



## Subject 8

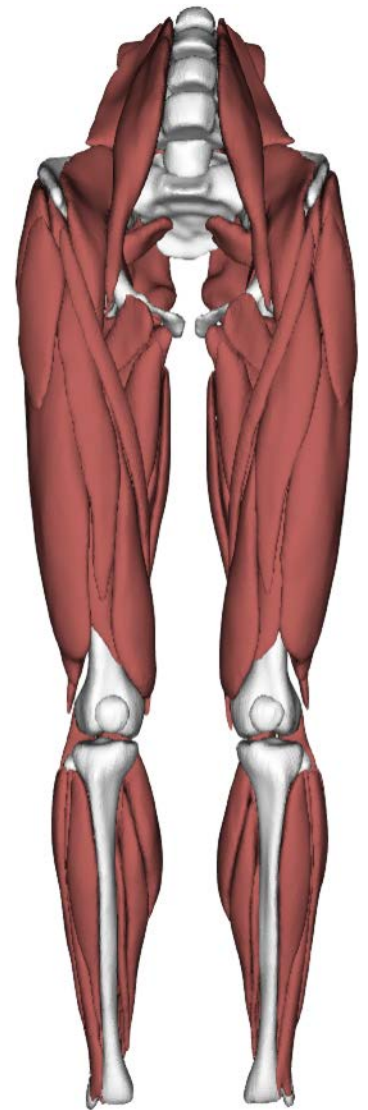
### Carnegie Mellon University

Date of Scan | 02.21.2023

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Pgs. 2-3 | Executive Summary  
Pg. 4 | Full Lower Extremity Asymmetry Profile  
Pg. 5 | Full Lower Extremity Development Profile  
Pg. 6 | Fat Infiltration Profile  
Pg. 7-12 | Muscle-Level Metrics  
Pg. 13 | Interactive Viewer

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To check out this report in 3D, visit  
[app.springbokanalytics.com](http://app.springbokanalytics.com).

*The Springbok report is an in-depth analysis of the subject's musculature and is not intended to be used for diagnostic purposes.*

Height | 5ft 8in

Weight | 151lbs

Scan Date | 02.21.2023

## Key Observations

1. **Asymmetry:** Notable asymmetry in the rectus femoris, with the right side being smaller.
2. **Asymmetry:** Notable asymmetry in the gastrocnemius medial head, with the right side being larger.
3. **Development:** Notably low bilateral development in the knee flexors and ankle dorsiflexors.
4. **Development:** Notably low development of the sartorius bilaterally and the right rectus femoris.
5. **Fat Infiltration:** Notable bilateral fat infiltration in most muscles acting on the lumbar spine and hip.

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**No injuries quantified.**

# Executive Summary



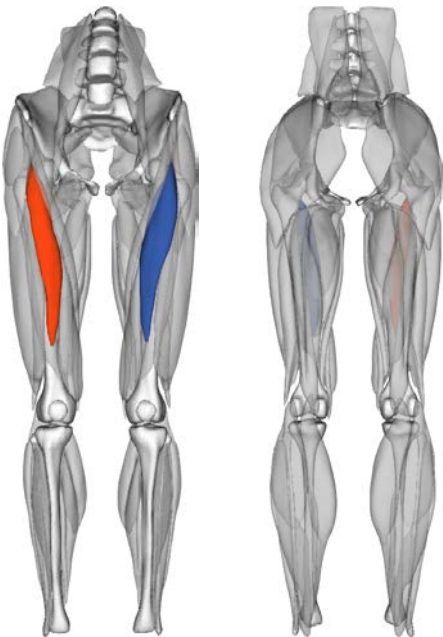
Height | 5ft 8in

Weight | 151lbs

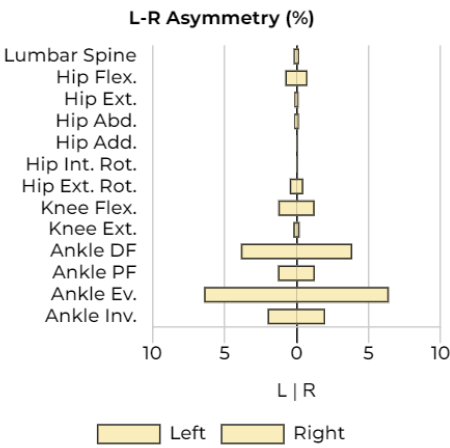
Scan Date | 02.21.2023

## 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.

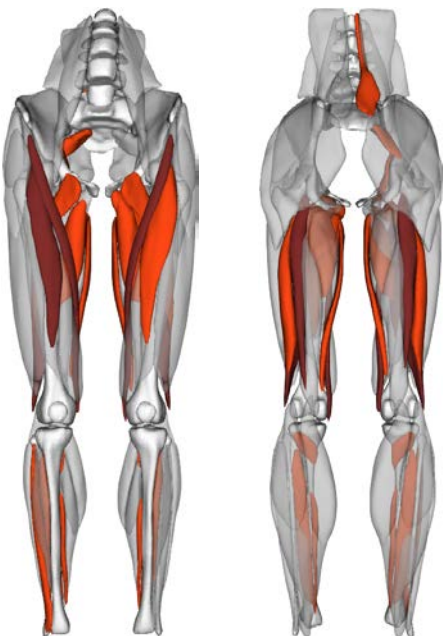


Muscle Groups	
Left	Right
Individual Muscles	
Left	Right
	Rectus Femoris

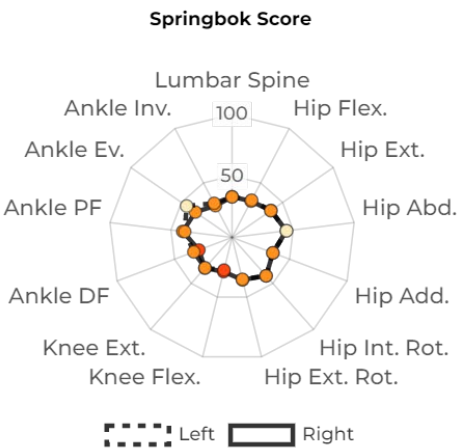


## Development Profile

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
Knee Flexors	Knee Flexors Ankle Dorsiflexors
Individual Muscles	
Left	Right
Biceps Femoris: Short Head Sartorius Semitendinosus Rectus Femoris Flexor Digitorum Longus Popliteus	Rectus Femoris Biceps Femoris: Short Head Sartorius Semitendinosus Gracilis Flexor Digitorum Longus



