



## Subject 10

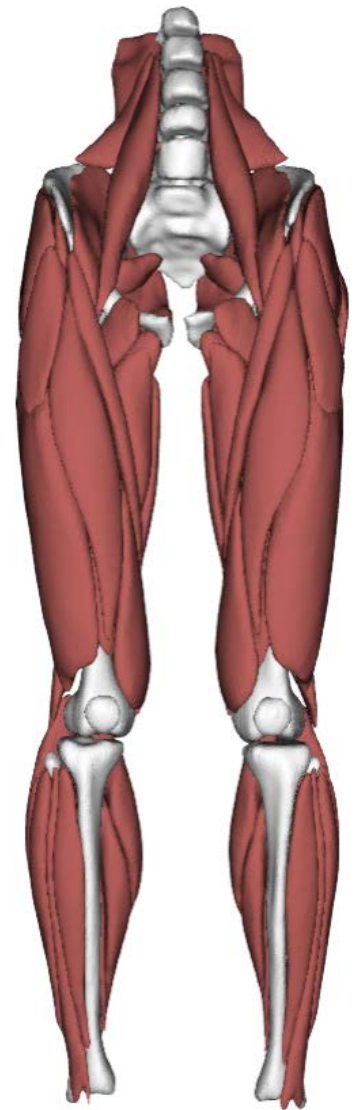
### Carnegie Mellon University

Date of Scan | 02.23.2023

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To check out this report in 3D, visit  
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*The Springbok report is an in-depth analysis of the subject's musculature and is not intended to be used for diagnostic purposes.*

## Key Observations

1. **Asymmetry:** Notable asymmetries in the adductor magnus, biceps femoris long head, vastus intermedius, and vastus lateralis, all of which are larger on the left side.
2. **Asymmetry:** Notable asymmetries in the adductor brevis and adductor longus, both of which are larger on the right side.
3. **Development:** Notably low bilateral development of the lumbar spine, hip flexors, hip adductors, knee extensors, and ankle invertors.
4. **Development:** Notably low bilateral development of the obturator internus, popliteus, flexor digitorum longus, and flexor hallucis longus.
5. **Development:** Notably high bilateral development of the gemelli, quadratus femoris, and gastrocnemius lateral head.

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**No injuries quantified.**

# Executive Summary



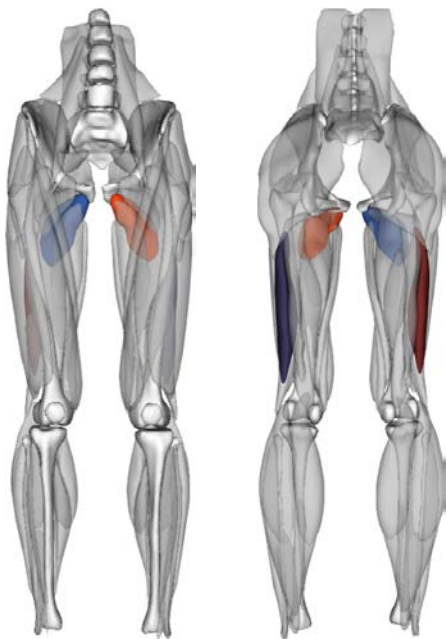
Height | 5ft 5in

Weight | 123lbs

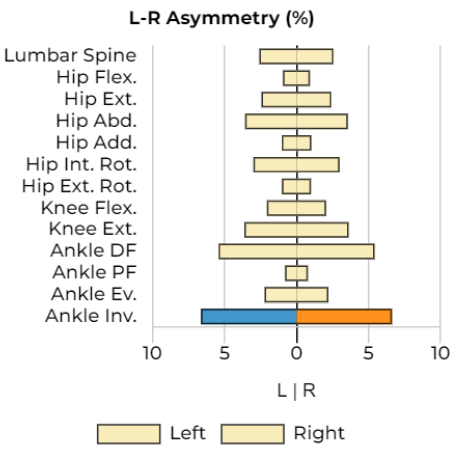
Scan Date | 02.23.2023

## Asymmetry Profile

Muscles with the greatest volumetric differences between legs are identified below. Blue muscles indicate a muscle is larger on that side, and the corresponding muscle on the opposing leg will be colored red.

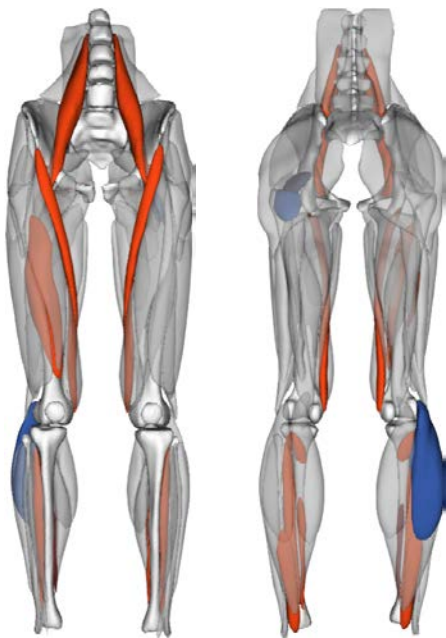


Muscle Groups	
Left	Right
Individual Muscles	
Left	Right
Adductor Brevis	Biceps Femoris: Long Head

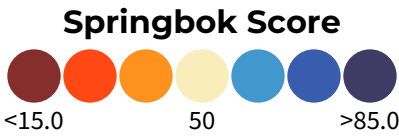
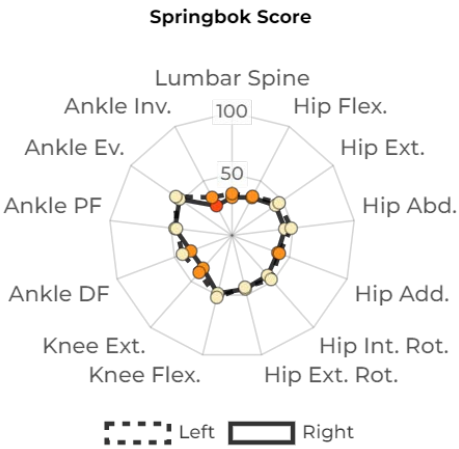


## Development Profile

Muscle volumes are scored from 0-100, with expected volume based on the subject's height and weight scored as 50. Muscles deviating most from their expected volume are identified below, where blue muscles are larger and red muscles are smaller than expected.



