Nutrition and Respiratory Health

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1. Nutrition and diet directly affects lung function in Covid-19 (acute and post) ARDS and COPD

2. Nutrition Label Changes to help you and your patients


4. Community resources can help you and your patients to find best foods to prepare simple and healthy meals and supplements.
Nutrition and Covid 19  SARS CoV-2
# Standards for Feeding Critically ill Patients

## Determine EN Appropriateness and Beneficial Effects

- Determine if GI tract is functional, bowel sounds not necessary
- Assess that patient is unable to take sufficient oral nutrition
- EN provides beneficial effects including decreased infection over PN

**Resources:** ASPEN Adult Critical Care Clinical Guidelines

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Consider use of the EN algorithm of care found at:
https://www.nutritioncare.org/Guidelines_and_Clinical_Resources/EN_Pathway/Enteral_Nutrition_Care_Pathway_for_Critically-Ill_Adult_Patients/
Feeding the ICU patient with Acute Covid 19 – Dietitian role

- Assessing patient’s nutritional state before admission
  (limited direct pt access; phone consult with family or support persons)
- Early Feeding 24-36 hrs with good Gut function
- Individualizing energy needs and high protein formula type: Replete (>20% PRO)
- Continuous Feeding vs Bolus to reduce bedside staffing monitoring/exposure risk
- Early Feeding within 12 hr of intubation
- Prone Positioning – ARDS pts consideration of Sedative (Diprivan/Propofol-fat based) impacting nutrition calculations for formula needs
- Starting w/low feeding rate and increasing based on Gut function tolerance and Respiratory status
- Lessons: limited PPE, feeding pumps, tubing, formula, intensive Nutrition Support Team communication (MD, RT, Pharmacy, RN, RD)
Post Covid 19 Syndrome

“the persistence of signs and symptoms that develop during or following an infection consistent with COVID-19 which continue for more than 12 weeks and are not explained by an alternative diagnosis.”

“characterized by a combination of symptoms, mainly fatigue and sleep disturbances [12]. Other common features are dyspnea, joint pains, anxiety, low mood, cognitive dysfunction, chest pain, thromboembolism, hair loss, and chronic kidney disease [12].

“It is evident that post-COVID-19 syndrome will represent a burden for healthcare professionals and national health systems.”

Table 1. Summary table of the tools/procedures for nutritional assessment in patients with post-COVID-19 syndrome.

<table>
<thead>
<tr>
<th>Target</th>
<th>Tool/Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of malnutrition</td>
<td>Malnutrition screening tool (dietary intake, appetite, and involuntary weight loss)</td>
</tr>
<tr>
<td>Dietary habits</td>
<td>Nutritional history (adequacy of actual energy and nutrient intake, religious and cultural preferences, food intolerances and refusals, past diet history, changes in habitual intake)</td>
</tr>
<tr>
<td>Anthropometry and body composition</td>
<td>- Body size (weight, height, and BMI)</td>
</tr>
<tr>
<td></td>
<td>- Bioelectrical impedance analysis (fat mass, fat-free mass, and muscle mass)</td>
</tr>
<tr>
<td>Sarcopenia and functional impairment</td>
<td>- Gait speed</td>
</tr>
<tr>
<td>(fatigue and muscle weakness)</td>
<td>- Handgrip</td>
</tr>
<tr>
<td></td>
<td>- Specific questionnaires (i.e., SARC-F)</td>
</tr>
<tr>
<td>Physical impairment</td>
<td>Anamnestic data (dysphagia, taste/smell alterations)</td>
</tr>
<tr>
<td></td>
<td>Biochemical parameters (in particular, inflammatory status)</td>
</tr>
<tr>
<td>Sleep disorders</td>
<td>Pittsburgh sleep quality index</td>
</tr>
</tbody>
</table>

SARC-F: Strength, Assistance with walking, Rising from a chair, Climbing stairs, and Falls questionnaire.
Diet Recommendations for Post Covid 19

**Impaired immune response**
- Vitamin D
- Minerals
- Immunostimulators (milk proteins/peptides, probiotics)

**Inflammation**
- Omega 3 fatty acids
- Monounsaturated fatty acids
- Dietary fibre (butyrate)
- Palmitolethanolamide
- N-acetyl-cysteine
- Inositol

**Oxidative stress**
- Polyphenols
- Vitamin E, C and A
- Glutathione
- Carbohydrate with low glycemic index

**Sarcopenia**
- Adequate energy and protein intake
- Minerals

*Figure 2. Main targets of recommended dietary compounds in patients with post-COVID-19 syndrome.*

Figure 1. Dietary recommendations for patients with post-COVID-19 syndrome.

- Vitamins, mineral, and phytochemicals with antioxidant and anti-inflammatory properties
- Soluble and fermentable fibre

2.5–3 L/day of fluids to avoid dehydration

- Monounsaturated fatty acids
- Tocopherols
- Polyphenols

- Carbohydrate with low-glycemic index
- Soluble and fermentable fibre

- Protein with high biological value
- Omega 3 fatty acids (fish)

Malnourished or defied patients:

- Supplements with minerals and vitamins (in particular vitamin D)
- Nutraceuticals with antioxidant and anti-inflammatory activities (quercetin, resveratrol, catechins, glutathione, inositol, or combinations)
- Immuno-boosters (milk peptides and probiotics)
Nutrition and Diet Matters in COPD
Food, Nutrients and Lung Function in COPD

Improve Lung Function: anti-inflammatory response from specific foods and diet

• Mediterranean diet - more plant based; less sugar, less red meat and processed foods
• Fresh Fruit and Veggies – polyphenols and antioxidants improve lung function
• Whole grains – fiber and antioxidants
• Vitamin D – big correlation between serum levels and need for supplementation

• Fish, nuts and seeds – omega 3 EFAs along with overall healthy diet pattern

• High-fat/low Carb – not so much evidence supporting this eating pattern

Today’s Dietitian Clinical Nutrition: Dietary Guidance for COPD Vol.22, No. 9, P. 14 J. Santa Cruz
Patient message: WHY A Healthy Diet??