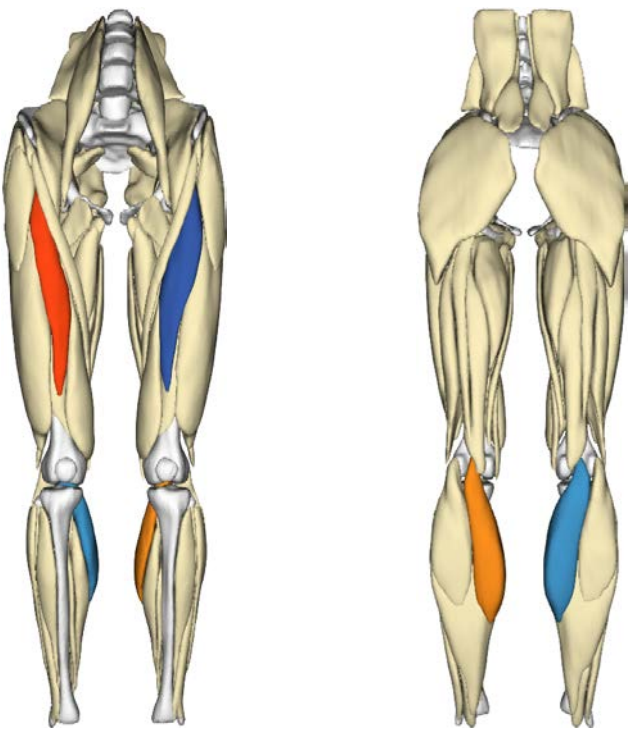
# Full Lower Extremity Muscle Asymmetry Profile



Height | 5ft 8in

Weight | 151lbs

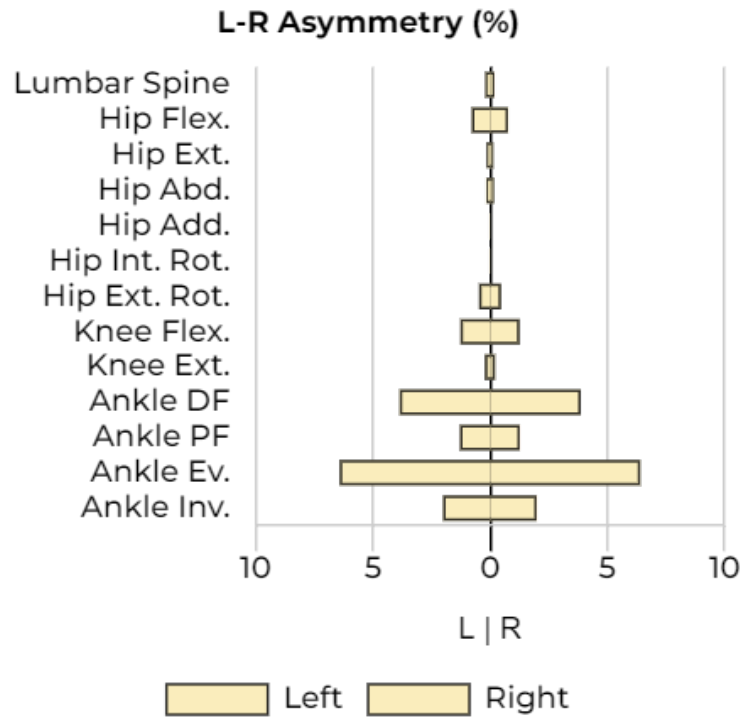
Scan Date | 02.21.2023



### L | R Asymmetry



	Group	L	R
Hip & Trunk	Lumbar Spine	-0.2%	0.2%
	Flexors	0.8%	-0.8%
	Extensors	-0.1%	0.1%
	Abductors	0.2%	-0.2%
	Adductors	-0.0%	0.0%
	Internal Rotators	-0.0%	0.0%
	External Rotators	-0.5%	0.5%
Knee	Flexors	-1.3%	1.3%
	Extensors	-0.2%	0.2%
Ankle	Dorsiflexors	3.9%	-3.9%
	Plantar Flexors	-1.3%	1.3%
	Evertors	6.4%	-6.4%
	Invertors	2.0%	-2.0%



## Most Asymmetric Muscle Groups

- 1 Ankle Evertors
- 2 Ankle Dorsiflexors

## Most Symmetric Muscle Groups

- 1 Hip Adductors
- 2 Hip Internal Rotators

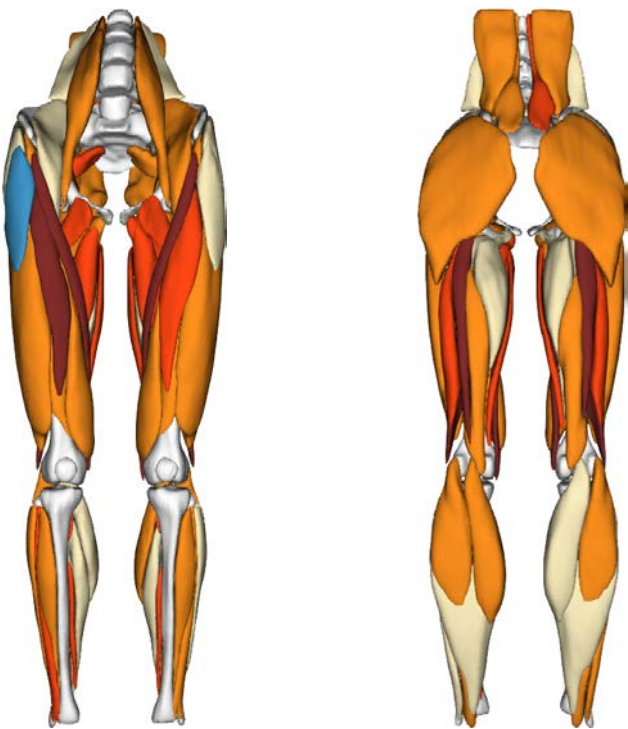
# Full Lower Extremity Muscle Development Profile



