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

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Clinical Registered Dietitian Nutritionist
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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

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

<table>
<thead>
<tr>
<th>Minerals</th>
<th>Vitamins</th>
<th>Other Labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>Thiamin (B1)</td>
<td>GFR</td>
</tr>
<tr>
<td>Chloride</td>
<td>Vitamin D</td>
<td>BUN</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Vitamin B12</td>
<td>AST/ALT</td>
</tr>
<tr>
<td>Potassium</td>
<td>Folate</td>
<td>Alkaline Phosphatase</td>
</tr>
<tr>
<td>Calcium</td>
<td></td>
<td>A1C</td>
</tr>
<tr>
<td>Iron (Hgb/Hct/MCV)</td>
<td></td>
<td>TSH w/ reflex</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Cholesterol</td>
</tr>
</tbody>
</table>

## Labs - Less Common

<table>
<thead>
<tr>
<th>Minerals</th>
<th>Vitamins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>Vitamin D3</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>Vitamin K</td>
</tr>
<tr>
<td></td>
<td>Vitamin C</td>
</tr>
<tr>
<td></td>
<td>Vitamin A</td>
</tr>
<tr>
<td></td>
<td>Vitamin B6</td>
</tr>
<tr>
<td></td>
<td>Vitamin B2 (Riboflavin)</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th>Clinical Characteristic</th>
<th>Malnutrition in the context of acute illness or injury</th>
<th>Malnutrition in the context of chronic illness</th>
<th>Malnutrition in the context of social or environmental circumstances</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-severe (moderate) malnutrition</td>
<td>Severe malnutrition</td>
<td>Non-severe (moderate) malnutrition</td>
</tr>
<tr>
<td><strong>Energy Intake</strong></td>
<td>&lt;75% of estimated energy requirement for &gt;7 days</td>
<td>&lt;75% of estimated energy requirement for &gt;7 days</td>
<td>&lt;50% of estimated energy requirement for &gt;5 days</td>
</tr>
<tr>
<td><strong>Interpretation of weight loss</strong></td>
<td>%</td>
<td>Time</td>
<td>%</td>
</tr>
<tr>
<td>1-2%</td>
<td>1 week</td>
<td>1 month</td>
<td>3 months</td>
</tr>
<tr>
<td>5%</td>
<td>&gt;5</td>
<td>&gt;5</td>
<td>&gt;5</td>
</tr>
<tr>
<td>7.5%</td>
<td>1 month</td>
<td>3 months</td>
<td>6 months</td>
</tr>
<tr>
<td>&gt;5%</td>
<td>&gt;7.5</td>
<td>&gt;10</td>
<td>&gt;20</td>
</tr>
<tr>
<td>&gt;7.5%</td>
<td>&gt;10</td>
<td>&gt;20</td>
<td></td>
</tr>
<tr>
<td>&gt;10%</td>
<td>1 year</td>
<td>3 months</td>
<td>6 months</td>
</tr>
</tbody>
</table>

### 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 required 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 shows 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 patient's ability to consume food and nutrients to ensure safe oral intake

**Occupational Therapist**
- Assess a patient's 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 patient's 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

The IDDSI Framework
Providing a common terminology for describing food textures and drink thicknesses to improve safety for individuals with swallowing difficulties
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

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

The SLP is your ally to provide the patient with the best patient-centered care
# Evaluation for Thickener

### Weight and Weight History
- No shoes or extra clothing

### Height
- No shoes or extra clothing
- Use a tape measure or wheelchair scale as needed

### BMI
- SLP Evaluation
  - done in the past year, if not, referral is needed (ASAP)

### Diet Recall

### 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

### FYI:
SLP determines texture and liquid consistency

### MUST HAVE:
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

### REMINDER:
This is a case by case basis, no two people are the same, even if they have the same disease states
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 pathophysiologial 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

**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

**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
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
Components of the Exam

