

Academy/A.S.P.E.N. Clinical characteristics that the RDN can obtain and document to support a diagnosis of malnutrition.

Clinical Characteristic	Malnutrition in the context of acute illness or injury		Malnutrition in the context of chronic illness		Malnutrition in the context of social or environmental circumstances																																																									
	Non-severe (moderate) malnutrition	Severe malnutrition	Non-severe (moderate) malnutrition	Severe malnutrition	Non-severe (moderate) malnutrition	Severe malnutrition																																																								
<p>(1) Energy intake¹</p> <p>Malnutrition is the result of inadequate food and nutrient intake or assimilation, thus recent intake compared to estimated requirements is a primary criterion defining malnutrition. The RD obtains or reviews the food and nutrition history, estimates optimum energy needs, compares them with estimates of energy consumed and reports inadequate intake as a percentage of estimated energy requirements over time.</p>	< 75% of estimated energy requirement for > 7 days	≤ 50% of estimated energy requirement for ≥ 5 days	< 75% of estimated energy requirement for ≥ 1 month	≤ 75% of estimated energy requirement for ≥ 1 month	< 75% of estimated energy requirement for ≥ 3 months	≤ 50% of estimated energy requirement for ≥ 1 month																																																								
<p>(2) Interpretation of weight loss²⁻⁵</p> <p>The RD evaluates weight in light of other clinical findings including the presence of under- or over- hydration. The RD assesses weight change over time reported as a percentage of weight lost from baseline.</p>	<table border="1"> <thead> <tr> <th>%</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1-2</td> <td>1 week</td> </tr> <tr> <td>5</td> <td>1 month</td> </tr> <tr> <td>7.5</td> <td>3 months</td> </tr> </tbody> </table>	%	Time	1-2	1 week	5	1 month	7.5	3 months	<table border="1"> <thead> <tr> <th>%</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>>2</td> <td>1 week</td> </tr> <tr> <td>>5</td> <td>1 month</td> </tr> <tr> <td>> 7.5</td> <td>3 months</td> </tr> </tbody> </table>	%	Time	>2	1 week	>5	1 month	> 7.5	3 months	<table border="1"> <thead> <tr> <th>%</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>1 month</td> </tr> <tr> <td>7.5</td> <td>3 months</td> </tr> <tr> <td>10</td> <td>6 months</td> </tr> <tr> <td>20</td> <td>1 year</td> </tr> </tbody> </table>	%	Time	5	1 month	7.5	3 months	10	6 months	20	1 year	<table border="1"> <thead> <tr> <th>%</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>>5</td> <td>1 month</td> </tr> <tr> <td>> 7.5</td> <td>3 months</td> </tr> <tr> <td>>10</td> <td>6 months</td> </tr> <tr> <td>> 20</td> <td>1 year</td> </tr> </tbody> </table>	%	Time	>5	1 month	> 7.5	3 months	>10	6 months	> 20	1 year	<table border="1"> <thead> <tr> <th>%</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>1 month</td> </tr> <tr> <td>7.5</td> <td>3 months</td> </tr> <tr> <td>10</td> <td>6 months</td> </tr> <tr> <td>20</td> <td>1 year</td> </tr> </tbody> </table>	%	Time	5	1 month	7.5	3 months	10	6 months	20	1 year	<table border="1"> <thead> <tr> <th>%</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>>5</td> <td>1 month</td> </tr> <tr> <td>> 7.5</td> <td>3 months</td> </tr> <tr> <td>>10</td> <td>6 months</td> </tr> <tr> <td>>20</td> <td>1 year</td> </tr> </tbody> </table>	%	Time	>5	1 month	> 7.5	3 months	>10	6 months	>20	1 year
%	Time																																																													
1-2	1 week																																																													
5	1 month																																																													
7.5	3 months																																																													
%	Time																																																													
>2	1 week																																																													
>5	1 month																																																													
> 7.5	3 months																																																													
%	Time																																																													
5	1 month																																																													
7.5	3 months																																																													
10	6 months																																																													
20	1 year																																																													
%	Time																																																													
>5	1 month																																																													
> 7.5	3 months																																																													
>10	6 months																																																													
> 20	1 year																																																													
%	Time																																																													
5	1 month																																																													
7.5	3 months																																																													
10	6 months																																																													
20	1 year																																																													
%	Time																																																													
>5	1 month																																																													
> 7.5	3 months																																																													
>10	6 months																																																													
>20	1 year																																																													

<p>Physical Findings^{5 6}</p> <p>Malnutrition typically results in changes to the physical exam. The RD may perform a physical exam and document any one of the physical exam findings below as an indicator of malnutrition.</p>						
<p>(3) Body Fat</p> <p>Loss of subcutaneous fat (e.g. orbital, triceps, fat overlying the ribs).</p>	Mild	Moderate	Mild	Severe	Mild	Severe
<p>(4) Muscle Mass</p> <p>Muscle loss (for example wasting of the temples (temporalis muscle); clavicles (pectoralis & deltoids); shoulders (deltoids); interosseous muscles; scapula (latissimus dorsi, trapezius, deltoids); thigh (quadriceps) and calf (gastrocnemius)).</p>	Mild	Moderate	Mild	Severe	Mild	Severe
<p>(5) Fluid Accumulation</p> <p>The RD evaluates generalized or localized fluid accumulation evident on exam (extremities; vulvar/scrotal edema or ascites). Weight loss is often masked by generalized fluid retention (edema) and weight gain may be observed</p>	Mild	Moderate to severe	Mild	Severe	Mild	Severe

(6) Reduced Grip Strength ⁷ Consult normative standards supplied by the manufacturer of the measurement device	N/A	Measurably reduced	N/A	Measurably reduced	N/A	Measurably Reduced
--	-----	--------------------	-----	--------------------	-----	--------------------

A minimum of two of the six characteristics above is recommended for diagnosis of either severe or non-severe malnutrition.

