

Nutritional physical examination: historical, methodological and applied approach

Luis Henrique Almeida Castro (nutricao.luishenrique@gmail.com)

PhD in the Health Sciences Graduate Program, Federal University of Grande Dourados
Dourados, Mato Grosso do Sul – Brazil.

Geanlucas Mendes Monteiro

Health and Development in West Central Region Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

Ygor Thiago Cerqueira de Paula

Motion Science Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

Vanessa de Souza Ferraz

Motion Science Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

Flavia Soares Bezerra Okumoto Nery de Mello

Motion Science Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

Dayane Aparecida Moisés Caetano Bottini

Motion Science Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

Nelson Thiago Andrade Ferreira

Motion Science Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

Tayla Borges Lino

Motion Science Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

Juliana Vicente de Souza

Motion Science Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

Gildiney Penaves de Alencar

Health and Development in West Central Region Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

João Vitor Alves dos Santos

Local Development Graduate Program, Dom Bosco Catholic University
Campo Grande, Mato Grosso do Sul – Brazil.

Fernanda Viana de Carvalho Moreto

MSc., Nutrition, Food and Health Graduate Program, Federal University of Grande Dourados

Abstract

The historical interest in the use of physical evaluation skills in clinical settings gained new notoriety at the end of the 20th century with evidence that patients in intensive care units experienced increased morbidity and mortality related to poor nutritional status before and/or during their admission. This awareness of the adverse effects of malnutrition led to the need for screening and evaluation tools to identify nutritional risk. no clinical finding of EFN should be considered a diagnosis per se. It is academic, scientific and clinical consensus that its results should be interpreted as suggestive, being crucial to consider the other methods of clinical evaluation of the patient's nutritional status for the correct global nutritional diagnosis. However, the systematic and periodic repetition of the test may help to follow the evolution of the individual's nutritional status, especially in the long term. In summary, although it requires specialized training and continuous practice of the evaluator and/or the team – in addition to requiring complementary nutritional information – the physical nutritional examination can still be considered an effective adjuvant method in the clinical evaluation of the patient's nutritional status.

Keywords: Nutritional physical examination; Nutritional focused physical assessment; Nutrition care.

1. Historical perspectives

Nutritional care is described by the American Society for Parenteral and Enteral Nutrition (ASPEN) in four steps: nutritional assessment, diagnosis, intervention and monitoring. In Brazil, the systematization of nutrition care proposed by the Orientation Manual of the Brazilian Nutrition Association (ASBRAN, 2014), characterizes the nutritional physical examination (EFN), along with the global nutritional history and food history, as an integral part of the subjective sphere of the nutritional and metabolic state assessment. Thus, adding to objective methods (i.e., biochemical tests and anthropometric and body composition investigation), the physical examination contributes to the collection of the necessary information for clinical evaluation of the patient's nutritional status.

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and mortality related to poor nutritional status before and/or during their admission. This awareness of the adverse effects of malnutrition led to the need for screening and evaluation tools to identify nutritional risk. The development of the Global Subjective Assessment emerged as a result of this process and, since its postulation in 1987 by Detsky and collaborators, already had the physical assessment as an execution component.

Still in historical perspective, the EFN itself had its scientific consolidation only in 1996 with the publication of the article “Nutritional Focused Physical Assessment” by Hammond Kathy and collaborators. Its structuring came in 1999 in the work, of the same authorship, entitled “The Nutritional Dimension of Physical Assessment” that brought, in the scientific scope, the first summary report of the materials and procedures necessary for its execution. However, in both texts the authors themselves recognize the previous existence of this method in clinical practice, although in a non-systematized way.

2. Methodological considerations

In the methodological sphere, Hammond's (1999) work postulates that physical evaluation focused on nutrition is composed not only by physical examination, but that it should be preceded by the evaluation of health history. Thus, after identifying the underlying mechanisms that can put the individual at nutritional risk, the physical evaluation can be conducted with specificity, avoiding unnecessary and/or uncomfortable procedures for the patient, besides possibly reducing the duration of the exam.

In a practical way, the EFN can be divided into two sequential investigative steps: 1) rapid proliferation tissues (TPR) and body systems; and, 2) fat mass, muscle and presence of edema. This ordering is indicated because it provides greater agility in the identification of clinical traces of malnutrition, since TPR tend to evidence nutritional deficiencies more quickly because they have a higher basal anabolic rate than other tissues.

As described in the literature already mentioned in this text, the execution of the EFN should begin after some basic preparatory procedures, of which the following should be highlighted: hygiene of the assessor and the equipment; use of IPE's whenever necessary; preparation of the environment checking factors such as temperature, humidity, lighting and noise emission; adequate physical comfort of the patient (the use of exam apron is indicated); and, promotion of the biopsychosocial welcome ensuring privacy, disposition and free will (no patient should be assessed against his/her will).

It is also recommended that the exam follows a predetermined evaluative direction (the “head-to-toe” technique). In addition, the use of a quick fill out form – preferably validated – is suggested to assist in the later complete detailed writing of the exam findings.

