SINPE
Società Italiana di Nutrizione Artificiale e Metabolismo

26-28 ottobre 2023

# INCREASE MALNUTRITION AWARENESS: CHALLENGE FOR THE FUTURE

CONGRESSO NAZIONALE

## "PREVALENCE OF SARCOPENIA IN PATIENTS WITH BREAST CANCER AND OVERWEIGHT AND OBESITY. PRELIMINARY RESULTS"

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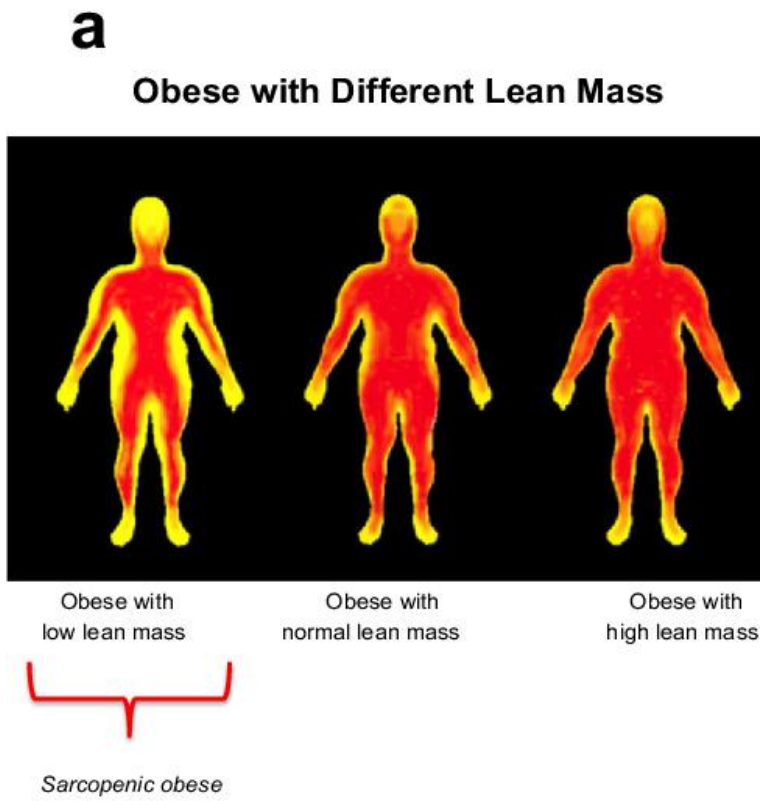
# LE APPARENZE INGANNANO




*Adapted from Prado CM, Gonzalez MC, Heymsfield SB. Body composition phenotypes and obesity paradox. Curr Opin Clin Nutr Metab Care. 2015;18(6):535–51 with permission.*

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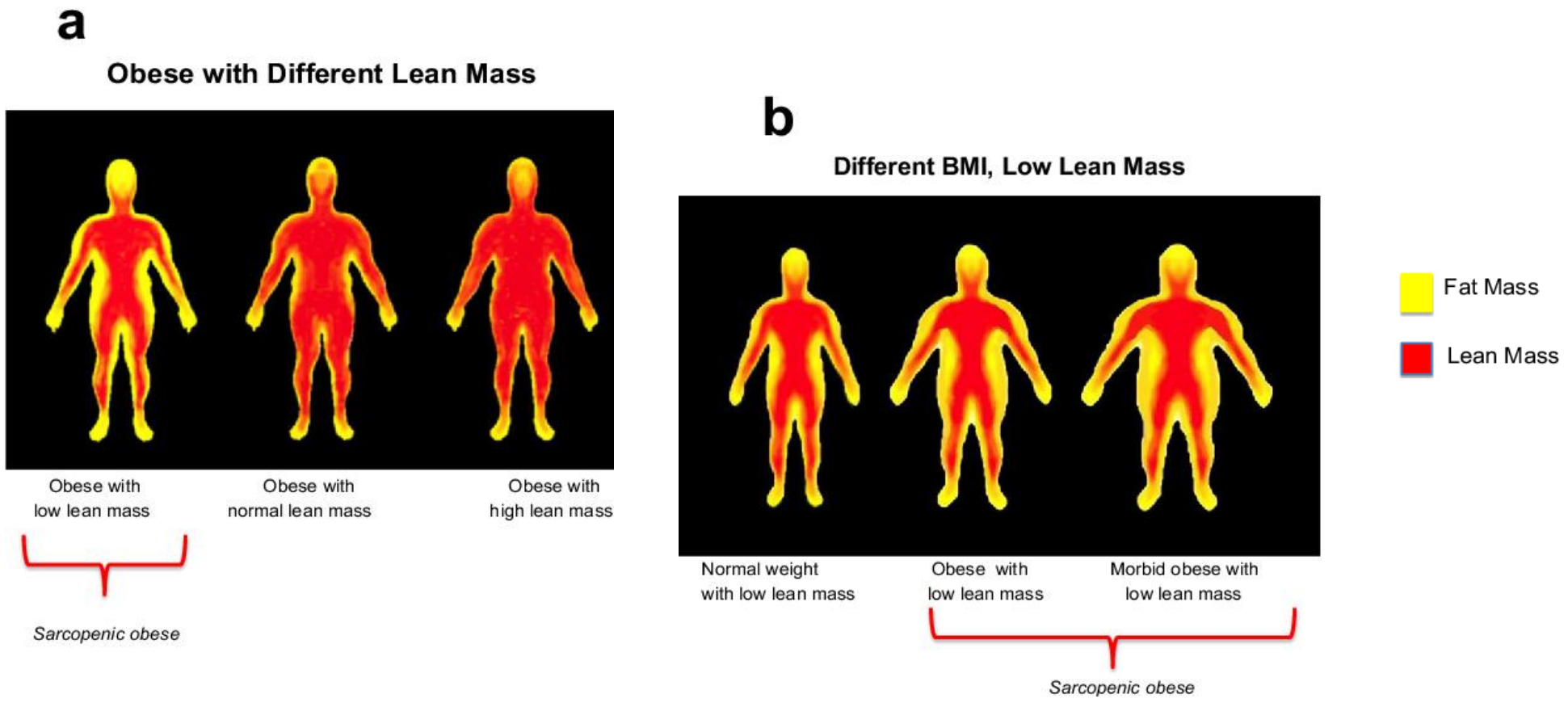


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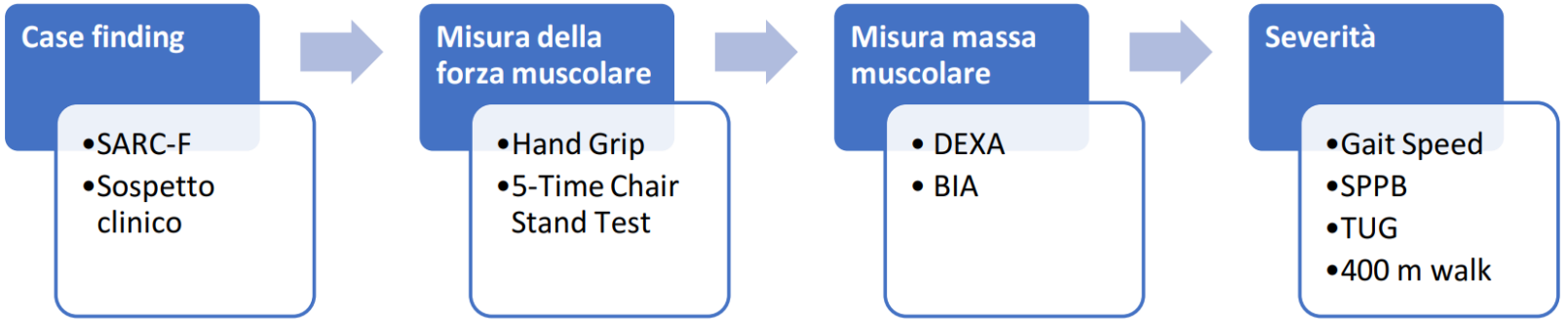
# LA DIAGNOSI DI SARCOPENIA



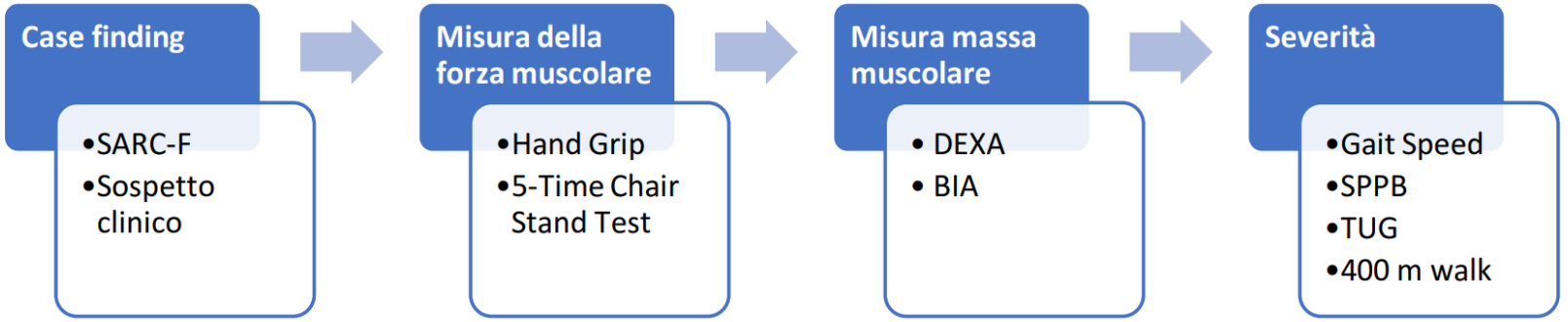

Cut-off diagnostici utilizzati nella diagnosi di sarcopenia secondo i criteri EWGSOP-2 e AWGS 2019.

