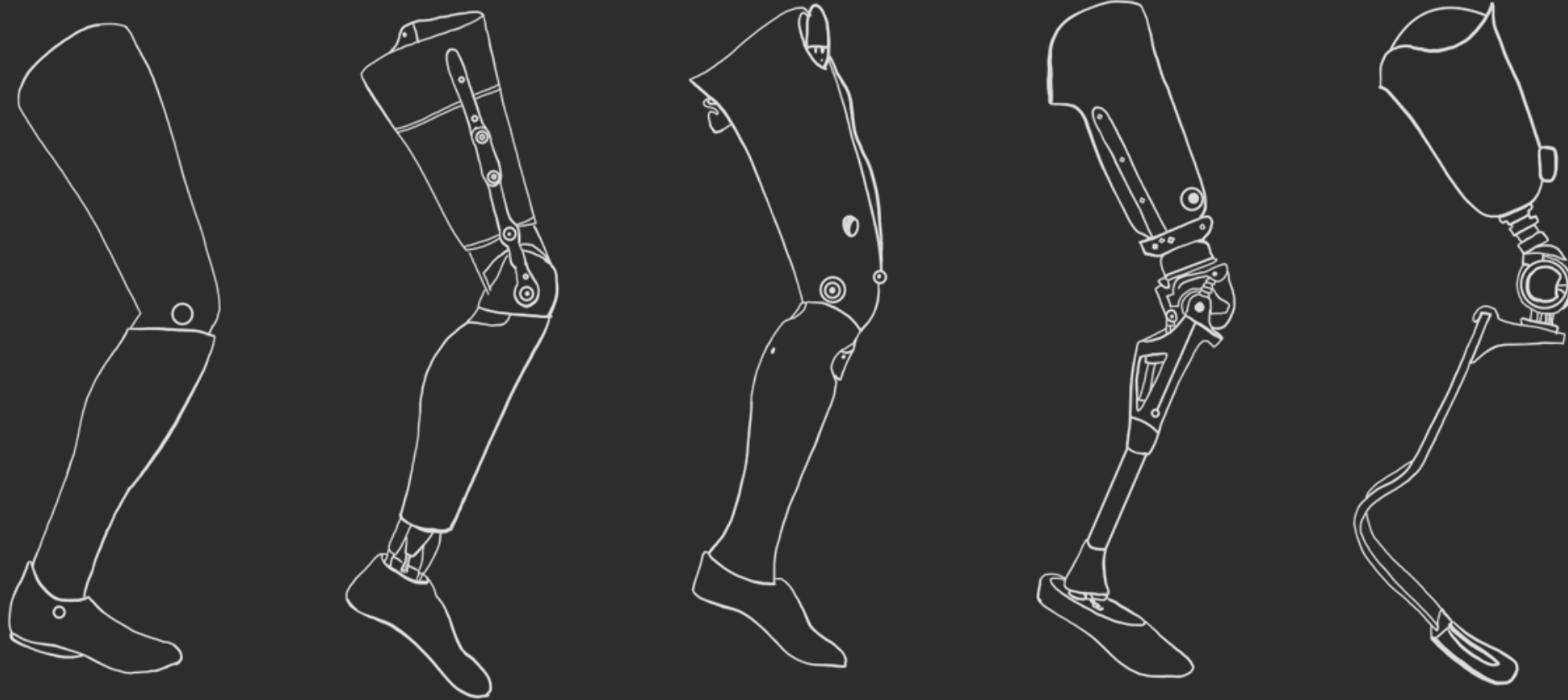


Prosthetics & Postural Imbalance



Presenter: Reem Darwish

**Chicago College of Osteopathic Medicine
Current Academic Year & Year at Time of Treatment: OMS-III
Date of Treatment: 10/30/2023**

Background: Postural Balance¹

"Perfect postural balance occurs when a person's body mass is distributed so that his or her muscles are normally toned and ligamentous tension is balanced against compressive forces."

Robert E. Kappler, D.O., F.A.A.O.

Postural imbalance commonly seen in:

- Leg-length discrepancy
- Sacral base declination

Body attempts to "balance" itself through compensation

Can the body compensate for an artificial limb?

Our Patient

53-year-old Female

Medical History:

