An Overview of Nutrition Focused Physical Examination of the Orofacial Region in Children

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Objectives

• Describe the role of the Registered Dietitian Nutritionist (RDN) in Nutrition Focused Physical Examination (NFPE) of the Orofacial Region and integration of these findings into practice.

• Describe the components of the orofacial NFPE and their utility and practice.

• Be familiar with benefits of NFPE to the pediatric patient and the clinician.

Standards of Practice and Standards of Professional Performance

NFPE evaluates findings from the review of systems, muscle and subcutaneous fat wasting, oral health, hair, skin, nails, signs of edema, suck/swallow/breathe ability, and appetite.
Academy of Nutrition & Dietetics Standards of Practice: Nutrition Assessment

NFPE: Is a component of Nutrition Assessment
• Provides
  – ‘Physical’ findings that may impact the patient’s ability to ingest or digest foods and fluids
  – Visual & physical signs of nutrition related problems
    • including malnutrition and nutrient deficiencies
    • conditions that directly impact the ability to eat

That the dietitian is UNIQUELY TRAINED TO IDENTIFY & MANAGE via intervention &/or referral!

How can integration of NFPE into your nutrition assessment change your practice?

As the Nutrition Experts, Dietitians CAN

* Distinguish between normal & abnormal findings
* Assess findings relative to nutrition & diet considering:
  - Patient complaints, symptoms, disease state
  - History, diagnosis(es), medications
  - Ability to bite, chew, suck, swallow
  - Impact on disease management
  - Influence on growth and development patterns

* Document nutrition diagnoses including malnutrition
* Manage nutrition interventions and plan of care
* Monitor and evaluate progress of the patient
* Refer / consult other disciplines as needed

Dietitians CANNOT

* Diagnose medical, dental or other non-nutrition diseases/disorders
Stepwise Approach to Orofacial & Upper Body NFPE in Children

- **Steps 1 & 2**
  - 1. Interview the patient or the parent
  - 2. Head, face, neck, extra-oral screens

- **Steps 3**
  - 3. Upper body fat, muscle & functional status, growth trends

- **Steps 4 & 5**
  - 4. Intra-oral exam
  - 5. Look for macro & micronutrient deficiency signs & symptoms – as part of steps 2 & 4

**Nutrition Focused Physical Exam**

Observations/Assessment made by the RDN during NFPE could help to identify and treat aspects of health that potentially leads to further impairment, disability, or morbidity.

Through NFPE, the RD can help address the negative affect oral health conditions have on the child’s overall health and wellbeing.

What tools do you need to perform a NFPE in a child?
GENERAL APPEARANCE

- FACIES
- SKIN
- POSTURE
- POSITION
- BODY MOVEMENT
- HYGIENE
- NUTRITION
- BEHAVIOR
- DEVELOPMENT

Observe General Appearance

Symmetry
Symmetry

Nutrition Focused Physical Exam

- Skin
  - Acanthosis
  - Acne
  - Striae
  - Pannus
  - Hirsutism
  - Intertrigo

Iron Deficiency – Common in Childhood

- Eyes
- Brittle nails
- Spoon-shaped nails
- Sores develop at edges of the mouth
- Thin hair
- Pallor
- Taste changes
- Fatigue
Facial Expressions

Smile
Puff cheeks
Fish face or throw a kiss

Frown

Sometimes you don't have to ask – it is natural!

Facial Palsy
Stick out tongue and Inspect Tongue

Have child wiggle tongue from side to side and up and down.

Cleft Lip and Palate

Lift the Lip and Look in the Mouth

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Checking a small child’s teeth
Check for white or brown spots often by lifting the lip. Children will get used to having their teeth checked.

Observe for white or light brown spots. If visible — make a dental referral.