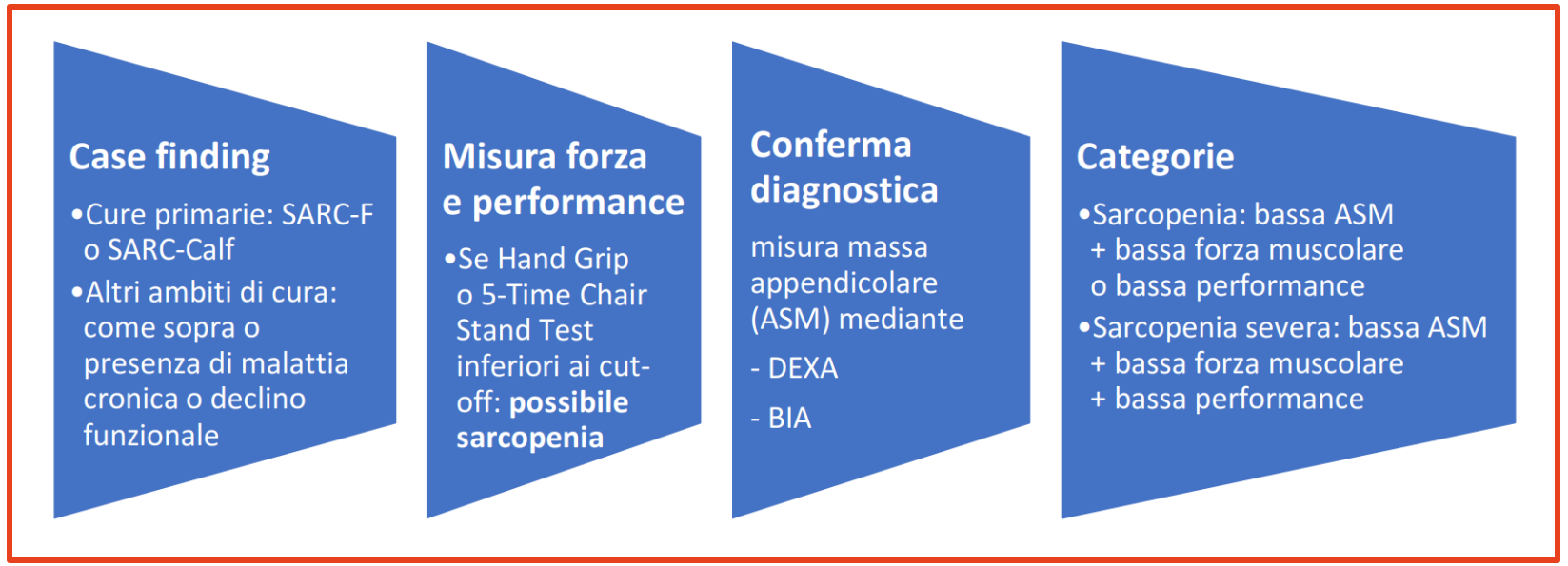
| Parametro | EWGSOP-2 | | AWGS 2019 | |
|---|---|---|---|---|
| | Uomini | Donne | Uomini | Donne |
| *Hand Grip* | < 27 kg | < 16 kg | < 28 kg | < 18 kg |
| *5-Time Chair Stand Test* | > 15 sec | | ≥ 12 sec | |
| ASM | < 20 kg | < 15 kg | | |
| ASM/altezza$^2$ | < 7 kg/m$^2$ | < 5,5 kg/m$^2$ | < 7 kg/m$^2$ | DEXA < 5,4 kg/m$^2$<br>BIA < 5,7 kg/m$^2$ |
| *Gait Speed* | ≤ 0,8 m/sec | | < 1,0 m/sec | |
| *Short Physical Performance Battery* | ≤ 8 | | ≤ 9 | |
| *Timed Up & Go* | ≥ 20 sec | | | |
| *400 m Walk Test* | ≥ 6 min o incapace | | | |

ASM: *Appendicular Skeletal Mass* (massa muscolare scheletrica appendicolare); DEXA: *Dual-Energy X-ray Absorptiometry*; BIA: bio-impedenzometria.

*Da: "ABC Della Diagnostica: Aggiornamenti In Tema Di Diagnosi Della Sarcopenia"*
Alberto Cella, Alberto Pilotto

# LA DIAGNOSI DI SARCOPENIA




*Da: "ABC Della Diagnostica: Aggiornamenti In Tema Di Diagnosi Della Sarcopenia"*
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# IL RAZIONALE DEGLI US

GUIDELINES

## Sarcopenia: revised European consensus on definition and diagnosis

*Ultrasound assessment of muscle*

Ultrasound is a widely used research technique to measure muscle quantity, to identify muscle wasting, and also as a measure of muscle quality. It is reliable and valid and is starting to be used at the bedside by trained clinicians. Ultrasound is accurate with good intra- and inter-observer reliability, even in older subjects [112]. Assessment of pennate muscles such as the quadriceps femoris can detect a decrease in muscle thickness and cross-sectional area within a relatively short period of time, thus suggesting potential for use of this tool in clinical practice, including use in the community [112, 113].

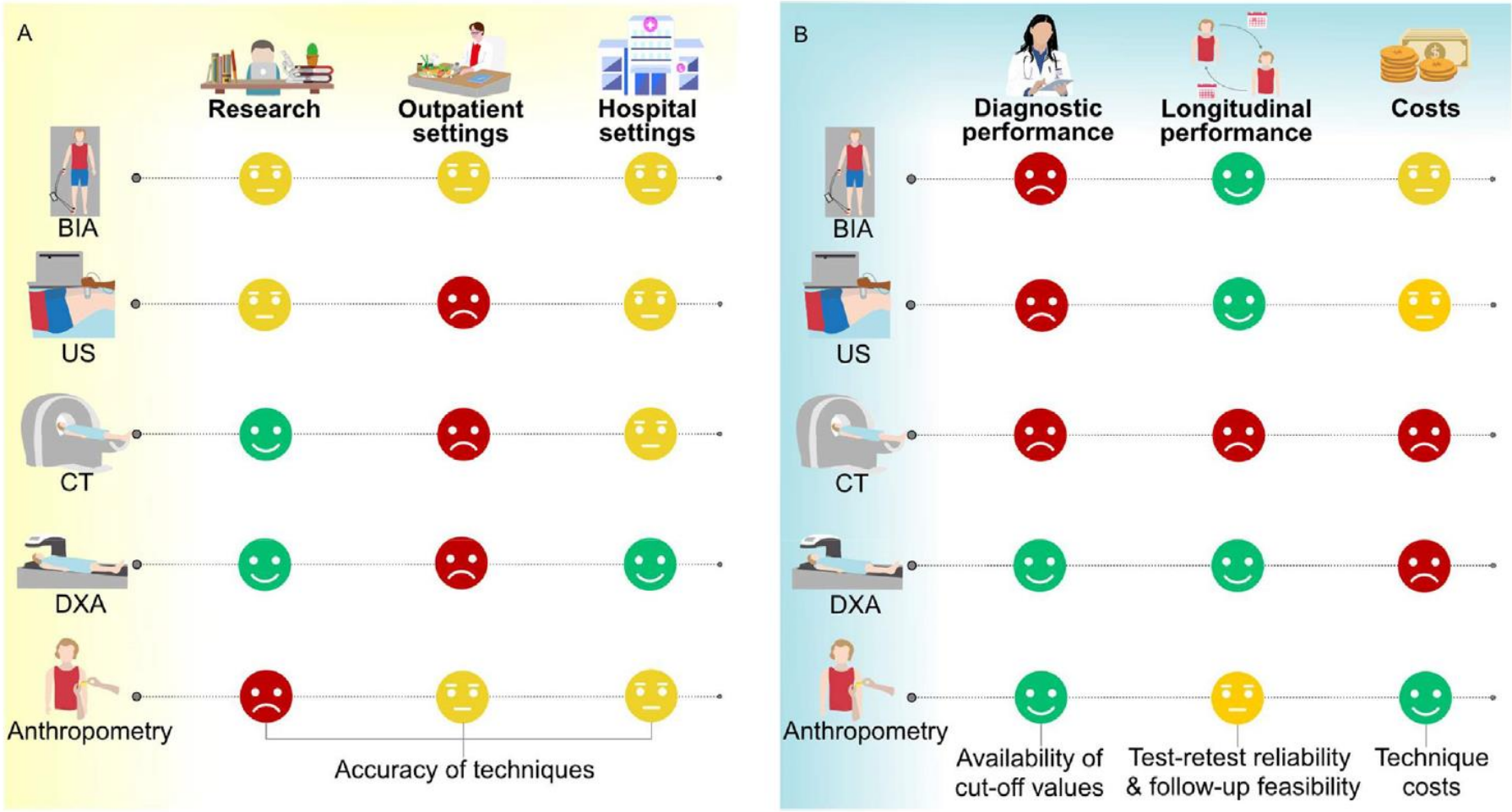
The use of ultrasound has recently been expanded in clinical practice to support the diagnosis of sarcopenia in older adults. The EuGMS sarcopenia group recently proposed a consensus protocol for using ultrasound in muscle assessment, including measurement of muscle thickness, cross-sectional area, fascicle length, pennation angle and echogenicity [114]. Echogenicity reflects muscle quality, since non-contractile tissue associated with myosteatosis shows hyper-echogenicity [115, 116]. Thus, ultrasound has the advantage of being able to assess both muscle quantity and quality.

A systematic review on the use of ultrasound to assess muscle in this population concluded that the tool was reliable and valid for the assessment of muscle size in older adults, including those with comorbid conditions such as coronary artery disease, stroke, and chronic obstructive pulmonary disease [117]. Ultrasound was shown to have good validity to estimate muscle mass as compared to DXA, MRI and CT. While data are available for older adults, more research is needed to validate prediction equations for those with varying health conditions and functional status [116–119].

