

## Recent focus on rehabilitation nutrition for combined perspective of care process

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### Abstract

Rehabilitation nutrition for care process has been in focus. Sarcopenia has been diagnosed by the Asian Working Group for Sarcopenia (AWGS) 2019. The Sarcopenia Definition and Outcomes Consortium (SDOC) and International Society of Physical and Rehabilitation Medicine (ISPRM) published diagnostic criteria. Evaluation measures have been changing from skeletal muscle mass to strength and physical function. For nutritional perspective, Global Leadership Initiative on Malnutrition (GLIM) have been used. Rehabilitation nutrition care involves the repeating cycle for assessment, diagnosis, goal setting, intervention and monitoring. For goal setting, useful phrase would be summarized for SMART, including Specific, Measurable, Achievable, Realistic/Relevant and Timed.

**Keywords:** Rehabilitation Nutrition; Asian Working Group For Sarcopenia (AWGS); Sarcopenia Definition And Outcomes Consortium (SDOC); International Society of Physical and Rehabilitation Medicine (ISPRM); Global Leadership Initiative on Malnutrition (GLIM) SMART.

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### Editorial

Both fields of rehabilitation and nutrition are closely related in clinical practice and in the development of research [1]. The Japan Association for Rehabilitation Nutrition has been active for many years and has been recognized and evaluated internationally. As recent trend for the direction, some perspectives associated with some categories have been in progress [2]. Among them, rehabilitation nutrition has been in focus [3]. This area includes the combination of two categories. First, to evaluate the general status of the case is conducted by International Classification of Functioning, Disability and Health (ICF). Second, to further evaluate nutrition state, sarcopenia and intake of general nutritional elements. Third, to combine obtained information, to investigated the causes, diagnosis, setting the goals, and to improve the impaired condition of physical, psychological, nutritional, QOL and ADL would be required.

Diagnostic methods for sarcopenia have recently been updated. Basically, the presence or absence of sarcopenia is judged by the Asian Working Group for Sarcopenia (AWGS) 2019 [4]. When testing equipment is not available, cases are discovered, evaluated, and intervened. A lower extremity (calf) circumference can be easily detected by visual inspection, (<34 cm in men < 33 cm in female). Concerning the evaluation, grip strength measurement (<28 or <18 kg for M/F) and 5 times chair rise test (>12 seconds) are used, which are judged as deterioration of physical function. When there is muscle weakness or decreased physical function, it is diagnosed for possible sarcopenia. Medical institutions and

research settings also utilize 6m walking speed (<1 m/sec) and short physical performance battery (SPPB) (<9 points). Criteria for low muscle mass include dual-energy X-ray absorptiometry (DXA) method (<7.0 or 5.4 kg/m<sup>2</sup>, for M/F) and bioelectrical impedance analysis (BIA) method (<7.0 or 5.7 kg/m<sup>2</sup>, for M/F).

In 2020, the IWG on Definition and Outcomes of Sarcopenia made an important announcement. The Sarcopenia Definition and Outcomes Consortium (SDOC) published 13 statements on lean mass, walking speed and their summaries [5]. In this document, it was stated that two items should be included in the definition of sarcopenia, which are muscle weakness by decreased grip strength and decreased walking speed by decreased walking speed,. On the other hand, limb lean mass measured using DXA should not be included in the definition of sarcopenia. This is because factors such as reduced mobility, falls, impaired ADLs and mortality among community-dwelling older people are not good predictors of health-related outcomes. However, the discussion on lean mass is still ongoing, and future verification is required.

For 2021, the International Society of Physical and Rehabilitation Medicine (ISPRM) published diagnostic criteria from a special interest group (SIG) for sarcopenia [6]. The use of sonographic thigh adjustment ratio (STAR) with echocardiography was recommended and characterized as the assessment of low muscle mass. STAR can be calculated as follows: dividing the thickness of the anterior thigh muscle by the BMI value on ultrasound echography. Low skeletal muscle mass is determined when this result is less than 1.4 for men and less than 1.0 for women.

