NUTRITION FOCUSED PHYSICAL EXAM (NFPE): ASSESSING MALNUTRITION IN PATIENTS WITH DIABETES

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Training Objectives and Outcomes:

As a result of completing this training, participants will be able to:

1. Evaluate for malnutrition using the nutrition focused physical exam (NFPE) and clinical indicators for individuals with chronic disease states such as diabetes, CKD, and ESRD on dialysis
2. Differentiate between the various types of nutritional supplement options available for use for people with diabetes in a malnourished state
3. Apply appropriate patient care recommendations and interventions in the management of diabetic patients with nutritional deficiencies

Getting Started

REMINDER: THIS IS A CASE BY CASE BASIS, NO TWO PEOPLE ARE THE SAME

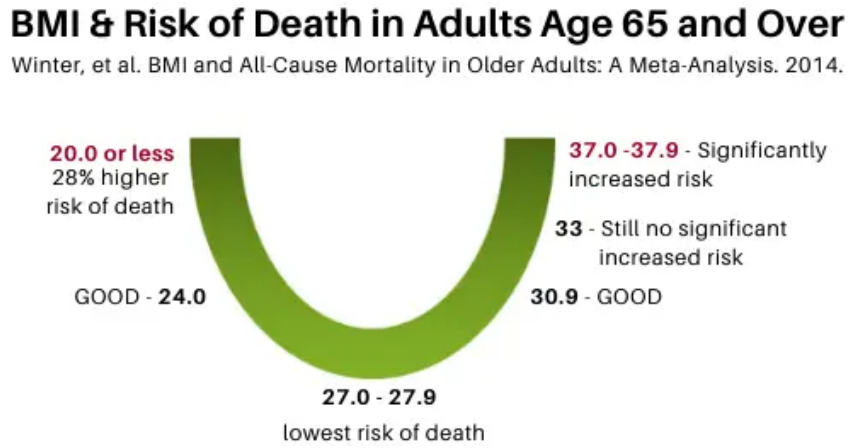
Objective (direct observation)	Subjective (opinions, perceptions, experiences)
Weight + weight history • No shoes or extra clothing Height • No shoes or extra clothing • Use a tape measure or wheel chair scale as needed BMI	Nutrient Requirements • Calorie, protein and fluid needs
	Chewing and swallowing difficulties
	Bowel movements
Lab Values • up to date in the past 1-3 months Diabetes Check • DM: A1c past 3 months • Pre-DM: past 6 months • Normal: past 1 year	Diet Recall • Dietary Restrictions • Changes in food consumption • Food Allergies • Food preferences
Other Chronic Disease States Diabetes, CKD, Liver disease, Lung, Underweight, Dialysis, etc.	Family Medical History
Mobility	Environmental/socioeconomic influence
Verified Medications	Mental Capacity
Functional Capacity	Physical Activity

BMI Recommendations Based on Age

BMI- Adults
<18.5- Underweight
18.5-24.9- Normal
25.0-29.9- Overweight
30.0-34.9- Class I Obesity
35.0-39.9- Class II Obesity
>40- Class III Obesity

BMI- Geriatric
<23- Underweight*
24-30- Normal*
31-34.9- Overweight
35-39.9- Class I Obesity
>40- Class II-III Obesity

*IDNT, Essential Pocket Guide for Clinical Nutrition, Nutrition Care of the Older Adult Handbook (AND)



Labs to Assess

More Commonly Ordered

Minerals	Vitamins	Other Labs
Sodium	Thiamin (B1)	GFR
Chloride	Vitamin D	BUN
Magnesium	Vitamin B 12	AST/ALT
Potassium	Folate	Alkaline Phosphatase
Calcium		A1C
Iron (Hgb/Hct/MCV)		TSH w/ reflex
		Total Cholesterol

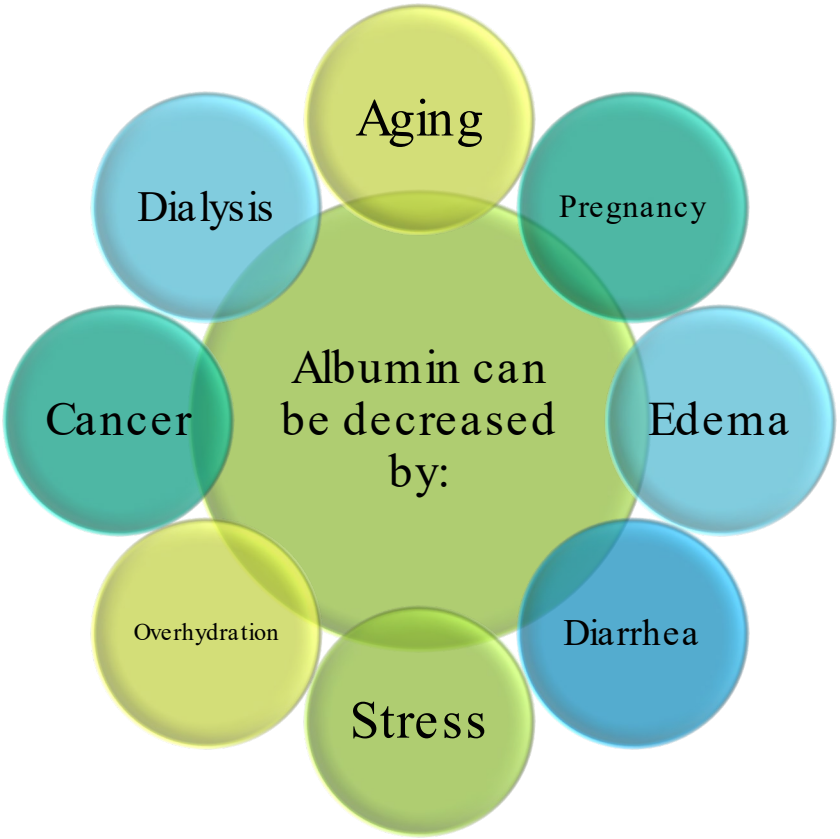
Labs - Less Common

Minerals	Vitamins
Zinc	Vitamin D3
Phosphorus	Vitamin K
	Vitamin C
	Vitamin A
	Vitamin B6
	Vitamin B2 (Riboflavin)

*These may or may not be available depending on your location
Lab Corp indicates a send out lab

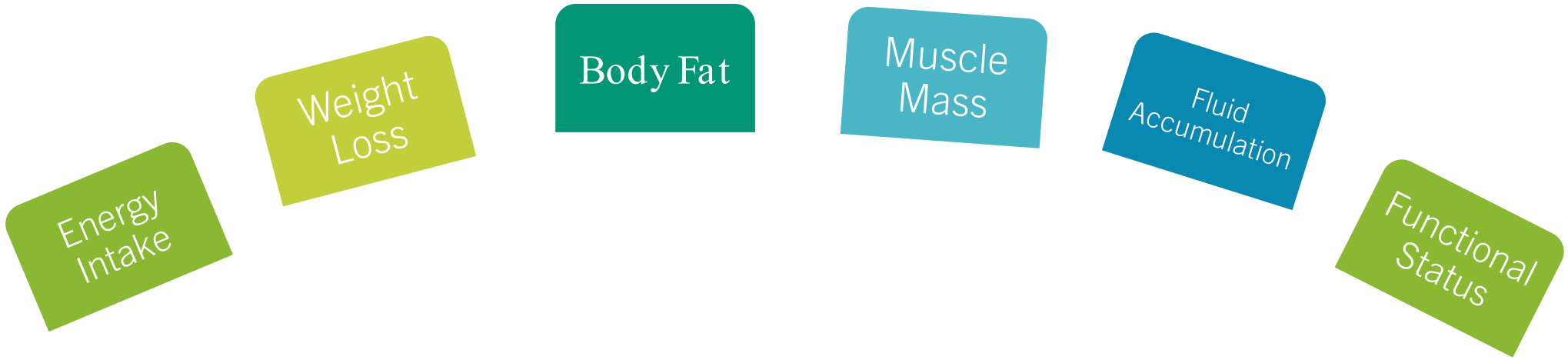
Albumin Myth

- Low albumin doesn't necessarily mean malnutrition
- Example: even anorexic patients can have normal albumin levels
- Feeding before surgery to boost albumin doesn't work because albumin doesn't respond to diet. It reflects the patients overall health not their protein needs
- Even though prealbumin is a better indicator, it can still be affected by health issues like kidney problems, infections, stress or inflammation



"Potential nutrient inadequacies or excesses can be identified through review of the medical record, patient interview including an in-depth evaluation of the patient's diet history, and a nutrition-focused physical examination, plus a good dose of clinical judgment. Let's stop perpetuating the "nutritional status-albumin" myth." - M. Patricia Fuhrman, MS, RD, LD, FADA, CNSD

Patient Evaluation:



Characteristics of Malnutrition

Malnutrition Definition: the presence of two or more of the following characteristics: insufficient energy intake, weight loss, loss of muscle mass, loss of subcutaneous fat, localized or generalized fluid accumulation, and decreased functional status.
*Utilizing NFPE can provide the information for making these identifications.

Academy/ASPEN Clinical Characteristics Criteria

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	
Energy Intake	<75% of estimated energy requirement for >7 days		<50% of estimated energy requirement for >5 days		<75% of estimated energy requirement for >/=1 mo.		<75% of estimated energy requirement for >/=1 mo.		<75% of estimated energy requirement for >/=3 mo.		<50% of estimated energy requirement for >/=1 mo.	
Interpretation of weight loss	%	Time	%	Time	%	Time	%	Time	%	Time	%	Time
	1-2 5 7.5	1 week 1 month 3 months	>2 >5 >7.5	1 week 1 month 3 months	5 7.5 10 20	1 month 3 months 6 months 1 year	>5 >7.5 >10 >20	1 month 3 months 6 months 1 year	>5 >7.5 >10 >20	1 month 3 months 6 months 1 year	>5 >7.5 >10 >20	1 month 3 months 6 months 1 year
Physical Findings												
Body Fat	Mild		Moderate		Mild		Severe		Mild		Severe	
Muscle Mass	Mild		Moderate		Mild		Severe		Mild		Severe	
Fluid Accumulation	Mild		Moderate		Mild		Severe		Mild		Severe	
Reduced Grip Strength	N/A		Measurably Reduced		N/A		Measurably Reduced		N/A		Measurably Reduced	

A minimum of 2 characteristics is recommended for diagnosis of either non-severe or 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 % and to interpret the significance of weight loss
- Basic indicators of nutritional status such as: body weight, weight change and appetite may improve with refeeding in the absence of inflammation
- Re-feeding and/or nutrition support may stabilize but not significantly improve nutrition parameters in the presence of inflammation
- "Chronic" is defined as a disease/condition lasting 3 months or longer
- Serum proteins: albumin and prealbumin are not included as defining characteristics of malnutrition as recent evidence should serum levels of these proteins do not change in response to changes in nutrient intakes

Teamwork in Malnutrition Assessment

Registered Dietitian
- Create personalized medical nutrition therapy, perform NFPE's, educate patients on nutrition

Nurse
- Monitor patients daily condition, appetite and weight, can initiate consults. Essential in providing input for nutritional assessments.

Physicians
- Central role in diagnosing underlying medical conditions that may contribute to malnutrition. Work with dietitians to develop treatment plans.

Speech Language Pathologist
- Assess and treat patients with swallowing difficulties, which can affect a patients ability to consume food and nutrients to ensure safe oral intake

Occupational Therapist
- Assess a patients ability to perform activities of daily living, including meal preparation and eating.

Social Worker
- Identify social determinants of health, such as financial constraints or lack of access to food., which can contribute to malnutrition

Physical Therapist
- Improve strength and mobility, making it easier to engage in activities related to nutrition, such as grocery shopping or meal preparation

Psychologist
- Addressing the psychological and behavioral aspects that can impact a patients nutritional health

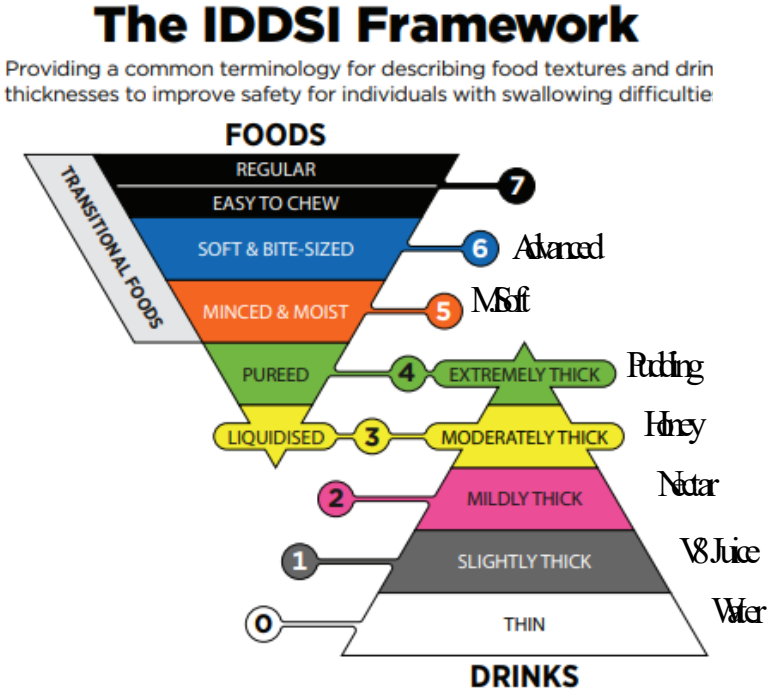
CHEWING and SWALLOWING 101

NDD Level 1: Dysphagia-Pureed
- very cohesive, pudding-like, requiring very little chewing ability

NDD Level 2: Dysphagia-Mechanical Altered
- cohesive, moist, semisolid foods, requiring some chewing

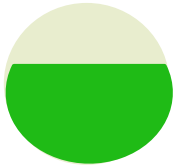
NDD Level 3: Dysphagia-Advanced
- soft foods that require more chewing ability

Regular
- all foods allowed



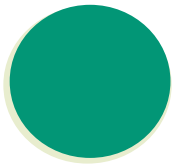
Nectar Thick

Consistency of an eggnog or thick cream soup. The liquid is mildly thick so it coats the glass, beads on the end of a fork or pours like cream



Honey Thick

Looks like fresh honey pouring off a spoon. The spoon should stand up in a glass of liquid, but an individual should still be able to drink this moderately thick liquid out of a glass



Pudding/Spoon Thick

Requires "drinking" the extremely thick liquid with a spoon. It should stay on the spoon like whipped cream

Chewing and Swallowing Concerns

Ask about chewing/swallowing concerns:

Do you have any:

1. Coughing/choking with foods or liquids?
2. Need extra time to chew or swallow foods or liquids?

CHART REVIEW: Recurring pneumonia, unintentional weight loss, new diagnosis of disease states see on the right

Assess for: weight loss from not being able to eat enough or dehydration due to fear of choking/coughing

The SLP is your ally to provide the patient with the best patient-centered care

Common causes swallowing disorders

- **Stroke***
- **Brain injury***
- Spinal cord injury
- **Parkinson's disease***
- Multiple sclerosis
- ALS or Lou Gehrig's disease
- Muscular dystrophy
- Cerebral palsy
- **Alzheimer's disease/dementia***
- Cancer in the mouth, throat, esophagus, brain
- Injury or surgery involving the head and neck
- **Decayed or missing teeth, or poorly fitting dentures****

**Most commonly seen at CSU that results in chewing/swallowing concerns and a immediate referral to the SLP

Evaluation for Thickener

Weight and Weight History ▪ No shoes or extra clothing	**Height** ▪ No shoes or extra clothing ▪ Use a tape measure or wheel chair scale as needed
BMI	**SLP Evaluation** ▪ done in the <u>past year</u>, if not, referral is needed (ASAP)
Diet Recall	**Dietary Restriction**
Nutrient Requirements ▪ Calorie, protein, and fluid needs	**Lab Values** ▪ up to date in the past 1-3 months
Other Chronic Disease States Diabetes, CKD, Liver disease, Underweight, Dialysis, etc.	**Diabetes Check** ▪ DM: A1c past 3 months ▪ Pre-DM: past 6 months ▪ Normal: past 1 year

REMINDER: THIS IS A CASE BY CASE BASIS, NO TWO PEOPLE ARE THE SAME, EVEN IF THEY HAVE THE SAME DISEASE STATES

Carbs:
N/A/ #1
4g/#2
6g/#3
7g/#4

Carbs:
1g/ #1 (6oz)
1g/#2
2g/#3
4g/#4

Carbs:
4g/ #1
6g/#2
7g/#3
8g/#4

Carbs:
0g/ #1
1g/#2
2g/#3
3g/#4

Carbs:
0g/ #1
1g/#2
2g/#3
7g/#4

Carbs:
0g/ #1
1g/#2
2g/#3
3g/#4

FYI: SLP determines texture and liquid consistency

<u>MUST HAVE:</u> SLP evaluation that has been completed in the past year

1. Nutrition Consult ordered by doctor/SLP/dietitian
2. Dietitian educates patient on type of thickened liquid and how to thicken it

