

# RESEARCH

<b>PEDIATRIC SGNA RATING FORM</b>			
<b>Consider severity and duration of changes, as well as recent progression when rating each item.</b>			
<b>NUTRITION-FOCUSED MEDICAL HISTORY</b>	<b>SGNA SCORE</b>		
	<b>Normal</b>	<b>Moderate</b>	<b>Severe</b>
<b>Appropriateness of Current Height for Age (stunting)</b> a) Height percentile: _____ <input type="checkbox"/> $\geq$ 3 <sup>rd</sup> centile <input type="checkbox"/> just below 3 <sup>rd</sup> centile <input type="checkbox"/> far below 3 <sup>rd</sup> centile			
b) Appropriate considering mid-parental height <sup>a?</sup> : <input type="checkbox"/> yes <input type="checkbox"/> no			
c) Serial growth <sup>b</sup> : <input type="checkbox"/> following centiles <input type="checkbox"/> moving upwards on centiles <input type="checkbox"/> moving downwards on centiles (gradually or quickly)			
<b>Appropriateness of Current Weight for Height (wasting)</b> Ideal Body Weight = _____ kg Percent Ideal Body Weight: _____ % <input type="checkbox"/> >90% <input type="checkbox"/> 75-90% <input type="checkbox"/> <75%			
<b>Unintentional Changes in Body Weight</b> a) Serial weight <sup>b</sup> : <input type="checkbox"/> following centiles <input type="checkbox"/> crossed $\geq$ 1 centile upwards <input type="checkbox"/> crossed $\geq$ 1 centile downwards			
b) Weight loss: <input type="checkbox"/> < 5% usual body weight <input type="checkbox"/> 5-10% usual body weight <input type="checkbox"/> >10% usual body weight			
c) Change in past 2 weeks: <input type="checkbox"/> no change <input type="checkbox"/> increased <input type="checkbox"/> decreased			
<b>Adequacy of Dietary Intake</b> a) Intake is: <input type="checkbox"/> adequate <input type="checkbox"/> inadequate - hypocaloric <input type="checkbox"/> inadequate - starvation (ie, taking little of anything)			
b) Current intake versus usual: <input type="checkbox"/> no change <input type="checkbox"/> increased <input type="checkbox"/> decreased			
c) Duration of change: <input type="checkbox"/> < 2 weeks <input type="checkbox"/> $\geq$ 2 weeks			
<b>Gastrointestinal Symptoms</b> a) <input type="checkbox"/> no symptoms <input type="checkbox"/> one or more symptoms; not daily <input type="checkbox"/> some or all symptoms; daily			
b) Duration of symptoms: <input type="checkbox"/> < 2 weeks <input type="checkbox"/> $\geq$ 2 weeks			
<b>Functional Capacity (nutritionally related)</b> a) <input type="checkbox"/> no impairment, energetic, able to perform age-appropriate activity <input type="checkbox"/> restricted in physically strenuous activity, but able to perform play and/or school activities in a light or sedentary nature; less energy; tired more often <input type="checkbox"/> little or no play or activities, confined to bed or chair > 50% of waking time; no energy; sleeps often			
b) Function in past 2 weeks: <input type="checkbox"/> no change <input type="checkbox"/> increased <input type="checkbox"/> decreased			
<b>Metabolic Stress of Disease</b> <input type="checkbox"/> no stress <input type="checkbox"/> moderate stress <input type="checkbox"/> severe stress			

<sup>a</sup>Mid-parental height: Girls: subtract 13 cm from the father's height and average with the mother's height. Boys: add 13 cm to the mother's height and average with the father's height. Thirteen cm is the average difference in height of women and men. For both girls and boys, 8.5 cm on either side of this calculated value (target height) represents the 3rd to 97th percentiles for anticipated adult height. (29)  
<sup>b</sup>30% of healthy term infants cross one major percentile and 23% cross two major percentiles during the first 2 years of life, typically towards the 50<sup>th</sup> percentile rather than away from it. This is normal seeking of the growth channel.