- Muscle Loss
- Fat Loss
- Micronutrient Deficiencies
- Fluid Status
- Functional Status
Muscle loss - Areas to Assess

- Temporal Region
- Clavicular Region
- Shoulder Deltoid and Acromion
- Posterior Calf Region
- Scapular Region
- Thigh Knee Patellar Region
- Interosseous Thenar Muscle
Fat loss - Areas to Assess

Fat Loss

- Orbital Region
- Buccal Fat Pads
- Neck
- Thoracic Lumbar Region
- Upper Arm Region
Functional Status

Upper Body → Lower Body → Basic ADL’s
**Micronutrient Status:**
**Areas to Assess**

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

Micronutrient Deficiencies
Fluid Status: Areas to Assess

- Edema
- Ascites
- Dehydration
Putting it All Together - Nutrition Focused Physical Exam

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

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

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

- **Micronutrient Deficiencies**
  - Hair
  - Face
  - Skin
  - Eyes
  - Taste
  - Teeth
  - Lips
  - Tongue
  - Gums
  - Nails

- **Fluid Status**
  - Edema
  - Ascites
  - Dehydration
<table>
<thead>
<tr>
<th>Subcutaneous Fat Loss</th>
<th>Severe Malnutrition</th>
<th>Mid-Moderate Malnutrition</th>
<th>Well Nourished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orbital Region - Surrounding the Eye</td>
<td>Hollow lock, depressions, dark circles, loose skin</td>
<td>Slightly dark circles, somewhat hollow lock</td>
<td>Slightly bulged fat pads. Fluid retention may mask loss</td>
</tr>
<tr>
<td>Buccal fat pads (cheeks)</td>
<td>Hollow and sunken appearance</td>
<td>Fat cheeks with minimal bunion</td>
<td>Full, round and filled out cheeks</td>
</tr>
<tr>
<td>Neck</td>
<td>Neck anatomy is clear and individual muscles, especially the sternomastoid and trapezius muscles, as well as the clavicles, easily visualized</td>
<td>Individual muscle anatomy less apparent visibly. Clavicles less prominent</td>
<td>Subcutaneous fat present, muscles not easily visualized</td>
</tr>
<tr>
<td>Upper Arm Region - fingers touch</td>
<td>Very little space between folds, fingers touch</td>
<td>Some depth pinch, but not ample</td>
<td>Ample fat tissue obvious between folds of skin</td>
</tr>
<tr>
<td>Thoracic and Lumbar Region - ribs, lower back, axillary line</td>
<td>Depression between the ribs very apparent. Iliac Crest very prominent</td>
<td>Ribs apparent, depressions between them less pronounced. Iliac crest somewhat prominent</td>
<td>Chest to full, ribs do not show. Slight to no protrusion of the iliac crest</td>
</tr>
<tr>
<td>Muscle Loss</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temple Region - temporalis muscle</td>
<td>Hollowing, scooping, depression</td>
<td>Slight depression</td>
<td>Can see well-defined muscle/may look flat/bulged</td>
</tr>
<tr>
<td>Clavicle Bone Region - pectoralis major</td>
<td>Prominent, prominent bone</td>
<td>Visible in male, sometime protrusion in female</td>
<td>Not visible in male, visible but not prominent in female</td>
</tr>
<tr>
<td>Shoulder/Bicipital and Acromion (across-muscles)</td>
<td>Shoulder to arm joint looks square. Bones prominent. Acromion protrusion very prominent</td>
<td>Acromion process may slightly protrude</td>
<td>Rounded, curves at arms/shoulder/neck</td>
</tr>
<tr>
<td>Scapular Region: trapezius muscles, supraspinatus, infraspinatus, latissimus dorsi</td>
<td>Prominent scapula, visible depressions</td>
<td>Slight protrusion of scapula, depressions</td>
<td>Bones not prominent, no significant depressions, last muscle</td>
</tr>
<tr>
<td>Intercostal muscle (use dominant hand)</td>
<td>Depressed area between thumb-tendons</td>
<td>Slightly depressed</td>
<td>Muscle bulges, could be flat in some well-nourished people</td>
</tr>
<tr>
<td>Thinner (palm of hand) (ask to cup hand)</td>
<td>Depressed area, indentation</td>
<td>Slight depression</td>
<td>Muscles rounded and firm, bones not prominent</td>
</tr>
<tr>
<td>Lower body (less sensitive to change)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thigh/Knee/Patellar Region - quadrocs muscles and patella</td>
<td>Subcutaneous depression along thigh, thin, patella prominent, with square appearance</td>
<td>Mild depression of inner thigh, patella slightly prominent</td>
<td>Well rounded, muscles protrude, knee not prominent</td>
</tr>
<tr>
<td>Posterior Calf Region (point toe down) - gastrocnemius muscle</td>
<td>Thin, stringy, minimal to no muscle definition</td>
<td>Not well developed, some firmness</td>
<td>Well-developed bulb of muscle, firm</td>
</tr>
<tr>
<td>Edema</td>
<td>Deep to very deep pitting, depression lasts a short to moderate time (3-60 sec), extremity looks swollen (3-4+)</td>
<td>Mild to moderate pitting, slight swelling of the extremity, indentation subsides quickly (0-30 sec)</td>
<td>No sign of fluid accumulation</td>
</tr>
</tbody>
</table>
Bilateral Muscle Wasting