- SLP evaluation/recommendations are valid for 1 year

Preparation to Conduct A Nutrition Focused Physical Exam (NFPE)

- NFPE: a physical exam that RDs perform to assess nutritional status or evaluate malnutrition
- Nutrition Focused Physical Findings: nutrition-related physical signs or symptoms associated with pathophysiological states derived from a nutrition-focused physical exam, interview, and/or the health record

RD preparation:

1. Review the medical record, social history, labs and medications
2. Wash and dry hands, wear gloves/PPE when appropriate
3. Use your time wisely

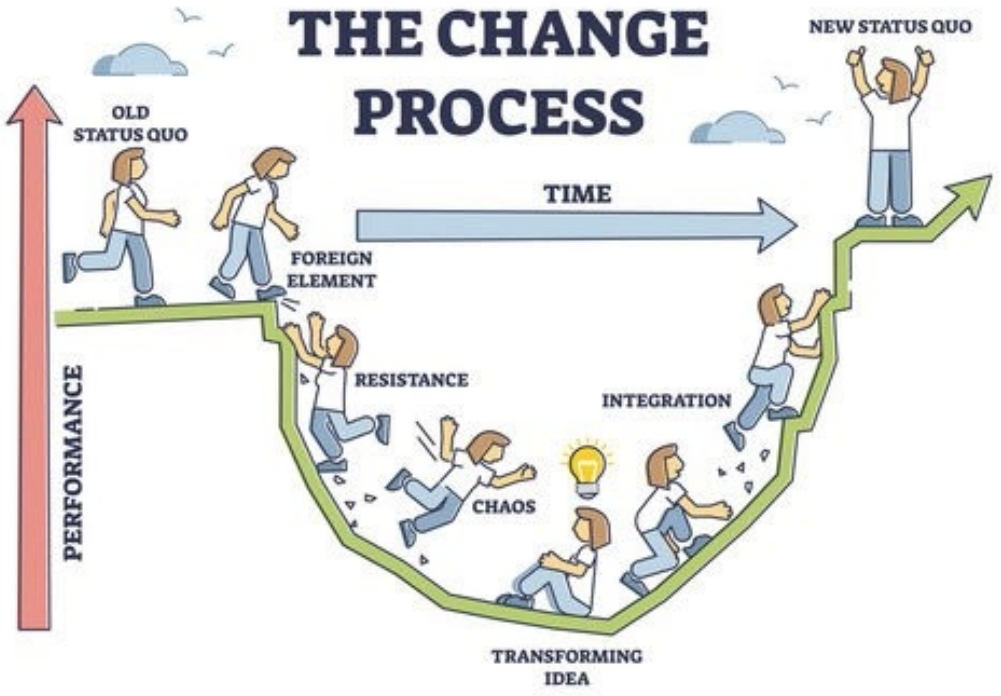
Prepare the Patient

1. Ensure the door to exam room is closed
2. Introduce self and explain the process
   - Example: Would it be okay if I did a nutrition focused physical exam to see if you have lost weight or muscle?
3. Provide rationale for examination request
   - Rationale: to assess nutritional status or evaluate malnutrition (sound bite)
4. Respect patient privacy and **ask permission before** getting started
5. Use professional language
6. Expose areas of body only as needed
   - Start Global -> Focused

TIP: Explain throughout the assessment what you are looking for, so the patient feels included, as you will need their participation for it to be successful

How to get comfortable with conducting NFPE's

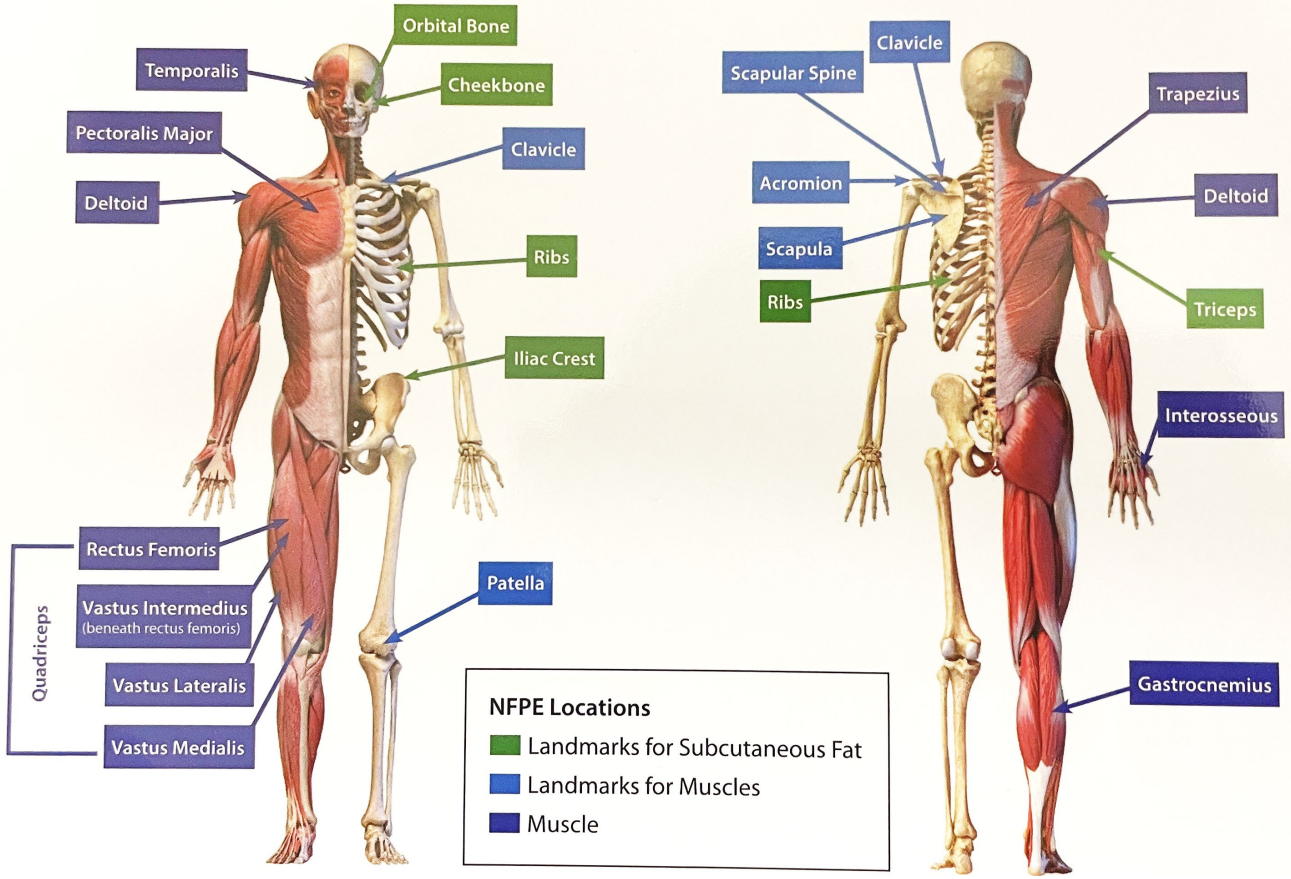
- Performing an NFPE can be intimidating — especially if you didn't receive much training on how to thoroughly perform one
- How to become more comfortable:
  1. Ask a family member or friend if you can perform one on them
  2. If you know another RD coworker that regularly performs NFPE's, ask if you can shadow them or if they can coach you on a few patients

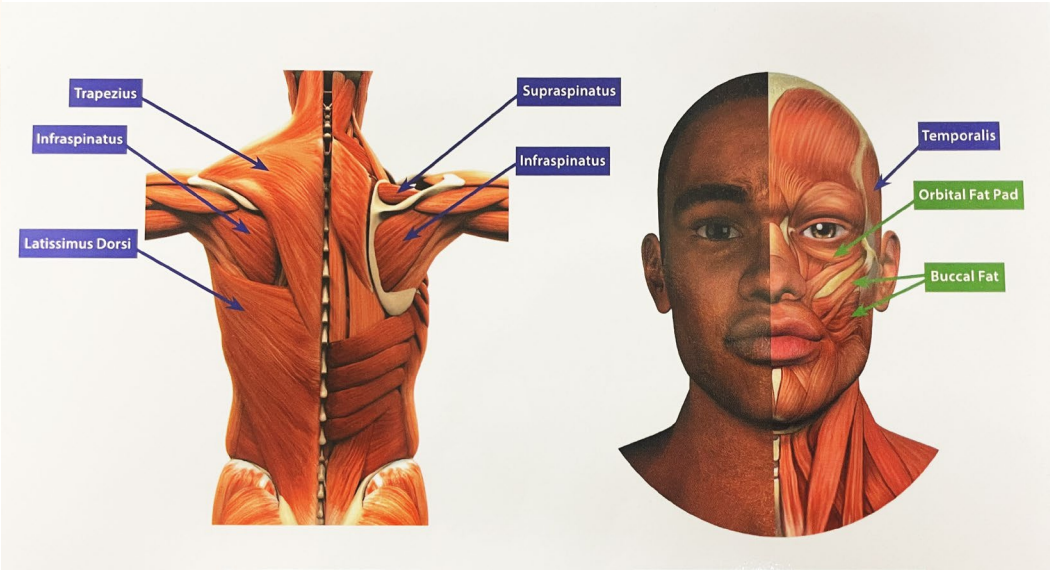


The Bottom Line

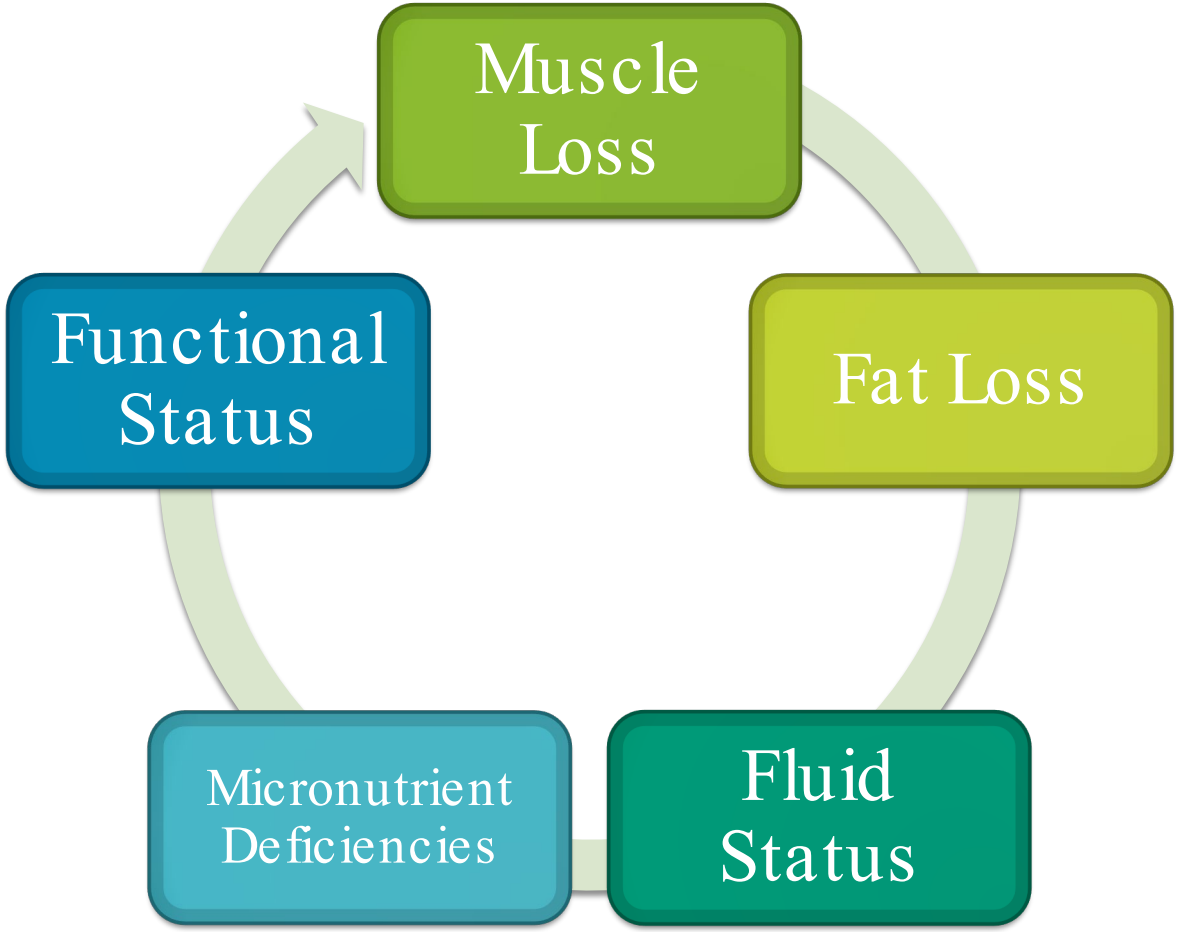
- A NFPE helps RD's determine nutritional status by identifying and diagnosing malnutrition
- The exam focuses on characteristics such as muscle wasting, subcutaneous fat loss, edema, and specific micronutrient-related deficiencies
- While many RDs feel uncomfortable or ill-trained to perform NFPEs, the only way to get comfortable with them is through hands-on practice
- It also helps to understand their usefulness in diagnosing malnutrition so that early nutrition interventions can be implemented

