Nutrition Focused Physical Exam (NFPE)

- Explain the rationale for incorporating NFPE into clinical practice
- Identify clinical signs of nutrient deficiencies and toxicities
- Assess hydration status using NFPE
- Discuss the role of NFPE in identifying malnutrition
- Demonstrate basic NFPE inspection skills

Why Do a Physical Exam?

- It’s part of nutrition assessment (NCP process)
- Anthropometrics may be inaccurate or unavailable
- Laboratory values may not reflect nutritional status
- Recurrent shortages in IV vitamin and minerals
- Identify and treat nutrient deficiencies earlier
- Monitor response to nutrition intervention
- It’s a standard of practice
- Responsibility to interns
- Adds challenge, interest and value

Types of NFPE

- NFPE uses assessment findings to identify nutrient deficiencies or toxicities and possible etiology

  - Focused
    - Specific system based on medical record review or interview
  - Comprehensive
    - Review of Systems: Head to toe
    - Organized sequence

NFPE Techniques

- **Inspection** - visual observation
  - Appearance, movement, color, edema, affect
- **Palpation** - touch using fingertip pads
  - Assess texture, size, tenderness, temperature, edema
  - Light palpation – use fingertips and press 1-2 cm
  - Deep palpation – gently pressing 4cm
- **Percussion** - tapping fingers against body surface to listen for solids, liquids, gas
  - Define organ borders, shape, position, presence or absence of fluids
- **Auscultation** - listening to sounds that reflect movement of air or fluid through organs with stethoscope

Nutrition Care Process Terminology (eNCPT) - Academy of Nutrition and Dietetics, 2015

Bickley, L. Bates Guide to Physical Examination, 2009
Tools for NFPE

- Eyes
- Hands
- Stethoscope
- Gloves/gown
- Tongue depressor
- Penlight
- Reflex hammer
- Blood pressure cuff
- Thermometer

Prepare Your NFPE Script

“Dr. Smith asked me to see Joey to help you with his nutrition. Today I’m going to ask you some questions to find out more information so we can make a plan together. While I ask some of these questions I’ll like to do an exam that will tell me about Joey’s nutrition. I’ll look at his muscles, hair, eyes, mouth and nails. Sometimes if kids aren’t getting enough calories, protein or vitamins looking at these things give us clues about they need. Is this OK with you and Joey?”

Getting Started

- Wash hands
- Explain the process: “Your script”
- Ensure privacy
- Position patient: supine, hands at side, knees flexed
- Begin with general survey
  - Overall appearance/body habitus
  - Level of consciousness/orientation
  - Body movements
  - Affect
  - Ability to communicate

General Survey

- Lethargic
- Weak vocal quality
- Sunken eyes
- Dry lips
- G-tube cellulitis
- Diaper rash
- Malnourished

Considerations for Hair Loss

- Medication side Effect
- Genetics
- Hormones
- Stress of illness
- Sub-optimal nutrient intake
  - Protein
  - Iron
  - Zinc
  - Biotin
  - EFA

<table>
<thead>
<tr>
<th>Physical Finding</th>
<th>Possible Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seborrheic Dermatitis</td>
<td>Zinc, B-6, Biotin</td>
</tr>
<tr>
<td>Lightening of Hair</td>
<td>Selenium Deficiency</td>
</tr>
<tr>
<td>Hair Loss</td>
<td>Deficiency of Zinc, Biotin, Protein, Iron, Selenium</td>
</tr>
<tr>
<td>Corkscrew, Swan Neck</td>
<td>Vitamin C Deficiency, Copper</td>
</tr>
<tr>
<td>Follicular Hyperkeratosis</td>
<td>Vitamin A or C</td>
</tr>
<tr>
<td>Lanugo</td>
<td>Energy Deficiency</td>
</tr>
<tr>
<td>Broken, Dull Hair</td>
<td>Protein-Energy</td>
</tr>
<tr>
<td>Hirsutism</td>
<td>Obesity, PCOS, Cushing’s</td>
</tr>
<tr>
<td>Dry, Coarse Hair</td>
<td>Hypothyroidism</td>
</tr>
</tbody>
</table>
**Hair and Scalp**

- **Flag Sign**
  - Alternate banding of dark and light colors in hair
  - Lack of Melanin
    - (Protein deficiency)
- **Hair Loss**
  - Thin, brittle, dry
  - Easily pluckable
  - Protein Calorie Malnutrition

