

The High Risk of Malnutrition and Loss of Muscle/Muscle Function in Acute Healthcare Settings

Real-world findings from 17 UK Trusts



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Low muscle mass adversely impacts patient outcomes and can lead to more extended hospital stays. It is, therefore, one of the most critical consequences of malnutrition and is now included in its diagnostic criteria.¹

Identifying the risk of loss of muscle/muscle function as part of routine clinical practice is essential to ensure that timely nutritional intervention at hospital admission can be put into place to prevent further muscle loss. Such interventions can help maintain and restore muscle; reducing complications, lowering hospital readmissions, improving wound healing and reducing mortality risk.^{1,2}

However, malnutrition management strategies typically focus on weight and BMI measurements, which can only partially assess body composition as the focus is on weight rather than muscle. It also means that patients who have a healthy BMI or are obese, who may also be at risk of malnutrition and/or muscle loss, could be overlooked.¹

Screening for loss of muscle/muscle function has also often been a challenge for clinicians. Awareness of muscle screening and its importance can be low, and routine muscle screening is rarely embedded as part of routine clinical practice.¹

Malnutrition and muscle screening audit: an opportunity to overcome these challenges

In October 2022, Abbott launched a malnutrition and muscle screening audit involving 17 NHS Trusts. Patient screening data from these Trusts was collected, anonymised and aggregated to present screening incidence and prevalence of inpatients at risk of malnutrition/muscle loss or function.

The audit aimed to raise awareness of the importance of screening for muscle in hospital settings by supporting trusts to identify the prevalence of loss of muscle/muscle function risk and, therefore, help them understand the importance of screening for loss of muscle/muscle function as part of routine clinical practice.

An underappreciated need for malnutrition and muscle screening in acute healthcare

The burden of muscle loss for hospitalised patients

Muscle strength is important for patients' quality of life, supporting overall health, independence, functionality and impacting lifespan.^{3,4} Skeletal muscle plays an important role, supporting strength, movement and balance and regulating energy and protein metabolism.⁵

In healthy muscle, there is a balance between protein synthesis and breakdown.⁶ However, when a patient experiences metabolic stress, caused by ageing, injury, inflammation and illness, the body metabolises the protein in muscle to release energy, which leads to muscle loss.⁵

Patients with low muscle mass have difficulty coping with metabolic stress,³ which can have devastating consequences, including:⁵

- Reduced immunity
- Delayed wound healing
- Increased infection risk
- Increased risk of falls and fractures
- Increased mortality risk
- Poorer quality of life.⁷

Muscle loss can also impact NHS resources, leading to extended hospital stays and increased risk of readmission, which can be costly:^{1,8}

- Muscle weakness in the UK costs **£2,707** per person, per year
- Or **£2,5bn** annually.

The importance of screening for muscle loss

Muscle loss can be reversed with early nutritional intervention, even if the patient is clinically frail. However, once a patient becomes cachexic – where muscle loss is accompanied by progressive weight loss – nutritional interventions alone cannot reverse it, which can negatively impact survival and recovery.⁹⁻¹³

Screening/assessment for loss of muscle/muscle function can easily be used in a clinical environment to reduce sedentary time, increase physical activity and identify nutritional intervention.¹⁴ They often take limited time to apply in clinical practice and are typically non-invasive, inexpensive and convenient to implement.^{15, 16}

Various reliable screening/assessment tools can be used to identify the risk of malnutrition and/or loss of muscle/muscle function,¹⁴ which this audit aimed to utilise.

Malnutrition and muscle screening audit: key findings

Abbott engaged with 17 Trusts across the UK and supported them with training, guidance and educational materials to help them implement malnutrition and muscle screening as part of routine clinical practice.

Trusts could choose pilot wards to trial muscle screening as part of routine practice in a way that worked most appropriately for them. All data was submitted securely by the Trusts to an independent agency that collected, anonymised and compiled it into weekly reports at both a Trust and a whole audit level to help understand:

- The prevalence of malnutrition and muscle mass/function loss in hospitalised patients
- The coexistence of malnutrition and muscle loss
- The types of screening tools utilised and frequency of use.

For malnutrition screening, the 'Malnutrition Universal Screening Tool' ('MUST') was used. Muscle screening/assessment could be performed using a choice of different tool options, which were selected based on The European Working Group on Sarcopenia (EWGSOP) guidelines.¹⁴ The Trusts could choose one or more tools that they considered most suitable for both patient and clinical need.

The muscle screening and assessment tools included:

- SARC-F (Strength, Assistance with walking, Rise from a chair, Climb stairs, Falls)
- Calf Circumference
- Handgrip Strength
- Sit to Stand Test
- Gait Speed Test
- Time Up and Go Test.