**Figure 3.** Pediatric Subjective Global Nutritional Assessment (SGNA) rating form. *(continued on next page)*

PHYSICAL EXAM	SGNA SCORE		
	Normal	Moderate	Severe
<b>Loss of subcutaneous fat</b> <input type="checkbox"/> no loss in most or all areas <input type="checkbox"/> loss in some but not all areas <input type="checkbox"/> severe loss in most or all areas			
<b>Muscle Wasting</b> <input type="checkbox"/> no wasting in most or all areas <input type="checkbox"/> wasting in some but not all areas <input type="checkbox"/> severe wasting in most or all areas			
<b>Edema (nutrition-related)</b> <input type="checkbox"/> no edema <input type="checkbox"/> moderate <input type="checkbox"/> severe			
<b>GUIDELINES FOR AGGREGATING ITEMS INTO GLOBAL SCORE</b>			
<p>In assigning an overall global score, consider all items in the context of each other. Give the most consideration to changes in weight gain and growth, intake, and physical signs of loss of fat or muscle mass. Use the other items to support or strengthen these ratings. Take recent changes in context with the patient's usual/chronic status. Was the patient starting off in a normal or nutritionally-compromised state?</p>			
<p><b>Normal/Well nourished</b>            This patient is growing and gaining weight normally, has a grossly adequate intake without gastrointestinal symptoms, shows no or few physical signs of wasting, and exhibits normal functional capacity. Normal ratings in most or all categories, or significant, sustained improvement from a questionable or moderately malnourished state. It is possible to rate a patient as well nourished in spite of some reductions in muscle mass, fat stores, weight and intake. This is based on recent improvement in signs that are mild and inconsistent.</p>			
<p><b>Moderately malnourished</b>            This patient has definite signs of a decrease in weight and/or growth, and intake and may or may not have signs of diminished fat stores, muscle mass and functional capacity. This patient is experiencing a downward trend, but started with normal nutritional status. Moderate ratings in most or all categories, with the potential to progress to a severely malnourished state.</p>			
<p><b>Severely malnourished</b>            This patient has progressive malnutrition with a downward trend in most or all categories. There are significant physical signs of malnutrition—loss of fat stores, muscle wasting, weight loss &gt;10%—as well as decreased intake, excessive gastrointestinal losses and/or acute metabolic stress, and definite loss of functional capacity. Severe ratings in most or all categories with little or no sign of improvement.</p>			
	Normal	Moderate	Severe
<b>OVERALL SGNA RANKING</b>			

**Figure 3.** Pediatric Subjective Global Nutritional Assessment (SGNA) rating form. (continued)

### Nutrition-Focused Physical Examination

A physical exam helps corroborate information obtained in the medical-nutrition history by providing supportive evidence of weight loss or decreased functional capacity. Look for signs of loss of fat stores, muscle wasting, and edema (Figure 5) (35), following a logical and sequential process using a head-to-toe approach. Because it is difficult to determine fat vs muscle loss during the early years of life, physical examination in infants and toddlers assesses fat and muscle stores together as general wasting.

**Loss of Subcutaneous Fat.** Fat content in the body alters with age, increasing rapidly after birth from 14% to 15% of body weight to a peak of 25% to 26% by age 6 months (36). After age 6 months, fat content begins to decrease, reaching a minimum of 13% at age 7 years in boys and 16% at age 6 years in girls, followed by an increase to 14% in boys and 19% in girls around the age of 10 years (36). Infants are therefore physiologically fat compared to chil-

dren and adolescents, and they have a higher proportion of protein in viscera than somatic tissue.

Examine the child's face, arms, chest, and buttocks for loss of subcutaneous fat. Look for clearly defined, bony, or muscular outlines because the outline of muscles is easily observed when there is loss of fat. Hollow facial cheeks, little space between the fingers when pinching fat stores over the biceps and triceps, depressions between the ribs, and flat or baggy buttocks are signs of loss of subcutaneous fat. Evaluation is not meant to be an exact measurement, but to provide a subjective impression of fat stores and losses that may have resulted from inadequate nutrition (11).

**Muscle Wasting.** Muscle wasting is defined as loss of bulk and tone. Examine the child's temple, clavicle, shoulder, scapula, thigh, knee, and calf for signs of muscle wasting. Prominent or protruding bone structure at the clavicle, shoulder, scapula, and knee sites, and flat or hollow areas in the upper or lower legs, suggest muscle wasting. Ask whether this is the usual amount of