Academy of Nutrition and Dietetics

Nutrition Focused Physical Exam Pocket Guide Third Edition

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Nutrition Focused Physical Exam (NFPE) Pocket Guide Includes:

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Physical Exam: Descriptions of NFPE Findings

EXAM AREAS	TIPS	SEVERE LOSS	MILD–MODERATE LOSS	WELL-NOURISHED
SUBCUTANEOUS FAT LOSS				
Orbital Region (Orbital Fat Pads)	View patient when standing directly in front of them, palpate the area around the eye over the orbital bones.	Hollow look, depressions, dark circles, loose skin. Significant decrease in bounce back of fat pads.	Slightly dark circles, somewhat hollow look. Some decrease in bounce back of fat pads.	Slightly bulged fat pads, ample bounce back. Fluid retention may mask loss. Dehydration may falsely appear as loss.
Cheek Region (Buccal Fat Pads)	View patient when standing directly in front of them, palpate between the cheekbone and jawbone.	Hollow, sunken, narrow cheeks; prominence of bony structure. Minimal to no bounce back of fat pads.	Slight depression, somewhat sunken appearance, flat cheeks. Decrease in bounce back of fat pads.	Full, round, filled-out cheeks. Ample bounce back of fat pads.
Upper Arm Region (Triceps)	Arm bent at 90º, roll down mid-arm to assess fat between fingers, ensure muscle is not present in pinch. Ask patient to flex.	Fingers touch with minimal fat, very little space between.	Some fat in pinch between fingers, but not ample.	Ample fat between fingers.
Thoracic and Lumbar Region (Ribs, Lower Back, Midaxillary Line)	View patient from back/side with arms raised out directly in front of them.	Depression between the ribs very apparent, minimal to no fat can be pinched. Iliac crest very prominent.	Ribs apparent, depressions between ribs less pronounced, minimal fat in pinch. Iliac crest somewhat prominent.	Chest is full, ribs do not show, ample fat in pinch. Slight to no protrusion of the iliac crest.
MUSCLE LOSS				
Temple Region (Temporalis Muscle)	View patient when standing directly in front of them, ask patient to turn head side to side. Ask patient to pretend to chew.	Hollowing, scooping, depression with little to no muscle tone/resistance.	Slight depression with decrease in muscle tone/ resistance.	Can see/feel well-defined muscle.
Clavicle Bone Region (Pectoralis Major, Trapezius Muscles)	Ensure shoulders are in neutral position; standing or sitting as close as possible to 90º, not hunched over.	Protruding, prominent bone. No bounce back in muscle tone/resistance with striated/ stringy feel. Fingers able to palpate under clavicle.	Some protrusion of the clavicle with decrease in muscle tone/resistance.	Clavicle may be visible, but not prominent. Feel muscle tone/resistance.

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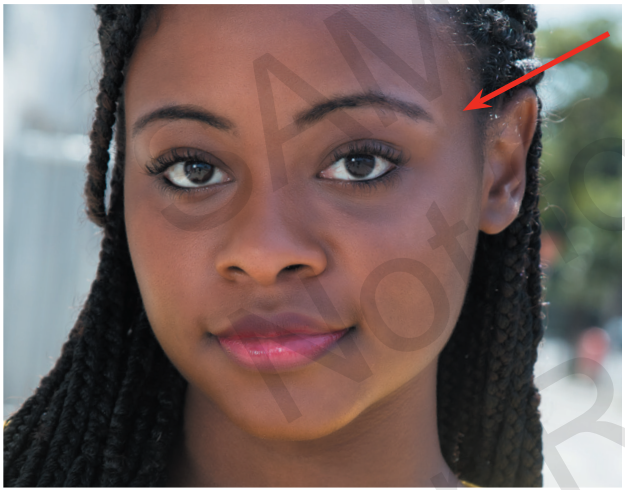
Images of Muscle Wasting

Temple Region (Temporalis Muscle)

HELPFUL TIPS

Technique/Landmark

- Use index and middle fingers to palpate the muscle over the temporal bone; palpate in a scooping motion in horizontal, vertical, and diagonal direction from temple to hairline above ear.
- Ask the patient to pretend to chew gum or clench teeth to engage the muscle.
- View patient's face straight on and have patient turn head to each side.