Muscle Groups	
Left	Right
Individual Muscles	
Left	Right
Gemelli	Flexor Digitorum Longus
Flexor Digitorum Longus	Tibialis Posterior
Popliteus	Vastus Intermedius
Obturator Internus	Obturator Internus
Psoas Major	Psoas Major
Tibialis Posterior	Popliteus



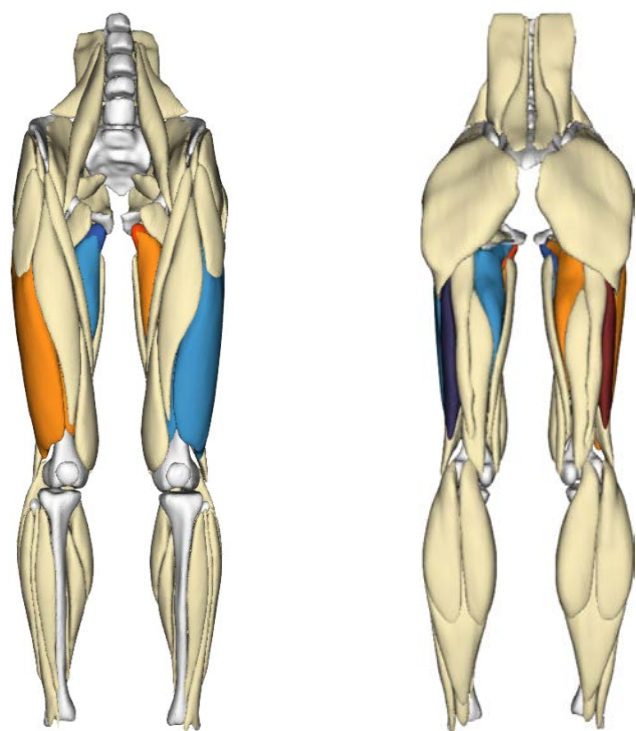
# Full Lower Extremity Muscle Asymmetry Profile



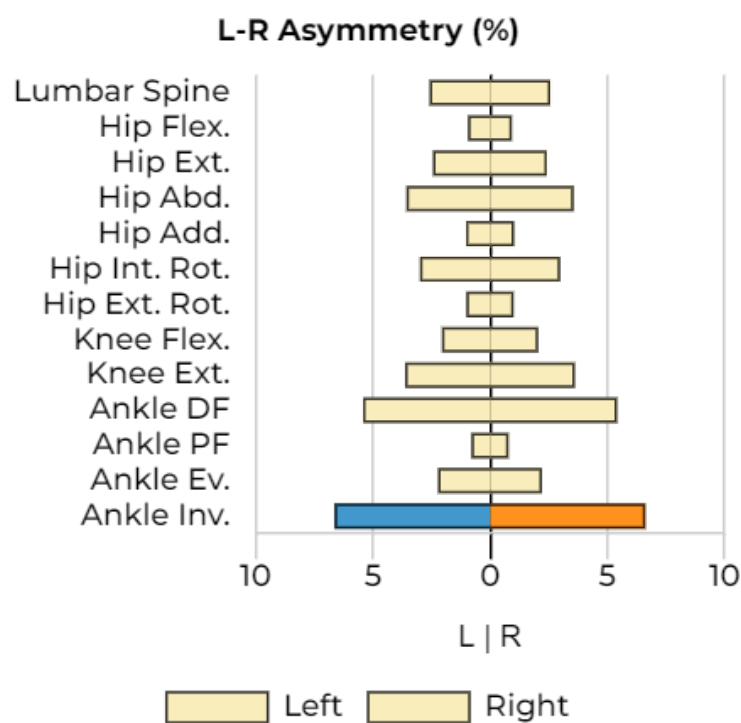
Height | 5ft 5in

Weight | 123lbs

Scan Date | 02.23.2023



Hip & Trunk	Group	L	R
	Lumbar Spine	2.6%	-2.6%
	Flexors	0.9%	-0.9%
	Extensors	2.4%	-2.4%
	Abductors	3.6%	-3.6%
	Adductors	1.0%	-1.0%
	Internal Rotators	3.0%	-3.0%
Knee	External Rotators	-1.0%	1.0%
	Flexors	2.1%	-2.1%
Ankle	Extensors	3.6%	-3.6%
	Dorsiflexors	5.4%	-5.4%
	Plantar Flexors	-0.8%	0.8%
	Evertors	2.2%	-2.2%
	Invertors	6.6%	-6.6%



## Most Asymmetric Muscle Groups

- 1 Ankle Invertors
- 2 Hip Extensors

## Most Symmetric Muscle Groups

- 1 Ankle Plantar Flexors
- 2 Ankle Evertors

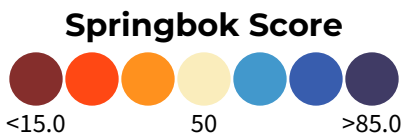
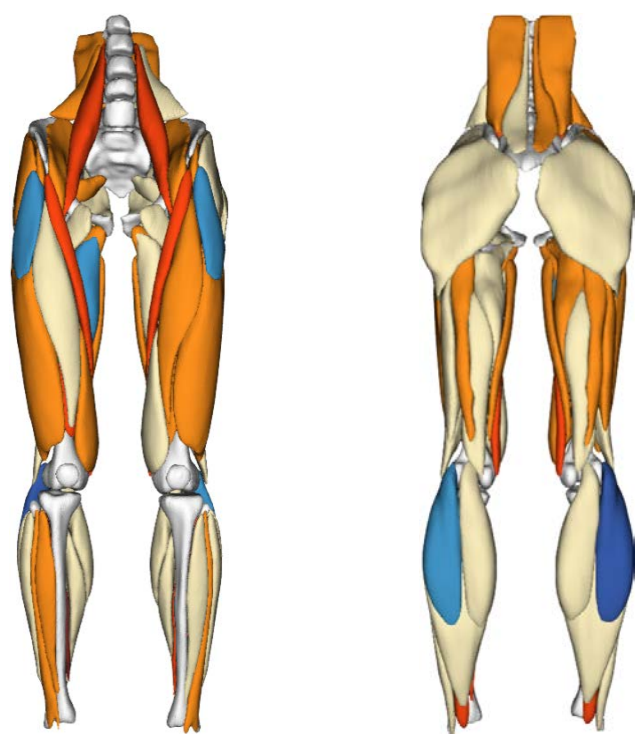
# Full Lower Extremity Muscle Development Profile