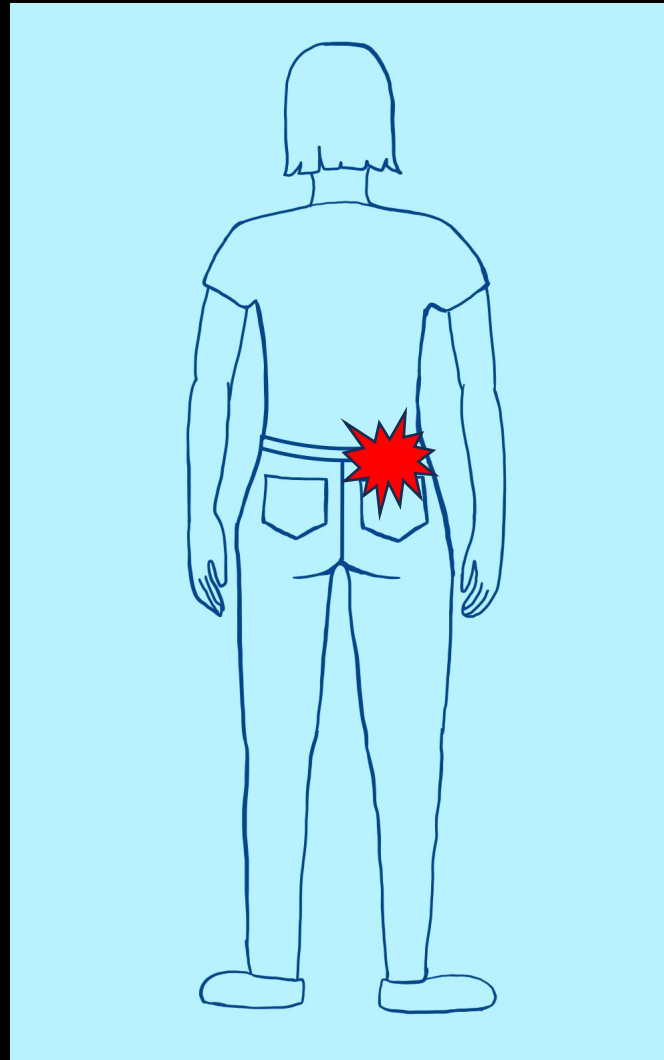
- Crohn's Disease
- Hypothyroidism

Medications:

- Pregabalin
- Levothyroxine
- Bupropion

Occupation:

- Investor
- Jeweler



8/10

"achy"

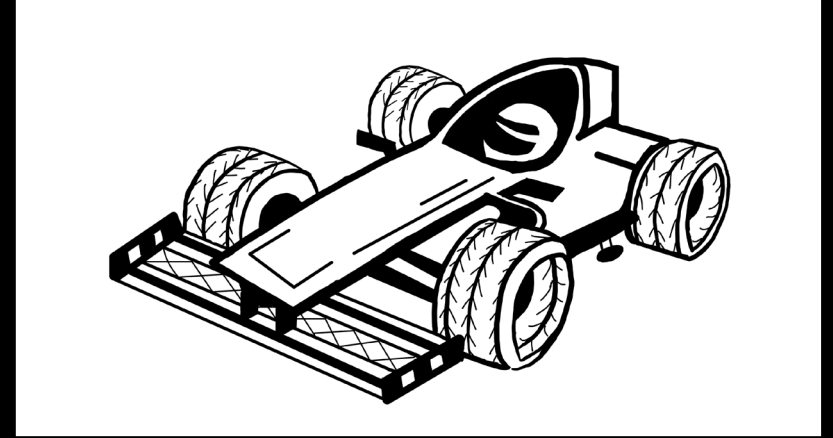
"burning"

Worse with movement



19-years-old

- L above-the-knee amputation
- R acetabular fracture



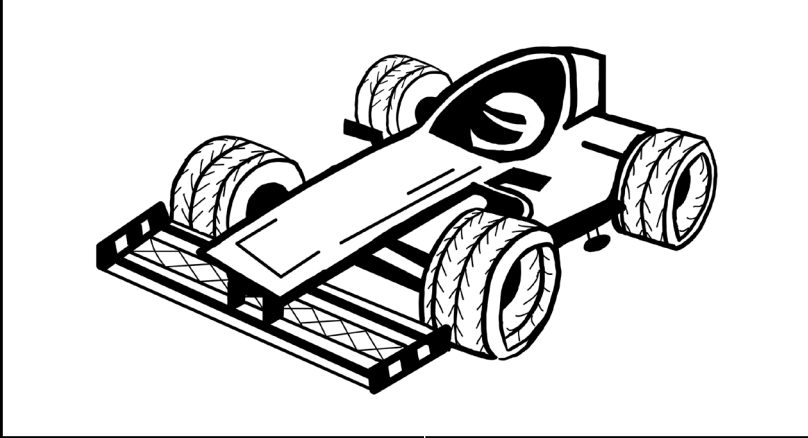
43-years-old

- Initial onset of R low-back-pain

PT (prosthetic & rehabilitation)

Chiropractor (deep fascial release)

Pain Management (cortisone injection therapy)



X-ray, CT, MRI

Office Visit

43-years-old

Advised to
undergo R hip
replacement

53-years-old

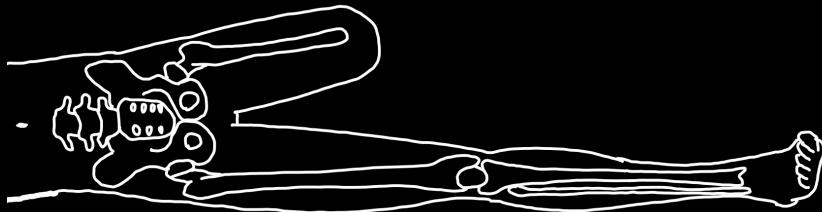
- Disc herniation L3-L4, L5-S1
- Severe R hip OA
- Advanced R iliopsoas bursitis
- Severe R gluteus medius and minimus atrophy