Diagram of Muscles and Bones





Components of the Exam



Muscle loss - Areas to Assess

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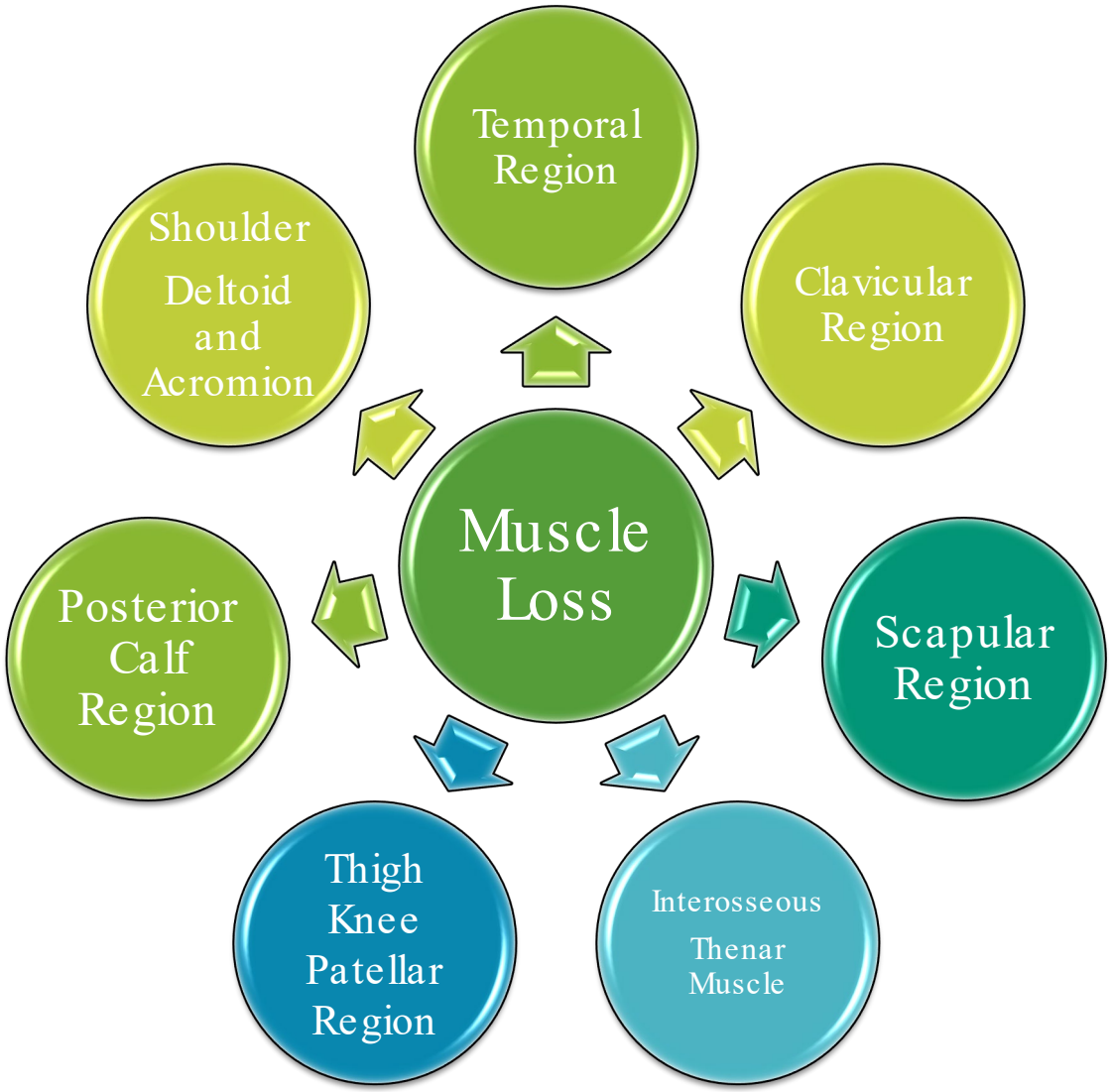
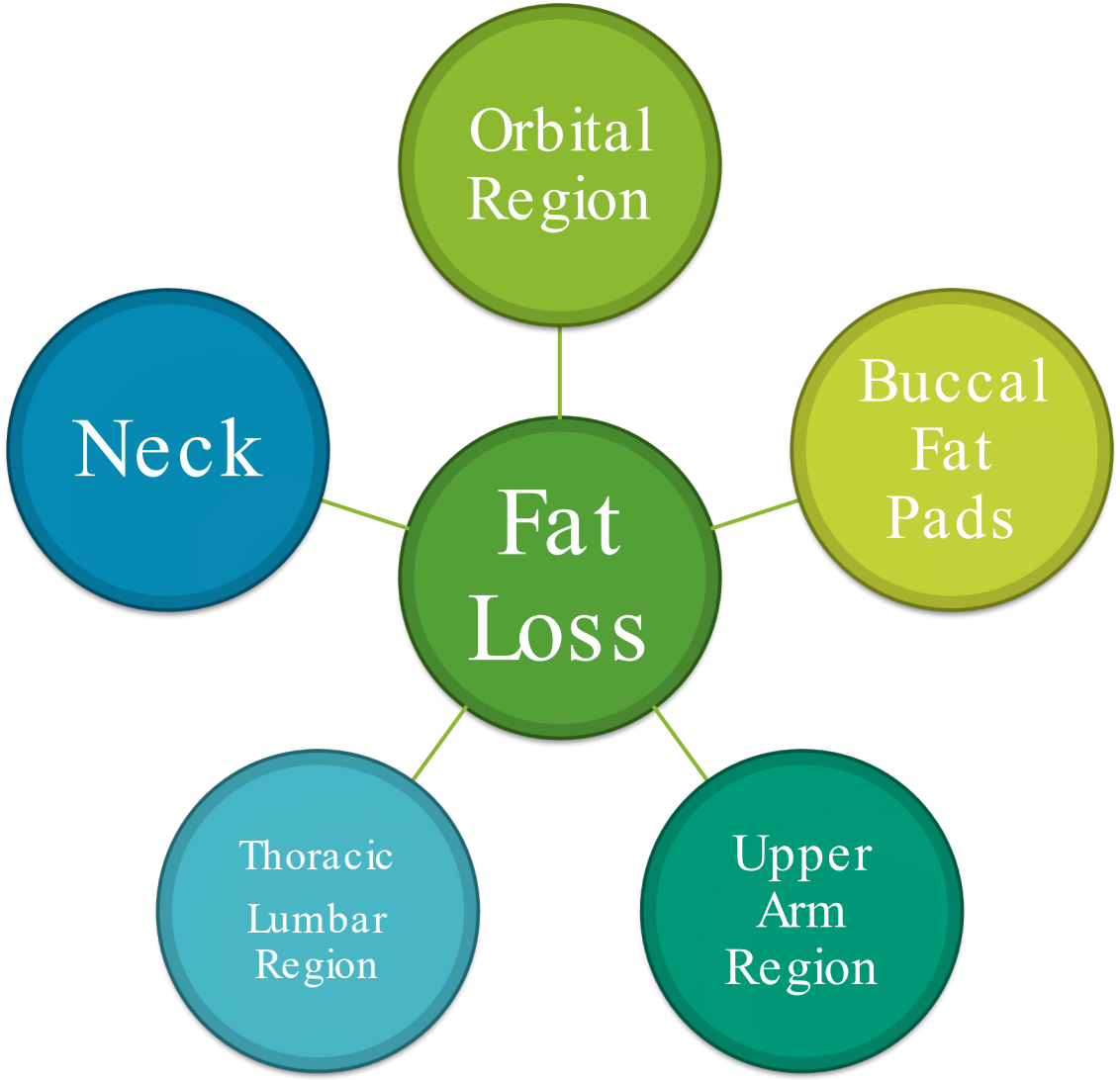
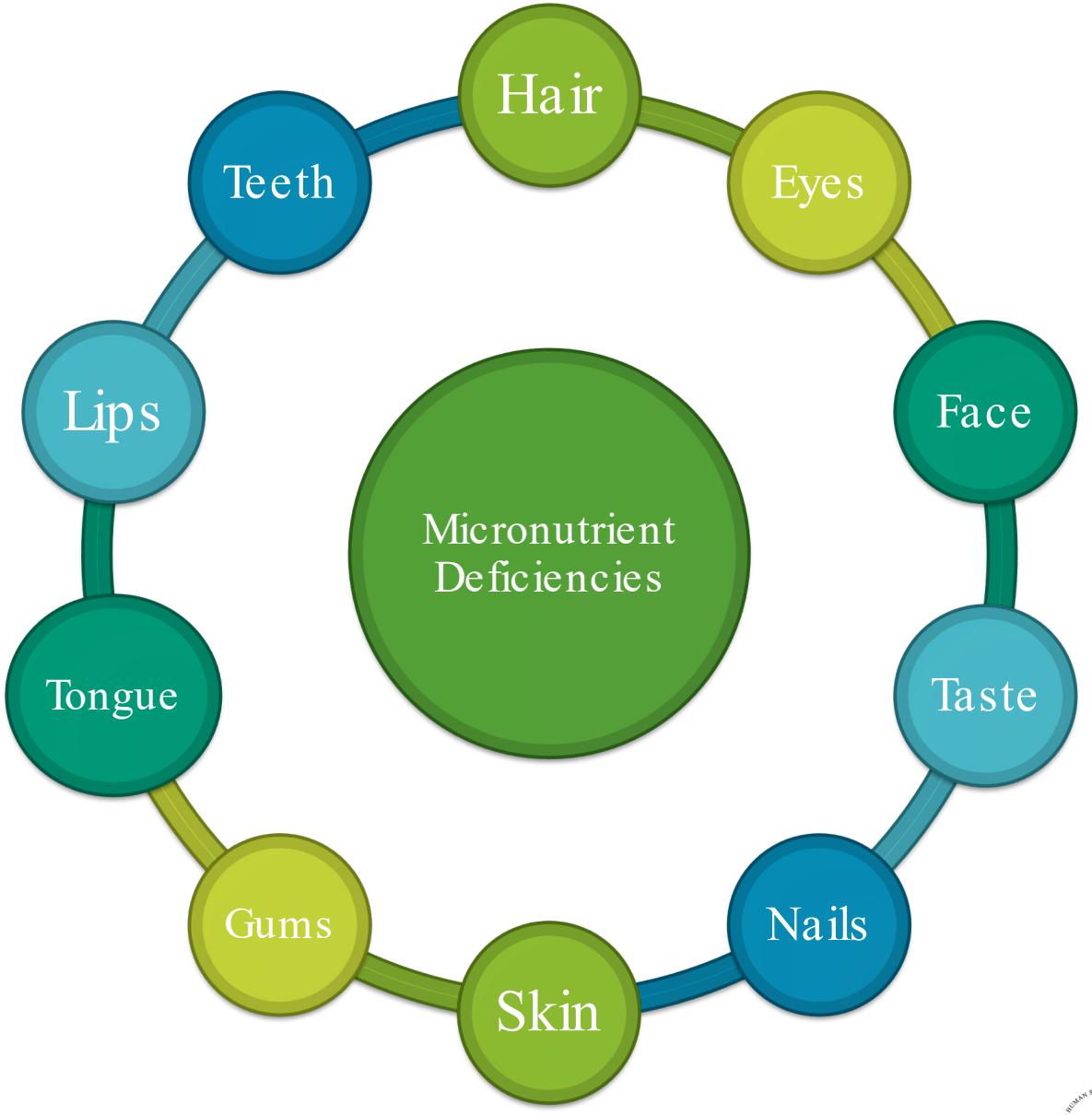


Fat loss- Areas to Assess

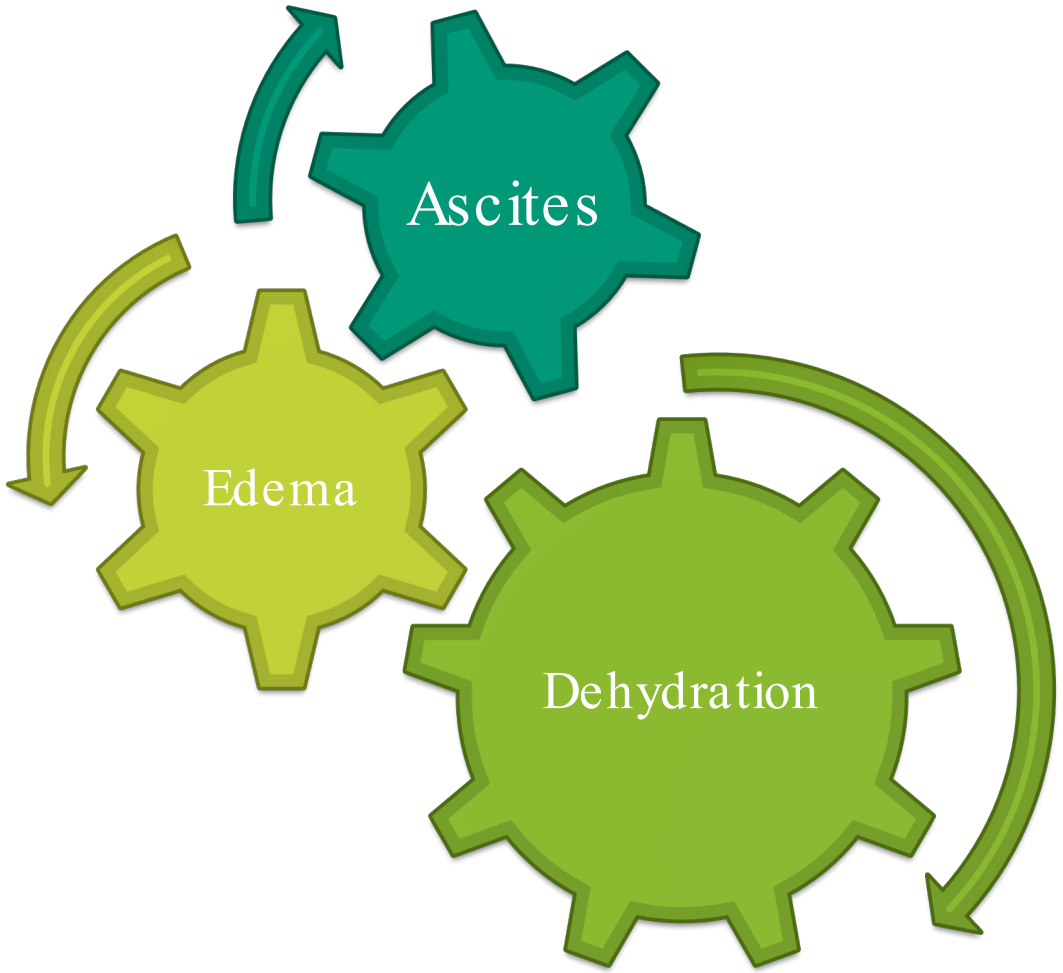


Functional Status

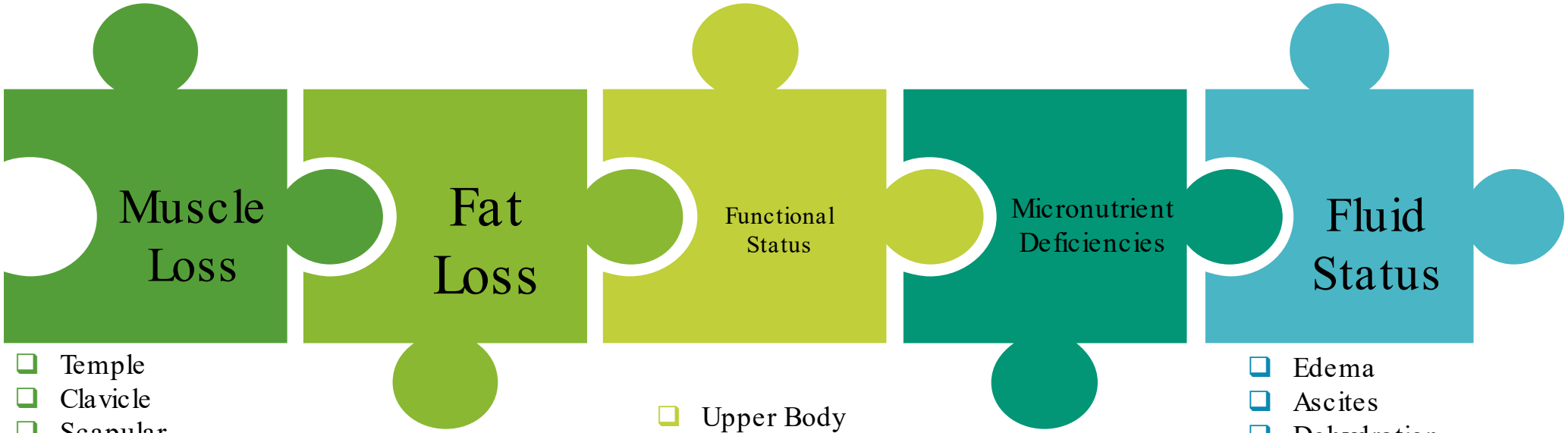
Micronutrient Status: Areas to Assess



Fluid Status: Areas to Assess



Putting it All Together- Nutrition Focused Physical Exam



- Temple
- Clavicle
- Scapular
- Shoulder/Deltoid/ Acromion
- Interosseous
- Thenar
- Thigh/Knee/Patella Region
- Posterior Calf Region