**Alternative or new tests and tools**

A variety of methods are being used or evaluated to determine the quantity and quality of muscle and impact of sarcopenia on the patient's QoL. These diagnostic measures are being tested for validity, reliability and accuracy and may play a relevant role in the future. For use in practice, tools need to be cost-effective, standardised and repeatable by practitioners in a variety of clinical settings and across different patient populations [78, 93].

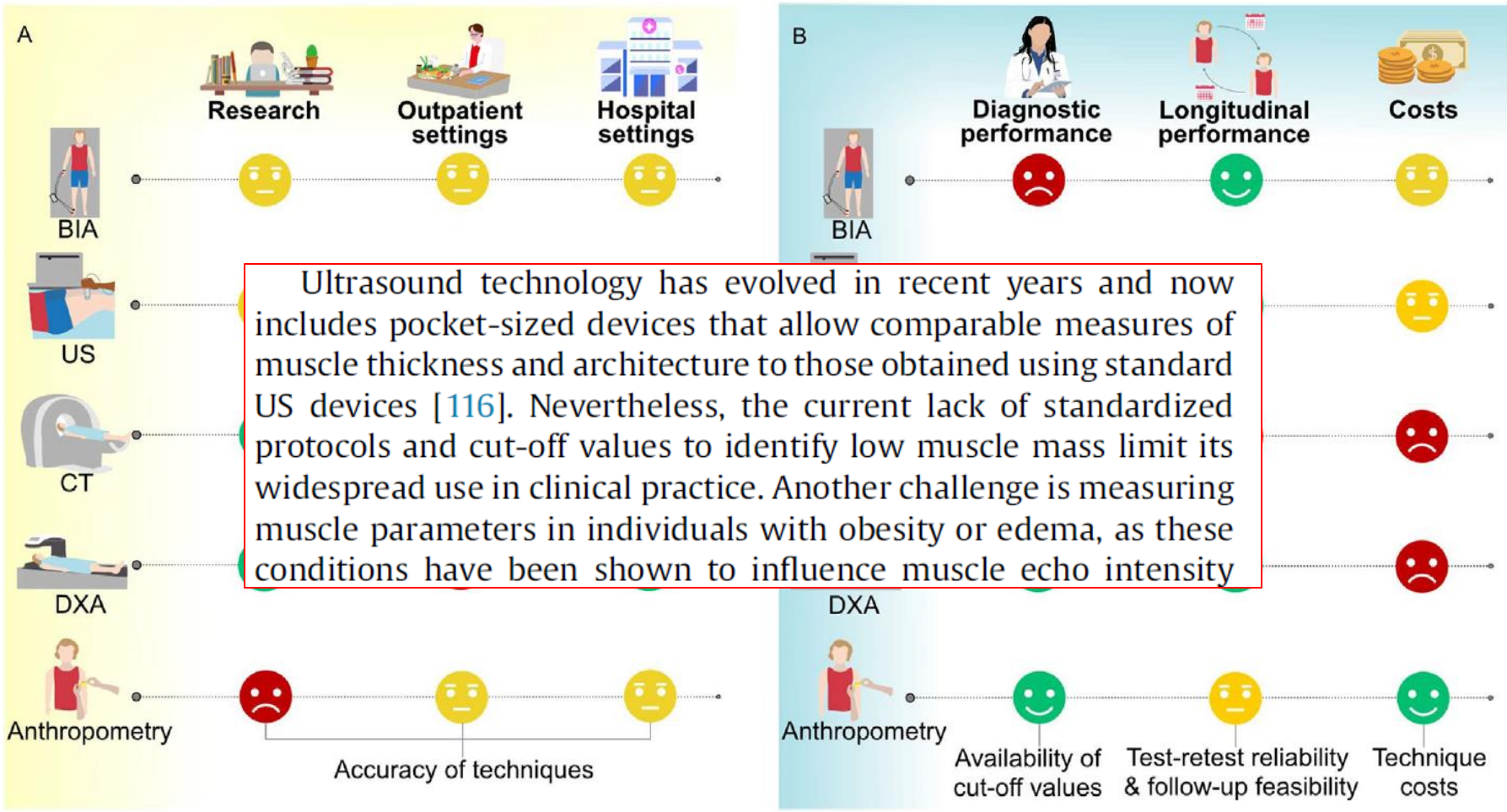
# METODICHE A CONFRONTO




Narrative Review

Advances in muscle health and nutrition: A toolkit for healthcare professionals

# METODICHE A CONFRONTO




Ultrasound technology has evolved in recent years and now includes pocket-sized devices that allow comparable measures of muscle thickness and architecture to those obtained using standard US devices [116]. Nevertheless, the current lack of standardized protocols and cut-off values to identify low muscle mass limit its widespread use in clinical practice. Another challenge is measuring muscle parameters in individuals with obesity or edema, as these conditions have been shown to influence muscle echo intensity

Narrative Review

Advances in muscle health and nutrition: A toolkit for healthcare professionals

# METODICHE A CONFRONTO: PRO E CONTRO DEGLI US

**Table 1** Advantages and disadvantages of the main imaging tools for the assessment of body composition and mass/fat assessment

| Technique | Strengths | Weak points | Measurements |
|---|---|---|---|
| DXA | • Fast acquisition<br>• Widely available<br>• Accurate and reproducible<br>• Validated cut-off values<br>• Minimal irradiation<br>• Cheap | • Different results varying the densitometer brands<br>• Dependent by hydration status<br>• Bidimensional data | • Appendicular lean mass (ALM)<br>•Appendicular lean mass index (ALMI) |
| CT | • Fast acquisition<br>• Widely available<br>• Accurate and reproducible<br>• High spatial resolution | • Non-negligible irradiation<br>• Cut-off values are still not used in clinical practice<br>• Expensive<br>• Time-consuming segmentation process | • CSA indexed by height$^2$ (SMI)<br>• Attenuation values |
| MRI | • Accurate and reproducible<br>• No irradiation<br>• High contrast resolution<br>• Capability to identify muscle oedema and fat infiltration<br>• Promising advanced sequences | • Long acquisition time<br>• No validated cut-off values for sarcopenia<br>• Expensive<br>• Lower availability<br>• Long post-processing of advanced sequences | • CSA indexed by height$^2$ (SMI)<br>• Fat content on DIXON<br>• Experimental measurements of advanced sequences (ADC, FA, T2 relaxation time..) |
| US | • Fast acquisition<br>• Widely available<br>• No irradiation exposure<br>• Cheap<br>• Real-time imaging | • Scarcely reproducible<br>• Poor accuracy<br>• No validated cut-off values for sarcopenia | • CSA indexed by height$^2$ (SMI)<br>• Muscle thickness and echogenicity |

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# PUNTI DI REPERE: DOVE E COME?

## Application of ultrasound for muscle assessment in sarcopenia: 2020 SARCUS update

**Table 3** Proposed anatomical landmarks for each muscle of the lower extremity discussed

| | Proximal landmark | Distal landmark | Exact point | Remark |
|---|---|---|---|---|
| *Upper leg muscles* | | | | |
| Gluteus medius | Top point of the iliac wing (femur-line, neutral position) | Medial surface of the trochanter major | 50% | LNP |
| Semimembranosus | Ischial tuberosity | Most medial part of articular cleft of knee | | |
| Semitendinosus | | | | |
| Biceps femoris | | Proximal head of fibula | | |
| Rectus femoris | Greater trochanter | Proximal patella border | | |
| Vastus intermedius | | | | |
| Vastus lateralis | | | | |
| *Lower leg muscles* | | | | |
| Soleus | Middle point of the knee cavity | Insertion of Achilles tendon on calcaneus | Proximal 30% | Sitting position* |
| Lateral gastrocnemius | Most lateral point of articular cleft of the knee | Most lateral top of the lateral malleolus | | |
| Medial gastrocnemius | Most medial point of articular cleft of the knee | Most medial top of the medial malleolus | | |
| Tibialis anterior | Most lateral point of articular cleft of the knee | | | |
| Tibialis posterior | Middle point of the knee cavity | Insertion of Achilles tendon on calcaneus | | |
| Flexor digitorum longus | | | | |
| Flexor hallucis longus | Most lateral point of articular cleft of the knee | | | |
| *Foot muscles* | | | | |
| Flexor hallucis brevis | Proximal end of first MT | Distal end of first MT | 50% | TBV |
| Abductor hallucis | Medial calcaneal tuberosity | | | |
| The major belly of flexor digitorum brevis | | Distal end of third MT | | |
| Abductor digiti minimi | | Lateral part of distal end of fifth MT | | |