The procedure is based on the examiner's ability to look, hear, and feel, using all senses to distinguish variations from the usual physiological picture expected in healthy individuals. For that, four basic techniques are employed in its execution: 1) inspection; 2) palpation; 3) percussion; and 4) auscultation - in this order for all evaluations, except the abdominal one since percussion and palpation can alter intestinal sounds, and/or cause discomfort, interfering in the accuracy of the rest of the exam. In addition, the assessment of vital signs (i.e., blood pressure, heart rate, respiratory rate, and temperature) can also be considered.

At this point it is valid to clarify that, in Brazil, the Federal Council of Nutritionists establishes in Resolution number 304 of 26 December 2003 that the EFN is “carried out in a summary manner, using palpation and inspection”. This normalization corroborates what is observed in daily clinical practice, since percussion and auscultation are, when necessary for the examination, usually delegated to other team members (mainly doctors and nurses) since they require high training that is usually not implemented in the academic curriculum of nutrition.

With the proper training, qualification, experience, and taking into account the patient's global nutritional history, the evaluator – following the “head-to-toe” method – can employ the four techniques to perform the EFN in the following sequential steps: 1) general examination; 2) vital signs; 3) skin and attachments (i.e., nails and hair); 4) head; 5) eyes and nose; 6) mouth; 7) neck and thorax; 8) abdomen; and 9) musculoskeletal evaluation.

The general, oral cavity and abdominal examinations are of particular interest to the nutrition professional. In the first, it is possible to evaluate if the individual is thin, obese, his or her responsive state, body movements such as tremors whose presence may interfere with his or her ability to take food to the mouth, besides clinical signs such as jaundice; in the second, the presence of clinical signs such as glossitis, gingivitis, caries, malocclusion and/or the presence of the mouth-breather syndrome which, in general, may impair or even prevent chewing and/or physiological swallowing may be investigated; and, in the third, the investigation of intestinal motility (indirect evaluation of peristalsis) and abdominal contour that may reveal the presence of ascites (in the case of protruding abdomen) or depletive state (in the case of scaphoid abdomen) is highlighted.

Another factor widely evidenced in the scientific literature is the correlation between EFN findings and micronutrient deficiencies. These may play an important role in the development and/or progression of acute or chronic diseases and may also be associated with adverse changes in general health. According to the Special Report on the Right to Food (United Nations, 2016), that year there were two billion people with micronutrient deficiencies in the world, the most prominent being iron, vitamin A, and iodine deficiencies; and the article “Utilization of Nutrition-Focused Physical Assessment in Identifying Micronutrient Deficiencies” (ASPEN, 2015) states that for these deficiencies, the most common EFN findings are koilonychia; xerose and Bitot stains; and, increased thyroid gland, respectively.

Still in the methodological aspect of EFN, another important cut-off for nutrition professionals is the symptomatological analysis of protein-energy malnutrition during the examination, especially in hospital patients. The most serious forms of this pathology are kwashiorkor and marasmo. The first is usually evidenced in the EFN by the relatively normal body weight, skeletal muscle generally preserved, presence of edema of the lower limbs and, in severe cases, presence also of edema in the upper extremities and face; and, the second can be clinically manifested in the EFN by substantial loss of body weight, skeletal muscle and adipose tissue leading to caquexia. In both cases, however, the biochemical evaluation of serum proteins is essential for an effective analysis (decreased values for the first and in the normal range for the second).

It is also valid to mention that the diagnostic criteria for malnutrition are constantly reviewed (such as the GLIM method, proposed in 2018) and that, therefore, it is essential that the evaluator is in line with updated clinical guidelines when using the results of the physical examination.

3. Clinical applicability

As with the symptomatology of protein-energy malnutrition, no clinical finding of EFN should be considered a diagnosis per se. It is academic, scientific and clinical consensus that its results should be interpreted as suggestive, being crucial to consider the other methods of clinical evaluation of the patient's nutritional status for the correct global nutritional diagnosis. However, the systematic and periodic repetition of the test may help to follow the evolution of the individual's nutritional status, especially in the long term.

Its use and application, however, is not restricted to the nutritional field. In fact, Hammond's own text (1999) highlights that other health professionals can use and adapt EFN findings within their own assessment. This situation has gained even more evidence in the last decade with the dissemination of multiprofessional care, so that in current clinical practice it is possible that the EFN is executed together with other members of the health team, especially in hospital settings.

In this sense, throughout its theoretical evolution in the scientific literature, the EFN was adapted for use in several medical specialties: the Israeli Institute of Teaching and Research Albert Einstein, for example, published on February 4, 2020 the Brazilian Consensus on Nutrition in Hematopoietic Stem Cell Transplantation for Adults and, in it, states that the EFN is one of the “pillars of appropriate clinical diagnosis” reinforcing the importance of its application in this specialty.

Finally, it is worth clarifying that this same adaptability implies one of its main limitations: many of the clinical signs evidenced by the EFN are not exclusive indicators for pathologies or depletive conditions of nutritional status, on the contrary. It is common, for example, that changes in hair colour are due to dyeing or discolouration and not to hypovitaminosis.

In summary, although it requires specialized training and continuous practice of the evaluator and/or the team – in addition to requiring complementary nutritional information – the physical nutritional examination can still be considered an effective adjuvant method in the clinical evaluation of the patient's nutritional status.

4. Competing Interests

The authors declare no competing interests.

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