**Hair Follicles**

- **Follicular Hyperkeratosis**
  - (Vitamin C or Vitamin A)
  - Vitamin A Deficiency Risk: Limited Diet, Fat Malabsorption, Alcoholism, CF, Short Bowel Syndrome
  - Vitamin C Deficiency Risk: Limited diet, Infants on Cow Milk, Dialysis, Malabsorption, Smoking

- **Cork Screw Hair**
  - (Vitamin C or Vitamin A)

**Hair**

- **Lanugo**
  - (Energy Deficiency)
- **Hirsutism**
  - (Insulin Overproduction/Androgen Excess)

**Hair Follicles**

- **Perifollicular Hemorrhage**
- **Bruising, Bleeding Gums**
  - (Vitamin C or Vitamin K Deficiency)

**NFPE: Skin and Hair**

- **Scaly Dermatitis**
  - Dry, flaking, peeling skin
- **Hair Loss**
  - Associated Nutrient Deficiency
    - Essential Fatty Acids
  - Associated Nutrient Toxicity
    - Vitamin A (peeling hands)
### Eyes

<table>
<thead>
<tr>
<th>Physical Finding</th>
<th>Possible Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>夜盲症</td>
<td>维生素 A 缺乏症</td>
</tr>
<tr>
<td>角膜炎</td>
<td>叶酸 (B6)</td>
</tr>
<tr>
<td>角膜炎（干燥的眼睛）</td>
<td>维生素 A 缺乏症</td>
</tr>
<tr>
<td>含铁血红素 (肝炎)</td>
<td>维生素 A 与叶酸缺乏症</td>
</tr>
<tr>
<td>眼睑结膜炎</td>
<td>眼睑结膜炎</td>
</tr>
<tr>
<td>夜盲症</td>
<td>维生素 A 缺乏症</td>
</tr>
<tr>
<td>干眼</td>
<td>维生素 A 与锌缺乏症</td>
</tr>
<tr>
<td>Bitot’s 斑点</td>
<td>维生素 A 缺乏症</td>
</tr>
<tr>
<td>粪尿血黄疸 (黄疸)</td>
<td>维生素 A 与锌缺乏症</td>
</tr>
<tr>
<td>Keraomatolacia</td>
<td>维生素 A 与锌缺乏症</td>
</tr>
<tr>
<td>干眼</td>
<td>维生素 A 与锌缺乏症</td>
</tr>
</tbody>
</table>

### Mouth

<table>
<thead>
<tr>
<th>Physical Finding</th>
<th>Possible Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>唇炎或唇炎性溃疡</td>
<td>B6, 叶酸, 尼克酸, 铁缺乏症</td>
</tr>
<tr>
<td>口炎 (紫色舌头)</td>
<td>叶酸, 尼克酸, B6, B12, 叶酸, 铁缺乏症</td>
</tr>
<tr>
<td>拒绝</td>
<td>叶酸, 尼克酸, B6, B12, 软骨, 铁缺乏症</td>
</tr>
<tr>
<td>胭脂炎</td>
<td>B12, 叶酸, 铁缺乏症</td>
</tr>
<tr>
<td>陈旧性舌炎</td>
<td>B12, 叶酸, 铁缺乏症</td>
</tr>
<tr>
<td>齿龈出血</td>
<td>叶酸缺乏症</td>
</tr>
<tr>
<td>齿龈出血</td>
<td>叶酸缺乏症</td>
</tr>
<tr>
<td>齿龈出血</td>
<td>叶酸缺乏症</td>
</tr>
<tr>
<td>颌突肥厚</td>
<td>叶酸缺乏症</td>
</tr>
<tr>
<td>龋齿</td>
<td>叶酸缺乏症, 牙菌斑</td>
</tr>
<tr>
<td>极度牙釉质损耗</td>
<td>叶酸缺乏症, 牙菌斑</td>
</tr>
</tbody>
</table>

### Reference

- CDC Public Health Image Library
Mouth

- Magenta Tongue
  (B12, Riboflavin, Niacin, Folate)

**B-12 Deficiency Risk:**
- Suboptimal intake, malabsorptive surgical procedures, SBBO, gastric bypass, sleeve gastrectomy, terminal ileum disease, PPIS, H2 blockers.

