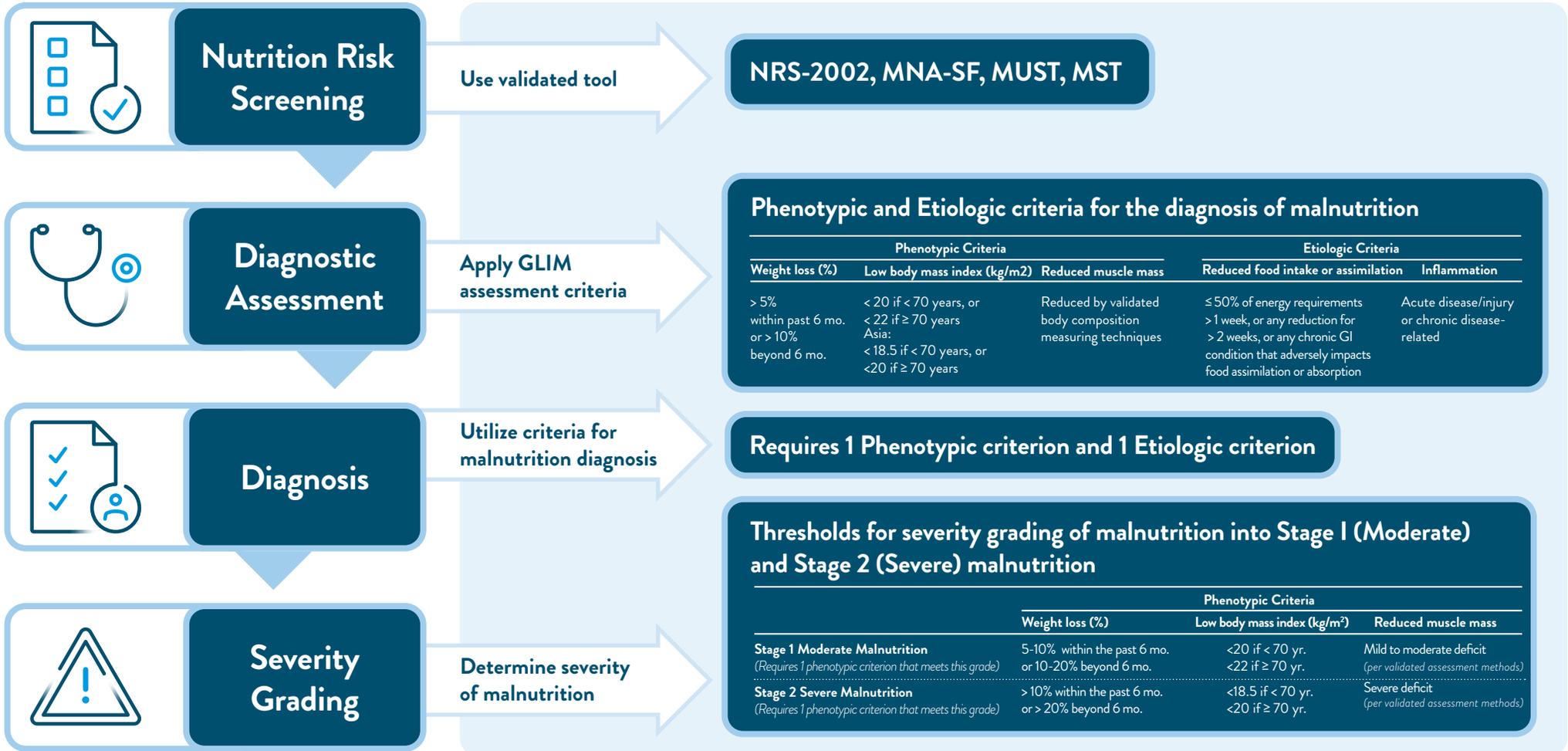# GLOBAL LEADERSHIP INITIATIVE ON MALNUTRITION (GLIM) FRAMEWORK FOR MALNUTRITION SCREENING, ASSESSMENT, DIAGNOSIS AND SEVERITY GRADING

**A core leadership committee with representatives of global clinical nutrition societies (ASPEN, ESPEN, FELANPE, PENSA) established a consensus around core diagnostic criteria for malnutrition in adults in clinical settings**