- Orbitals
- Buccal Fat Pads
- Neck
- Upper Arm Region
- Thoracic/Lumbar Region

- Upper Body
- **Lower Body**
- **Basic ADL's**
- **AADL's**

- Hair
- Face
- Skin
- Eyes
- Taste
- Teeth
- Lips
- Tongue
- Gums
- Nails

- Edema
- Ascites
- Dehydration

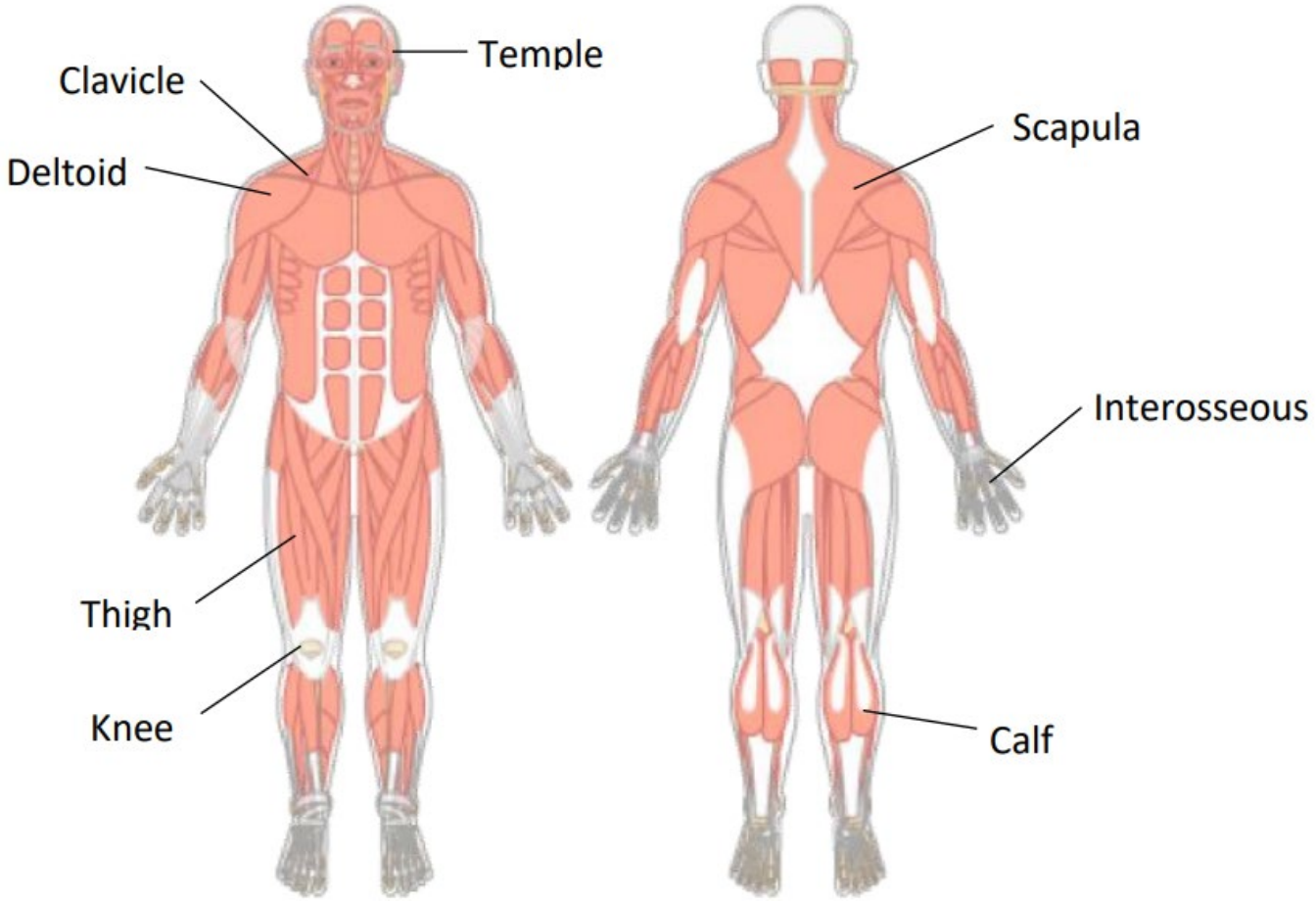
Nutrition Focused Physical Exam – Parameters Useful in the Assessment of Nutritional Status			
Area to Assess	**Severe Malnutrition**	**Mild-Moderate Malnutrition**	**Well Nourished**
Subcutaneous fat loss			
Orbital Region – Surrounding the Eye **Buccal fat pads (cheeks)**	Hollow look, depressions, dark circles, loose skin hollow and sunken appearance	Slightly dark circles, somewhat hollow look flat cheeks with minimal bounce	Slightly bulged fat pads. Fluid retention may mask loss full, round and filled out cheeks
Neck sternal mastoid and trapezius muscles	Neck anatomy is clear and individual muscles, especially the sternal mastoid and trapezius muscles, as well as the clavicles, easily visualized.	Individual muscle anatomy less apparent visually. Clavicles less protuberant	Subcutaneous fat present, muscles not easily visualized
Upper Arm Region- triceps/biceps	Very little space between folds, fingers touch	Some depth pinch, but not ample	Ample fat tissue obvious between folds of skin
Thoracic and Lumbar Region - ribs, lower back, mid-axillary line	Depression between the ribs very apparent. Iliac Crest very prominent	Ribs apparent, depressions between them less pronounced. Iliac Crest somewhat prominent	Chest is full, ribs do not show. Slight to no protrusion of the iliac crest.
Muscle loss			
Temple Region - temporalis muscle	Hollowing, scooping, depression	Slight depression	Can see/feel well-defined muscle/may look flat/bulged
Clavicle Bone Region - pectoralis major	Protruding, prominent bone	Visible in male, some protrusion in female	Not visible in male, visible but not prominent in female
Shoulder/Deltoid and Acromion (a-crow-meon) deltoid, acromion process **Scapular Region**: trapezius muscles, supraspinatus, infraspinatus, latissimus dorsi	Shoulder to arm joint looks square. Bones prominent. Acromion protrusion very prominent prominent scapula, visible depressions	Acromion process may slightly protrude slight protrusion of scapula, depressions	Rounded, curves at arm/shoulder/neck bones not prominent, no significant depressions, taut muscle
interosseous muscle (use dominant hand) **Thenar** (palm of hand) **(ask to cup hand)**	Depressed area between thumb-forefinger depressed area, flat appearance, indentation	Slightly depressed slight depression	Muscle bulges, could be flat in some well-nourished people muscles rounded and firm, bones not prominent
Lower body (less sensitive to change)			
Thigh/Knee/Patellar Region – quadriceps muscles and patella	line/depression along thigh, thin, patella prominent, with square appearance	mild depression of inner thigh, patella slightly prominent	well rounded, muscles protrude, knee not prominent
Posterior Calf Region (point toe down)- gastrocnemius muscles	Thin, stringy, minimal to no muscle definition	Not well developed. some firmness	Well-developed bulb of muscle, firm
Edema			
Rule out other causes of edema, patient **at dry weight**	Deep to very deep pitting, depression lasts a short to moderate time (31-60sec) extremity looks swollen (3-4+)	Mild to moderate pitting, slight swelling of the extremity, indentation subsides quickly (0-30 sec)	No sign of fluid accumulation

Bilateral Muscle Wasting

Upper Body

Temples	Thigh
Deltoids (shoulders)	Knee
Clavicles	Calf
Scapula	
Interosseous/Thenar	

Lower Body

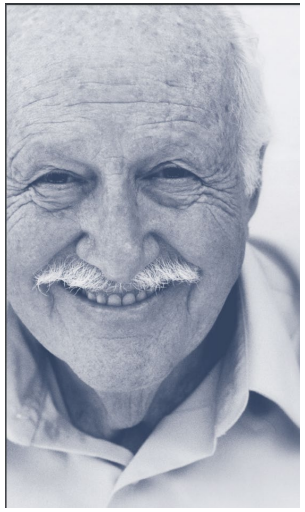


Muscle Wasting: Temporal Region

How to Assess: View patient straight on and have them turn their head from side to side

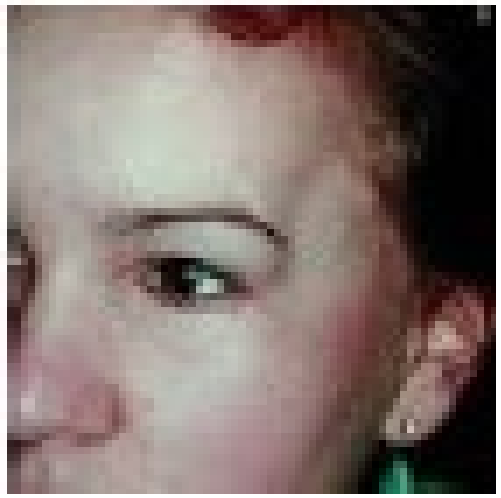
Normal

Can see/feel well-defined muscle/may look flat/bulged



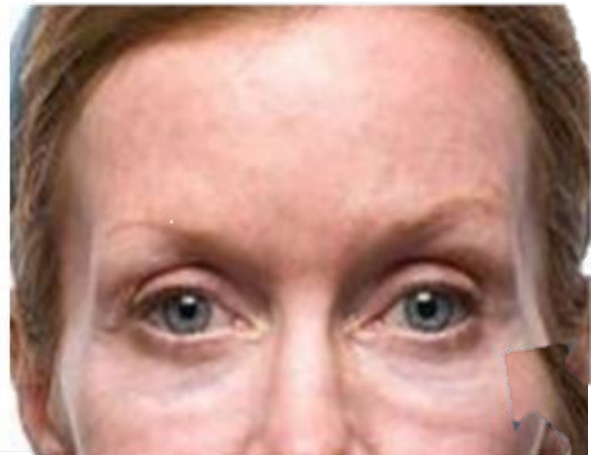
Mild-Moderate

Slight depression



Severe

Hollowing, scooping, depression

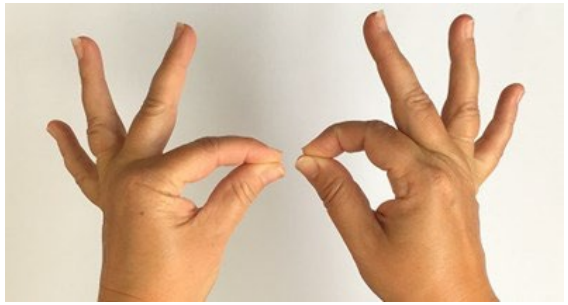


Muscle Wasting: Interosseous

How to Assess: Ask the patient to make an "OK" sign by pressing their thumb and index finger together, then palpate the muscle near the metacarpal bone.

Normal

- Muscle bulges, could be flat in some well-nourished people

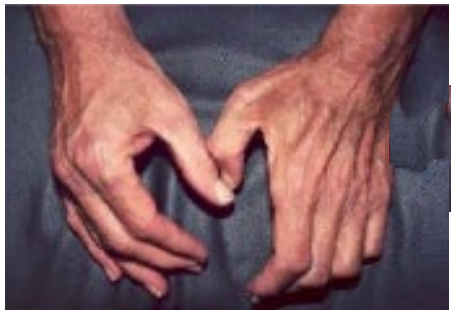


Mild-Moderate

- Slightly depressed

Severe

- Depressed area between thumb-forefinger

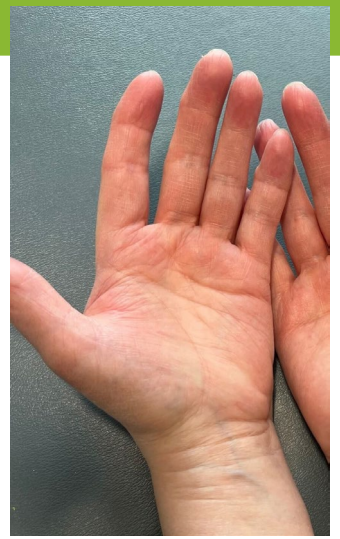


Muscle Wasting: Thenar

How to Assess: Make a cup with the hand as if there were water in the hand.

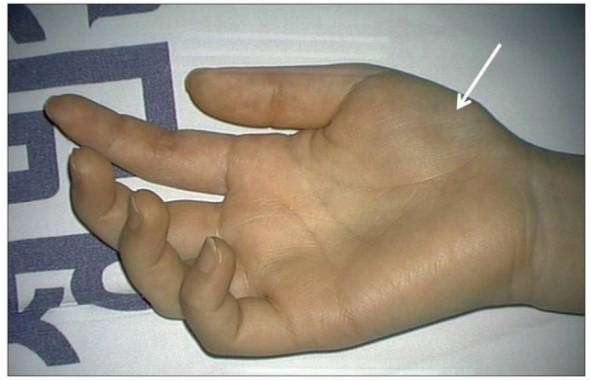
Normal

muscles rounded and firm, bones not prominent



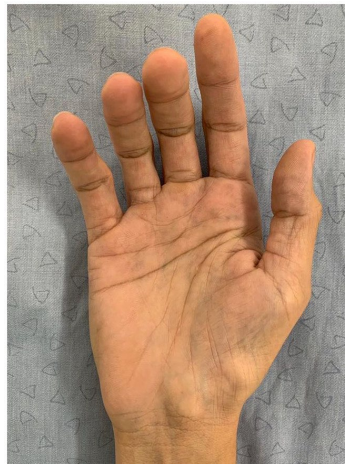
Mild-Moderate

slight depression



Severe

depressed area, flat appearance, indentation

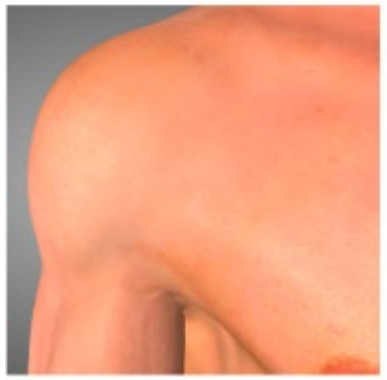


Muscle Wasting: Shoulder/Deltoid and Acromion

How to Assess: Patient arms at sides, observe shape, palpitate end of shoulder for bony protrusion

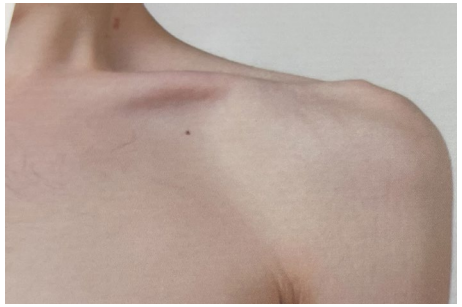
Normal

- Rounded, curves at arm/shoulder/neck



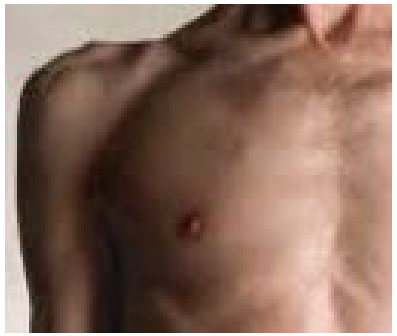
Mild-Moderate

- Acromion process may slightly protrude



Severe

- Shoulder to arm joint looks square. Bones prominent. Acromion protrusion very prominent

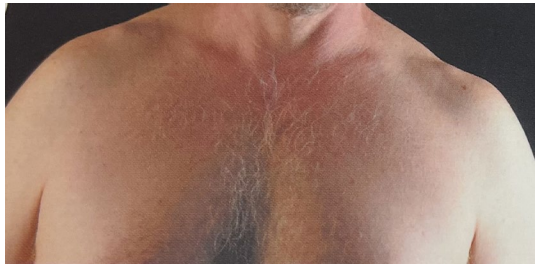


Muscle Wasting: Clavicles

How to Assess: Patient should be sitting or standing, ensure shoulders are back, no hunching, use pads of fingers to press along the clavicle bone (above or below) to palpate for muscle tone or resistance. Squaring at junction of neck for muscle loss (may have squishy or gelatin-like feel)

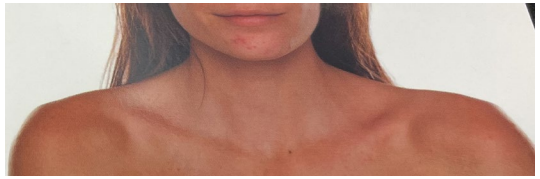
Normal

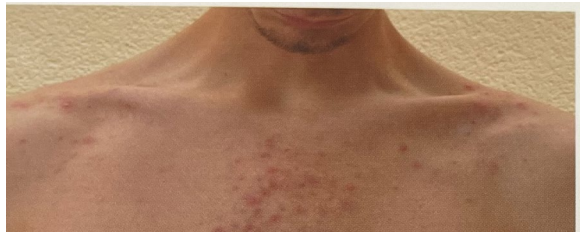
- Not visible in male, visible but not prominent in female



Mild-Moderate

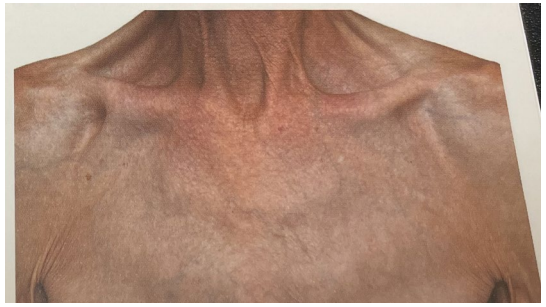
- Visible in male, some protrusion in female





Severe

- Protruding, prominent bone

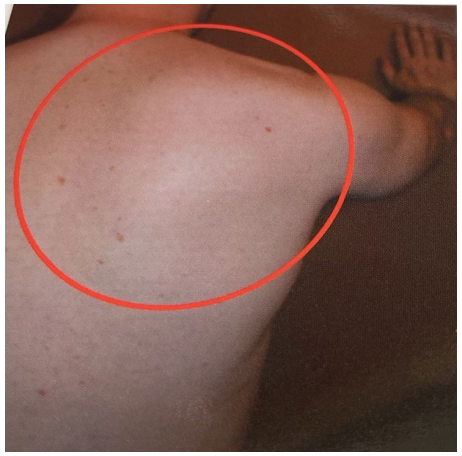


Muscle Wasting: Scapular Region

How to Assess: Have patient extend arms forward and press on a hard object (e.g. wall or your hand) to engage the muscles, palpate above and below the scapula to assess the muscles

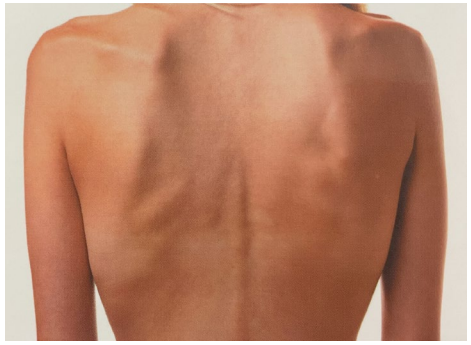
Normal

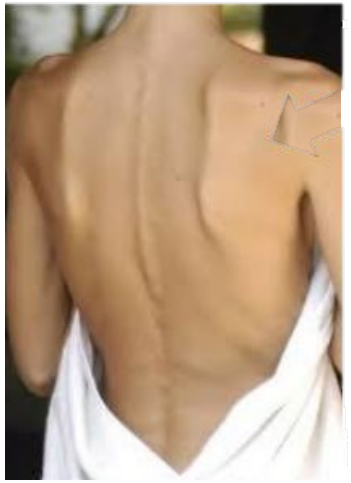
bones not prominent, no significant depressions, taut muscle