- Your muscles may use 10x more energy than person without COPD
- Healthy Diet may help stop losing weight or gaining unwanted pounds
- Healthy Diet Fights Infection

- A Healthy Diet will actually help you BREATHE Better
AVOID Shortness of BREATH

- Eat a Balanced Plate (Protein, unsaturated Oils/Fats with Wholegrains, Fruit and/or Vegetable).
- Foods with easy to digest carbs such as refined flour and sweets make more waste air or CO2 (carbon dioxide).
- Eating mini meals or snack meals during your day prevents belly fullness.
- Avoid bloating foods and aerated drinks such as “carbonated drinks, seltzer, pretzels and bagels) large portions of gassy veggies and fruits (broccoli, cabbage, onions, melon).

https://www.news-medical.net/health/Foods-that-can-irritate-COPD.aspx  Feb 2019
https://Lung Institute.com/blog/foods to avoid with copd/
**STRONG + BRIGHT + WHOLE**

- **PROTEIN**: animal or plant protein provides strength to breathing muscles and immune system.
- **Whole grain**: slows down rise of blood sugar and CO2 waste air.
- **FIBER and non-carbonated FLUID**: not too much, will help with digestion, ease constipation and reduce gas and bloating.
- **OILS and FAT** supply food energy and slow CO2 production. Choose nuts, oils; and spreads made with MONO and POLYunsaturated fat; Eat less fatty meats, avoid fried foods and whole milk dairy.
Nutrition Resources in the Community
Resources in the Community

Pulmonary Rehab

For more information about the Elliot Post-COVID Pulmonary Rehab & Recovery Program, visit Elliot Hospital | Pulmonary Rehabilitation in Manchester NH.

Patients require a provider’s referral. The class is covered by insurance, including Medicare.
Nutritious Resources in the Community

Hannaford Dietitian Program Overview

Services:
• Nutrition Classes & Store Tours For Shoppers
• Healthy Living Events For Schools, Workplaces, & Community Organizations
• Weekly Nutrition Demos
• Help With Special Dietary Needs
• Healthy Eating Tips & Recipe Ideas
• Education On Food Labels
• Associate Education

Hannafordnutrition.EVENTBRITE.COM
Nutrition Education Resources

• Guidingstars.com

Use Guiding Stars – a fast and easy way to make nutritious choices
Nutrition Fact Changes to the USDA Food Label
**NEW LABEL / WHAT’S DIFFERENT**

- **Serving sizes updated**
- **Calories: larger type**
- **Updated daily values**
- **Actual amounts declared**
- **New footnote**

**Nutrition Facts**

- Serving size: 2/3 cup (55g)
- Calories: 230

**FDA**

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**FOOD SERVING SIZES GET A REALITY CHECK**

**Serving Size Changes**

What's considered a single serving has changed in the decades since the original nutrition label was created. So now serving sizes will be more realistic to reflect how much people typically eat at one time.

<table>
<thead>
<tr>
<th>Current Serving Size</th>
<th>New Serving Size</th>
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</thead>
<tbody>
<tr>
<td>4 SERVINGS</td>
<td>3 SERVINGS</td>
</tr>
<tr>
<td>200 CALORIES</td>
<td>270 CALORIES</td>
</tr>
</tbody>
</table>

**Packaging Affects Servings**

Package size affects how much people eat and drink. So now, for example, both 12 and 20 ounce bottles will equal 1 serving, since people typically drink both sizes in one sitting.

- 12 OUNCES
- 20 OUNCES

1 SERVING PER BOTTLE FOR EITHER BOTTLE SIZE
1. Look at the Serving Size
2. Look at the **Total** Carbohydrate and Sugar
3. **Added Sugar** is part of the total Sugar
4. 4g Sugar = 1 teaspoon
Test your Food Knowledge skills
How Much Sugar is in it?  8...10 or 13 tsps
How Much Sugar is in it?

13 10

8

Dunkaccino

Skittles

Sprite

Sugar

Sugar
Foods and Beverages during Smoking Cessation: Make taste of cigarettes bitter

Vegetables like carrots, celery, cucumber, zucchini, and eggplant also make cigarettes taste awful, just like milk does. Also, if you try hard enough, you can trick your brain into thinking veggie sticks look like cigarettes, and chewing on them gives you something to do besides smoking.
Can you put in order of highest to lowest in sodium?
Can you put in order of highest to lowest in sodium?
Take aways

1. Nutrition and diet directly affect lung function in Covid-19 (acute and post) ARDS and COPD – less mortality in pts fed EN within 24-36 hrs of ICU admission and 12hrs of intubation/mechanical ventilator

2. Anti-inflammatory foods are key – Mediterranean diet

3. Eat More and Eat Less Practical Info

4. Community resources can help you and your patients to find best foods to prepare simple and healthy meals and supplements.
Q & A for the Dietitian