

# Nutrition Assessment Cheat Sheet

## Estimating Nutrient Needs

The Mifflin St. Jeor equation using actual body weight (not adjusted weight) is considered the most consistent formula for use with obese and non-obese healthy adults. There is little research available to indicate accuracy of prediction for certain populations such as older adults. Some sources suggest using 22 kcal/kg of ideal body weight or 14-18 kcal/kg of actual body weight/day for critically ill obese individuals (1).

**Activity Factors** (Also refer to Mifflin-St. Jeor "wheel" or ©2016 BDA Diet and Nutrition Care Manual, Appendix 13-44 to 13-46) (1)

Confined to chair or bed: 1.2	Out of bed: 1.3	Seated with little activity 1.4 - 1.5	Seated w/movement, but little strenuous activity: 1.6 - 1.7
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## Alternate Methods of Calculating Energy Needs (1)

Weight Maintenance: F: 18-22 kcal/kg body weight M: 20-24 kcal/kg body weight	Underweight with Pressure Injuries (PI): 30-35 kcal/kg/day for individuals under stress with PI. May need additional kcals to regain lost weight.
Underweight: 27-28 kcal/kg body weight or higher for weight gain	Paraplegics: 28 kcal/kg/day
Normal Weight Adult: 25-35 kcal/kg/day	Quadriplegics: 23 kcal/kg/day
Obese Critically Ill: 21-22 kcal/kg/day	

## General Guidelines for Estimating Protein Needs (1, 2)

A comprehensive nutrition assessment is needed to determine the appropriate level of protein. There is no clear evidence to indicate whether actual body weight (as opposed to ideal body weight or adjusted body weight) provides the most accurate assessment of protein needs in overweight or obese individuals.

### Protein Needs for Adults:

Maintenance: 0.8 to 1.0 gm/kg/day Older Adults: 1.0 gm/kg/day	Pressure Ulcers (including prevention for high risk of pressure ulcers): 1.25 to 1.5* gm/kg/day (*Increase fluids and monitor renal function)
Cancer: 1.0 to 1.5 gm/kg/day Cancer cachexia: 1.5 to 2.5 gm/kg/day	Inflammatory bowel disease: 1.0 to 1.5 gm/kg/day Short bowel syndrome: 1.5 to 2.0 gm/kg/day
Critical illness (burns, sepsis, traumatic brain injury): 1.5-2.0 gm/kg/d	Hepatitis: 1.0 to 1.5 gm/kg/day    Cirrhosis: 1.0 to 1.2 gm/kg/day
Obesity, with hypocaloric feeding: • BMI >27, normal function of kidneys/liver: 1.5-2.0 gm/kg IBW/day • Class I or II obesity with trauma (ICU): 1.9 gm/kg IBW/day • Class III obesity with trauma (ICU): 2.5 gm/kg IBW/day	Predialysis: 0.6 to 0.8 gm/kg/day. Hemodialysis: 1.2 to 1.3 g/kg/day, up to 1.5-1.8 gm/kg/day Peritoneal dialysis: >1.5 to 2.5 gm/kg IBW/day Stroke: 1.0 to 1.25 gm/kg/day

## Fluid Needs (1)

### General Guidelines for Estimating Fluid Needs:

1. 1500 mL for the first 20 kg +20 mL/kg for each kg >20 kg	2. 1 mL per calorie consumed	3. Urine output + 500 mL/day
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### Alternate Methods of Calculating Fluid Needs (mL/day)

1. 1000 mL/kg for the first 10 kg body weight +50 mL/kg for the second 10 kg body weight +15 mL/kg for remaining kg body weight	2. 30 mL/kg actual weight May be more for dehydration or less for chronic renal disease or CHF
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### Preferred Method of Estimating Fluid Needs for Obese Individuals

1000 mL fluid for the first 10 kg actual body weight      •For persons <50 years old: +20 mL fluid/kg for each additional kg  
 +50 mL fluid/kg for the next 10 kg actual body      •For persons >50 years old: +15 mL fluid/kg for each additional kg weight  
 Note: Adjusts for extremes in body weight. May be used for individuals who are overweight or obese.