Physical Exam Findings

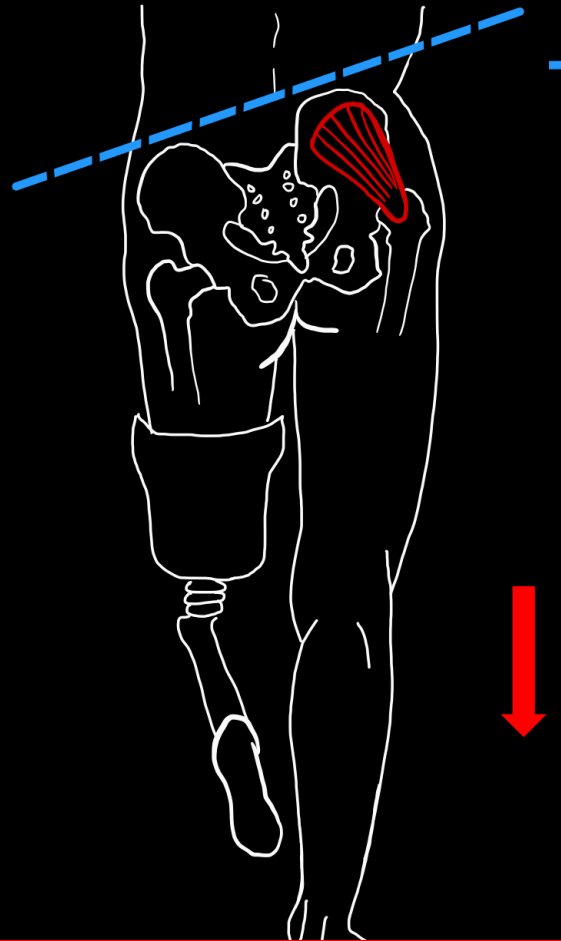
***Remainder of exam unremarkable



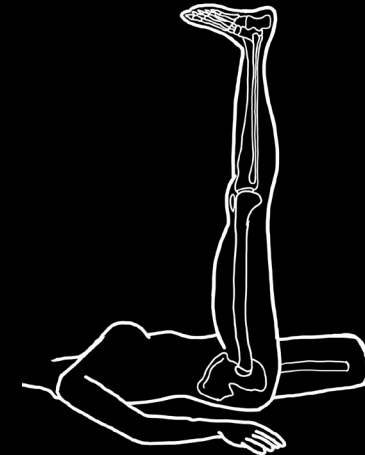
↓ R Hip External
Rotation 45°
(Ref. Range: 50-60°)²



