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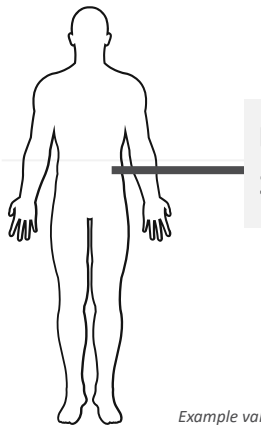
L3-SMI: A Body Composition Biomarker for Cachexia Assessment in Oncology Trials

What Is the Lumbar 3 Skeletal Muscle Index (L3-SMI) ?

Lumbar 3 Skeletal Muscle Index (L3-SMI) is an imaging-derived body-composition biomarker calculated from routine abdominal CT scans.

Quantifies skeletal muscle at the third lumbar (L3) vertebral level

Generates a standardized Skeletal Muscle Index (cm^2/m^2)

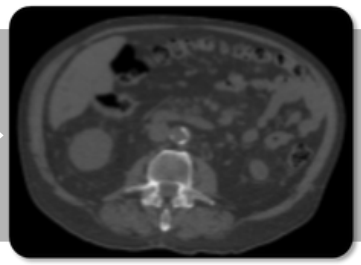


L3-SMI: 37.6 cm^2/m^2

Example value for illustration purposes only

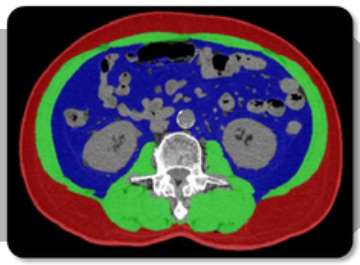
How L3-SMI Is Measured at Median[1]

1 Automated Identification



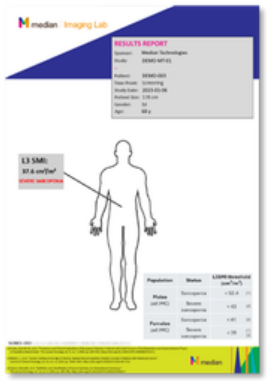
- AI algorithms automatically and precisely identify Lumbar 3 (L3) vertebral slices from standard abdominal–pelvic CT scans

2 Automated Segmentation



- Algorithm segments 3 key tissue compartments:
  - **Bone mass**
  - **Fat mass**
  - **Lean body mass**

3 Results Report



- A **full L3-SMI report** is generated
- Key output: L3-SMI (cm^2/m^2)

[1] Beaumont H, Khayat E, Thinnes A, Iannessi A. Technical performance of L3 skeletal muscle area (SMA) measurement on CT for L3 skeletal muscle index (L3SMI) assessment. ASCO Annual Meeting, 2025 (e-abstract).

About Imaging Lab: *Launched in 2022, Imaging Lab is part of Median's iCRO and focuses on oncology clinical trials, using AI, machine learning, and radiomics to extract insights from imaging and advance cancer drug development.*

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L3-SMI: A Body Composition Biomarker for Cachexia Assessment in Clinical Trials

Why Cachexia Matters in Drug Development?

Cancer-related cachexia is driven by progressive muscle loss, often independent of weight change, and is frequently overlooked by standard trial endpoints. Unmeasured cachexia can:

- **Reduce Tolerance to Treatment**
- **Increase Treatment Toxicity**
- **Predict Poor Survival**

How L3-SMI Supports Cachexia Assessment in Oncology Clinical Trials

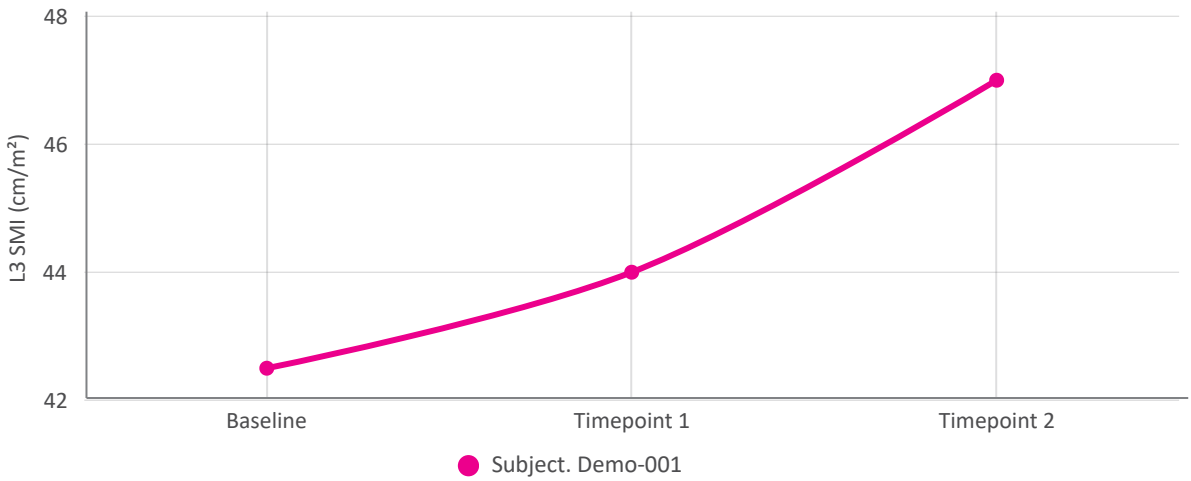
1 Baseline Assessment & Triage

- Enables objective muscle and fat profiling at baseline
- Improves patient stratification beyond Body Mass Index
- Supports Phase I/II enrollment and decision-making

2 Longitudinal Monitoring of Treatment Effects

- Tracks muscle and fat changes quantitatively over time
- Differentiates true muscle gain from simple weight gain
- Demonstrates treatment impact on cachexia progression

Illustrative Longitudinal L3-SMI Monitoring in Cachexia



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