Mild-Moderate

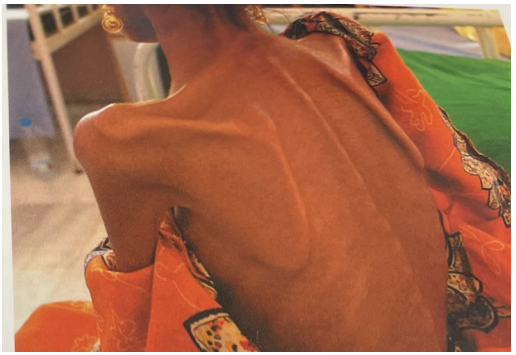
slight protrusion of scapula, depressions





Severe

prominent scapula, visible depressions

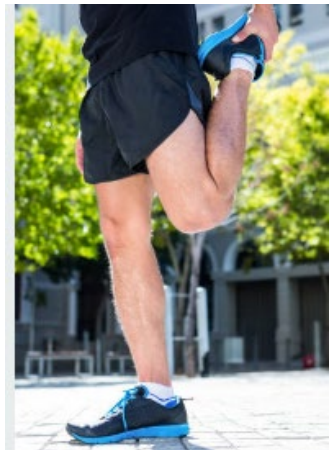


Muscle Wasting: Quadriceps and Patella

How to Assess: Patient to sit and bend leg with thigh off chair, knee bent to view muscles. Use hand to cup above and below and around patella

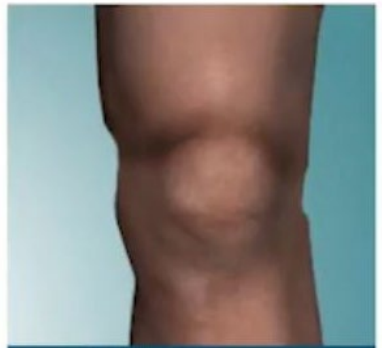
Normal

- well rounded, muscles protrude, knee not prominent



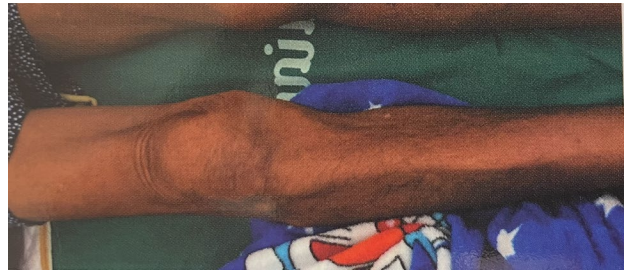
Mild-Moderate

- mild depression of inner thigh, patella slightly prominent



Severe

- line/depression along thigh, thin, patella prominent, with square appearance

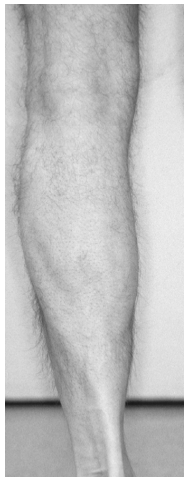


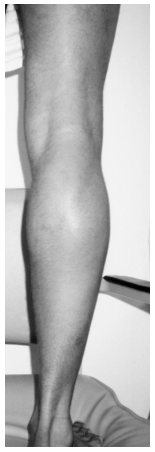
Muscle Wasting: Posterior Calf Region

How to Assess: Hold or support the patients ankle or ask the patient to bend leg while cupping calf region to assess muscle OR ask patient to engage muscle by pointing or flexing toe

Normal

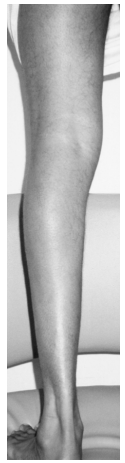
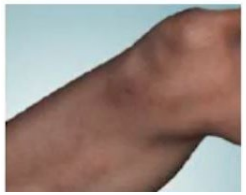
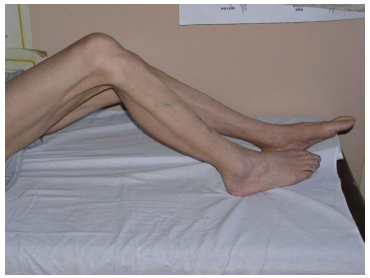
- Well-developed bulb of muscle, firm





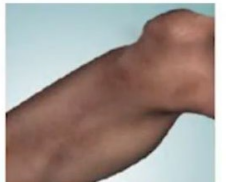
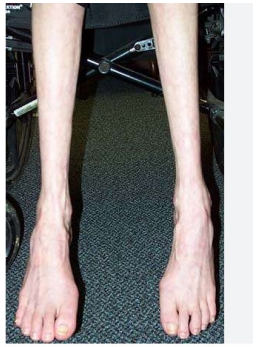
Mild-Moderate

- Not well developed. some firmness

Severe

- Thin, stringy, minimal to no muscle definition

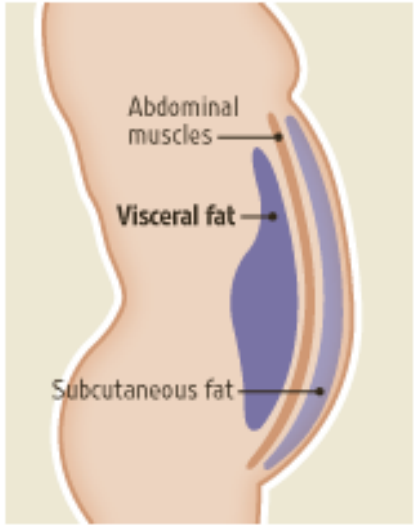



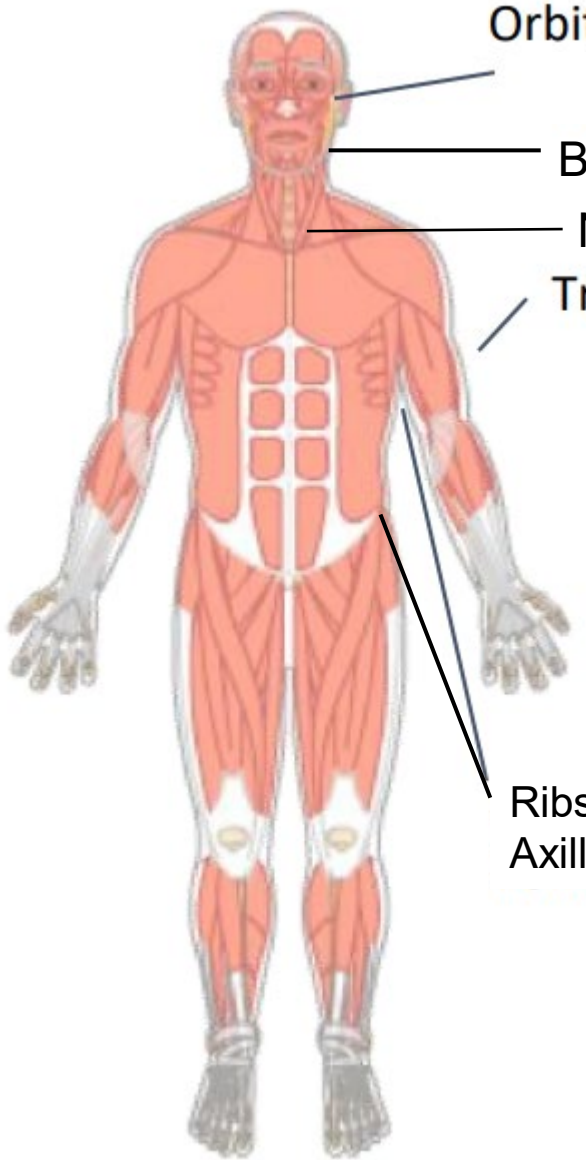
Subcutaneous Fat Loss

How to assess:
Inspect and palpate areas where adipose tissue is normally present.

Note:
Age-related loss of subcutaneous tissue may confound findings

Looking for:
Loss of fullness, loose or hanging skin or hollow appearance





Subcutaneous Fat Loss: Orbital Fat Pads

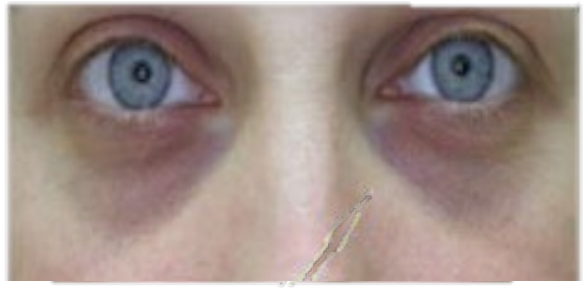
How to Assess: View patient when standing directly in front of them, Use your thumbs or fingers to palpate under the eye and above the cheekbone

Normal

- Slightly bulged fat pads.
- Fluid retention may mask loss

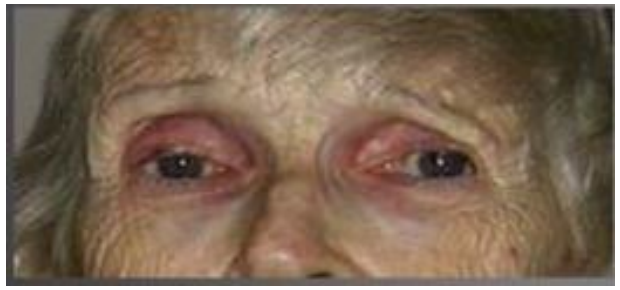
Mild-Moderate

- Slightly dark circles, somewhat hollow and tired



Severe

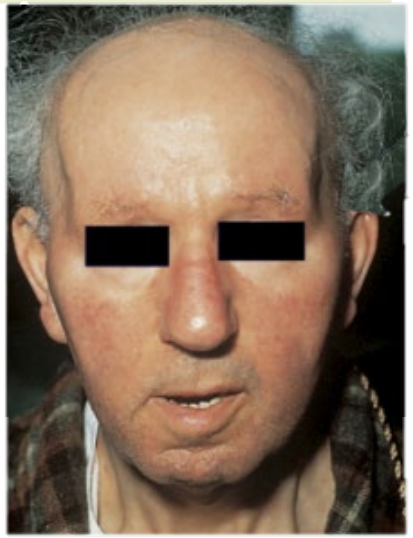
- Hollow look, depressions, dark circles, loose skin

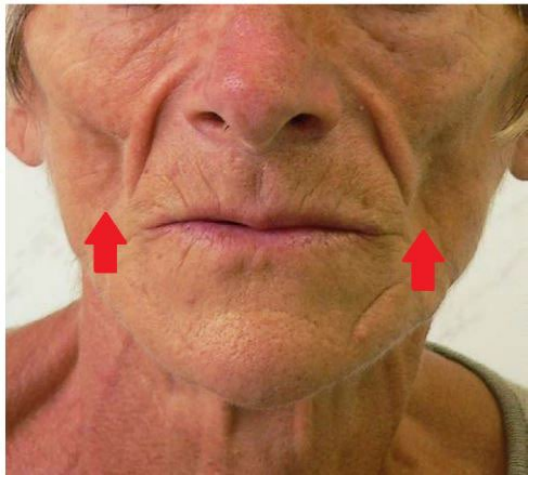


Subcutaneous Fat Loss: Buccal Fat Pads

How to Assess: View patient when standing directly in front of them, touch above the cheekbone as needed

Normal	Mild-Moderate	Severe
• full, round and filled out cheeks	• flat cheeks with minimal bounce	• hollow and sunken appearance



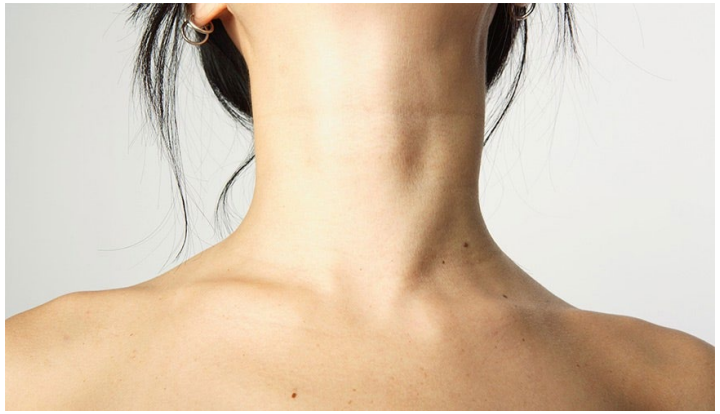


Subcutaneous Fat Loss: Neck

How to Assess: squaring at the junction of the neck, look for indentation

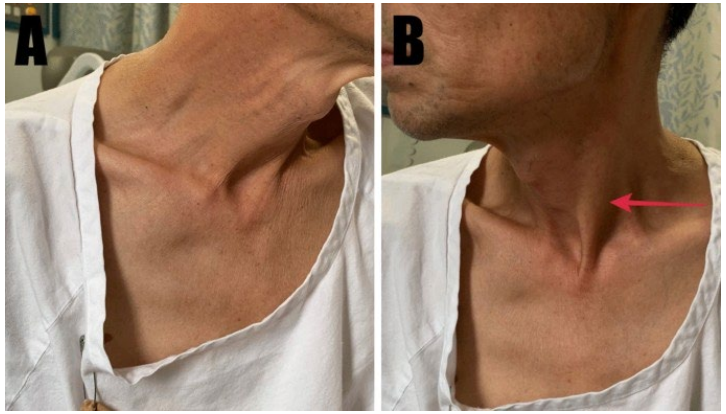
Normal

- Subcutaneous fat present, muscles not easily visualized



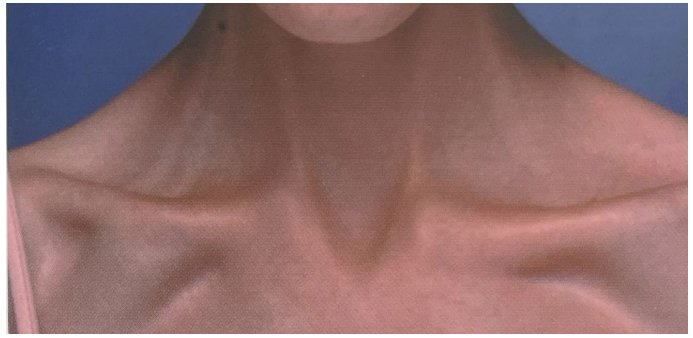
Mild-Moderate

- Individual muscle anatomy less apparent visually. Clavicles less protuberant



Severe

- Neck anatomy is clear and individual muscles, especially the sternal mastoid and trapezius muscles, as well as the clavicles, easily visualized.

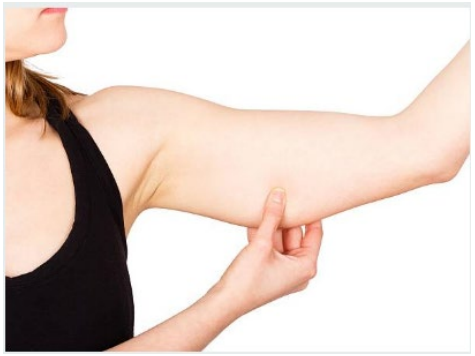


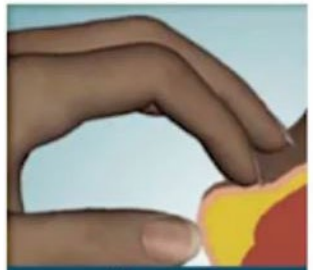
Subcutaneous Fat Loss: Triceps/Biceps:

How to Assess: Have patient put arm at a 90-degree angle, grasp the middle of the back of the arm between the elbow and armpit. Then roll down to separate muscle from fat and then pinch the fat between your fingers to assess feel and space.