Lifting the Lip
It is not enough to just lift the lip — you must look at the molars as well.
**Enlarged Tonsils**

![Image of tonsils]

**Possible Causes**

- Soreness, Burning
  - Riboflavin deficiency
  - Oral candidiasis

- Angular Stomatitis or Cheilitis
  - Riboflavin, niacin, iron, vitamin B6 & B12 deficiency
  - Excessive saliva (drooling), dehydration

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**NFPE: Mouth and Lips**

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**NFPE: Tongue and Gums**

**Possible Causes**

- Glossitis, sore, swollen, red/magenta
  - Riboflavin, niacin, folate, vitamin B6 deficiency
  - Crohn’s disease, infection, trauma, uremia

- Gingivitis, swollen, redness, bleeding
  - Vitamin C, niacin, folate, zinc, vitamin D deficiency
  - Poor oral hygiene, diabetes, medications, renal disease
Definition of Oral Health

"Oral health is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex."

Fédération Dentaire Internationale (FDI) World Dental Federation

Primary Teeth

Permanent Teeth

Dental Caries

- Early Childhood Caries – found in the primary teeth
- Localized destruction of the tooth
- Can affect the enamel, dentin and cementum
- Most common infectious disease in children

Dental caries are the result of acids on the enamel surface. The acid is produced when sugars (mainly sucrose) in foods or drinks react with bacteria present in the dental biofilm (plaque) on the tooth surface and cause a drop in pH to < 5.5.
The Decay Process

- Plaque formation: sticky mix of microorganisms, protein, polysaccharides
- Bacteria metabolizing fermentable carbohydrate produce acid
- Acid production: oral pH<5.5 allows tooth demineralization
- Saliva function: rinses away food; neutralizes acid; promotes remineralization
- Caries pattern: pattern depends on cause

Plaque Build Up

Severe Early Children Caries

Courtesy of Dr. Evan Spivack
Affects Children in Many Ways

- Pain
- Difficulty chewing
- Sensitivities
- Missed School Days
- Self-esteem
- Infections
- Growth

• Epstein Pearl
  - Palatal cysts of the newborn.
  - Lesions located along the mid palatine raphe; often small and white. Harmless
  - Disappear within 1-2 weeks

• Dental Lamina Cysts
  - Cysts located along the maxillary and mandibular dental ridges
  - Filled with keratin
  - Disappear within 1-2 weeks

• Geographic Tongue
  - Described by atrophy or short-term loss of filiform papillae; pink to red, changes patterns

• Candidiasis
  - Fungal infection; thrush
Ankyloglossia (Tongue Tie)

A physical examination will show that the lingual frenulum is attached too far forward on the tongue.

Breastfeeding Speech

- **Stomatitis**

  Inflammation; re-occurring ulcers also known as Aphthous ulcer (chancre sores)

- **Angular Cheilitis**

  Lesions appearing at corners of the lips

- **Abscess**

  Buildup of purulent material near apex of a non-vital tooth due to pulpal necrosis; swelling occurs

- **Gastroesophageal Reflux**

  Causes erosion of the teeth

https://www.breastfeedingbasics.com/articles/tongue-tie

https://upload.wikimedia.org/wikipedia/commons/8/86/Aphthous_ulcers_on_lip.jpg

https://commons.wikimedia.org/wiki/File:Angular_Cheilitis_2.jpg

https://upload.wikimedia.org/wikipedia/commons/c/cf/Crack_tooth_lateral_periodontal_abscess.jpg

**Cystic Fibrosis**
Discoloration of teeth ranges from yellowish-gray to dark brown.

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**Fluorosis**
Too much fluoride results in chalky and opaque white or gray stained teeth; defective mineralization of enamel.

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**Microdontia**
Characterized by one (or more) tooth that looks to be smaller in size than other teeth.

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**Gingival Overgrowth**
Gingiva hypertrophy; overgrowth of the gingiva.
Medications - dilantin.

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**Teething**
Occurs around 6 months; signs include crying, increased drooling, fever, facial rash.

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**Early Childhood Dental Caries**
Caused by intake of fermentable carbohydrates; teeth are chalky white; progression leads to brown lesions.
• Thumb and Finger Habits

Results in “anterior open bite; maxillary constriction; facial movement of the maxillary incisors and; lingual movement of mandibular incisors

• Lip Habits

Licking lips; inflamed lips

• Bruxism

 Grinding of teeth; often occurs while child is sleeping

• Malocclusion

Imperfect positioning of teeth when jaw is closed

Case Studies: What Is Causing These Issues?
Thank You

https://c1.staticflickr.com/3/2537/3910625_8b87296568_b.jpg