Well-nourished

Mild

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Micronutrient Exam: Clinical Interpretation of Nutrition Focused Physical Exam Findings

SIGNS/SYMPTOMS	POSSIBLE NUTRITION-RELATED CAUSES	ADDITIONAL INFORMATION
HAIR		
Alopecia *patchy hair loss, baldness*	*Deficiency:* Zinc • Biotin • Iron* (with or without anemia) *Toxicity:* Vitamin A	*At risk for alopecia:* Asthma • Thyroid disease • Atopic dermatitis • Psoriasis • Vitiligo • Rheumatoid arthritis • Irritable bowel disease • Lupus • Down syndrome • Hereditary
Hair loss *easily plucked with no pain; dull, dry, lackluster; thinning*	*Deficiency:* Essential fatty acid • Riboflavin *Other:* Malnutrition^ *Toxicity:* Selenium • Vitamin A	*Possible non–nutrition-related causes:* Aging • Over-processing of hair (eg, excess bleaching) • Chemotherapy or radiation to the head • Stress of illness • Hormonal changes • Endocrine disorders • Medications • Thyroid disease
Depigmentation; color changes; premature graying	*Deficiency:* Copper* *Other:* Malnutrition^	*Possible non–nutrition-related causes:* Chemotherapy • Hereditary
Flag sign *alternating horizontal bands of dark and light color in hair, lack of melanin*	*Other:* Malnutrition^	
Lanugo *very fine, soft hair*	*Other:* Malnutrition^ • Starvation (i.e., anorexia nervosa)	
Corkscrew and swan neck hair	*Deficiency:* Vitamin C	
Kinky hair	N/A	*Non–nutrition-related cause:* Menkes syndrome caused by *ATP7A* gene mutation that affects copper metabolism Typically in males with life expectancy of 3 years old
Hirsutism *excessive growth of dark or coarse hair in women — face, chest, abdomen, back*	*N/A*	*Possible non–nutrition-related causes:* Polycystic ovary syndrome • Cushing syndrome • Adrenal hyperplasia • Androgen-secreting tumors • Chemotherapy • Medications

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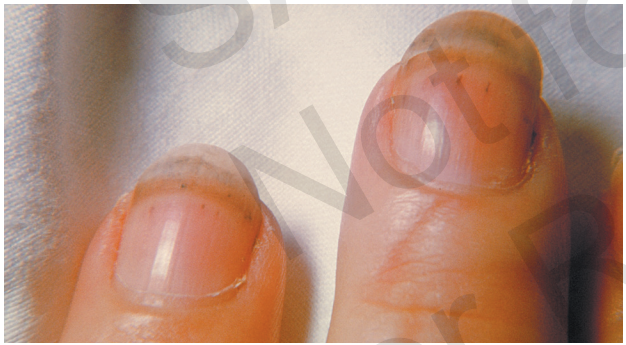
Nail Findings

Beau's Lines

Muehrcke Lines



Splinter Hemorrhage

Mees Lines

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Laboratory Assays for Vitamin and Mineral Status

VITAMIN/MINERAL	LABORATORY METHOD	INTERPRETATION OF LEVELS			COMMENTS
		NORMAL	DEFICIENCY	TOXICITY	
Vitamin A					
Retinol	Serum or plasma	30-100 µg/dL	<10 µg/dL	>100 µg/dL	Fasting level preferred. May be falsely decreased during inflammation.
Vitamin D					
Caliciferol 25(OH)D	Serum or plasma	≥20 ng/mL	Insufficient: 12-<20 ng/mL Deficient: ≤12 ng/mL	>50 ng/mL	May be falsely decreased during inflammation. Toxicity results in hypercalcemia, hypercalciuria.
Vitamin E					
Alpha-tocopherol	Serum or plasma	0.5-2.0 mg/dL	<0.5 mg/dL	>2.0 mg/dL	May be falsely decreased during inflammation.
Alpha-tocopherol: Lipids	Serum or plasma		<0.8 mg/g total lipid		Abnormal lipid levels can affect vitamin E status, a low ratio of serum alpha-tocopherol to lipids is the most accurate indicator in adults with hyperlipidemia.
Vitamin K					
Prothrombin Time (PT)	Plasma	10-13 seconds	Elevated		A prolonged PT or elevated INR decrease after phytonadione confirms vitamin K deficiency.
International normalized ration (INR)		≤1.1 2.0-3.0 (therapeutic range)	Elevated		INR target range of 2.5-3.5 for high risk of blood clot (ie, after a myocardial infarction).
Thiamin (B1)					
Thiamin Pyrophosphate (TPP)	Whole blood	0-14%	≥25% (severe)		Deficiency often based on symptoms due to tests not readily available. TPP: 16-25% (marginally deficient).
Thiamin	Whole blood	3.0-7.7 µg/dL	<1.7 µg/dL		May be falsely decreased during inflammation.
Riboflavin (B2)					
Erythrocyte glutathione reductase activity coefficient (EGRAC)	Whole blood	<1.2	>1.4		1.2–1.4 indicates marginal status.

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