- Glossitis
  (Riboflavin, Niacin, Iron, Vitamin B6, B-12, Folate)

Mouth

- Scorbutic Tongue
  (Vitamin C Deficiency)

- Inflamed gums

- Glossitis and petechiae on surface of tongue

Teeth/Gums

- Thrush
  (Fungal Infection)

- Geographic Tongue
  (Benign Migratory Glossitis)

- Baby Bottle Tooth Decay

- Fluorosis

- Early Gum Disease

Bulimia Nervosa: Physical Signs

- Tetany
- Mouth sores
- Palatal scratches
- Enamel erosion
- Gum recession
- Parotid swelling
- Russel sign
- Peripheral Edema
- Conjunctival hemorrhage
- Angular cheilitis

Anorexia Nervosa: Physical Signs

- Bradycardia
- Hypotension
- Low body temperature
- Lanugo
- Thinning hair
- Dry skin
- Brittle nails
- Edema
- Constipation
- Delayed gastric emptying
- Polyuria (abnormality in vasopressin secretion)
- Amenorrhea (Starvation induced hypogonadism)
### Skin Physical Findings and Possible Causes

<table>
<thead>
<tr>
<th>Physical Findings</th>
<th>Possible Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naso-labial Dermatitis</td>
<td>Zinc, B6 Deficiency</td>
</tr>
<tr>
<td>Blistering, Peeling skin</td>
<td>Niacin Deficiency</td>
</tr>
<tr>
<td>Pellagrous Dermatitis (Hyperpigmented Rash)</td>
<td>Tryptophan or Niacin</td>
</tr>
<tr>
<td>Eczymosis</td>
<td>Vitamin K and Vitamin C</td>
</tr>
<tr>
<td>Petechiae</td>
<td>Vitamin K and Vitamin C</td>
</tr>
<tr>
<td>Generalized Dermatitis</td>
<td>Zinc and Fatty Acid Deficiency</td>
</tr>
<tr>
<td>Follicular Hyperkeratosis</td>
<td>Vitamin A, Vitamin C and Fatty Acid Deficiency</td>
</tr>
<tr>
<td>Pallor</td>
<td>Iron Deficiency</td>
</tr>
<tr>
<td>Delayed Wound Healing</td>
<td>Protein, Zinc, Vitamin C, Vitamin A</td>
</tr>
<tr>
<td>Poor Turgor</td>
<td>Dehydration</td>
</tr>
</tbody>
</table>

Zinc Deficiency and PN

Zinc Deficiency Risk:
- Premature infants, PN dependent, cholestasis, IV zinc shortage, diarrhea, high phytate intake, celiac disease, Crohn’s Disease, SBS, AIDS, Liver Disease, Nephrotic Syndrome, Alcoholism, Trauma, Burns, Sleeve Gastrectomy, penicillamine, diuretics, valproate

### Skin

- Naso-labial Dermatitis (Zinc)
- Vesico-bullous Dermatitis (Zinc)
- Acrodermatitis Enteropatica (Zinc)

### Skin

- Pallor/ Palmar Pallor (Anemia)

Iron Deficiency Risk:
- Inadequate intake, blood loss, excessive phytate intake

### Skin

- Peeling hands (Vitamin A Toxicity)
Skin

- Acanthosis Nigricans (Excess Insulin)

Nails

<table>
<thead>
<tr>
<th>Physical Findings</th>
<th>Possible Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koilonychia</td>
<td>Iron</td>
</tr>
<tr>
<td>Half and Half Nails</td>
<td>Renal Failure</td>
</tr>
<tr>
<td>Splinter Hemorrhage</td>
<td>Vitamin C</td>
</tr>
<tr>
<td>Transverse Ridging</td>
<td>Protein</td>
</tr>
<tr>
<td>Beau's Lines</td>
<td>Hypercalcemia, Zinc Deficiency</td>
</tr>
<tr>
<td>Leukonychia (White spots)</td>
<td>Zinc Deficiency</td>
</tr>
<tr>
<td>Pale Nail Beds</td>
<td>Iron, B12, Folate Deficiency</td>
</tr>
</tbody>
</table>

Possible Causes:

- Iron
- Renal Failure
- Vitamin C
- Protein
- Hypercalcemia, Zinc Deficiency
- Zinc Deficiency
- Iron, B12, Folate Deficiency

Rickets

- Frontal Bossing
- Enlarged Wrists
- Bowed Legs
- Rachitic Rosary

Nails

- Koilonychia (Iron)
- Leukonychia Totalis (Hypoalbuminemia)
- Leukonuchia Partialis (Trauma to nail)
- Splinter hemorrhage (Vitamin C)

