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Nutrition Monitoring and Research Studies: Nutrition Screening Initiative

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The Nutrition Screening Initiative

Screening for Malnutrition

Malnutrition is not a condition that occurs rapidly; it is a chronic condition that develops slowly over time. It is widely accepted that malnutrition from any etiology is not a positive factor in health status, and may have a negative impact on other health conditions. There have been many reports of the health consequences of malnutrition, particularly in hospitalized individuals where poor nutritional status has been associated with increased lengths of hospital stay, co-morbidities, complications, readmissions, and mortality.[1-6] This is particularly profound because it has been estimated that 85% of noninstitutionalized older adults have one or more chronic conditions, many of which are related to nutritional status.[7] If it is possible to identify indicators of risk for the development of malnutrition, and these factors are reversible conditions, then interventions that will alleviate risk can be instituted before malnutrition becomes overt and worsens chronic conditions.

Nutritional screening is of value if 1) it reliably identifies the existence of risk factors for malnutrition; 2) it recognizes the existence of poor nutritional status; 3) it contributes to the avoidance of malnutrition; 4) it will minimize suffering; and 5) the condition of malnutrition can be reversed.[6,8] Reuben et al.[8] describe criteria necessary to define the potential effectiveness of interventions; these criteria are whether or not identification of malnutrition can be achieved more accurately with screening than without it, and whether or not individuals who have malnutrition detected early have a better outcome than those who have malnutrition detected later in the course of their illness.

Rush[9] defines the role of nutrition screening in older adults in different terms. He describes another criteria set for screening including specificity, sensitivity, inexpensive screening devices, and interventions where health benefit is not sacrificed by not treating those who are at moderate or low risk. He indicates that screening is appropriate where there is a relatively small but important proportion of the population that is affected, where those who are affected can be identified by an easily applied tool, and where there is an effective intervention.

Developing a Tool

Keeping these criteria in mind, and looking for a way to make both professional and volunteer care providers more attentive to the malnutrition risks encountered by older adults, the Nutrition Screening Initiative (NSI) was established in 1990 as a public awareness tool for use by community and health care workers who have regular contact with older adults. The tools were developed as a joint venture of the American Dietetic Association, the American Academy of Family Physicians, and the National Council on the Aging. The premise of the Nutrition Screening Initiative is that if factors associated with malnutrition risk are identified early, interventions can be instituted that may delay or avoid the progression of the risk factors towards overt malnutrition.[10]

The NSI was developed as a nested set of tools that identify risk factors for poor nutritional status and then diagnose malnutrition. There are three tiers: a checklist, level II, and level III screens.[11] The items on the tools were developed by reviewing the literature and developing consensus by a technical advisory committee of experts. The checklist was tested using a follow-up sample from a previous study of nutritional status in older people.[12]

The Checklist

The checklist was created as a public awareness screening tool for use by health care and social services personnel and other providers who work in community-based programs in which older adults participate. It was conceived and designed to bring awareness to nutritional issues that may impact on the health status of elderly clients. The checklist is widely available for reproduction and information collection, and permission to use it in non-profit settings is not required.[11]

The checklist was titled "Determine Your Nutritional Health" based on a mnemonic that contains the risk factors for malnutrition listed on the reverse side of the checklist. (Figures 18.1a and b). The checklist is a one-page questionnaire that can be used in community, long term care, or acute health settings by volunteers, health aides, or health professionals. The objective of awareness of potential nutritional problems in older people was easily achieved; those who have been critical have built their criticisms on the basis of assumptions that have gone farther than the original intent of the tool or the NSI campaign.[13]

The items on the checklist were developed using reference literature, expert opinion, existing databases, and pilot testing.[12] Using biochemical or laboratory parameters to define nutritional status may be misleading because the most commonly used measures, such as serum proteins, are affected by so many different factors independent of diet or nutritional status.[9]

Implementation Strategies

Screening can be conducted in many settings, and by health professionals as well as health care workers or lay volunteers. Involving interested participants (nurses, aides, admission clerks, etc.) will increase the likelihood that data collection (weights, heights, completion of screening instruments) will be more complete.

