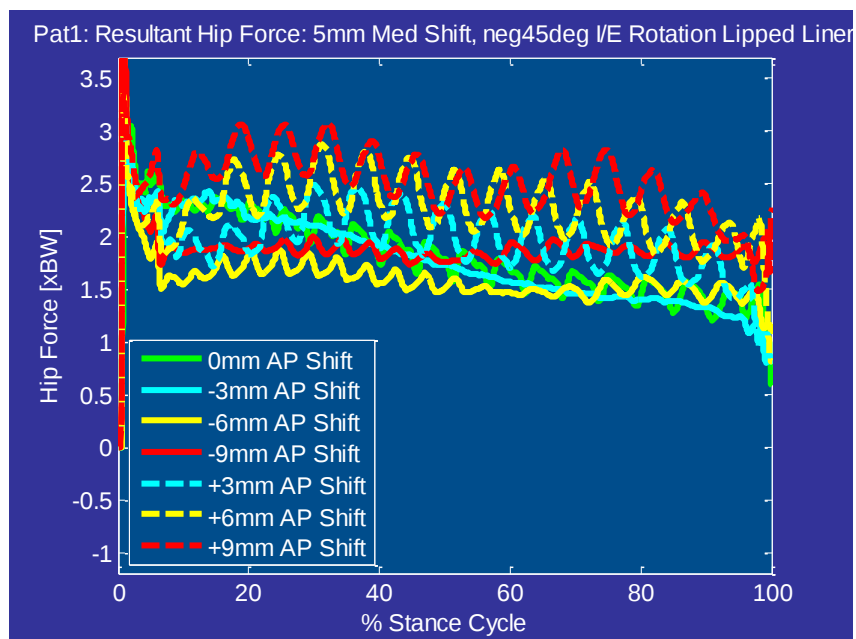
Figure F9: Pat 1: Lipped Liner: Separation

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

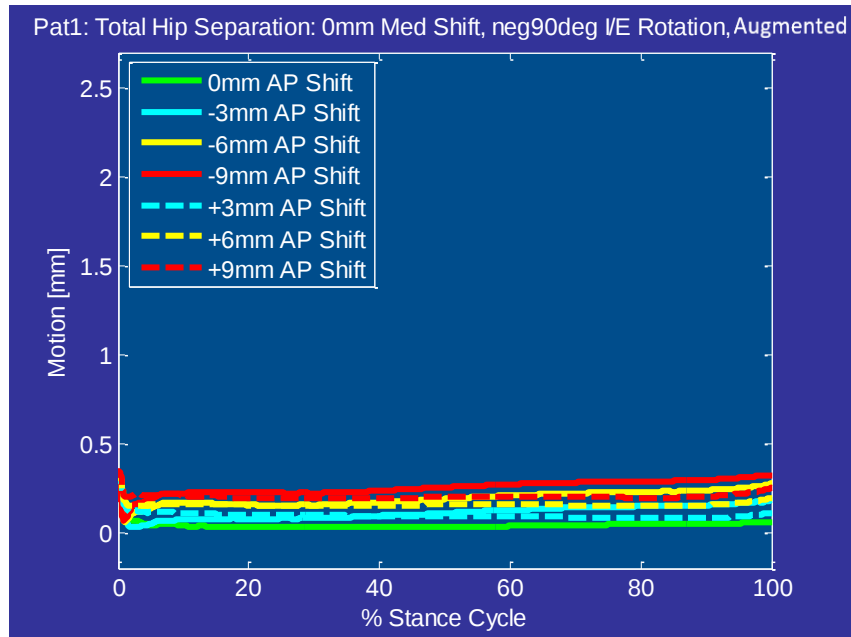


(b)

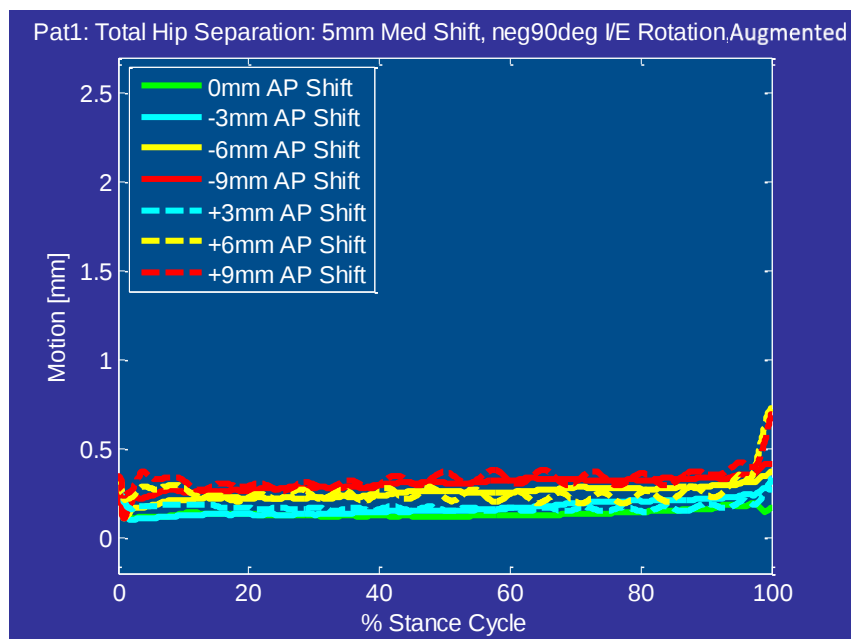
Figure F10: Pat 1: Lipped Liner: Hip Force

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

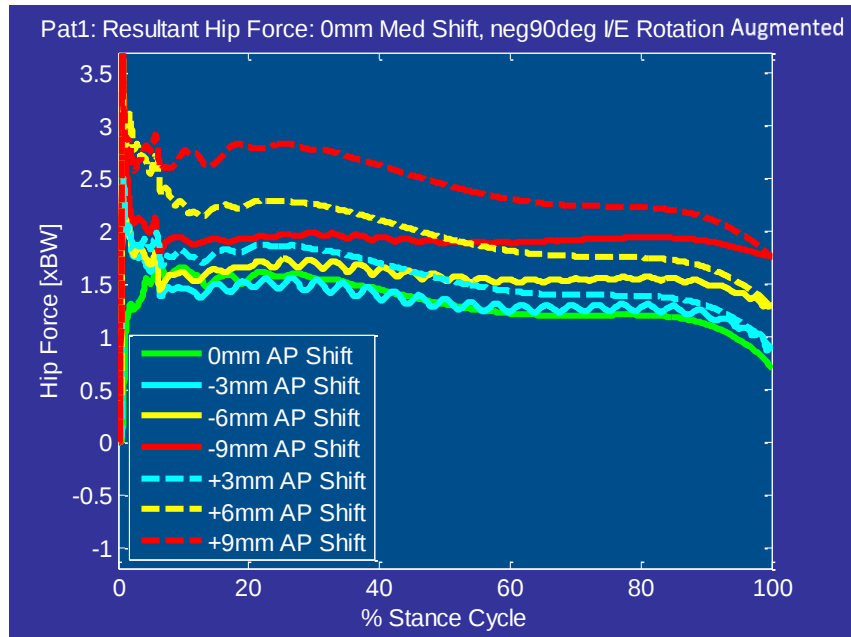


(b)

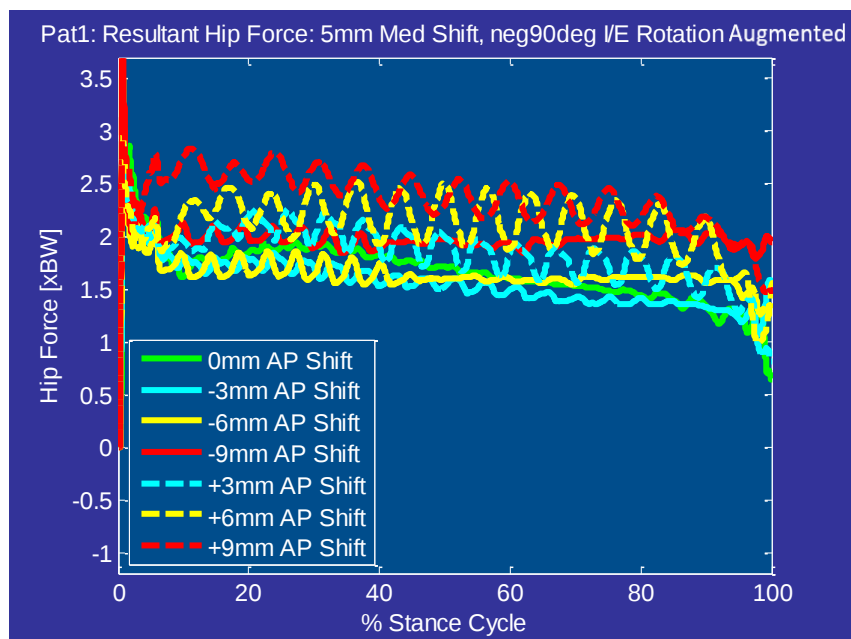
Figure F11: Pat 1: Augmented Liner: Separation

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

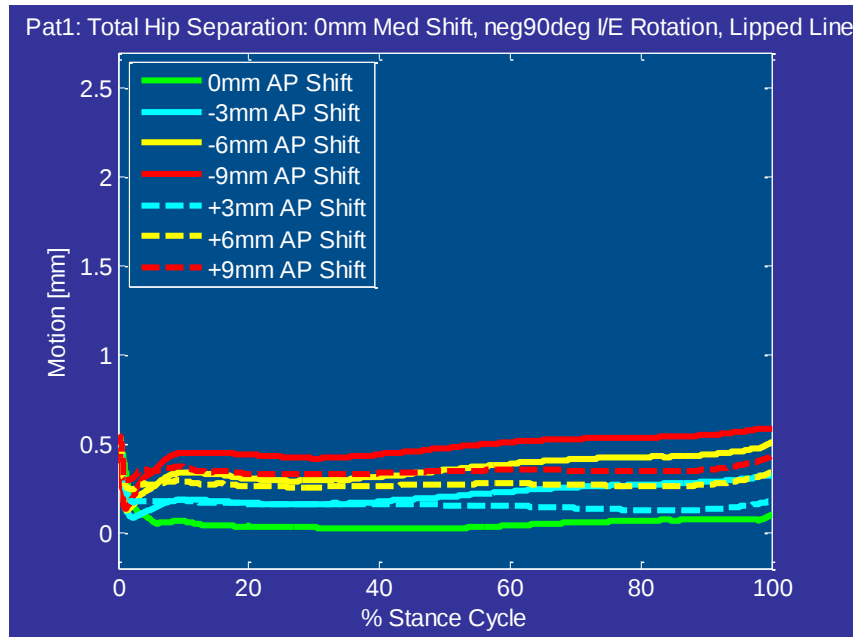


(b)

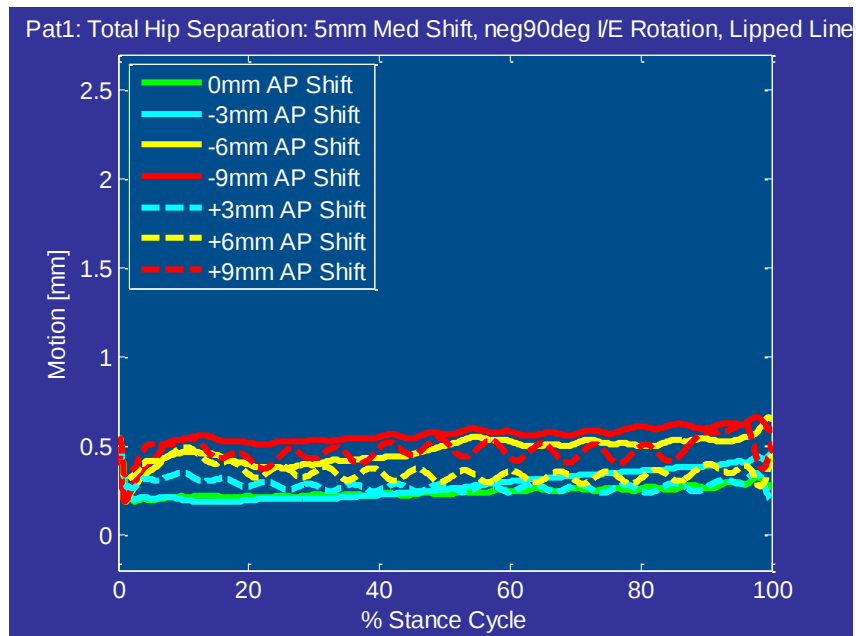
Figure F12: Pat 1: Augmented Liner: Hip Force

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

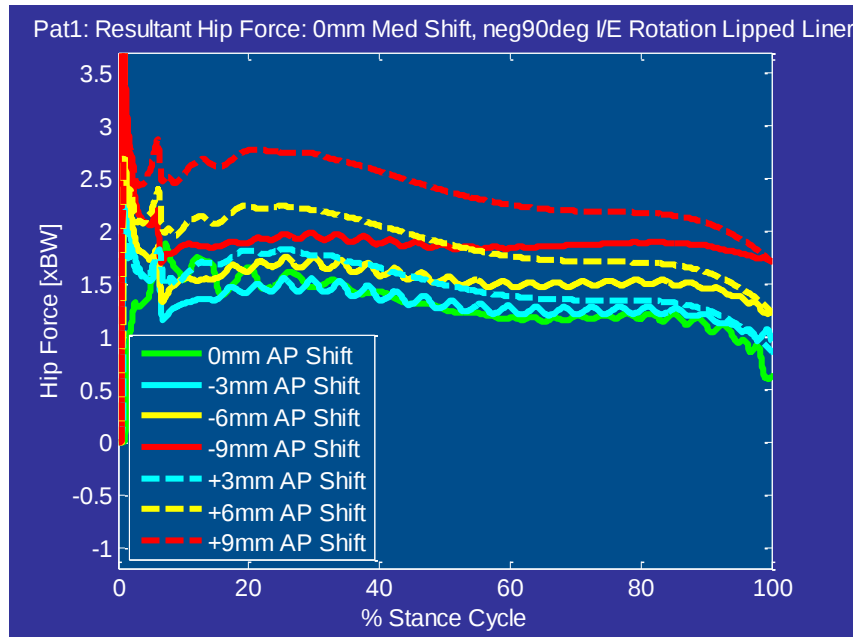


(b)

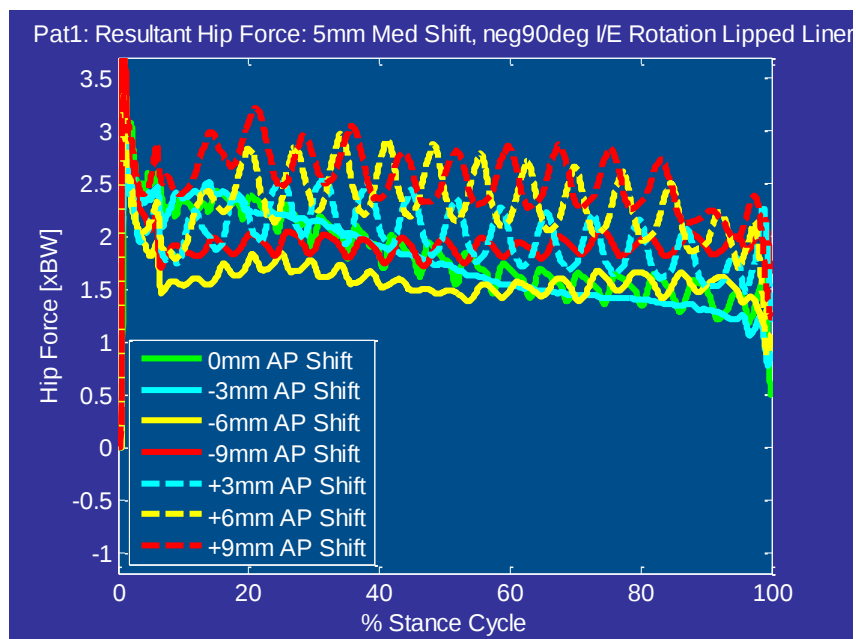
Figure F13: Pat 1: Lipped Liner: Separation

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

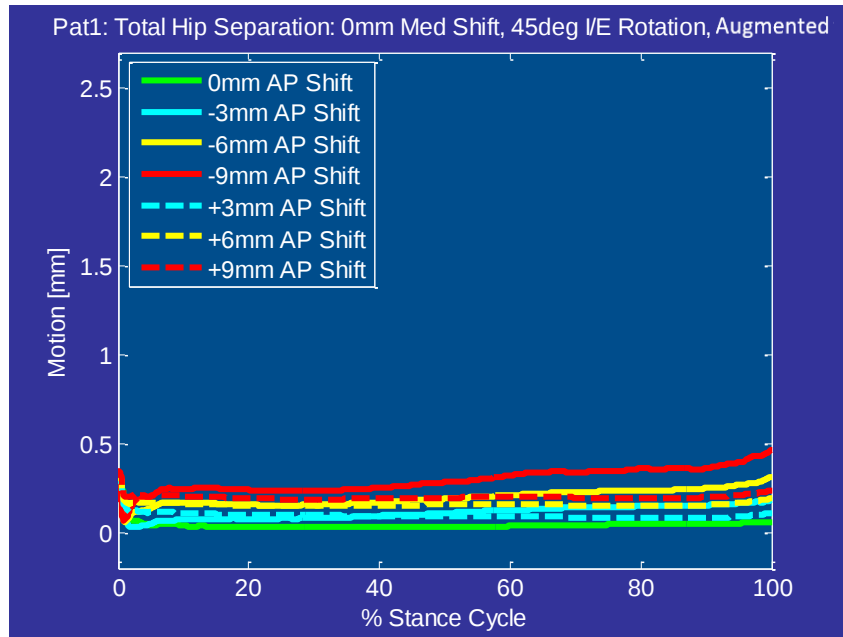


(b)

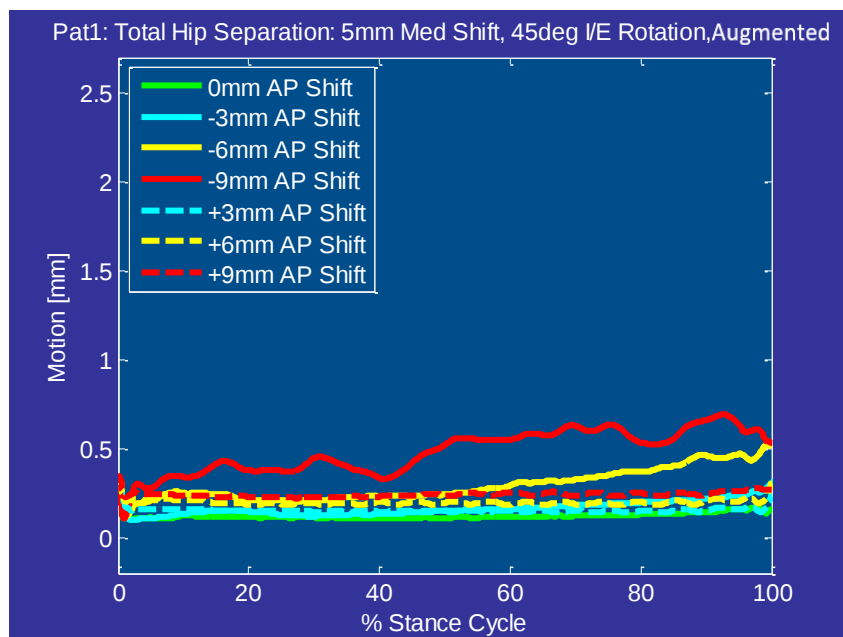
Figure F14: Pat 1: Lipped Liner: Hip Force

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

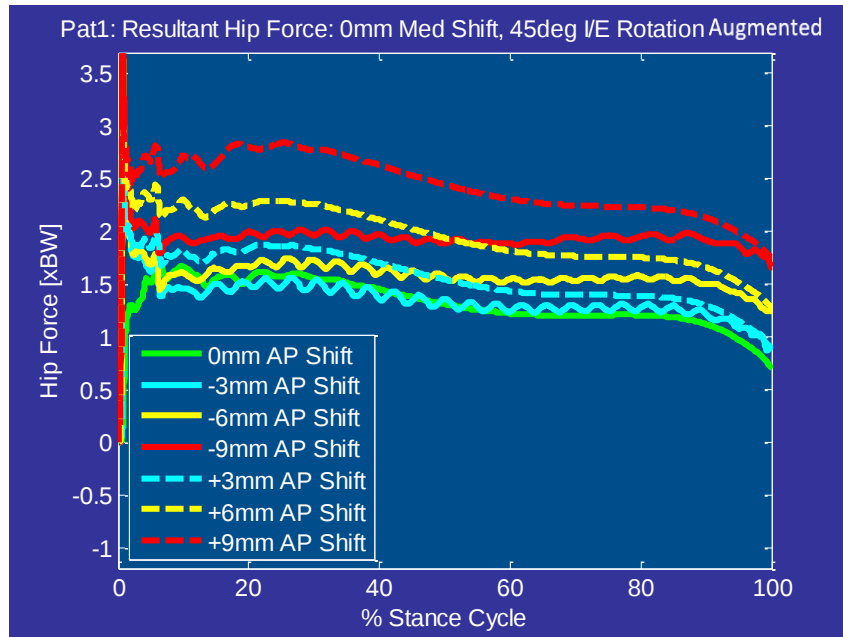


(b)

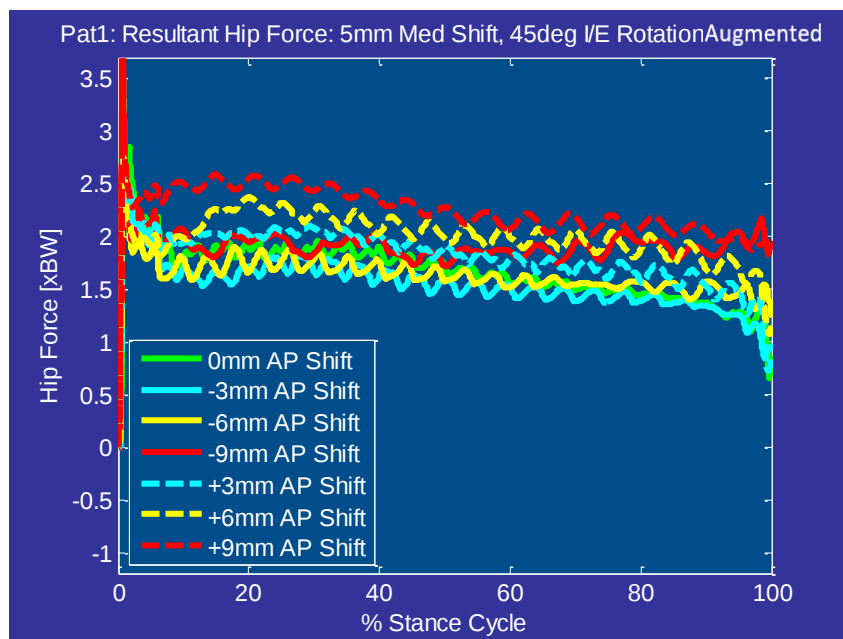
Figure F15: Pat 1: Augmented Liner: Separation

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

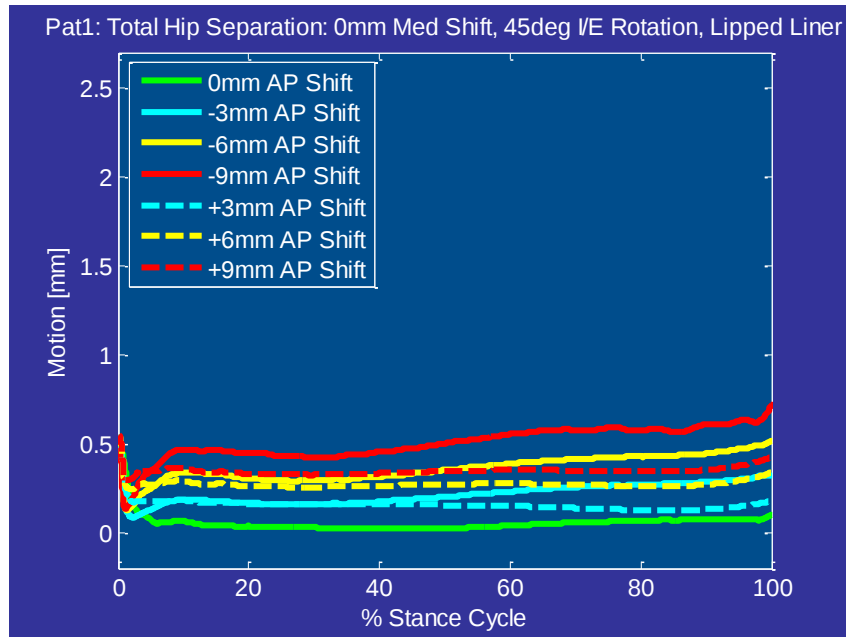


(b)

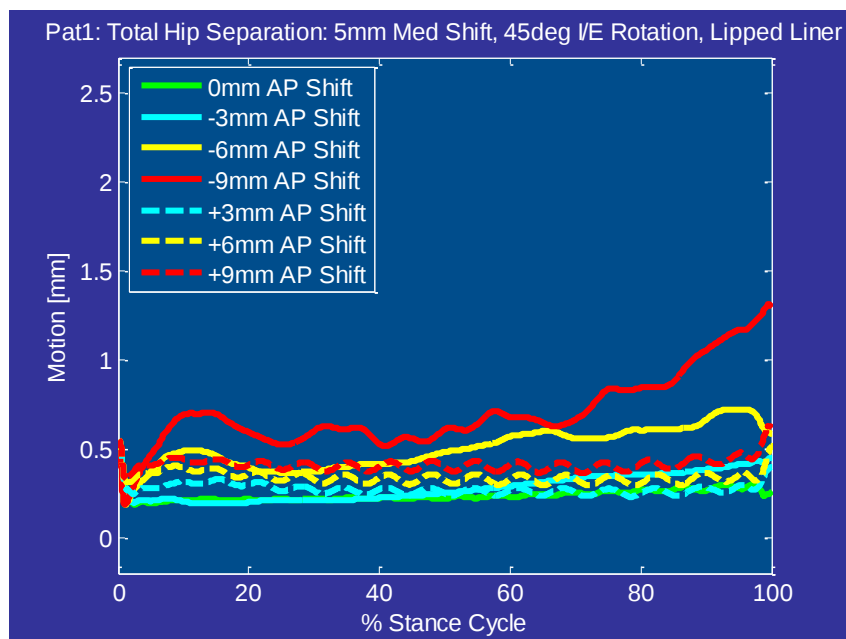
Figure F16: Pat 1: Augmented Liner: Hip Force

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

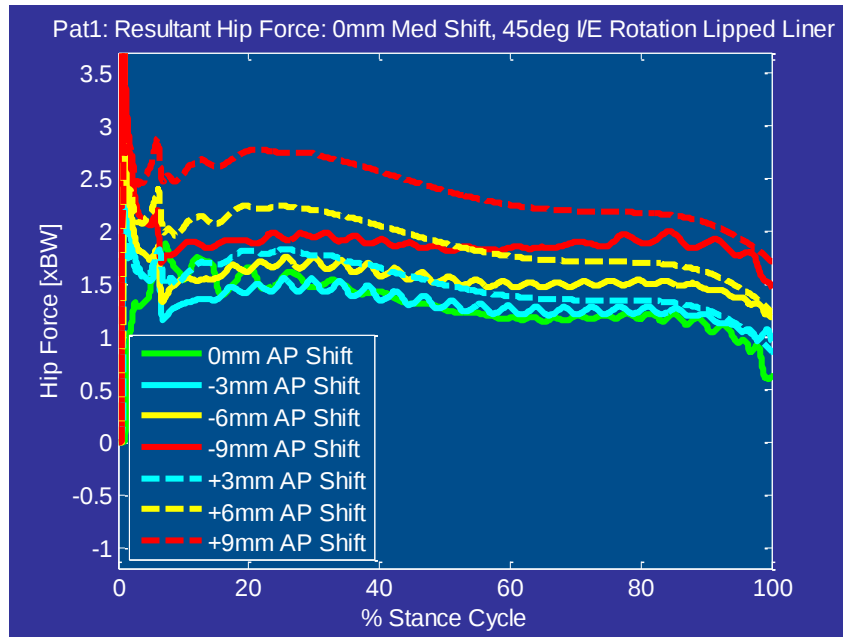


(b)

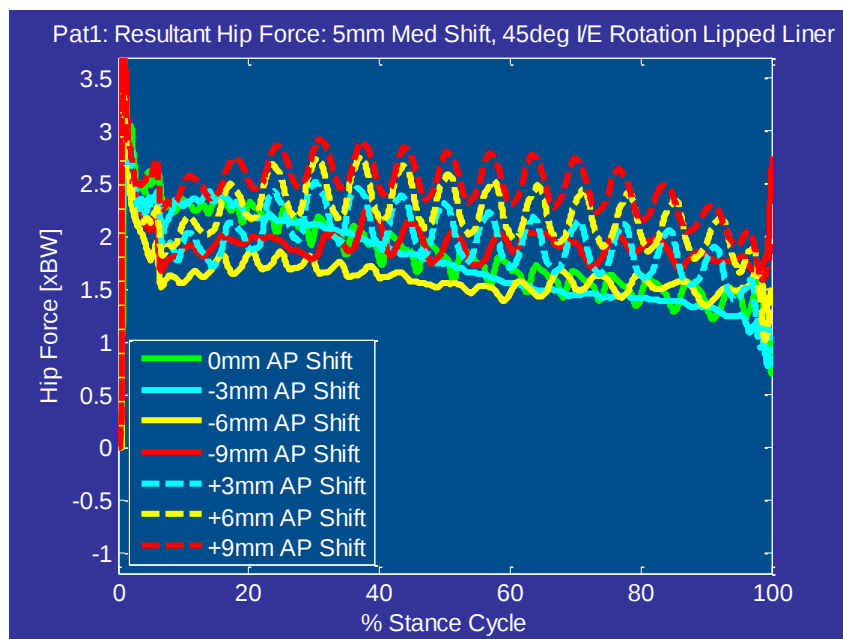
Figure F17: Pat 1: Lipped Liner: Separation

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

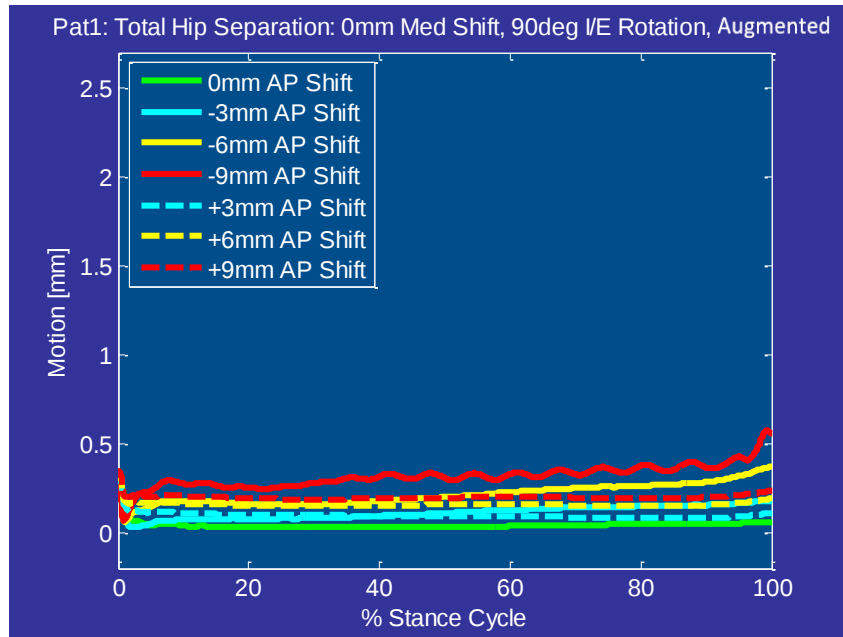


(b)

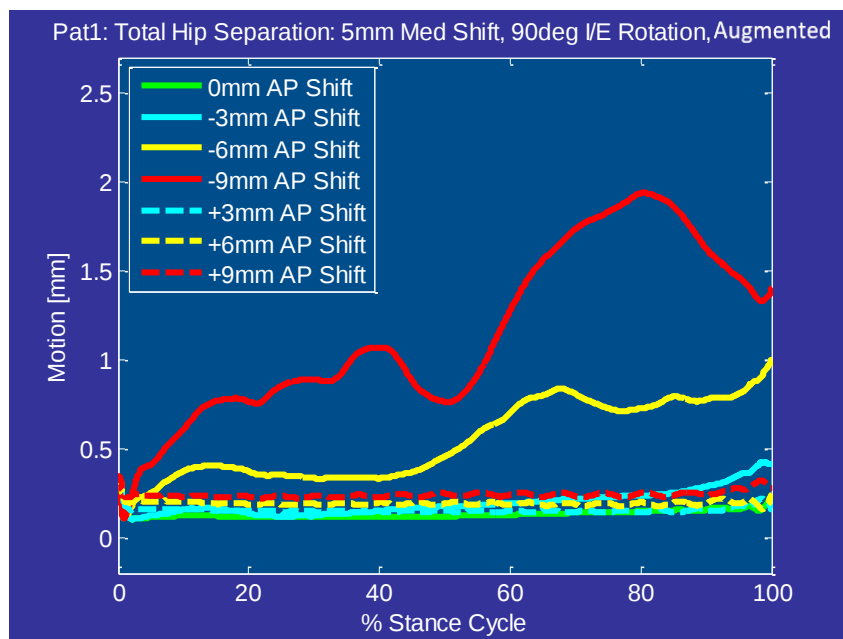
Figure F18: Pat 1: Lipped Liner: Hip Force

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

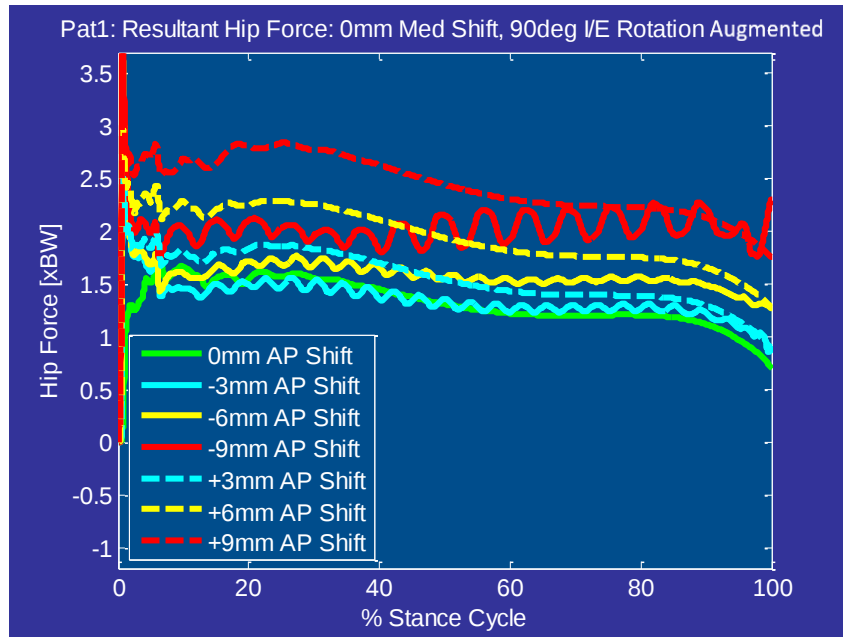


(b)

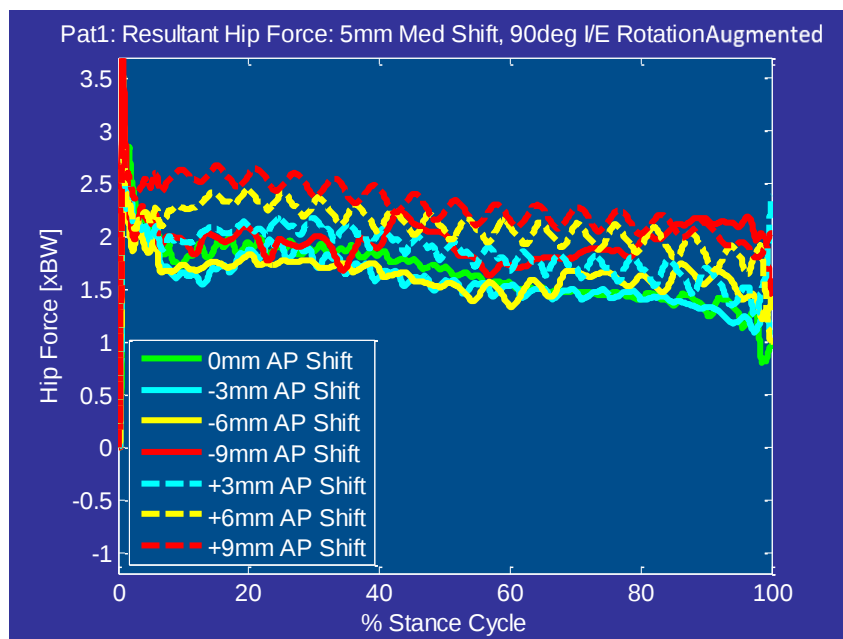
Figure F19: Pat 1: Augmented Liner: Separation

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

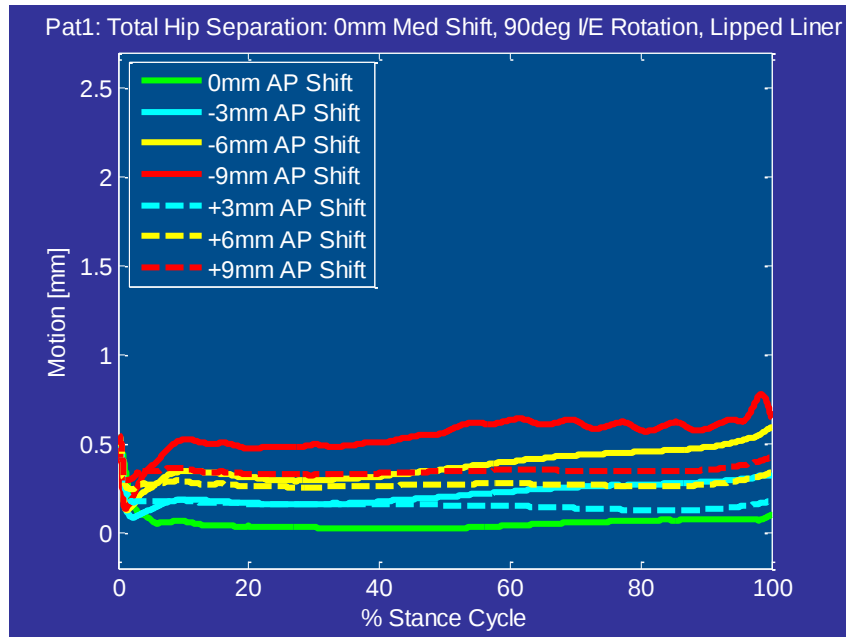


(b)

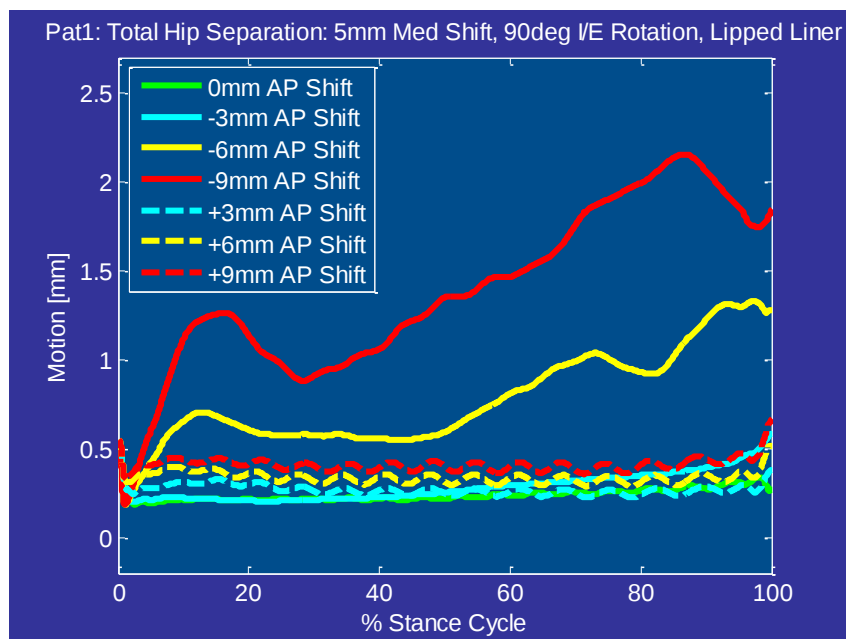
Figure F20: Pat 1: Augmented Liner: Hip Force