↓ R Hip Internal
Rotation 15°
(Ref. Range: 30-40°)²



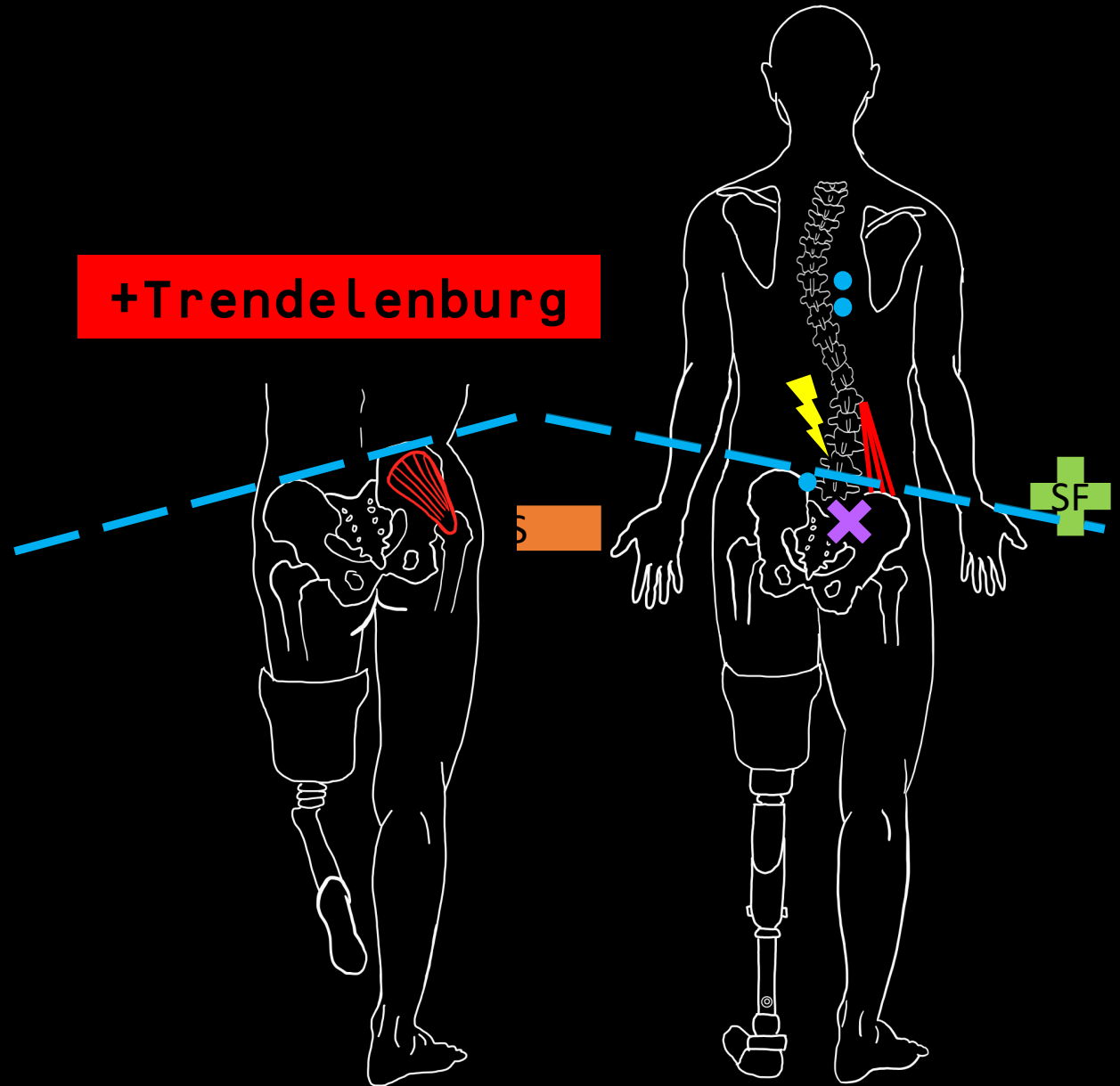
+R Trendelenburg



↓ R Hip Flexion 90°
(Ref. Range: 110-120°)²

Osteopathic Exam Findings

+Trendelenburg



T7FrRsR

T9FrRsR

L5NrLsR

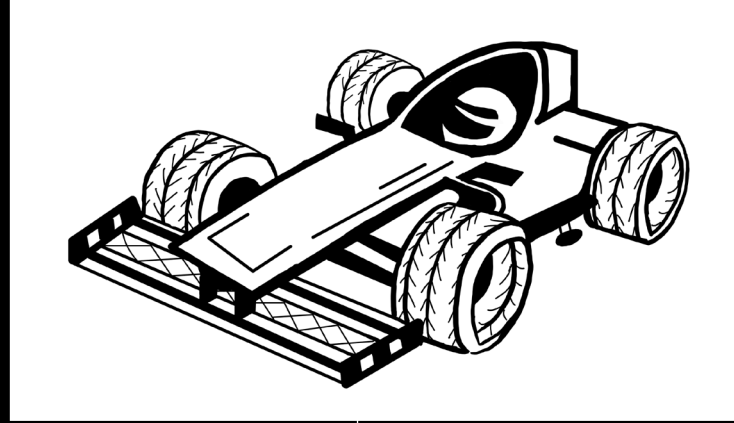
Differential Diagnosis: LBP Common Patient

1. Chronic Postural Imbalance: Leg-length Inequality
2. Right Hip Osteoarthritis +/- Stenosis
3. Sacral Dysfunction
3. Vertebral Fractures
4. Iliopsoas Bursitis
4. Inflammatory Disorders
Gluteus Medius & Minimus Atrophy
5. Malignancy
6. Referred Pain