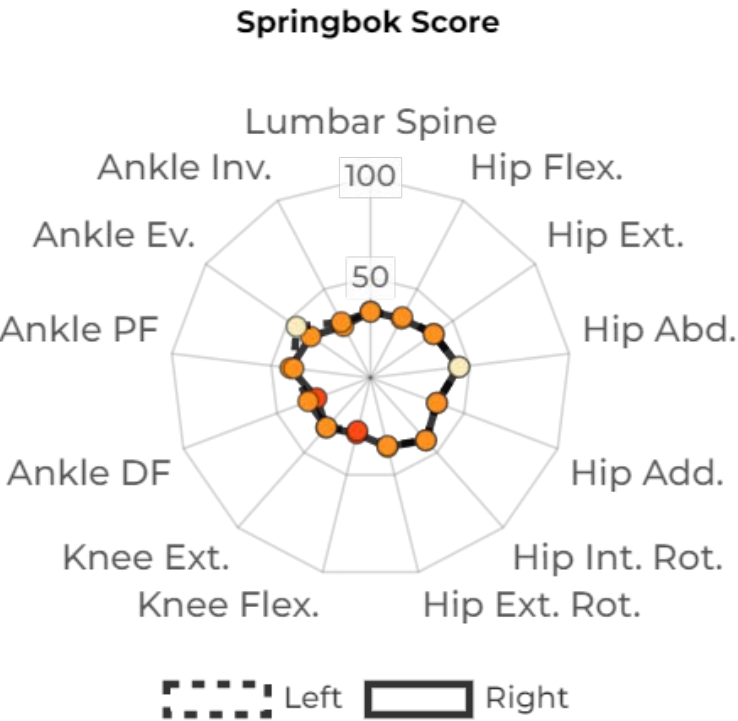
Height | 5ft 8in

Weight | 151lbs

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Hip & Trunk	Group	L	R
	Lumbar Spine	32.9	33.1
	Flexors	34.2	33.3
	Extensors	38.3	38.5
	Abductors	44.6	44.4
	Adductors	35.5	35.5
	Internal Rotators	41.7	41.8
	External Rotators	35.1	35.6
Knee	Flexors	27.3	28.7
	Extensors	33.1	33.4
Ankle	Dorsiflexors	33.3	28.8
	Plantar Flexors	38.7	40.4
	Evertors	44.9	36.2
	Invertors	31.3	29.1



## Highest Scoring Muscle Groups

- 1 Hip Abductors
- 2 Hip Internal Rotators

## Lowest Scoring Muscle Groups

- 1 Knee Flexors
- 2 Ankle Invertors



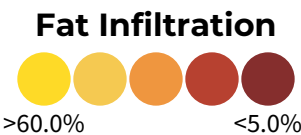
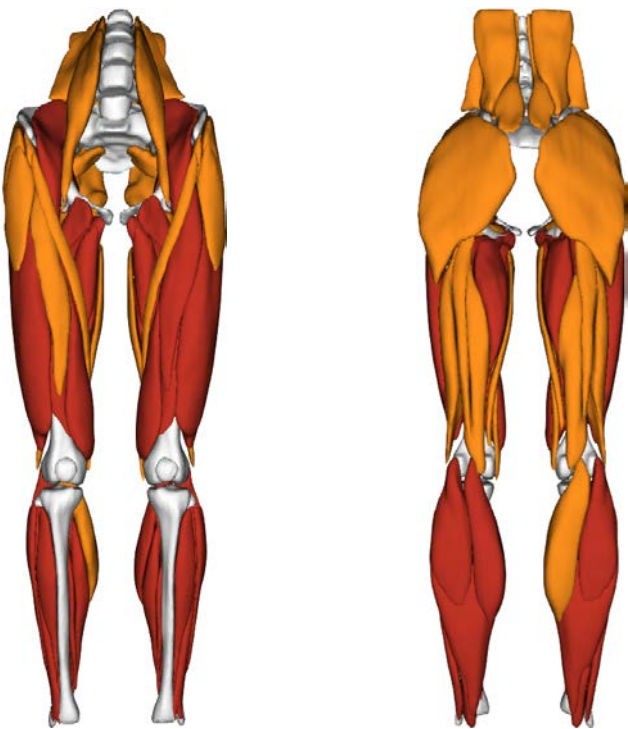
# Full Lower Extremity Fat Infiltration Profile



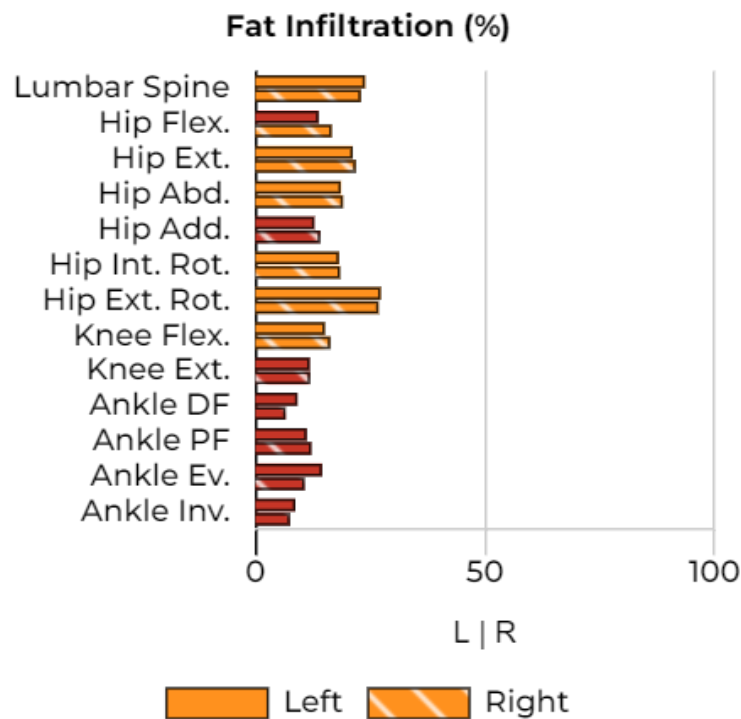
Height | 5ft 8in

Weight | 151lbs

Scan Date | 02.21.2023



Hip & Trunk	Group	L	R
	Lumbar Spine	23.9%	23.0%
	Flexors	13.8%	16.6%
	Extensors	21.2%	21.9%
	Abductors	18.7%	19.1%
	Adductors	12.9%	14.2%
	Internal Rotators	18.2%	18.4%
Knee	External Rotators	27.3%	26.9%
	Flexors	15.1%	16.3%
Ankle	Extensors	11.9%	11.9%
	Dorsiflexors	9.1%	6.6%
	Plantar Flexors	11.2%	12.2%
	Evertors	14.5%	10.7%
	Invertors	8.7%	7.5%