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

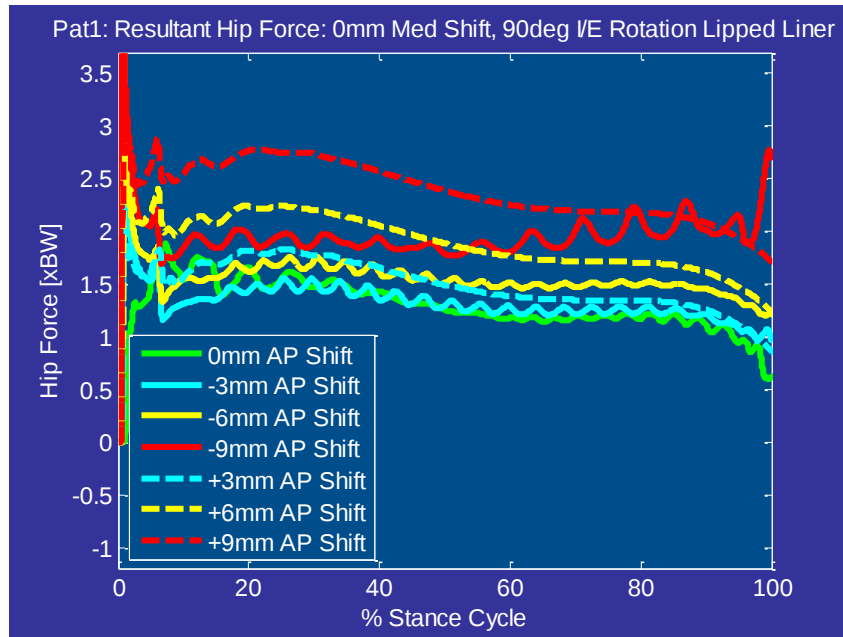


(b)

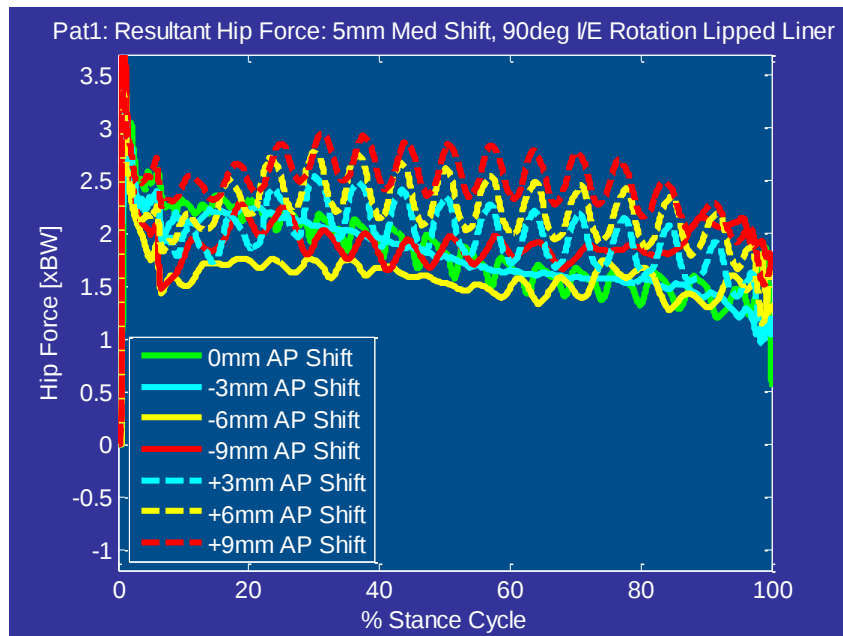
Figure F21: Pat 1: Lipped Liner: Separation

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

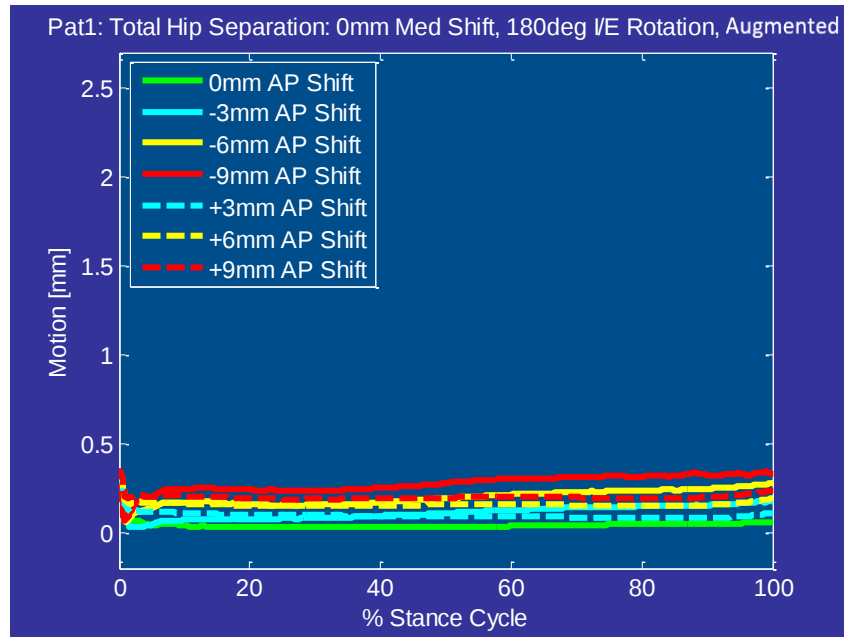


(b)

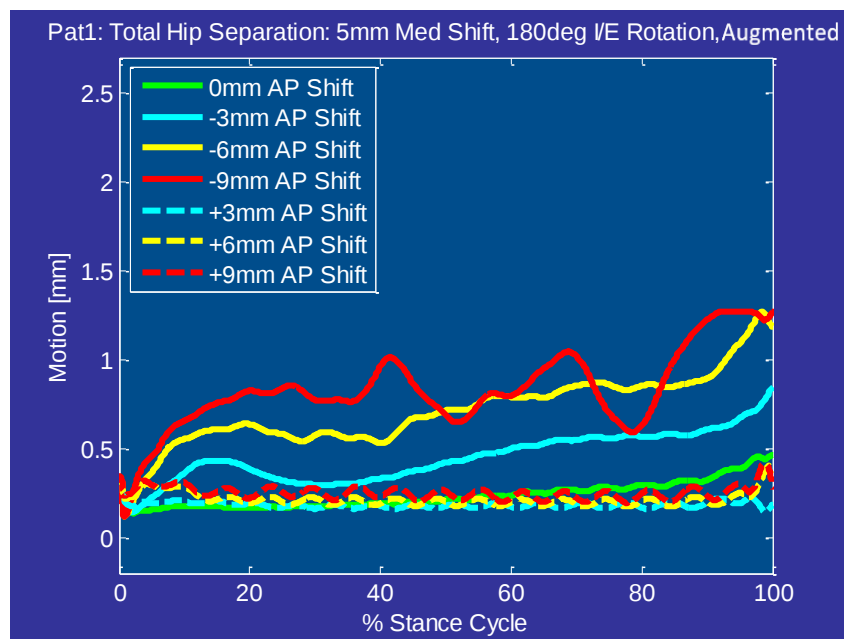
Figure F22: Pat 1: Lipped Liner: Hip Force

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

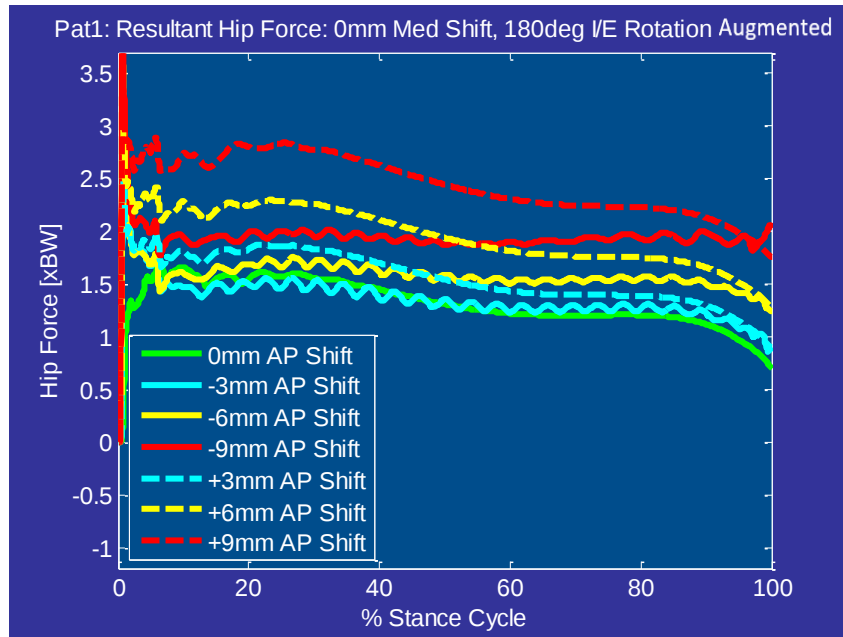


(b)

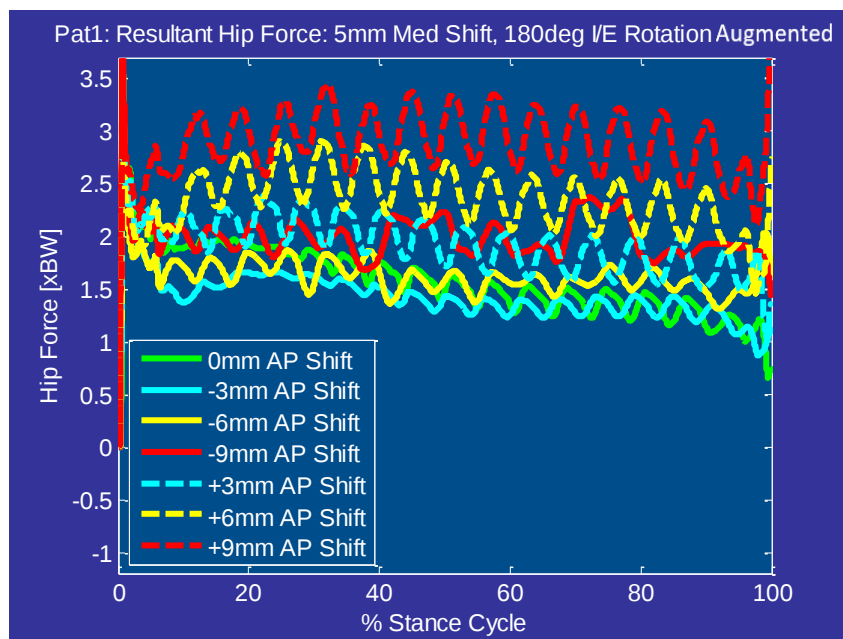
Figure F23: Pat 1: Augmented Liner: Separation

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

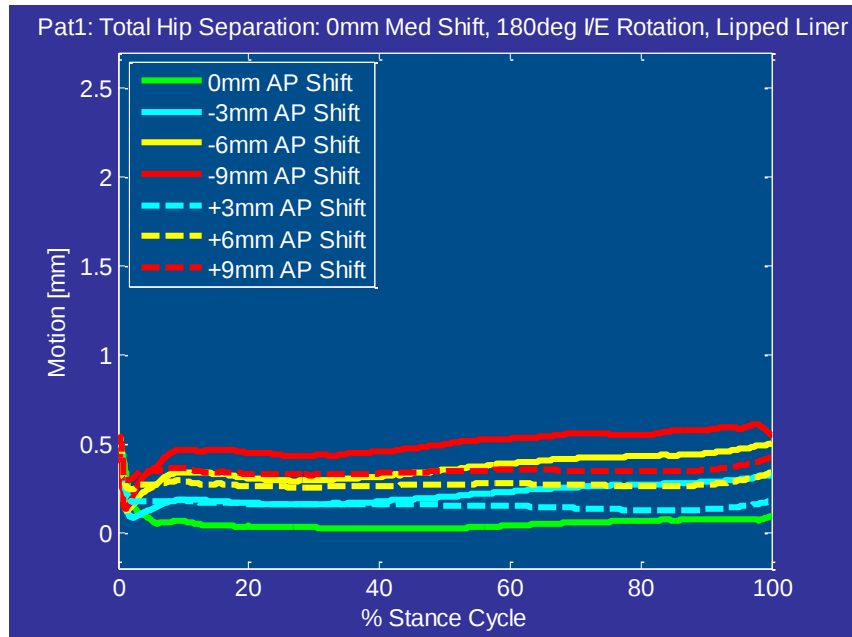


(b)

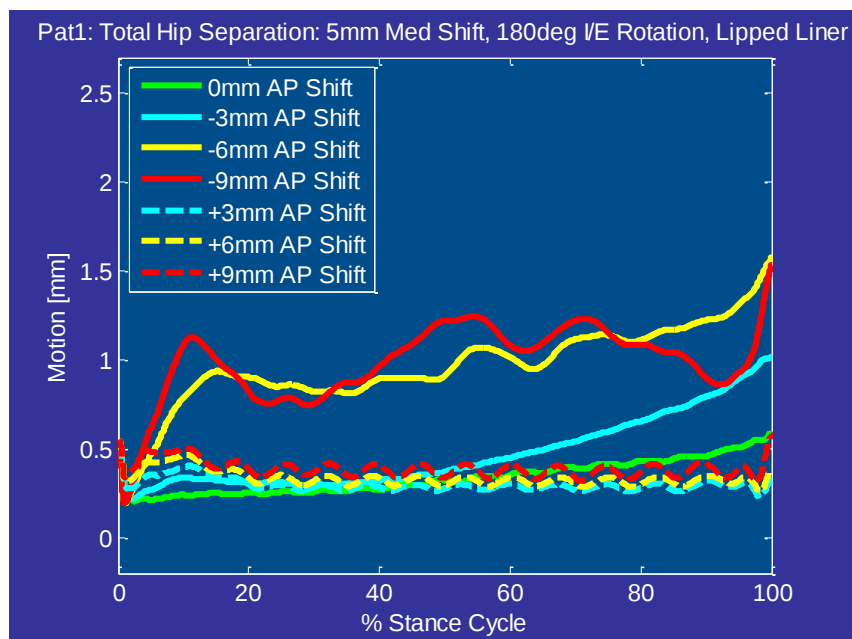
Figure F24: Pat 1: Augmented Liner: Hip Force

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

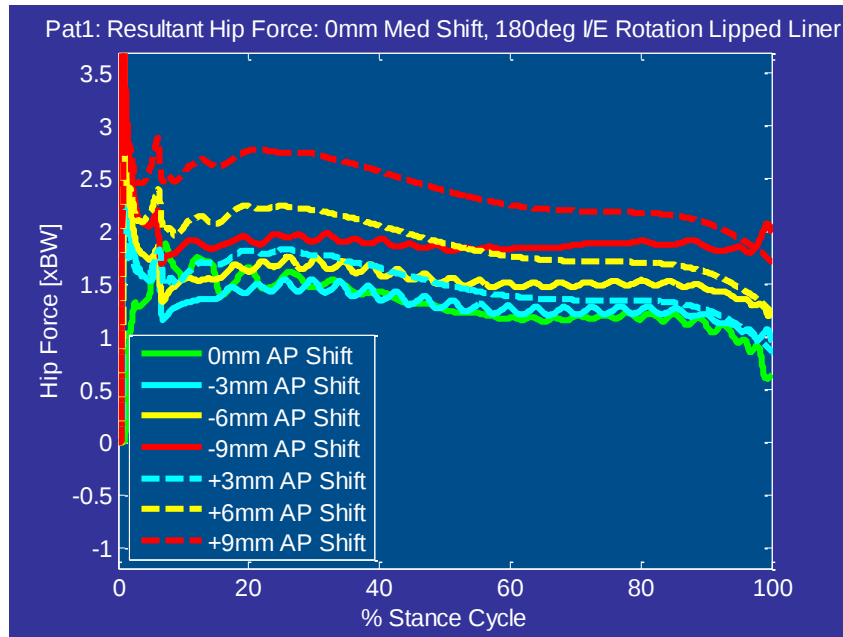


(b)

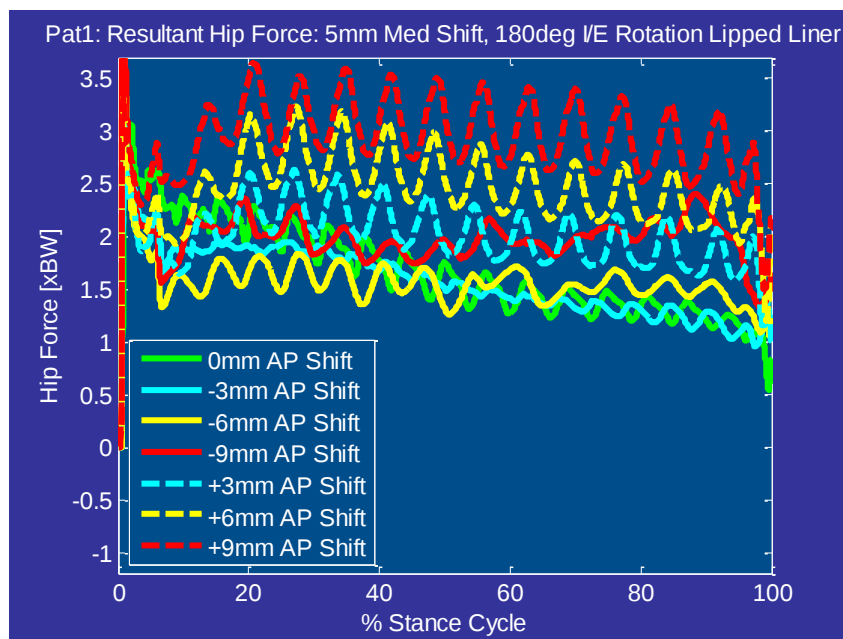
Figure F25: Pat 1: Lipped Liner: Separation

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

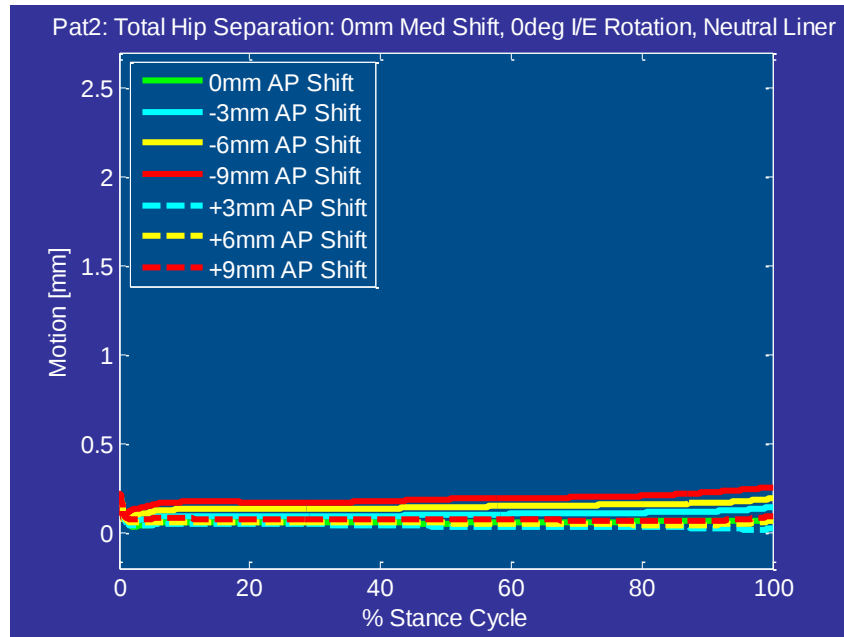


(b)

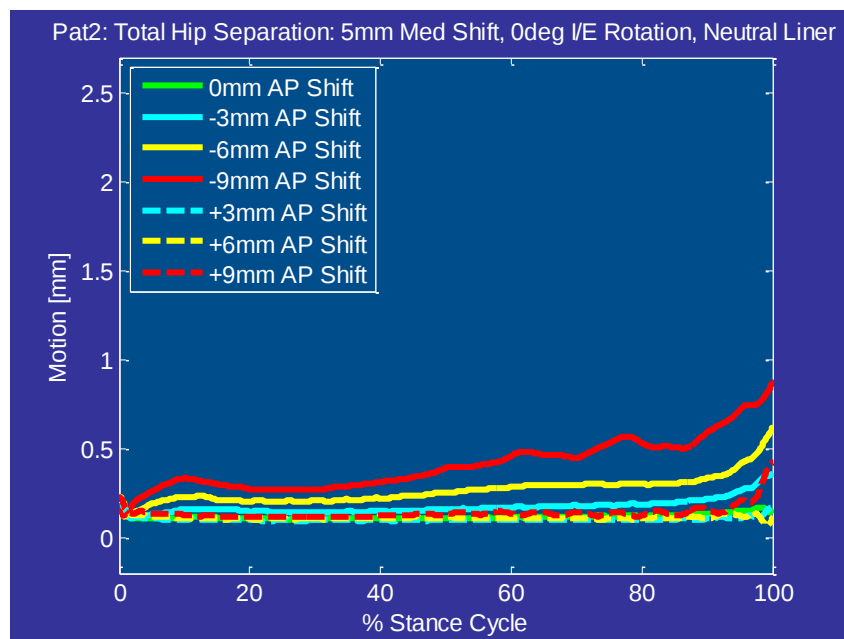
Figure F26: Pat 1: Lipped Liner: Hip Force

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

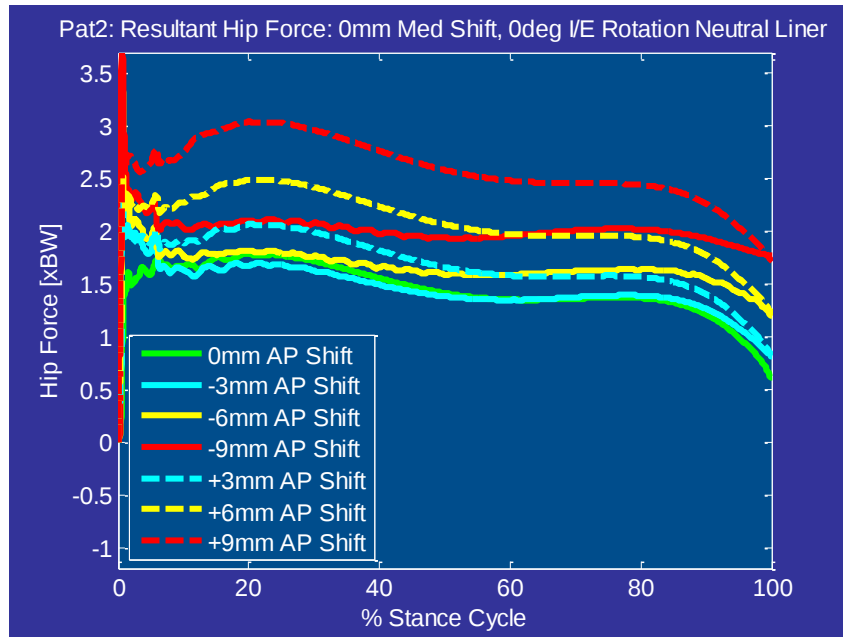


(b)

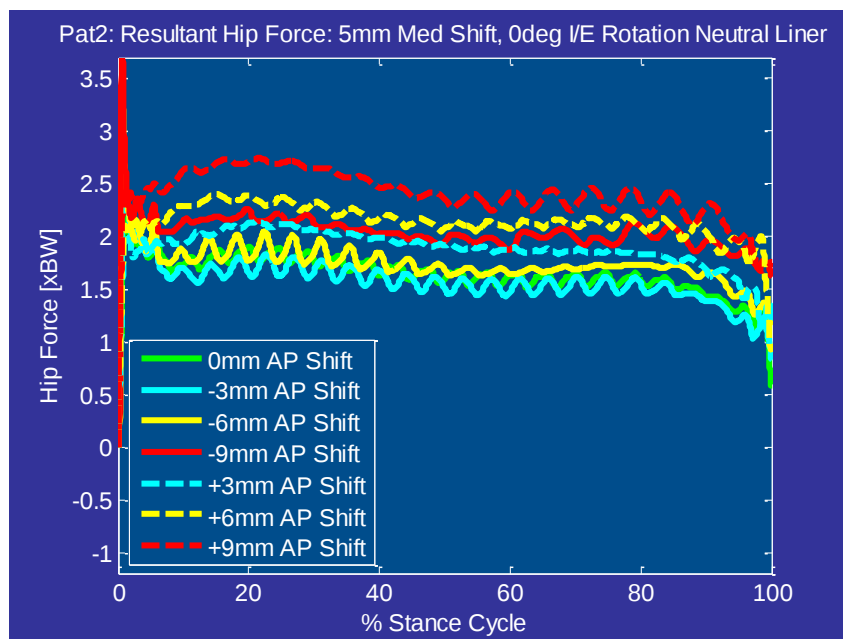
Figure F27: Pat 2: Neutral Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

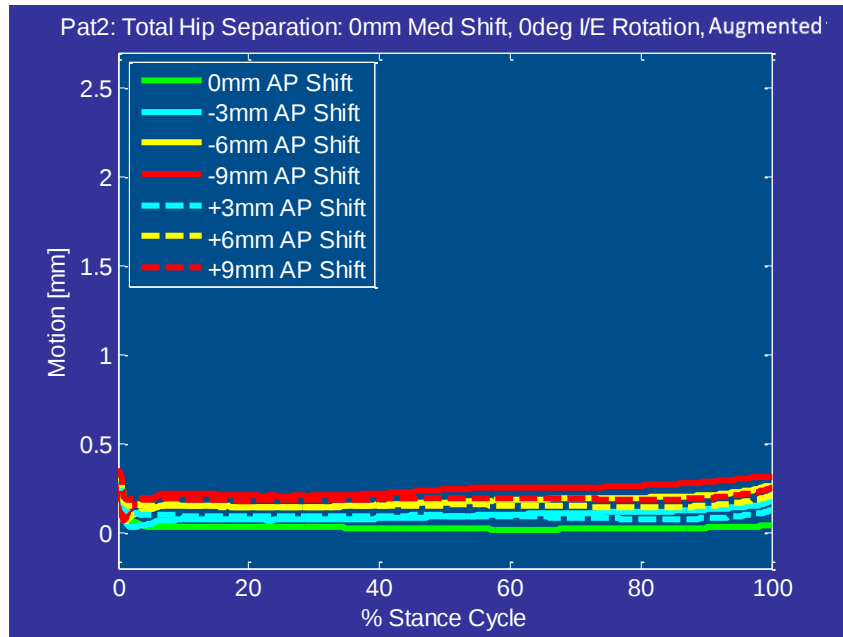


(b)

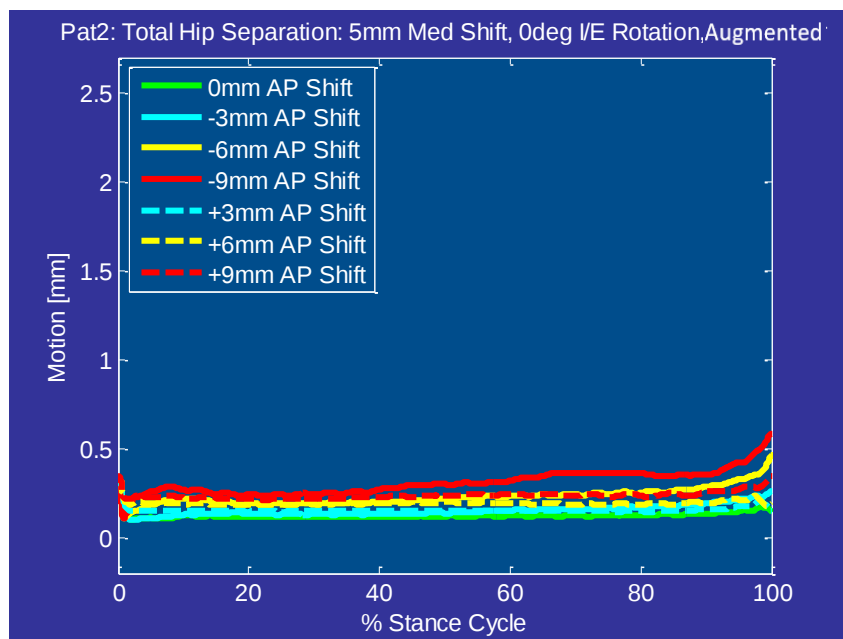
Figure F28: Pat 2: Neutral Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

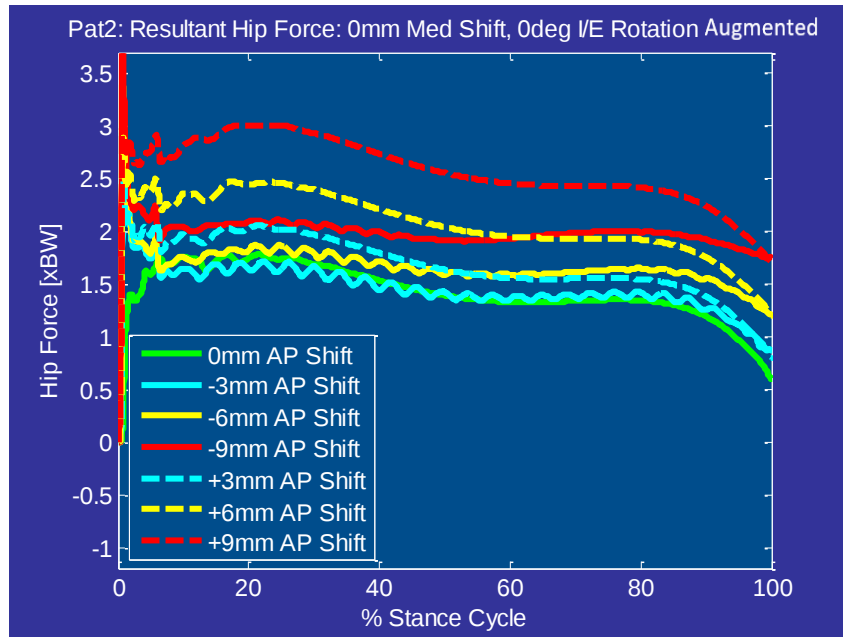


(b)

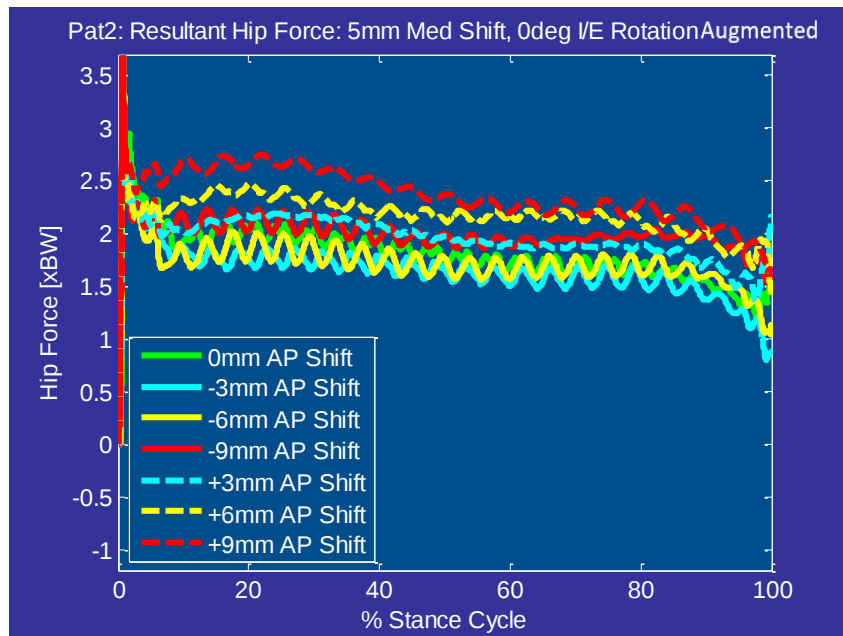
Figure F29: Pat 2: Augmented Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

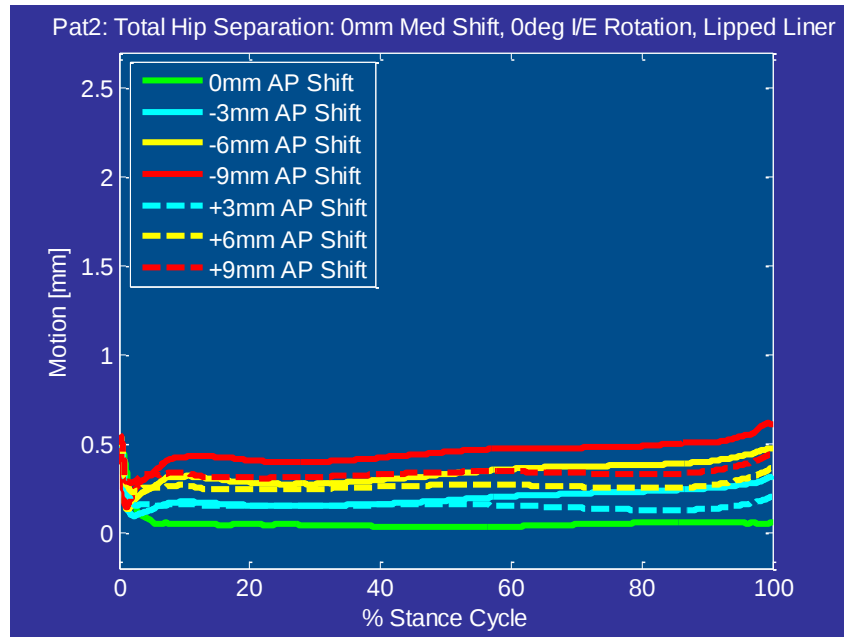


(b)

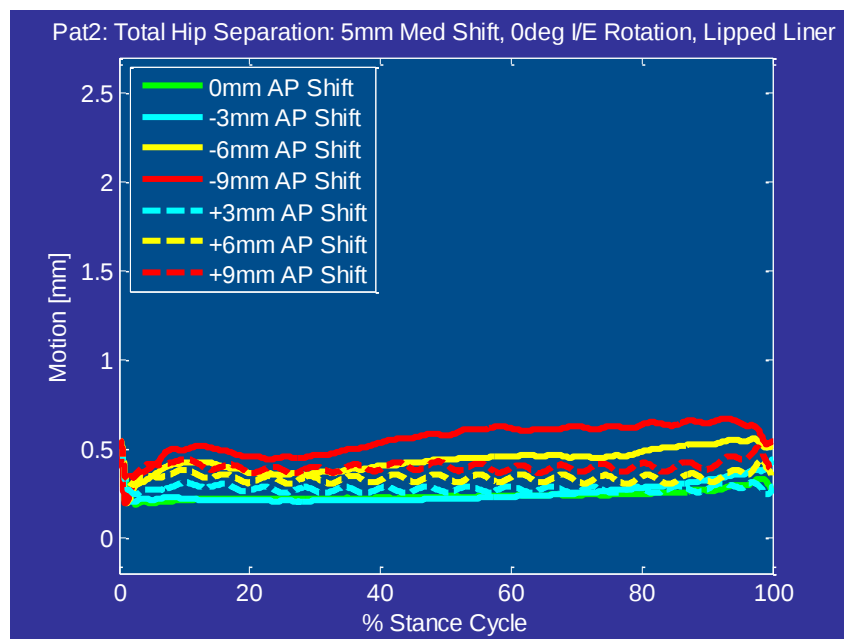
Figure F30: Pat 2: Augmented Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

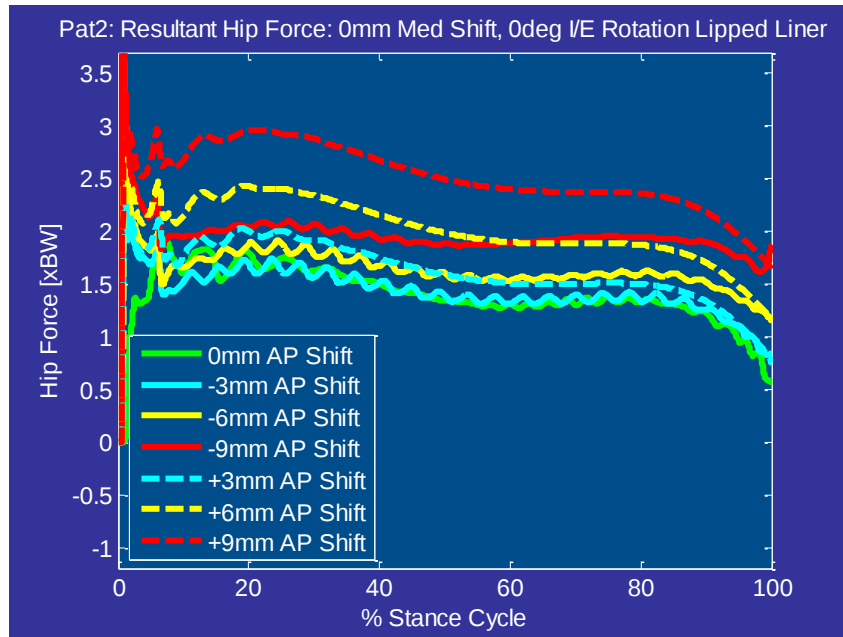


(b)

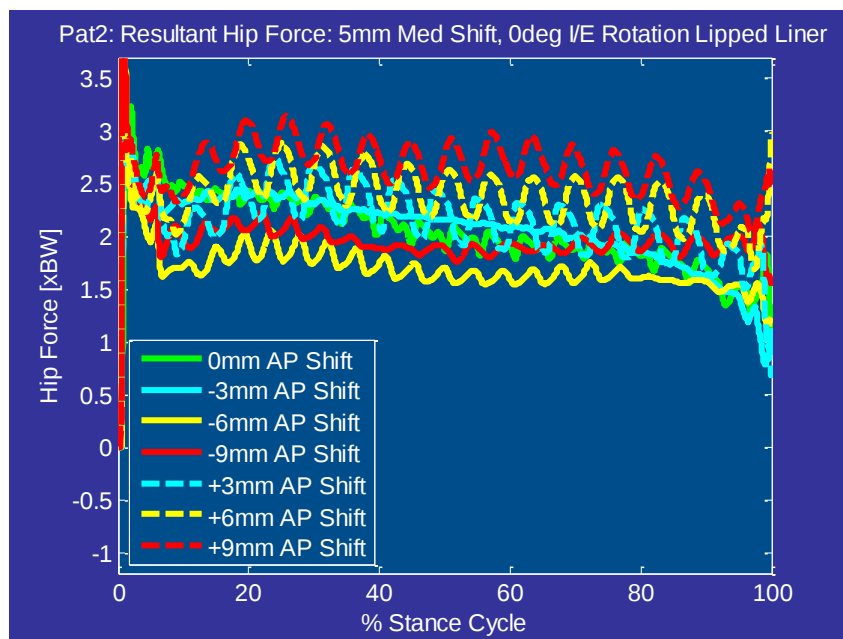
Figure F31: Pat 2: Lipped Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

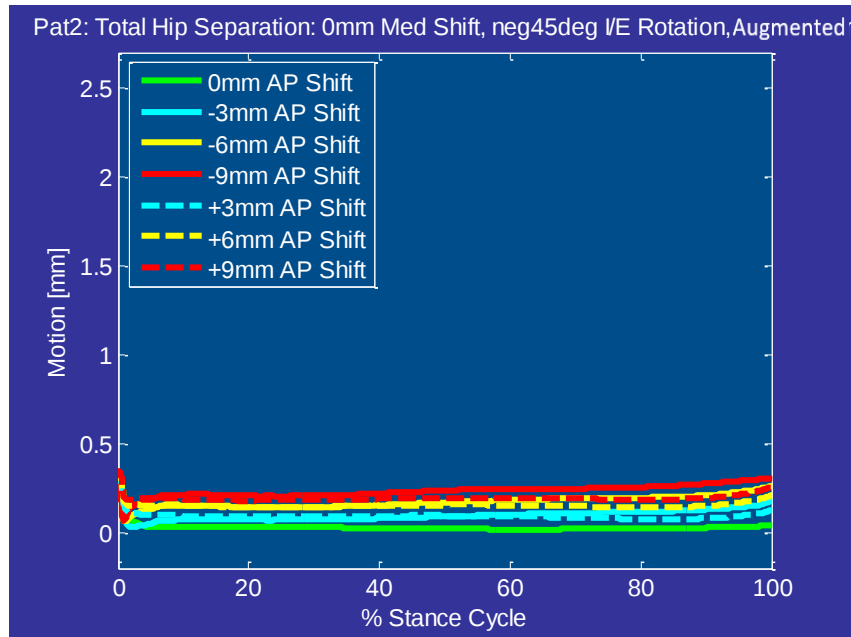


(b)

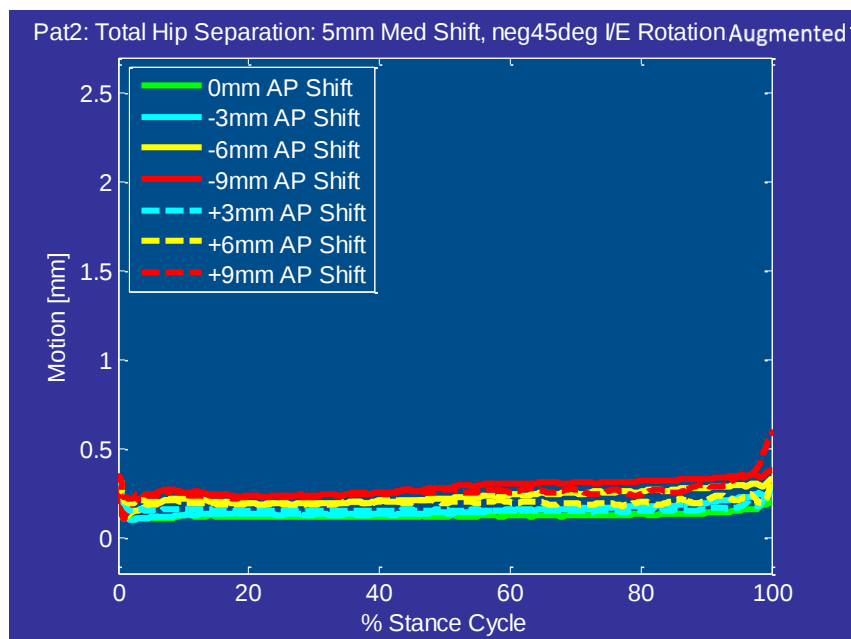
Figure F32: Pat 2: Lipped Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