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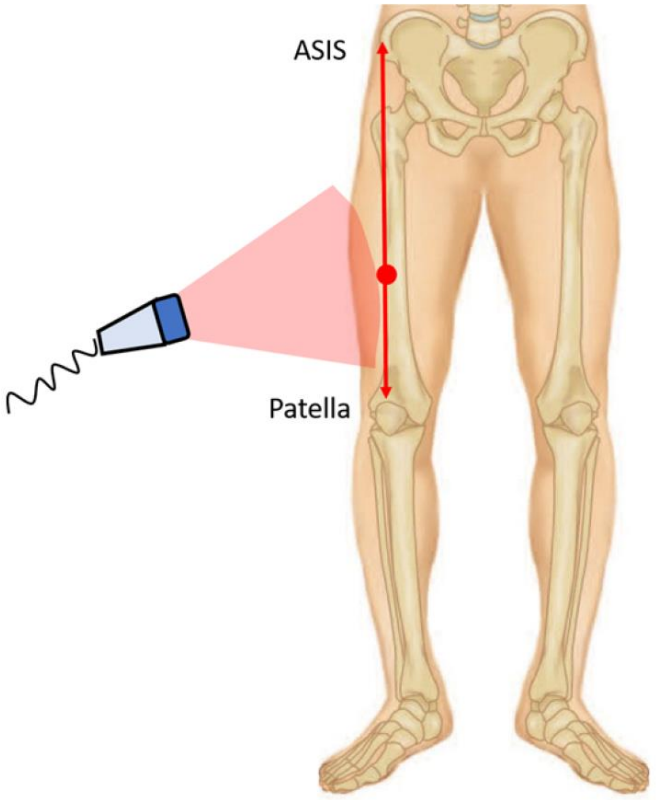
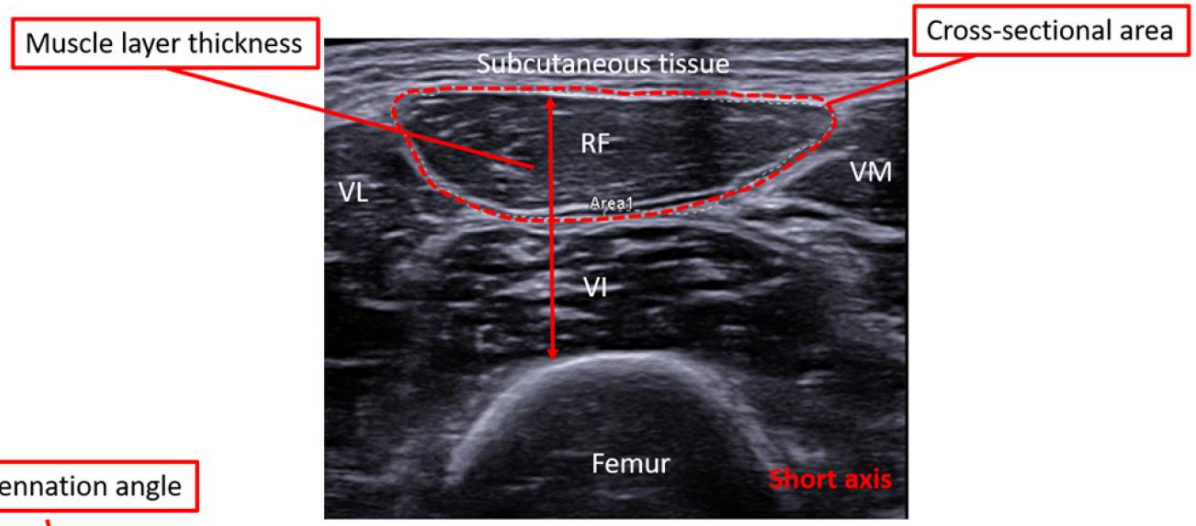
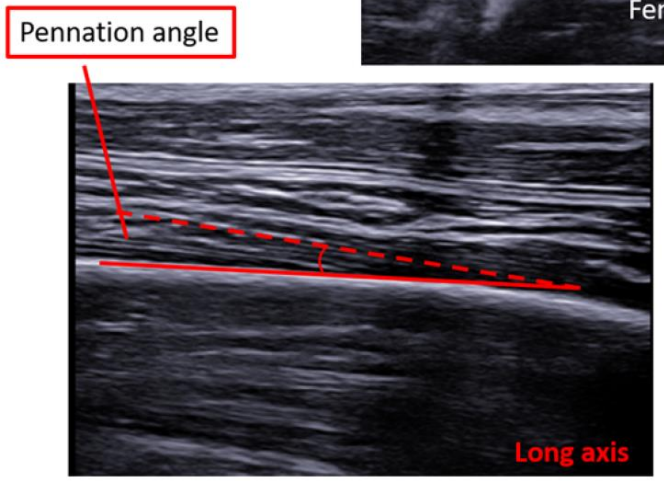
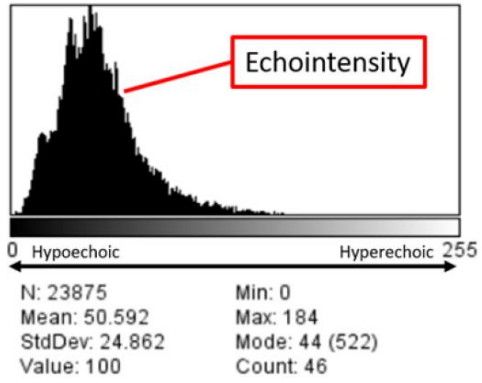
# COSA VALUTARE CON GLI US




*Diagnostics* **2023**, *13*, 888

# LA LETTERATURA SU SARCOPENIA ED US


**Table 1** Summary of studies regarding diagnostic performance of ultrasound for sarcopenia

| Study | Country | Population | Age, years | *N* (men: women) | Reference standards | Probe | Axis | Measured body side | Index test | Cutoff value | AUC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aycicek 2019[23] | Turkey | Geriatric outpatients | 74 | 136 (46:90) | EWSGOP2-defined sarcopenia | Linear, 5–12 MHz | NA | NA | GM MT | 12.3 mm | M: 0.90<br>F: 0.86 |
| Barotsis 2020[24] | Greece | Healthy older adults | 75.6 | 94 (27:67) | EWSGOP2-defined sarcopenia | Linear, 10 MHz | Trans | D | VI MT | 10.1 mm | 0.67 |
| | | | | | | | Long | D | VI MT | 10 mm | 0.67 |
| | | | | | | | Long | ND | VI MT | 11.3 mm | 0.66 |
| | | | | | | | Trans | ND | RF MT | 15.4 mm | 0.67 |
| | | | | | | | Long | ND | RF MT | 15.9 mm | 0.68 |
| | | | | | | | Trans | D | RF + VI MT | 26.2 mm | 0.68 |
| | | | | | | | Long | D | RF + VI MT | 28.4 mm | 0.67 |
| | | | | | | | Trans | ND | RF + VI MT | 28 mm | 0.66 |
| | | | | | | | Long | ND | RF + VI MT | 26.1 mm | 0.69 |
| | | | | | | | Trans | D | GM MT | 16.5 mm | 0.69 |
| | | | | | | | Long | D | GM MT | 16.1 mm | 0.70 |
| | | | | | | | Trans | ND | GM MT | 16.3 mm | 0.74 |
| | | | | | | | Long | ND | GM MT | 17.2 mm | 0.73 |
| | | | | | | | Sagittal | NA | GHY MT | 6.5 mm | 0.79 |
| Kuyumcu 2016[25] | Turkey | Healthy older adults | 73.1 | 100 (41:59) | EWSGOP1-defined sarcopenia | Linear, 5–12 MHz | NA | L | GM MT | 17.1 mm | 0.78 |
| | | | | | | | | R | GM MT | 16.9 mm | 0.83 |
| | | | | | | | | L | GM FL | 34.7 mm | 0.80 |
| | | | | | | | | R | GM FL | 36.2 mm | 0.78 |
| Sari 2020[26] | Turkey | Patients with systemic sclerosis | 52.6 | 93 (7:86) | LMM-defined sarcopenia | Linear, 9–12 MHz | NA | R | RA MT | 7.5 mm | 0.76 |
| | | | | | | | | | TA MT | 3.3 mm | 0.68 |
| | | | | | | | | | GM MT | 14.7 mm | 0.85 |
| Yuguchi 2020[27] | Japan | Healthy older adults | 72.4 | 195 (72:123) | LMM-defined sarcopenia | Linear, 6 MHz | NA | R | GM MT | 11.6 mm | 0.83 |
| Isaka 2019[28] | Japan | Healthy older adults | 75.8 | 60 (60:0) | LMM-defined sarcopenia | Linear, 8 MHz | Trans | NA | GM MT | 14.4 mm | 0.48 |
| | | | | | | | | | SOL MT | 22.9 mm | 0.76 |
| | | | | | | | | | TIA MT | 14.4 mm | 0.82 |
| Wang 2018[29] | China | Healthy older adults | 71.3 | 135 (39:96) | LMM-defined sarcopenia | NA | Trans | R | GM MT | 15 mm | 0.82 |
| Fukumoto 2021[30] | Japan | Healthy older adults | 75.4 | 204 (64:140) | LMM-defined sarcopenia | Linear, 8–12 MHz | Trans | NA | RF MT | M: 15.1 mm<br>F: 14.3 mm | M: 0.78<br>F: 0.65 |
| | | | | | | | | | VI MT | M: 11.5 mm<br>F: 9.1 mm | M: 0.67<br>F: 0.71 |
| | | | | | | | | | RF + VI MT | M: 28.8 mm<br>F: 23.4 mm | M: 0.78<br>F: 0.75 |
| | | | | | | | | | GM MT | M: 15.3 mm<br>F: 14.2 mm | M: 0.80<br>F: 0.75 |
| | | | | | | | | | SOL MT | M: 41.6 mm<br>F: 37.5 mm | M: 0.78<br>F: 0.65 |
| | | | | | | | | | GM + SOL MT | M: 56.7 mm<br>F: 53.7 mm | M: 0.84<br>F: 0.73 |
| | | | | | | | | | RF + VI | M: 84.8 mm | M: 0.85 |
| | | | | | | | | | GM + SOL MT | F: 76.2 mm | F: 0.78 |

(*Continues*)

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Diagnostic test accuracy of ultrasound for sarcopenia diagnosis: A systematic review and meta-analysis