**Factors That May Increase Fluid Needs (1)** • Burns • Certain medications such as diuretics • Circulating air bed for wound healing treatment  
 • Dehydration • Diarrhea • Draining fistula • Draining wound • Emesis • Fever (fluid needs may increase by 12.5% for every 1° F increase in body temp)  
 • Gastric and/or renal losses, extraordinary (fluid needs should be based on average 24 hour output) • Hot and/or dry environment  
 • Hyperventilation (fluid needs may increase by 10 to 60%) • Hyperthyroidism (fluid needs may increase by 25 to 50%) • Moderate or profuse perspiration (needs may increase 10 to 25%) • Polyuria • Pressure ulcer(s)

**Factors that May Require Decreased Fluid Intake (1)** • Congestive heart failure • Edema • Hepatic failure with ascites • Renal failure (severe) • SIADH (syndrome of inappropriate antidiuretic hormone)

**Signs of Over-hydration (1)** • Decrease in sodium, potassium, albumin, BUN, creatinine • Edema • Increase in blood pressure • Decrease in pulse rate

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## Overweight and Obese (1, 2, 3)

Body weight status can be categorized as underweight, healthy weight, overweight, or obese. The terms overweight and obese describe ranges of weight that are greater than what is considered healthy for a given height. Underweight describes a weight that is lower than what is considered healthy for a given height. Most of the studies that define the healthy range for BMI were done on younger adults. BMI thresholds for overweight and obese are overly restrictive for older people. In the elderly it may be better to have a BMI between 25 and 27, rather than under 25. BMI categories are a guide.

The new Academy/ASPEN criteria for diagnosing malnutrition does not use BMI – it uses unintended weight loss, body fat, muscle mass loss (as determined by nutrition focused physical assessment and/or handgrip strength in the case of severe malnutrition) and other factors. The National Quality Forum Measure #128 (NWF 0421) Preventive Care and Screening uses >23 and <30 for those over the age of 65.

## NIH Classification of Overweight and Obesity by BMI (1)

Classification Obesity Class BMI (kg/m<sup>2</sup>)

- Normal 18.5-24.9
- Overweight 25.0-29.9
- Obesity Class I 30.0-34.9
- Obesity Class II 35.0-39.9
- Extreme Obesity Class III > 40

### BMI can be determined using the following formula:

$$\text{BMI} = \text{weight (kg)} / \text{height (meters squared)}$$

Current weight in kilograms divided by the square of the height in meters  
OR BMI = weight (lbs)/height (inches squared) x 703

## Adjusting Weights for Amputees (1)

To determine adjusted ideal body weight for individuals with amputations, the percentage of body weight indicated by the chart below is subtracted from the ideal body weight (IBW) range.

1. Using the Height/Weight tables on page 3I, determine the individual's normal IBW for height.
2. Locate the percentage weight of the amputated limb and calculate the number of estimated pounds.
3. Subtract the estimated weight of the limb to determine an estimated/adjusted IBW.

Average Weight Percentage of Body Segments:				
Foot 1.5%	Lower Arm and Hand 2.3%	Entire Arm and Hand 5.0%	Lower Leg and Foot 5.9%	Entire Leg 16.0%

## Estimating Ideal Body Weight for People with Paraplegia and Quadriplegia (1)

Determine normal IBW using the charts on page 3. Due to loss of muscle mass, people with paraplegia and quadriplegia will weigh less. Paraplegia, subtract 5-10% from normal IBW. Quadriplegia, subtract 10-15% from normal IBW (17).

## Nutritional Needs for Prevention and Treatment of Pressure Injuries (PI) (4)

Calories	Protein	Fluid	Vitamins/Minerals
Provide <b>30-35 kcals/kg</b> body weight for adults at risk of or with a PI who are assessed as being at risk of malnutrition. Adjust energy intake based on weight change or level of obesity. Adults who are underweight or who have had significant unintended weight loss may need additional energy intake.	Offer <b>1.25-1.5 g pro/kg</b> body weight daily for adults at risk of or with an existing PI who are assessed to be at risk of malnutrition when compatible with goals of care, and reassess as condition changes. Assess renal function to ensure high protein levels are appropriate. Supplement with high protein, arginine and micronutrients for adults with a PI stage III or IV or multiple PIs when nutritional requirements cannot be met with traditional high cal/pro supplements.	Provide and encourage adequate daily fluid intake for hydration for an individual assessed to be at risk of or with a PI. Must be consistent with the person's comorbid condition/goals. Monitor for signs/symptoms of dehydration: change in weight, skin turgor, urine output, elevated serum sodium, and/or calculated serum osmolality.	Provide/encourage an individual assessed to be at risk of or with a PI to take vitamin and mineral supplements when dietary intake is poor or deficiencies are confirmed or suspected.