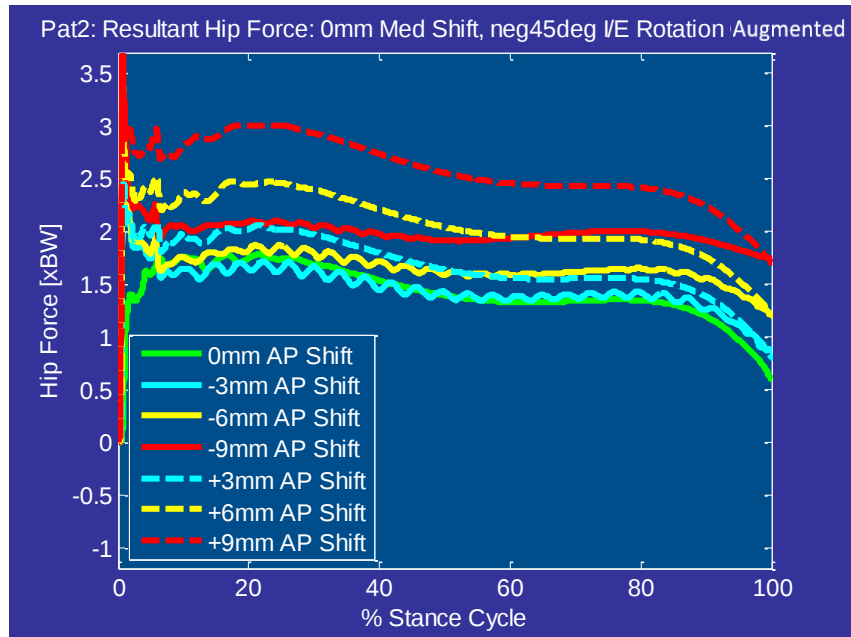


(b)

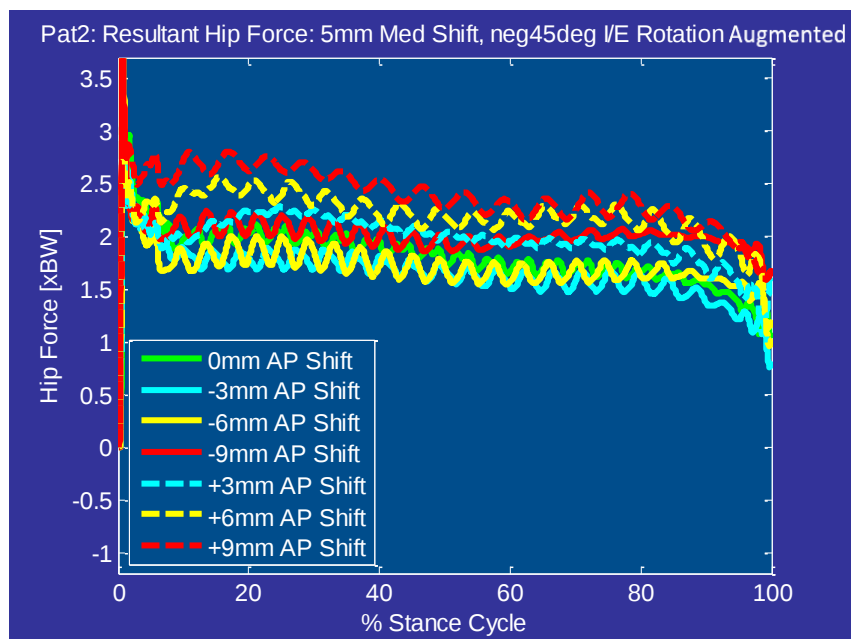
Figure F33: Pat 2: Augmented Liner: Separation

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

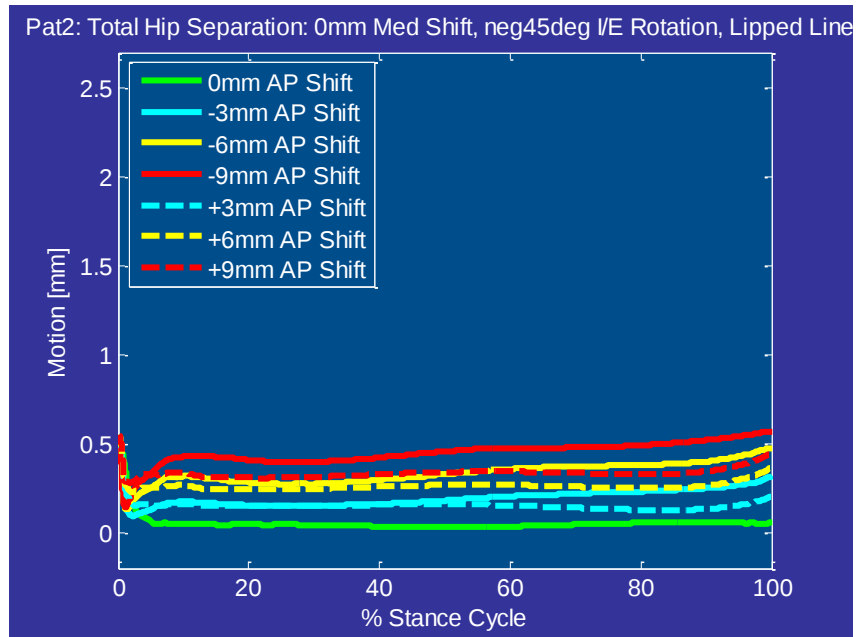


(b)

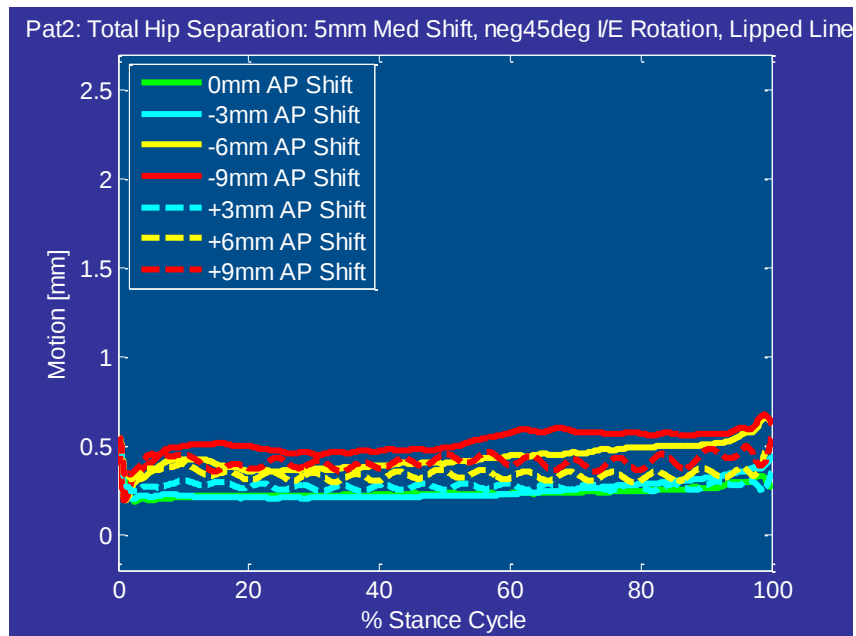
Figure F34: Pat 2: Augmented Liner: Hip Force

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

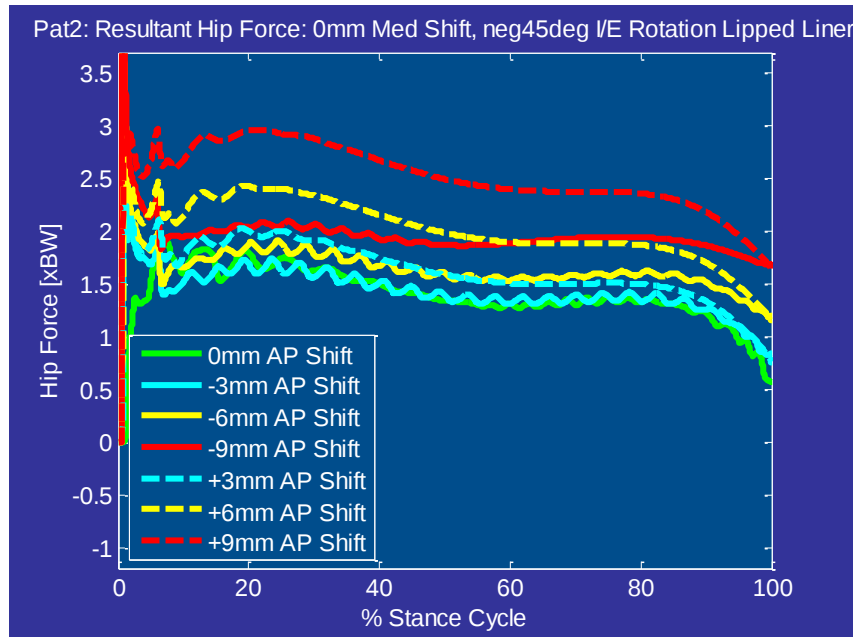


(b)

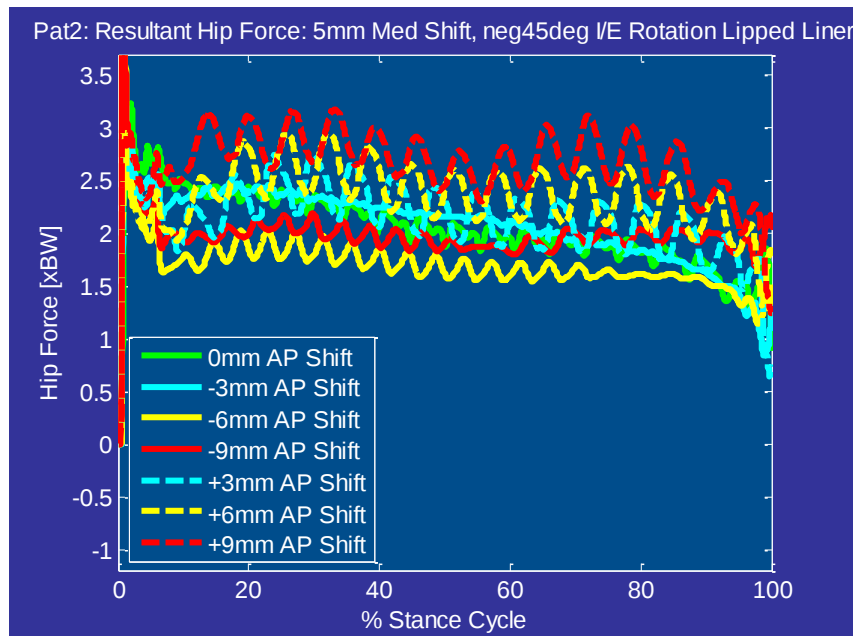
Figure F35: Pat 2: Lipped Liner: Separation

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

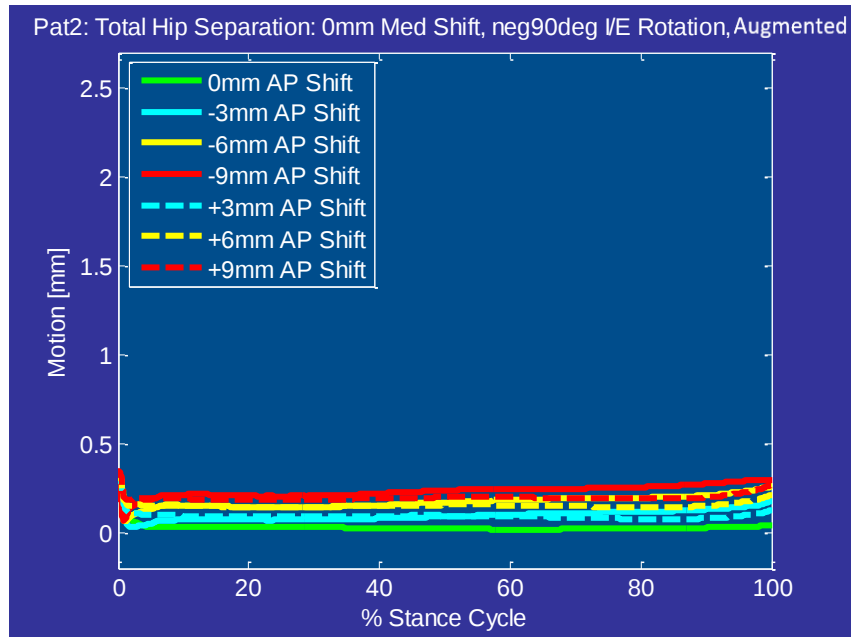


(b)

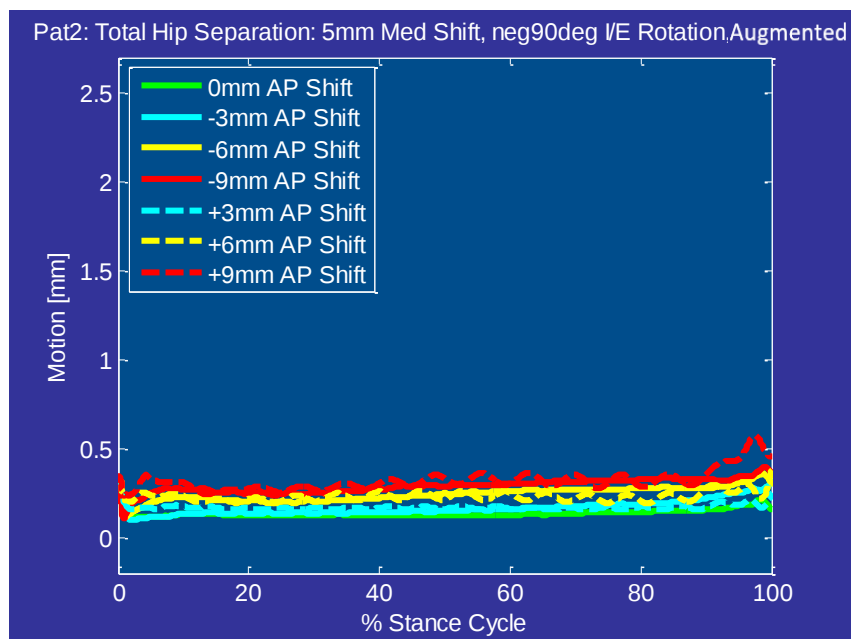
Figure F36: Pat 2: Lipped Liner: Hip Force

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

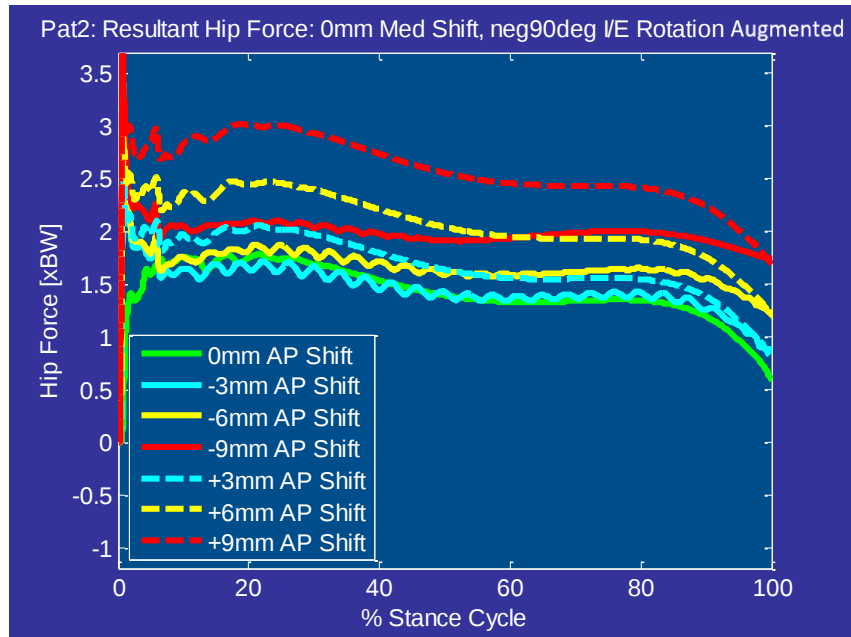


(b)

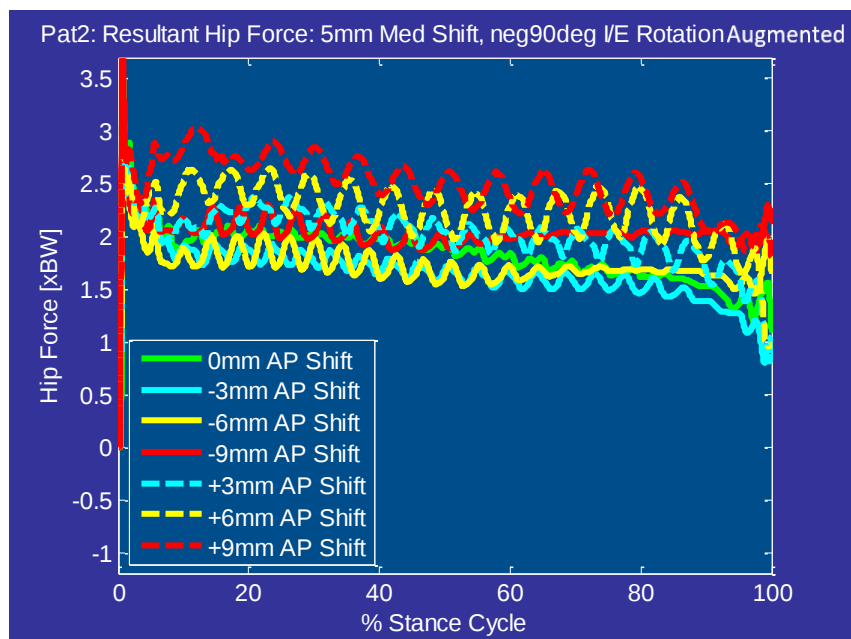
Figure F37: Pat 2: Augmented Liner: Separation

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

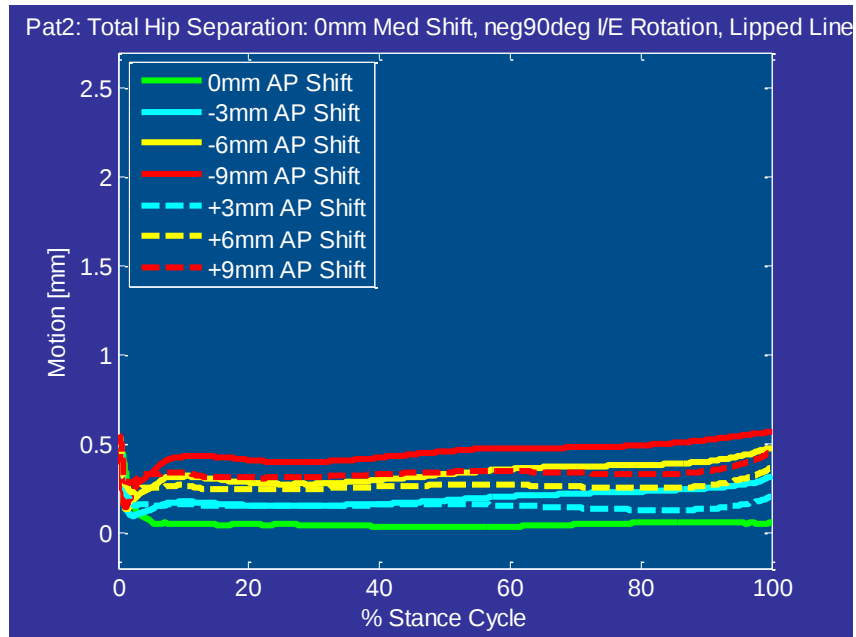


(b)

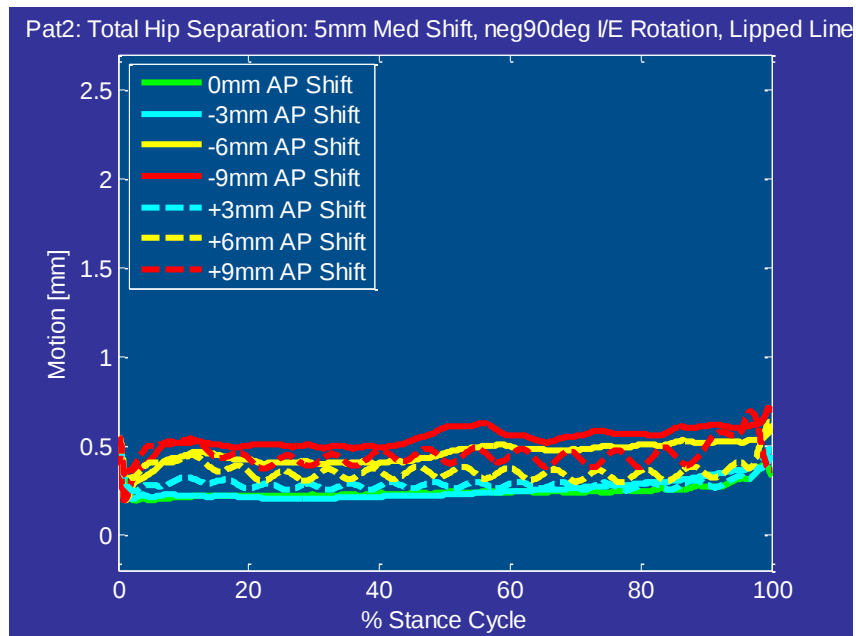
Figure F38: Pat 2: Augmented Liner: Hip Force

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

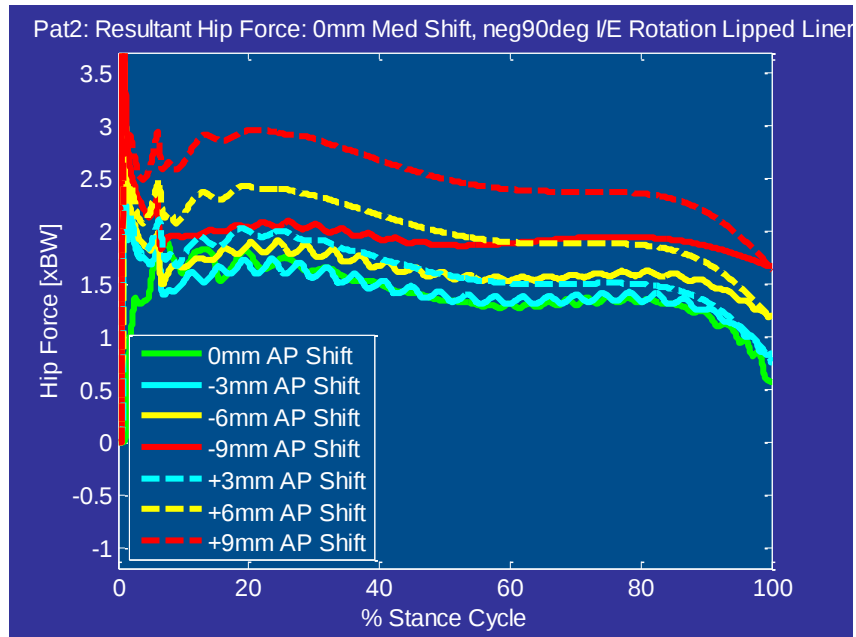


(b)

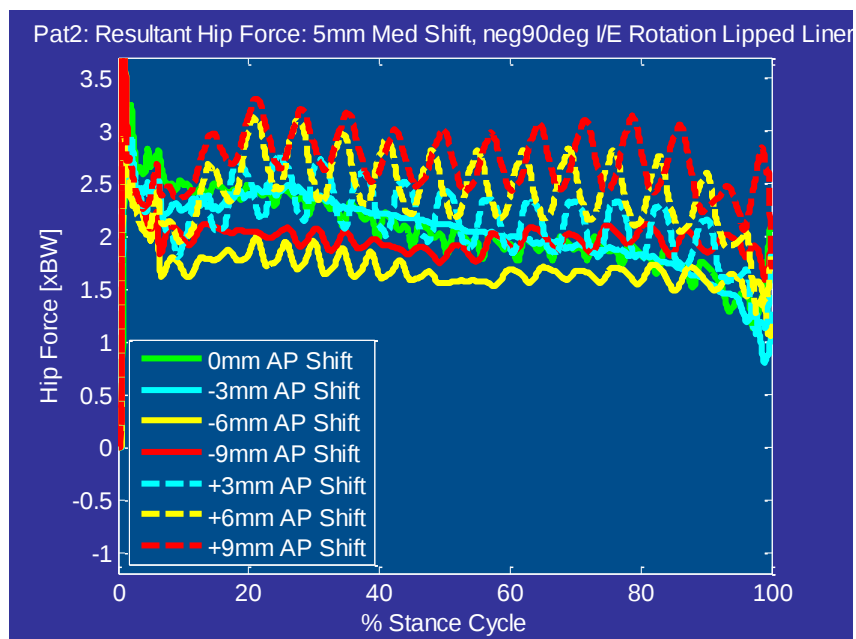
Figure F39: Pat 2: Lipped Liner: Separation

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

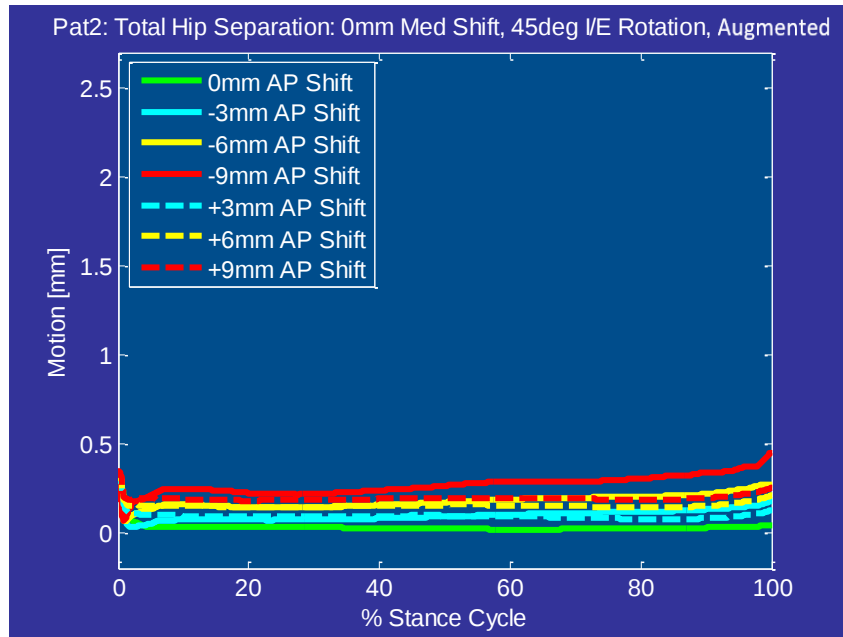


(b)

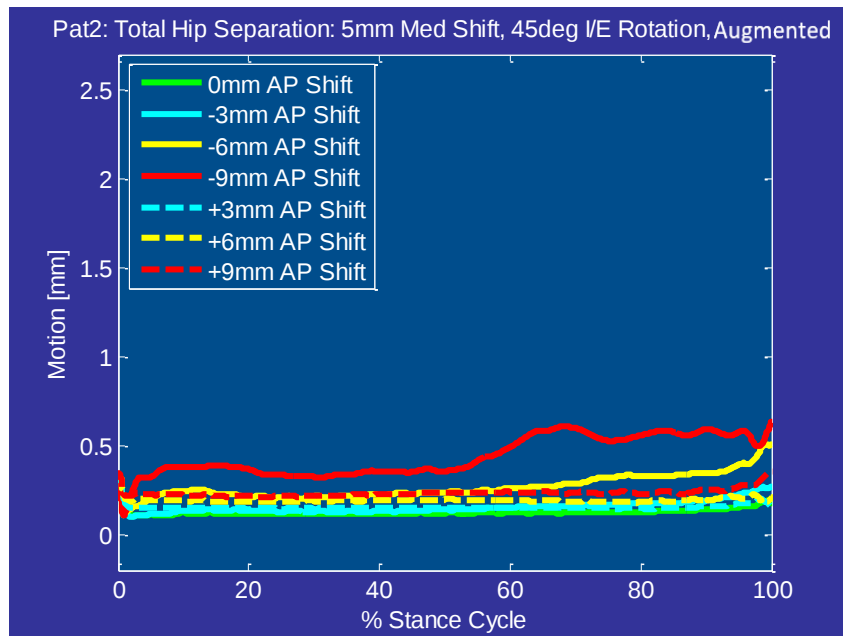
Figure F40: Pat 2: Lipped Liner: Hip Force

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

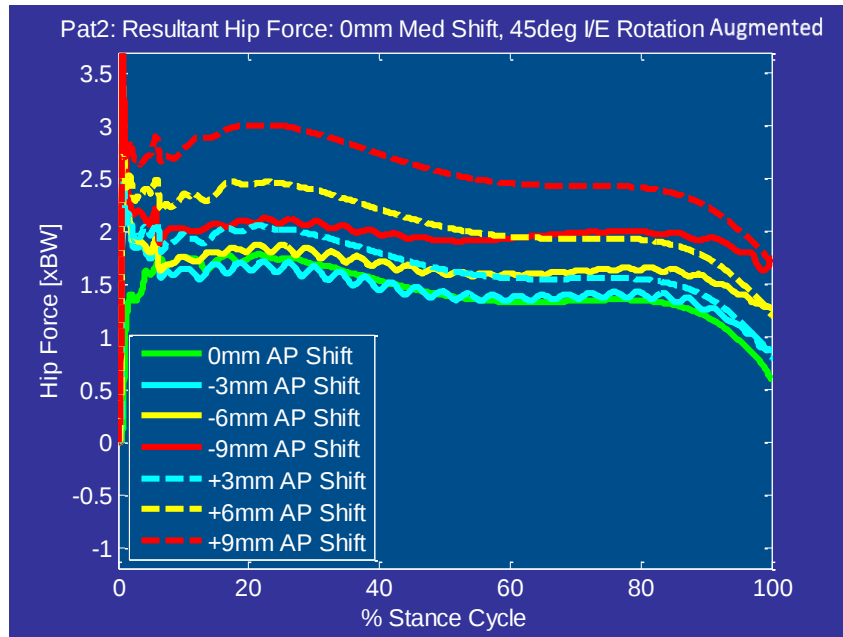


(b)

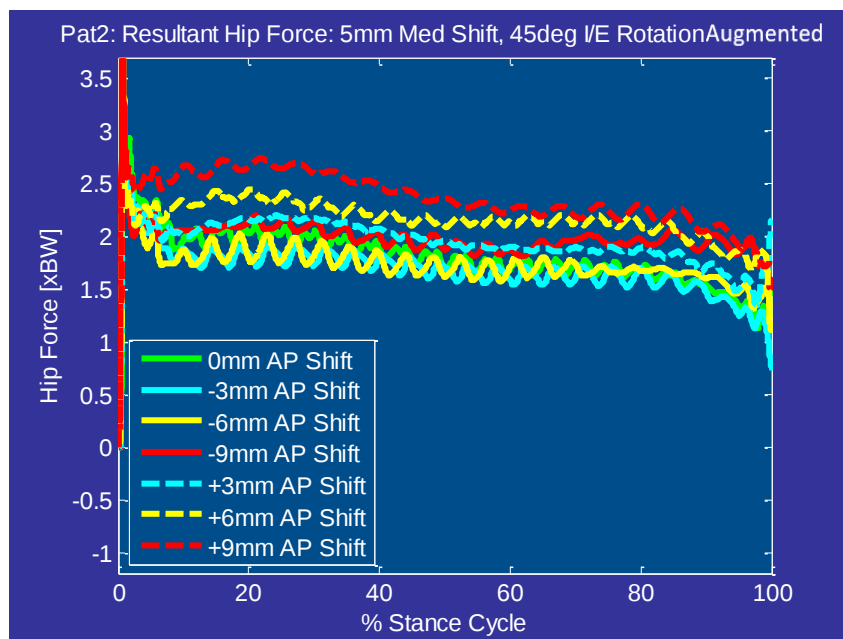
Figure F41: Pat 2: Augmented Liner: Separation

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

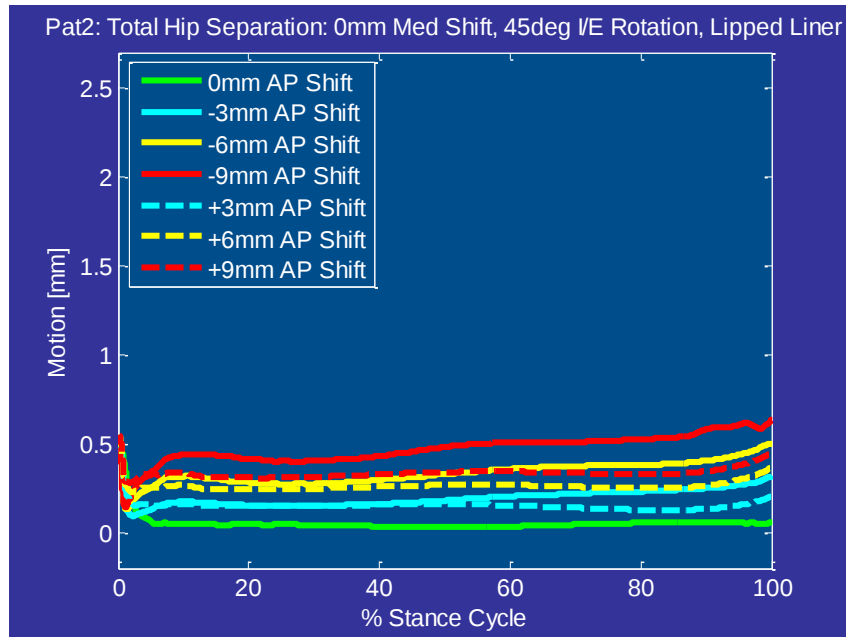


(b)

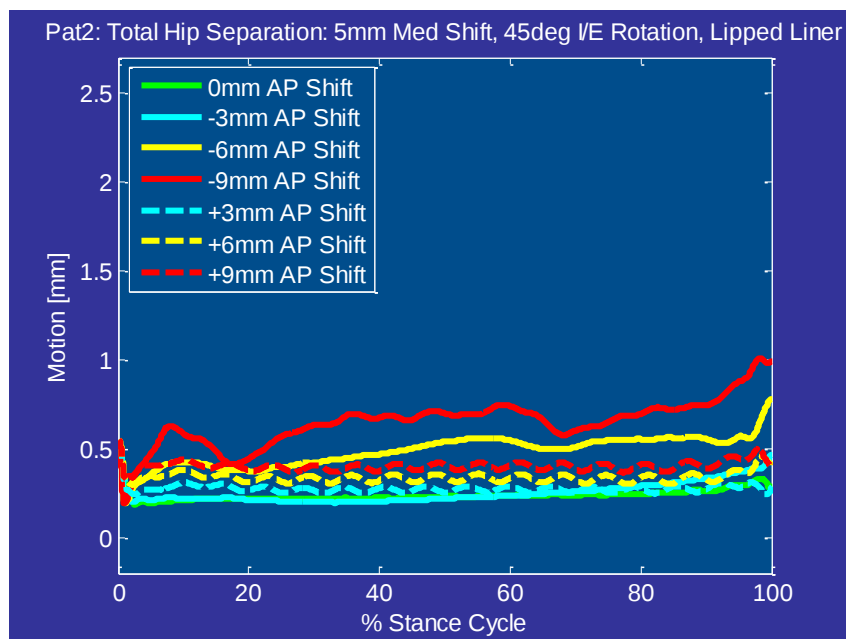
Figure F42: Pat 2: Augmented Liner: Hip Force

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

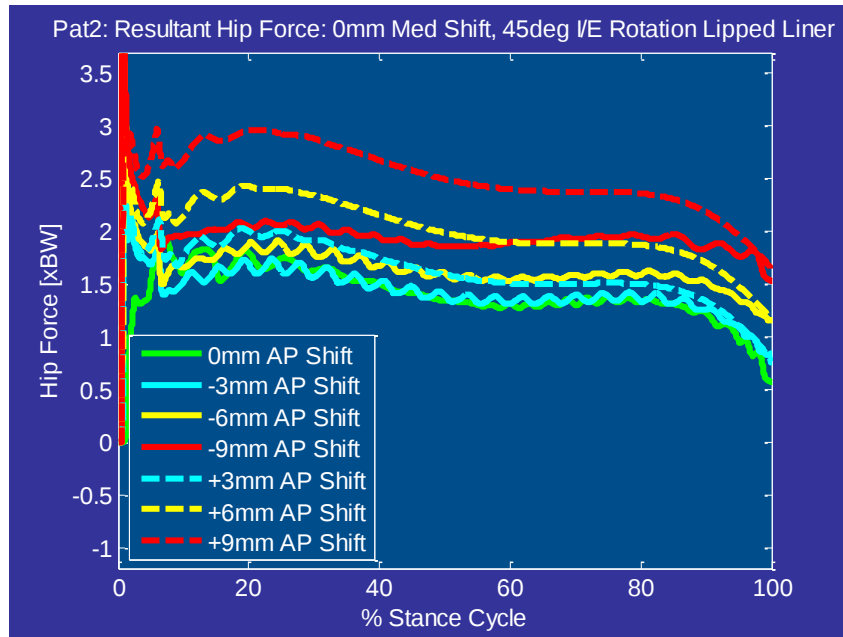


(b)

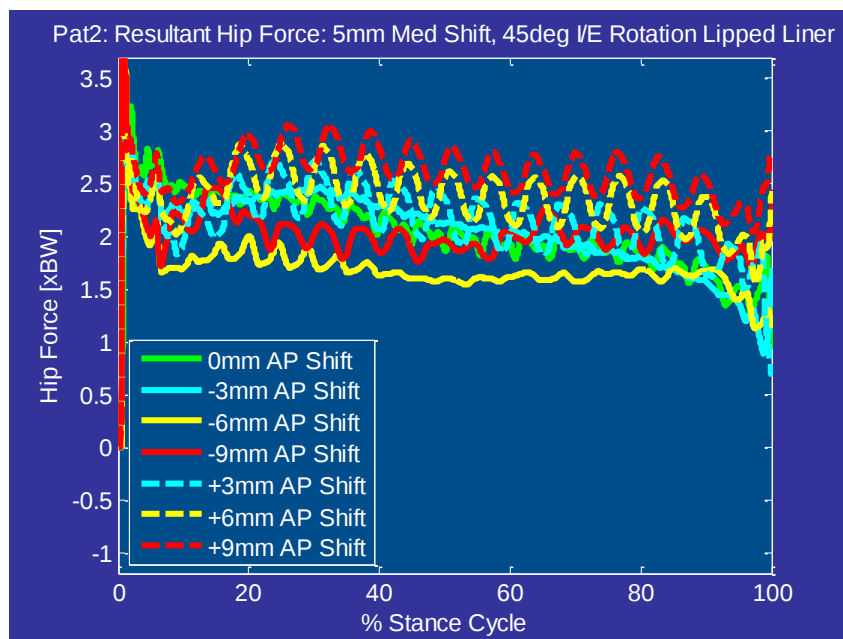
Figure F43: Pat 2: Lipped Liner: Separation

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

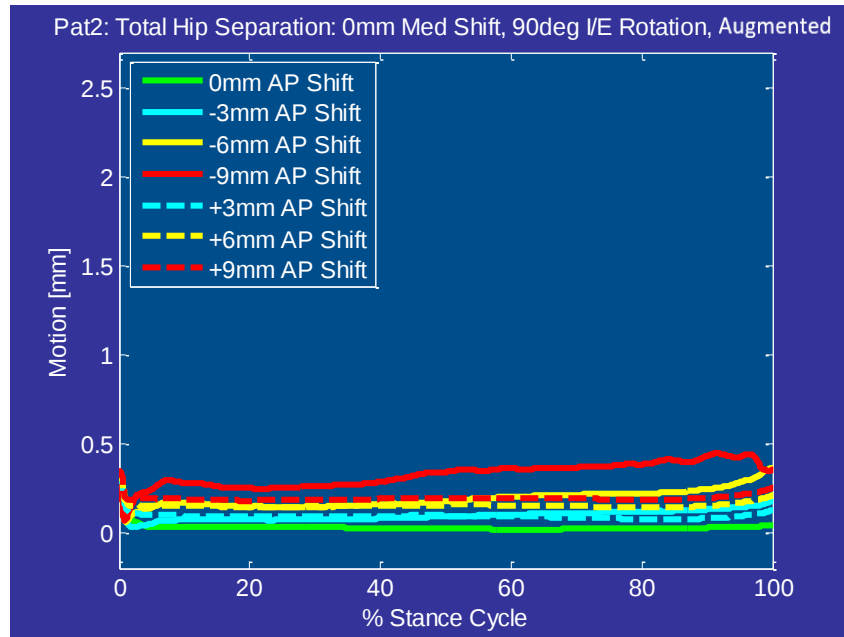


(b)