Normal

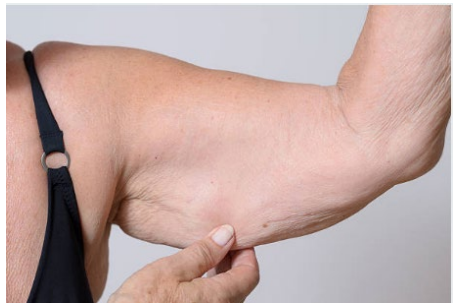
- Ample fat tissue obvious between folds of skin

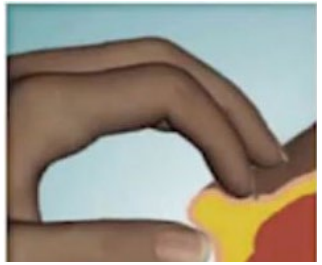




Mild-Moderate

- Slightly loose skin, fingers almost touch, some depth to pinch, but not ample



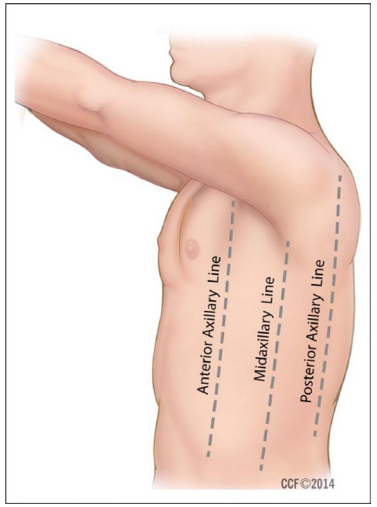


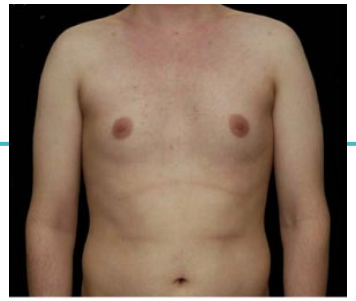
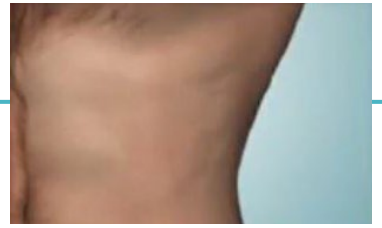
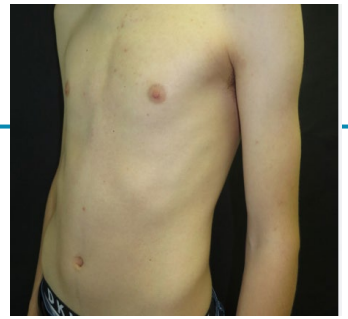
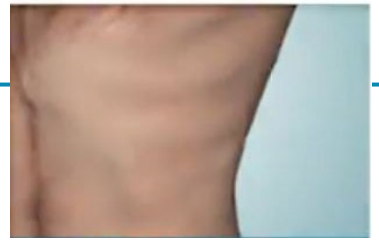
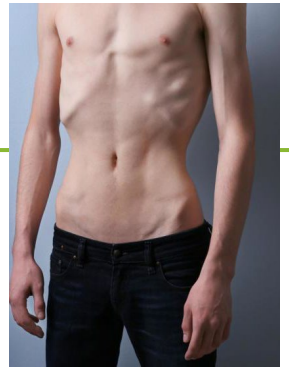
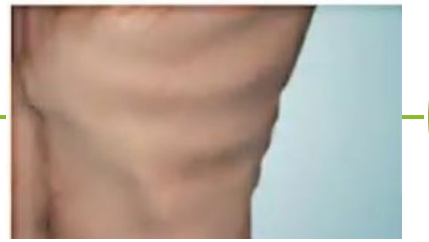
Severe

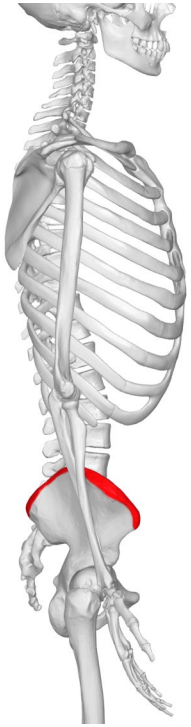
- Loose skin, very little space between folds or fingers are touching

Subcutaneous Fat loss: Thoracic and Lumbar Region

How to Assess: Examine the chest for visible ribs and pinch above the iliac crest to examine for fat loss.



Normal			Chest is full, ribs do not show. Slight to no protrusion of the iliac crest.
Mild-Moderate			Ribs visible with mild depression, able to pinch some fat rom iliac crest
Severe			Ribs visible with prominent depressions, iliac crest very prominent, little to no fat to pinch



Functional Status – Upper body strength

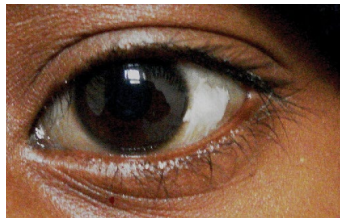
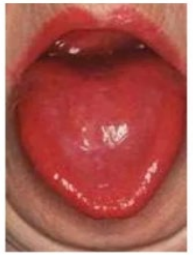
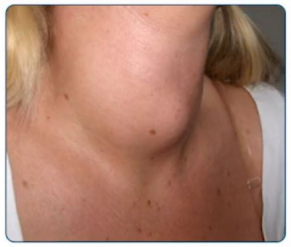
How to Assess:

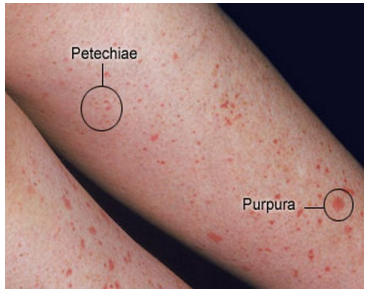
- Resistance Testing (Dynamometer)
  - Hydraulic type
  - Pneumatic type
  - Spring-type
- Manual Testing
  - Hands-on

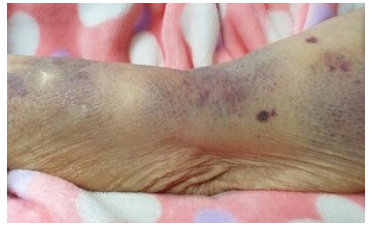
Micronutrient Exam: Findings

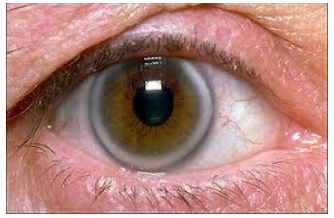
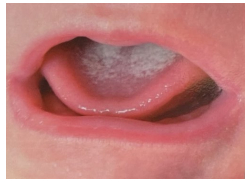
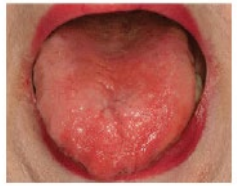
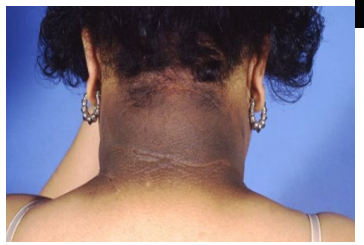
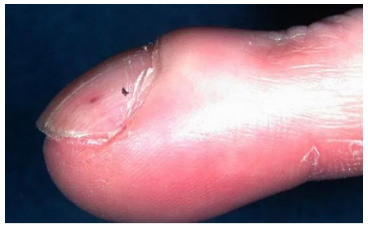
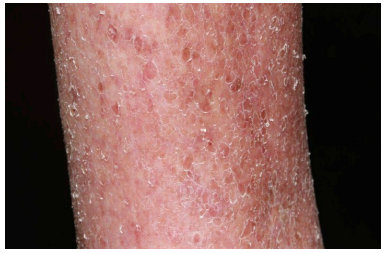
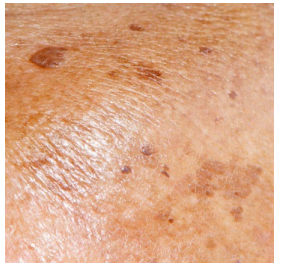
How to Assess: Use the head to toe approach, look at shape, color, texture, sensations, symmetry and movement

Risk factors for micronutrient deficiency include: poor dietary intake, infection, disease and sanitation



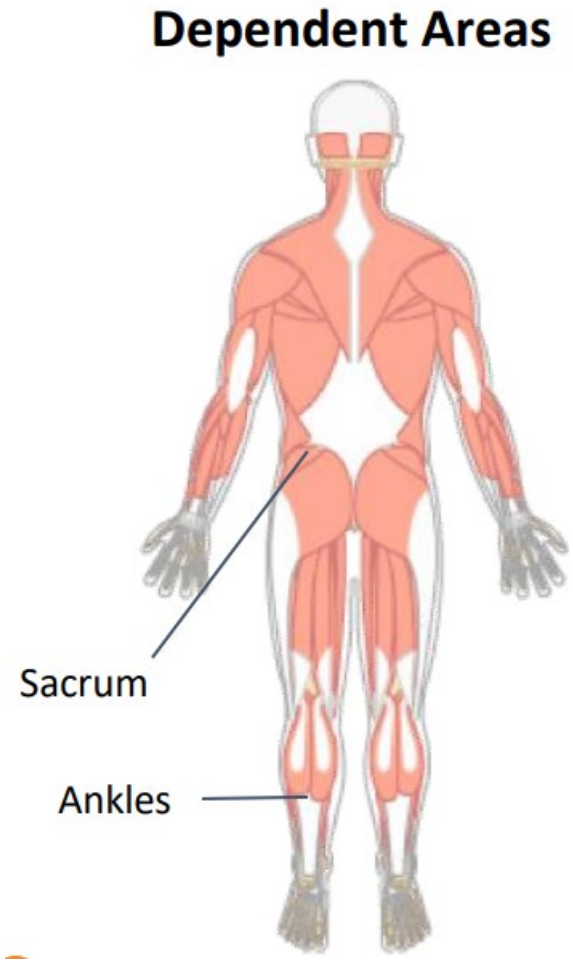


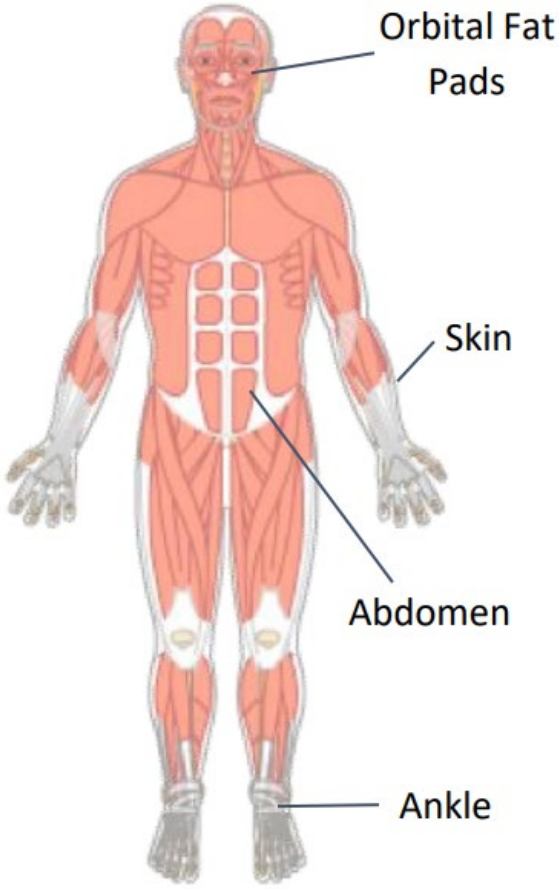








Hair | Eyes | Mouth Lips | Gums | Tongue | Taste | Teeth | Neck | Face | Nails | Skin | GI System | Skeletal System | Nervous System

Fluid Status

Dehydration	Edema	Ascites
Orbital area	Dependent Areas	Abdomen
Skin	Ankles	
	Sacrum	

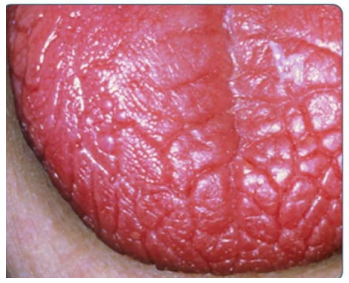




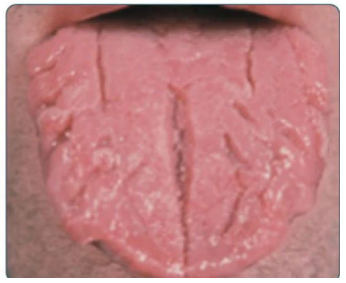
Dehydration

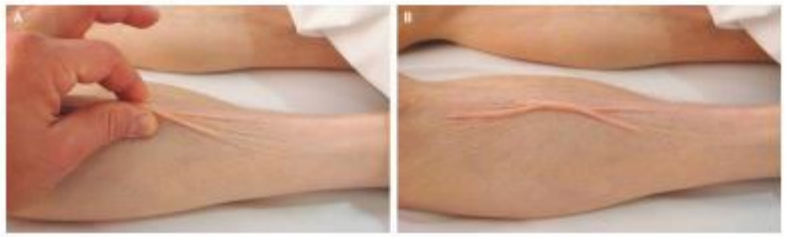
How to Assess: Look over the body head to toe
*Grasp the patients skin on the back the hand or lower arm between 2 fingers so that it is tented up, hold for a few seconds then release

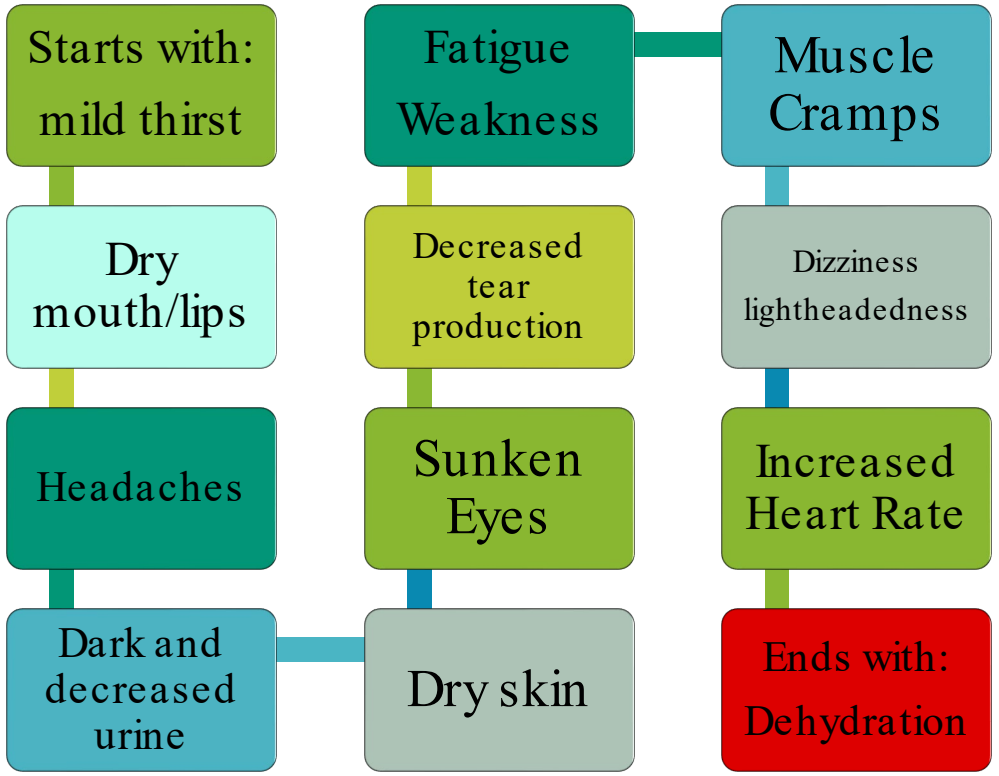
- Cracked dry tongue



- Furrowed, dry tongue







What is skin turgor?