## Basic Guidelines for Enteral Feeding (1) Refer to 2016 BDA Diet & Nutrition Care Manual, Nutrition Support chapter, pages 10-9 to 10-11 for Complications of Enteral Feeding

Basic guidelines should be followed by all staff delivering care to individuals who receive enteral nutrition (EN). The head of the bed should be elevated to 30-45 degrees at all times to reduce risk of aspiration. Administer enteral formulas at room temperature. Discard open cans of formula if open more than 12 hours. Closed system enteral feeding may hang for >24 hours (refer to manufacturers' guidelines). Nursing staff should check tube placement regularly, and check gastrojejunostomy tubes for gastric residual (every shift or more often as indicated). Some experts recommend that an evaluation be conducted if the gastric residual volume exceeds 200 mL and that feedings be withheld if residuals exceed 500 mL. The jejunal port is not routinely checked for residuals based on its placement and functionality. Nursing should monitor the response to enteral feeding closely. Any signs of nausea, vomiting, diarrhea, abdominal distention, gas and/or residuals above 200 mL, warrant referral to the RDN and/or NDTR to assess for needed alterations in the EN order. Physicians and/or their designees should be notified. Feeding orders may need to be altered to accommodate down times for bathing, therapies, or activities.

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## Sample PES Statements (4) (Please refer to MNT Made Easy pages 46-48)

- Predictive suboptimal nutrient intake related to end of life care as evidenced by diagnosis of end stage renal disease without dialysis treatment.
- Predictive suboptimal (oral) nutrient intake related to poor acceptance of pureed diet with nectar thickened liquids as evidenced by observation of individual's refusal of food served and requests for regular food.
- Inadequate oral intake related to dementia as evidenced by consistent poor p.o. intake and weight loss
- Inadequate energy and protein intake related to short attention span as evidenced by individual's inability to stay in dining room for a full meal.
- Unintentional weight loss related to increased need for energy caused by constant wandering and pacing as evidenced by a weight loss of 5% in the past week.
- Increased energy expenditure related to involuntary physical movements as evidenced by conditions associated with diagnosis of Huntington's Chorea and an unintentional weight loss of 6% in the past 30 days.
- Excessive (intake of energy) energy intake related to increased appetite secondary to antipsychotic meds as evidenced by a documented intake that exceeds calculated needs and a weight gain of 10% in the past 90 days.
- Obesity related to lifelong history of excessive intake as evidenced by reports from family members.

## Height/Weight Tables for Determining Healthy Body Weight Range (Adult Ideal Weight Ranges 51 + Years) (1)

Females		
Height	Weight Range	Mean Weight
4'8"	81-99	90
4'9"	83.5-102	92.5
4'10"	85-105	95
4'11"	87.5-107	97.5
5'0"	90-110	100
5'1"	94-116	105
5'2"	99-121	110
5'3"	104-127	115
5'4"	108-132	120
5'5"	112-138	125
5'6"	117-143	130
5'7"	121-149	135
5'8"	126-154	140
5'9"	130-160	145
5'10"	135-165	150

Males		
Height	Weight Range	Mean Weight
5'0"	95-117	106
5'1"	100-123	112
5'2"	106-130	118
5'3"	111-136	124
5'4"	117-143	130
5'5"	122-150	136
5'6"	127-156	142
5'7"	133-163	148
5'8"	139-169	154
5'9"	144-176	160
5'10"	149-183	166
5'11"	154-189	172
6'0"	160-196	178
6'1"	166-202	184
6'2"	171-209	190

This chart is based on the following formulas:

- **Females:** 100# for the first 5 feet of height plus 5# for each inch over 5 feet of height; minus 2½# for every inch under 5 feet of height; plus or minus 10% to give the range.
- **Males:** 106# for the first 5 feet of height plus 6# for each inch over 5 feet of height; minus 2½# for every inch under 5 feet of height; plus or minus 10% to give the range.

## References:

1. Dorner B. Diet and Nutrition Care Manual: A Comprehensive Nutrition Guide. Naples FL: Becky Dorner & Associates, Inc.; 2016.
2. Dorner B. The Obesity Challenge: Weight management for older adults. Naples FL: Becky Dorner & Associates, Inc.; 2016.
3. Becky Dorner Blog. The Great BMI Debate. January 19, 2016. <http://blog.beckydorner.com/>. Accessed 12/8/16.
4. Dorner B. MNT Made Easy for health care communities. Naples FL: Becky Dorner & Associates, Inc.; 2016.