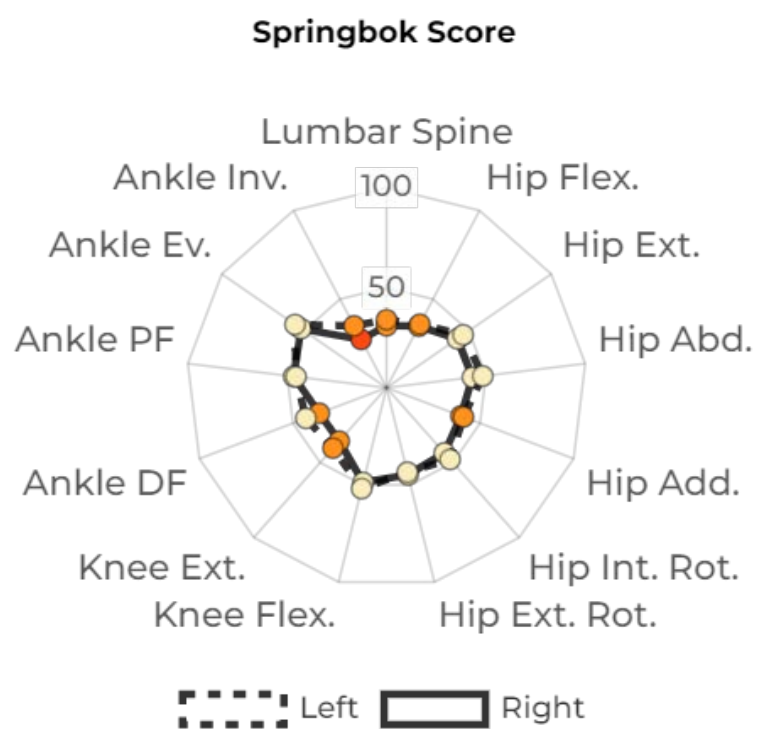
Height | 5ft 5in

Weight | 123lbs

Scan Date | 02.23.2023



Hip & Trunk	Group	L	R
	Lumbar Spine	34.0	30.9
	Flexors	35.9	34.7
	Extensors	46.5	43.0
	Abductors	48.4	43.2
	Adductors	41.2	39.8
	Internal Rotators	47.9	43.5
Knee	External Rotators	43.4	44.9
	Flexors	51.9	48.8
Ankle	Extensors	40.3	35.7
	Dorsiflexors	43.1	35.9
	Plantar Flexors	45.6	46.7
	Evertors	55.5	52.0
	Invertors	34.9	27.2



## Highest Scoring Muscle Groups

- 1 Ankle Evertors
- 2 Knee Flexors

## Lowest Scoring Muscle Groups

- 1 Ankle Invertors
- 2 Lumbar Spine



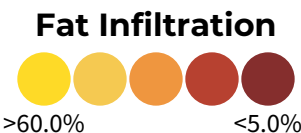
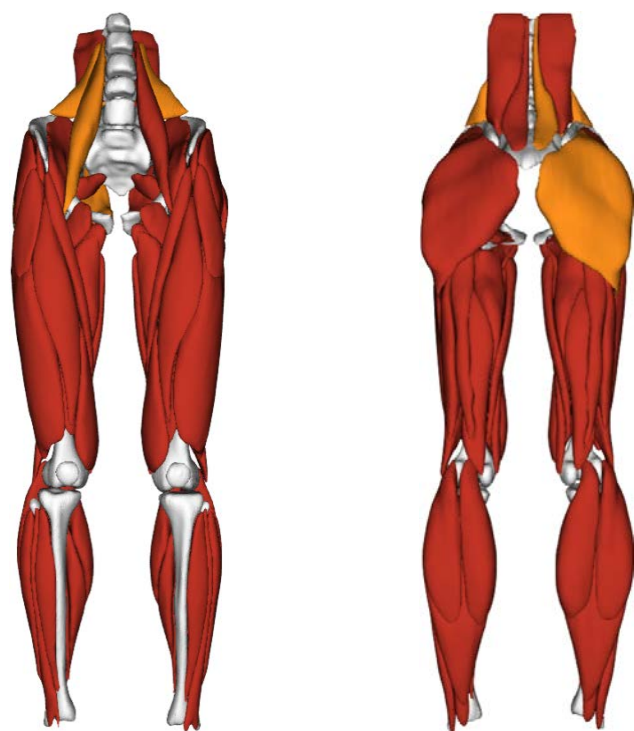
# Full Lower Extremity Fat Infiltration Profile



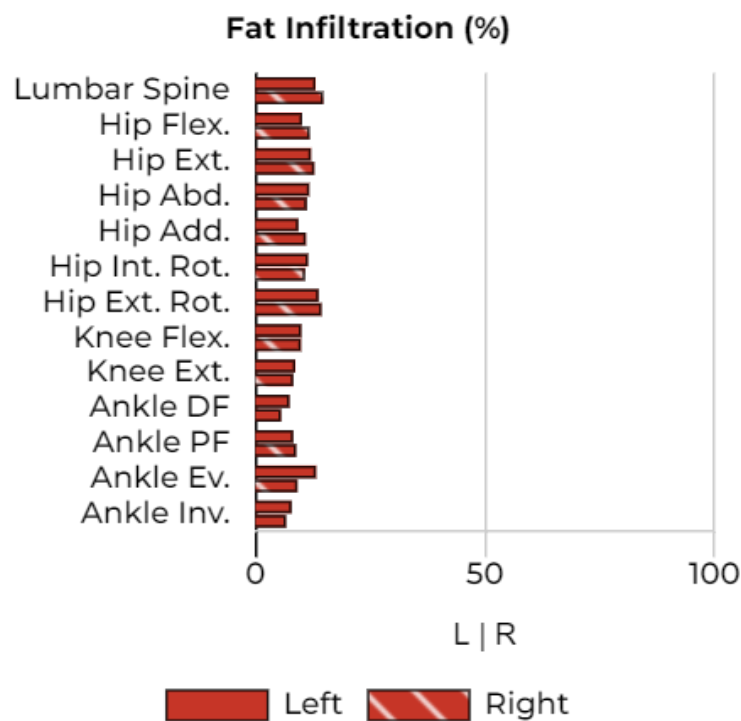
Height | 5ft 5in

Weight | 123lbs

Scan Date | 02.23.2023



	Group	L	R
Hip & Trunk	Lumbar Spine	13.1%	14.8%
	Flexors	10.1%	11.8%
	Extensors	12.1%	12.8%
	Abductors	11.7%	11.2%
	Adductors	9.3%	11.0%
	Internal Rotators	11.4%	10.8%
	External Rotators	13.7%	14.4%
Knee	Flexors	10.0%	9.9%
	Extensors	8.7%	8.2%
Ankle	Dorsiflexors	7.4%	5.6%
	Plantar Flexors	8.2%	8.9%
	Evertors	13.2%	9.2%
	Invertors	7.9%	6.7%