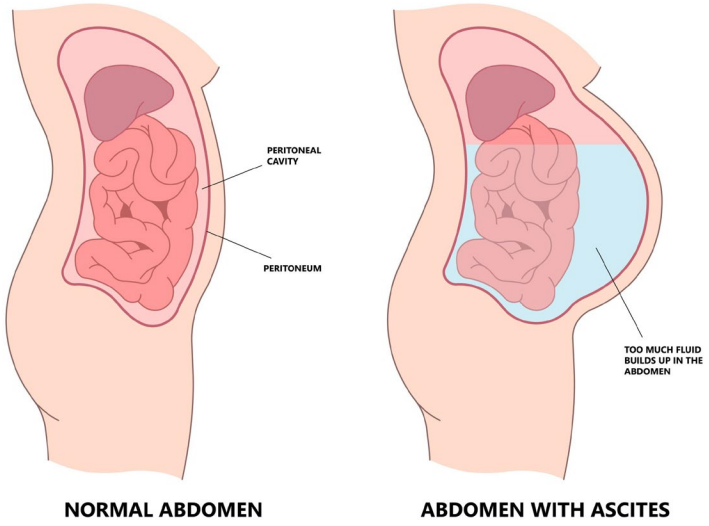
The skins ability to change shape and then return to normal (elasticity)
*Decreased skin turgor (slower return to normal, remains elevated after being pulled up at release) reflects late stages of dehydration

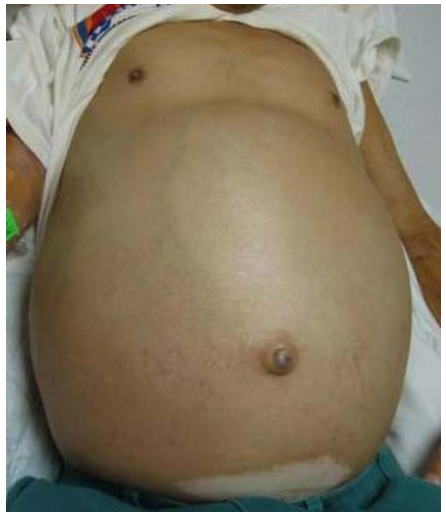
Fluid Status: Ascites

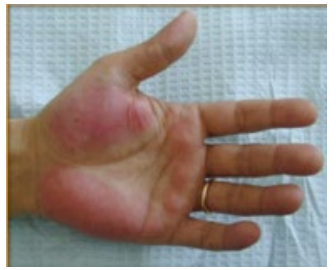
How to Assess: Visual exam of abdomen, about abdominal fullness, recent weight gain or ankle edema

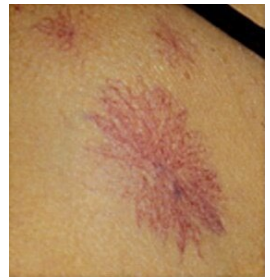
Ask about risk factors for liver disease or ascites such as alcohol abuse

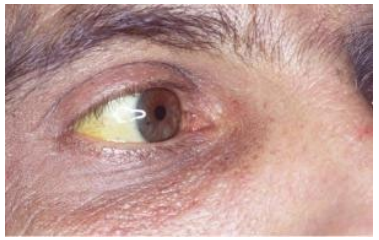
Other physical findings may include: jaundice (skin, eyes), palmar erythema, spider angiomas











STAGE	SIGNS
1+	Detectable only after careful examination
2+	Easily detectable but of small volume
3+	Obvious ascites but not tense ascites
4+	Tense ascites

Definition: A protuberant abdomen due to accumulation of fluid in the peritoneal cavity with bulging flanks

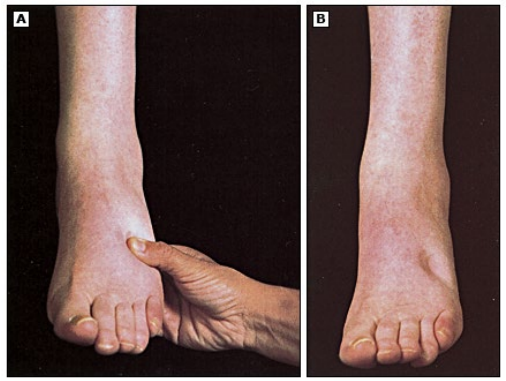
Fluid Status: Edema

How to Assess: Press on bony top of the foot then continue up the inner bone part of the leg for pressing for 5 seconds each

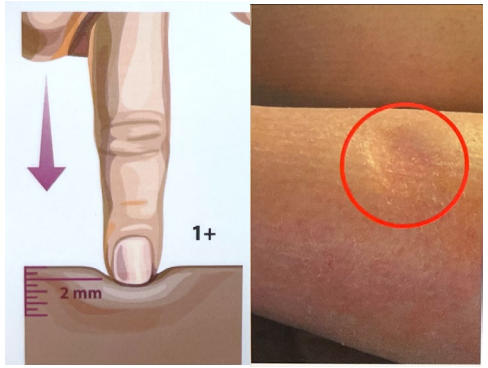
FYI: When assessing edema, be mindful that fluid accumulation may be painful for the patient

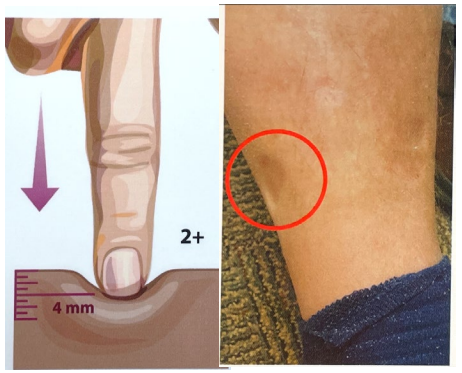
*In activity-restricted patients fluid accumulation may occur in the sacral region

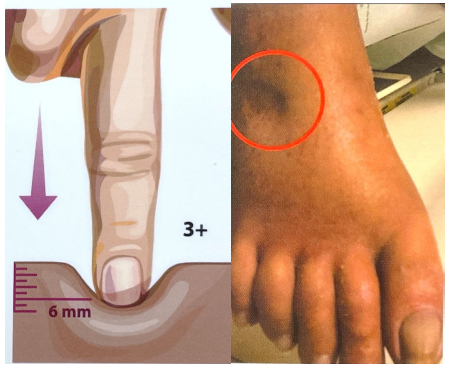
NOTE: Disease states to always check for fluid accumulation: congestive heart failure, liver cirrhosis, or renal failure.

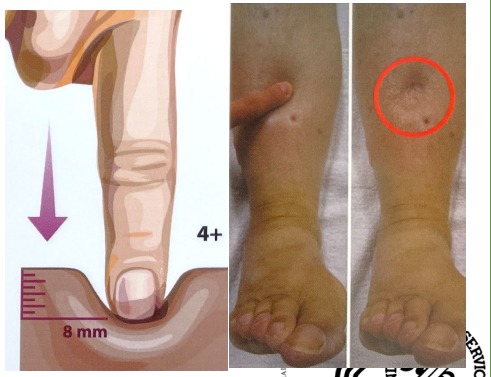


1+	2+	3+	4+
Depth: 2mm or less	**Depth:** 4mm or less	**Depth:** 6mm or less	**Depth:** 8mm or less
Time for Rebound: disappears rapidly	**Time for Rebound:** 15 seconds	**Time for Rebound:** 30 seconds	**Time for Rebound:** >60 seconds
Degree: Mild Pitting Edema	**Degree:** Moderate Pitting Edema	**Degree:** Severe Pitting Edema	**Degree:** Very Severe Pitting Edema









CSU NFPE MNT Assessment Form

Medical Nutrition Therapy Assessment (Nutritional Supplements)

Anthropometrics:
Weight: _____ (standing, wheelchair, shoes)
Height: _____

Diet History

Cooks/Prepares Meals: Food Assistance	Gets the Groceries: Budget Groceries/Month:
Breakfast:	Morning Snack:
Lunch:	Afternoon Snack:
Dinner:	Evening Snack:
Fast Food:	Other Beverages:

Nutrition Focused Physical Exam:					
Orbitals (F)	WN	Mild	Moderate	Severe	
Cheeks (F)	WN	Mild	Moderate	Severe	
Temples (M)	WN	Mild	Moderate	Severe	
Neck (M)	WN	Mild	Moderate	Severe	
Clavicle Region (M)	WN	Mild	Moderate	Severe	
Shoulder/Acromion (M)	WN	Mild	Moderate	Severe	
Scapula (M)	WN	Mild	Moderate	Severe	
Upper Arm (triceps) (F)	WN	Mild	Moderate	Severe	
Hips/Ribs/Spine (F)	WN	Mild	Moderate	Severe	
Hand Region (M)	WN	Mild	Moderate	Severe	
Front of Thigh (M)	WN	Mild	Moderate	Severe	
Front of Knee (M)	WN	Mild	Moderate	Severe	
Calf (M)	WN	Mild	Moderate	Severe	
Edema L R BLE BUE	N/A	+1	+2	+3	+4

Appearance of:

Nails:

Lines:	**Color:**
horizontal white	white spots
vertical white	all opaque white
dark brown/black vertical	half opaque white
vertical ridges	splinter
splinter	hematoma

clubbing, spoon shaped, brittle, fungus

Hair: patchy, hair loss, excessive growth, depigmentation

Skin: scalp dermatitis, bruising, petechiae (S), purpura (L), scaly, hypo/hyperpigmentation, poor skin turgor, jaundice, acanthosis

Eyes: bitot spots, cloudy, blood shot, yellow, white/gray ring

Tongue: fissures, pale, beefy red, magenta, oral thrush

Mouth/Lips: angular stomatitis, excess saliva

Face: goiter, moon shape, chipmunk cheeks

Chronic Diseases:

Previous Nutritional Supplementation (kind, amount, etc.):

Chewing/Swallowing Concerns (if yes to swallowing concerns, refer to SLP before nutritional supplement):

Teeth: dental caries, dentures, missing (top/bottom)

Wounds/Non-Healing:

Appetite: poor fair good excellent

Energy level:

Weight Loss/Gain (EHR, patient):

Physical Activity Level/Exercise:

BM: hard, soft, liquid Type:
Color:
Blood: Y/N
Size: S/M/L
How often/day:

Food Allergies/Intolerance/Avoidance:

Running Water: Y/N Electricity: Y/N

Other Findings:

-see in the dark? Y/N
-muscle cramping/pain/twitching, "pins & needles"? Y/N
-burning/soreness around lips, mouth, gums? Y/N
-taste and smell things? Y/N
-increased weakness? Y/N
-inability to concentrate? Y/N

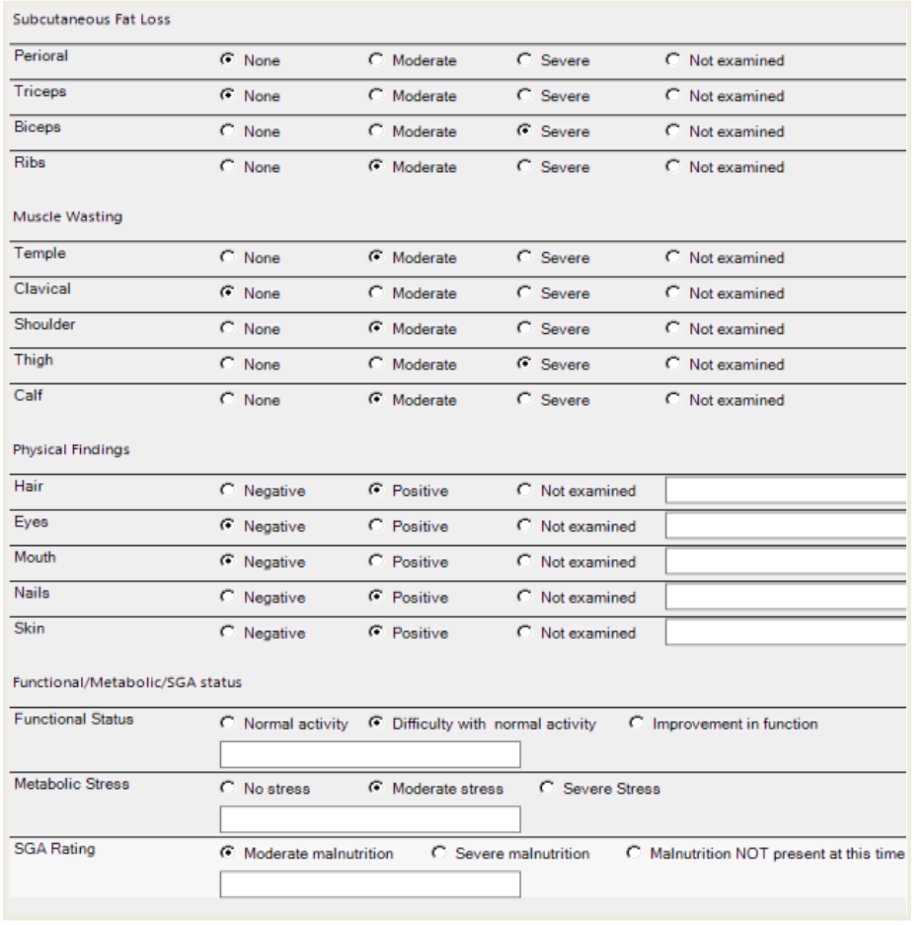
Hopefully what the Future Holds:

- RD Competencies on NFPE's
- Updated EHR template to document a NFPE in a more productive manner
- All RDs to be trained and comfortable to perform NFPE's
- All patients with a concern for malnutrition to have an NFPE performed by RD
- Patients receive follow-up NFPE's to check for improvement after interventions

Competencies

Academy of Nutrition and Dietetics

Criteria & Evaluation	Completed Verbally	*Demonstrated* Satisfactorily	Comments
2. Accurately interprets anthropometric measurements			
3. Demonstrates assessment of growth using z-scores			
4. Demonstrates basic NFPE skills • Muscle and fat wasting, adiposity • Screens for nutrient deficiencies/toxicities - Skin - Hair - Eyes - Mouth - Nails • Abdominal exam • Enteral and parenteral access site (infection, granulation tissue)			
5. Obtains nutrition/diet History to assess adequacy of intake			
6. Analyzes enteral regimen to assess adequacy of vitamins, minerals, and electrolytes			
7. Accurately interprets biochemical data			
8. Obtains pertinent medical history such as presence of dystonia, athetosis, and spasticity in order to assess energy requirements			
9. Identifies drug nutrient interactions			



Subcutaneous Fat Loss				
Perioral	◉ None	○ Moderate	○ Severe	○ Not examined
Triceps	◉ None	○ Moderate	○ Severe	○ Not examined
Biceps	○ None	○ Moderate	◉ Severe	○ Not examined
Ribs	○ None	◉ Moderate	○ Severe	○ Not examined
Muscle Wasting				
Temple	○ None	◉ Moderate	○ Severe	○ Not examined
Clavical	◉ None	○ Moderate	○ Severe	○ Not examined
Shoulder	○ None	◉ Moderate	○ Severe	○ Not examined
Thigh	○ None	○ Moderate	◉ Severe	○ Not examined
Calf	○ None	◉ Moderate	○ Severe	○ Not examined
Physical Findings				
Hair	○ Negative	◉ Positive	○ Not examined	
Eyes	◉ Negative	○ Positive	○ Not examined	
Mouth	◉ Negative	○ Positive	○ Not examined	
Nails	○ Negative	◉ Positive	○ Not examined	
Skin	○ Negative	◉ Positive	○ Not examined	
Functional/Metabolic/SGA status				
Functional Status	○ Normal activity	◉ Difficulty with normal activity	○ Improvement in function	
Metabolic Stress	○ No stress	◉ Moderate stress	○ Severe Stress	
SGA Rating	◉ Moderate malnutrition	○ Severe malnutrition	○ Malnutrition NOT present at this time	

Provide patient with cheat sheet about their nutritional supplement, amount prescribed, how to get refills, pharmacy contact # and RD contact #

Malnutrition Friendly Nutrition Supplement Drinks

	Supplement	Indicators	Not Advisable for	Carbohydrates
	Ensure Plus	Provides concentrated calories and protein to help patients gain or maintain healthy weight.	diabetes, CKD, liver disease, lung disease, pediatrics, dialysis	51g
	Boost Plus	Helps gain or maintain weight plus contains vitamins and minerals including calcium and vitamin D to support strong bones	diabetes, CKD, liver disease, lung disease, pediatrics, dialysis	41g
	TwoCal HN	Calorie and protein dense nutrition to support patients with volume intolerance and/or fluid restriction	diabetes, CKD, liver disease, lung disease, pediatrics, dialysis	52g
	Jevity 1.5	Calorie and protein dense nutrition to support patients with volume intolerance and/or fluid restriction with fiber content	diabetes, CKD, liver disease, lung disease, pediatrics, dialysis	51g

Diabetic Friendly Nutrition Supplement Drinks:

Glucerna

- Has CARBSTEADY®, a unique blend of slow-release carbohydrates to help manage blood sugar.
- 26g/carbs

Boost Glucose Control

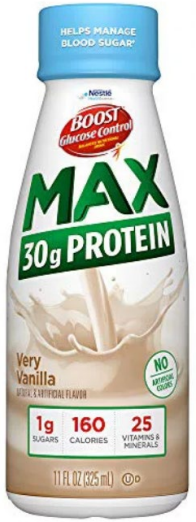
- Nutritional drink is clinically shown to produce a lower blood sugar response versus a standard nutritional drink in people with type 2 diabetes.*
- 23g/carbs

Carnation Light Start

- Lower calorie option than original with only 3g sugars, 13g of protein for essential for building and maintaining muscle.
- 17g/carbs

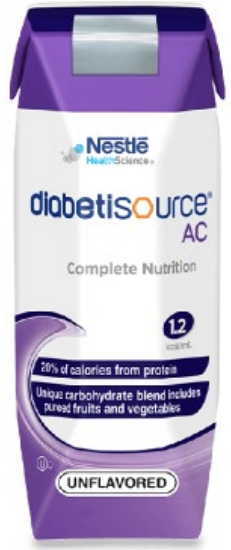
Boost Glucose Control Max

- Nutritional drink packed with protein & clinically shown to produce a lower blood sugar response versus a standard nutritional drink in people with type 2 diabetes*
- 6g/carbs