Nails

- Muehrcke’s lines (Hypoalbuminemia)
- Beau's Lines (Hypocalcemia, zinc deficiency, Trauma, Stress, Protein Calorie Malnutrition)
- Pale Nail Bed (Anemia)

NFPE and Hydration Status

- Vital Signs
- Laboratory Findings
- Physical Exam
Normal Pediatric Vital Signs

<table>
<thead>
<tr>
<th>Age</th>
<th>Heart Rate (at rest)</th>
<th>Respiratory Rate (at rest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant (0-6 months)</td>
<td>100-140</td>
<td>40-60</td>
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<tr>
<td>Infant (7-12 months)</td>
<td>90-140</td>
<td>35-40</td>
</tr>
<tr>
<td>Toddler (13 months-3 years)</td>
<td>70-110</td>
<td>25-30</td>
</tr>
<tr>
<td>Preschool (4-6 years)</td>
<td>70-110</td>
<td>21-23</td>
</tr>
<tr>
<td>School Age (7-12 years)</td>
<td>70-110</td>
<td>19-21</td>
</tr>
<tr>
<td>Adolescent (13-19 years)</td>
<td>55-90</td>
<td>16-18</td>
</tr>
</tbody>
</table>

Adapted from: Wong’s Essentials of Pediatric Nursing. 7th ed. Elsevier Mosby: St. Louis.

Dehydration

<table>
<thead>
<tr>
<th>Laboratory Findings</th>
<th>Clinical Findings</th>
<th>Physical Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ Sodium and Chloride</td>
<td>↓ Blood Pressure</td>
<td>↓ Weight</td>
</tr>
<tr>
<td>↑ BUN and Creatinine</td>
<td>↑ Heart Rate</td>
<td>Sunken Eyes</td>
</tr>
<tr>
<td>↑ Serum Osmolarity</td>
<td>↑ Temperature</td>
<td>Dark urine, ↓ UOP</td>
</tr>
<tr>
<td>↑ Urine Specific Gravity</td>
<td>↑ Capillary Refill &gt;2 seconds</td>
<td>Dry Mucous Membranes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thick Saliva</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clammy skin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cracked Lips</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poor Skin Turgor</td>
</tr>
</tbody>
</table>

Fontanelle

- Sunken Fontanelle (Dehydration)
- Bulging Fontanelle (↑ICP, Vit A Toxicity)

Physical Exam and Dehydration

- Capillary Refill
  - Normal color within 2-3 seconds
- Skin Turgor
  - Return to normal within 3 seconds

Overhydration

<table>
<thead>
<tr>
<th>Laboratory Findings</th>
<th>Clinical Findings</th>
<th>Physical Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓ Sodium and Chloride</td>
<td>↑ Blood Pressure</td>
<td>↑ Weight</td>
</tr>
<tr>
<td>↓ BUN and Creatinine</td>
<td>↑ Central Venous Pressure</td>
<td>Puffy Eyes</td>
</tr>
<tr>
<td>↓ Serum Osmolarity</td>
<td>Light Colored Urine</td>
<td>Moist Skin</td>
</tr>
<tr>
<td>↓ Urine Specific Gravity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Edema</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anasarca</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dyspnea, Lung Crackles</td>
<td></td>
</tr>
</tbody>
</table>

Assessment of Edema

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Depth of Pitting (mm)</th>
<th>Description Duration of Pitting (Seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+</td>
<td>Mild pitting, slight indentation (2 mm or less)</td>
<td>0-15 seconds</td>
<td></td>
</tr>
<tr>
<td>2+</td>
<td>Moderate pitting (2-4 mm)</td>
<td>16-30 seconds</td>
<td></td>
</tr>
<tr>
<td>3+</td>
<td>Deep pitting, extremity may look swollen (4-6 mm)</td>
<td>31-60 seconds</td>
<td></td>
</tr>
<tr>
<td>4+</td>
<td>Very deep pitting, grossly swollen extremity (6-8mm)</td>
<td>&gt; 60 seconds</td>
<td></td>
</tr>
</tbody>
</table>

- Normal: No edema
- Moderate: moderately deep pit that persists
- Severe: deep depression that persists
**Malnutrition and Physical Exam**

- Loss of Subcutaneous Fat
- Muscles Wasting
- Edema (Nutrition related)

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**Orbital Fat Loss**

*Examine: Area under eye*

- Well nourished- slightly bulged fat pad
- Mild/Moderate- slightly dark circles, somewhat hollow
- Severe- hollow depressions, dark circles, loose skin