## Most Fat Infiltrated Muscle Groups

- 1 R. Lumbar Spine
- 2 R. Hip External Rotators

## Least Fat Infiltrated Muscle Groups

- 1 R. Ankle Dorsiflexors
- 2 R. Ankle Invertors

# Muscle-Level Metrics

## Lumbar Muscles

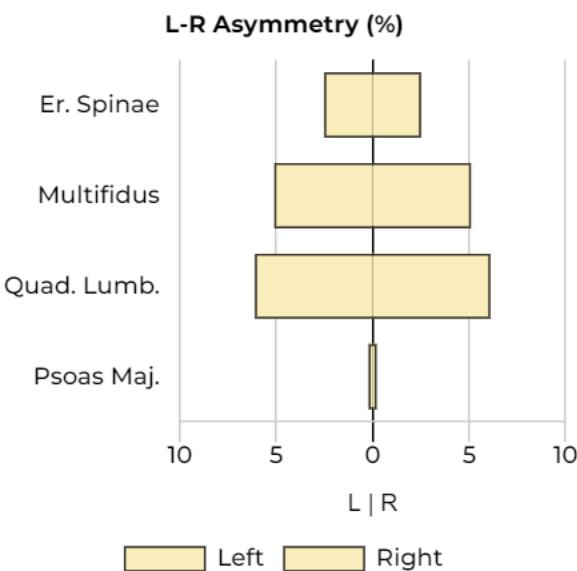
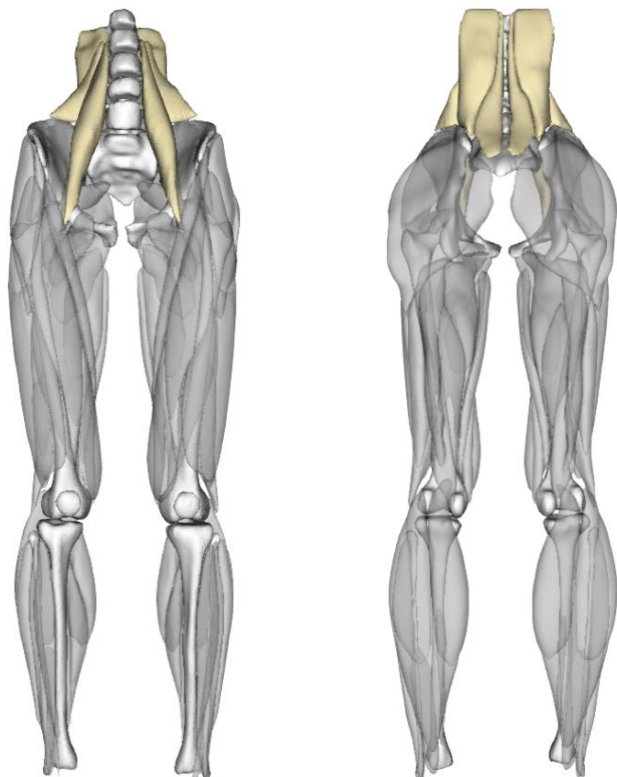


Height | 5ft 5in

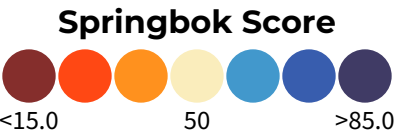
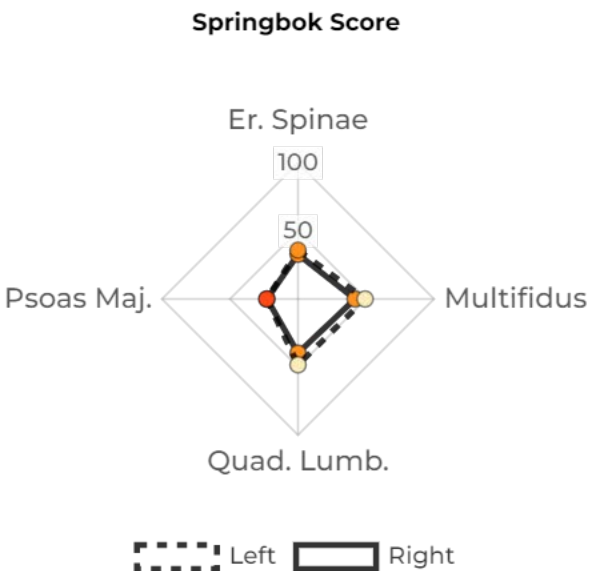
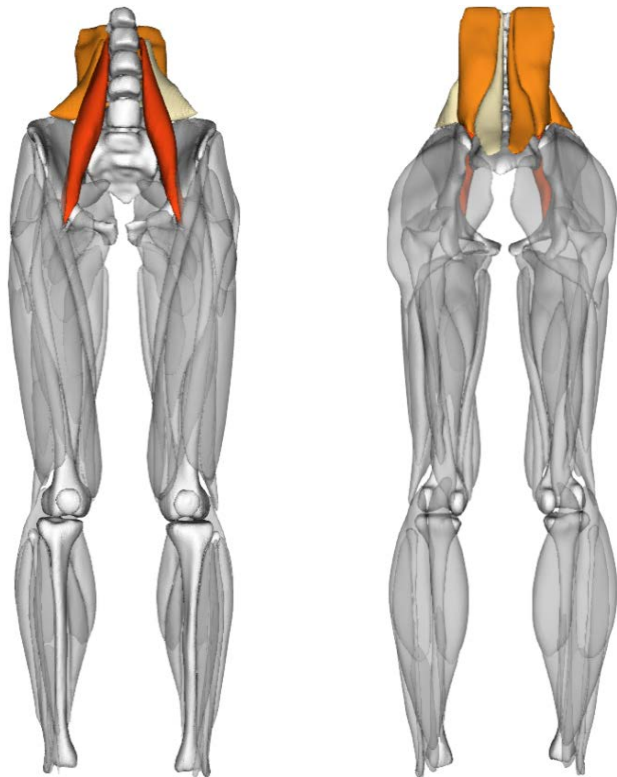
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Scan Date | 02.23.2023