Upper Body:
- Temples
- Deltoids (shoulders)
- Clavicles
- Scapula
- Interosseous/Thenar

Lower Body:
- Thigh
- Knee
- Calf
**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 patient's 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.

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

- Buccal Fat Pads
- Orbital Fat Pads
- Neck
- Triceps/Biceps
- Ribs, Lower Back and Mid-Axillary Line at Iliac Crest
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

<table>
<thead>
<tr>
<th>Normal</th>
<th>Mild-Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>• full, round and filled out cheeks</td>
<td>• flat cheeks with minimal bounce</td>
<td>• hollow and sunken appearance</td>
</tr>
</tbody>
</table>

### Photos

- **Normal:** Full, round and filled out cheeks
- **Mild-Moderate:** Flat cheeks with minimal bounce
- **Severe:** 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.

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**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 from 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

[Images of dynamometers and manual testing]
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.
Fluid Status

- **Dehydration**
  - Orbital area
  - Skin

- **Edema**
  - Dependent areas
  - Ankles

- **Ascites**
  - Abdomen

**Dependent Areas**
- Orbital Fat Pads
- Skin
- Abdomen
- Ankles
- Ankle
- 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

Starts with:
- mild thirst
- Dry mouth/lips
- Headaches
- Dark and decreased urine

Fatigue Weakness
- Decreased tear production
- Sunken Eyes
- Dry skin

Muscle Cramps
- Dizziness lightheadedness
- Increased Heart Rate
- Ends with:
  - Dehydration

What is skin turgor?
The skin’s 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

**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+  
**Depth:** 2mm or less  
**Time for Rebound:** disappears rapidly  
**Degree:** Mild Pitting Edema

2+  
**Depth:** 4mm or less  
**Time for Rebound:** 15 seconds  
**Degree:** Moderate Pitting Edema

3+  
**Depth:** 6mm or less  
**Time for Rebound:** 30 seconds  
**Degree:** Severe Pitting Edema

4+  
**Depth:** 8mm or less  
**Time for Rebound:** >60 seconds  
**Degree:** Very Severe Pitting Edema
# CSU NFPE MNT Assessment Form

## Medical Nutrition Therapy Assessment (Nutritional Supplements)

### Anthropometrics:
- **Weight:** [Insert Weight]
- **Height:** [Insert Height] (standing, wheelchair, shoes)

### Diet History
- **Cooks/Prepares Meals:**
  - [Insert Information]
- **Gets the Groceries:**
  - [Insert Information]
- **Budget Groceries/Month:**
  - [Insert Information]
- **Breakfast:**
  - [Insert Information]
- **Morning Snack:**
  - [Insert Information]
- **Lunch:**
  - [Insert Information]
- **Afternoon Snack:**
  - [Insert Information]
- **Dinner:**
  - [Insert Information]
- **Evening Snack:**
  - [Insert Information]
- **Fast Food:**
  - [Insert Information]
- **Other Beverages:**
  - [Insert Information]