Diabetisource

- Carbohydrate blend includes pureed fruits and vegetables to help with the nutritional management of patients with diabetes or stress-induced hyperglycemia
- 25g/carbs



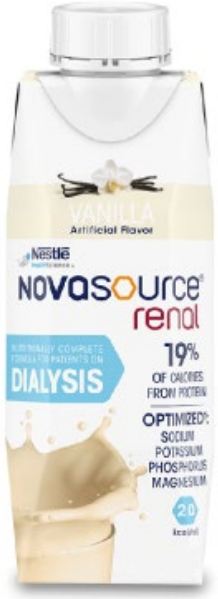
Kidney Disease

Suplena with CarbSteady®

- Therapeutic nutrition that can help maintain nutritional status while adhering to their renal diets for people with **Stage 3/4 chronic kidney disease, or non-dialyzed** without protein energy wasting (malnutrition). CARBSTEADY®, which includes low glycemic carbohydrates designed to help minimize blood sugar spikes.
- 46g/carb

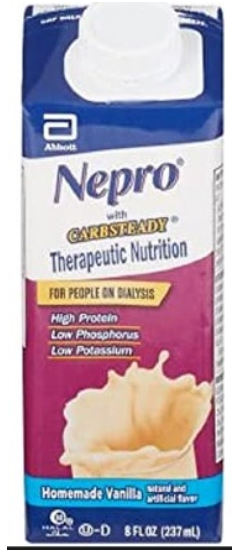
Novosource Renal

- Calorically-dense, complete nutritional formula that provides protein, vitamins and minerals specifically to meet the needs of people with chronic kidney disease (CKD) **on dialysis**, acute kidney injury (AKI), fluid restrictions due to **CKD** or AKI, or electrolyte restrictions. Its increased protein content also helps maintain lean muscle.
- 43g/ca



Nepro with CarbSteady®

- Carbohydrate blend designed to help manage blood glucose response. Therapeutic nutrition specifically designed to help meet the nutritional needs of patients on **dialysis** (Stage 5 chronic kidney disease).
- 38g/carb



NFPE Case Study

SB, 93 year old, female referred to nutrition for concern for failure to thrive/malnutrition, unintentional weight loss, need for supplement evaluation

*Recent Fall

-Nutrition Triggers:

- starting eating less
- noted to have issues with swallowing hard foods

RD had assessed patient 2 other times in the past couple years for somewhat similar concerns

24hr Diet Recall:

- Breakfast: 1 boiled egg, 1 slice spam, dinner roll, coffee w/sweetener
- Snack: 1/4 sliced apple, water
- Lunch: 4oz chicken noodle soup, 4 saltine crackers, 8oz apple juice
- Snack: water
- Dinner: 1c mashed potatoes/spam/gravy, 1 slice wheat bread, hot tea

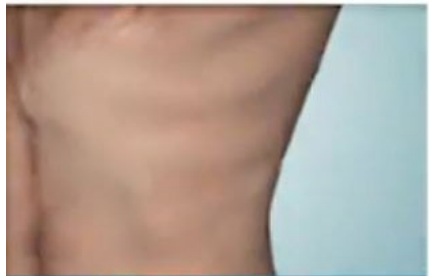
Other Beverages: v8 juice, sunnyD, cranberry juice, sweet tea, diet soda, 1.5 water bottles/day

Nutrition Assessment	Findings
Past Medical History	Hypertension, diabetes mellitus type 2, diverticular disease, thyroid cancer, hearing loss, bilateral macular degeneration, oropharyngeal dysphagia
Anthropometric Data	Current wt: 106.20# Current ht: 59.63” BMI: 21 UBW: 120# 10% unintentional weight loss in 6 months
Laboratory	A1c 6.2%
Nutrition History	Son reports patient started eating less and is having more trouble swallowing foods, only able to eat soft foods due to no dentures. No non-healing wounds
Social History	Lives with son, uses a cane and walker at home
Medications	•Aspirin 81mg •Calcium Carb+Vit D3 600mg/10mcg •Cholecalciferol 25mg •Levothyroxine 100mcg •Lisinopril 5mg •Multivitamin 1 tablet
BM’s	2x/week, hard, small size, light green in color, no blood

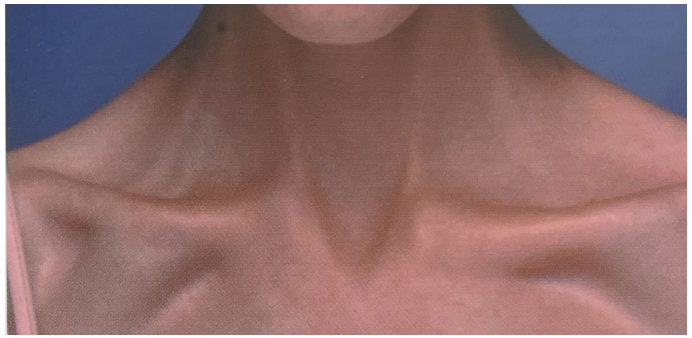
Case Study NFPE:

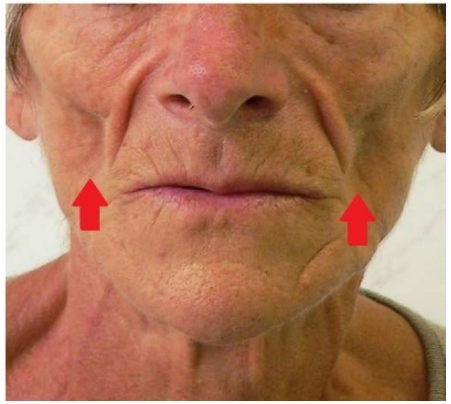
Subcutaneous Fat Findings

Moderate: ribs, lower back, mid-axillary line



Severe: orbitals, buccal fat pads, sternal mastoid and trapezius muscles, triceps/biceps

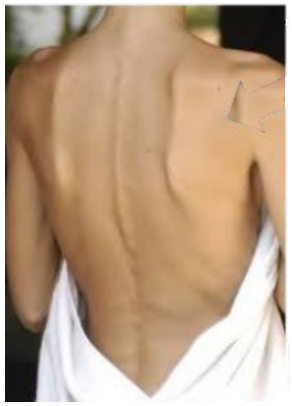




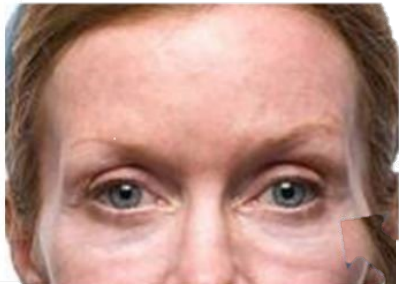
Case Study NFPE:

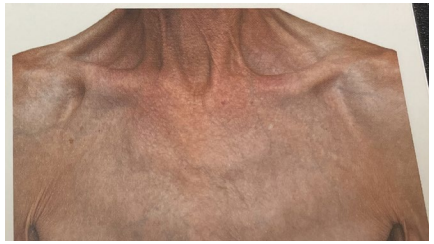
Muscle Loss Findings

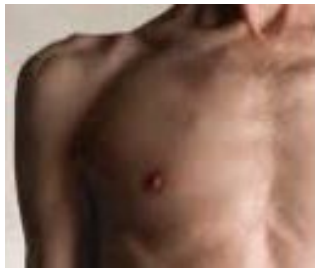
Moderate: scapular region

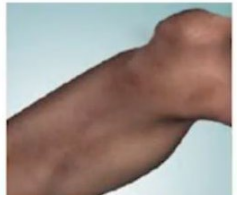


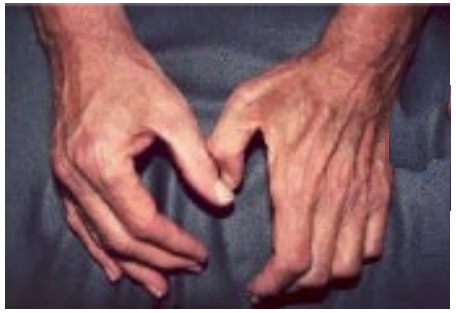
Severe: temporalis muscle, clavicles, deltoid, acromion process, interosseous muscle, thenar muscle, quadriceps muscles, patella, calf muscles

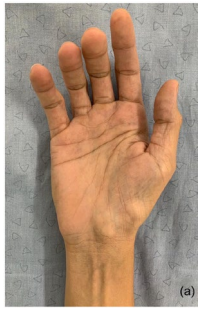


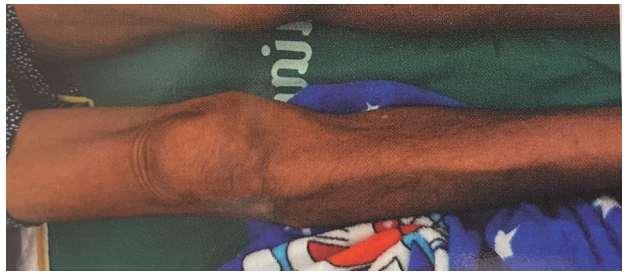


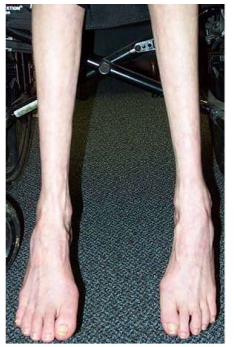






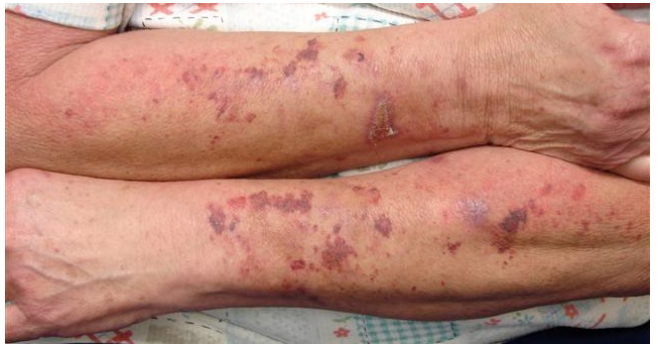


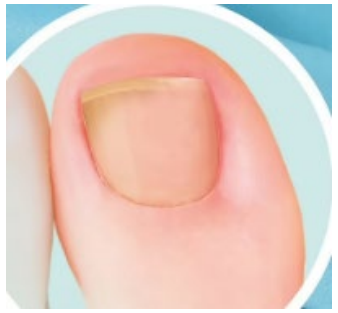


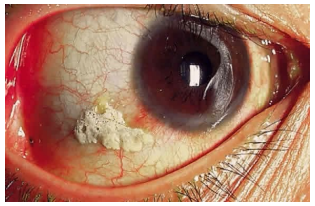


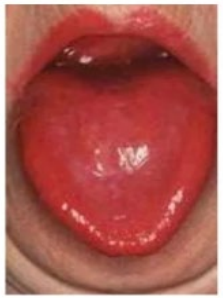
Case Study NFPE:

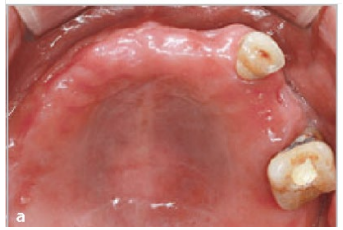
Micronutrients Findings

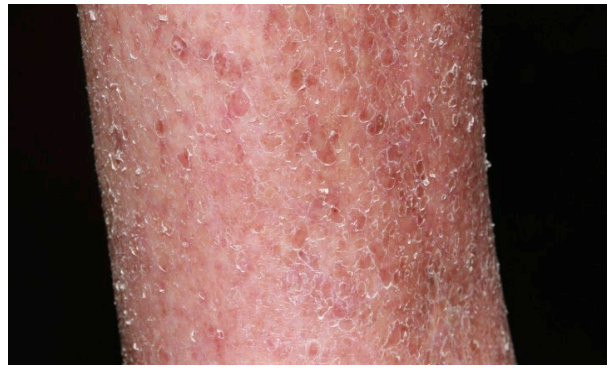


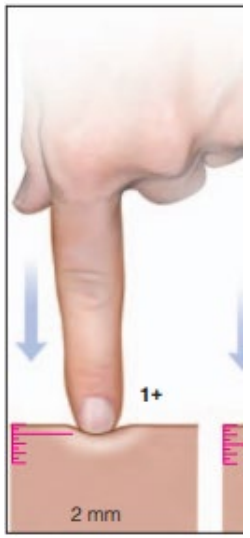












My approach using ADIME

- Assessment:
  - Completed NFPE
  - Calculated nutrient needs
  - IBW (kg-factoring geriatric BMI of 23): 54.54kg (120#)

- Diagnosis:
  - PES STATEMENT:
    - Chronic disease or condition related malnutrition (undernutrition) related to physiological causes resulting in diminished intake as evidence by significant unintentional weight loss of 10% x 6 months, RD observed moderate to severe signs of physical wasting including: moderate wasting at supraspinatus, infraspinatus, latissimus dorsi, ribs, lower back, mid-axillary line; severe wasting at orbitals, buccal fat pads, temporalis muscle, sternal mastoid and trapezius muscles, pectoralis major, deltoid, acromion process, triceps/biceps, interosseous muscle, thenar muscle, quadriceps muscles, patella, gastrocnemius muscles, L hip fracture 3/2021, R sided humeral fracture 10/2021

- Intervention:
  - Gave Tips for Increasing Calories Handout/Tips for increasing protein MNT handout (NCM) and Nutrition Supplement Cheat Sheet
  - RECOMMENDATION: Glucerna 1.5, 1x/day to provide: 356kcal, 19.9g/pro
  - Gave 4 Refills

Clinical Goal: client maintains or gains muscle and subcutaneous fat (as appropriate) as determined by a nutrition focused physical exam

Behavioral Goal (SMART GOAL): Starting today, patient will consume 1 can of Glucerna 1.5, daily, for 3 months

- Monitor/Evaluation:
  - Set a f/u for 3 months (prefer 1 month, but staff shortage)
  - Tagged PCP in note

Where can you learn more?

- AND Nutrition Focused Physical Exam Hands-On Training Workshops
- Nutrition Care Manual
- Abbott Nutrition Health Institute. (Nutrition Focused Physical Exam | ANHI)
- Nestle Medical Hub
- ASPEN
- World Health Organization
- National Institutes of Health

Recommendations and Summary

- A NFPE is a key component of a nutrition assessment
- A NFPE can help us identify patients with or at risk for malnutrition and decreased functional status
- Interdisciplinary teamwork is the best work
- Malnutrition is both a cause and consequence of disease and can occur at ANY BMI
- Those with chronic diseases, malabsorptive disorders, eating disorders, aging adults are most at risk
- RDs can and should be performing NFPE's.
  - Use updated AND/ASPEN Criteria
- The only way to get comfortable with NFPEs is through hands-on practice and experience
- If you're uncomfortable with performing NFPE's on a patient
  - Start practicing these 3 areas regularly
    - Set a goal, e.g. 2 patients/day (the more practice (i.e. patients), the easier it gets)
    - Ask a family member or friend if you can perform one on them
    - If you know another RD coworker that regularly performs NFPE's, ask if you can shadow them or if they can coach you on a few patients.
- We cannot assess patients just using the computer!

Resources/References:

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- https://www.brilliantdietitians.com/post/a-guide-to-the-nutrition-focused-physical-exam
- https://www.sciencedirect.com/science/article/pii/S0899900701007298?via%3Dihub
- **Nutrition Focused Physical Exam Pocket Guide Second Edition** by Beth Mordarski (Author), Jodi Wolff (Author)
- **Food Medication Interactions 18th Edition** by Zaneta M Pronsky MS RD FADA (Author), Dean Elbe BSc (Pharm) BCPP PharmD (Author), Keith Ayoob EdD RD FADA (Author), Sr. Jeanne P Crowe PharmD RPh (Editor), Sol Epstein MD FRCP FACP (Editor), William H Roberts MD PhD (Editor)
- **Practitioner's Guide to Nutrition-Focused Physical Exam of Infants, Children, and Adolescents** by Christina DeTallo (editor) (Author)
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- Swallowing Screen for Dysphagia: What RDNs Need to Know CEU
  - https://www.eatrightstore.org/cpe-opportunities/fnce-2022-sessions/swallowing-screen-for-dysphagia-what-rdns-need-to-know
- Hormel Health Lab IDDSI Training Webinars and Staff Competencies
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- CASE STUDY - Screening for Swallowing Difficulty by RDNs
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