Notes:

Height and weight should be measured rather than estimated to determine BMI.

Usual weight should be obtained in order to determine the percentage and to interpret the significance of weight loss.

Basic indicators of nutritional status such as body weight, weight change, and appetite may substantively improve with refeeding in the absence of inflammation. Refeeding and/or nutrition support may stabilize but not significantly improve nutrition parameters in the presence of inflammation.

The National Center for Health Statistics defines “chronic” as a disease/condition lasting 3 months or longer⁸.

Serum proteins such as albumin and prealbumin are not included as defining characteristics of malnutrition because recent evidence analysis shows that serum levels of these proteins do not change in response to changes in nutrient intake⁹⁻¹².

References:

1. Kondrup J. Can food intake in hospitals be improved? *Clinical Nutrition*. 2001;20:153-160.
2. Blackburn GL, Bistran BR, Maini BS, Schlamm HT, Smith MF. Nutritional and metabolic assessment of the hospitalized patient. *Journal of Parenteral and Enteral Nutrition*. 1977;1:11-22.
3. Klein S, Kinney J, Jeejeebhoy K, et al. Nutrition support in clinical practice: review of published data and recommendations for future research directions. National Institutes of Health, American Society for Parenteral and Enteral Nutrition, and American Society for Clinical Nutrition. *Journal of Parenteral and Enteral Nutrition*. 1977;21:133-156.
4. Rosenbaum K, Wang J, Pierson RN, Kotler DP. Time-dependent variation in weight and body composition in healthy adults. *Journal of Parenteral and Enteral Nutrition*. 2000;24:52-55.
5. Keys A. Chronic undernutrition and starvation with notes on protein deficiency. *JAMA*. 1948;138:500-511.
6. Sacks GS, Dearman K, Replogle WH, Cora VL, Meeks M, Canada T. Use of Subjective Global Assessment to identify nutrition-associated complications and death in long-term care facility residents. *Journal of the American College of Nutrition*. 2000;19:570-577.

7. Norman K, Stobaus N, Gonzalez MC, Schulzke J-D, Pirlich M. Hand grip strength : Outcome predictor and marker of nutritional status. *Clinical Nutrition*. 2011;30:135-142.
8. Hagan JC. Acute and Chronic Diseases. In: Mulner RM, ed. *Encyclopedia of Health Services Research*. Vol 1. Thousand Oaks: Sage; 2009:25.
9. Does serum prealbumin correlate with weight loss in four models of prolonged protein-energy restriction: Anorexia nervosa, non-malabsorptive gastric partitioning bariatric surgery, calorie-restricted diets or starvation? *American Dietetic Association*. Available at: <http://www.andeal.org/topic.cfm?menu=3584&cat=4302>. Accessed August 1, 2011.
10. Does serum prealbumin correlate with nitrogen balance? *American Dietetic Association*. Available at: <http://www.andeal.org/topic.cfm?menu=3584&cat=4302>. Accessed August 1, 2011.
11. Does serum albumin correlate with weight loss in four models of prolonged protein-energy restriction: anorexia nervosa, non-malabsorptive gastric partitioning bariatric surgery, calorie-restricted diets or starvation? Available at: <http://www.andeal.org/topic.cfm?menu=3584&cat=4302>. Accessed August 1, 2011.
12. Does serum albumin correlate with nitrogen balance? *American Dietetic Association*. Available at: <http://www.andeal.org/topic.cfm?menu=3584&cat=4302>. Accessed August 1, 2011.

This table was developed by Annalynn Skipper PhD, RD, FADA. The content was developed by an ADA workgroup composed of Jane White PhD, RD, FADA, LDN, Chair, Maree Ferguson MBA, PhD, RD, Sherri Jones MS, MBA, RD, LDN, Ainsley Malone, MS, RD, LD, CNSD, Louise Merriman, MS, RD, CDN, Terese Scollard MBA, RD, Annalynn Skipper PhD, RD, FADA, and ADA staff member Pam Michael, MBA, RD. Content was approved by an A.S.P.E.N. committee consisting of Gordon L. Jensen, MD, PhD, Co-Chair, Ainsley Malone, MS, RD, CNSD, Co-Chair, Rose Ann Dimaria, PhD, RN, CNSN, Christine M. Framson, RD, PHD, CSND, Nilesh Mehta, MD, DCH, Steve Plogsted PharmD, RPh, BCNSP, Annalynn Skipper, PhD, RD, FADA, Jennifer Wooley, MS, RD, CNSD, Jay Mirtallo, RPh, BCNSP Board Liaison, and A.S.P.E.N. staff member Peggi Guenter, PhD, CNSN. Subsequently, it was approved by the A.S.P.E.N. Board of Directors. The information in the table is current as of 2/1/2012. Changes are anticipated as new research becomes available.