Modifications that allow the screening tools to be used in different settings and for unique purposes make this approach and this instrument user friendly, applicable, and relevant. A tool that is flexible, valid, and reliable and allows different applications in diverse settings is very valuable. The easier and less time consuming it is to collect data that give insights into an individual's nutrition and health status, the more valuable the

Determine Your Nutritional Health

The warning signs of poor nutritional health are often overlooked. Use this checklist to find out if you or someone you know is at risk.

Read the statements below. Circle the number in the yes column for those that apply to you or someone you know. For each yes answer, score the number in the box. Total your nutritional score.

	YES
I have an illness or condition that made me change the kind and/or amount of food I eat.	2
I eat fewer than 2 meals per day.	3
I eat few fruits or vegetables, or milk products.	2
I have 3 or more drinks of beer, liquor, or wine almost every day.	2
I have tooth or mouth problems that make it hard for me to eat.	2
I don't always have enough money to buy the food I need.	4
I eat alone most of the time.	1
I take 3 or more different prescribed or over-the-counter drugs a day.	1
Without wanting to, I have lost or gained 10 pounds in the last 6 months.	2
I am not always physically able to shop, cook, and/or feed myself.	2
TOTAL	

Total Your Nutritional Score. If it's -

0-2 Good! Recheck your nutritional score in 6 months.

3-5 You are at moderate nutritional risk.
See what can be done to improve your eating habits and lifestyle. Your office on aging, senior nutrition program, senior citizens counter, or health department can help. Recheck your nutritional score in 3 months.

6 or more You are at high nutritional risk.
Bring this checklist the next time you see your doctor, dietitian, or other qualified health or social service professional. Talk with them about any problem you may have. Ask for help to improve your nutrition health.

These materials developed and distributed by the Nutrition Screening Initiative, a project of:

AMERICAN ACADEMY OF FAMILY PHYSICIANS

THE AMERICAN DIETETIC ASSOCIATION

NATIONAL COUNCIL ON THE AGING

Remember that warning signs suggest risk, but do not represent diagnosis of any condition. Turn this page to learn more about the warning signs of poor nutritional health.

FIGURE 18.1
Determine your nutritional health.

The Nutrition Checklist is based on the Warning Signs described below. Use the word DETERMINE to remind you of the Warning Signs.

DISEASE

Any disease, illness, or chronic condition which causes you to change the way you eat, or makes it hard for you to eat, puts your nutritional health at risk. Four out of five adults have chronic diseases that are affected by diet. Confusion or memory loss that keep getting worse is estimated to affect one out of five or more older adults. This can make it hard to remember what, when, or if you've eaten. Feeling sad or depressed which happens to about one in eight older adults, can cause big changes in appetite, digestion, energy level, weight, and well-being.

EATING POORLY

Eating too little and eating too much both lead to poor health. Eating the same foods day after day or not eating fruit, vegetables, and milk products daily will also cause poor nutritional health. One in five adults skips meals daily. Only 13% of adults eat the minimum amount of fruit and vegetables needed. One in four older adults drinks too much alcohol. Many health problems become worse if you drink more than one or two alcoholic beverages per day.

TOOTH LOSS/MOUTH PAIN

A healthy mouth, teeth, and gums are needed to eat. Missing, loose, or rotten teeth, or dentures which don't fit well or cause mouth sores make it hard to eat.

ECONOMIC HARDSHIP

As many as 40% of older Americans have incomes of less that $6000 per year. Having less - or choosing to spend less - than $25 to 30 per week for food makes it very hard to get the foods you need to stay healthy.

REDUCED SOCIAL CONTACT

One-third of all older people live alone. Being with people daily has a positive effect on morale, well-being, and eating.