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**Buccal Fat Loss**

*Examine: Area under cheek bone, buccal fat pads*

- Well nourished- Full round cheeks, filled out
- Mild/Moderate- Flat cheeks
- Severe- Hollow narrow face


---

**Upper Body Fat Loss**

**Triceps**

- Well nourished- Ample fat between folds of skin
- Mild/Moderate- Fingers almost touch
- Severe- Very little space between folds, fingers touch

*Examine: Triceps area*


---

**Fat Loss: Thoracic/Lumbar**

*Examine: Ribs, Lower back, Midaxillary Line*

- Well nourished- Chest and ribs not visible, full
- Mild/Moderate- Loose skin, apparent ribs
- Severe- Depression between ribs apparent


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**Muscle Wasting: Temporalis**

*Examine: Temporal Region*

- Well nourished- well-defined muscle
- Mild/Moderate- slight depression of temporalis
- Severe- hollowing or “scoop-like” depression

**Upper Body Muscle Loss/Clavicle**

*Examine: Pectoralis Major, Deltoid, Trapezius, Clavicle, Acromion Process*
- Well nourished-Visible, not prominent
- Moderate-Some protrusion
- Severe-Protruding prominent bone

Source: Body Parts 3D
Author: Breakertays

**Muscle Loss-Scapula**

*Examine: Trapezius, Supraspinus, Infraspinus Muscles*
- Well nourished-scapula not prominent
- Mild-Moderate-Scapula showing slightly in some but not all areas
- Severe-Prominent bone, depression above scapula


**Muscle Loss/Shoulder**

- Well nourished-Rounded curved junction at neck and shoulder
- Moderate-Shoulder not square, slight protrusion of acromion process
- Severe- Squared shoulders, prominent bones, significant protrusion of acromion process

*Examine: Deltoid and Acromion Process*


**Mid-Upper Arm Circumference**

- Predicts malnutrition related mortality
- Not affected by fluid shifts and edema
- Simple and accurate
- Reflects 1:1 change in body mass


**MUAC: Step One**

- Ask patient to face away from you
- Bend right arm at 90 degree angle at elbow with palm facing up
- Measure from posterior acromion process to elbow (olecranon process)
- Average two measurements
- Mark midpoint

Source: http://www.cdc.gov/nchs/video/nhanes3_anthropometry/limb_length/limb_length.htm

**MUAC: Step Two**

- Relax marked arm at side
- Locate midpoint marking on arm
- Wrap tape around the arm at midpoint
- Record the circumference in nearest 0.1cm

References
- WHO for 3 months to 5 years
- Frisancho for < 3 months and > 5 years


http://www.who.int/childgrowth/standards/ac_for_age/en/
Lower Extremity Muscle Wasting

Quadriceps
- Well nourished - well rounded, no depressions
- Mild-Moderate - slight depression along inner thigh
- Severe - quadriceps can be reduced, depression of thigh

Knee
- Well nourished - bone not prominent
- Mild-Moderate - Knee noticeable, little muscle
- Severe - Knee is square and prominent

Examine: Anterior Thigh
- rectus femoris - blue
- vastus lateralis - yellow
- vastus intermedius - green
- vastus medialis - red

BodyParts3D/Anatomography

Examine: Posterior Calf Region

Functional Status

- Hand Grip Strength
  - Correlates with loss of total protein and BMI¹
  - Shows earlier response to nutritional changes than labs or anthropometrics in adults²
  - Predicts post-op complications, LOS, readmission and mortality
  - Reference percentiles for 6-80 yrs using NHANES 2011-2012 recently published³
  - Does not quantify severity of malnutrition

Developmental Milestones

<table>
<thead>
<tr>
<th>Age</th>
<th>Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Months</td>
<td>Holds head up when on stomach, Coos, Yawns, head makes noise</td>
</tr>
<tr>
<td>4 Months</td>
<td>Holds head unsupported, May roll from stomach to back, Holds toys, Brings hand to mouth, Smiles spontaneously</td>
</tr>
<tr>
<td>6 Months</td>
<td>Strings vowels together (ah, ooh), begins consonant sounds (m, b) responds to name, Puts toys hand to hand, rolls in both directions, sits without support, may rock on hands and knees or crawl backwards</td>
</tr>
<tr>
<td>9 months</td>
<td>Copies sounds and gestures, makes sounds “mama” and “baba”, sounds, points with fingers, looks for things that are hidden, picks up things between thumb and forefinger, stands holding on, Crawls</td>
</tr>
<tr>
<td>12 months</td>
<td>Stranger anxiety, Uses gestures (shaka, head nod, wave bye, bye), imitates gestures, Walks holding furniture, May stand alone, May take a few steps</td>
</tr>
<tr>
<td>18 months</td>
<td>Tense tantrums, Vomits play (food doll), says several single words, points to body parts, Walks alone, Undress self, Eat with spoon</td>
</tr>
<tr>
<td>24 months</td>
<td>Points to things when named, Uses 2 to 4 word sentences, Stands on tip toes, Dribbles a ball, Begins to run, Climbs up and down on furniture</td>
</tr>
</tbody>
</table>