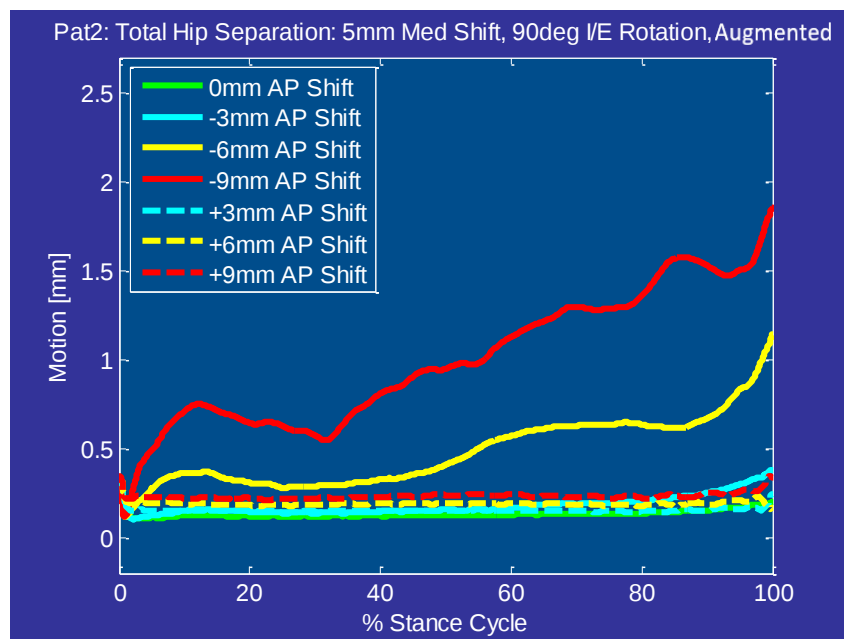
Figure F44: Pat 2: Lipped Liner: Hip Force

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

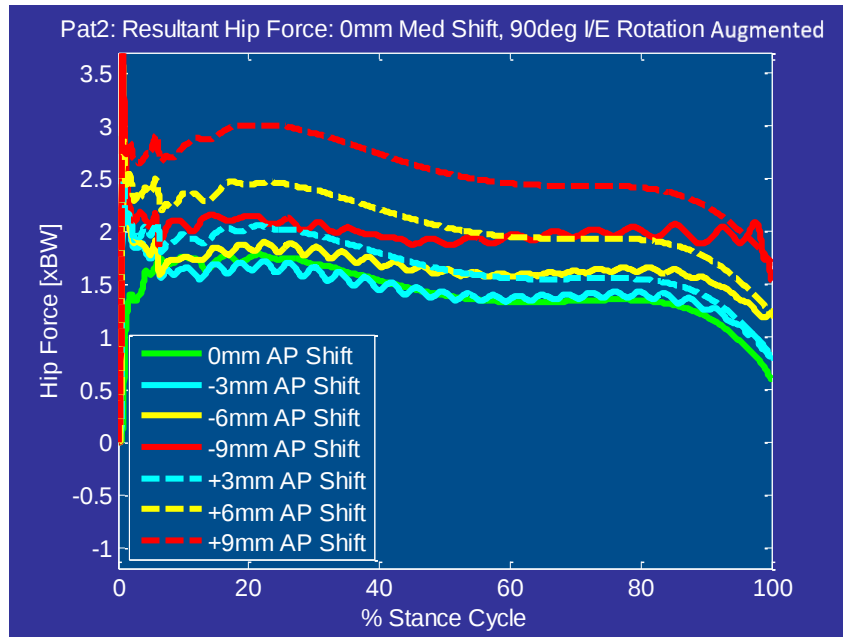


(b)

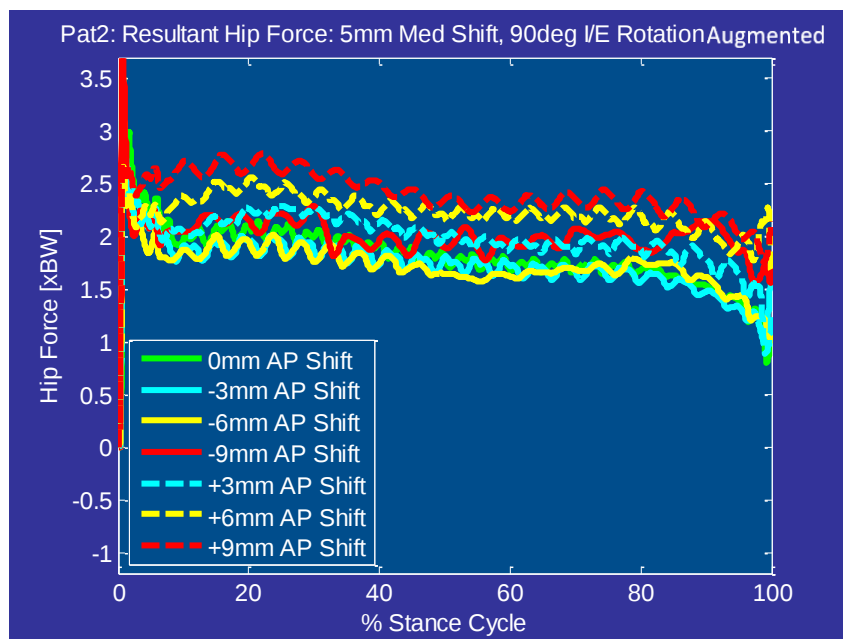
Figure F45: Pat 2: Augmented Liner: Separation

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

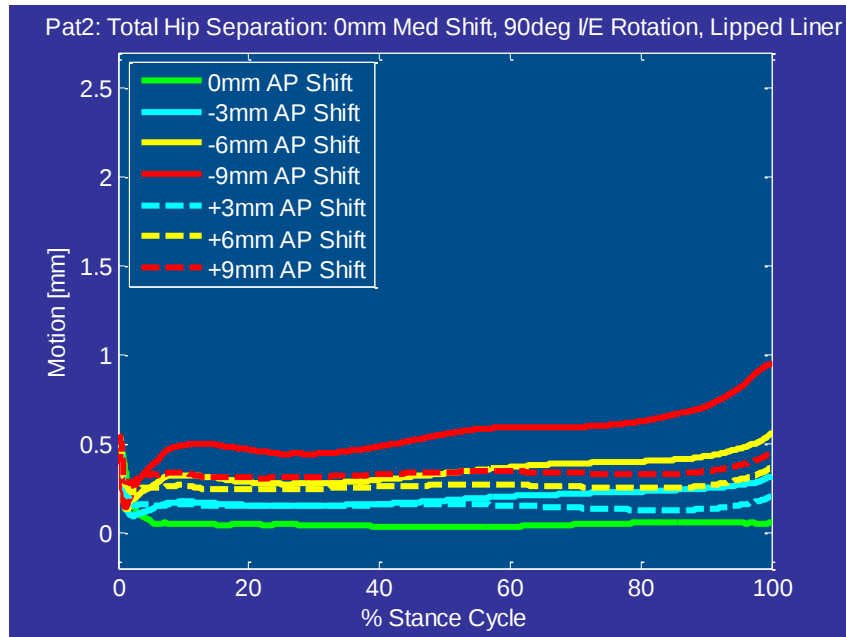


(b)

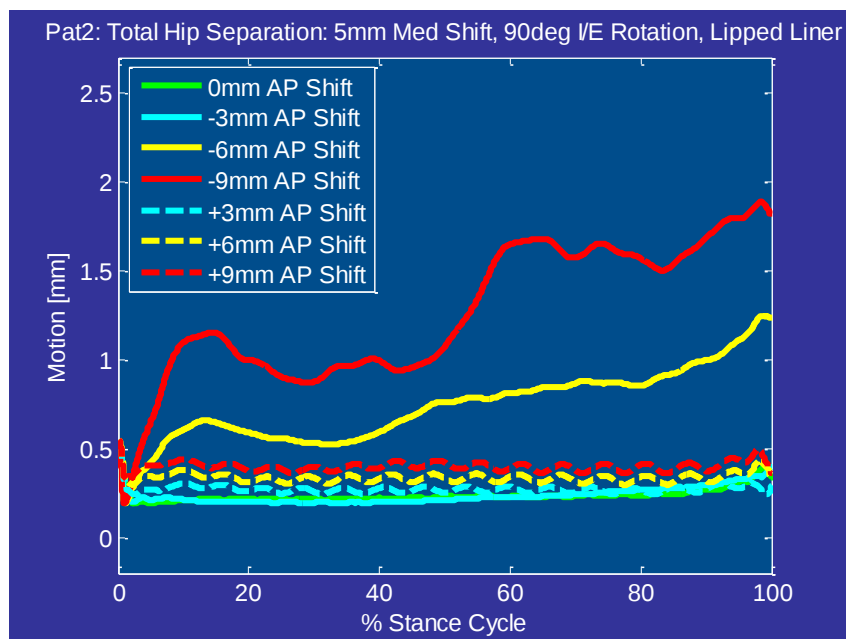
Figure F46: Pat 2: Augmented Liner: Hip Force

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

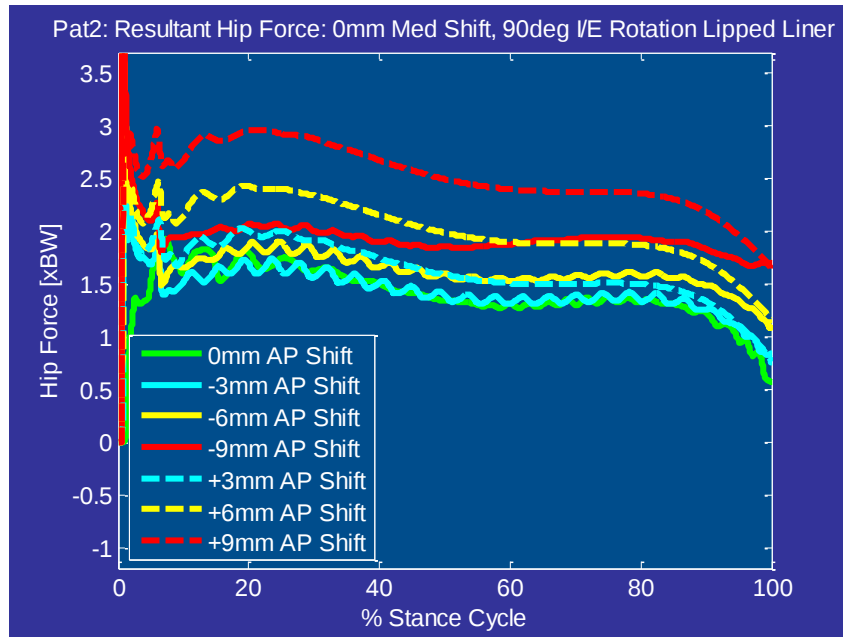


(b)

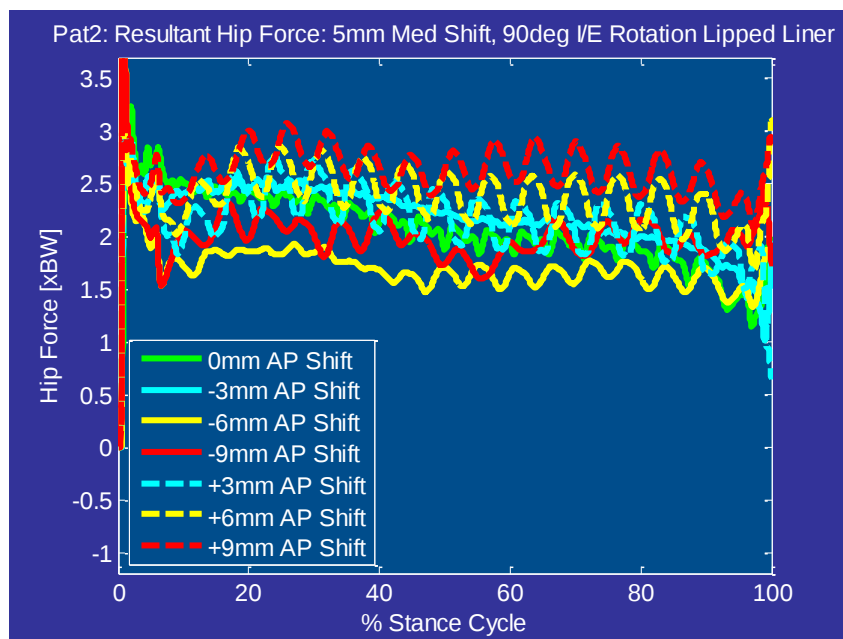
Figure F47: Pat 2: Lipped Liner: Separation

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

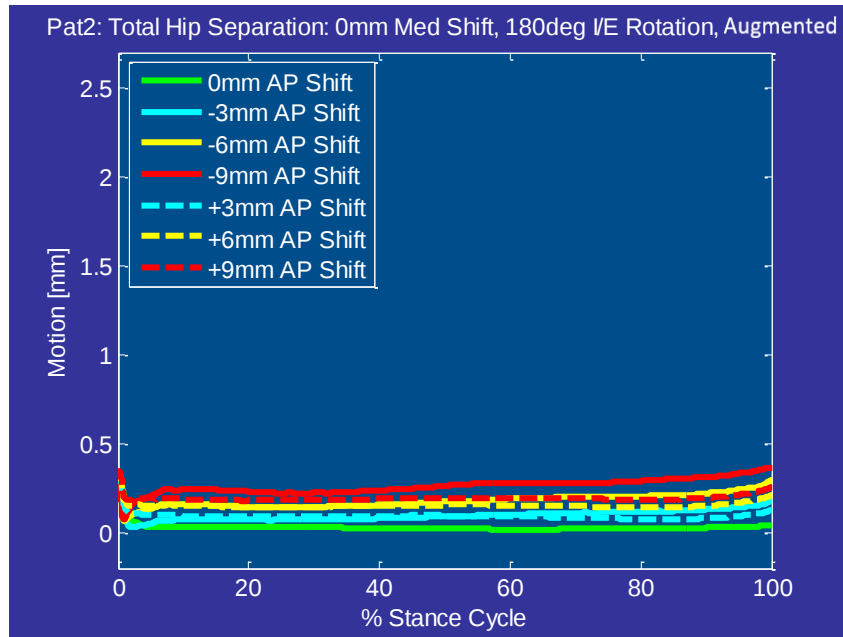


(b)

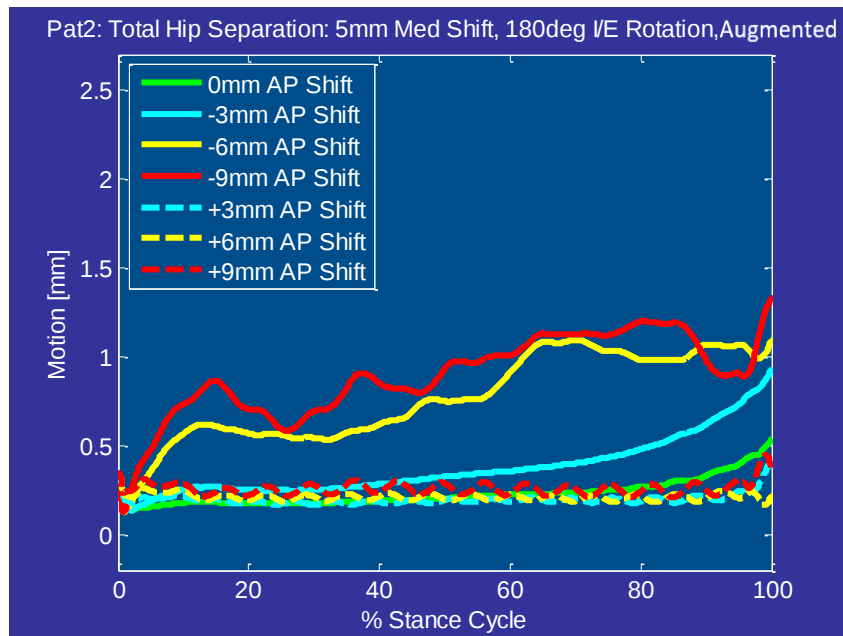
Figure F48: Pat 2: Lipped Liner: Hip Force

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

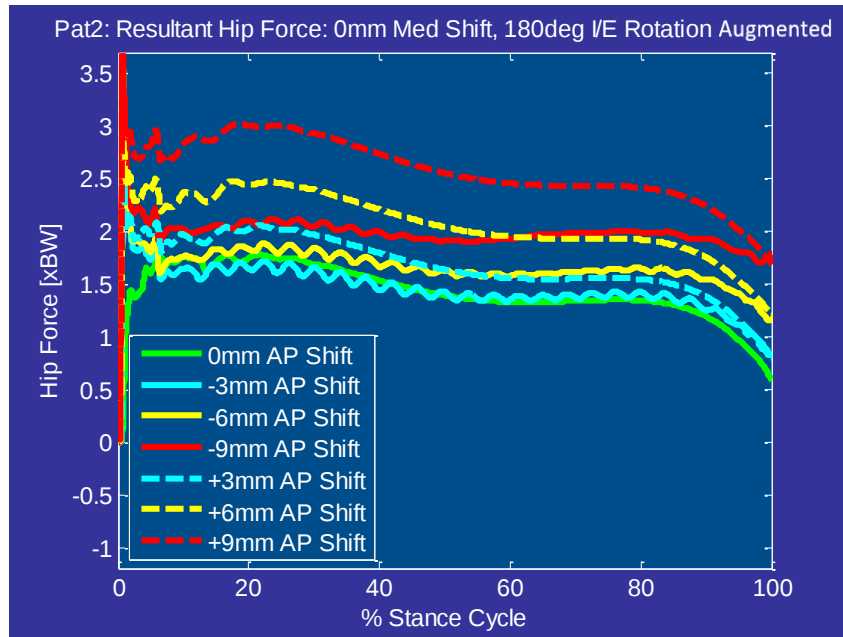


(b)

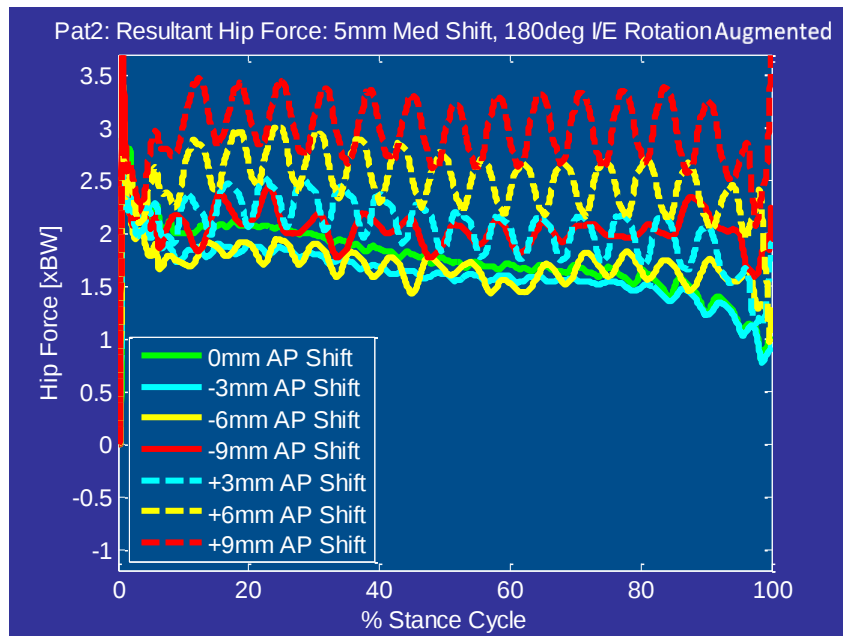
Figure F49: Pat 2: Augmented Liner: Separation

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

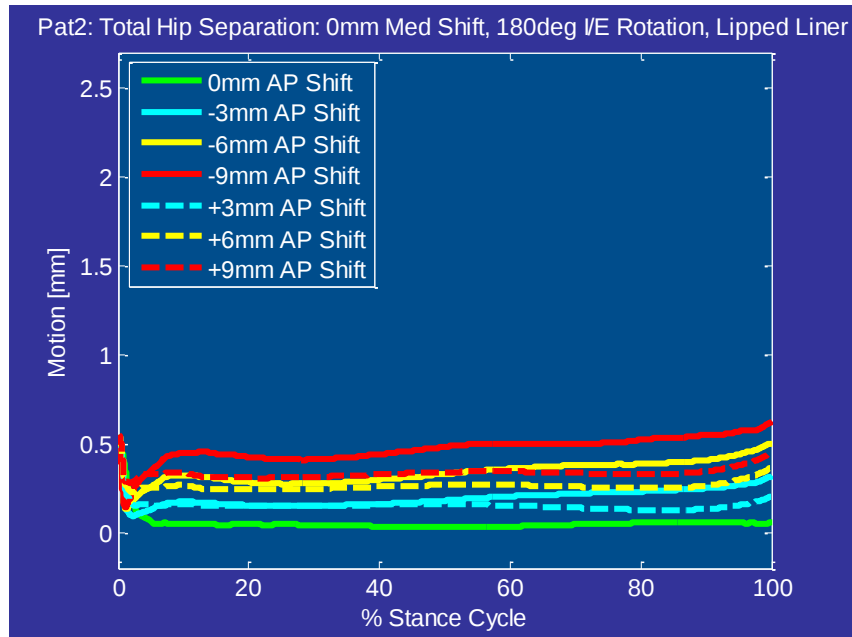


(b)

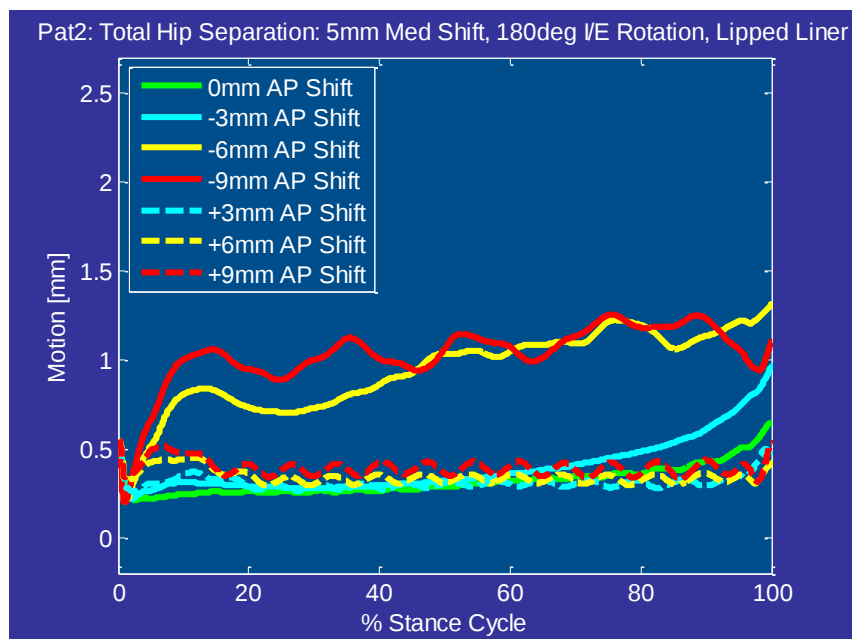
Figure F50: Pat 2: Augmented Liner: Hip Force

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

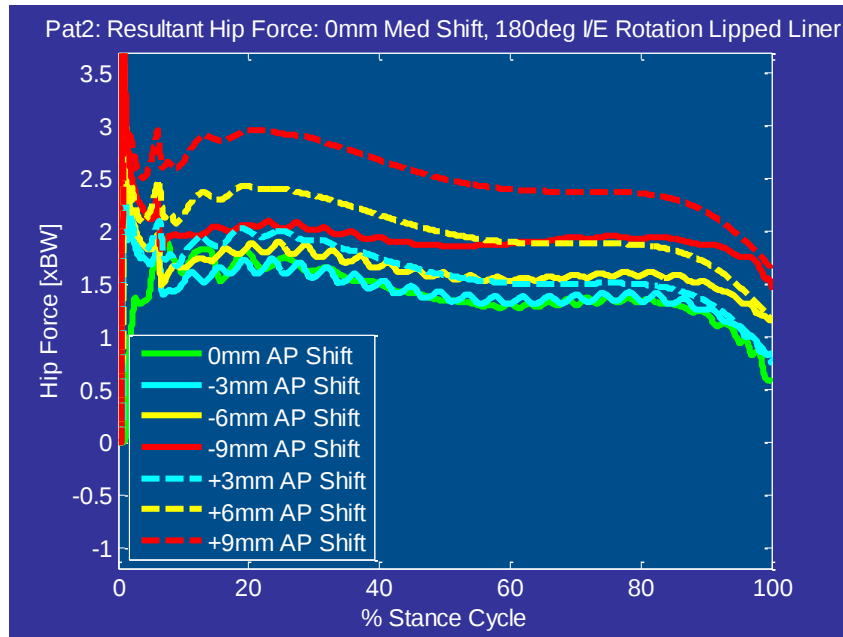


(b)

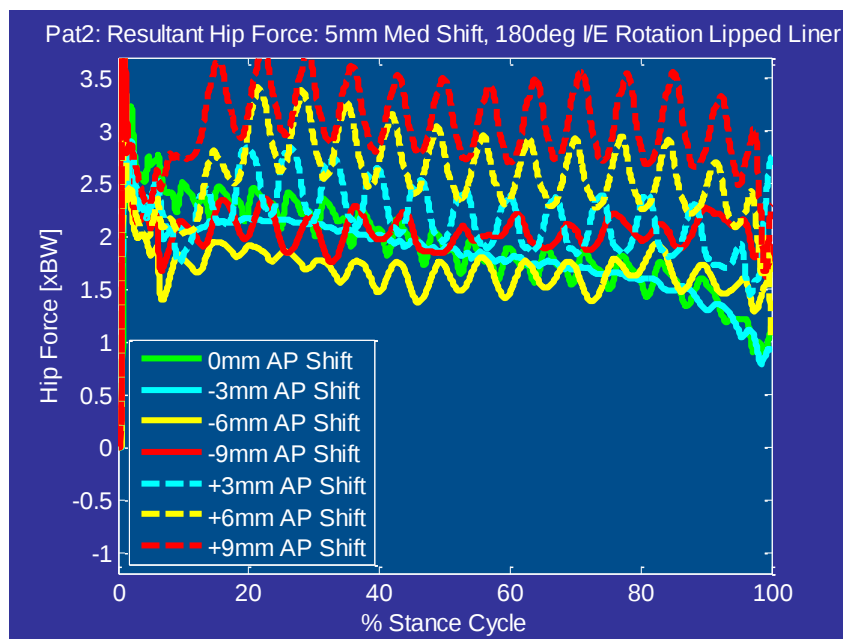
Figure F51: Pat 2: Lipped Liner: Separation

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

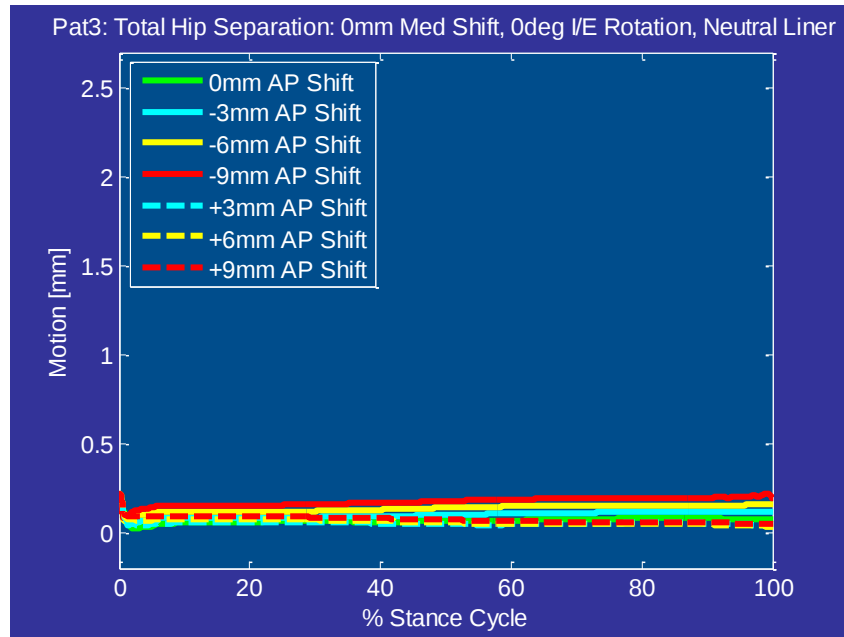


(b)

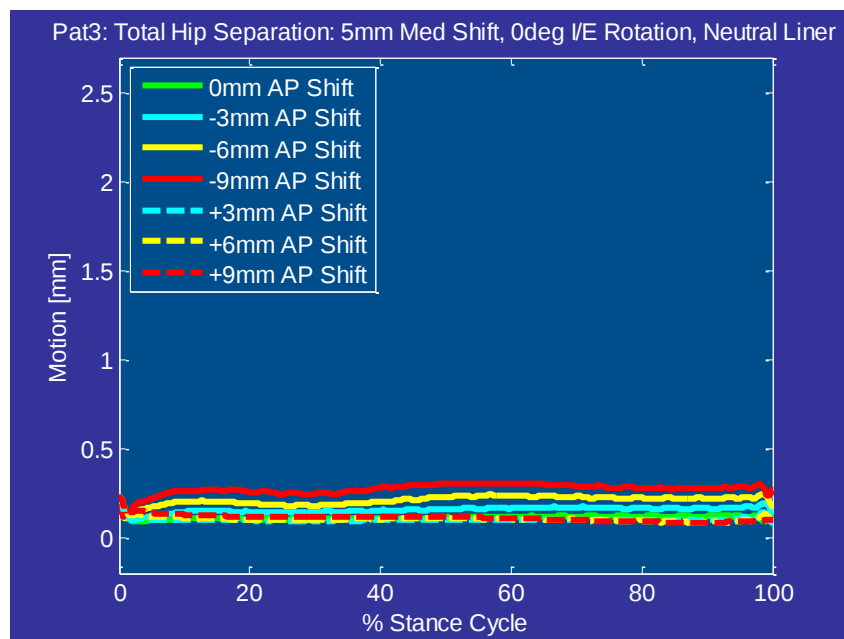
Figure F52: Pat 2: Lipped Liner: Hip Force

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

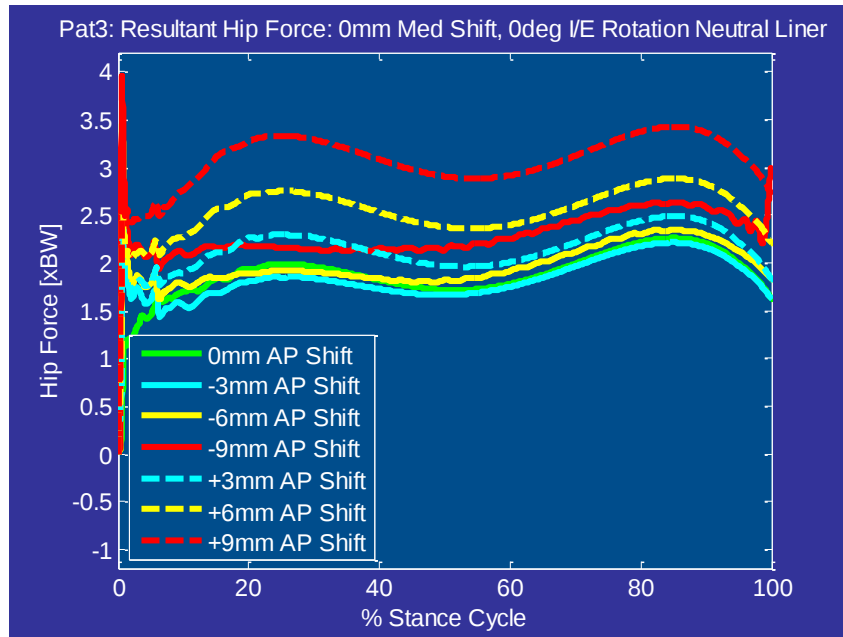


(b)

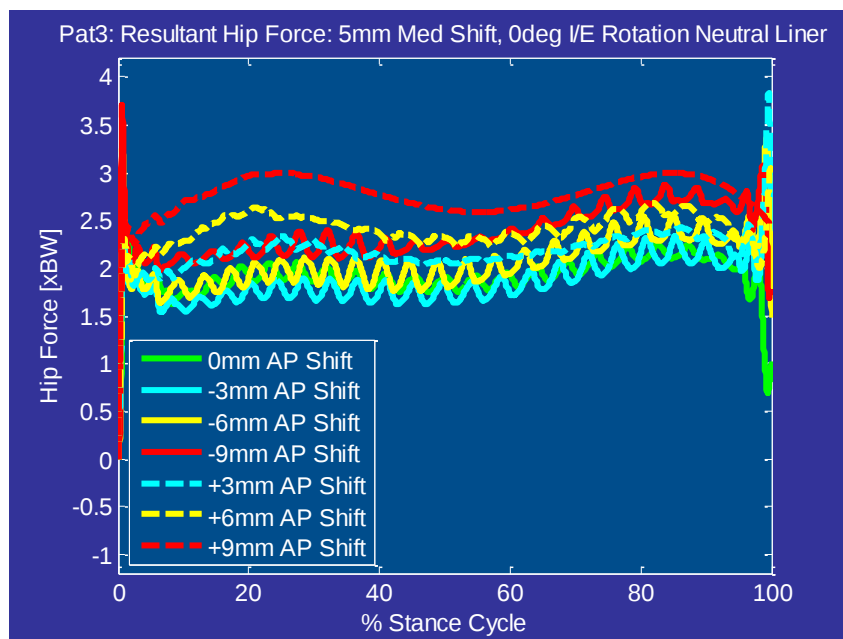
Figure F53: Pat 3: Neutral Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

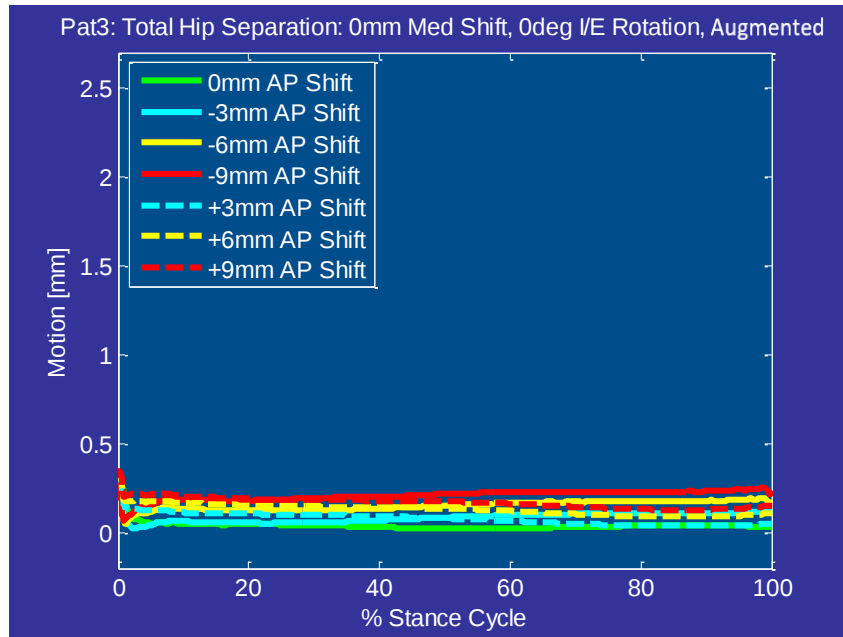


(b)

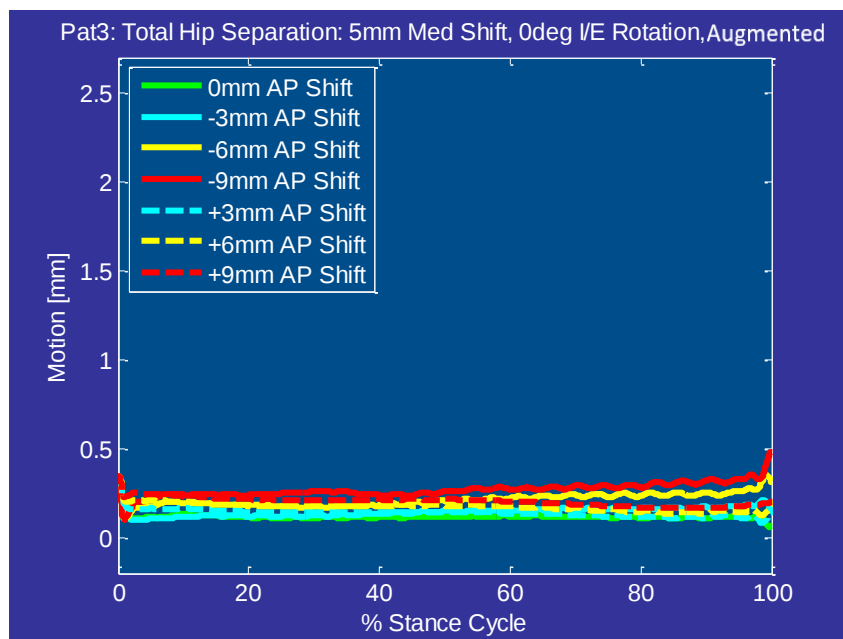
Figure F54: Pat 3: Neutral Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

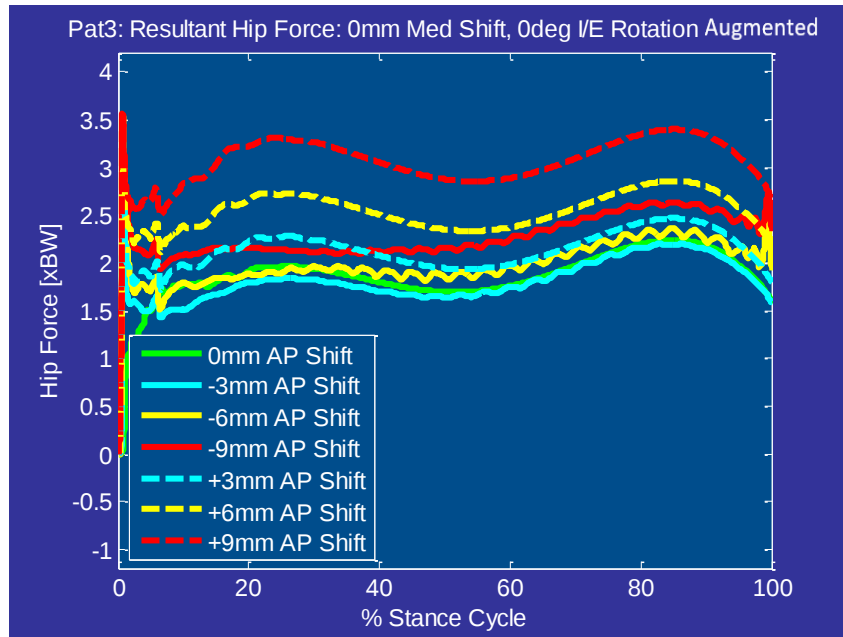


(b)

Figure F55: Pat 3: Augmented Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

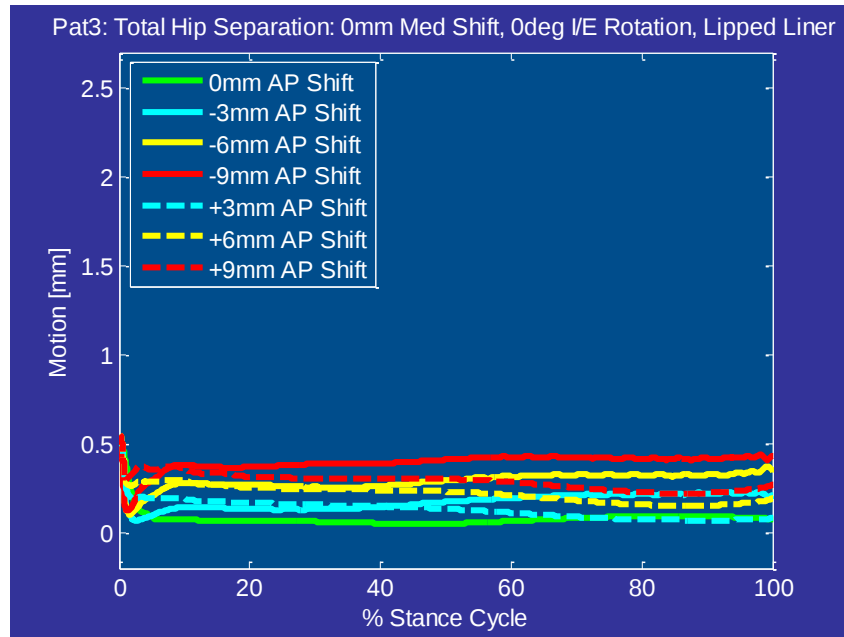


(b)

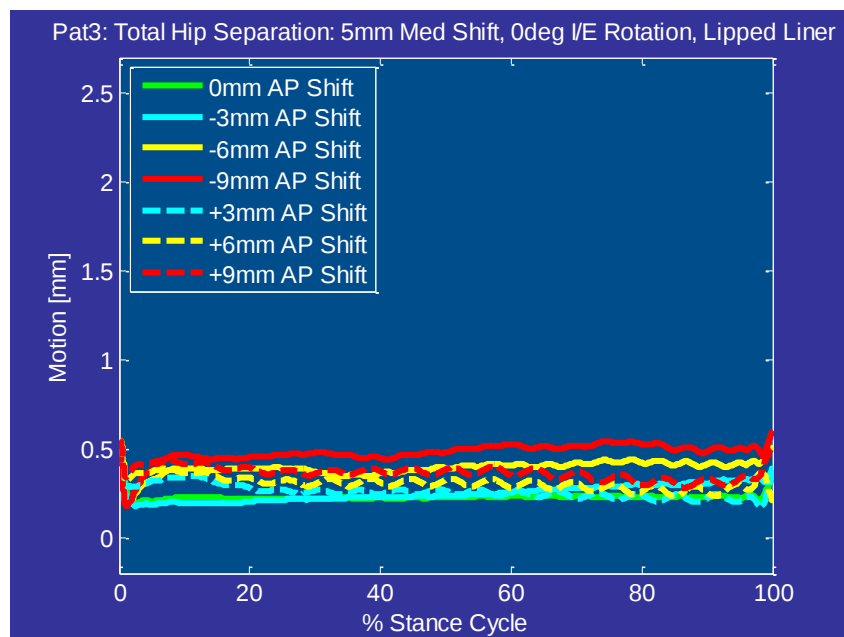
Figure F56: Pat 3: Augmented Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