MULTIPLE MEDICINES

Many older Americans must take medicines for health problems. Almost half of older Americans take multiple medicines daily. Growing old may change the way we respond to drugs. The more medicines you take, the greater the chance for side effects such as increased or decreased appetite, change in taste, constipation, weakness, drowsiness, diarrhea, nausea, and others. Vitamins or minerals when taken in large doses act like drugs and can cause harm. Alert your doctor to everything you take.

INVOLUNTARY WEIGHT LOSS/GAIN

Losing or gaining a lot of weight when you are not trying to is an important warning sign that must not be ignored. Being overweight or underweight also increases your chance of poor health.

NEEDS ASSISTANCE IN SELF CARE

Although most older people are able to eat, one of every five has trouble with walking, shopping, and buying and cooking food, especially as they get older.

ELDER YEARS ABOVE AGE 80

Most older people lead full and productive lives, but as age increases, risk of frailty and health problems increase. Checking your nutritional health regularly makes good sense.

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FIGURE 18.1
Determine your nutritional health. (*Continued.*)

information. One example is the slight modifications made to the Nutrition Screening Initiative Checklist for use in a dental office[14,15] (Figure 18.2). Dental professionals are in a unique position to monitor their patients' nutritional status since many of the consequences of poor nutrition manifest themselves in the oral cavity (bleeding or swollen gums; pain in mouth, teeth, gums; angular cheilosis; alterations in the surface of the tongue). Additionally, oral health problems may contribute to the development of inadequate nutritional status due to lesions, loose or missing teeth, poorly fitting dentures, dry mouth, tooth decay or disease, and difficulty in chewing or swallowing.

The warning signs of poor nutritional health are often overlooked. A checklist can help determine if someone is a nutritional risk:

Read the statements below. Circle the number in the **yes** column for those that apply to you. For each **yes** answer, score the number in the box. Total your nutritional score.

	YES
An illness or condition makes me change the kind and/or amount of food I eat.	2
I avoid eating a food group, i.e., meat, dairy, vegetables, and/or fruit.	2
I have two or more drinks of beer, liquor, or wine almost every day	2
I have tooth pain or mouth sores that make it hard to eat or make me avoid certain foods.	2
I snack or drink sweetened beverages two or more times per day between meals.	2
I had three or more new cavities at a recent dental check-up	2
I don't always have enough money to buy the food I need.	4
I eat alone most of the time.	1
I have a dry mouth, which makes me drink or use gum, hard candy, cough drops, or mints to moisten my mouth two or more times per day.	1
I take three or more different prescription or over-the-counter drugs daily.	1
Without wanting to, I have lost or gained 10 pounds in the last six months.	2
I am not always physically able to shop, cook, and/or feed myself.	2
TOTAL	

Total your nutritional Score. If it is:

0–2   **Good!** Recheck your nutritional score in 6 months.
3–5   **You are at moderate nutritional risk.** Try to improve your eating habits and lifestyle.
6 or more **You are at high nutritional risk.** Talk with your doctor, dental hygienist, or dietitian about any problems you may have. Ask for help to improve your nutritional health.

FIGURE 18.2
Determine your nutritional health checklist, modified for use in a dental office.

The checklist can also be modified for use in specialized community or clinical settings. One example is use in a rural community setting as reported by Jensen et al.[16] They found that the checklist items indicating poor appetite, eating problems, low income, eating alone, and depression were associated with functional limitation.

Implementation Partners

Nurses are essential partners and participants in nutrition screening. They are the best individuals to gather anthropometric data and health history information. They are well-positioned to evaluate individuals' functional status by assessing ability to engage in activities of daily living (self care) and instrumental activities of daily living (managing independence). Clinical nurse specialists (CNS) are uniquely positioned to conduct health and nutrition screenings in clinic settings, particularly to identify risk factors that are modifiable before nutritional status begins a slippery slope downward. The advantage of implementing health promotion programs before or concurrently with the emergence of risk-associated conditions should be apparent.[17]

Other health practitioners (dentists, social workers, physical therapists, speech pathologists, etc.) may also use the screening tool for clients who may have risk factors for the

development of malnutrition. Community workers who run senior centers, senior meal programs, home health agencies, etc. can also use the checklist to help identify clients who may require more attention to their dietary intake, social circumstance, and chronic disease management.