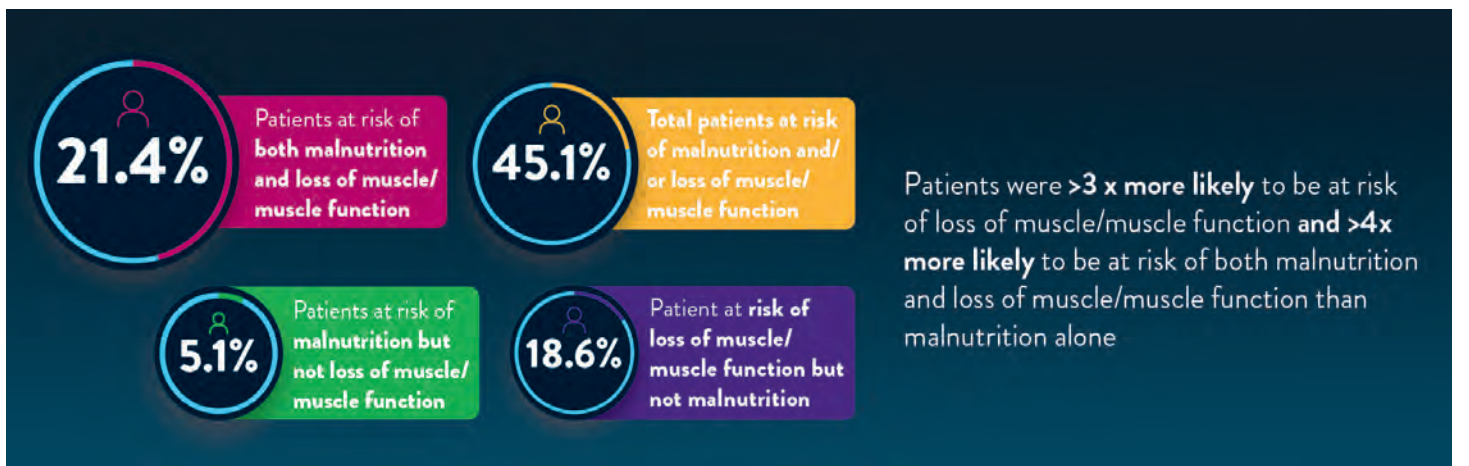
The audit ran from October 2022 until December 2023 with a total of 2,652 patients screened:

- 99.7% of patients were screened for risk of malnutrition
- 99.8% were screened for risk of loss of muscle/muscle function.

Prevalence of loss of muscle/muscle function was high amongst hospitalised patients

Almost half of patients screened as part of this audit (45.1%) were at risk of malnutrition and/or loss of muscle/muscle function – see **Figure 1**.

Figure 1: Loss of muscle/muscle function



Loss of muscle/muscle function was high amongst hospitalised patients who were screened/assessed as part of this audit and, in almost a fifth of patients, occurred without the presence of malnutrition. This demonstrates that screening for malnutrition alone could mean that patients at risk of loss of muscle/muscle function could be missed, and therefore muscle screening/assessment is a vital part of patient care in hospital settings.

Trusts used one or more screening/assessment tools

The project successfully engaged Trusts by supporting HCPs in undertaking screening/assessment using various tools to meet the Trusts' and their patients' needs.

The whole audit data showed that almost every patient was screened for malnutrition using 'MUST', while of the six muscle screening and assessment tools available as part of the audit, four were utilised most commonly – see **Figure 2**.

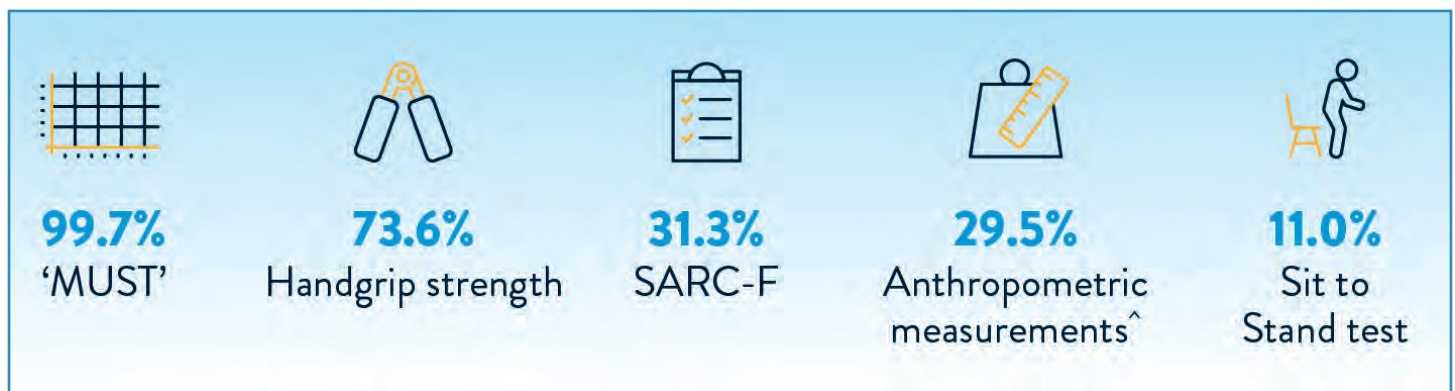
The findings indicate that Trusts commonly used handgrip strength but could also select the most appropriate tools for them and their patients.

Management of patients identified as at risk of malnutrition and/or loss of muscle/muscle function

As part of the audit, Trusts were asked to indicate what (if any) nutritional intervention(s) the patients received if they were identified as at risk of malnutrition and or loss of muscle/muscle function. Over half of at-risk patients received oral nutritional supplements (ONS), and a variety of other interventions were also used: Of patients found to be at risk of malnutrition and/or loss of muscle/muscle function:

50.2% received ONS
29.4% received food fortification
45.0% received general dietary advice
13.5% received a tube feed

Figure 2: Trusts used one or more screening tools



Key takeaways

The 17 Trusts that participated in the project successfully screened a high number of patients as part of routine clinical practice, using a wide variety of screening/assessment tools.

There was a high prevalence of patients at risk of loss of muscle/muscle function and malnutrition. Patients were >3 times more likely to be at risk of loss of muscle/muscle function alone and >4 times more likely to be at risk of both malnutrition and loss of muscle/muscle function than they were to be at risk of malnutrition alone.

These findings indicate the clear importance of screening/assessment for loss of muscle/muscle function as part of routine clinical care. They also demonstrate the importance of early intervention for patients at risk of loss of muscle/muscle function, particularly if the patient is malnourished.

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