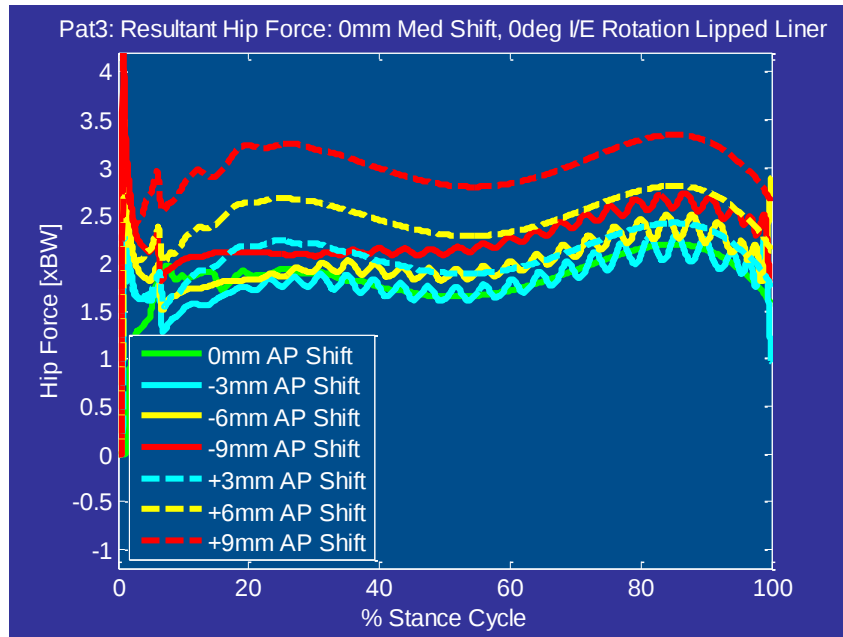


(b)

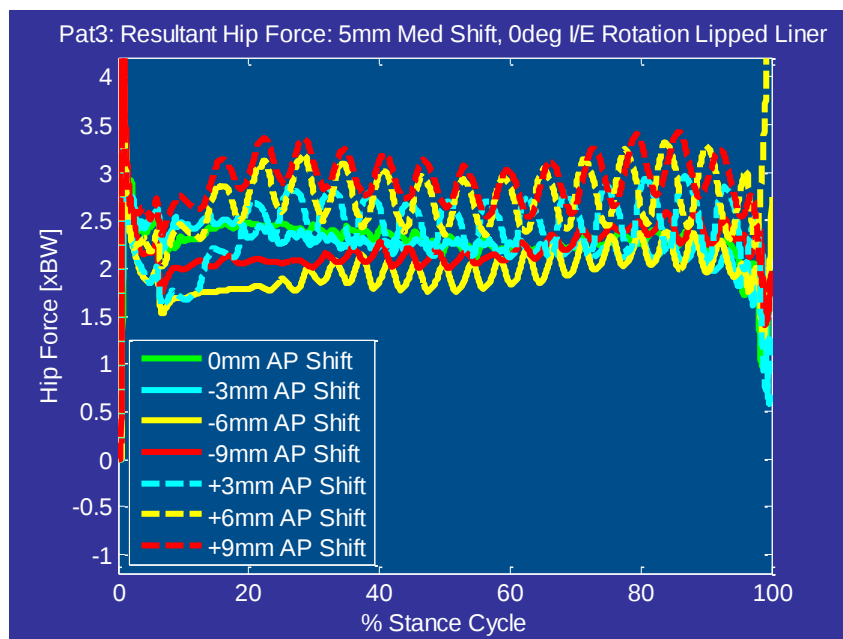
Figure F57: Pat 3: Lipped Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

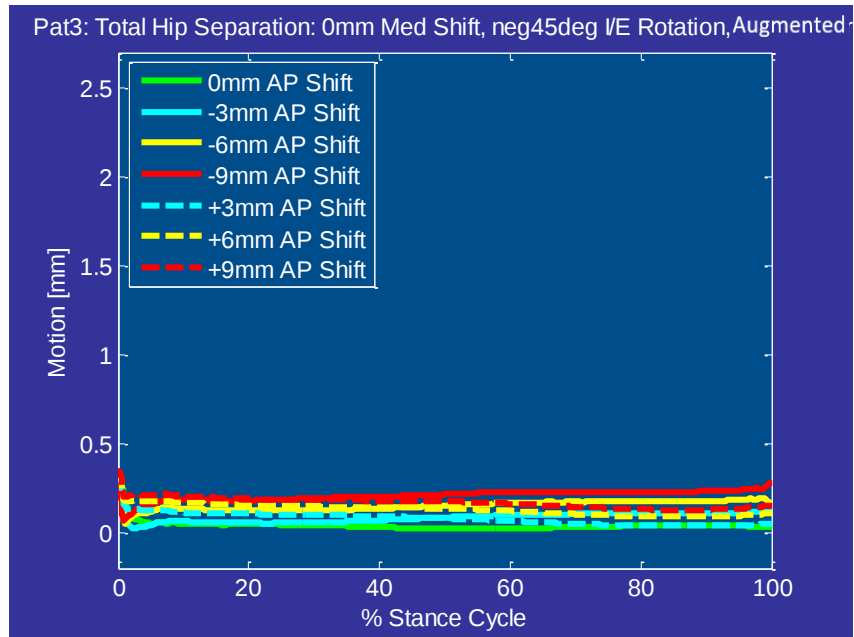


(b)

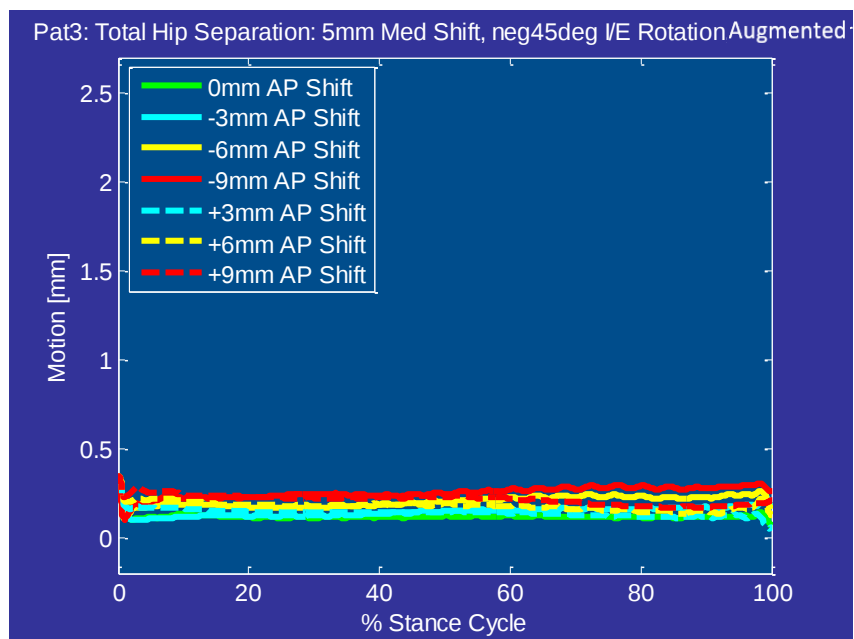
Figure F58: Pat 3: Lipped Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

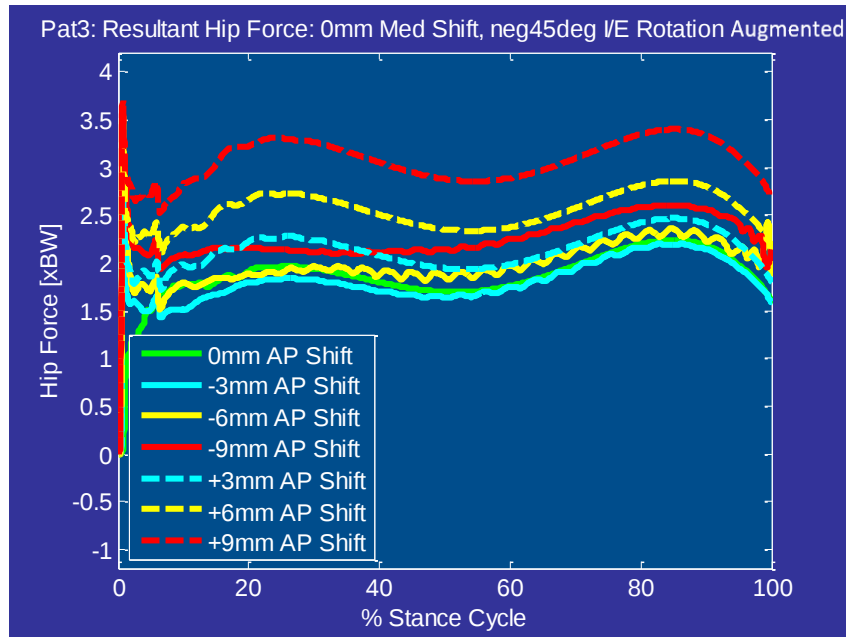


(b)

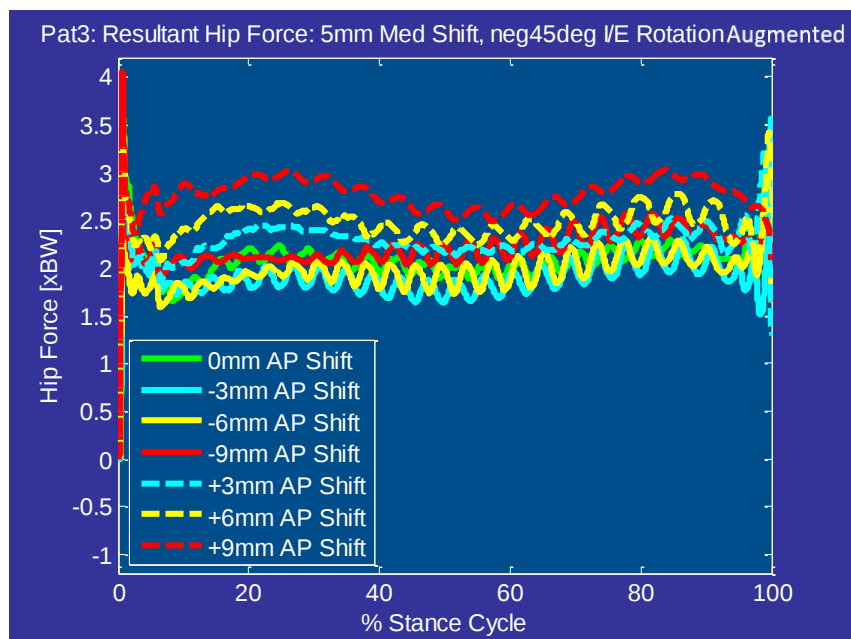
Figure F59: Pat 3: Augmented Liner: Separation

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

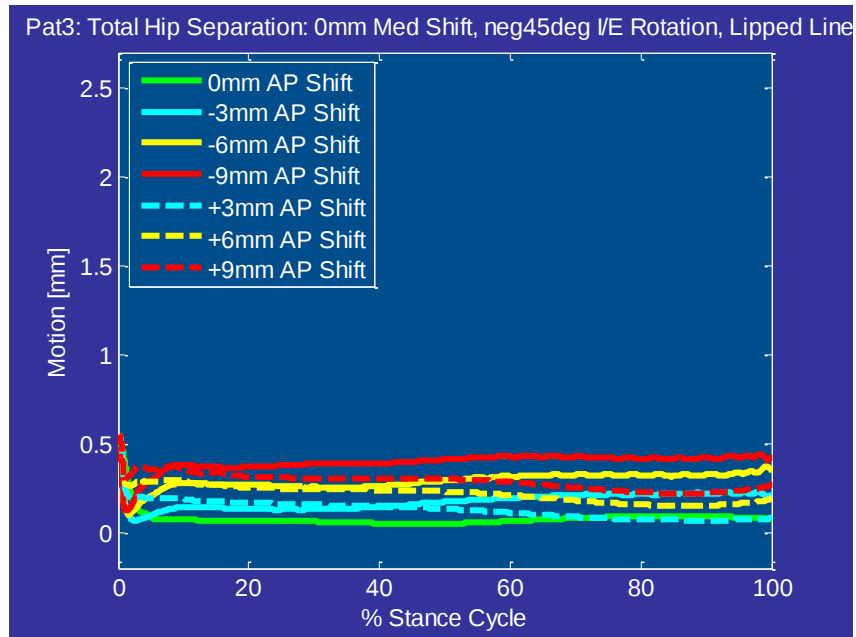


(b)

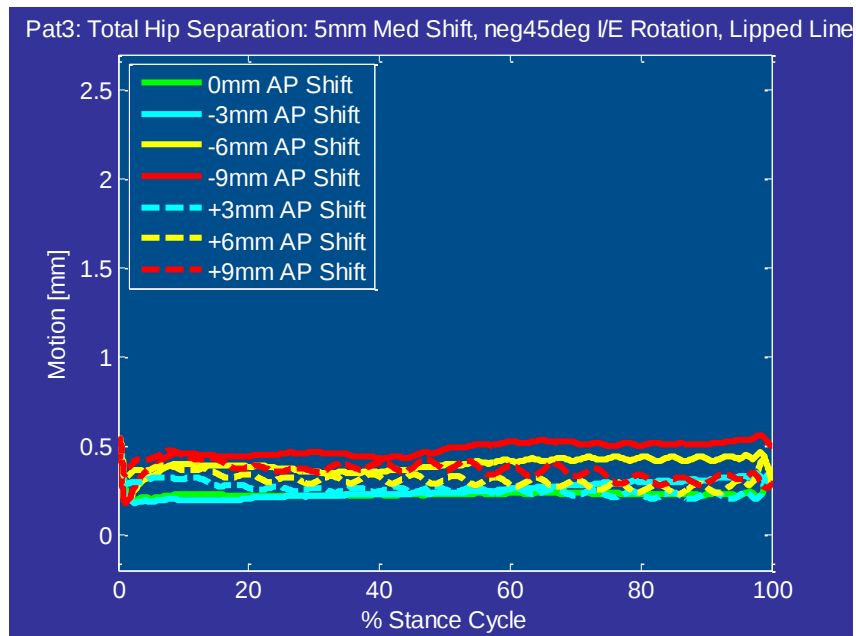
Figure F60: Pat 3: Augmented Liner: Hip Force

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

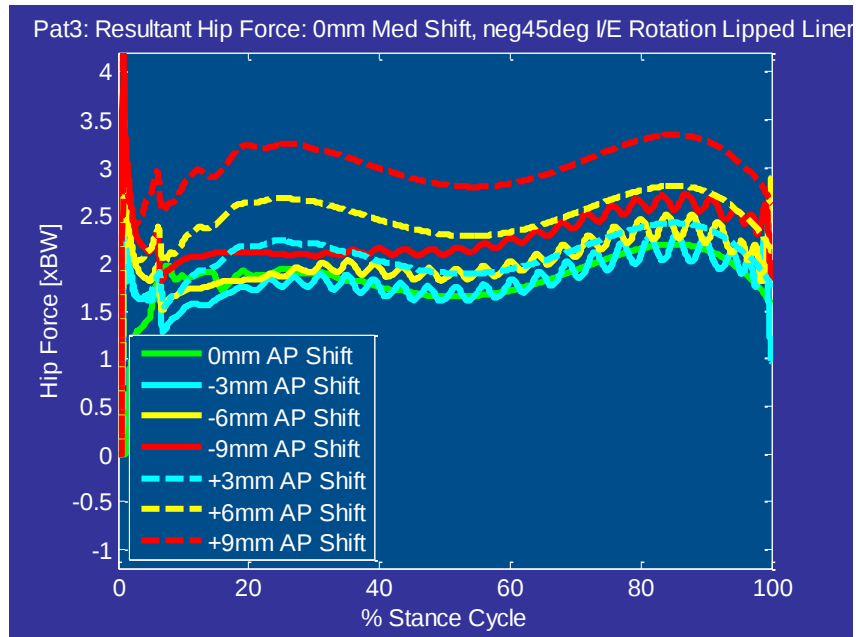


(b)

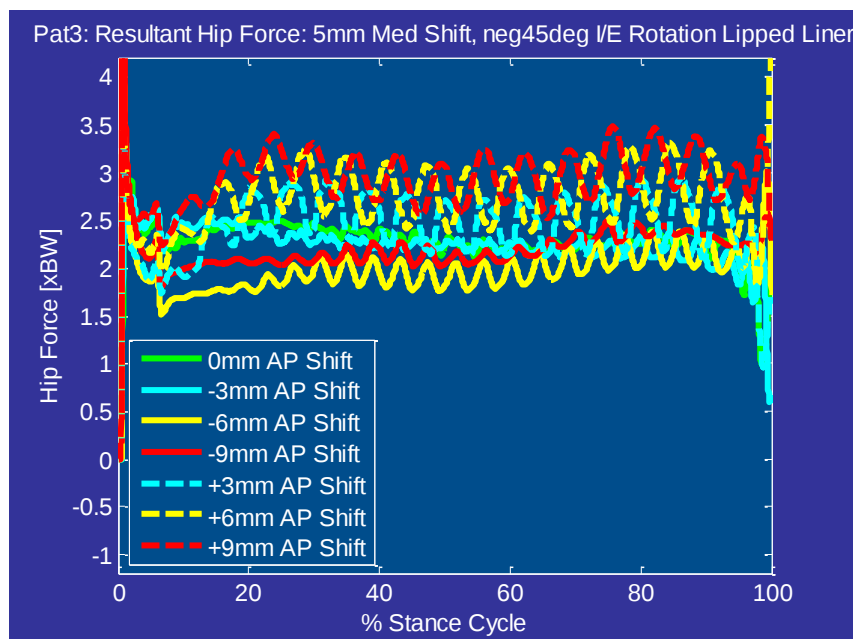
Figure F61: Pat 3: Lipped Liner: Separation

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

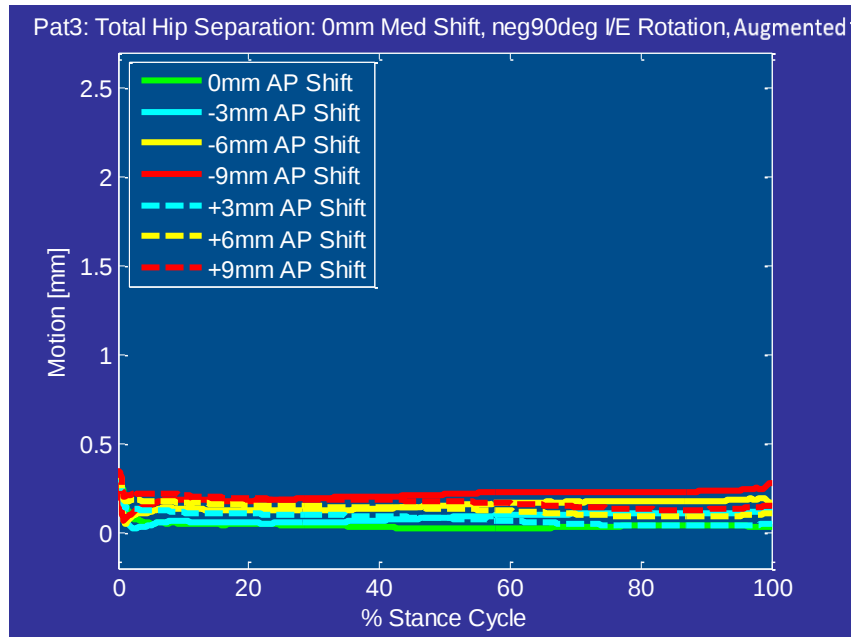


(b)

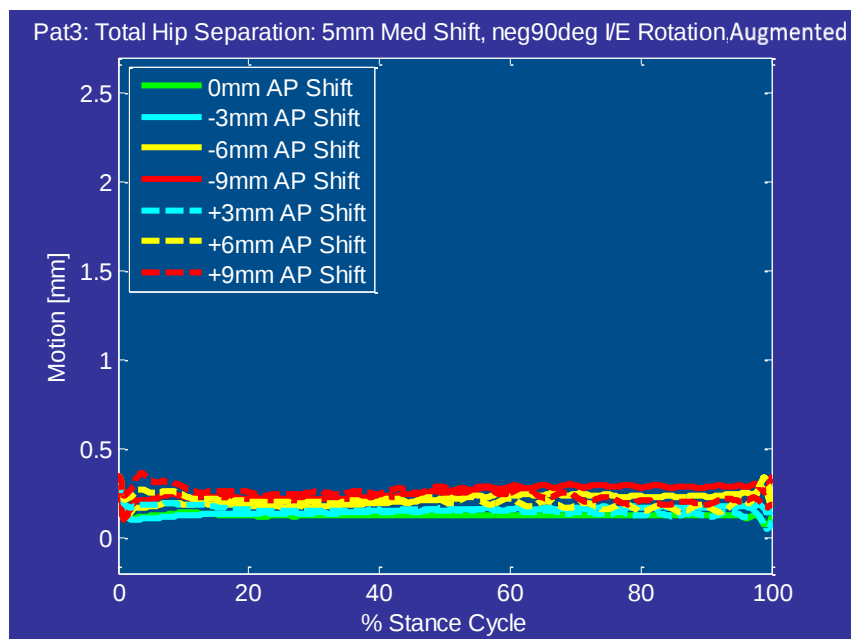
Figure F62: Pat 3: Lipped Liner: Hip Force

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

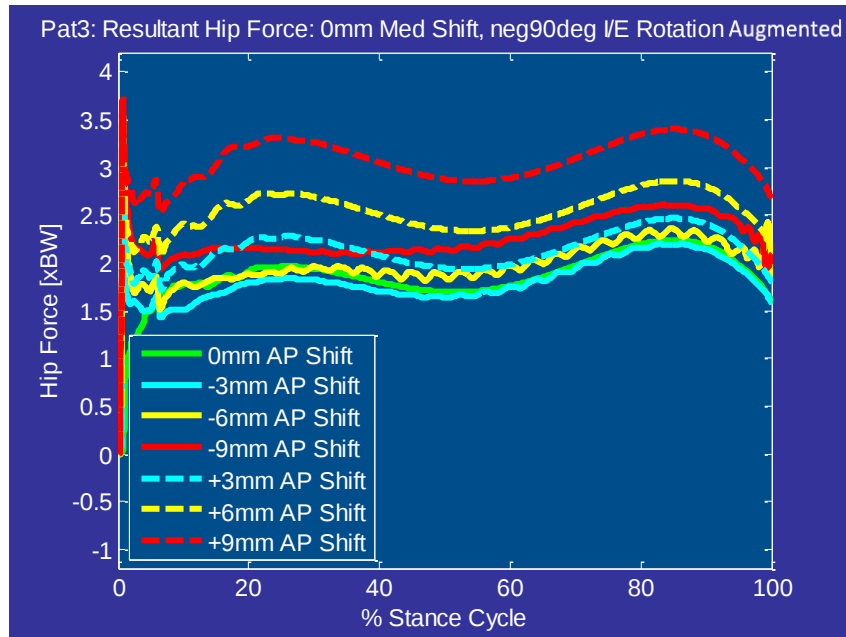


(b)

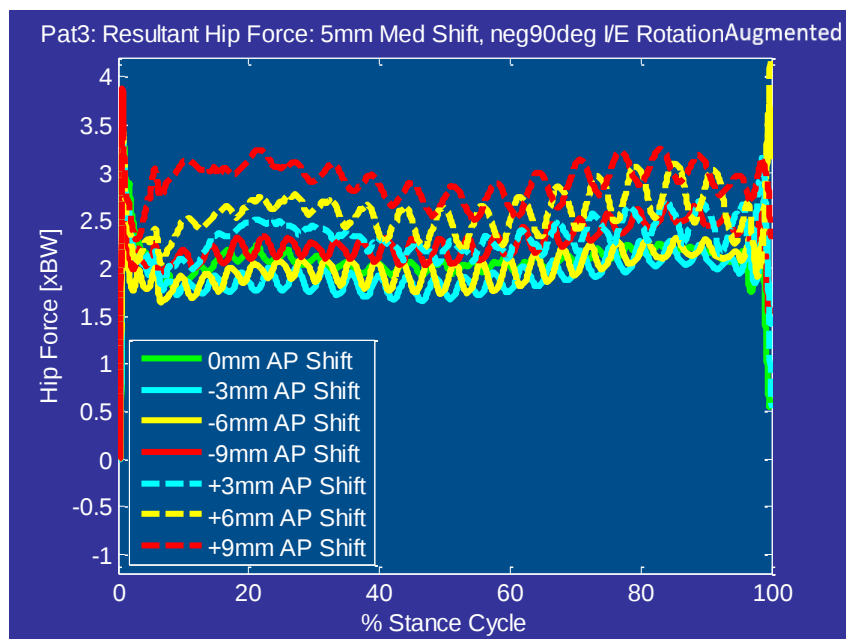
Figure F63: Pat 3: Augmented Liner: Separation

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

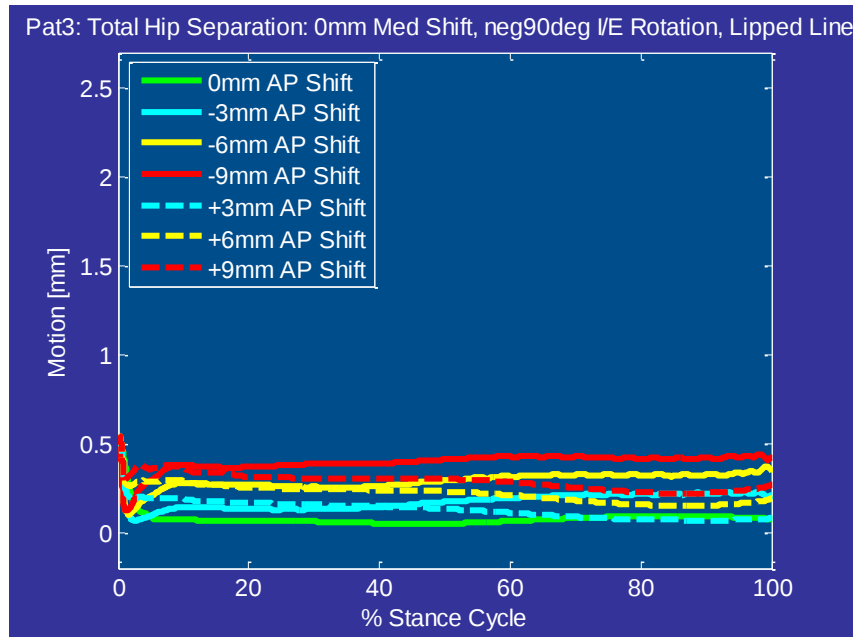


(b)

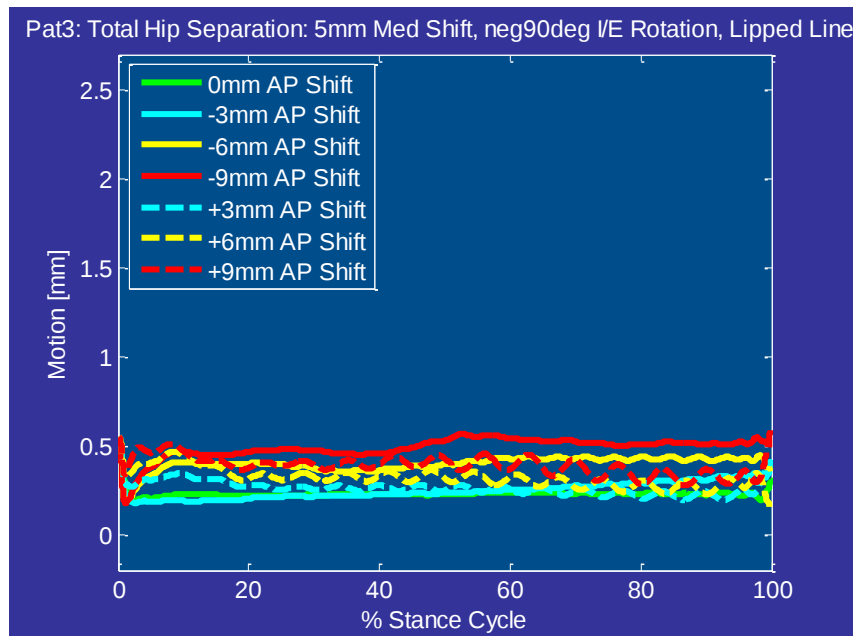
Figure F64: Pat 3: Augmented Liner: Hip Force

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)



(b)

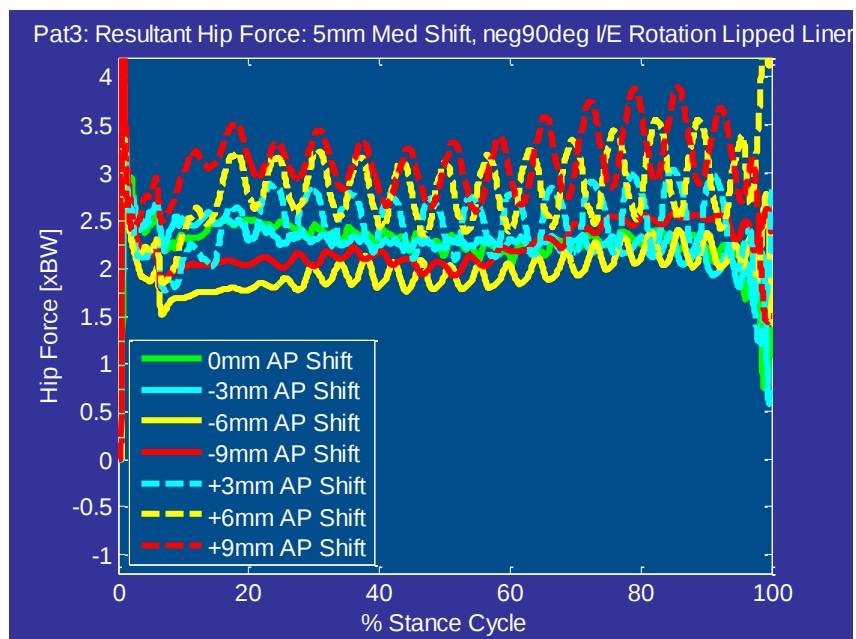
Figure F65: Pat 3: Lipped Liner: Separation

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

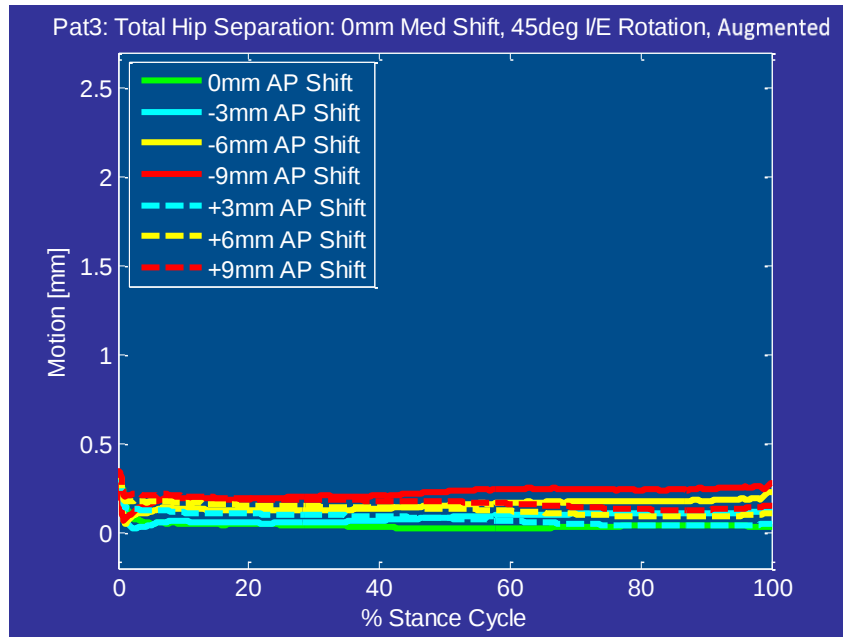


(b)

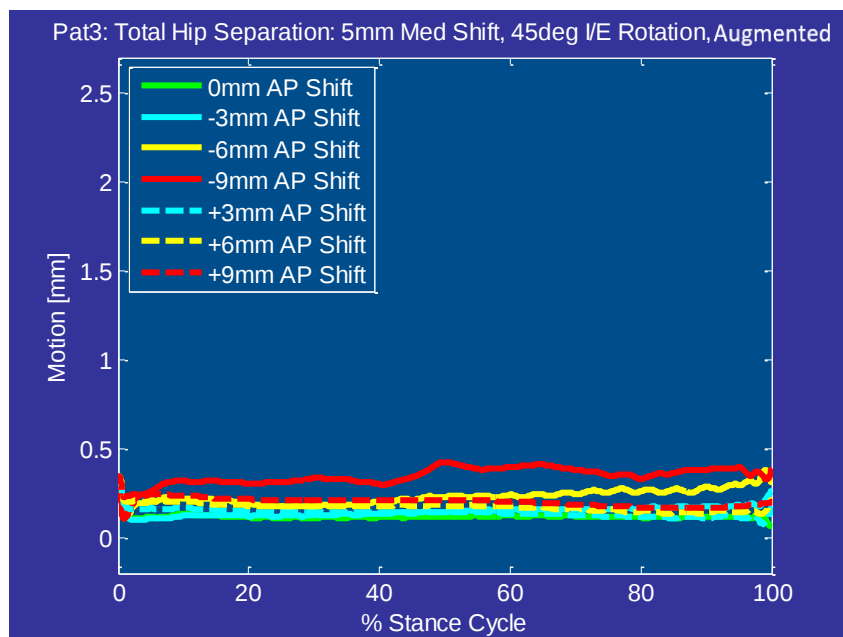
Figure F66: Pat 3: Lipped Liner: Hip Force

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

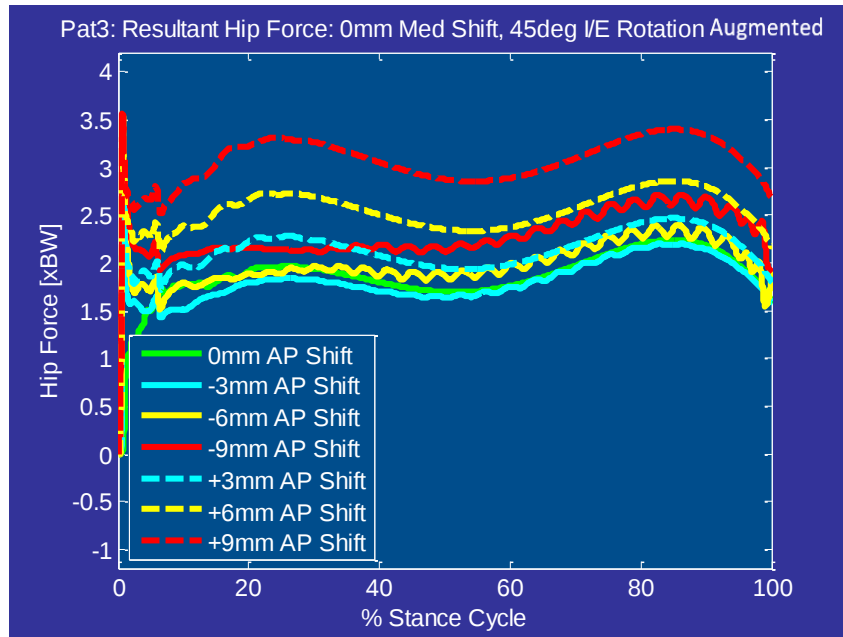


(b)

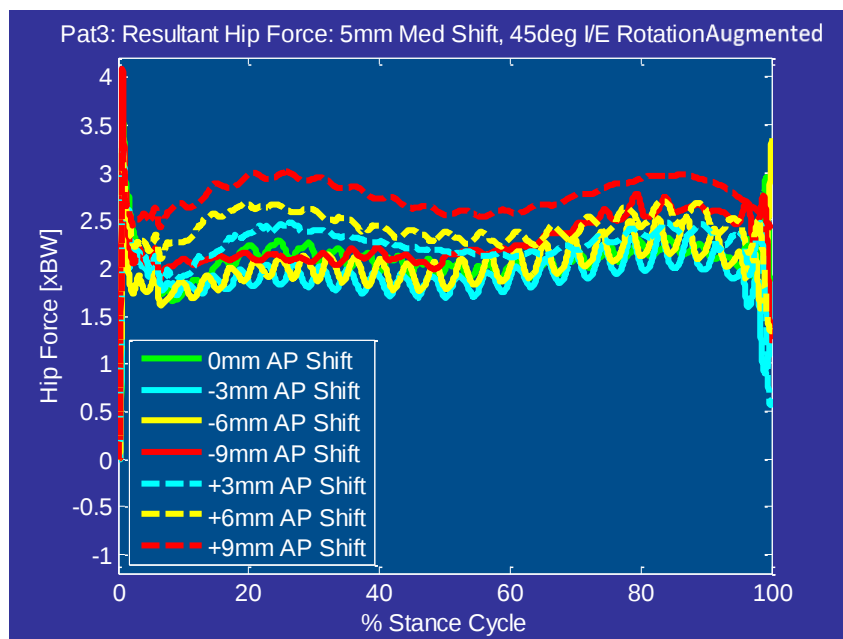
Figure F67: Pat 3: Augmented Liner: Separation

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

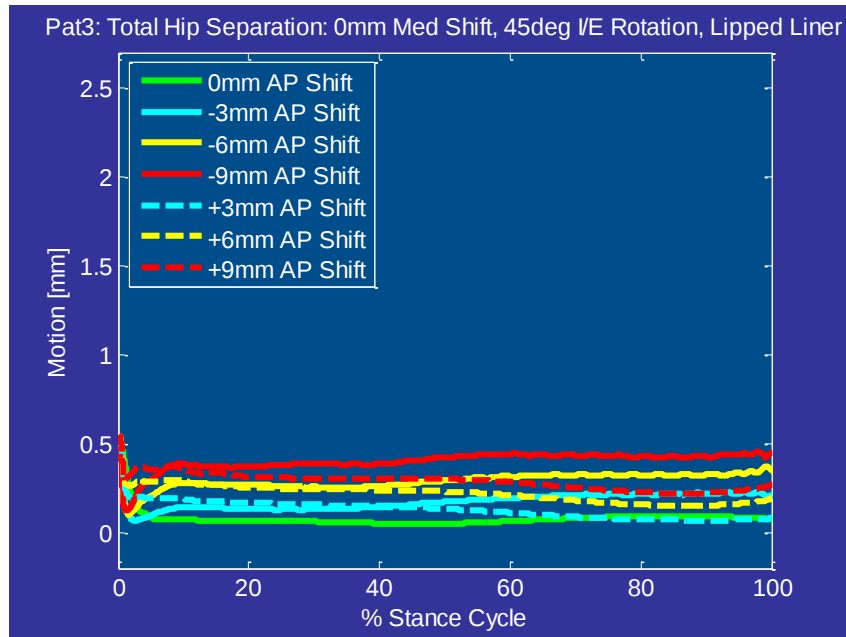


(b)

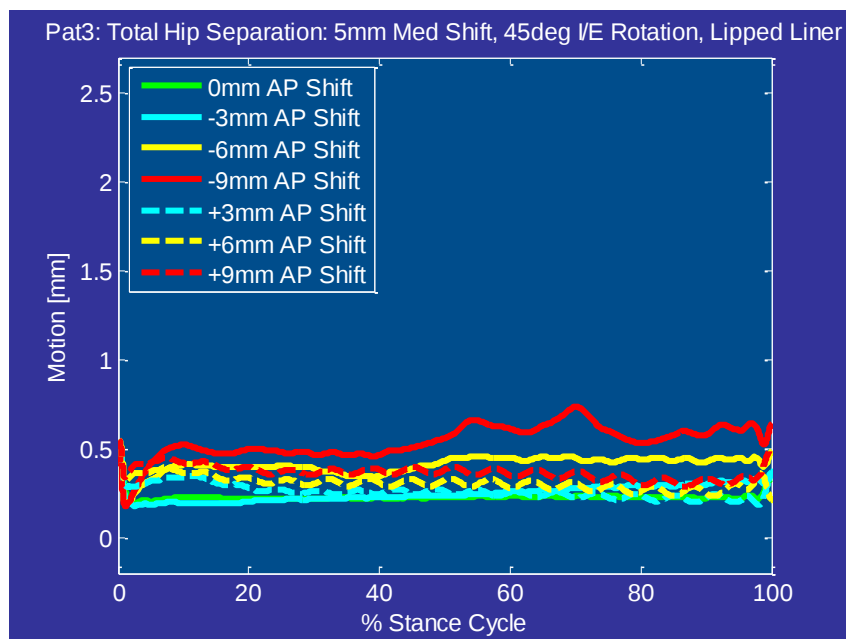
Figure F68: Pat 3: Augmented Liner: Hip Force