AWGS published a consensus paper in 2022 [7]. Among them,

there are three factors: muscle mass, muscle strength, and physical function. The characteristic point was shown that sarcopenia is diagnosed when two or more of these results are declining. As to the perspective of sarcopenia, there has been a change in the way of evaluation over the last few years. Initially, low skeletal muscle mass was considered sarcopenia. Gradually, however, there is a shift away from skeletal muscle mass to muscle strength and physical function. Currently, the Global Leadership Initiative in Sarcopenia (GLIS) has been working towards developing an international consensus on sarcopenia [8]. In the future, if a consensus paper by GLIS will be published, there is a possibility that the diagnostic method will be unified and only the cut-off value will be different by each region.

Regarding nutrition, we can grasp the degree of BMI to some extent by instant visual inspection. Then, it is possible to infer the presence or absence of malnutrition. The criteria of the Global Leadership Initiative on Malnutrition (GLIM) have been used [9]. Consequently, both non-analytical inferences by looking at the patient and analytical inferences based on measured values are significant, associated with balanced manner. Rehabilitation nutritional care involves a process in which various factors repeat the cycle (Figure 1). They include circulation of assessment, diagnosis, goal setting, intervention, and monitoring [10]. As related to goal setting, useful phrase would be summarized for SMART [11]. They stand for Specific, Measurable, Achievable, Realistic/Relevant and Timed. Specific settings are required rather than vague concepts. Furthermore, decreased appetite is involved in malnutrition. The Simplified Nutritional Appetite Questionnaire (SNAQ) is useful for the assessment of anorexia [12]. Among them, OPQRST is known as a related factor, including Onset, Palliative & Provoke, Quality, Region, Symptoms, Time course. As mentioned above, clinical progress of combined perspectives of rehabilitation and nutrition was described. Authors et al. have continued various research of rehabilitation and sports medicine [13,14], low carbohydrate diet (LCD), meal tolerance test (MTT), integrative medicine (IM) and so on [15]. Combining various research from different fields, novel perspectives will be developed. Current information is expected to become useful reference for future research.

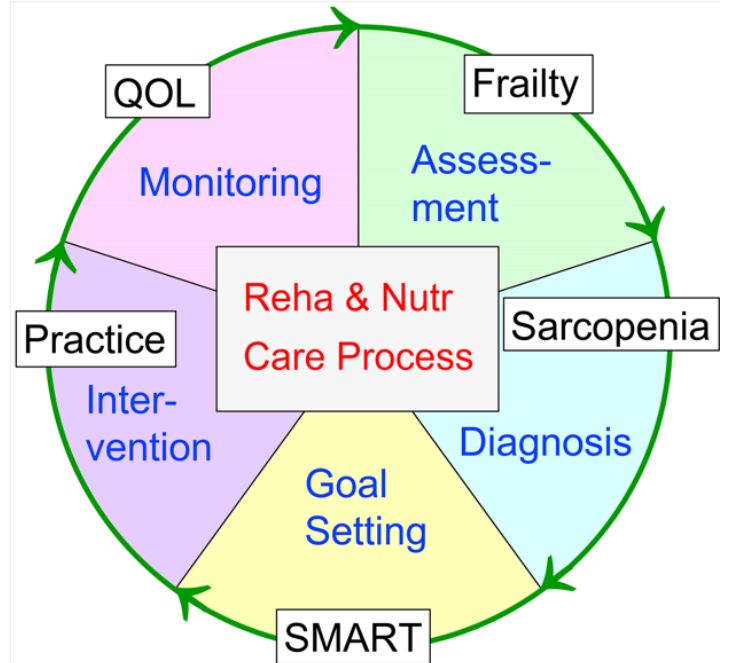


Figure 1: Scheme of care process for rehabilitation and Nutrition.

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