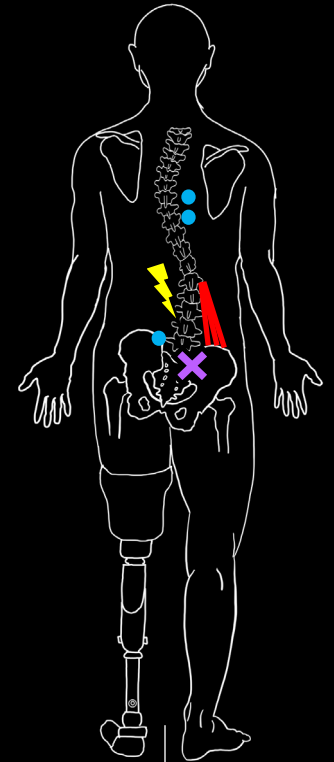
Pathophysiology



19-years-old



43-years-old

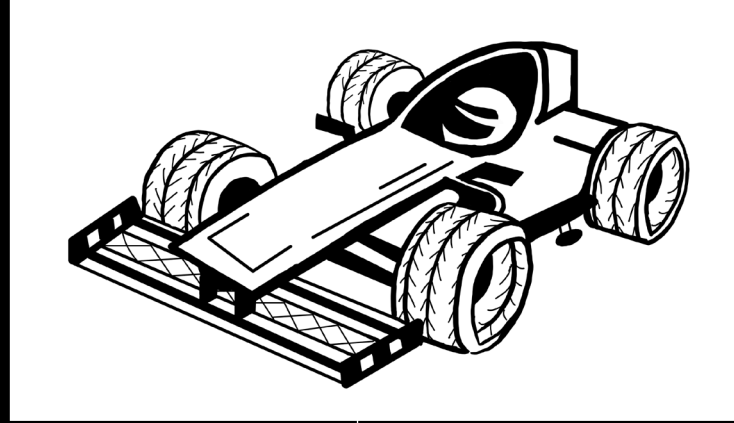


53-years-old

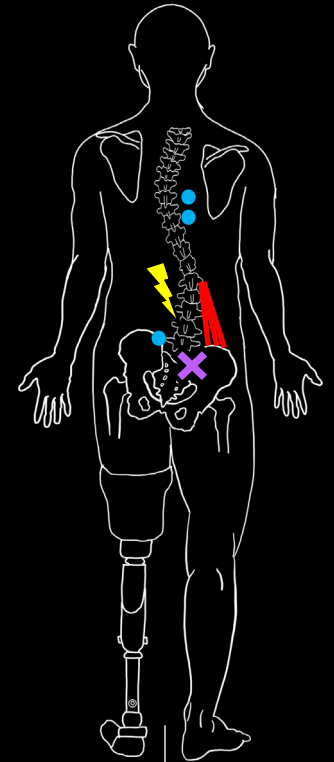
Pathophysiology



19-years-old



43-years-old



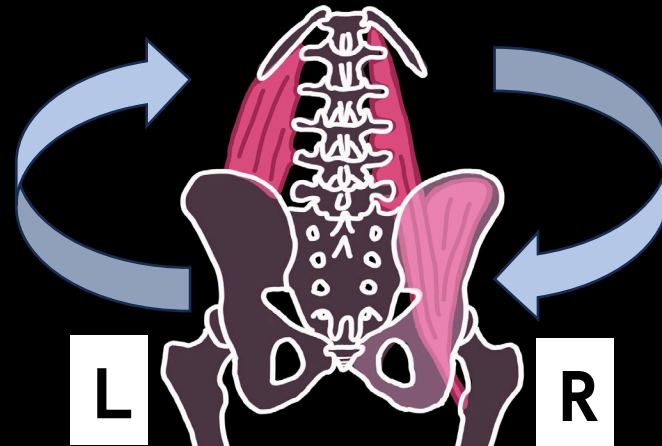
53-years-old

R acetabular fracture

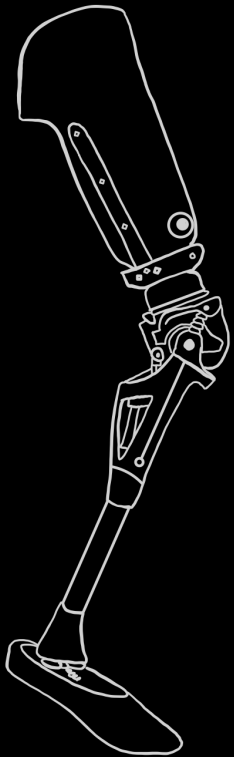


19-years-old

Prosthesis
↓
compensation⁴



QL & Iliopsoas

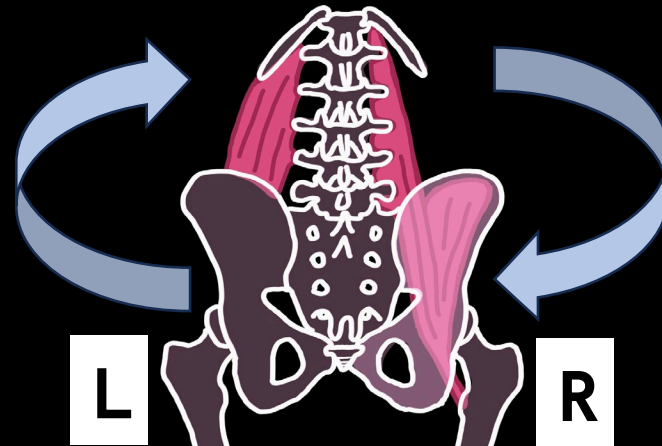


R acetabular fracture

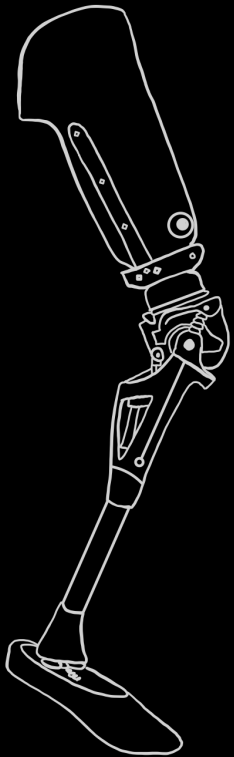


19-years-old

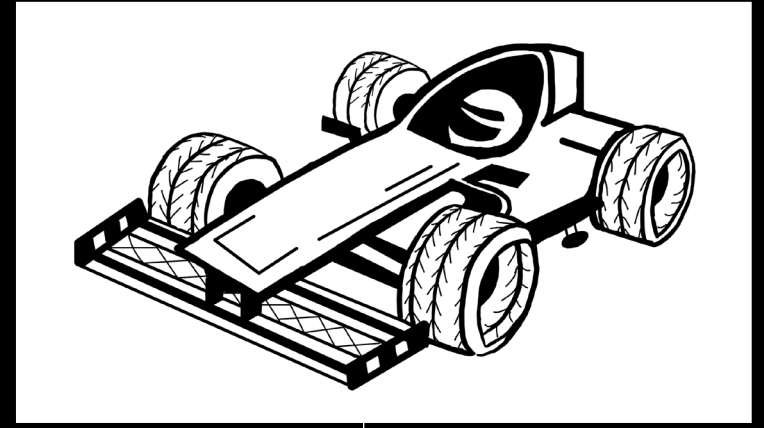
Prosthesis
compensation⁴



QL & Iliopsoas



R acetabular fracture



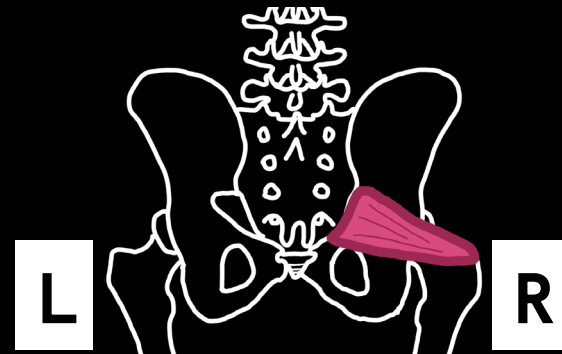
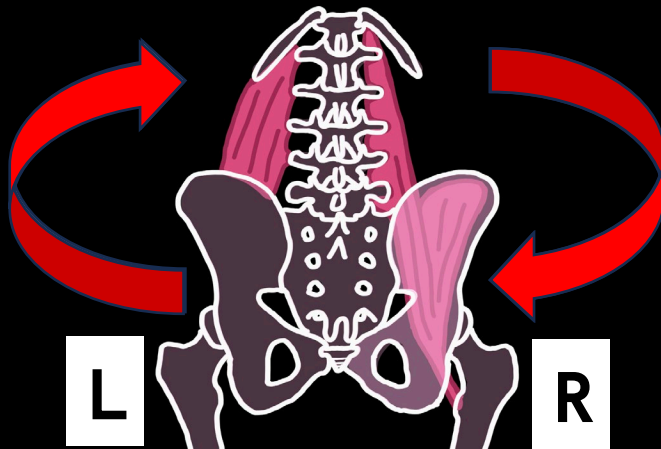
19-years-old

43-years-old

Prosthesis
↓
compensation⁴

Overuse leads to
spinal dysfunction⁵

Superior Gluteal N.