# LA LETTERATURA SU SARCOPENIA ED US


Table 1 (continued)

| Study | Country | Population | Age, years | *N* (men: women) | Reference standards | Probe | Axis | Measured body side | Index test | Cutoff value | AUC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Matsuzawa 2021[31] | Japan | Haemodialysis patients | 77.5 | 58 (36:22) | LMM-defined sarcopenia | Linear, 4–11 MHz | Trans | NA | RF CSA | M: 1.88 $cm^2$<br>F: 1.43 $cm^2$ | M: 0.88<br>F: 0.74 |
| Wilkinson 2021[32] | England | Patients with chronic kidney disease | 62 | 113 (54:59) | LMM-defined sarcopenia | Linear, 7.5 MHz | Trans | R | RF CSA | M: 6.7 $cm^2$<br>F: 5.7 $cm^2$ | M: 0.70<br>F: 0.90 |
| Sato 2020[33] | Japan | Heart failure patients | 74 | 69 (NA:NA) | AWGS 2014-defined sarcopenia | Linear, 12 MHz or sector | Trans | R | RF MT | 15 mm | 0.80 |
| Rustani 2019[34] | Italy | Internal medicine patients | 82.8 | 119 (59:60) | EWGSOP1-defined sarcopenia | Linear, 5–7.5 MHz | Trans | R | RF MT | NA | 0.9 |
| Hida 2018[35] | Japan | Healthy older adults | 66.2 | 201 (99:102) | LMM-defined sarcopenia | Linear, 5–18 MHz | Trans | R | RF + VI MT | M: 36 mm<br>F: 34 mm | M: 0.71<br>F: 0.74 |
| Tada 2021[36] | Japan | Rheumatoid arthritis patients | 66.5 | 84 (18:66) | AWGS 2014-defined sarcopenia | Linear, 5–18 MHz | Trans | NA | RF + VI MT | M: 24.7 mm<br>F: 19.7 mm | M: 0.83<br>F: 0.75 |
| Yoshida 2020[37] | Japan | Rheumatoid arthritis patients | NA | 78 (0:78) | AWGS 2014-defined sarcopenia | Linear, 9.0 MHz | NA | Mean values of the left and right sides | BB rcEI + CSA<br>BB rcEI<br>BB CSA<br>RF rcEI + CSA<br>RF rcEI<br>RF CSA | NA | 0.85<br>0.69<br>0.81<br>0.85<br>0.67<br>0.78 |
| Álvarez 2021[38] | Spain | Healthy older adults | 78.9 | 57 (24:33) | LMM-defined sarcopenia | Linear, 11.5 MHz | Trans Long | D | GM MT<br>GM MT | 18.5 mm<br>17.3 mm | 0.79<br>0.83 |
| Yamada 2017[39] | Japan | Healthy older adults | 80.2 | 347 (100:247) | LMM-defined sarcopenia | Linear, 7.5 MHz | NA | NA | RF MT<br>VI MT<br>RF + VI MT<br>RF EI<br>VI EI<br>RF + VI EI | M: 13.4 mm<br>F: 11.8 mm<br>M: 14.4 mm<br>F: 11.7 mm<br>M: 28.8 mm<br>F: 23.3 mm<br>M: NA<br>F: 58.2<br>NA<br>NA | M: 0.70<br>F: 0.63<br>M: 0.66<br>F: 0.61<br>M: 0.68<br>F: 0.62<br>M: 0.52<br>F: 0.61<br>M: 0.48<br>F: 0.50<br>M: 0.49<br>F: 0.43 |

Abbreviations: AUC, area under the curve; AWGS, Asian Working Group for Sarcopenia; BB, *biceps brachii*; CSA, cross-sectional area; D, dominant side; EI, echo intensity; EWGSOP, European Working Group on Sarcopenia in Older People; F, female; FL, fascicle length; GHY, *geniohyoid*; GM, *gastrocnemius*; L, left; LMM, low muscle mass; Long, longitudinal ultrasound scan; M, male; MT, muscle thickness; *N*, sample size of the study; NA, not available; ND, non-dominant side; R, right; RA, *rectus abdominis*; rcEI, recorrected EI; RF, *rectus femoris*; SOL, *soleus*; TA, *transversus abdominis*; TIA, *tibialis anterior*; Trans, transverse ultrasound scan; VI, *vastus intermedius*.

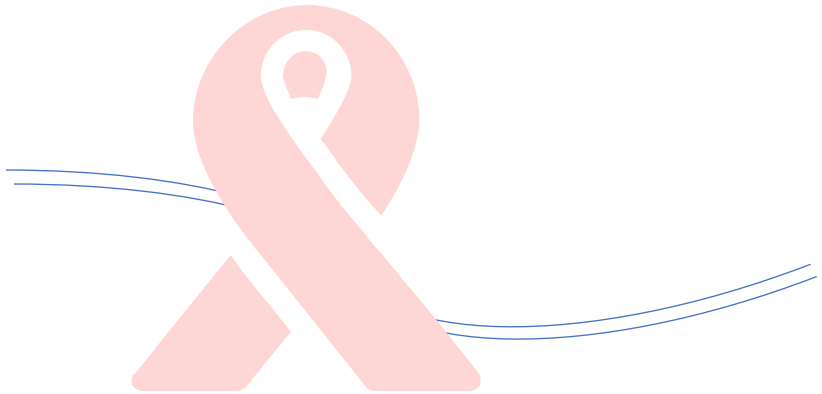
# RAZIONALE E OBIETTIVO DELLO STUDIO

**Razionale:**

- Elevata prevalenza di sarcopenia in pazienti oncologici
- Evidenze di correlazioni negative tra obesità e BC
- Elevata frequenza ambulatoriale di pazienti con storia di BC e sovrappeso/obesità spesso già pregressa alla malattia o scaturita nel corso delle cure (OT+)
- Pochi dati sulla prevalenza di sarcopenia in pazienti con BC sovrappeso o obese
- Pochi dati (e cut-off) su diagnosi di sarcopenia con metodica US nello specifico in pazienti oncologici, ancor meno in pazienti con BC

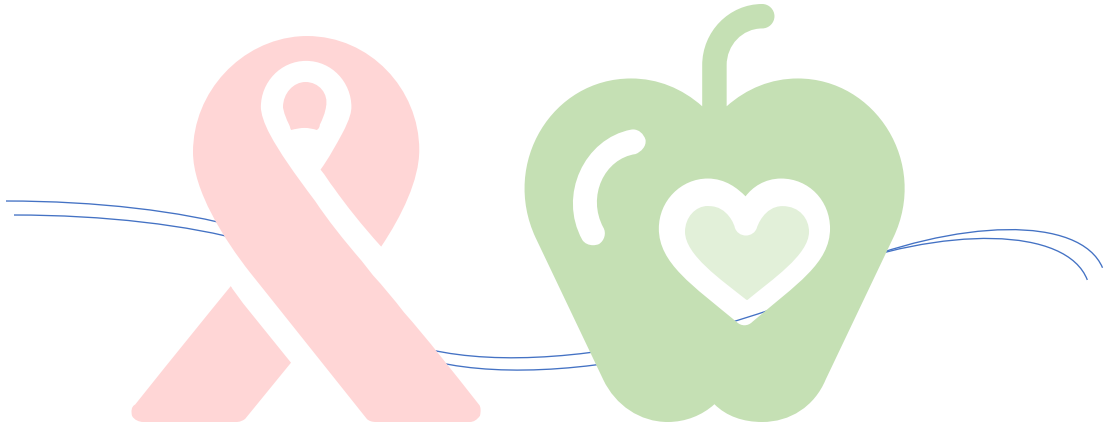
**Obiettivo:** definire la prevalenza della sarcopenia in pazienti con sovrappeso o obesità affette da tumore della mammella in terapia attiva antineoplastica.