## Most Fat Infiltrated Muscle Groups

- 1 L. Hip External Rotators
- 2 R. Hip External Rotators

## Least Fat Infiltrated Muscle Groups

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

# Muscle-Level Metrics

## Lumbar Muscles

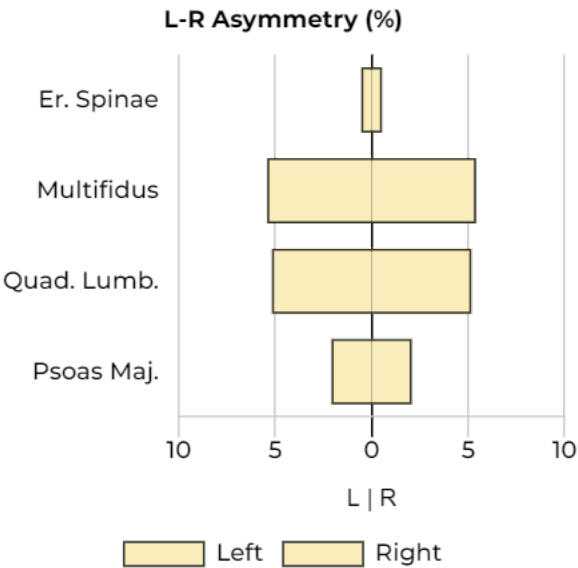
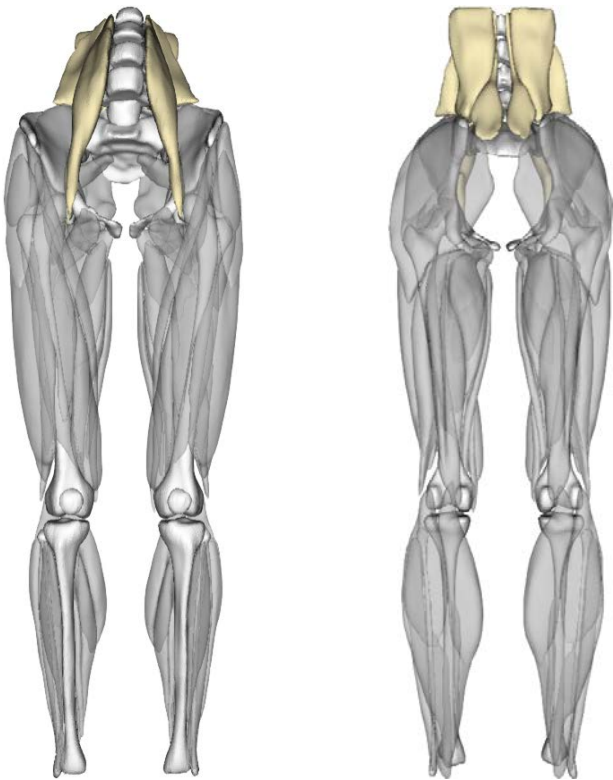


Height | 5ft 8in

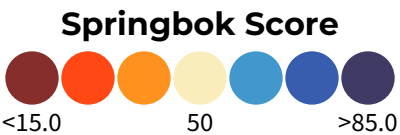
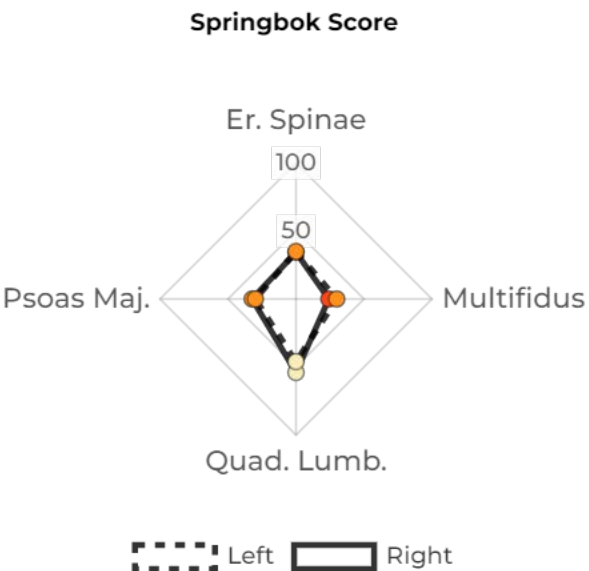
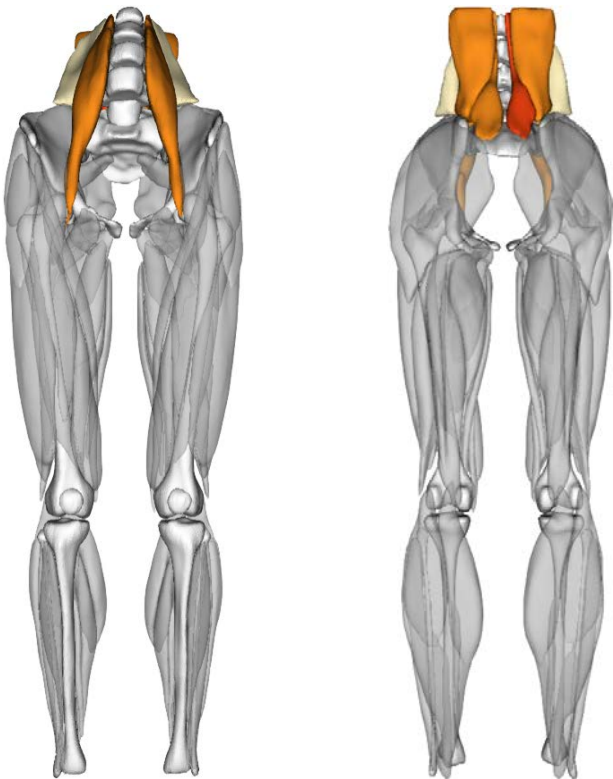
Weight | 151lbs