Subjective Global Assessment (SGA)

Another tool devised by a group of clinicians in Canada uses a brief set of history and physical assessment items to make an evaluation of nutritional status.[18] The Subjective Global Assessment (SGA) includes an analysis of weight changes, dietary change, gastrointestinal symptoms, functional capacity, medical status, and physical assessment (Figure 18.3). This tool relies on a subjective rating by using clinical judgment on weight loss, dietary intake, loss of subcutaneous tissue, functional capacity, fluid retention, and appar-

(Select appropriate category with a checkmark, or enter numerical value where indicated by "#.")

A. History
   1. Weight change
      Overall loss in past 6 months: amount = # _____ kg; % loss = # _____
      Change in past 2 weeks: _____ increase
                               _____ no change
                               _____ decrease
   2. Dietary intake change (relative to normal)
      _____ No change
      _____ Change   Duration = # _____ weeks
                        Type: _____ suboptimal solid diet _____ full liquid diet
                                _____ hypocaloric liquids _____ anorexia
   3. Gastrointestinal symptoms (that persisted for >2 weeks)
      _____ none _____ nausea _____ vomiting _____ diarrhea _____ anorexia
   4. Functional capacity
      _____ No dysfunction (e.g., full capacity)
      _____ Dysfunction   Duration = # _____ weeks
                        Type: _____ working suboptimally
                                _____ ambulatory
                                _____ bedridden
   5. Disease and its relation to nutritional requirements _____
      Primary diagnosis (specify) _____
      Metabolic demand (stress):   _____ no stress   _____ low stress
                                _____ moderate stress _____ high stress
B. Physical (for each trait specify: 0 = normal, 1+ = mild, 2+ = moderate, 3+ = severe)
   # _____ loss of subcutaneous fat (triceps, chest)
   # _____ muscle wasting (quadriceps, deltoids)
   # _____ ankle edema
   # _____ sacral edema
   # _____ ascites
C. SGA rating (select one)
   _____ A = Well nourished
   _____ B = Moderately (or suspected of being) malnourished
   _____ C = Severely malnourished

FIGURE 18.3
Features of Subjective Global Assessment (SGA).

ent muscle wasting.[8,18] This tool has been successfully adopted and used by physicians and nurses in clinical settings. It has been tested in the clinical setting with different assessors, with a high degree of interrater reliability (0.91).[19,20] Most of validity reports of the SGA were conducted on hospitalized subjects with mean ages of 50 years or older, which may contribute to some questions about its general applicability. However, the addition of laboratory values to the SGA did not improve its validity.[19]

Although the SGA is a short tool that can be used successfully by health practitioners, there are limitations to its use as a screening tool. It requires a trained clinician to administer, since there is some clinical judgment involved that would not be expected in someone who is not a health professional. It requires that the individual being assessed is undressed and able to be turned, which does not lend itself to community-based assessment programs. Also, its validation has been demonstrated on middle-aged, rather than elderly, subjects.[8]

Mini Nutritional Assessment (MNA)

The Mini Nutritional Assessment (MNA) is a tool developed to easily evaluate the nutritional status of frail elderly individuals.[21] This instrument was developed to meet a perceived need to go beyond the DETERMINE checklist developed by the NSI, which was designed to raise the awareness of potential malnutrition risks, and the SGA, which was designed for use with hospitalized individuals. The MNA, therefore, was created to complement the screening tools already described.

The objectives for the MNA were to meet the following criteria:

- Be a reliable instrument
- Define thresholds
- Be used with minimal training
- Be free of rater bias
- Be minimally intrusive to patients
- Be inexpensive

The tool was designed to collect 18 items that combine objective and subjective data. These data include simple anthropometric measures (height, weight, arm and calf circumferences, and weight loss), general geriatric assessment items, a brief general dietary assessment, and self-assessment of health and nutrition perception (Figure 18.4).