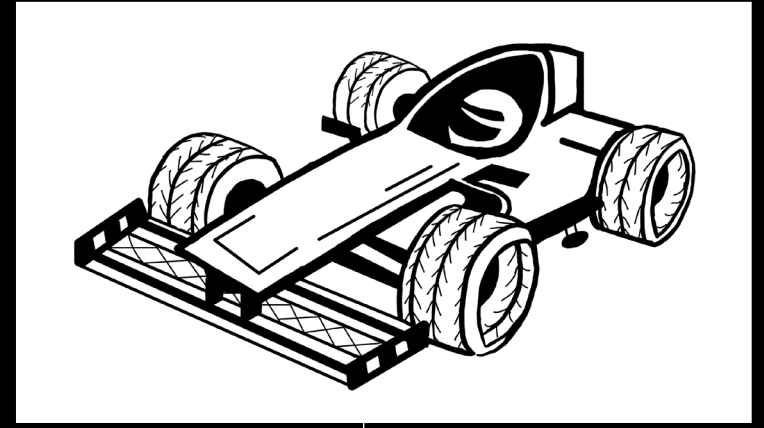
Lumbosacral
Joint

Sacroiliac
Joint

QL & Iliopsoas

Piriformis

R acetabular fracture

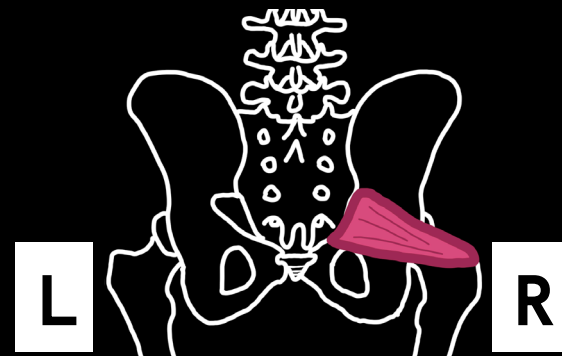
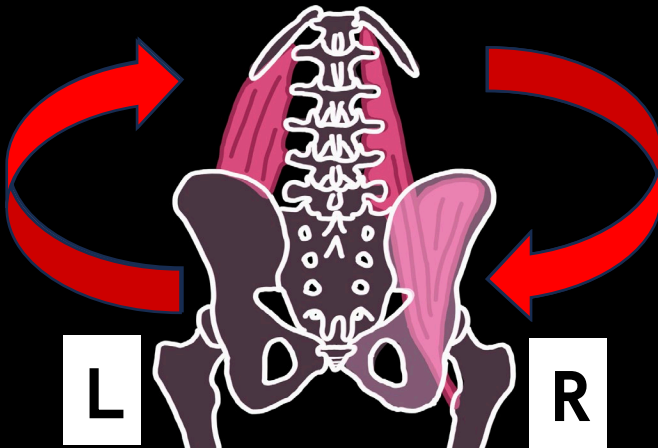


19-years-old

43-years-old

Prosthesis
↓
compensation⁴

Overuse leads to
spinal dysfunction⁵



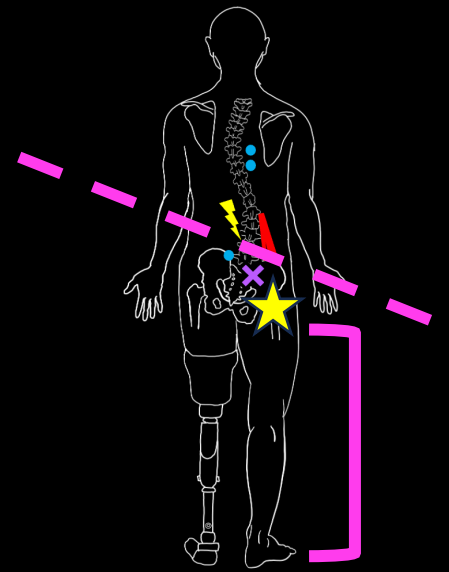
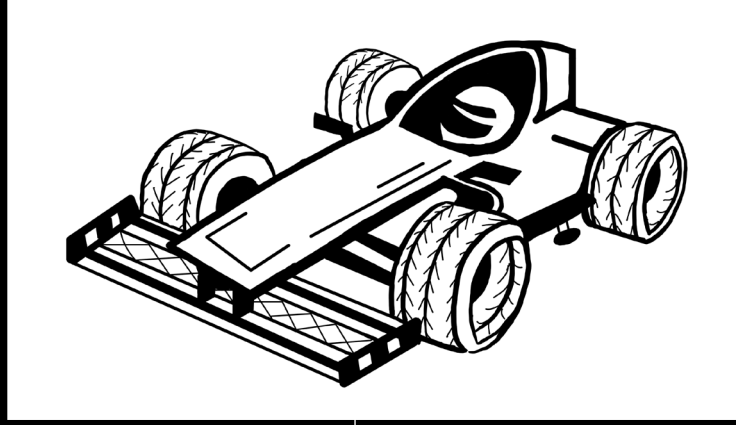
Lumbosacral
Joint