Scan Date | 02.21.2023

### Asymmetry Profile



### Development Profile



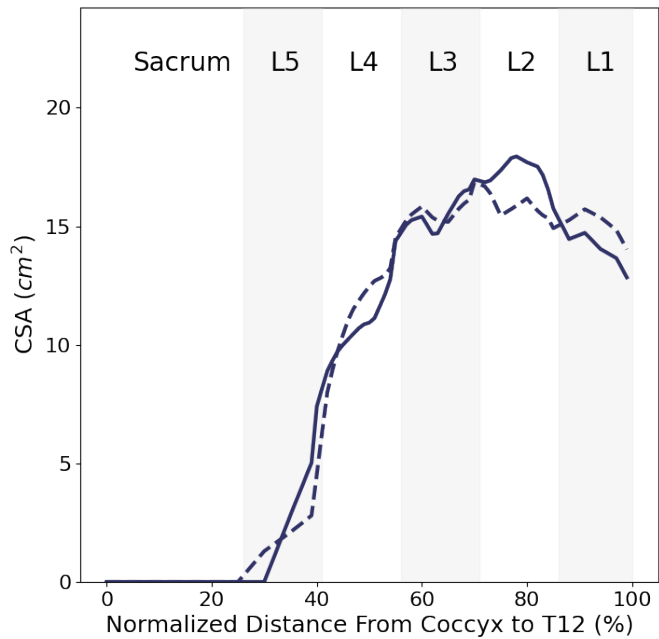
# Muscle-Level Metrics

## Lumbar Muscles - CSA Analysis

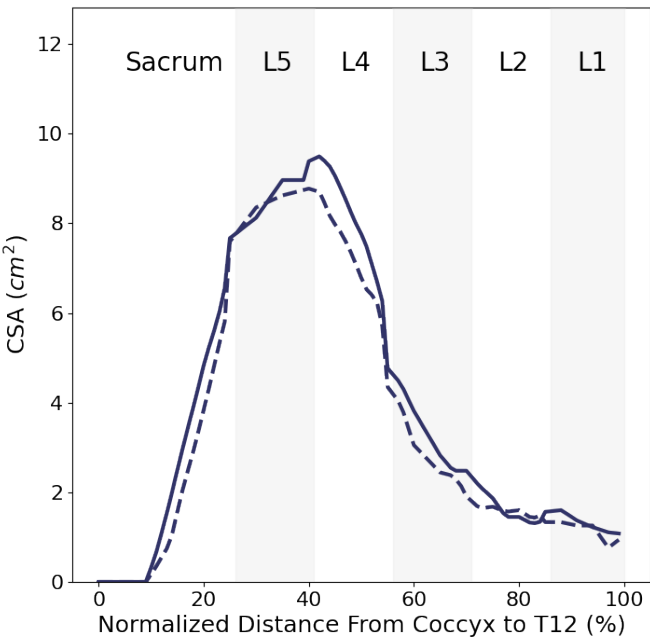


Height | 5ft 8in      Weight | 151lbs      Scan Date | 02.21.2023

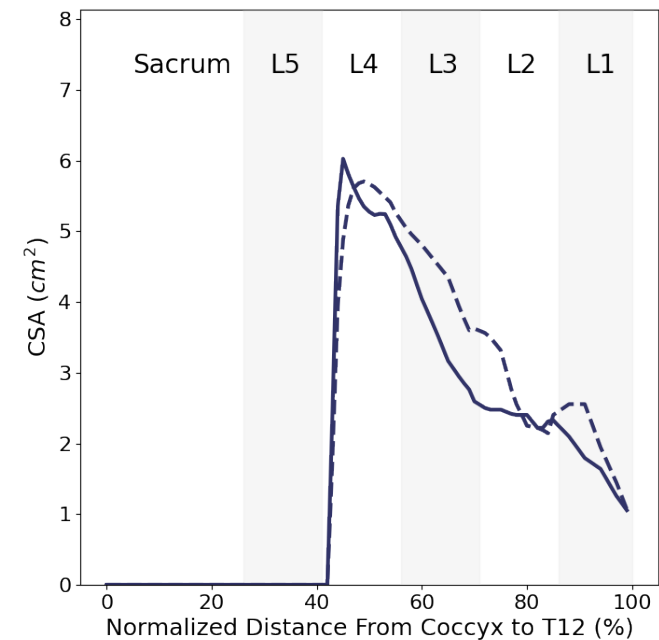
Erector Spinae



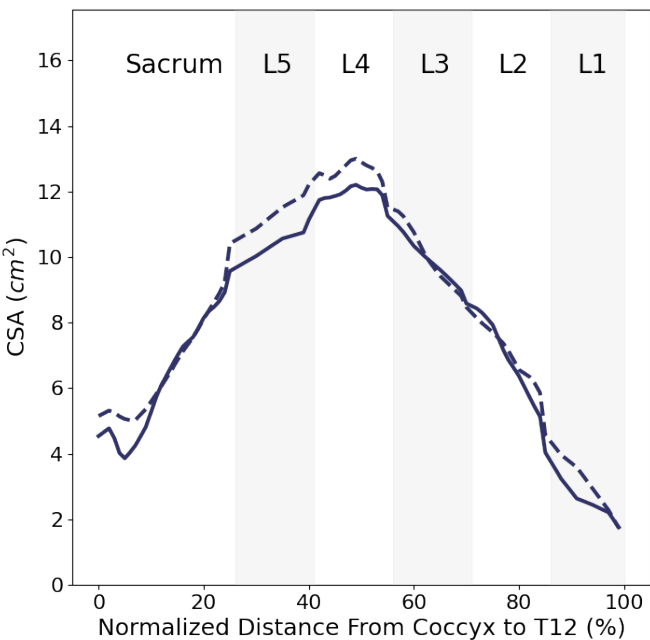
Multifidus



Quadratus Lumborum



Psoas Major



— Left  
- - - Right



# Muscle-Level Metrics

## Superficial Hip Muscles

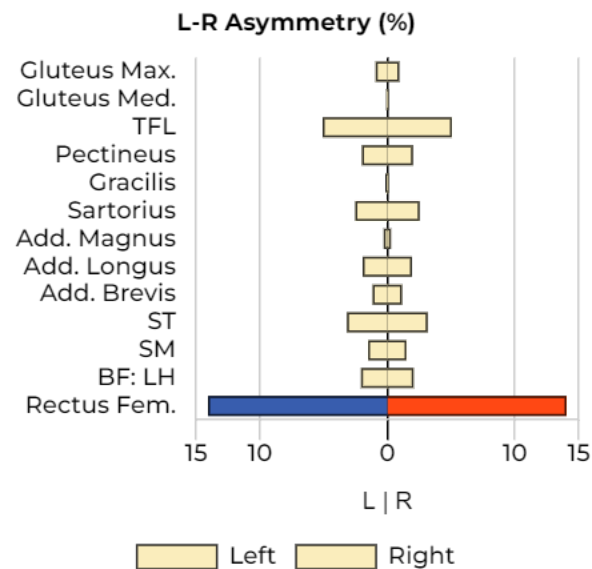
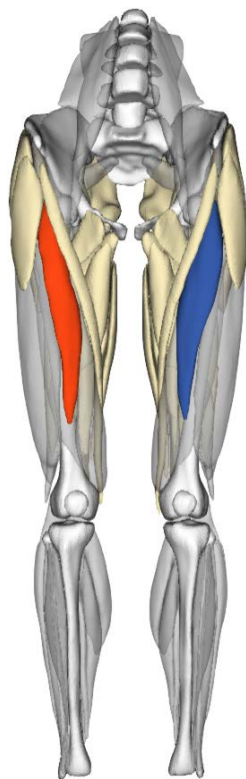