## Nutrition Risk Screening

Use validated tool

**NRS-2002, MNA-SF, MUST, MST**

## Diagnostic Assessment

Apply GLIM assessment criteria

### Phenotypic and Etiologic criteria for the diagnosis of malnutrition

| | Phenotypic Criteria | | Etiologic Criteria | |
|---|---|---|---|---|
| **Weight loss (%)** | **Low body mass index (kg/m2)** | **Reduced muscle mass** | **Reduced food intake or assimilation** | **Inflammation** |
| > 5% within past 6 mo. or > 10% beyond 6 mo. | < 20 if < 70 years, or < 22 if ≥ 70 years Asia: < 18.5 if < 70 years, or <20 if ≥ 70 years | Reduced by validated body composition measuring techniques | ≤50% of energy requirements >1 week, or any reduction for > 2 weeks, or any chronic GI condition that adversely impacts food assimilation or absorption | Acute disease/injury or chronic disease-related |

## Diagnosis

Utilize criteria for malnutrition diagnosis

**Requires 1 Phenotypic criterion and 1 Etiologic criterion**

## Severity Grading

Determine severity of malnutrition

### Thresholds for severity grading of malnutrition into Stage 1 (Moderate) and Stage 2 (Severe) malnutrition

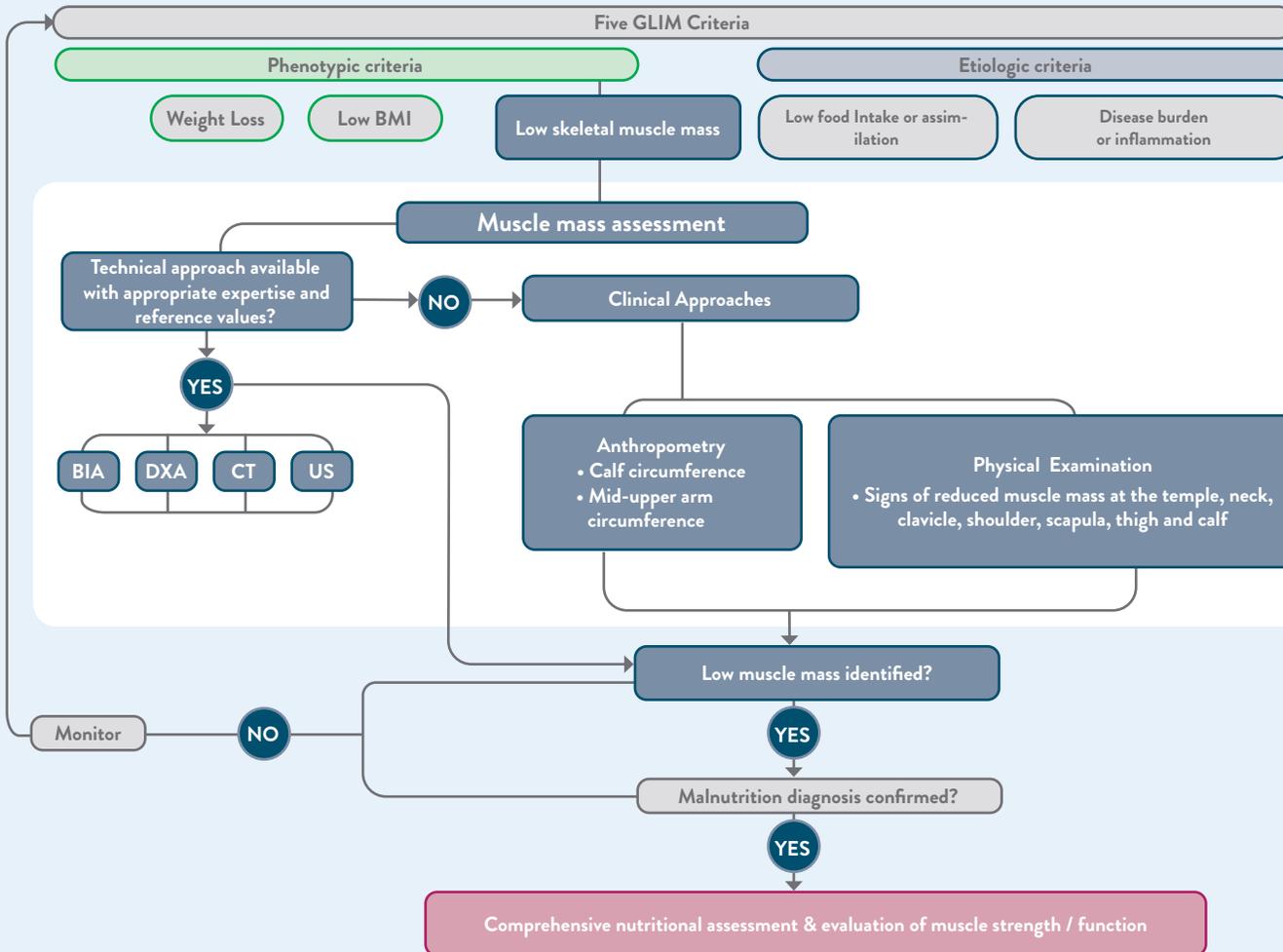| | Phenotypic Criteria | | |
|---|---|---|---|
| | **Weight loss (%)** | **Low body mass index (kg/m²)** | **Reduced muscle mass** |
| **Stage 1 Moderate Malnutrition** *(Requires 1 phenotypic criterion that meets this grade)* | 5-10% within the past 6 mo. or 10-20% beyond 6 mo. | <20 if < 70 yr. <22 if ≥ 70 yr. | Mild to moderate deficit *(per validated assessment methods)* |
| **Stage 2 Severe Malnutrition** *(Requires 1 phenotypic criterion that meets this grade)* | > 10% within the past 6 mo. or > 20% beyond 6 mo. | <18.5 if < 70 yr. <20 if ≥ 70 yr. | Severe deficit *(per validated assessment methods)* |