### Asymmetry Profile



### Development Profile



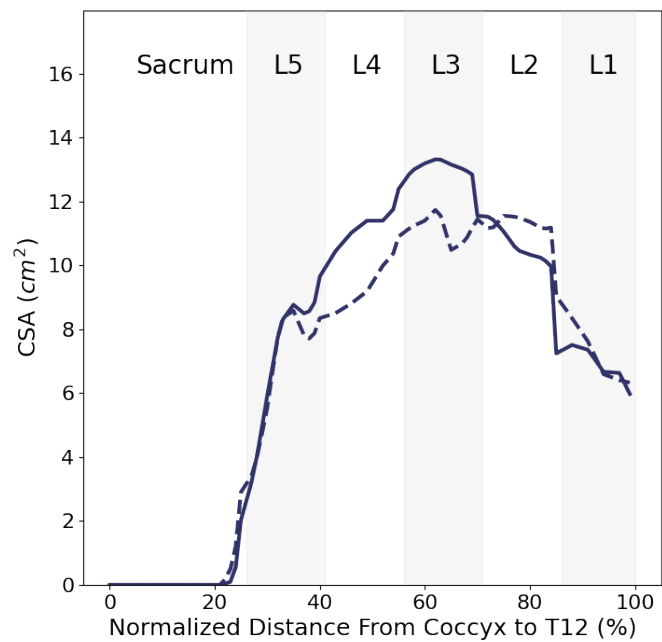
# Muscle-Level Metrics

## Lumbar Muscles - CSA Analysis

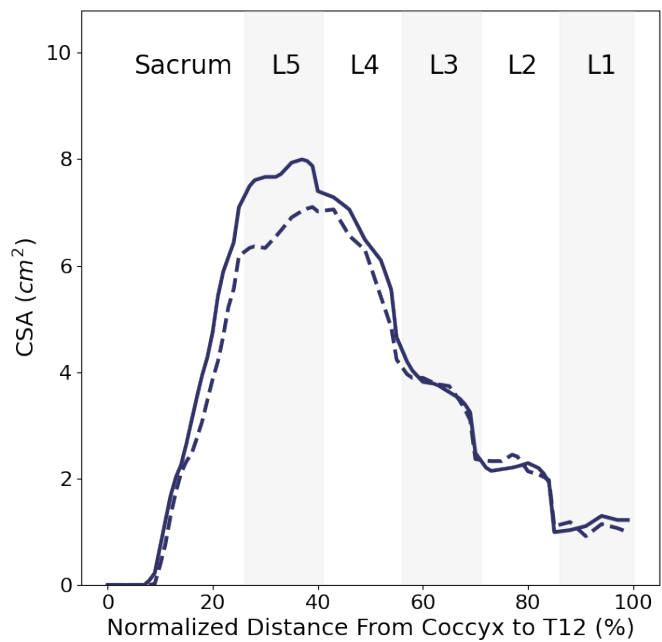


Height | 5ft 5in      Weight | 123lbs      Scan Date | 02.23.2023

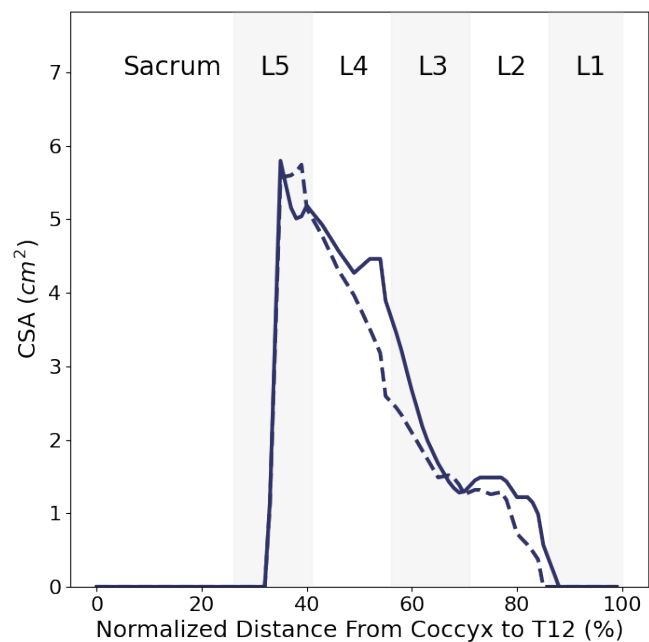
Erector Spinae



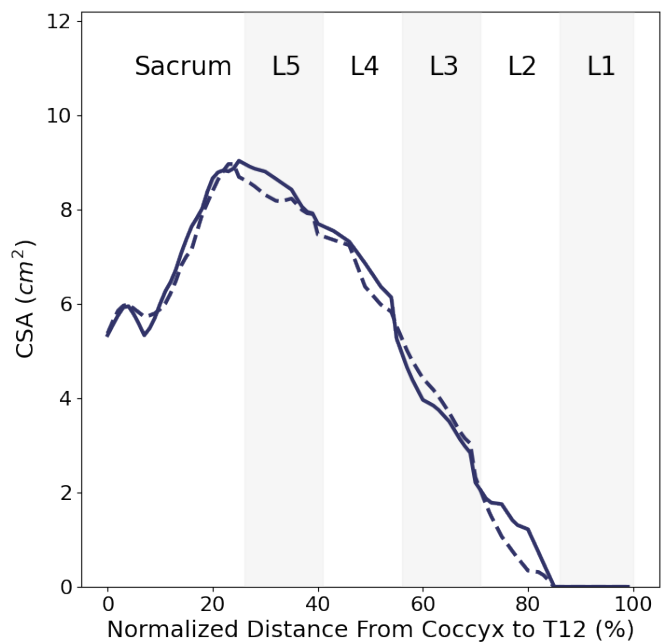
Multifidus



Quadratus Lumborum



Psoas Major



— Left  
- - - Right



# Muscle-Level Metrics

## Superficial Hip Muscles

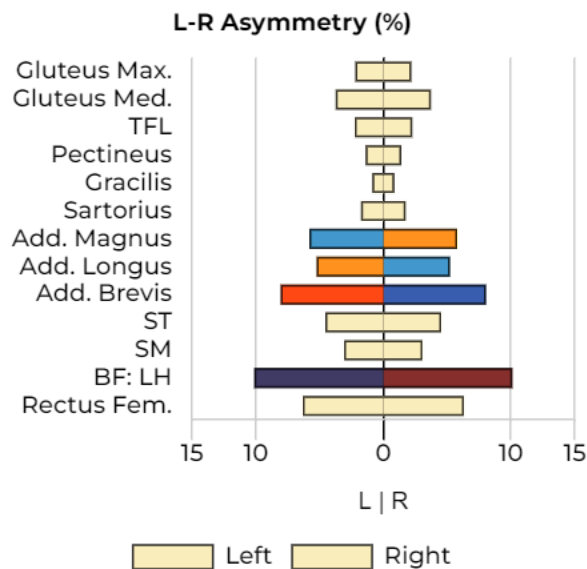
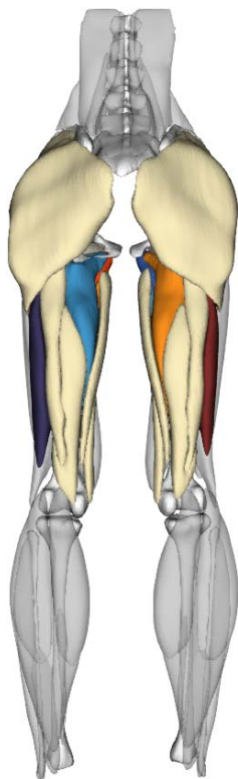
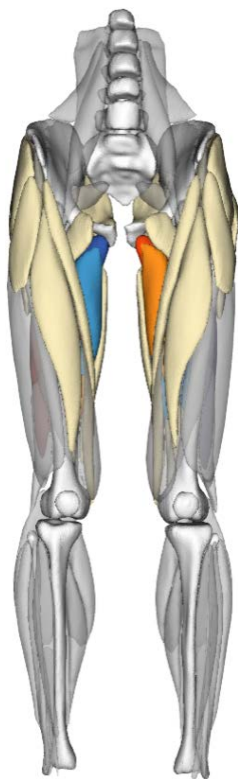