Height | 5ft 8in

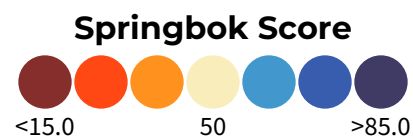
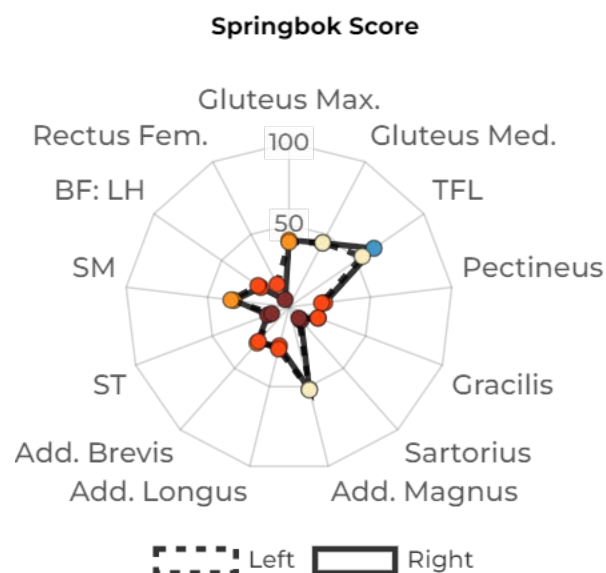
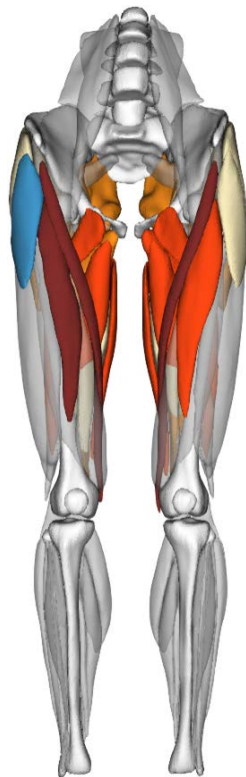
Weight | 151lbs

Scan Date | 02.21.2023

### Asymmetry Profile



### Development Profile



# Muscle-Level Metrics

## Deep Hip Muscles

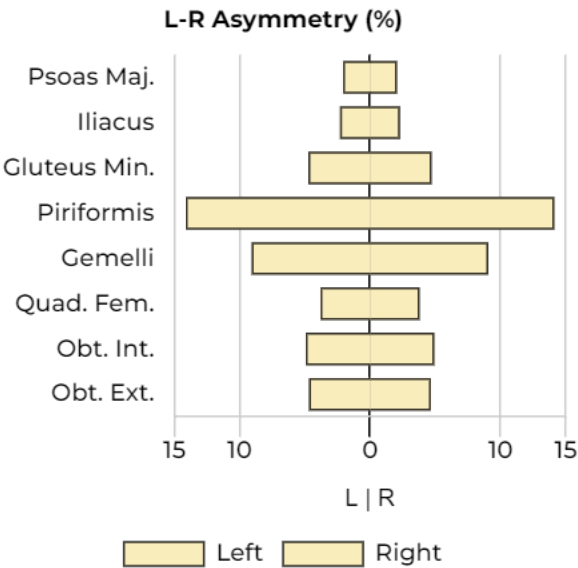
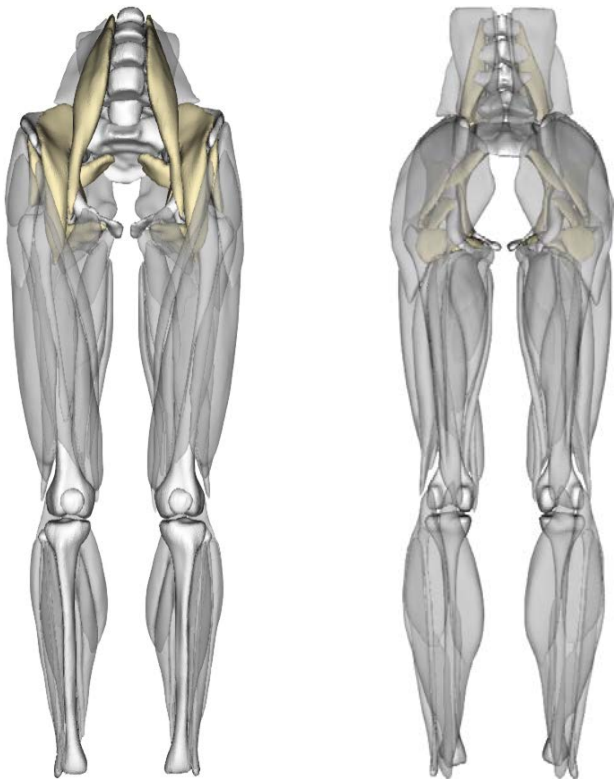


Height | 5ft 8in

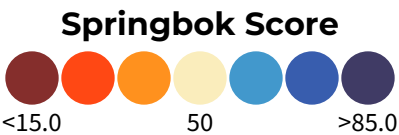
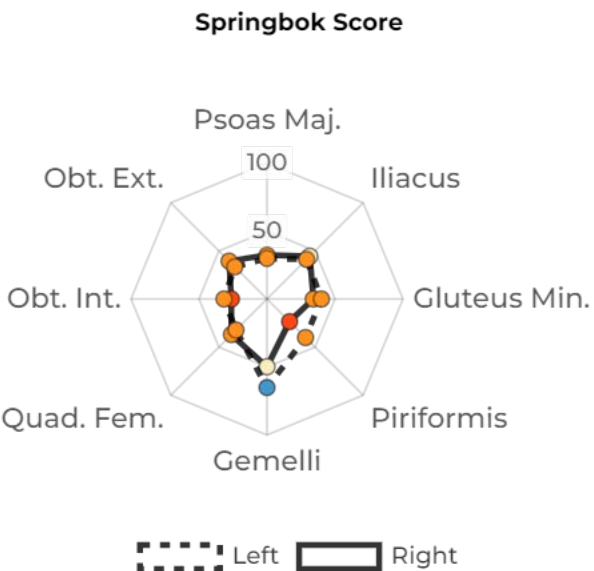
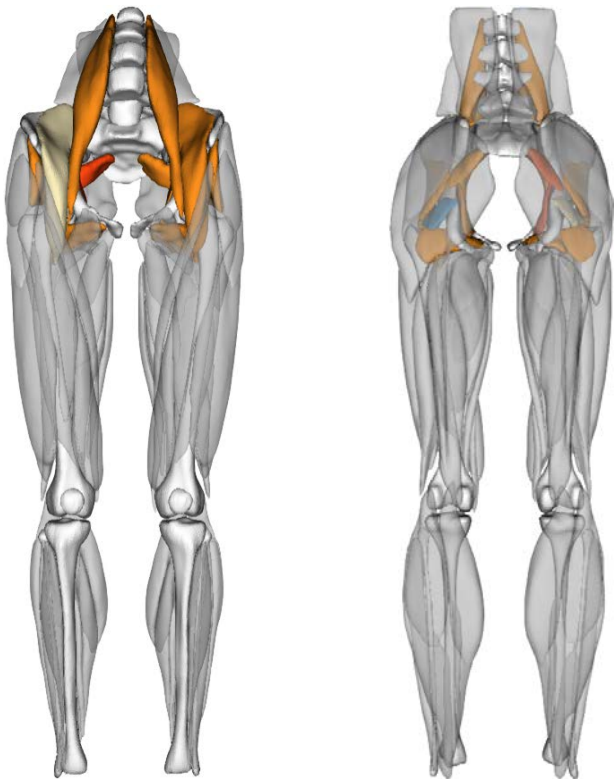
Weight | 151lbs