This tool has been validated in several studies by comparing the scores to the judgments of trained nutrition clinicians and to a comprehensive nutritional assessment that collected in-depth data about the nutritional status of the subjects.[22] These studies found that the threshold for well-nourished on this instrument with a 30-point scale was 22 to 24 points; the threshold for malnutrition was 16 to 18 points on this scale.

The MNA meets its objectives of being a practical, non-invasive tool that contributes to the rapid evaluation of an elderly subject's nutritional status, contributing early intervention to correct nutritional deficits. This tool is easily used in a variety of settings including hospitals, nursing homes, physician offices, or clinics.

MINI NUTRITIONAL ASSESSMENT
MNA™

ID# _____

Last Name: _____ First Name: _____ M.I. _____ Sex: _____ Date: _____

Age: _____   Weight, kg: _____   Height, cm: _____   Knee Height, cm: _____

Complete the form by writing the numbers in the boxes. Add the numbers in the boxes and compare the total assessment to the Malnutrition Indicator Score.

ANTHROPOMETRIC ASSESSMENT

	Points
1. Body Mass Index (BMI) (weight in kg) / (height in m)^2 a. BMI < 19 = 0 points b. BMI 19 to < 21 = 1 points c. BMI 21 to < 23 = 2 points d. BMI ≥ 23 = 3 points	☐
2. Mid-arm circumference (MAC) in cm a. MAC < 21 = 0.0 points b. MAC 21 ≤ 22 = 0.5 points c. MAC > 22 = 1.0 points	☐.☐
3. Calf circumference (CC) in cm a. CC < 31 = 0 points b. CC ≥ 31 = 1 point	☐
4. Weight loss during last 3 months a. weight loss greater than 3kg (6.6 lbs) = 0 points b. does not know = 1 point c. weight loss between 1and 3 kg (2.2 and 6.6 lbs) = 2 points d. no weight loss = 3 points	☐

GENERAL ASSESSMENT

	Points
5. Lives independently (not in a nursing home or hospital) a. no = 0 points b. yes = 1 point	☐
6. Takes more than 3 prescription drugs per day a. yes = 0 points b. no = 1 point	☐
7. Has suffered psychological stress or acute disease in the past 3 months a. yes = 0 points b. no = 2 points	☐
8. Mobility a. bed or chair bound = 0 points b. able to get out of bed/chair but does not go out = 1 point c. goes out = 2 points	☐
9. Neuropsychological problems a. severe dementia or depression = 0 points b. mild dementia = 1 point c. no psychological problems = 2 points	☐
10. Pressure sores or skin ulcers a. yes = 0 points b. no = 1 point	☐

DIETARY ASSESSMENT

	Points
11. How many full meals does the patient eat daily? a. 1 meal = 0 points b. 2 meals = 1 point c. 3 meals = 2 points	☐

	Points
12. Selected consumption markers for protein intake • At least one serving of dairy products (milk, cheese, yogurt) per day? yes ☐ no ☐ • Two or more servings of legumes or eggs per week? yes ☐ no ☐ • Meat, fish, or poultry every day? yes ☐ no ☐ a. if 0 or 1 yes = 0.0 points b. if 2 yes = 0.5 points c. if 3 yes = 1.0 points	☐.☐
13. Consumes two or more servings of fruits or vegetables per day? a. no = 0 points b. yes = 1 point	☐
14. Has food intake declined over the past three months due to loss of appetite, digestive problems, chewing or swallowing difficulties? a. severe loss of appetite = 0 points b. moderate loss of appetite = 1 point c. no loss of appetite = 2 points	☐
15. How much fluid (water, juice, coffee, tea, milk,...) is consumed per day? (1 cup = 8 oz.) a. less than 3 cups = 0.0 points b. 3 to 5 cups = 0.5 points c. more than 5 cups = 1.0 points	☐.☐
16. Mode of feeding a. Unable to eat without assistance = 0 points b. self-fed with some difficulty = 1 point c. self-fed without any problem = 2 points	☐