Now What?

- Talk to child’s PCP or Pediatrician
- Request labs
- Request Dermatology or Ophthalmology consult
- Gather more focused information
  - Detailed diet history
  - Gastrointestinal history
  - Surgical History/Define Anatomy
  - Keep Practicing
- Reference:
Assays for Nutrient Deficiency

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Assay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A</td>
<td>Serum Retinol</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>Hydroxy Vitamin D</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>Alpha Tocopherol, Tocopherol:Cholesterol</td>
</tr>
<tr>
<td>Vitamin K</td>
<td>Prothrombin Time, PIVKAII</td>
</tr>
<tr>
<td>Vitamin B6</td>
<td>Plasma Pyridoxal Phosphate</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>Serum Cyanocobalamin, MMA</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>Plasma Ascorbic Acid</td>
</tr>
<tr>
<td>Riboflavin</td>
<td>Erythrocyte Glutathione Reductase Activity Coefficient</td>
</tr>
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</table>

Getting Started

- Training
- Identify NFPE Champions
- Add NFPE Exam to EMR
- Develop Competencies
- Practice

Documentation

- PES Statements: Nutrition Diagnosis

  (Chronicity) (Degree) (Illness or Non-Illness) Malnutrition in the setting of (Injury or Disease) related to (Etiology) as evidenced by (indicators).

  Severe protein-calorie malnutrition in the setting of a burn injury related to hypermetabolism and increased energy requirements as evidenced by 10% weight loss over one month and physical findings of moderate muscle wasting (temporalis and pectoralis) and severe subcutaneous fat loss (orbital, buccal and triceps).

Competencies

- Accuracy interprets anthropometric measurements
- Demonstrates knowledge of NFPE skills
- Identifies drug and nutrient interactions
- Identifies drug nutrient interactions
"I am always doing that which I cannot do, in order that I may learn how to do it."

~ Pablo Picasso
**NFPE Practice**

- Scapula: Muscle Wasting
- Ribs: Fat Wasting
- Mid-axillary Line

**NFPE Practice**

- Quadriceps: Muscle Wasting
- Knee: Muscle Wasting
- Calf
- Edema
  - Normal: No edema
  - Moderate: moderately deep pit that persists
  - Severe: deep depression that persists

**NFPE Practice**

- Skin
  - Hydration
    - Turgor
    - Capillary Refill
  - Rash
  - Skin Breakdown
- Nails
  - Cracks, ridges, lines
  - Color of nail beds
  - Shape of nails

**MUAC Practice**

- Upper Body
  - Clavicle/Pectoralis
  - Shoulder/Acromion Process
  - Triceps
  - Scapula/Trapezius, Serratus Anterior, Rhomboid
  - Ribs/Mid-Axillary Line
  - Nails, Capillary Refill, Skin Turgor

**NFPE Head to Toe**

- Head
  - Hair, Scalp
  - Orbital, Eyes
- Temporalis
- Buccal
- Oral
NFPE Head to Toe

- Lower Body
  - Quadriceps
  - Gastrocnemius
  - Edema
- Skin/Rashes, Lesions

Perceived Challenges

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<td>• Webinars</td>
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<td>• Think Big Picture</td>
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<td>• Time Exam with Staff</td>
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NFPE Skills

- **skill** (skĭl) n. 1. a. Proficiency, facility, or dexterity that is acquired or developed through training or experience.

- NFPE rounds
- Practice with co-workers or family members
- Start small and build

NFPE Resources

- Litchford M. Nutrition Focused Physical Assessment: Making Clinical Connections
- Mordarski B, Wolff J. Pediatric Nutrition Focused Physical Exam. eatrightstore.org
- DNS NFPE Video
  http://www.dnsdpog.org/content/store