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### Asymmetry Profile



### Development Profile



# Muscle-Level Metrics

## Knee Muscles

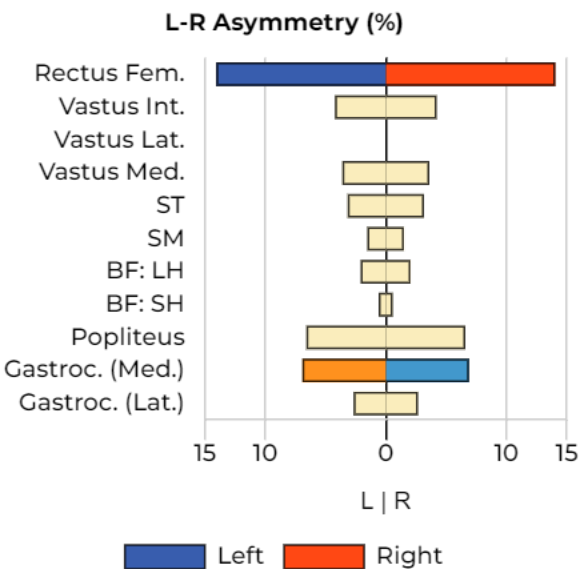
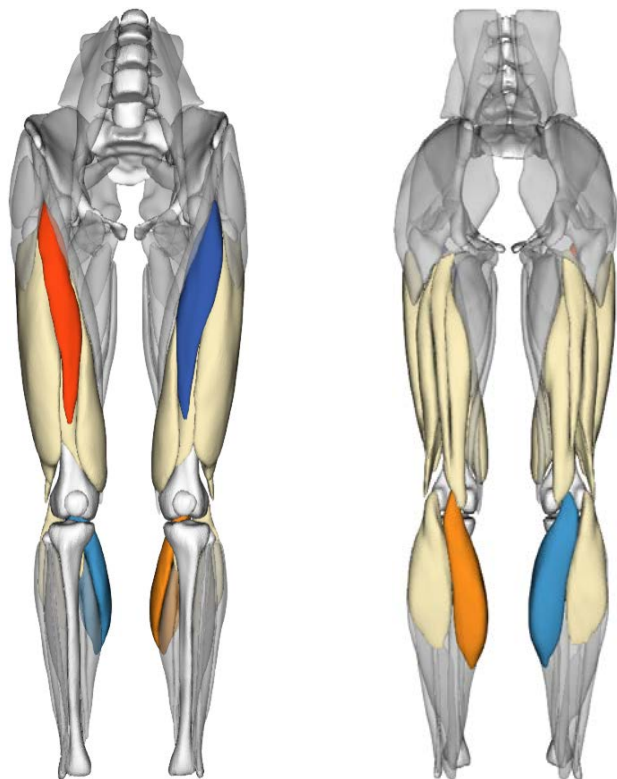


Height | 5ft 8in

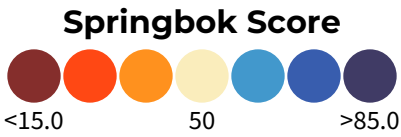
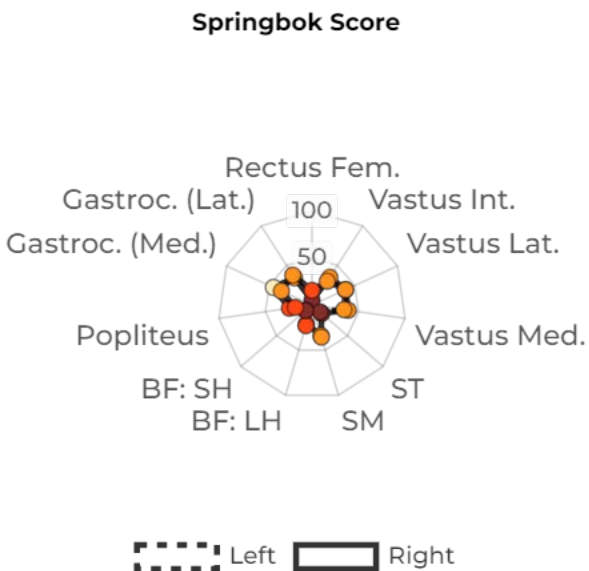
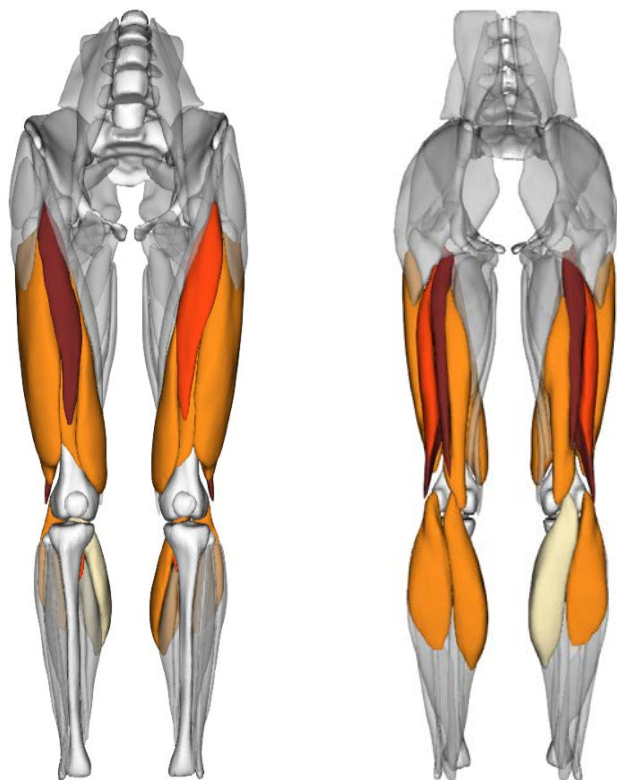
Weight | 151lbs