SELF ASSESSMENT

	Points
17. Do they view themselves as having nutritional problems? a. major malnutrition = 0 points b. does not know or moderate malnutrition = 1 point c. no nutritional problem = 2 points	☐
18. In comparison with other people of the same age. how do they consider their health status? a. not as good = 0.0 points b. does not know = 0.5 points c. as good = 1.0 points d. better = 2.0 points	☐.☐

ASSESSMENT TOTAL (max. 30 points):   ☐☐.☐

MALNUTRITION INDICATOR SCORE		
≥ 24 points	well-nourished	☐
17 to 23.5 points	at risk of malnutrition	☐
< 17 points	malnourished	☐

FIGURE 18.4
The Mini Nutritional Assessment form.

Nutritional Assessment in Older Adults

The descriptions of the screening tools used to define nutritional status among elderly people highlight the fact that one of the more difficult determinations in elderly people is the accurate assessment of their nutritional status. This evaluation is more challenging in older adults because of the physiologic changes that occur with normal aging. Many of the commonly used assessment standards are not reliable in this population for a variety of reasons.[23]

Anthropometric Measures

Anthropometric measures, including height, weight, and skinfold measures, are usually important components of a nutritional assessment. These parameters are the ones most affected by the aging process.[24] The most apparent age-related change occurs in height. Height decreases as people get older due to changes in skeletal integrity, most noticeably affecting the spinal column. Loss of height may be due to thinning of the vertebrae, compression of the vertebral discs, development of kyphosis, and the effects of osteomalacia and osteoporosis.[25] Loss of height occurs in both males and females, although it may happen more rapidly to elderly women with osteoporosis. Therefore, stature changes and body appearance may be altered and, as older people lose their ability to stand erect, the organs in the thoracic cavity will become displaced and breathing and gastrointestinal problems may ensue.[26,27]

Height is difficult to measure in individuals who are unable to stand erect, cannot stand unaided, cannot stand at all due to neuromuscular disorders, paralysis, or loss of lower limbs, or are bedbound due to other medical problems. One estimate of stature in these individuals is to measure their recumbent height or the bone lengths of extremities.[23,28] This estimate of stature may not be very reliable, but it provides some estimate of height to help determine whether body weight is appropriate for height.

Weight is another important anthropometric measure that is altered with advancing age. Weight changes occur at different rates among elderly people. Use of most standard height and weight tables is not valid in older people since most reference tables do not include elderly people in their subject pool, and most are not age-adjusted.

Body mass index (BMI) is a commonly-used measure to evaluate relative weight for height using a mathematical ratio of weight (in kilograms) divided by height (in square meters).

$$Wt\ (Kg)/Ht\ (M)^2$$

This formula yields a whole number that should be greater than 21 and less than approximately 35.[10] Nomograms and tables are available that minimize the need for calculation. There is some controversy among experts regarding the range of acceptable BMI measures in elderly people.[4,29]

Skinfold measurements (triceps, biceps, subscapular, suprailiac, thigh) are often included in a thorough nutritional assessment. However, loss of muscle mass, shifts in body fat compartments, changes in skin compressibility and elasticity, and lack of age-adjusted references serve to decrease the reliability of skinfold measures in the assessment of nutritional status in elderly people.[30]

Biochemical Measures

Biochemical assessment parameters are also affected by advancing age.[23] Laboratory measures may reflect an age-related decline in renal function, fluid imbalances or hydration status, or the effects of long-term chronic illnesses. Among the commonly used biochemical markers of nutritional status, serum transferrin is one that is markedly affected by advancing age. Since tissue iron stores increase with age, circulating serum transferrin levels are reduced. A lower than normal serum transferrin should be evaluated in relation to other biochemical measures and serum iron levels, if obtainable.[31]