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

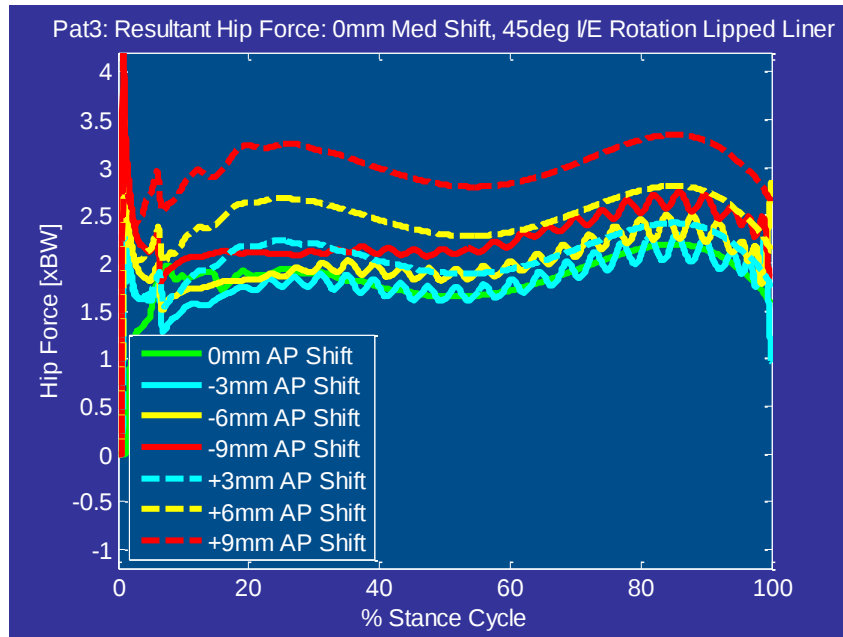


(b)

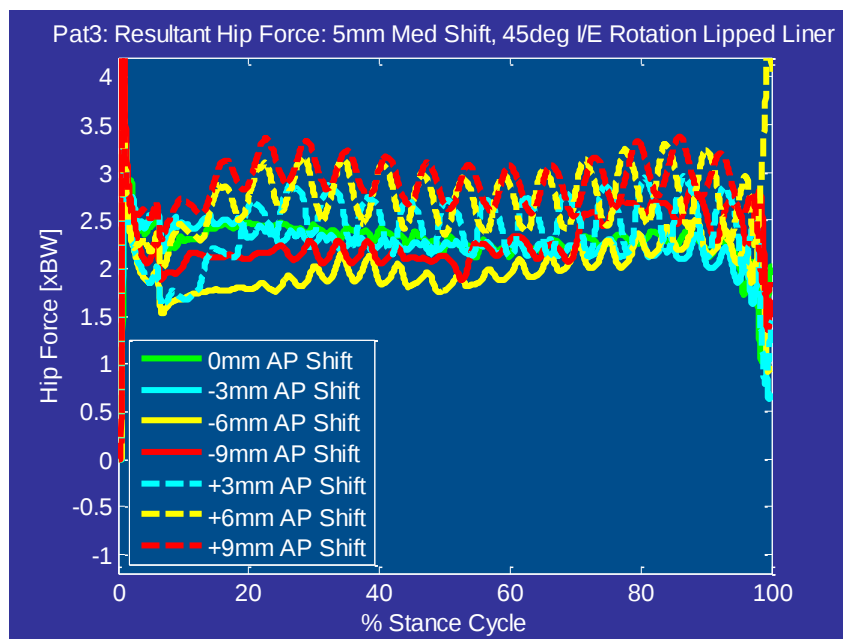
Figure F69: Pat 3: Lipped Liner: Separation

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

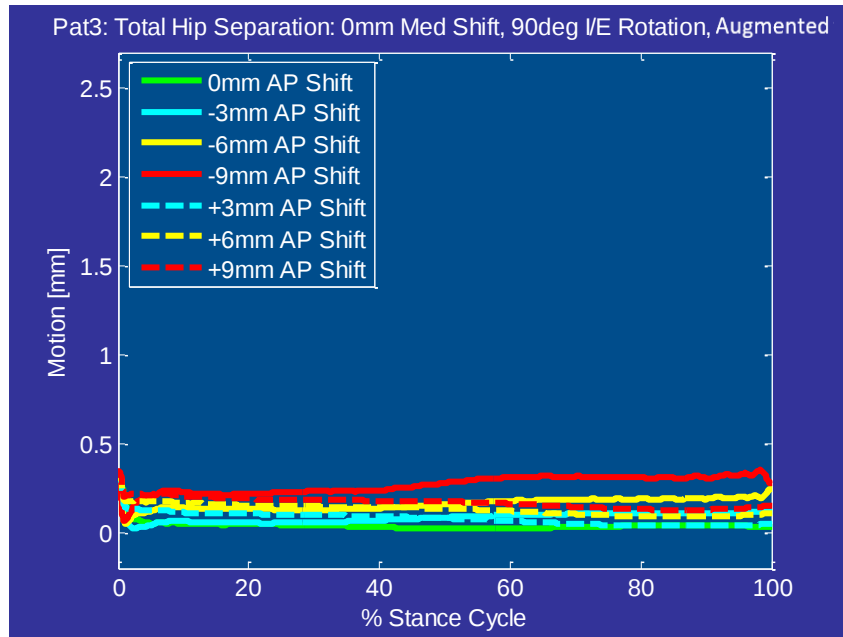


(b)

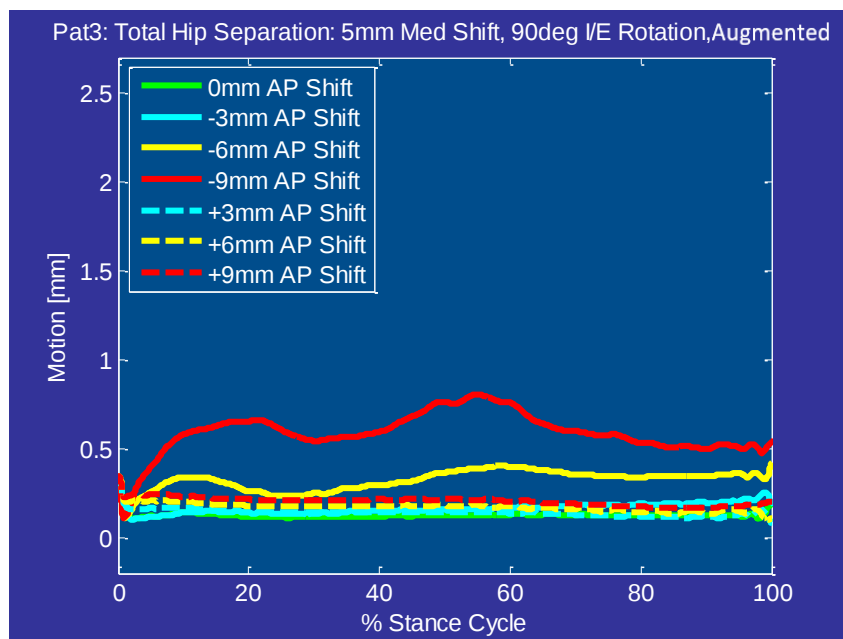
Figure F70: Pat 3: Lipped Liner: Hip Force

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

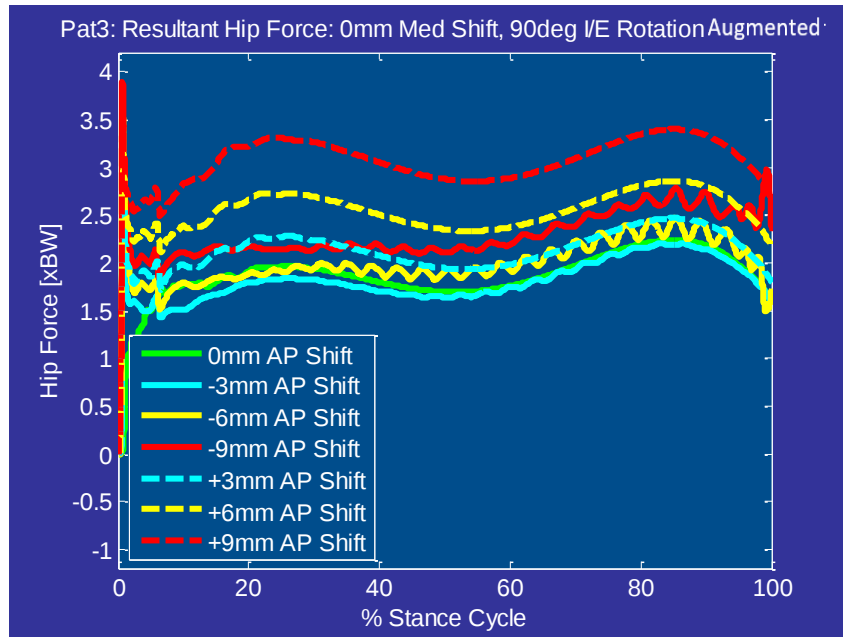


(b)

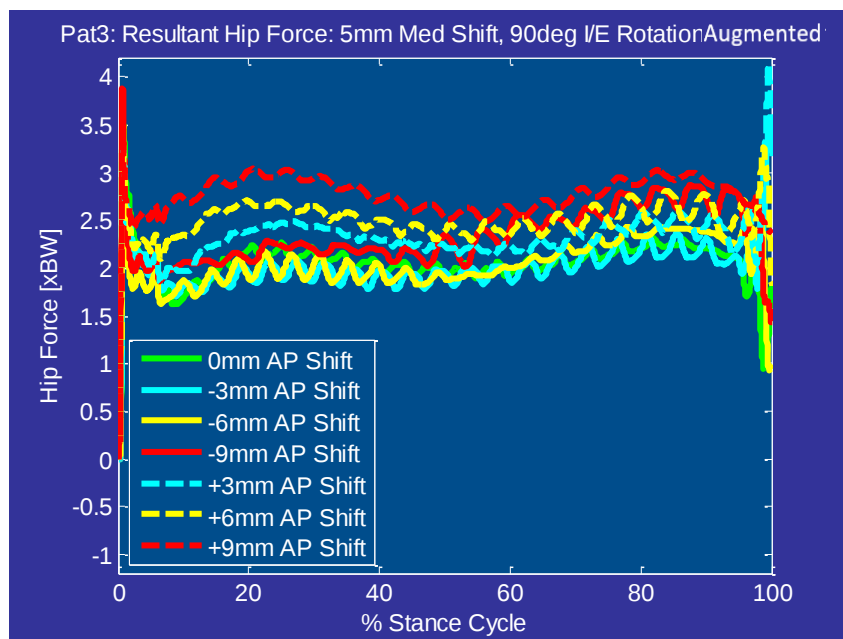
Figure F71: Pat 3: Augmented Liner: Separation

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

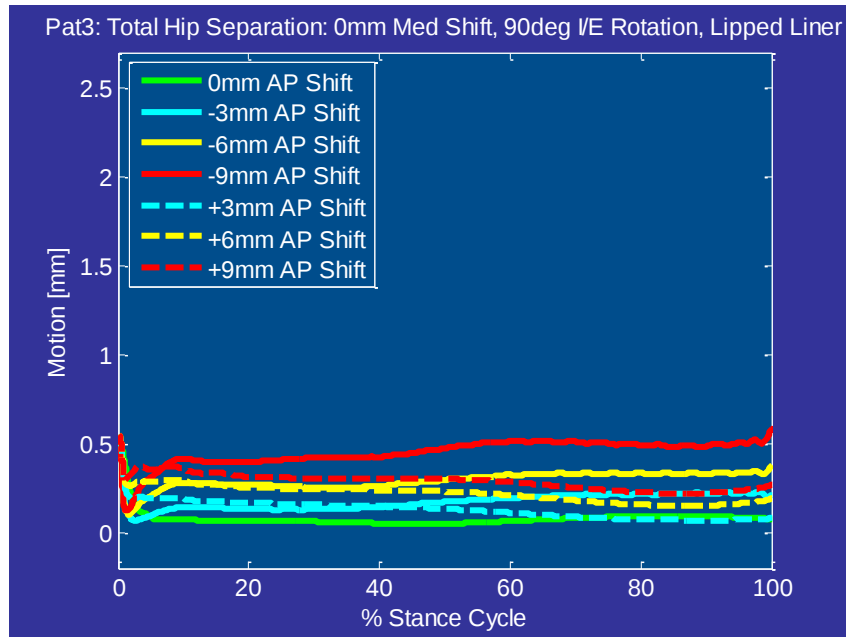


(b)

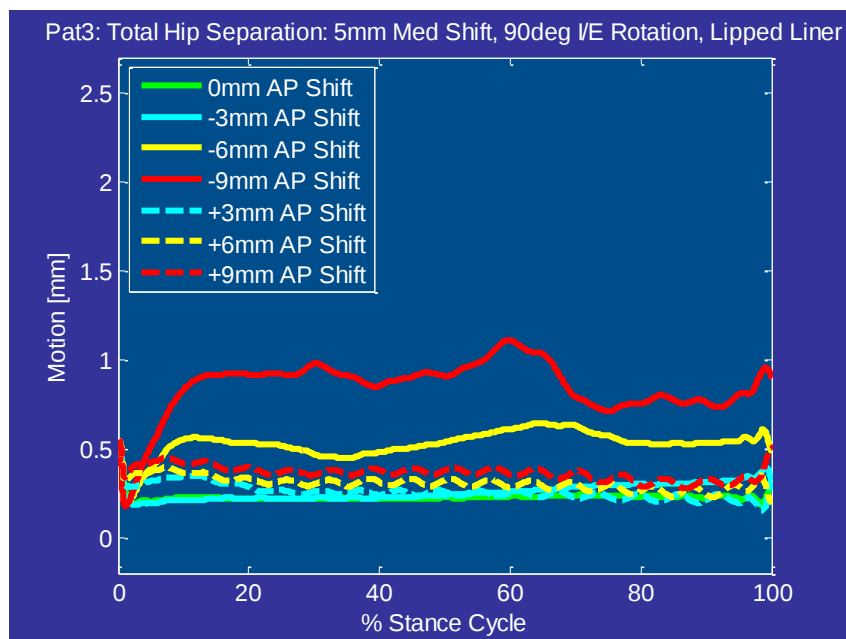
Figure F72: Pat 3: Augmented Liner: Hip Force

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

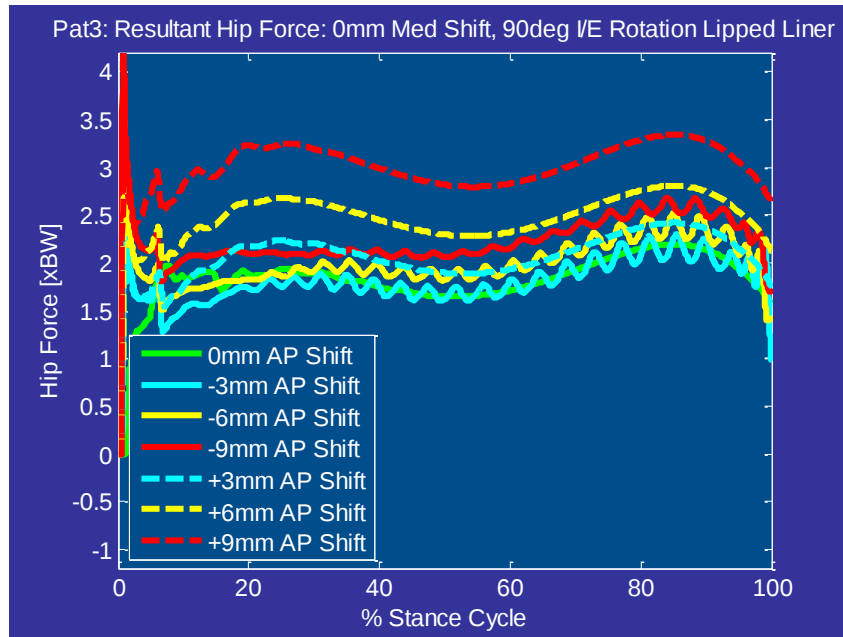


(b)

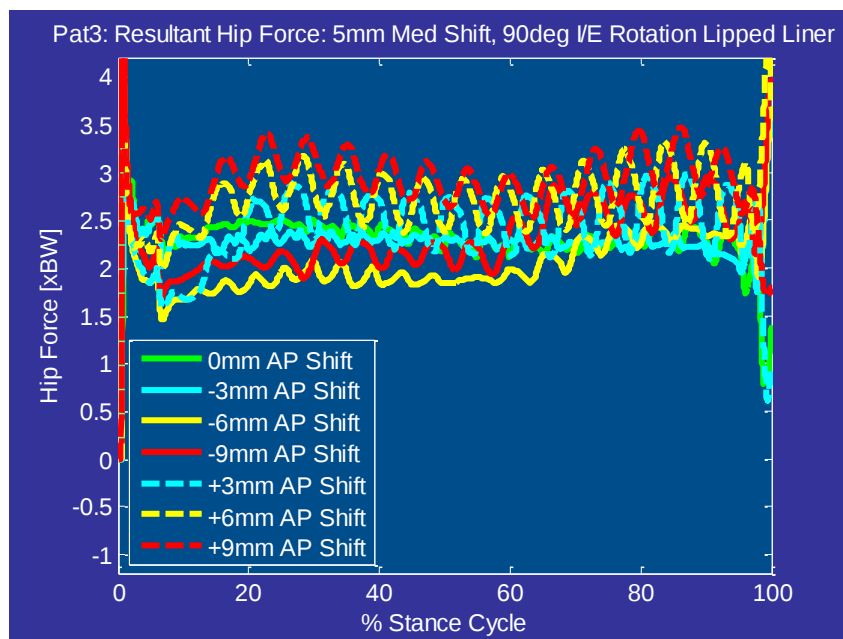
Figure F73: Pat 3: Lipped Liner: Separation

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

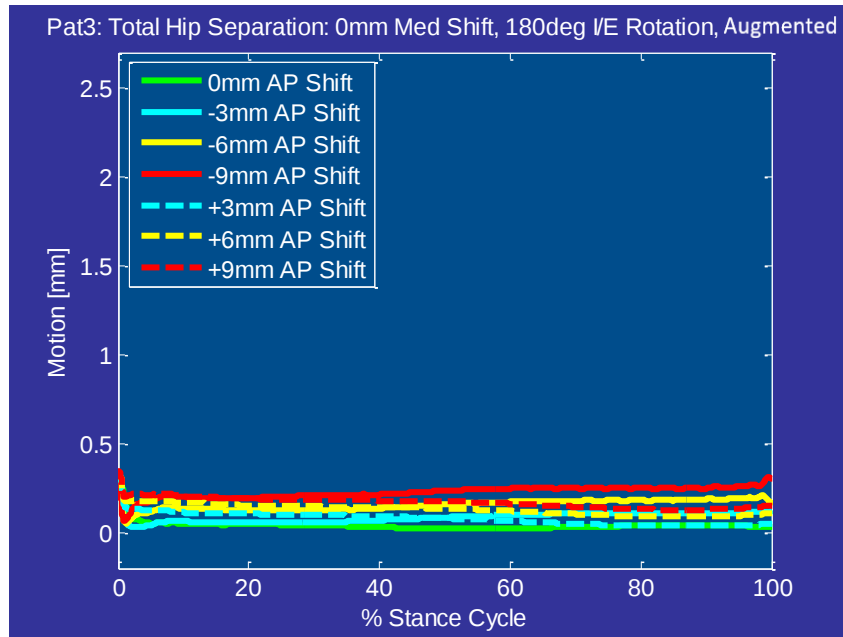


(b)

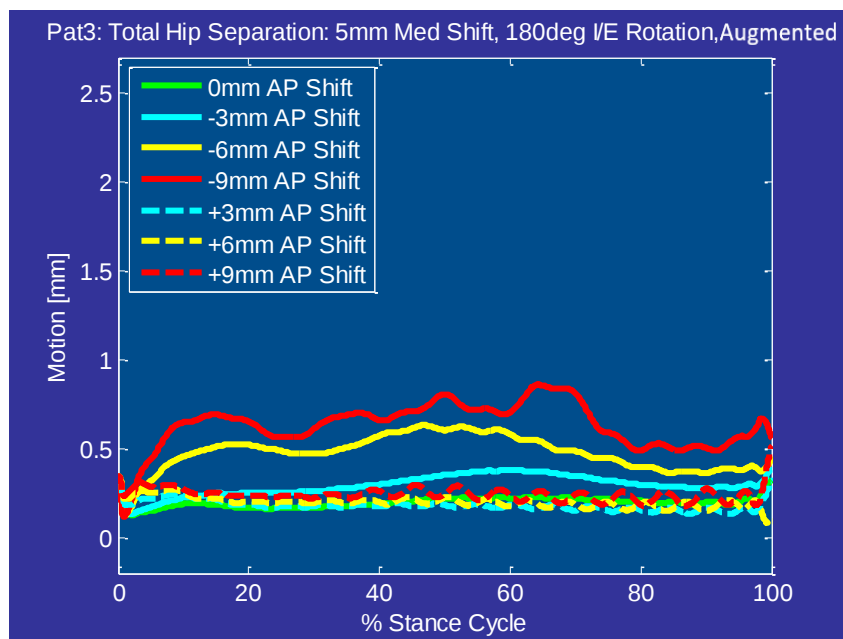
Figure F74: Pat 3: Lipped Liner: Hip Force

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

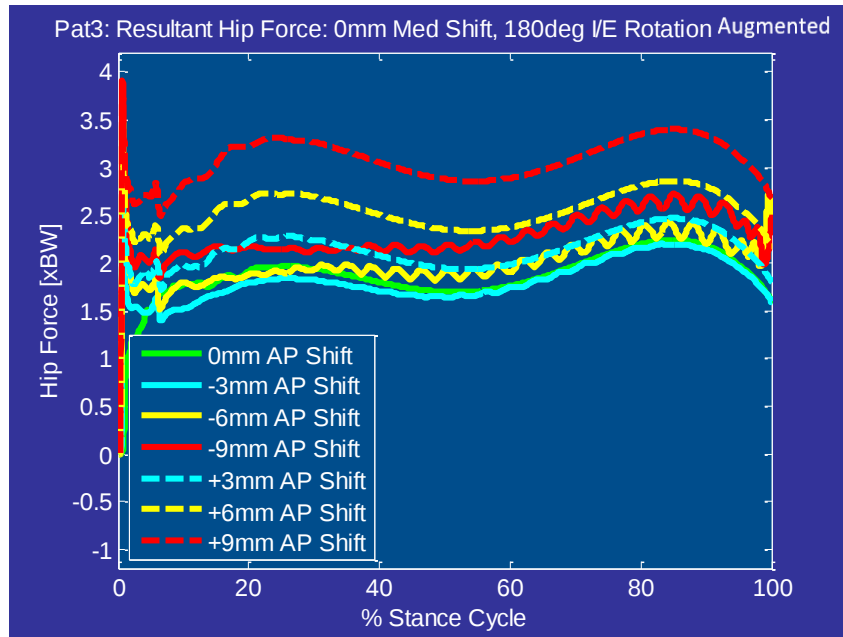


(b)

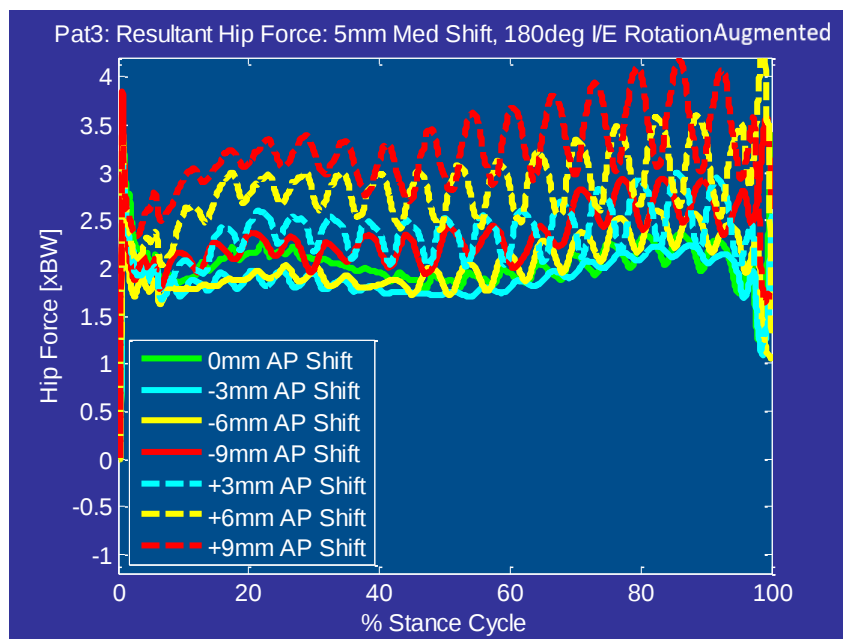
Figure F75: Pat 3: Augmented Liner: Separation

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

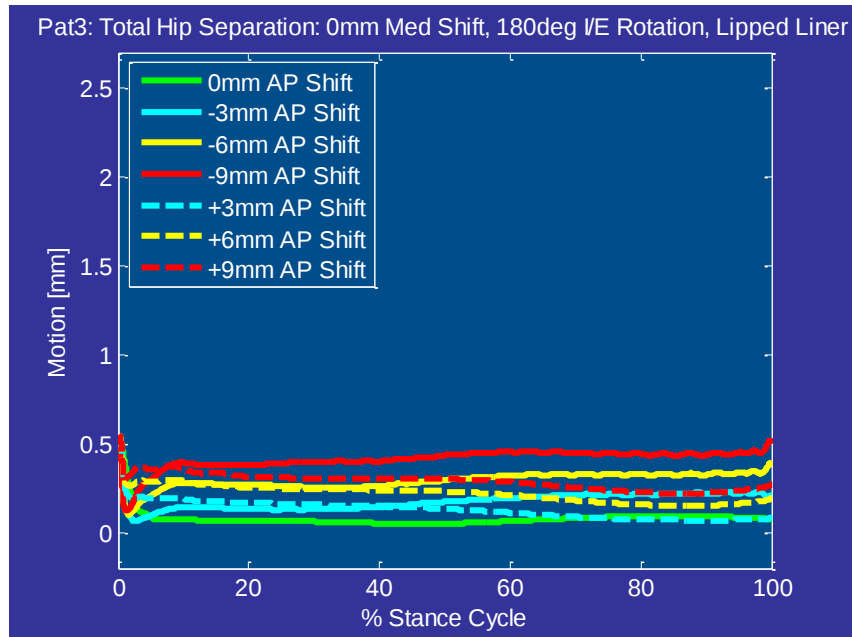


(b)

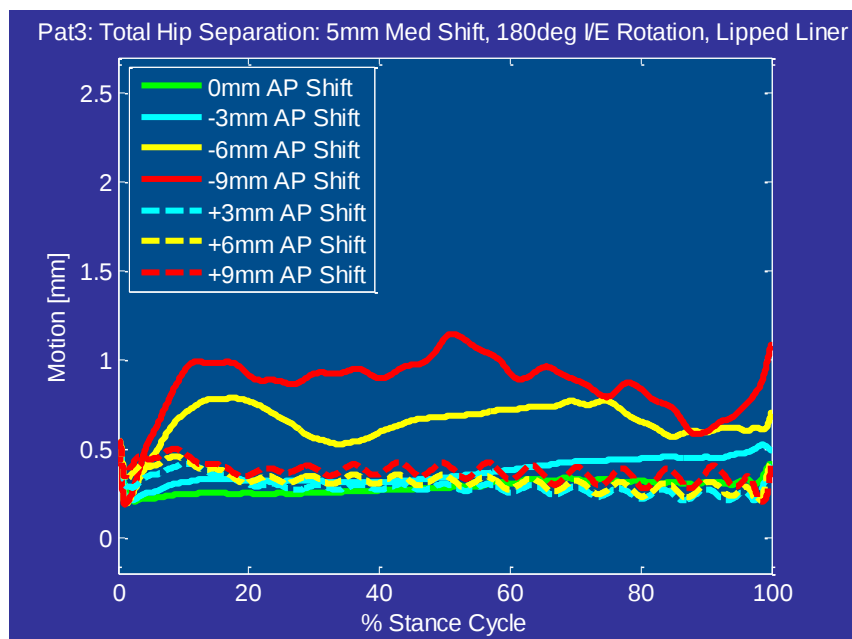
Figure F76: Pat 3: Augmented Liner: Hip Force

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

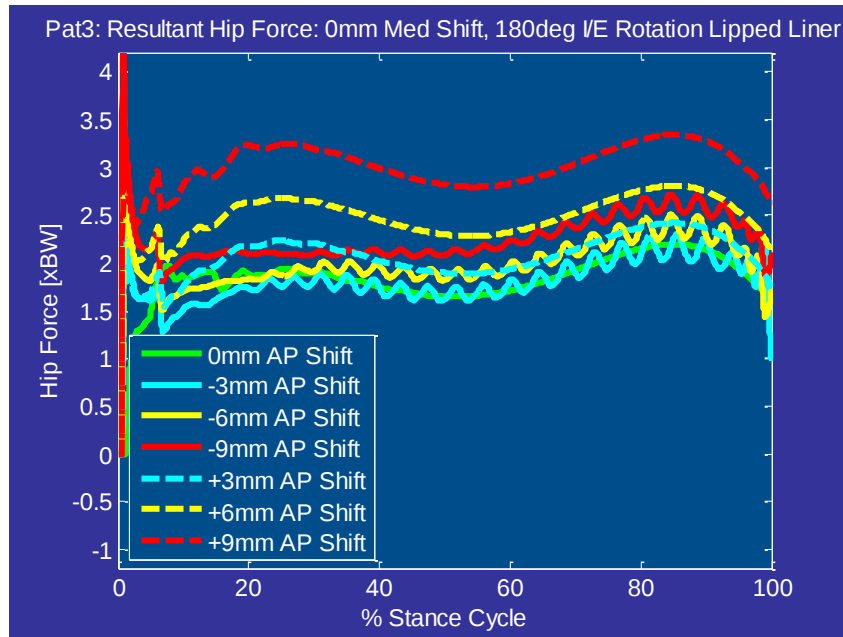


(b)

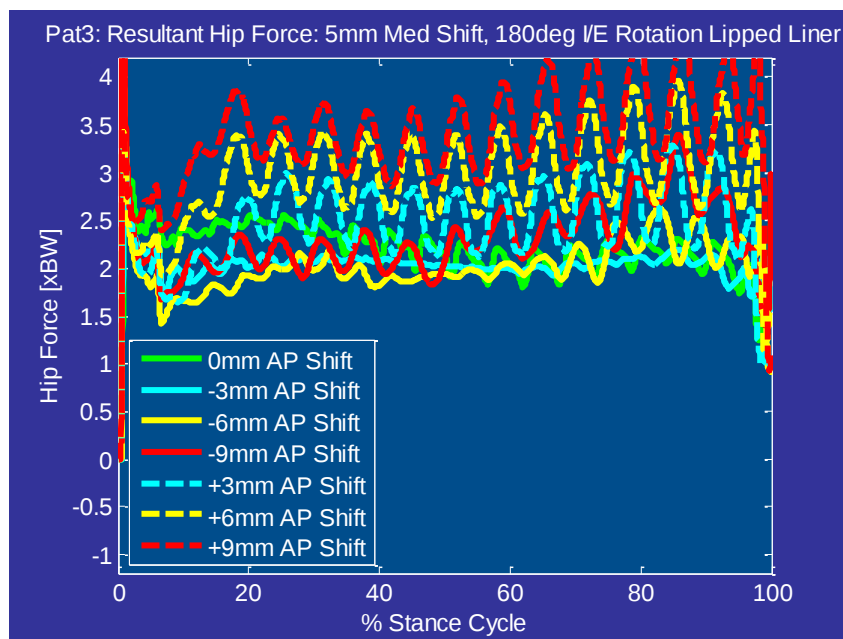
Figure F77: Pat 3: Lipped Liner: Separation

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

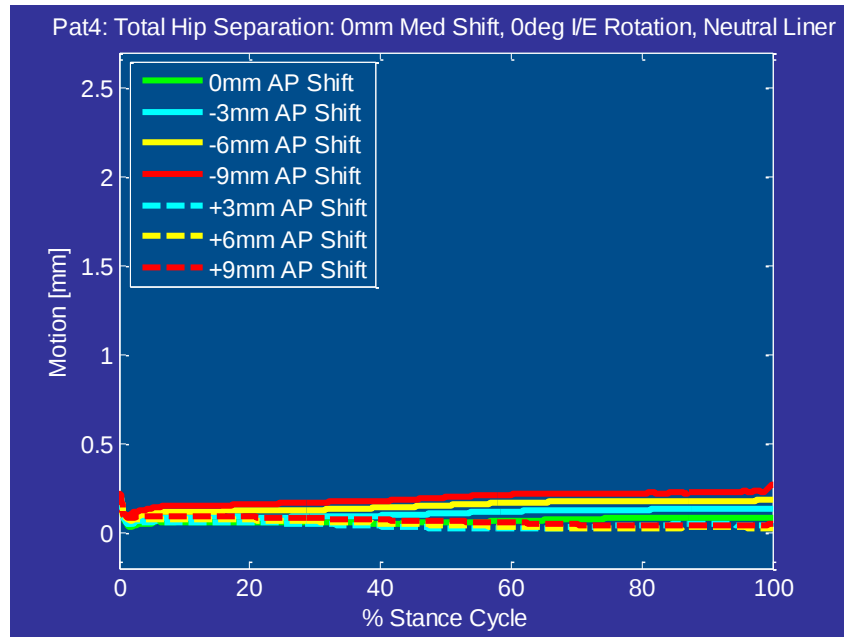


(b)

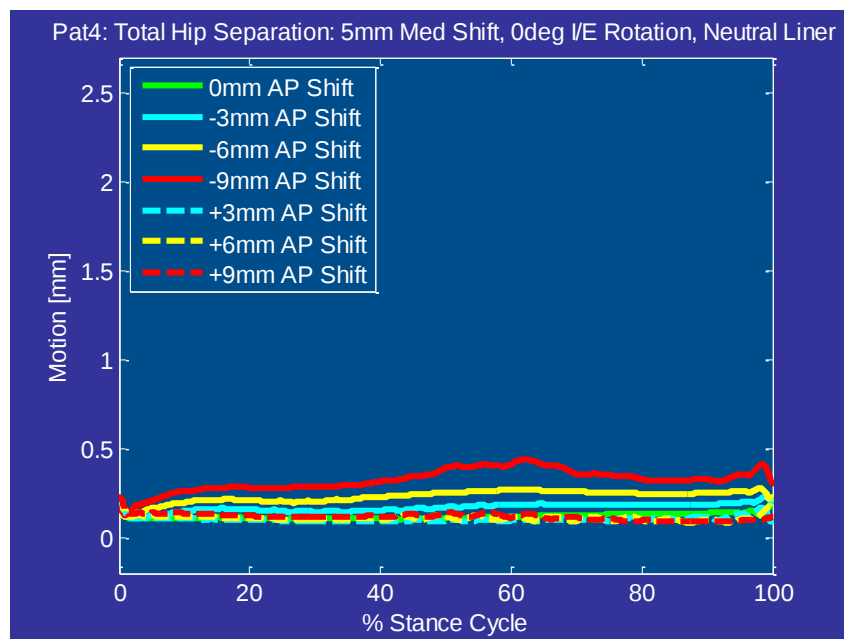
Figure F78: Pat 3: Lipped Liner: Hip Force

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

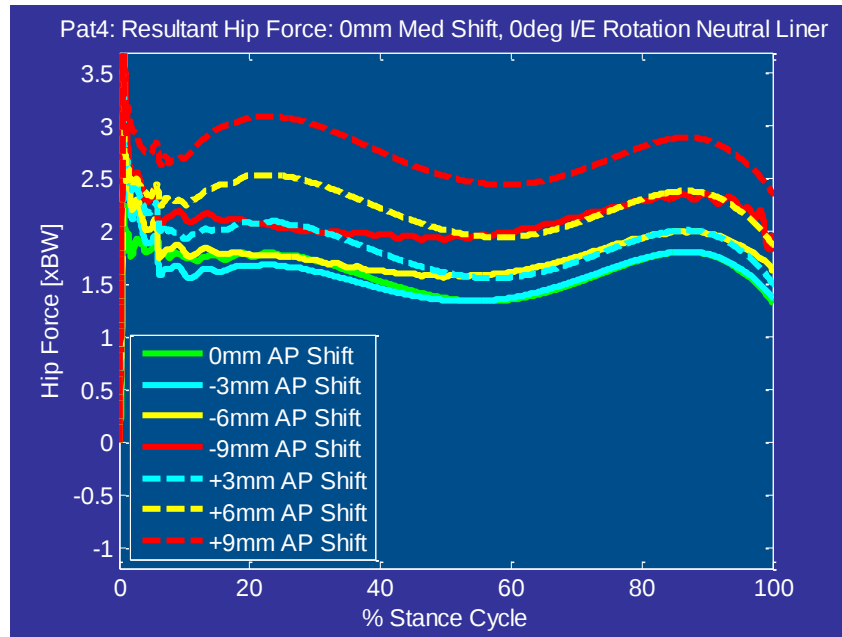


(b)

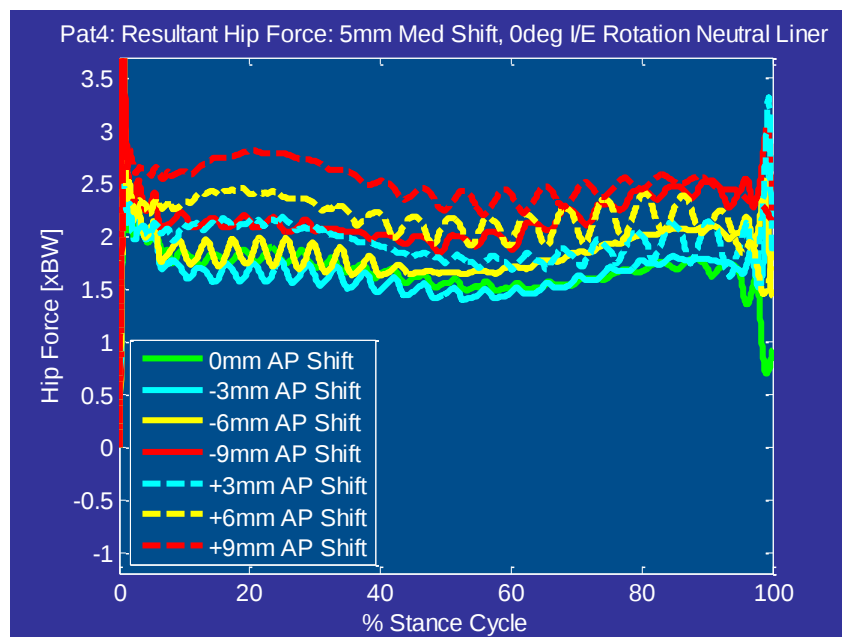
Figure F79: Pat 4: Neutral Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

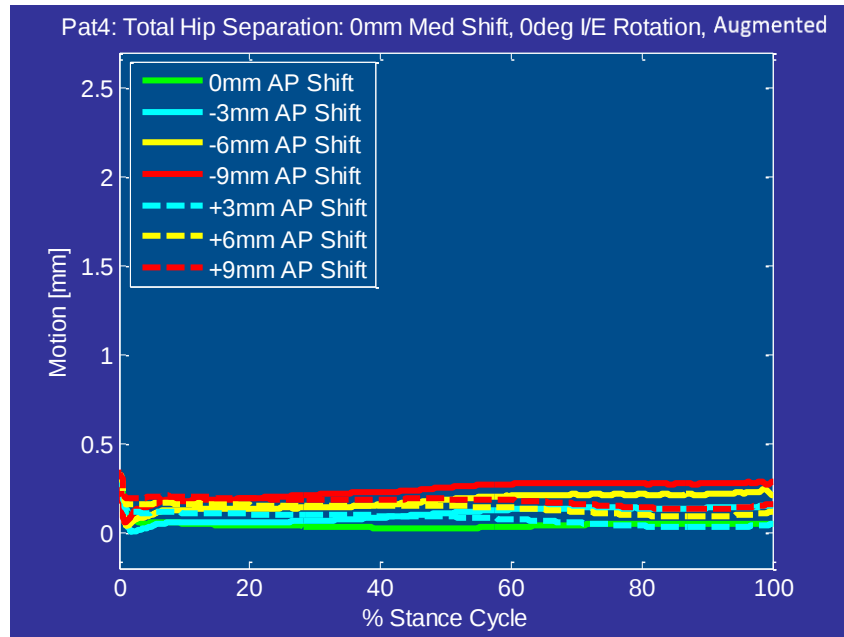


(b)