ASPEN- American Society for Parenteral and Enteral Nutrition
ESPEN- European Society for Clinical Nutrition and Metabolism
FELANPE- Latin American Federation of Nutritional Therapy, Clinical Nutrition and Metabolism

GI- Gastrointestinal
MNA-SF- Mini Nutritional Assessment Short Form
MUST- Malnutrition Universal Screening Tool

MST- Malnutrition Screening Tool
NRS-2002- Nutritional Risk Screening
PENSA- The Parenteral and Enteral Nutrition Society of Asia

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# ASSESS SKELETAL MUSCLE MASS AS PART OF GLIM DIAGNOSIS OF MALNUTRITION

## MALNUTRITION DIAGNOSIS (using the GLIM approach)

**Five GLIM Criteria**

**Phenotypic criteria**
- Weight Loss
- Low BMI
- Low skeletal muscle mass

**Etiologic criteria**
- Low food Intake or assimilation
- Disease burden or inflammation

**Muscle mass assessment**

Technical approach available with appropriate expertise and reference values?

**NO** → Clinical Approaches

**YES**
- BIA
- DXA
- CT
- US

**Clinical Approaches**

**Anthropometry**
- Calf circumference
- Mid-upper arm circumference

**Physical Examination**
- Signs of reduced muscle mass at the temple, neck, clavicle, shoulder, scapula, thigh and calf

Low muscle mass identified?

Monitor ← **NO**

**YES**

Malnutrition diagnosis confirmed?

**YES**

**Comprehensive nutritional assessment & evaluation of muscle strength / function**

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**Measurements of muscle function** (handgrip, knee-extension, sit-to-stand, 4-m walking test) are not recommended as surrogate or proxies for muscle mass as they may be adversely impacted by nonnutrition factors

**Once malnutrition is diagnosed,** skeletal muscle function should be investigated as a relevant component of nutrition assessment

**Visit anhi.org for a short video review of the publication "Guidance for assessment of the muscle mass phenotypic criterion for the Global Leadership Initiative on Malnutrition (GLIM) diagnosis of malnutrition."**

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BIA- Bioelectrical Impedance Analysis
CT- Computerized Tomography
DXA- Dual-Energy X-ray Absorptiometry

MUAC- Mid-Upper Arm Circumference
US- Ultrasound

Cederholm T, et al. J Cachexia Sarcopenia Muscle. 2019;10(1):207-217. | Barazzoni R, et al. Clin Nutr. 2022;41(6):1425-1433.

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