# LO STUDIO



**PAZIENTI CON STORIA DI TUMORE AL SENO IN TERAPIA**

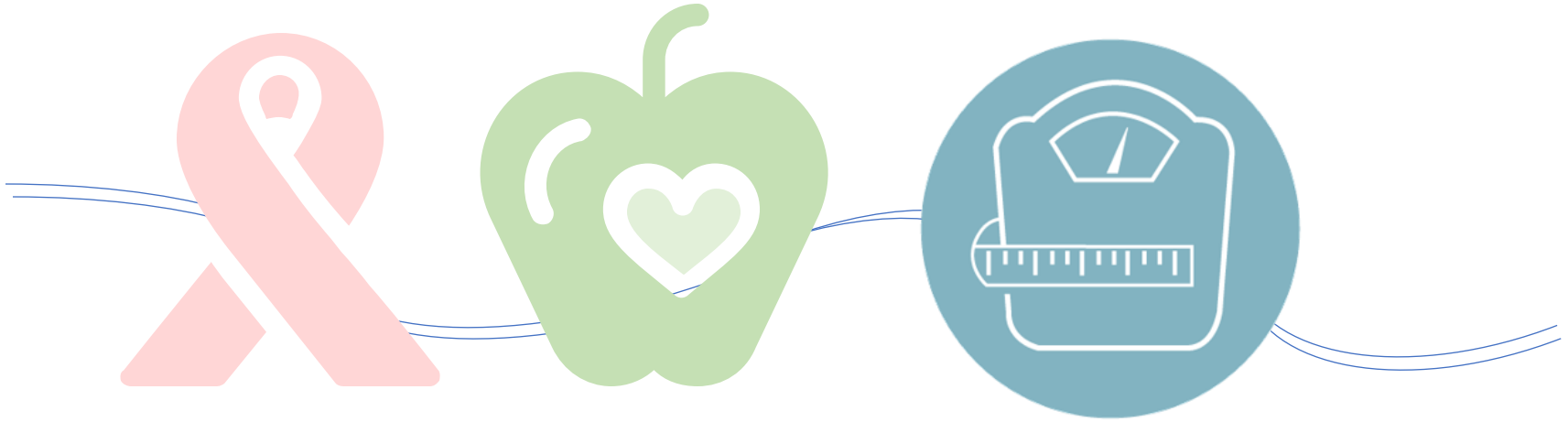
# LO STUDIO



**PAZIENTI CON STORIA DI TUMORE AL SENO IN TERAPIA**

**VALUTATE ALLA PRESA IN CARICO NUTRIZIONALE**

# LO STUDIO

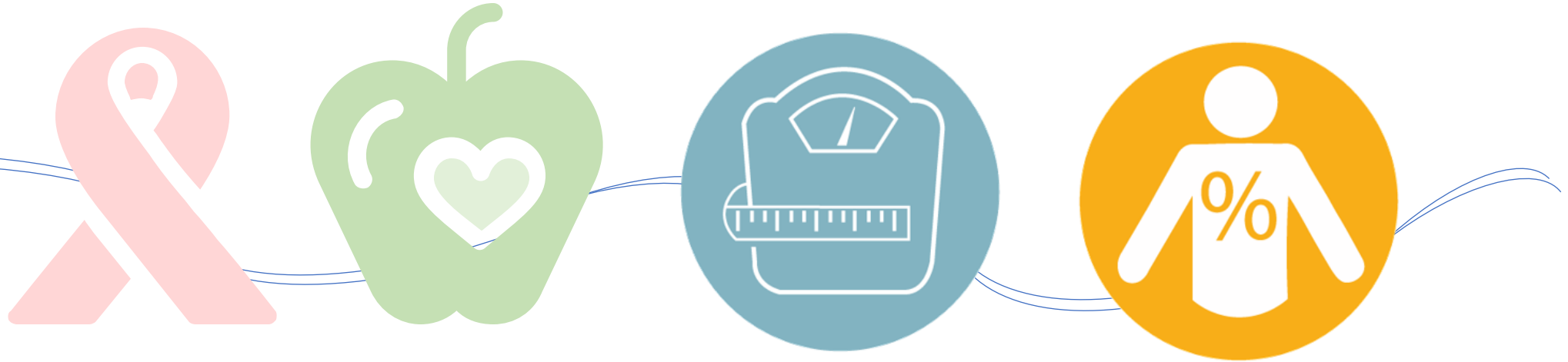


**PAZIENTI CON STORIA DI TUMORE AL SENO IN TERAPIA**

**VALUTATE ALLA PRESA IN CARICO NUTRIZIONALE**

**AFFETTE DA SOVRAPPESO O OBESITA'**

# LO STUDIO



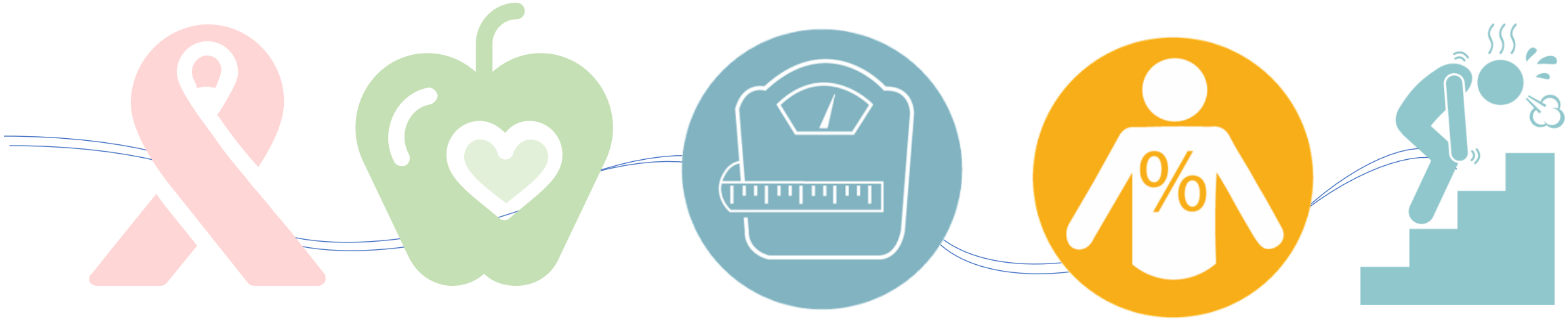

**PAZIENTI CON STORIA DI TUMORE AL SENO IN TERAPIA**

**VALUTATE ALLA PRESA IN CARICO NUTRIZIONALE**

**AFFETTE DA SOVRAPPESO O OBESITA'**

**VALUTATE DAL PUNTO DI VISTA DELLA COMPOSIZIONE CORPOREA**

# LO STUDIO



PAZIENTI CON STORIA DI TUMORE AL SENO IN TERAPIA

VALUTATE ALLA PRESA IN CARICO NUTRIZIONALE

AFFETTE DA SOVRAPPESO O OBESITA'

VALUTATE DAL PUNTO DI VISTA DELLA COMPOSIZIONE CORPOREA

E PER IL RISCHIO DI SARCOPENIA

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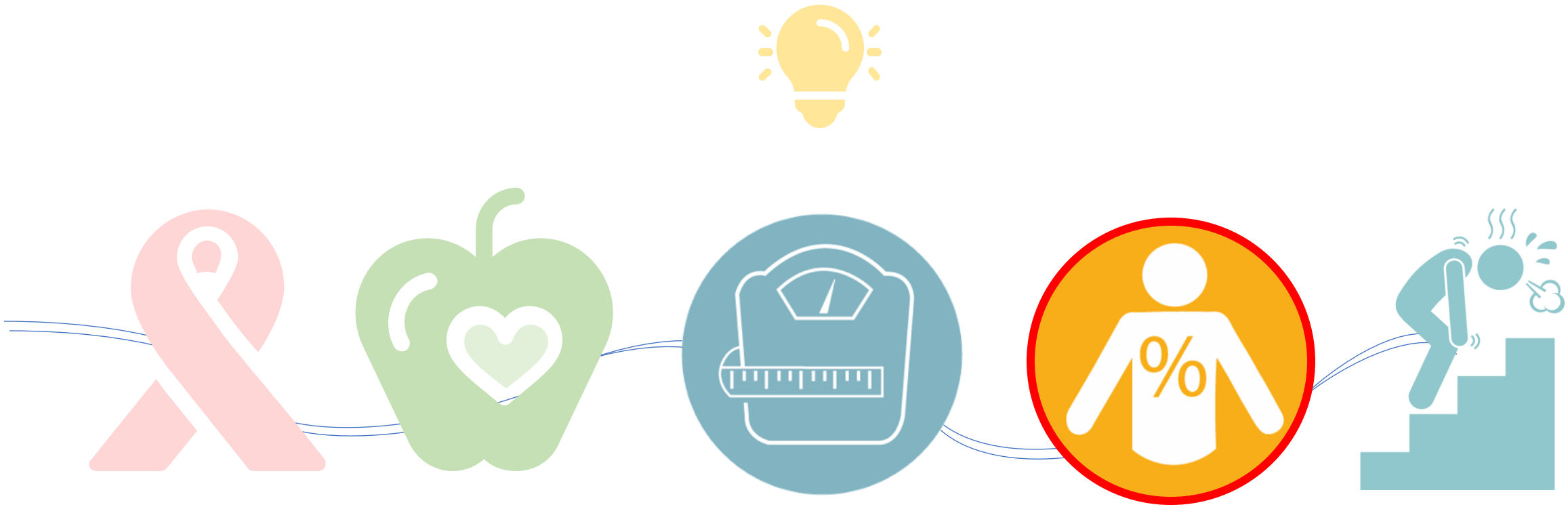

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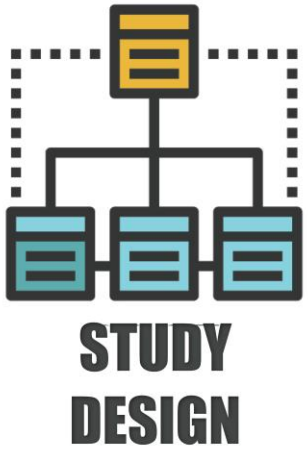
# METODI DELLO STUDIO




**Disegno dello studio:** studio di coorte prospettico

**Numerosità campionaria*:** al termine, necesssarie 784 pz (arrot.800).

*La dimensione del campione è stata stimata mediante la formula proposta da Daniel (Daniel WW (1999). Biostatistics: A Foundation for Analysis in the Health Sciences. 7th edition. New York: John Wiley & Sons.) ipotizzando una possibile prevalenza di sarcopenia pari a circa 15% e fissando al 5% l'ampiezza desiderata dell'intervallo di confidenza al 95% della stima.

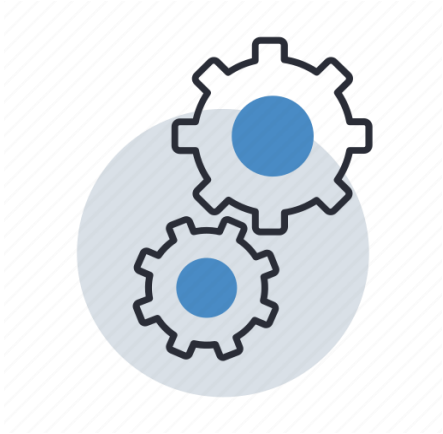
**Criteri di inclusione:**

- Sovrappeso (BMI > 25 kg/m$^2$ e <30 kg/m$^2$) o obesità (BMI ≥30 kg/m$^2$)
- Sesso femminile con età 18-65y
- Diagnosi di tumore della mammella in follow up oncologico con presa in carico dietologica in corso di terapia attiva antineoplastica valutate presso l'Ambulatorio dedicato dell'unità di Senologia dell'AOU Città della Salute e della Scienza di Torino.

**Criteri di esclusione:**

- Traumi pregressi o interventi chirurgici a livello del quadricipite femorale
- Malattia autoimmuni o neurologiche a carico del distretto muscolo-scheletrico
- Altre cause (diverse dalla neoplasia) di malnutrizione e sarcopenia

# METODI DELLO STUDIO



**Valutazioni eseguite per lo studio:**

- Indagine sulla storia clinico-anamnestica
- Indagine nutrizionale con Dietista
- Storia del peso e valutazioni antropometriche comprensive di peso, altezza, circonferenze di vita, fianchi e coscia (bilateralmente)
- Diagnosi di sarcopenia secondo algoritmo FACS tratto da ultimo consensus Europeo EWSGOP2 2019 comprensivo di:
  - Questionario validato SARC-F
  - Test di forza Hand Grip Strenght (HGS) e Chair Stand (CS)
  - BIA per lo studio della composizione corporea completo
  - US muscolare con strumento portatile (sonda lineare) eseguita con paziente supino e rilevazione dello spessore muscolare di RF e VI a livello della coscia destra tra ½ e 1/3 inferiore della linea tra spina iliaca antero-superiore e patella.