Sacroiliac
Joint

QL & Iliopsoas

Piriformis

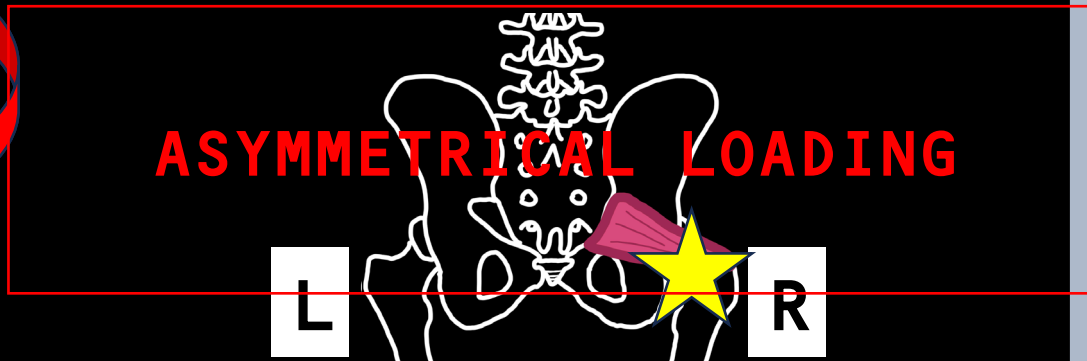
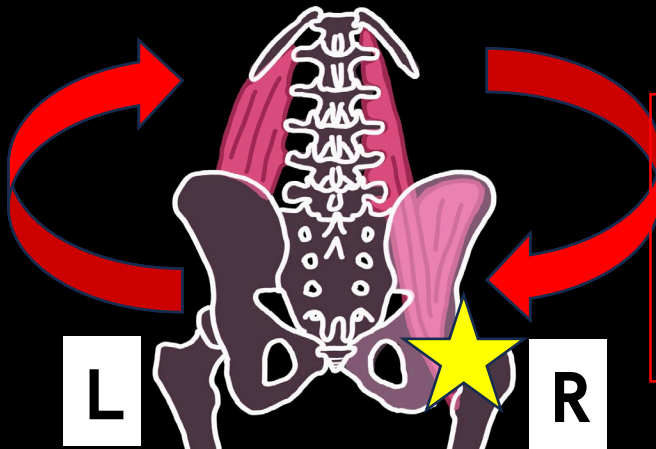
R acetabular fracture