Scan Date | 02.21.2023

### Asymmetry Profile



### Development Profile



# Muscle-Level Metrics

## Ankle Muscles

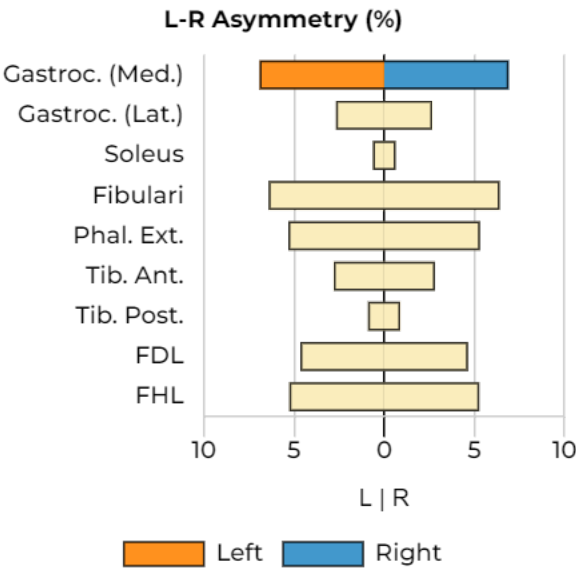
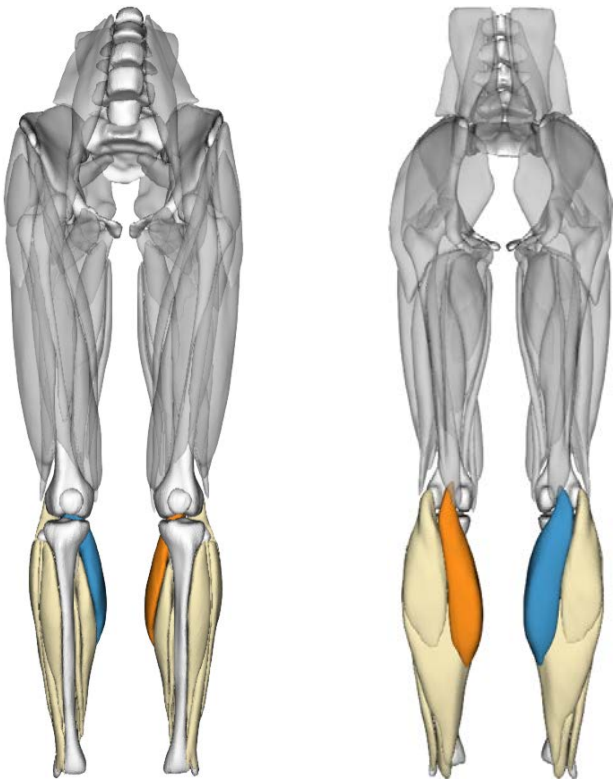


Height | 5ft 8in

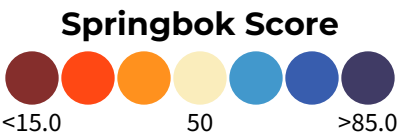
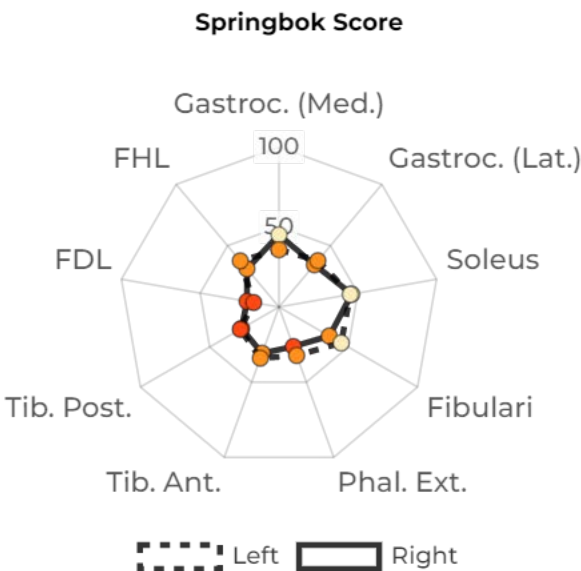
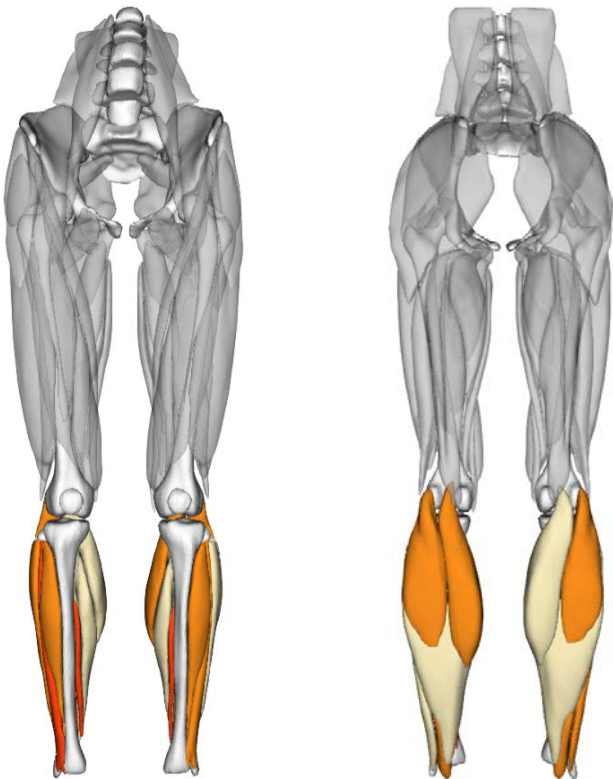
Weight | 151lbs

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### Asymmetry Profile



### Development Profile







# Interactive Viewer

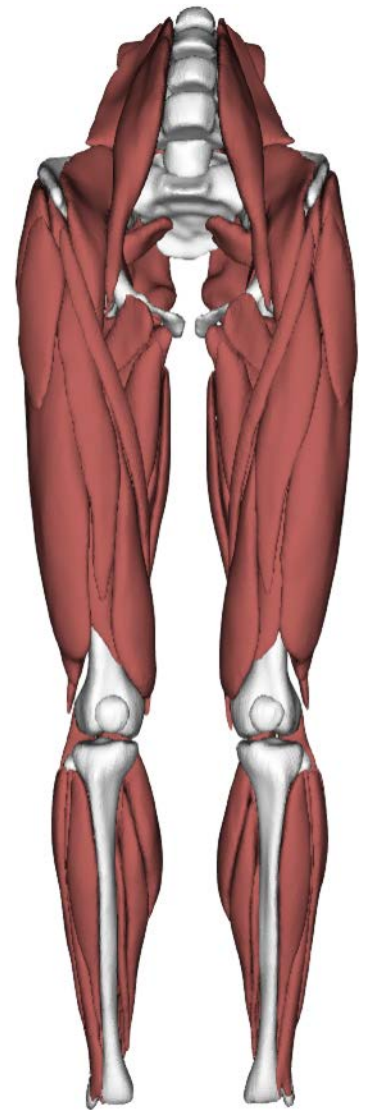
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For an interactive and in-depth view of your study, please visit the Interactive Viewer at [app.springbokanalytics.com](http://app.springbokanalytics.com).

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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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