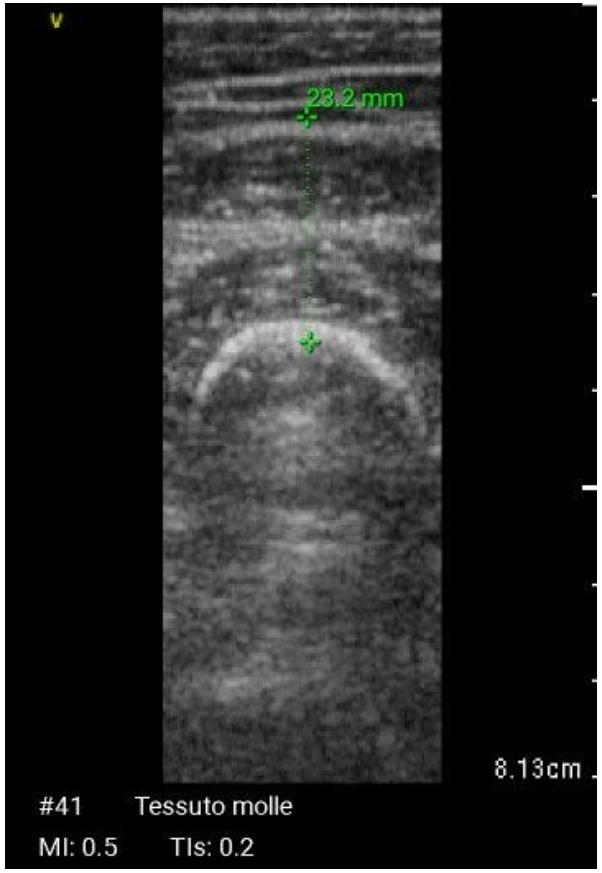
# LO STRUMENTO PORTATILE

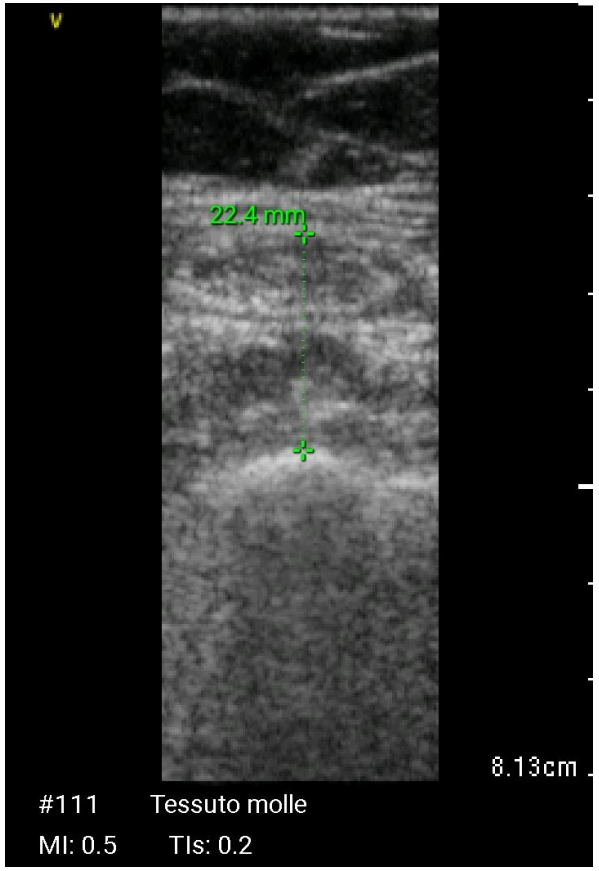

## Trasduttore lineare (solo nel dual probe)

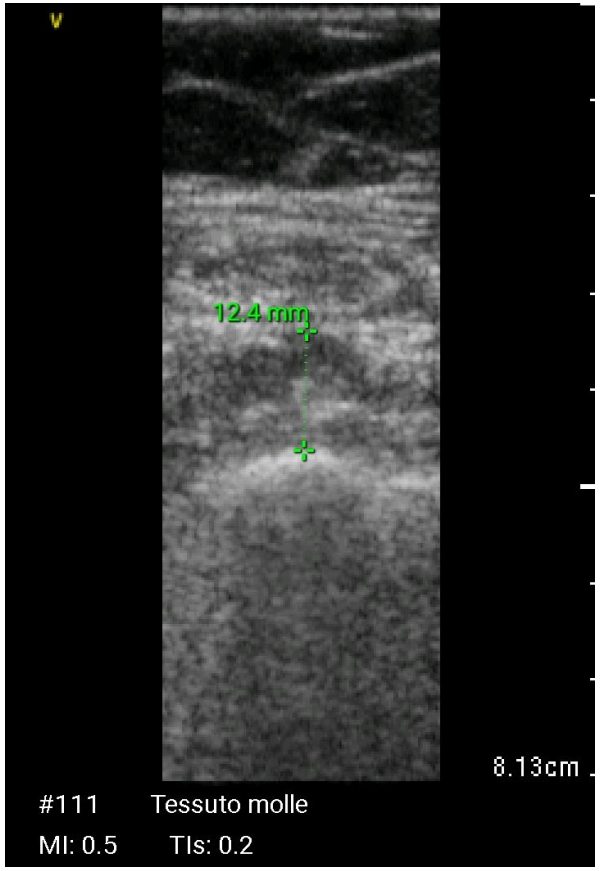
Frequenza 3 – 12 MHz

Profondità massima – 8 cm

# LE IMMAGINI US




# RISULTATI PRELIMINARI

**Tab 1. Caratteristiche cliniche delle pazienti (n =74)**

| | Media | DS |
|---|---|---|
| **Età** | 55.2 | 6.4 |
| **Durata di malattia*** | 5.0 | (16.0) |
| **Recidiva di malattia**** | 9 | (12.2) |
| **Resezione chirurgica**** | 66 | (89.2) |
| **Chemioterapia**** | 43 | (58.1) |
| **Radioterapia**** | 44 | (59.5) |
| **Ormonoterapia**** | 59 | (79.7) |

*Mediana (range interquartile)
**numero (percentuale)

**Tab 2. Caratteristiche antropometriche delle pazienti (parte 1)**

| | Media | DS |
|---|---|---|
| **Peso all'arruolamento (kg)** | 76.1 | 11.0 |
| **Peso pre-malattia (kg)** | 73.9 | 12.0 |
| **Peso abituale (kg)** | 73.7 | 13.0 |
| **Altezza (cm)** | 160 | 5.3 |
| **BMI (kg/m$^2$)** | 29.7 | 4.0 |
| **Circonferenza vita (cm)** | 93.3 | 9.6 |
| **Circonferenza fianchi (cm)** | 107.6 | 8.7 |
| **Circ. coscia sinistra (cm)** | 58.1 | 5.7 |
| **Circ. coscia destra (cm)** | 58.5 | 6.0 |

**Staging:** la maggior parte delle pazienti risultavano in stadio T1N0M0 con ca di tipo infiltrante NST

# RISULTATI PRELIMINARI

**Tab 2. Caratteristiche antropometriche delle pazienti (parte 2)**

| | Media | DS |
|---|---|---|
| **PhA (°)*** | 5.7 | (1.1) |
| **TBW (L)** | 36.0 | 3.5 |
| **ECW (L)** | 16.6 | 2.1 |
| **ICW (L)** | 19.3 | 2.7 |
| **Massa magra (kg)** | 48.9 | 4.8 |
| **Fat mass (kg)** | 26.9 | 8.0 |
| **MM (kg)** | 32.2 | 4.7 |
| **ASM (kg)** | 18.9 | 2.4 |
| **ASM/H$^2$ (kg/m$^2$)** | 7.4 | 0.8 |

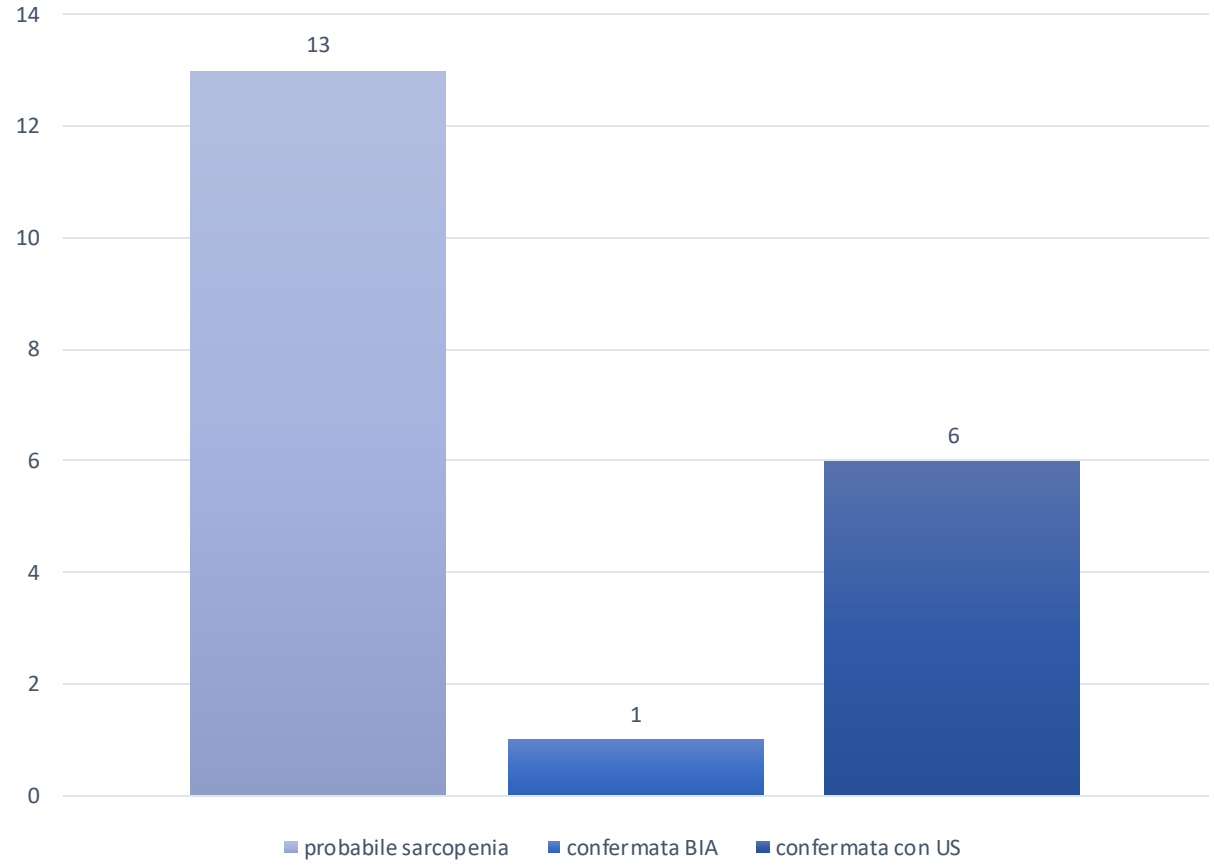
*Mediana (range interquartile)