The most reliable predictor of nutritional status in elderly people is serum albumin. A serum albumin below 4.0 g/dl (depending on local laboratory normal ranges) is not usual in an older person unless the subject is overhydrated, has cancer, renal or hepatic disease, or is taking medications that may interfere with hepatic function. Recent evidence suggests that serum albumin is a prognostic indicator of potential infectious complications and other nosocomial problems in hospitalized, frail, or dependent elderly individuals.[32] A depressed serum albumin seems to be a primary prognostic indicator of rehospitalization, extended lengths of stay, and other complications associated with protein energy malnutrition in elderly people.[33,34] Unless there are medical reasons, most biochemical measures should remain within normal limits.

Serum cholesterol has been considered in the risk for coronary heart disease, but a depressed serum cholesterol is also associated with poor health status in older people.[35] It may be predictive of impending mortality[36] and should be evaluated carefully within the context of other health measures.

Immunologic Assessment

Tests for immunocompetence are often included as part of a nutritional assessment because malnutrition results in compromised host-defense mechanisms. However, the incidence of anergy is reported to increase with advanced age, and the response to skin test antigens appears to peak after longer intervals in older people.[37] The value of these tests is limited in elderly people.

Socioeconomic Status

Social history, economic status, drug history, oral health condition, family and living situations, and alcohol use should be evaluated along with the physical and physiologic measures usually assessed.[23] It is also useful to assess elderly individuals using instruments that evaluate how well they perform activities of daily living. Available tools assess the capability of an individual in managing the activities necessary for independence; these tools add another valuable dimension to the assessment of elderly people.[38,39] (See Tables 18.1 and 18.2.)

Summary

Nutrition monitoring, screening, and assessment in the older adult population pose challenges to health care professionals due to the heterogeneity of this group. It has been said that the older we become, the more unique we are. The difficulty in using the tools

TABLE 18.1

Activities of Daily Living

Toileting

Cares for self; no incontinence
Needs to be reminded or needs help with cleanliness; accidents rare
Soiling or wetting at least once a week
No control of bladder or bowels

Feeding

Eats without assistance
Eats with minor assistance or with help with cleanliness
Feeds with assistance or is messy
Requires extensive assistance with feeding
Relies on being fed

Dressing

Independent in dressing and selecting clothing
Dresses and undresses with minor assistance
Requires moderate assistance with dressing and undressing
Needs major assistance with dressing but is helpful
Completely unable to dress and undress oneself

Grooming

Always neatly dressed and well groomed
Grooming adequate; may need minor assistance
Requires assistance in grooming
Needs grooming care but is able to maintain groomed state
Resists grooming

Ambulation

Totally independent
Ambulates in limited geographical area
Ambulates with assistance (cane, wheelchair, walker, railing)
Sits unsupported in chair or wheelchair but needs help with motion
Bedridden

Bathing

Bathes independently
Bathes self with help getting into bath or shower
Washes hands and face but needs help with bathing
Can be bathed with cooperation
Does not bathe and is combative with those trying to help

Adapted from M.P. Lawton, The functional assessment of elderly people, *Journal of the American Geriatrics Society* 19: 4465, 1971.

TABLE 18.2

Instrumental Activities of Daily Living

Ability to use telephone
Shopping
Food preparation
Housekeeping
Laundry
Mode of transportation
Responsibility for own medications
Ability to handle finances

Adapted from M.P. Lawton, The functional assessment of elderly people, *Journal of the American Geriatrics Society* 19: 4465, 1971.

discussed here is that people age at different rates and in different ways related to their health status, their lifestyle, and their genetic inheritance. Although a variety of reasonable approaches to nutrition assessment and monitoring in the older population exist, it is wise for the clinician to understand that the definitive tool or definition of malnutrition in older people has yet to be reported and that there are vast opportunities for research in this area.

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