Height | 5ft 5in

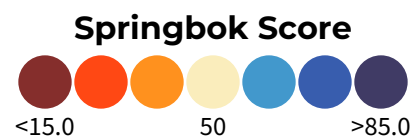
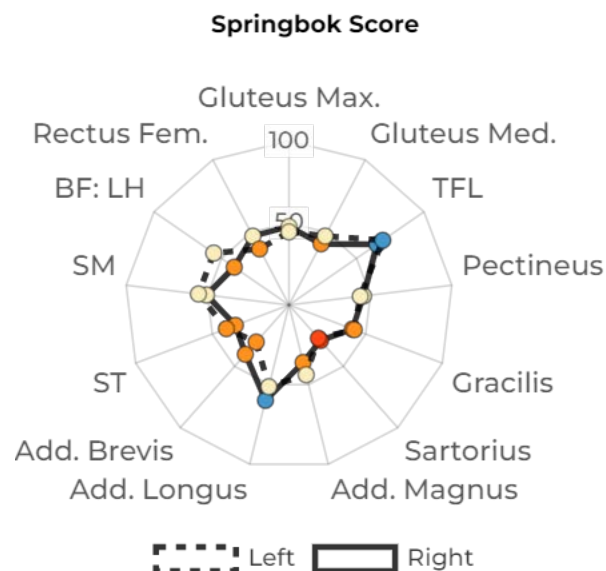
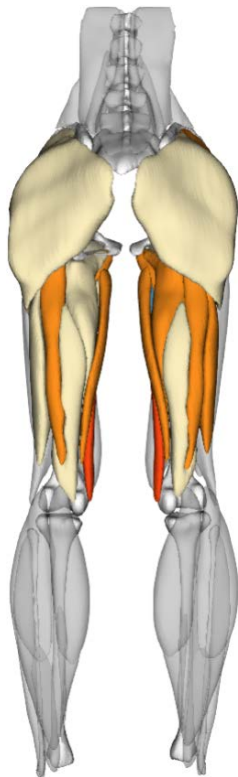
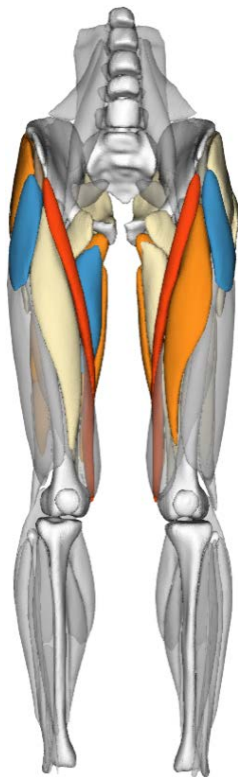
Weight | 123lbs

Scan Date | 02.23.2023

### Asymmetry Profile



### Development Profile



# Muscle-Level Metrics

## Deep Hip Muscles

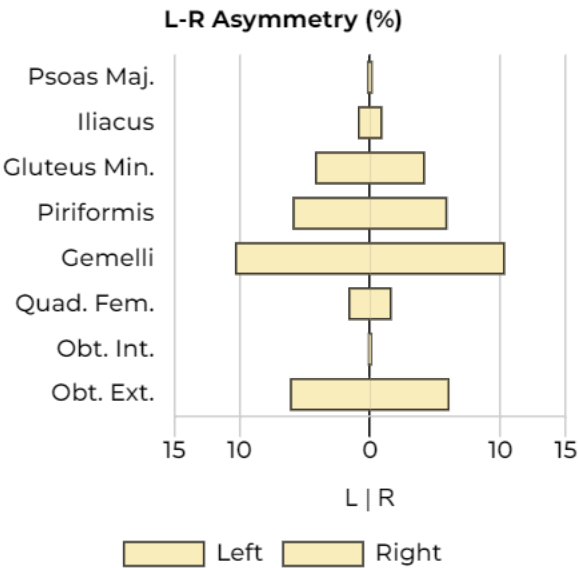
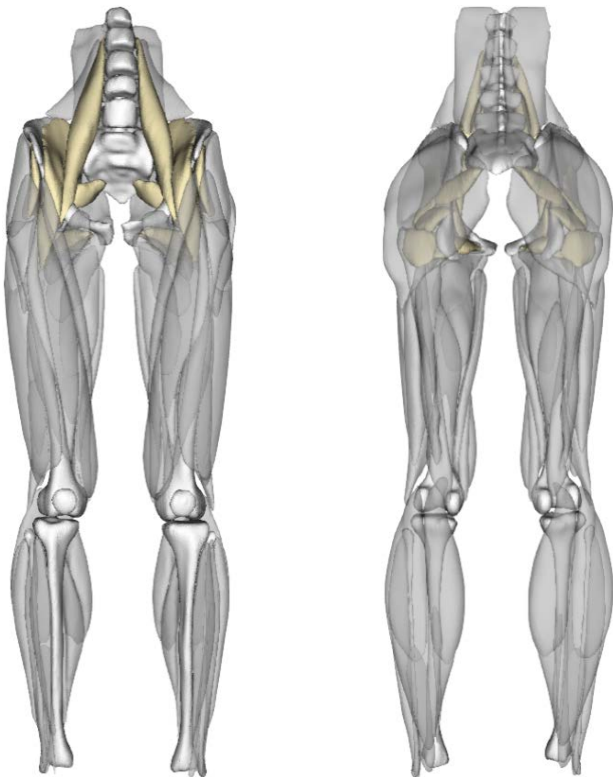