### Nutrition Focused Physical Exam:
- **Orbits (E):** WN Mild Moderate Severe
- **Cheeks (E):** 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) (E):** WN Mild Moderate Severe
- **Humerus/Ribs/Spine (E):** 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:** [Insert Information]
- **R:** [Insert Information]
- **BLE:** [Insert Information]
- **BUE:** [Insert Information]

### Appearance of:
- **Nails:**
  - Lines:
    - horizontal white
    - vertical white
    - dark brown/black
    - vertical ridges
  - Colors:
    - white spots
    - all opaque white
    - half opaque white
    - splinter hemorrhage
    - clubbing, spoon shaped, brittle, fungus

### Hair: patchy, hair loss, excessive growth, depigmentation

### Skinf: scalp dermatitis, bruising, petechiae (S), purpura (L), scaly, hyper/hyperpigmentation, poor skin turgor, jaundice, acanthosis

### Eyes: blurred vision, cloudy, bloodshot, yellow, white/grey ring

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

### Mouth/teeth: angular stomatitis, excess saliva

### Face: gutter, moon shape, chipmunk cheeks

### Chronic Diseases:
- Previous Nutritional Supplementation [kind, amount, etc.]:
- Chewing/Swallowing Concerns [if yes to swallowing concerns, refer to CEF before nutritional supplement]:
- Teeth: dental caries, dentures, missing [top/bottom]
- Wounds/Non-Healing:
- Appetite: poor fair good excellent
- Energy level:
- Weight Loss/Gain [in HN, patient]:
- Physical Activity Level/Exercise:
- BMI: [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:
- [Insert Information]
- [Insert Information]
- [Insert Information]
- [Insert Information]
- [Insert Information]
- [Insert Information]
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

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

<table>
<thead>
<tr>
<th>Supplement</th>
<th>Indicators</th>
<th>Not Advisable for</th>
<th>Carbohydrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure Plus</td>
<td>Provides concentrated calories and protein to help patients gain or maintain healthy weight.</td>
<td>diabetes, CKD, liver disease, lung disease, pediatrics, dialysis</td>
<td>51g</td>
</tr>
<tr>
<td>Boost Plus</td>
<td>Helps gain or maintain weight plus contains vitamins and minerals including calcium and vitamin D to support strong bones</td>
<td>diabetes, CKD, liver disease, lung disease, pediatrics, dialysis</td>
<td>41g</td>
</tr>
<tr>
<td>TwoCal HN</td>
<td>Calorie and protein dense nutrition to support patients with volume intolerance and/or fluid restriction</td>
<td>diabetes, CKD, liver disease, lung disease, pediatrics, dialysis</td>
<td>52g</td>
</tr>
<tr>
<td>Jevity 1.5</td>
<td>Calorie and protein dense nutrition to support patients with volume intolerance and/or fluid restriction with fiber content</td>
<td>diabetes, CKD, liver disease, lung disease, pediatrics, dialysis</td>
<td>51g</td>
</tr>
</tbody>
</table>
Dia be tic Frie ndly Nutrition Supple ment 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/carb

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

<table>
<thead>
<tr>
<th></th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past Medical History</td>
<td>Hypertension, diabetes mellitus type 2, diverticular disease, thyroid cancer, hearing loss, bilateral macular degeneration, oropharyngeal dysphagia</td>
</tr>
</tbody>
</table>
| 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+Vitamin D3 600mg/10mcg*  
*Cholecalciferol 25mcg*  
*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 evidenced 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, delfoid, 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](http://example.com/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!