19-years-old
Prosthesis
compensation⁴

34 YEARS
Overuse leads to
spinal dysfunction⁵

53-years-old



Lumbosacral
Joint

Sacroiliac
Joint

QL & Iliopsoas

Piriformis

Osteopathic Management

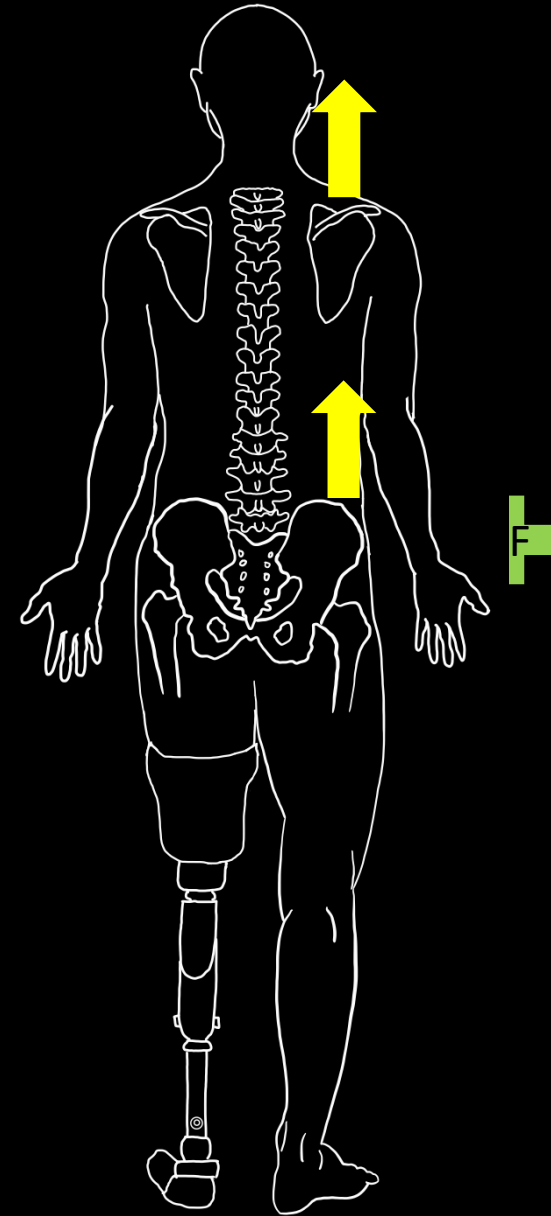
Goals

Theory

My Plan



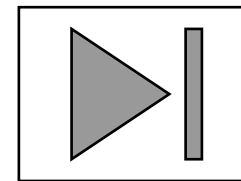
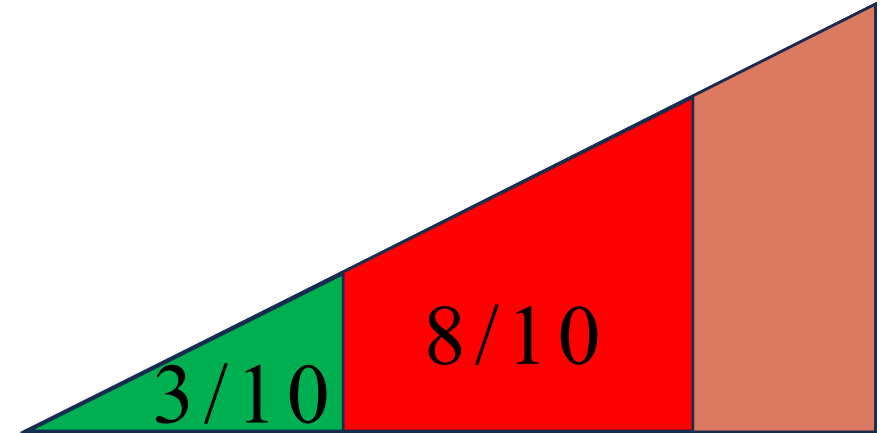
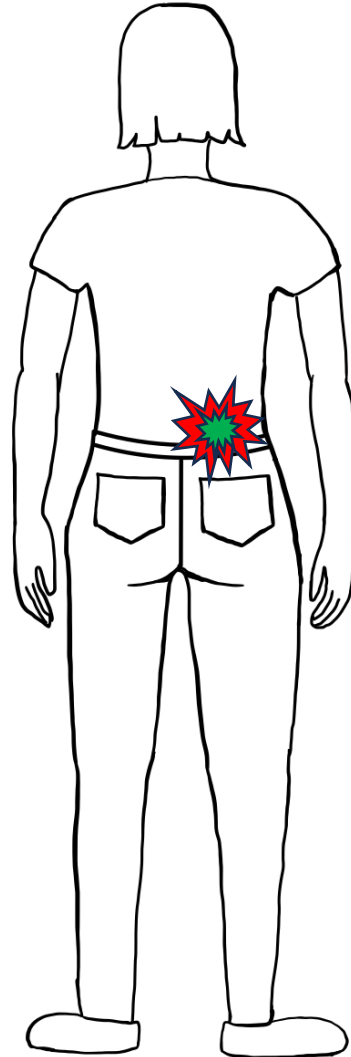
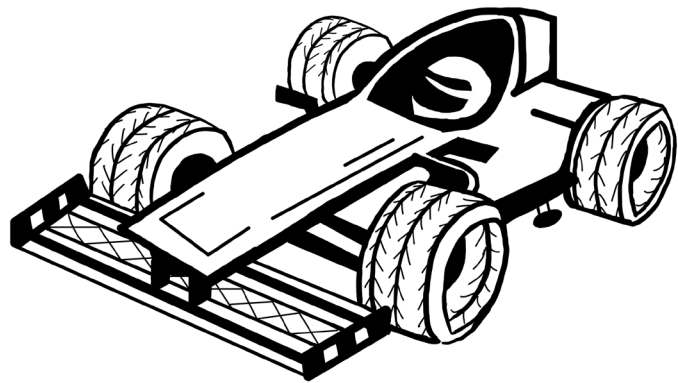
Demonstration Photograph



Return to Office

1 month later

Relief lasted longer



Delay surgical intervention

Conclusion

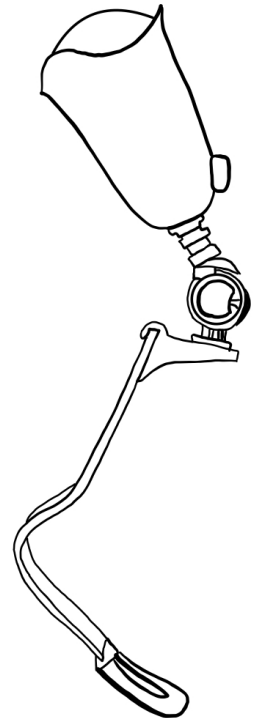
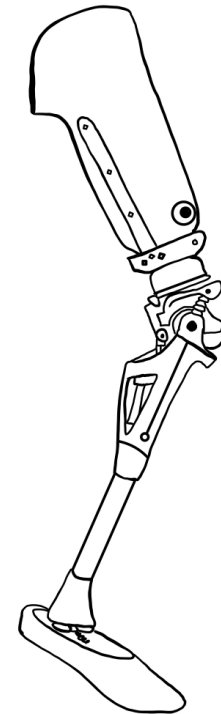
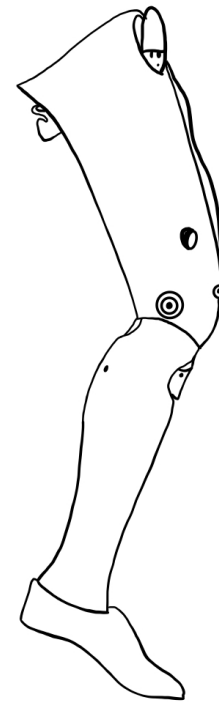
53-year-old female with a history of traumatic L above-the-knee amputation presents with significant somatic dysfunction creating postural imbalance due to leg-length inequality worsened by her prosthetic.

- OMT improved pelvic un-leveling which subsequently:
 - Reduced pain
 - Improved gait
 - Delayed surgery
 - Corrected leg-length inequality
 - Enhanced quality of life

By improving her quality of life, the patient's body-mind-spirit connection was balanced and she was able to participate in her life's passion for racing once again.

Acknowledgements

- Presented with patient permission
- Thank you to my mentors
 - Dr. Kimberly McKinnon, D.O.
 - Dr. Kurt Heinking, D.O., F.A.A.O.
 - Dr. Kyle Henderson, Ph.D.



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***All visuals made by me