Height | 5ft 5in

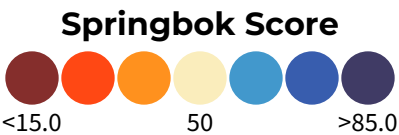
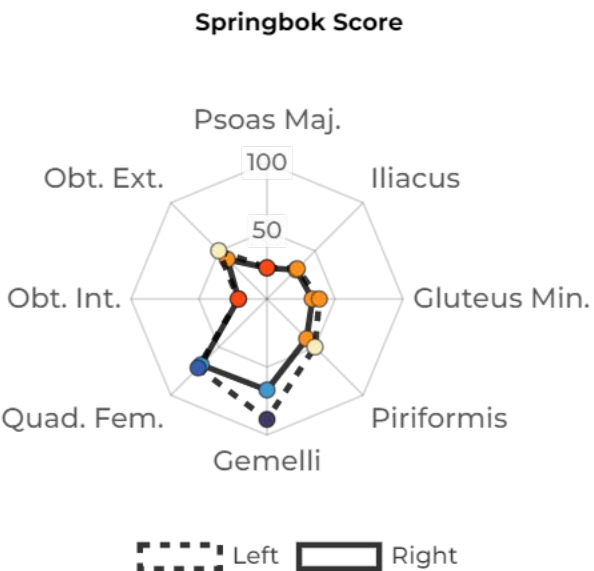
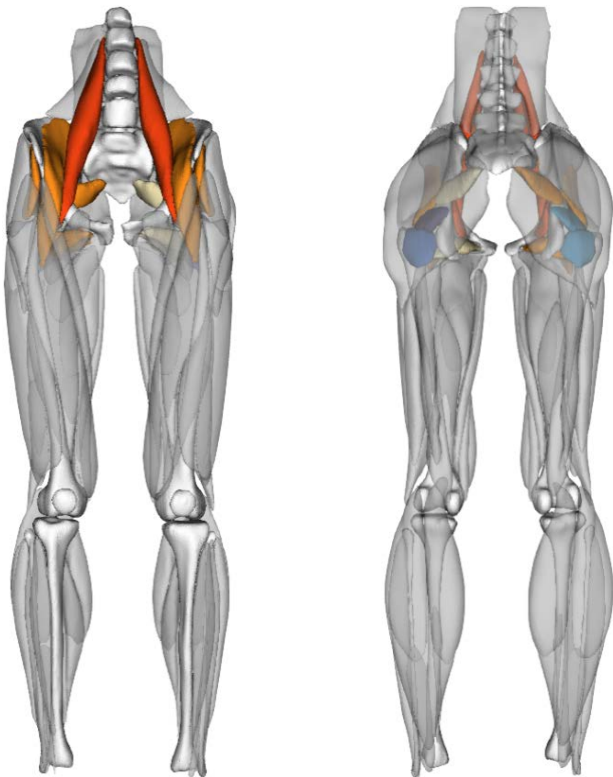
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Scan Date | 02.23.2023

### Asymmetry Profile



### Development Profile



# Muscle-Level Metrics

## Knee Muscles

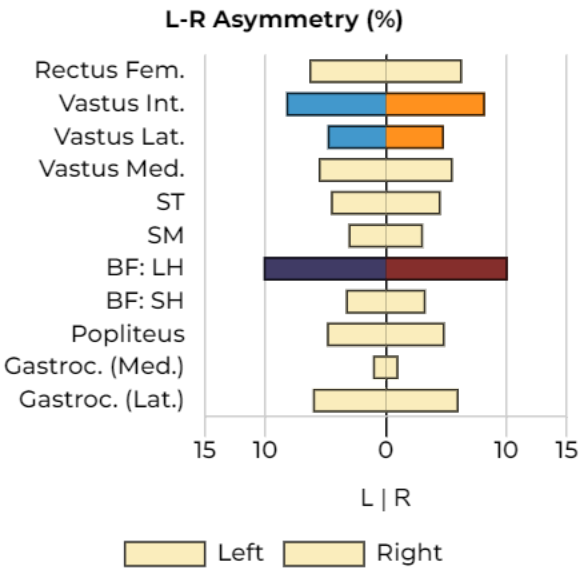
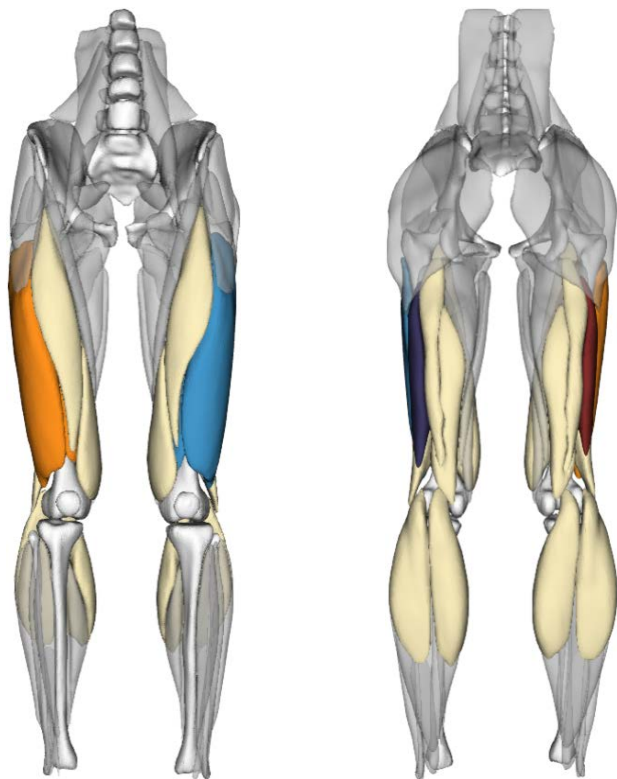


Height | 5ft 5in

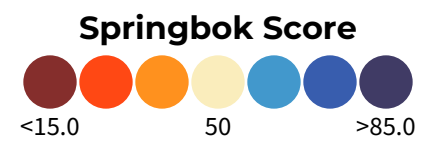
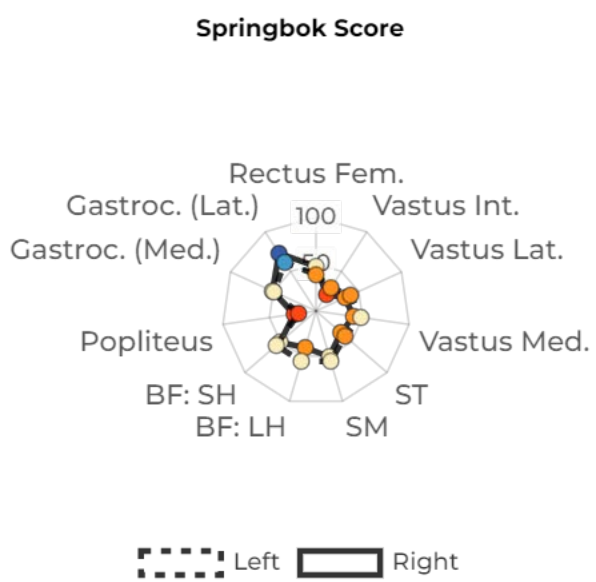
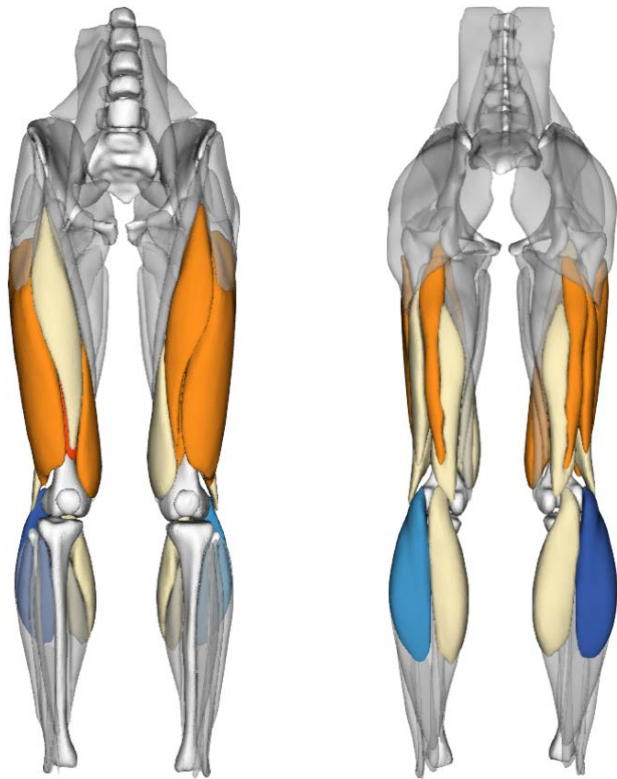
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Scan Date | 02.23.2023