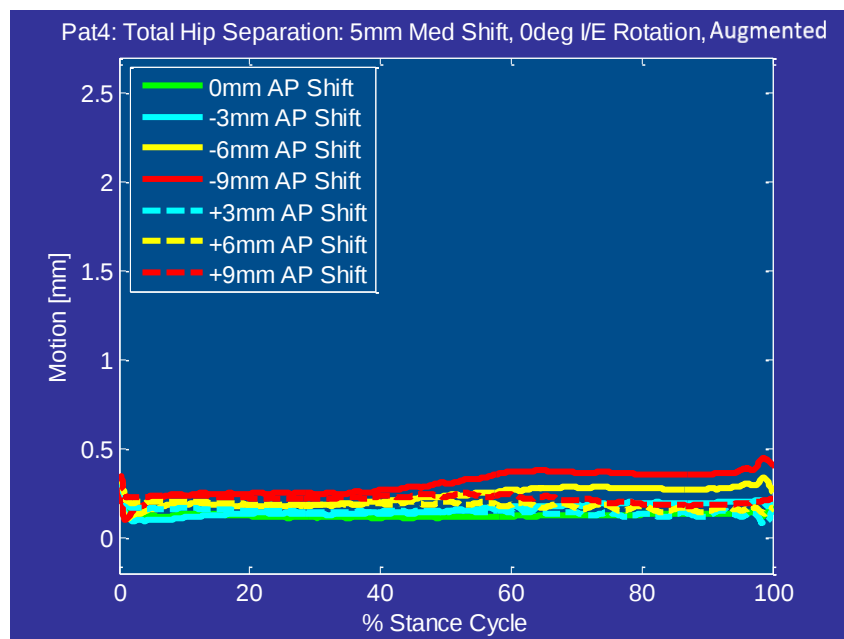
Figure F80: Pat 4: Neutral Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

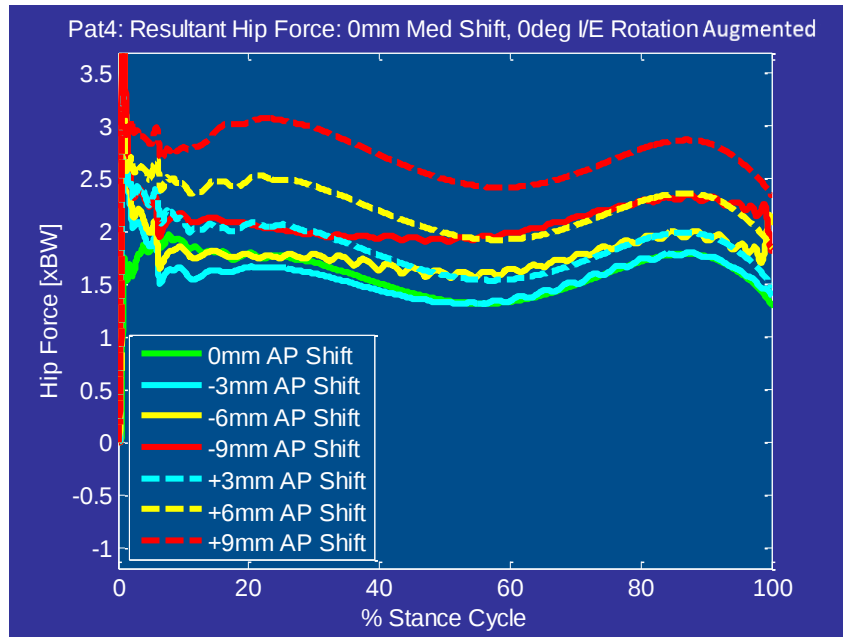


(b)

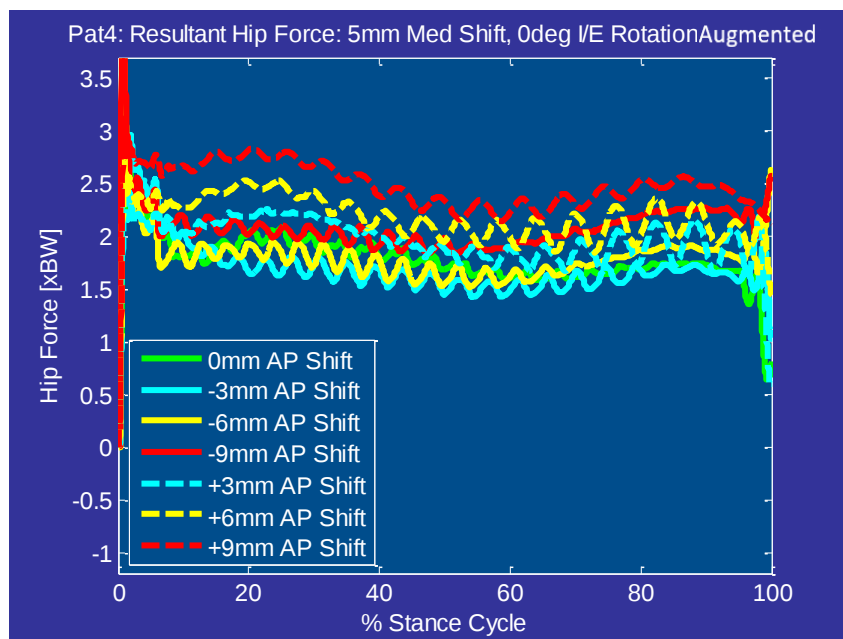
Figure F81: Pat 4: Augmented Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

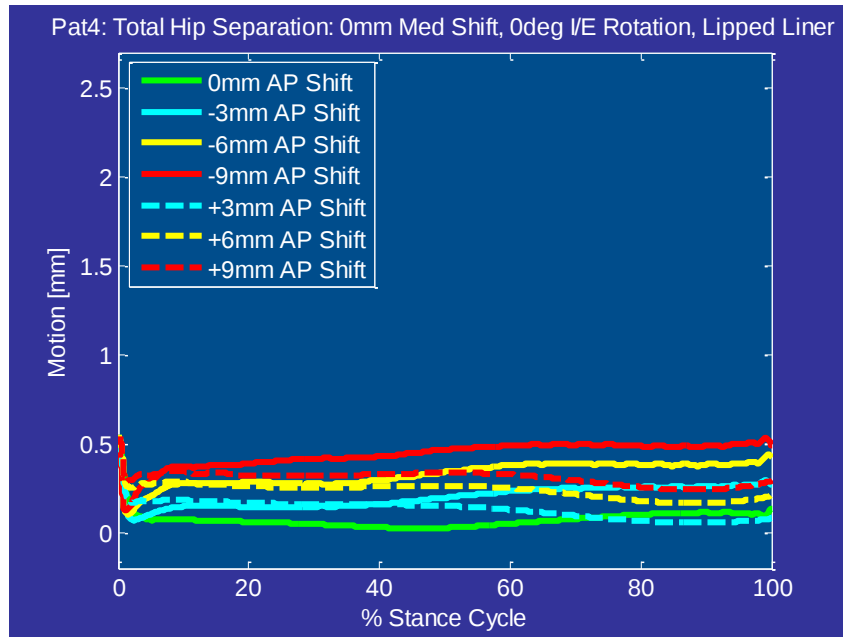


(b)

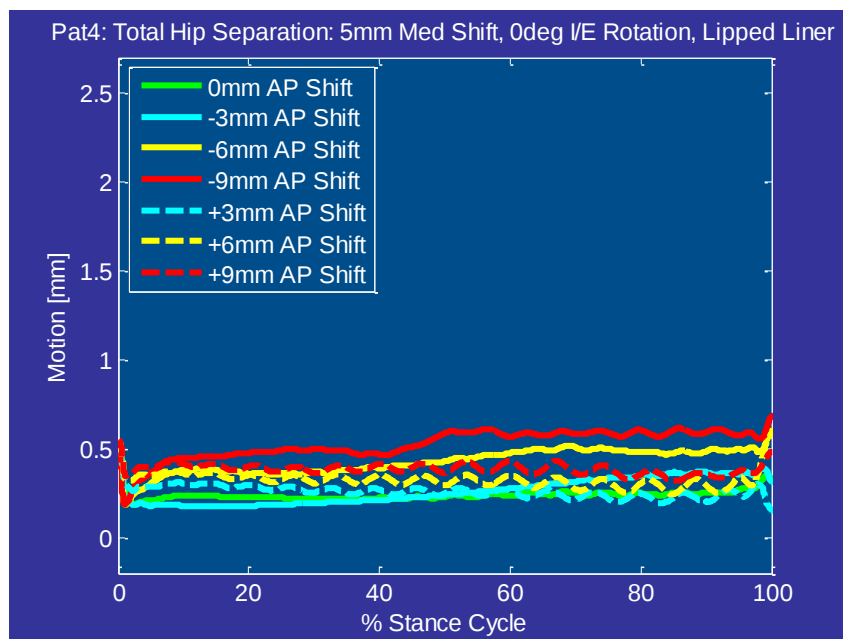
Figure F82: Pat 4: Augmented Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

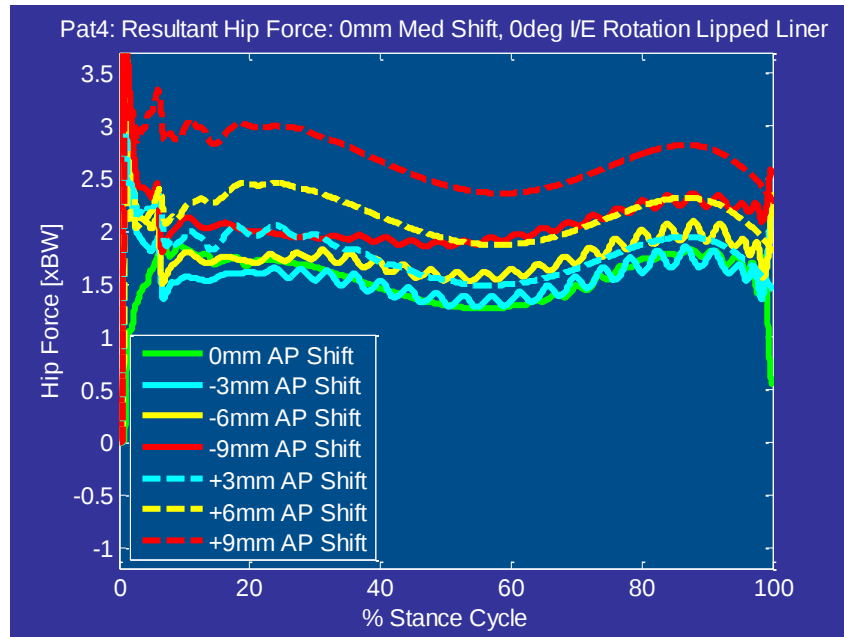


(b)

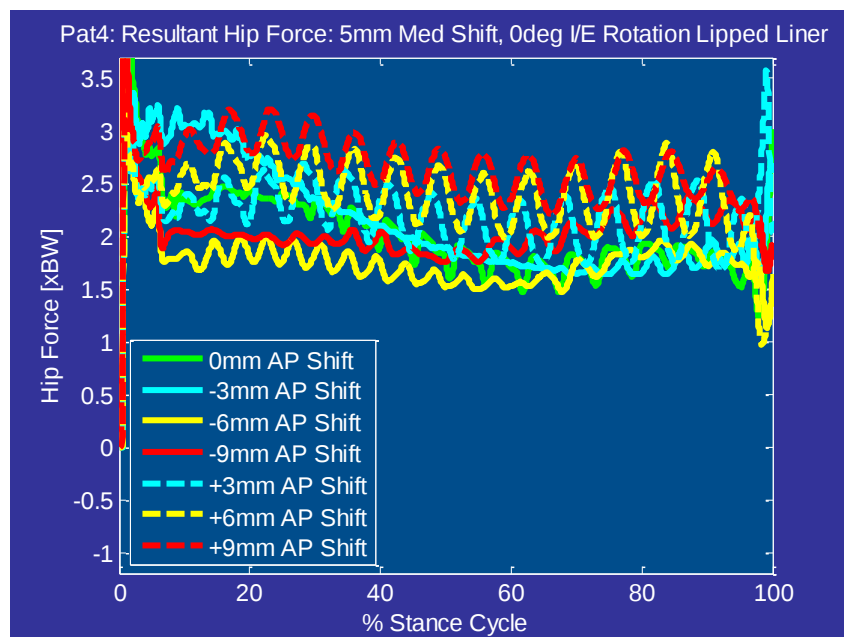
Figure F83: Pat 4: Lipped Liner: Separation

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

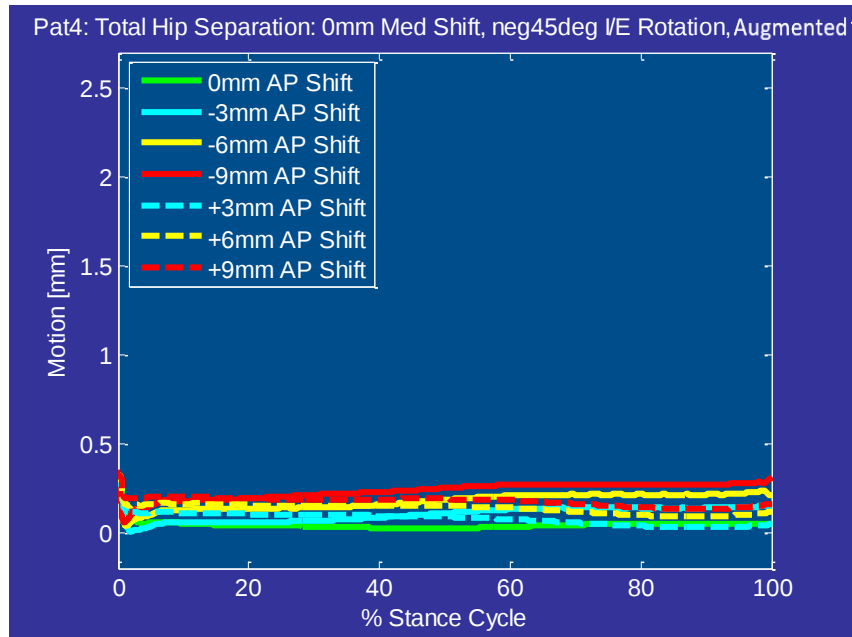


(b)

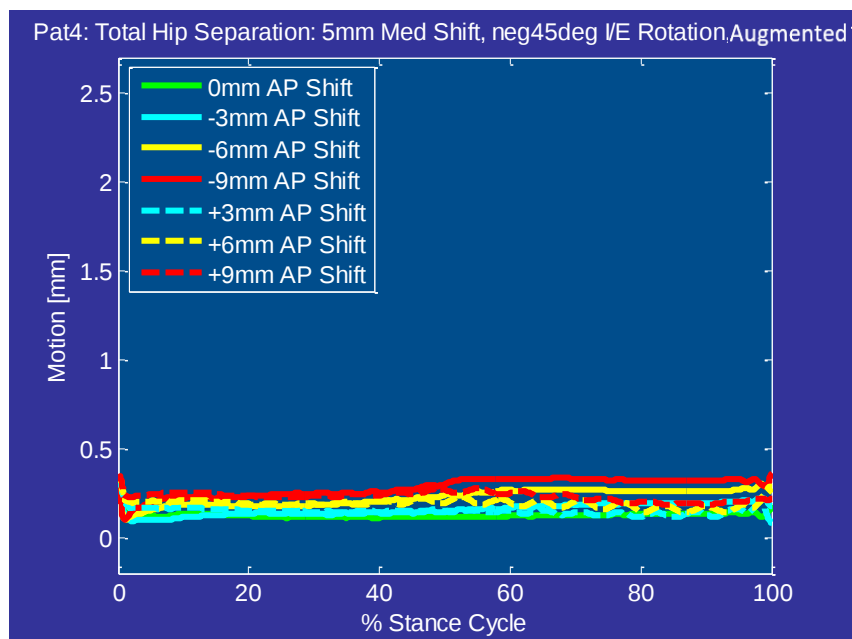
Figure F84: Pat 4: Lipped Liner: Hip Force

0° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

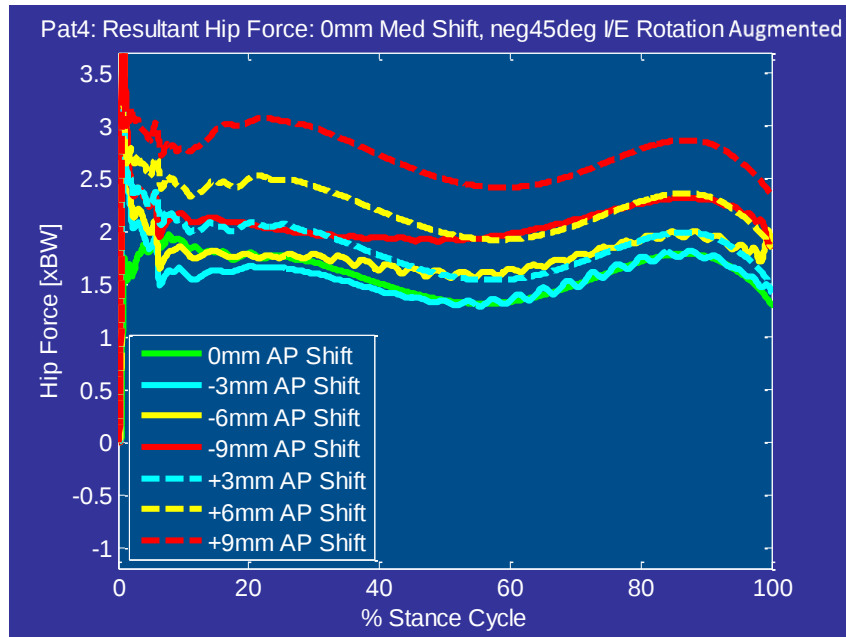


(b)

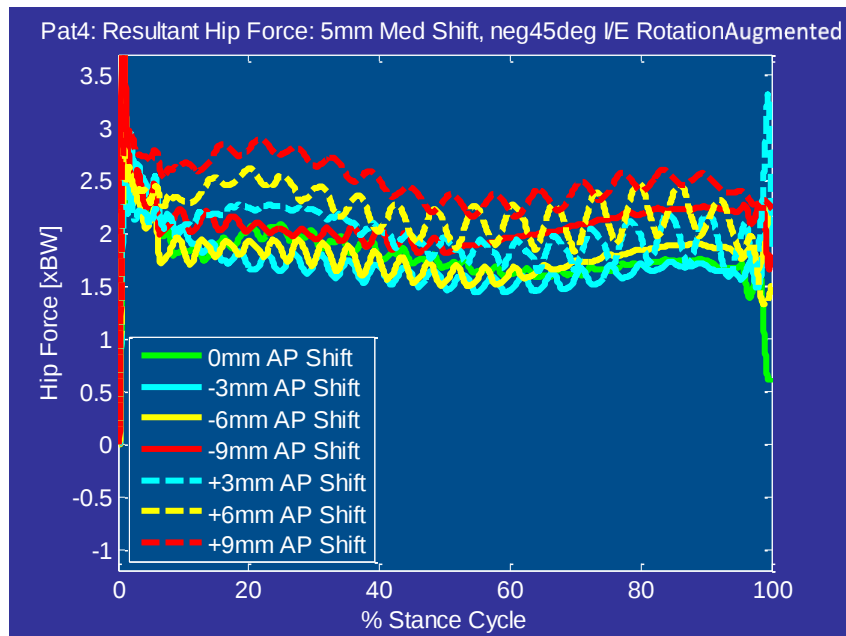
Figure F85: Pat 4: Augmented Liner: Separation

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

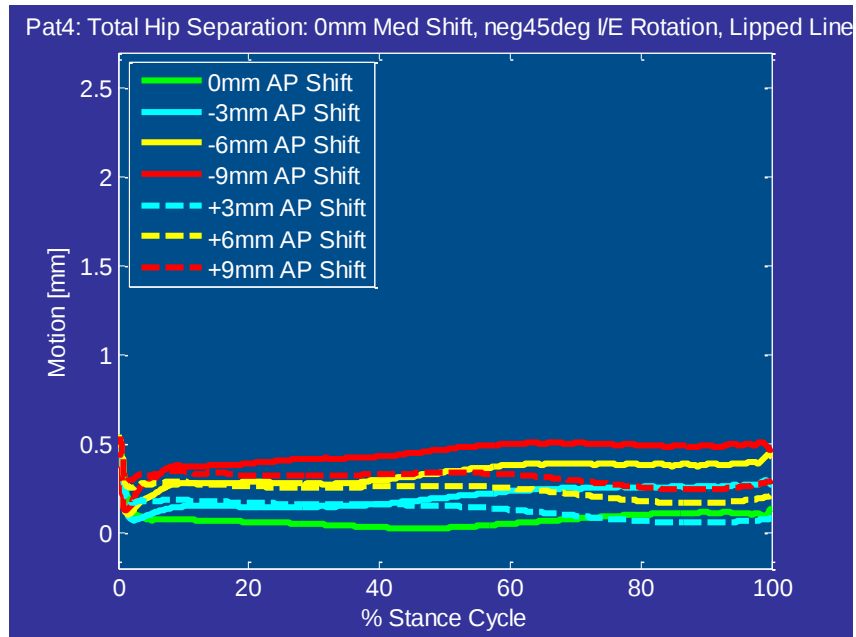


(b)

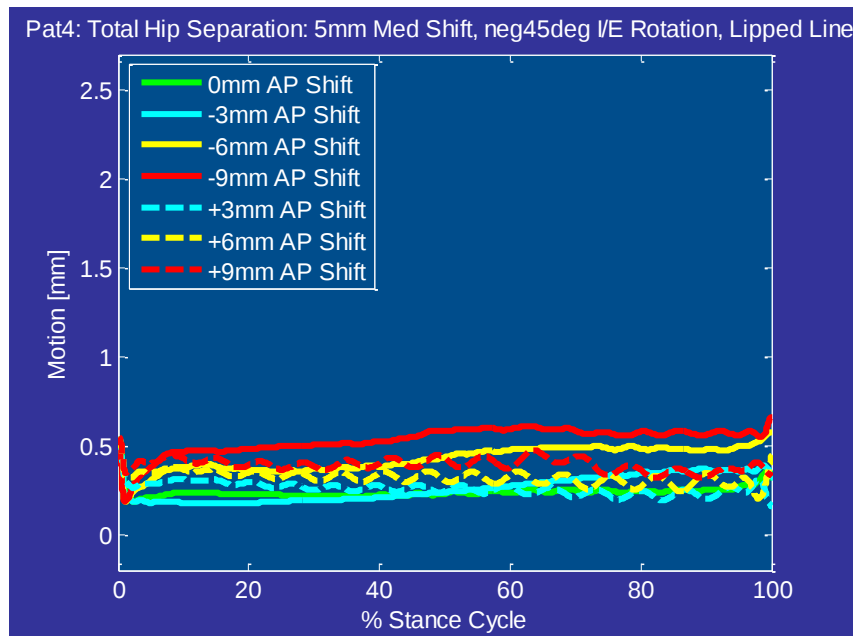
Figure F86: Pat 4: Augmented Liner: Hip Force

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

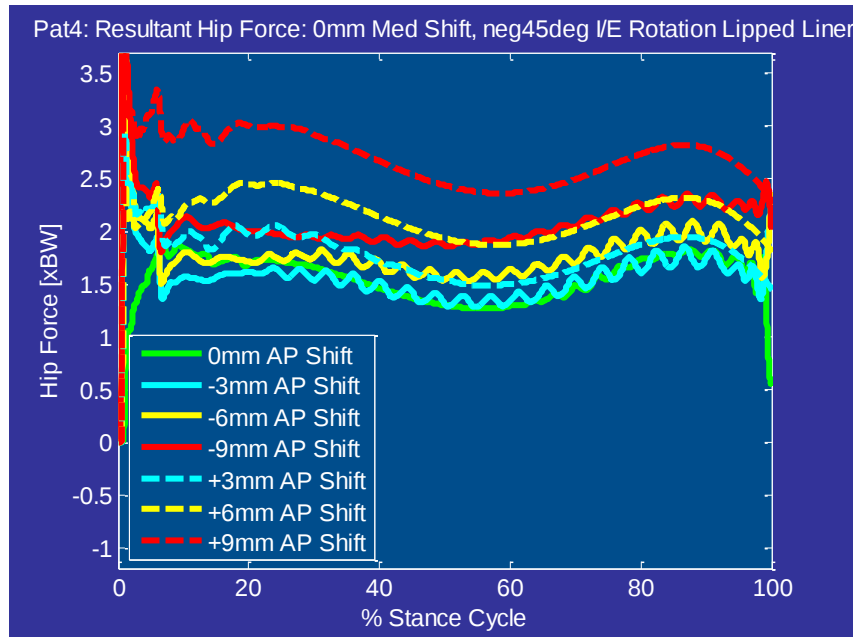


(b)

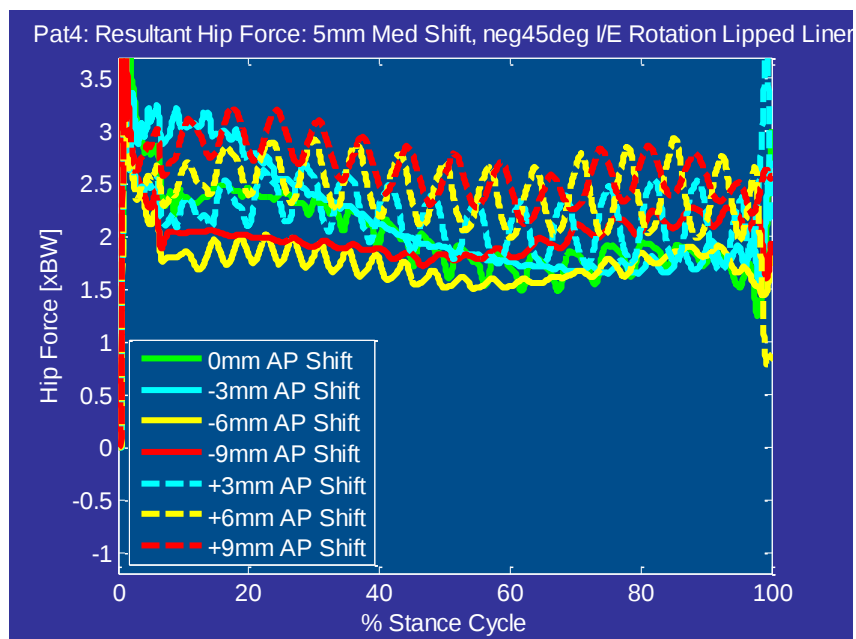
Figure F87: Pat 4: Lipped Liner: Separation

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

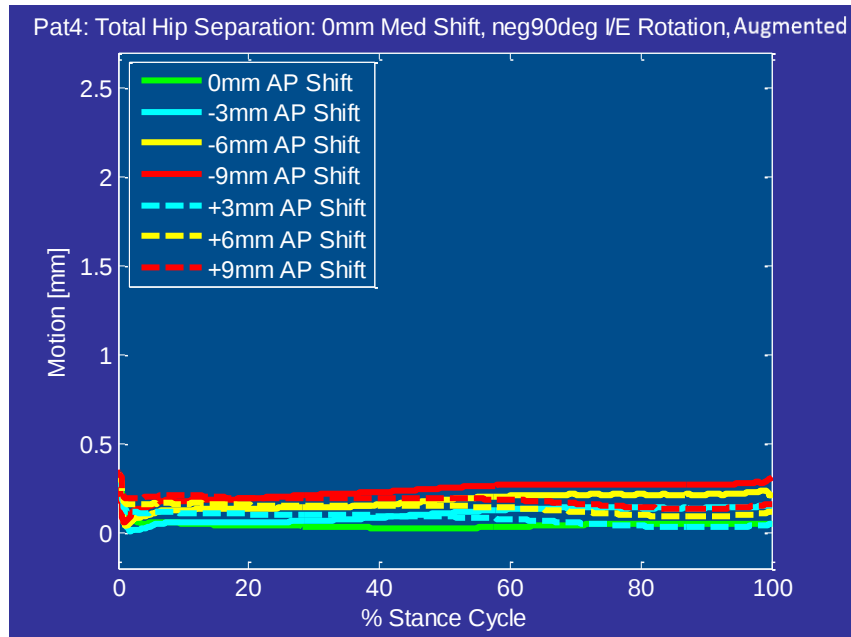


(b)

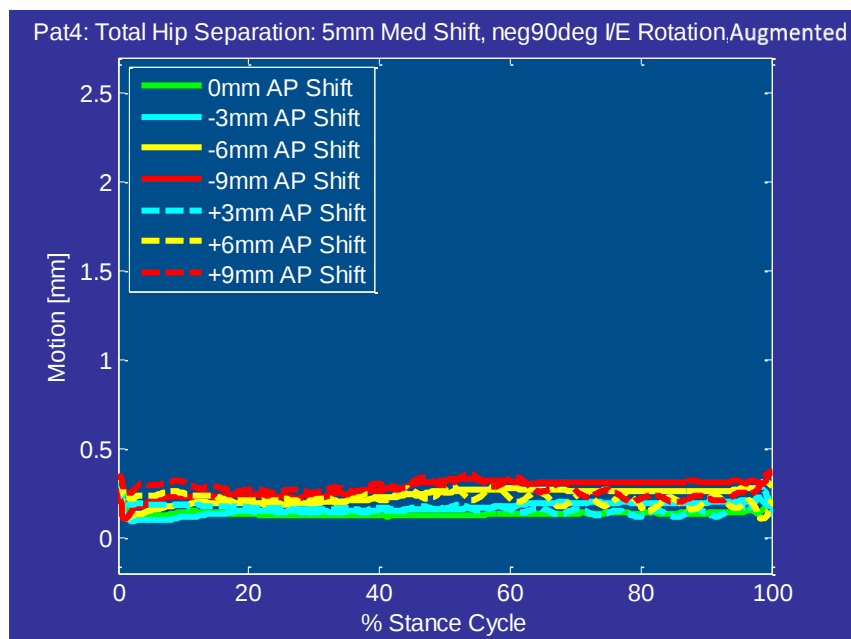
Figure F88: Pat 4: Lipped Liner: Hip Force

-45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

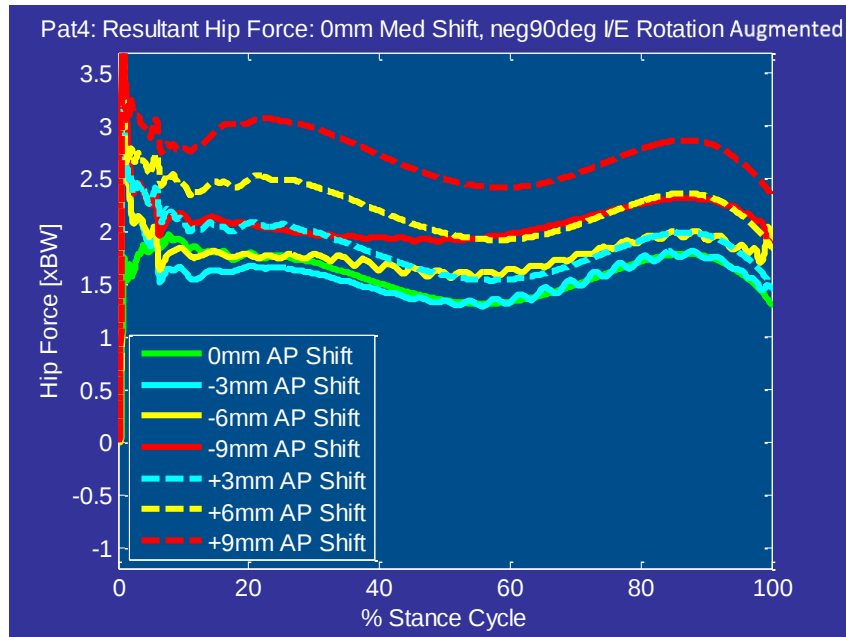


(b)

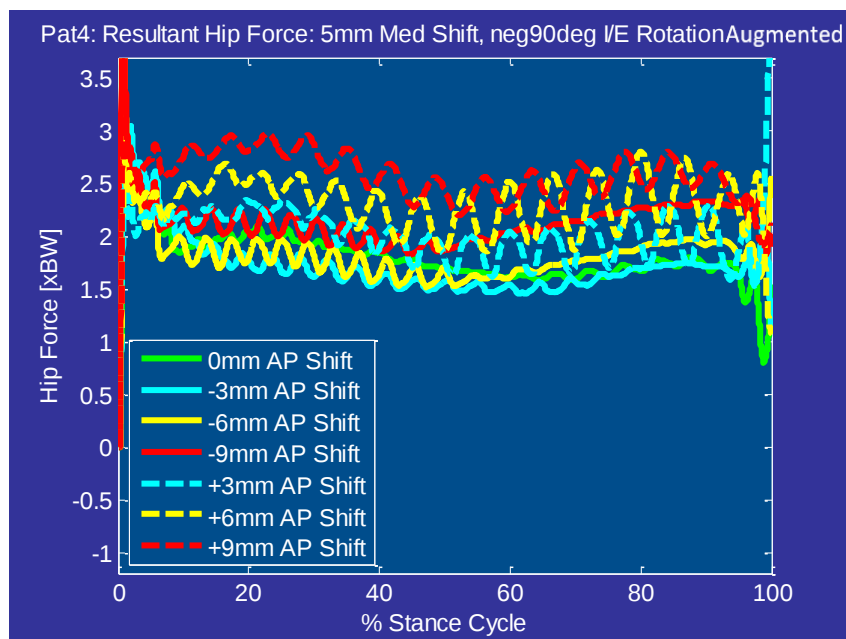
Figure F89: Pat 4: Augmented Liner: Separation

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

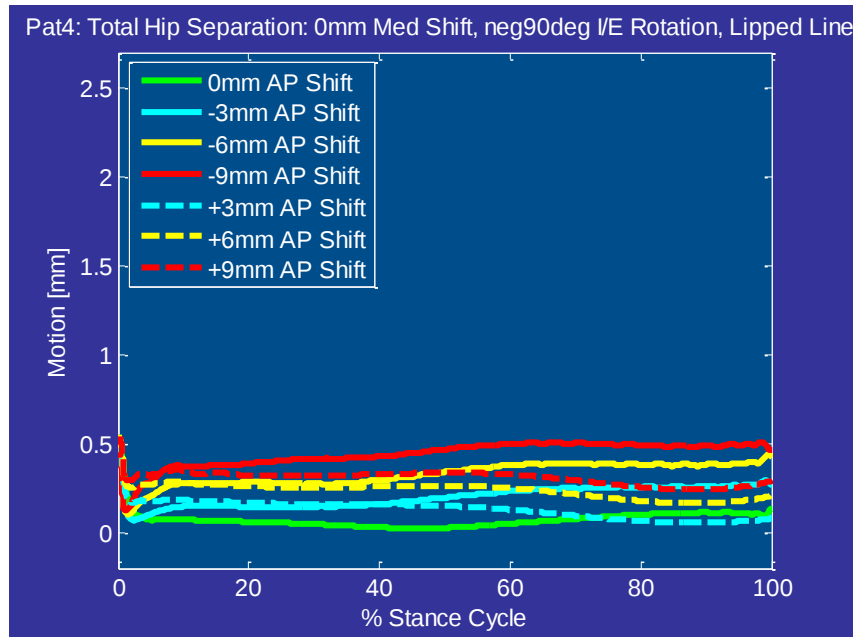


(b)

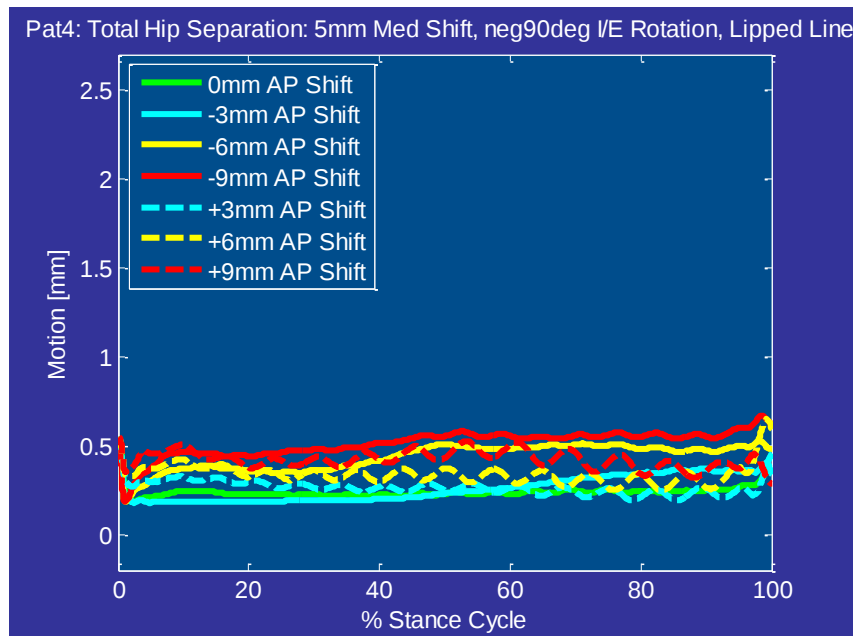
Figure F90: Pat 4: Augmented Liner: Hip Force

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

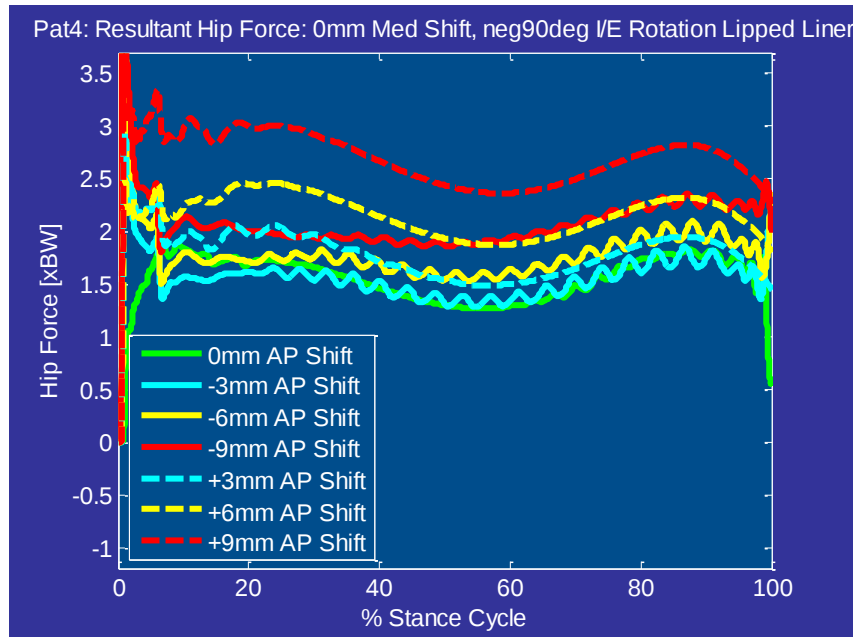


(b)

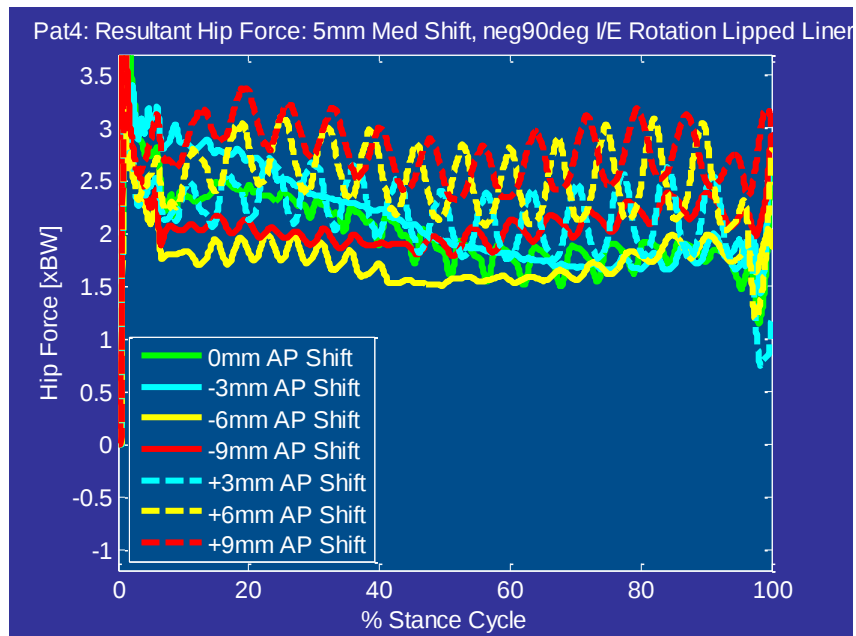
Figure F91: Pat 4: Lipped Liner: Separation

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

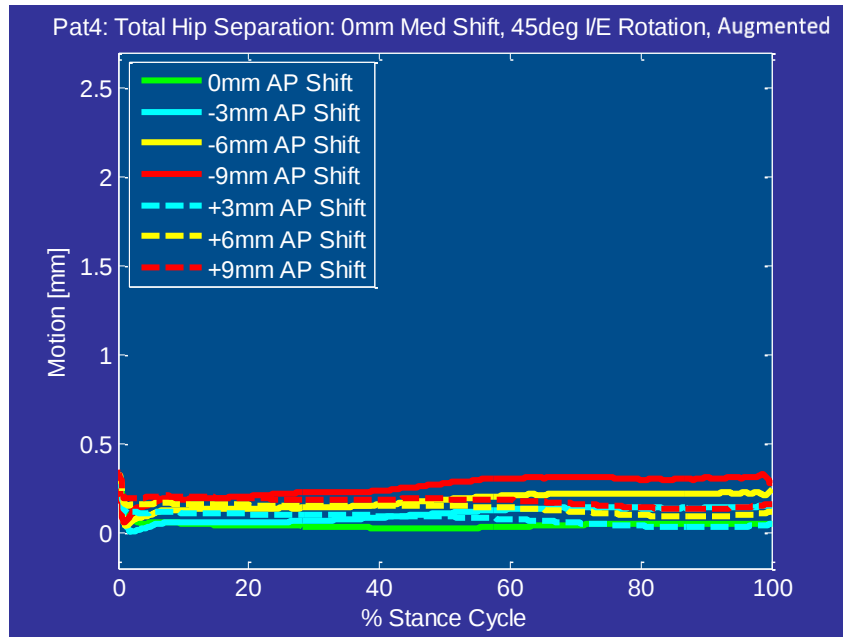


(b)