**Tab 3. Valutazioni e test per diagnosi di sarcopenia**

| | Media | DS |
|---|---|---|
| **US spessore RF mm** | 14.0 | 5.7 |
| **US spessore VI mm** | 12.6 | 3.6 |
| **SARC-F punti*** | 1.0 | (2.0) |
| **SARC-F ≥ 4**** | 13 | (17.6) |
| **Grip strength (kg)** | 22.2 | 5.0 |
| **Grip < 16 kg**** | 9 | (12.2) |
| **Chair stand (secondi)** | 15.2 | 4.6 |
| **CS > 15 sec**** | 29 | (39.2) |
| **Sarcopenia probabile**** | 13 | (17.6) |

*Mediana (range interquartile)
**numero (percentuale)

# RISULTATI PRELIMINARI



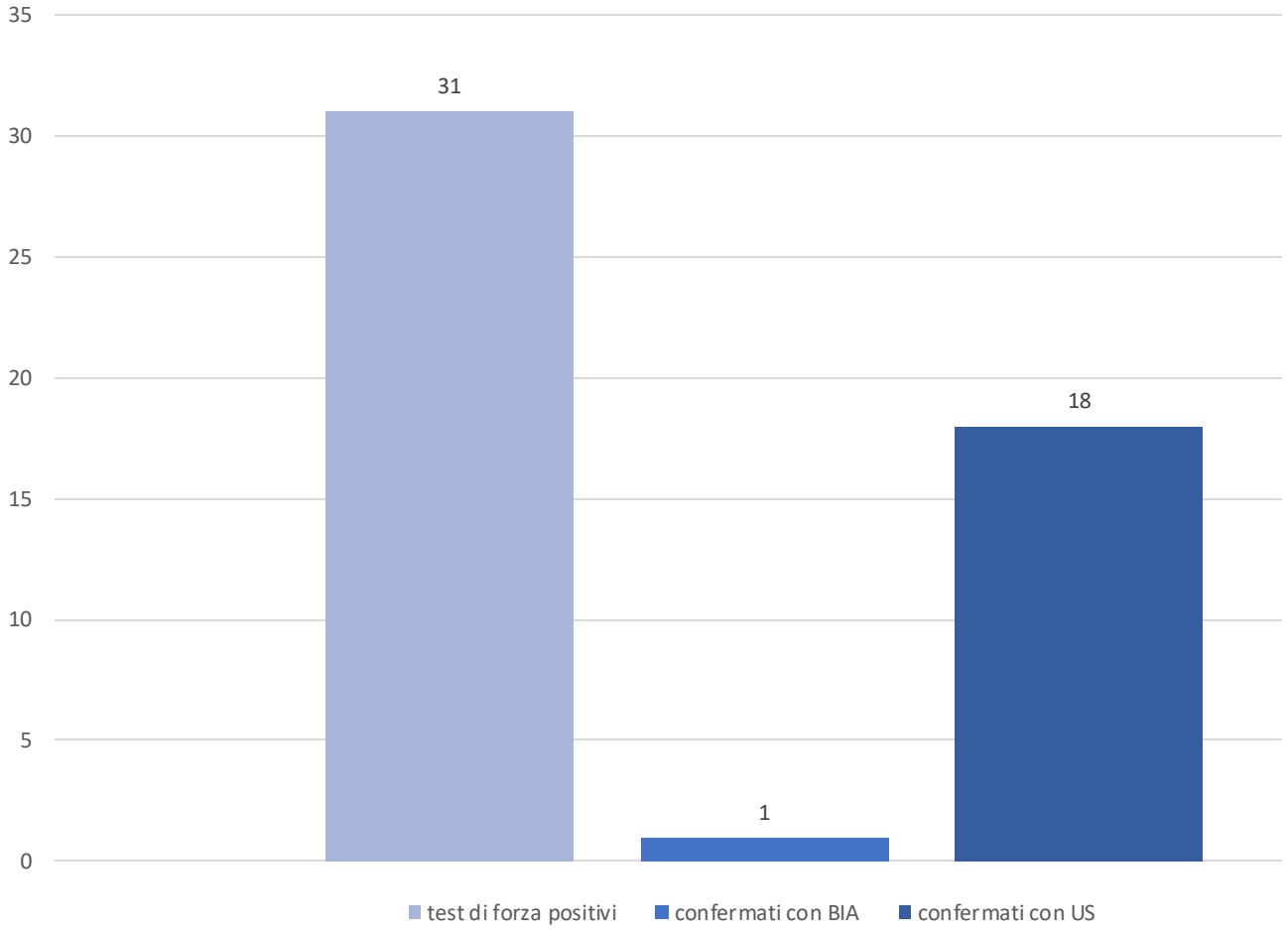

## CONSIDERAZIONI DIAGNOSTICHE:

- 13 pazienti (17.6%) hanno soddisfatto i criteri per il **sospetto** di sarcopenia utilizzando il SARC-F≥4, tutte e 13 con **probabilità** data dalla positività di RCS/GS

- La diagnosi però è stata poi **confermata** dal dato di ASM (<15kg) solamente in 1 pz e in nessuna considerando il dato di ASM/H$^2$ (<5.5 kg/m$^2$)

- Invece, le pz con probabilità di sarcopenia verrebbero **confermate** da **US positivo** per RF < 15 mm nel 46% dei casi (6/13)

# RISULTATI PRELIMINARI




## CONSIDERAZIONI DIAGNOSTICHE:

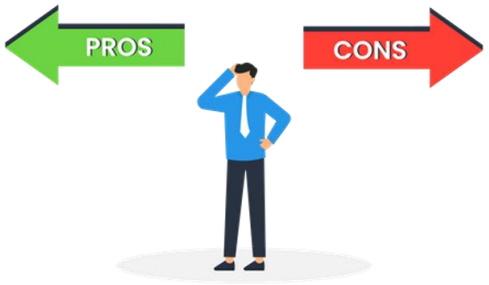
- Anche considerando **tutte** le pz **sospette** per motivi clinici, indipendentemente dal SARC-F, delle 31 pazienti su 74 che emergerebbero come **probabili** dopo i test di forza sarebbero confermate da ASM o ASM/H² solo 1/31.
- Al contrario, vi sarebbe una **conferma** diagnostica per **US positivo** per RF < 15 mm in 18 pz su 31, ovvero il 58%.

# RISULTATI PRELIMINARI


## CONSIDERAZIONI CLINICHE:

- Lo spessore del VI (ma non del RF) è risultato significativamente associato al dato di ASM (r=+0.39).
- ASM a sua volta, è risultato positivamente associato al test di forza con metodica HGS (r=+0.38), ma non con lo spessore del RF o con il SARC-F. In un'analisi di regressione lineare multipla, l'associazione resta invariata dopo aggiustamenti per età e BMI (ß=0.19; 95%CI 0.11 - 0.27; p<0.001).
- Infine, lo spessore del VI (ma non del RF) è risultato significativamente associato al HGS (r=+0.30), ma non al CS o al SARC-F score.
  In un'analisi di regressione lineare multipla, l'associazione resta invariata dopo aggiustamenti per età e BMI (ß=0.41; 95%CI 0.17 - 0.65; p=0.01).


# CONCLUSIONI FINALI E LIMITI




- Elevato sospetto clinico di sarcopenia di fondo ma scarsamente verificato da questionario di screening SARC-F
- Studio al momento solo di prevalenza, in corso valutazione prospettica con possibili correlazioni anche prognostiche rispetto alle metodiche utilizzate
- Numerosità campionaria ancora lontana da quella definitiva
- Casistica con eterogeneicità per diagnosi, estensione di malattia e terapie in corso ma *real-life*
- LAF non misurato (ma prevalentemente sedentarie)
- Diagnostica complessivamente facile da eseguire anche in setting ambulatoriale
- US è pratica ed ha benefici noti (costi, rapidità, invasività, ...) ma manca di consensus su siti di misurazione e *cut-off*
- SARC-F e algoritmo diagnostico per la sarcopenia valido per pz giovani ?
- BIA per pz con sovrappeso/obesità: valida per stima della massa muscolare?

# GRAZIE PER L'ATTENZIONE

STAY HUNGRY


KEEP HEALTH

Grazie alla Prof.ssa S.Bo, alla Dott.ssa V.Ponzo e a tutte le Dietiste del gruppo della Dietetica per il prezioso supporto e per l'aiuto nella raccolta ed elaborazione dei dati!