### Asymmetry Profile



### Development Profile



# Muscle-Level Metrics

## Ankle Muscles

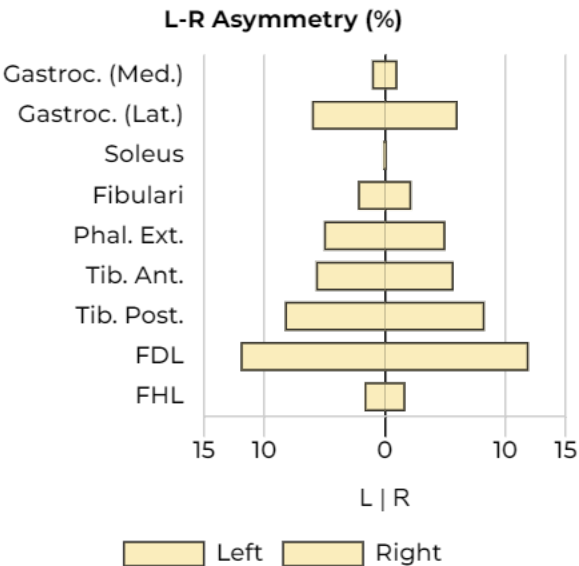
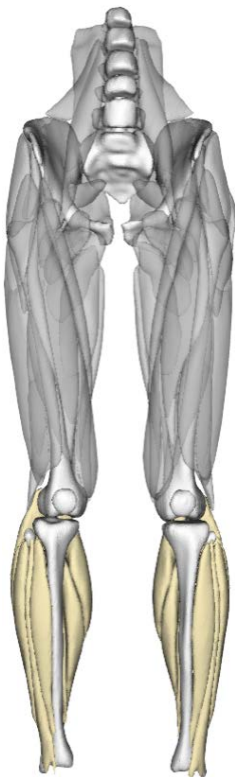


Height | 5ft 5in

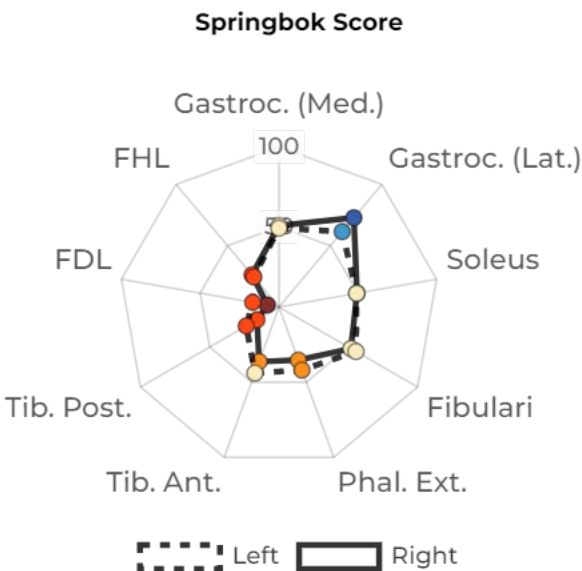
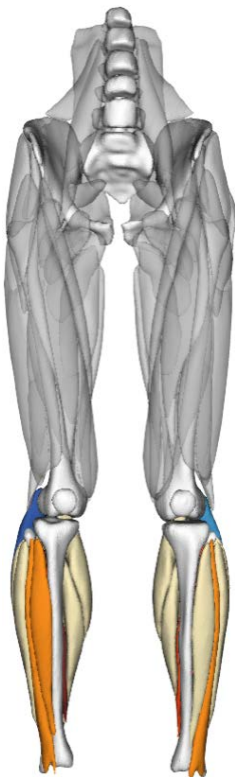
Weight | 123lbs

Scan Date | 02.23.2023

### Asymmetry Profile



### Development Profile







# Interactive Viewer

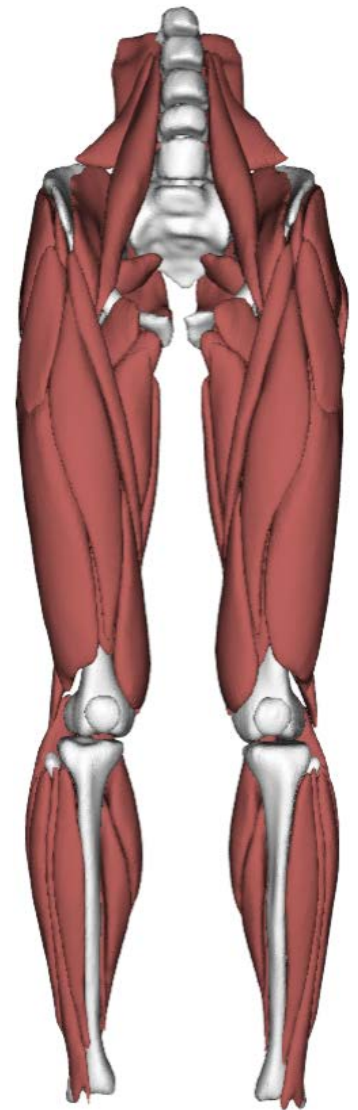
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For an interactive and in-depth view of your study, please visit the Interactive Viewer at [app.springbokanalytics.com](http://app.springbokanalytics.com).

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## Features Include:

- Interactive anatomical structures
  - Interactive data presentation
  - Multiple viewing modes for examination of muscle characteristics
  - In-depth anatomy database
  - Access to original DICOM images
  - Study comparison mode
  - Integrated screen capture function
  - Export feature to download data
  - Feedback and suggestions portal
- 



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