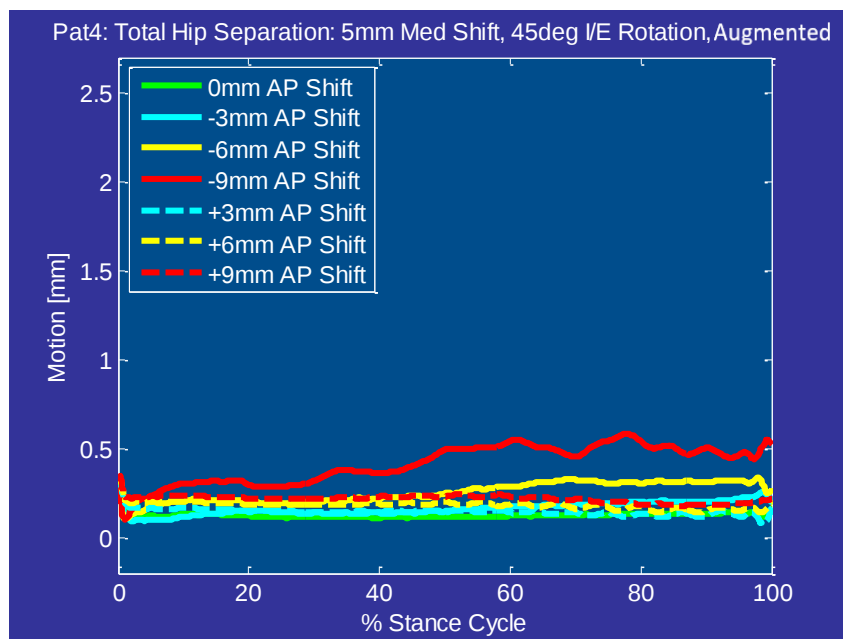
Figure F92: Pat 4: Lipped Liner: Hip Force

-90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

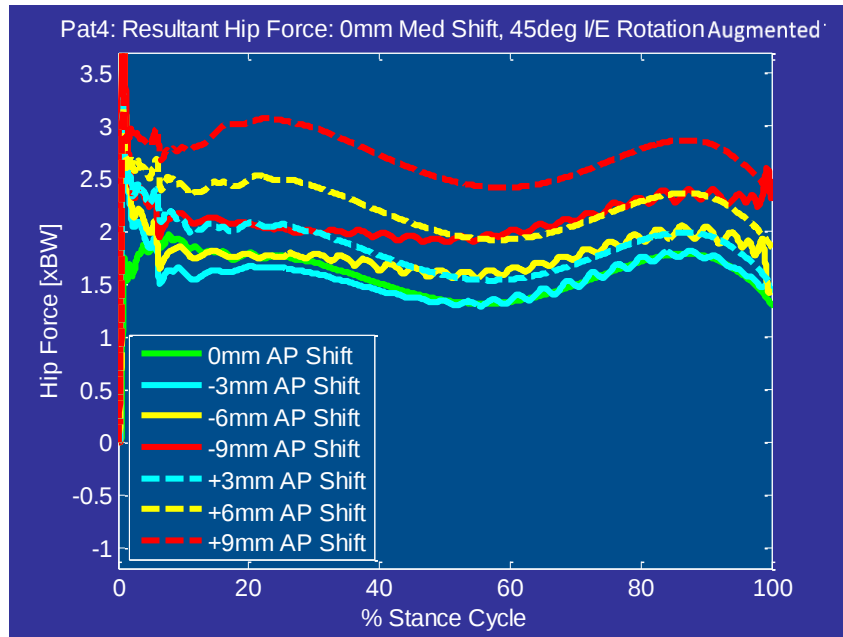


(b)

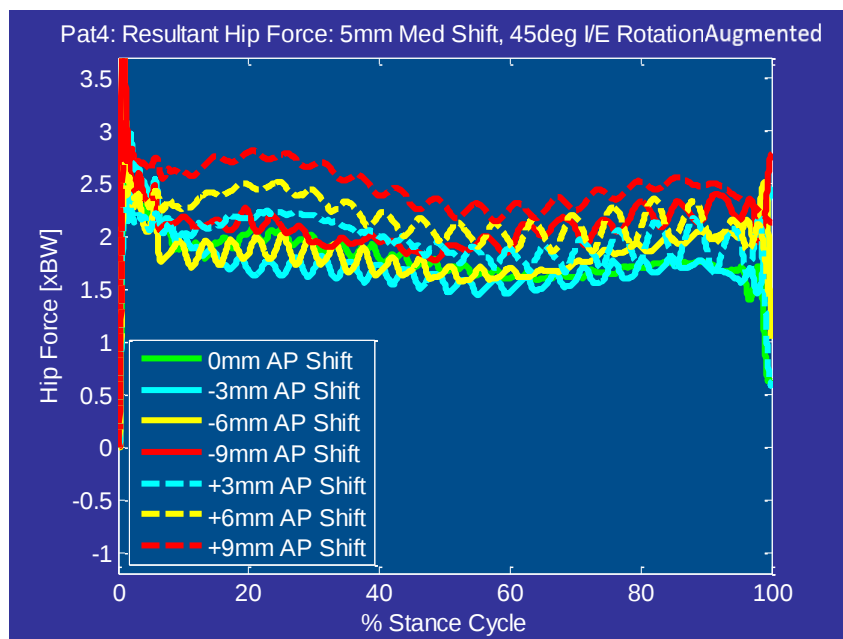
Figure F93: Pat 4: Augmented Liner: Separation

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

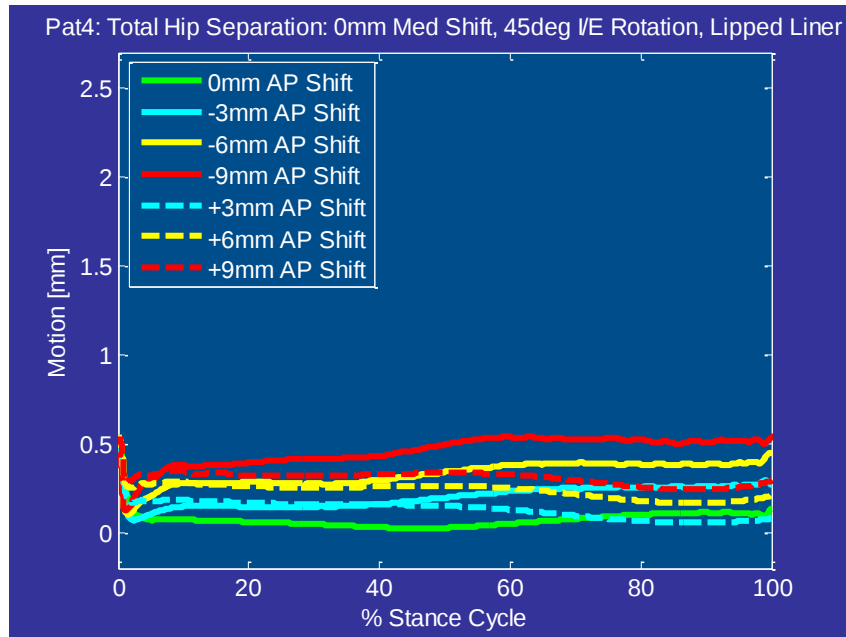


(b)

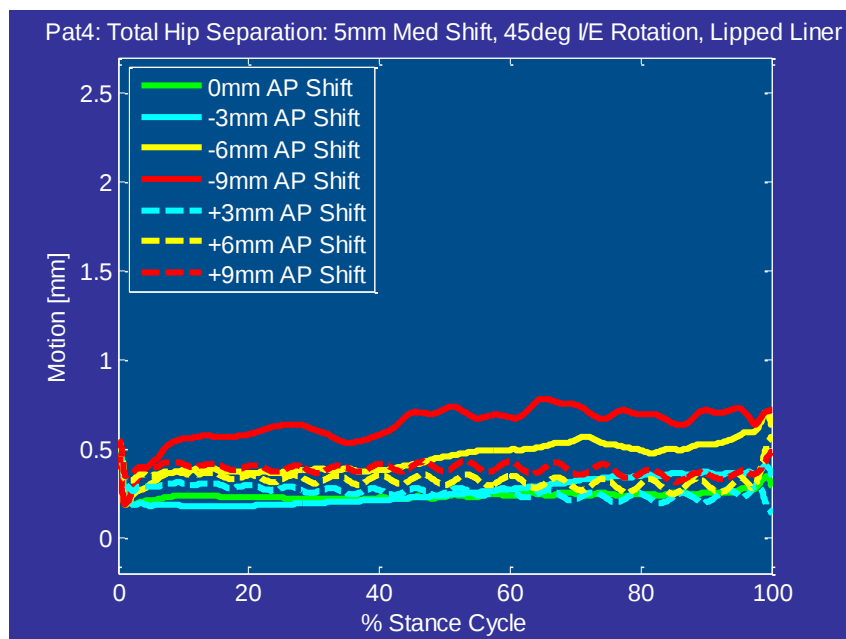
Figure F94: Pat 4: Augmented Liner: Hip Force

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

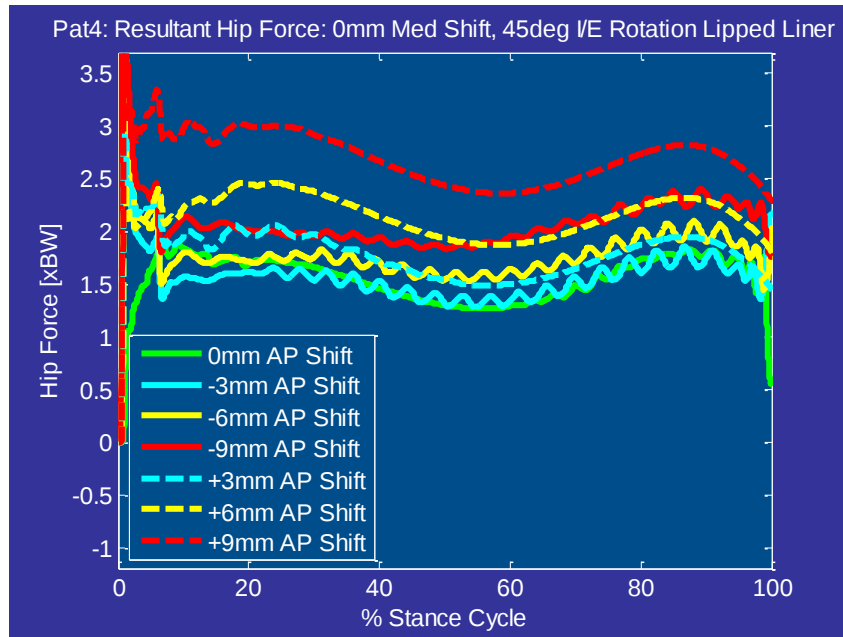


(b)

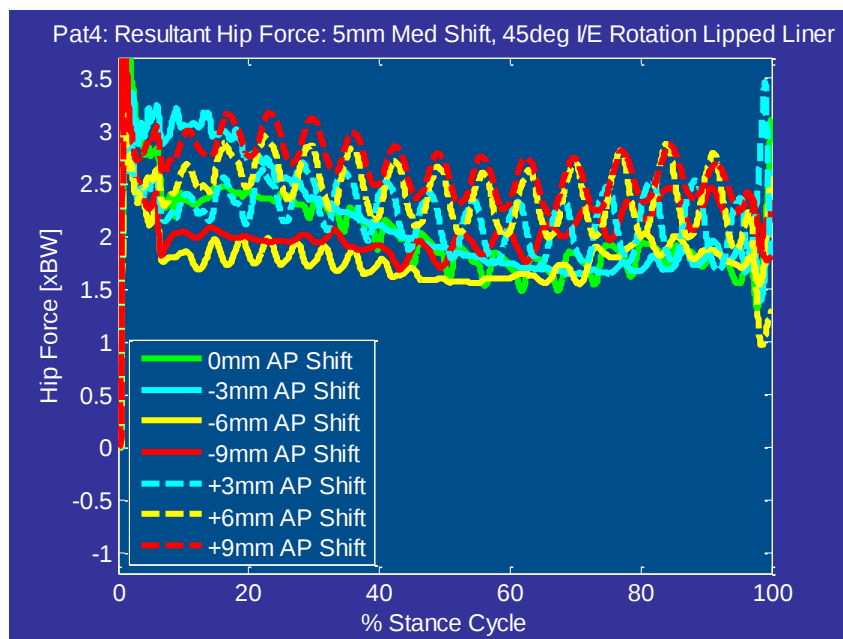
Figure F95: Pat 4: Lipped Liner: Separation

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

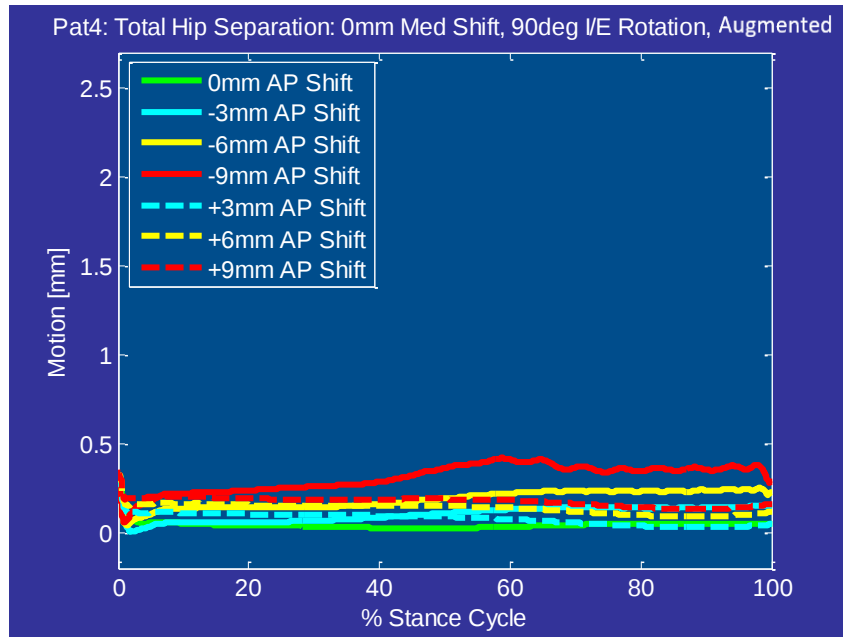


(b)

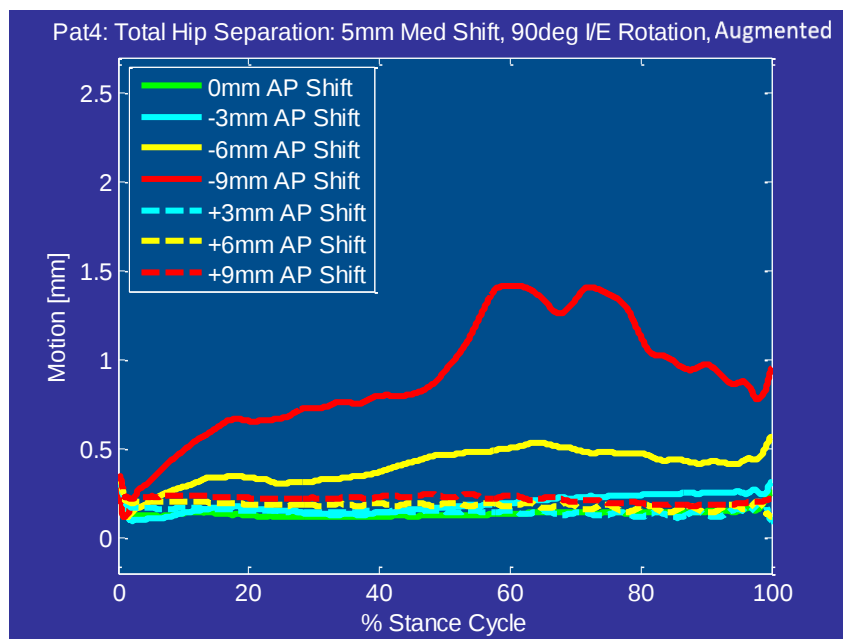
Figure F96: Pat 4: Lipped Liner: Hip Force

45° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

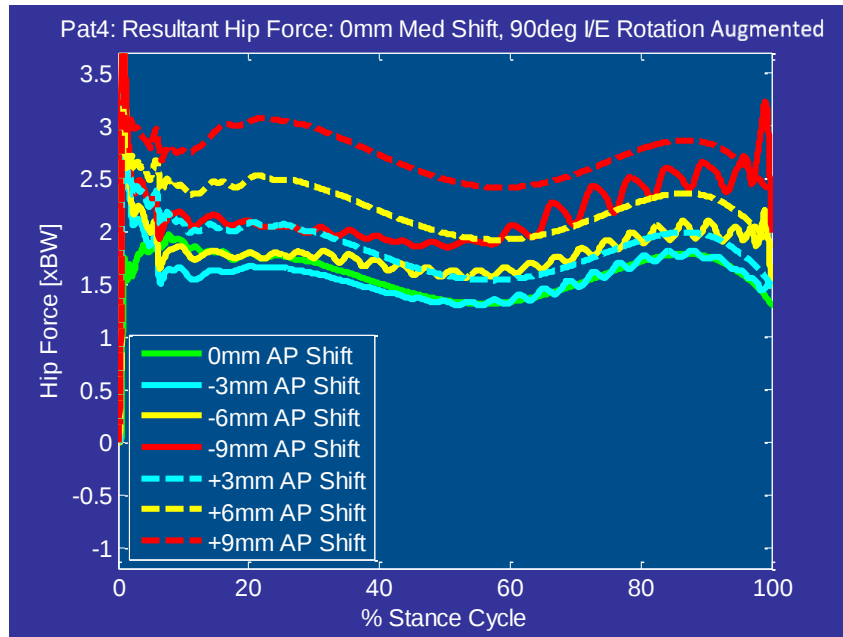


(b)

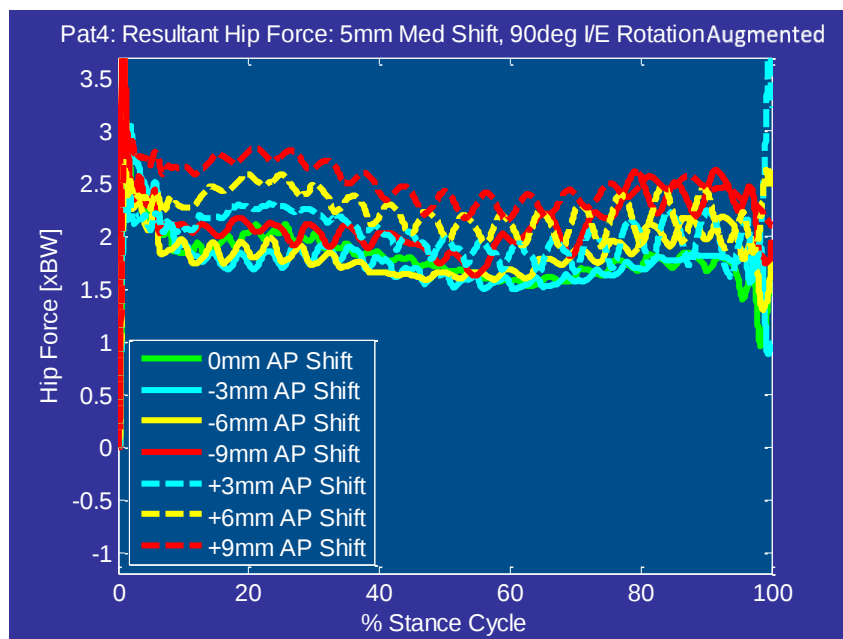
Figure F97: Pat 4: Augmented Liner: Separation

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

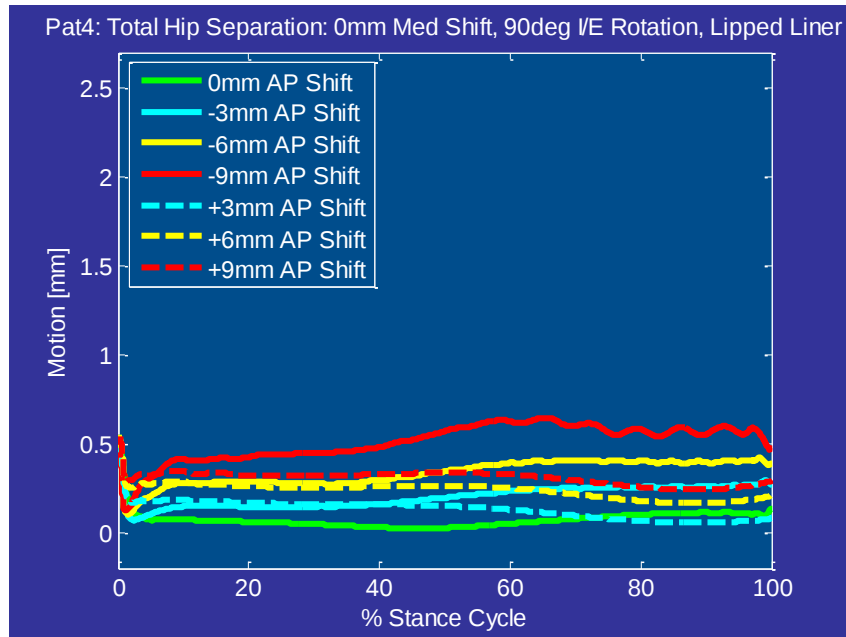


(b)

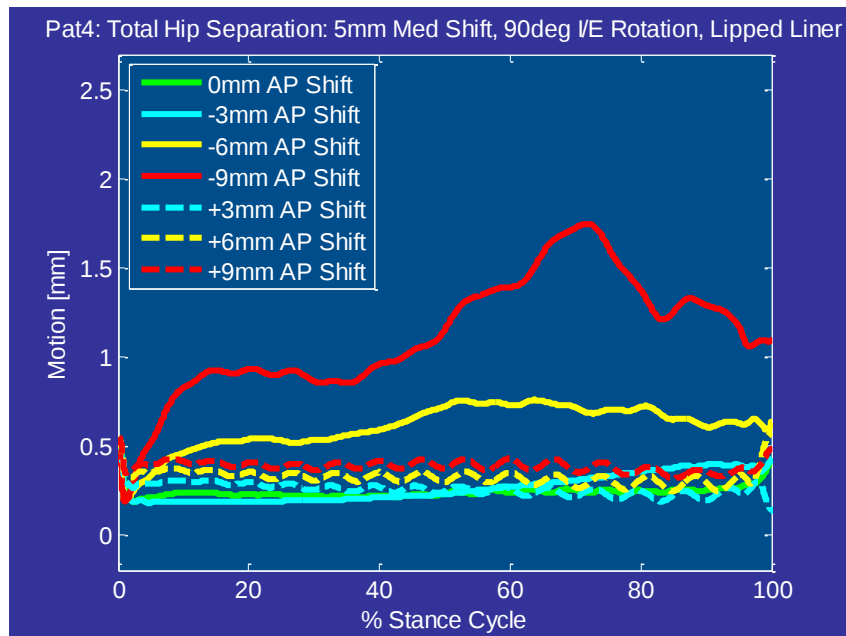
Figure F98: Pat 4: Augmented Liner: Hip Force

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

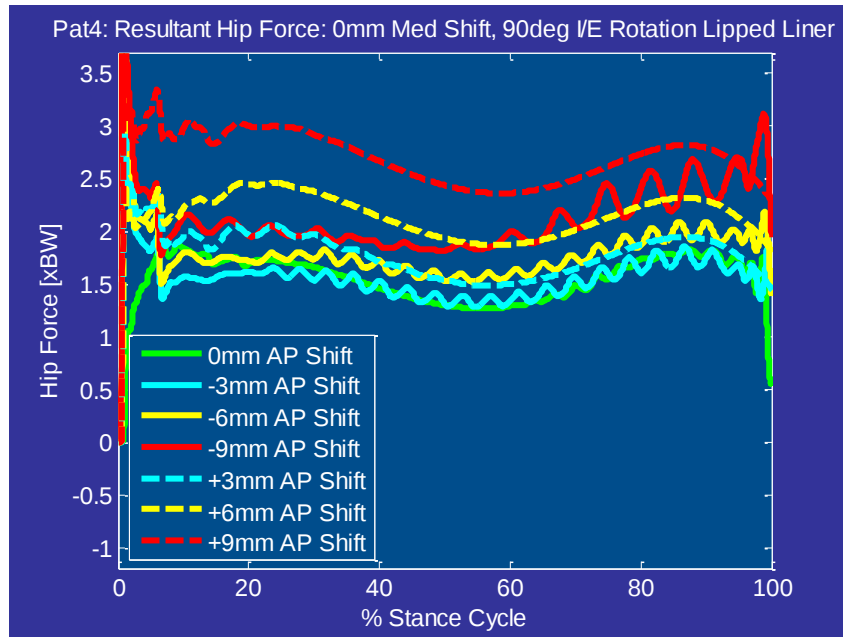


(b)

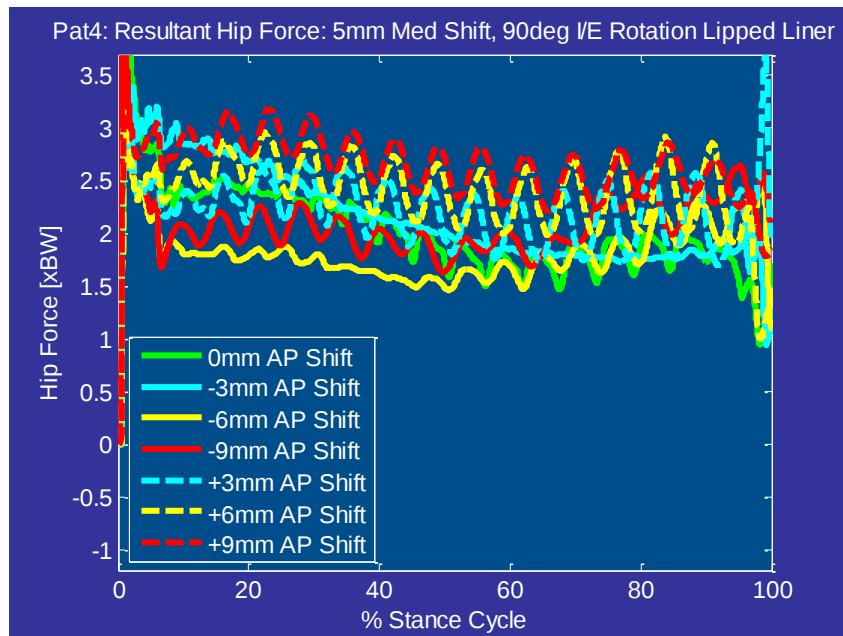
Figure F99: Pat 4: Lipped Liner: Separation

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

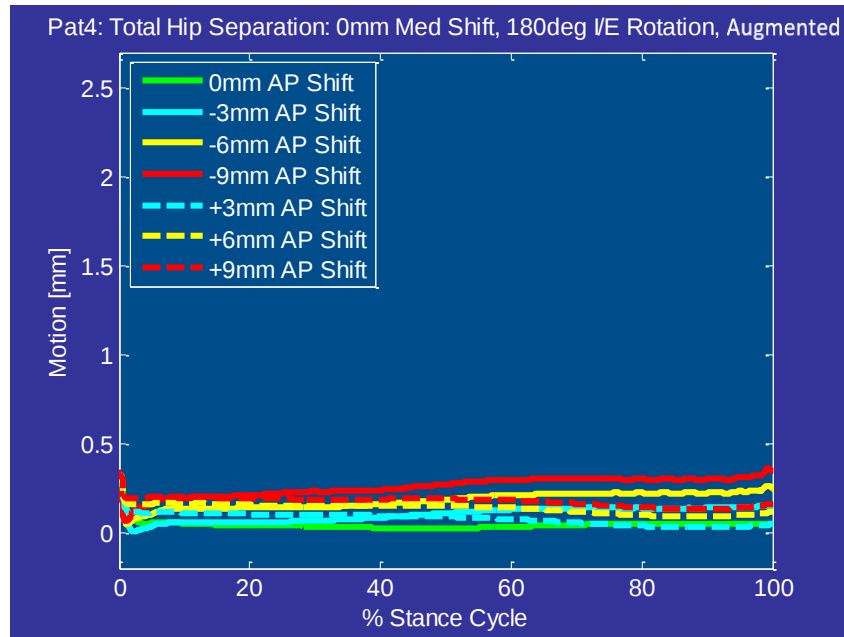


(b)

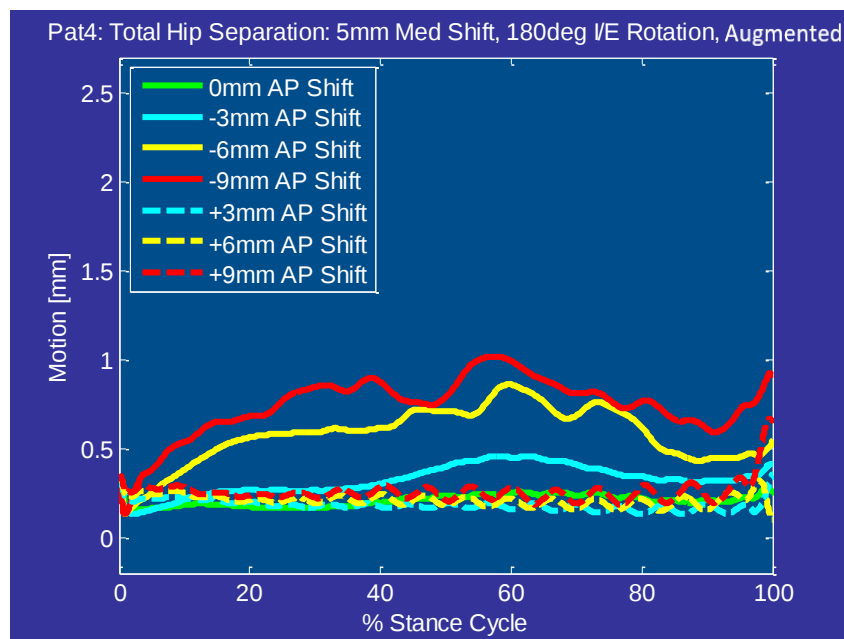
Figure F100: Pat 4: Lipped Liner: Hip Force

90° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

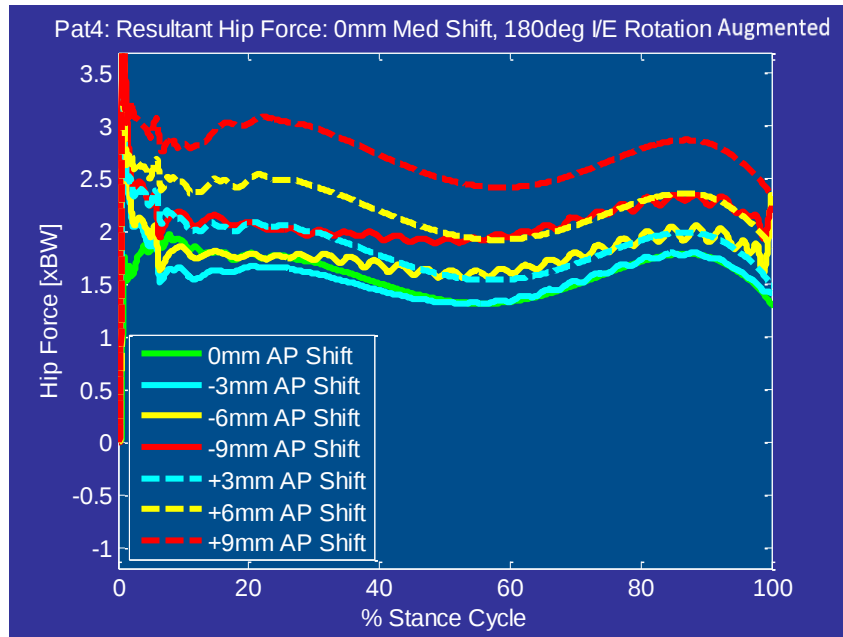


(b)

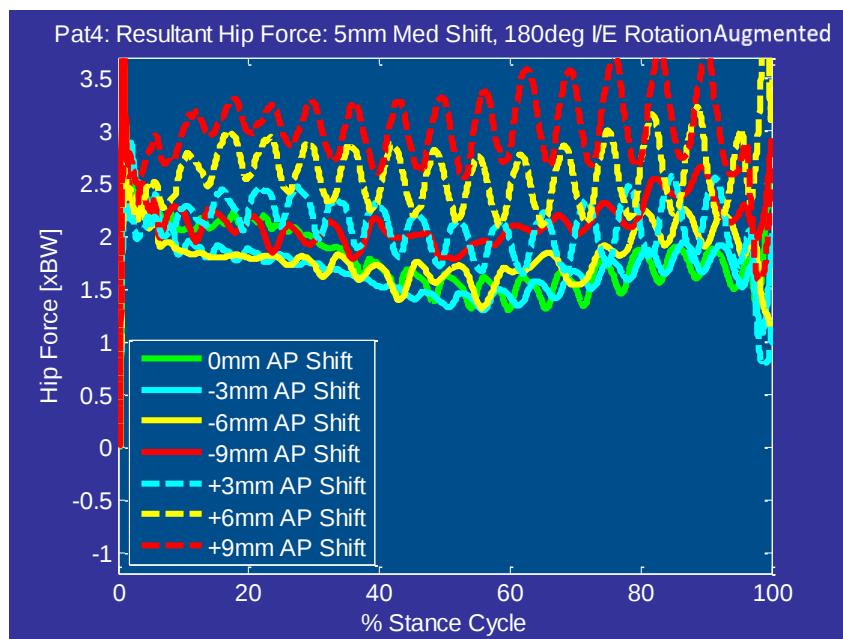
Figure F101: Pat 4: Augmented Liner: Separation

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

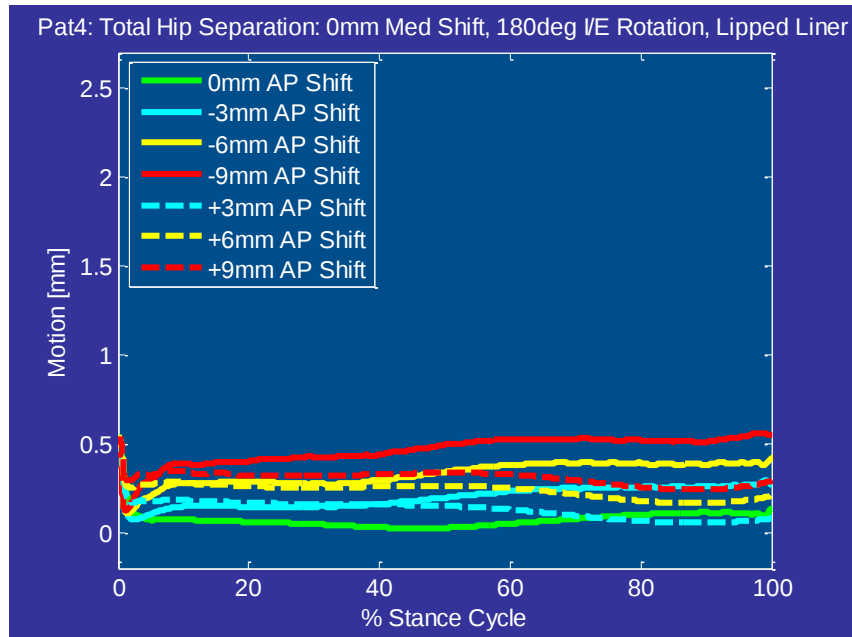


(b)

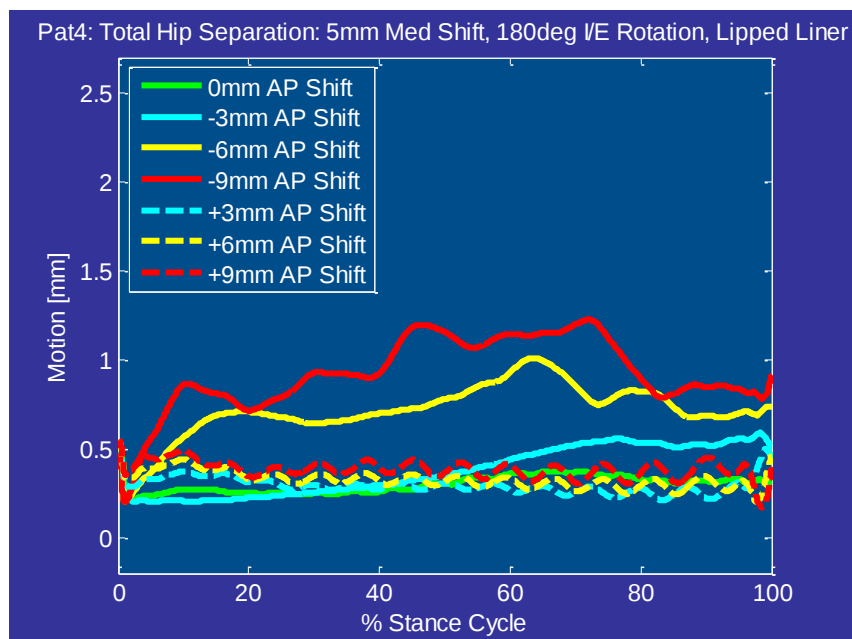
Figure F102: Pat 4: Augmented Liner: Hip Force

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)

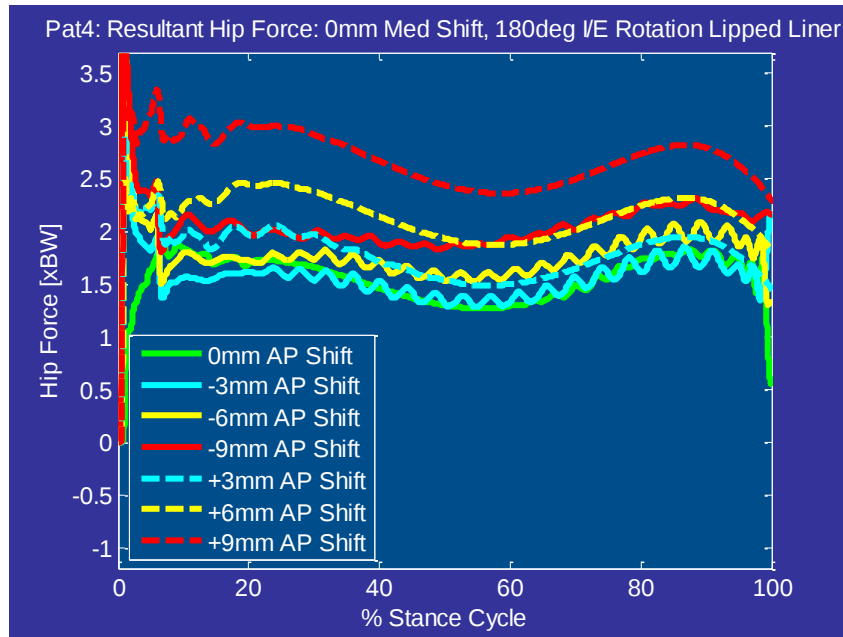


(b)

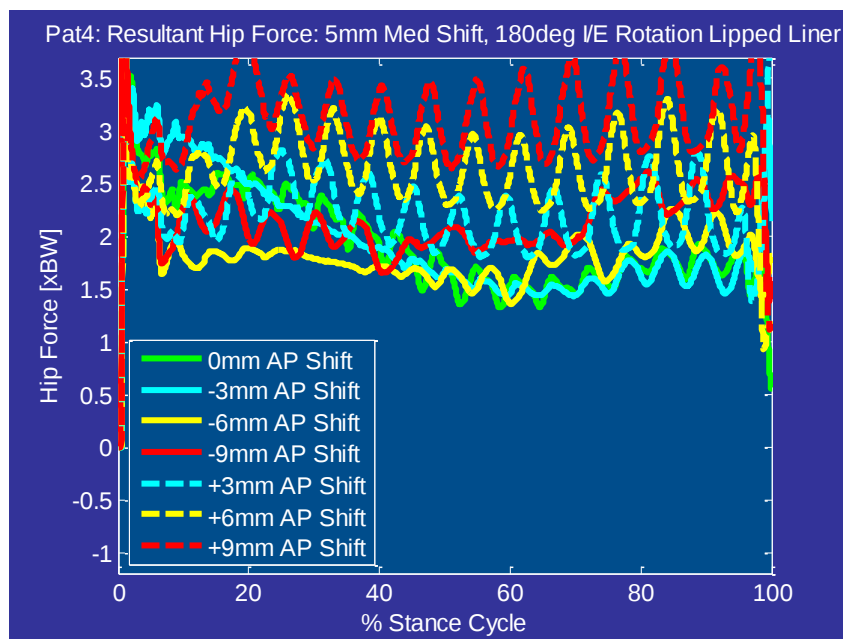
Figure F103: Pat 4: Lipped Liner: Separation

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift



(a)



(b)

Figure F104: Pat 4: Lipped Liner: Hip Force

180° I/E Cup Rotation

Rotational Center (RC) alignment, for (a) 0mm and (b) 5mm medial shift