Nutrition and Living with Neuroendocrine Tumors:

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Objectives

- Identify recommendations for American including Cancer Survivors
- Identify problems and symptoms affecting the nutritional status of among patients living with NETs
- Provide information to improve the symptoms and complications related to foods and beverages consumed.
American Cancer Society (ACS) Guidelines on Nutrition and Physical Activity for Cancer Prevention

- Consume a healthy diet, with emphasis on plant sources
- If you drink alcoholic beverages, limit consumption
- Maintain a healthy weight throughout life
- Adopt a physically active lifestyle
Consume A Healthy Diet

- Choose foods and beverages in amounts that help achieve and maintain a healthy weight
- Eat 5 or more servings of fruits and vegetables
- Choose whole grains in preference to processed grains
- Limit consumption of processed and red meats
Consume A Healthy Diet

• Choose foods and beverages that help maintain a healthy weight
  – When eating away from home, choose food low in fat, calories, and sugar and avoid large portions
  – Eat smaller portions of high-calorie foods
  – Substitute vegetables, fruits, and other low-calorie foods for calorie-dense foods

Recommendations

Weight Management

Diet

Physical Activity

Source: American Institute for Cancer Research @ www.aicr.org
American Institute of Cancer Research Recommendations for Cancer Survivors
Keep An Eye On Portions

Typical restaurant plate vs The Portion Plate

<table>
<thead>
<tr>
<th>Calories</th>
<th>Calories from fat</th>
<th>Total Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>approx. 1,317</td>
<td>approx. 660</td>
<td>approx. 73 g.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calories</th>
<th>Calories from fat</th>
<th>Total Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>approx. 315</td>
<td>approx. 47</td>
<td>approx. 5 g.</td>
</tr>
</tbody>
</table>
Anatomy of My Pyramid
One Size Doesn’t Fit All

Activity
Moderation
Personalization
Gradual Improvement
Variety
Proportionality

MyPyramid
STEPS TO A HEALTHIER YOU
MyPyramid.gov

GRAINS  VEGETABLES  FRUITS  MILK  MEAT & BEANS
Nutritional problems Among Carcinoid Cancer patients

- Involuntary Weight loss
- Muscle mass reduced / Protein loss
- Reduction in amounts consumed and absorption of nutrients
- Decreases in patients immune system
- Decrease in control of bowel movements
- Reduction in QOL
Symptoms requiring dietary adjustments

- Carcinoid syndrome
- Flushing
- Fatigue
- Nausea
- Vomiting
- Diarrhea/Steatorrhea
- Gas
Dietary intervention

- High protein High Calorie dense diet
- Dumping syndrome diet
- Altered fiber diet
- Low fat diet
- Diarrhea reducing diet
- Lactose free/ Gluten free
- Low tyramine diet
- FODMAP Diet (Gassy Foods)
## Reduce The Fat

<table>
<thead>
<tr>
<th>Instead of . . .</th>
<th>Substitute with . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Mayonnaise</td>
<td>– Reduced-calorie mayonnaise</td>
</tr>
<tr>
<td>– Butter, Oil in baking</td>
<td>– Applesauce</td>
</tr>
<tr>
<td>– Eggs</td>
<td>– Egg Whites</td>
</tr>
<tr>
<td>– Fruit flavored yogurt</td>
<td>– Plain yogurt with fresh fruit</td>
</tr>
<tr>
<td>– Regular salad dressing</td>
<td>– Fat-free or reduced calorie dressing</td>
</tr>
<tr>
<td>– Whole milk</td>
<td>– Reduced-fat or fat-free milk</td>
</tr>
</tbody>
</table>
Alterations to improve tolerances to foods

- Chew foods completely
- Chop or mash before eating
- Increase calorie and protein density
- Avoid foods associated with problems
- Eat smaller portions but increase frequency
  - 6 small feedings daily
  - Liquids adjust to meet tolerances but don’t avoid
Adjust diet related to symptoms

- **If diarrhea or gas**
  - Diet for diarrhea
  - Rapid transit
  - Post gastrectomy/Dumping diet
  - FODMAP diet (gassy foods)

- **If nauseated**
  - Avoid red meats and fatty foods
  - Avoid smells and color in foods
  - Use Low fat diet

- **If constipated add insoluble fiber and fluids**

*Reference cooking with cancer Dr. Louis Pineda*
Food Labels

• Look For . . .
  – Serving Size
  – Calories
  – Fat
  – Sodium
  – Carbohydrates
  – Dietary Fiber
Enteral Supplements

• Only replace when needed related to intake and absorption
  – Standard Carnation instant breakfast, Ensure, boost, breeze

• Modular
  • Juven, benecal, beneprotein, Medium Chain Triglycerides

• Specialty
  – Partially elemental -Peptemen, elemental High protein vital, Stress, immune suppression, Maltodextrin/Glucerna
Supplementing Vitamins, Minerals and other

- Multivitamin 100%
- Water Soluble Vitamins C and b complex
- Fat soluble vitamins
- Magnesium
- Calcium
- Herbal Not FDA approved
Medication for diarrhea symptoms

- Medication relax smooth muscle in small bowel and colon to decrease motility and increase time allowed for water reabsorption
  - Lomotil
  - Tincture of opiate
- Medication action increase water absorption by binding water
  - Attupugite – Kaopectate, donnagel,
  - Polycarbophols, equadectin, konsyl fiber, polycarb
Monitoring

- Symptom relief
- Stabilized weight
- Normal protein markers
- Increase fat soluble nutrients
- Increase in food selection
- Increase in Quality of life
Activity

- 30 to 45 minutes daily
- Eat high protein foods low in fat sources when building muscle
- Adjust times of activity away from meals if diarrhea/steatorrhea
- Increase activity if constipated
Nutrition: Making best choices considering symptoms

• If normal GI tract no symptoms follow AICR Cancer Survivor recommendations
• If symptomatic due to condition adjust diet to best fit your situation
• Remember everyone is different and may need special nutritional considerations
Identify Reliable Resources

American Institute of Cancer Research
National Cancer Institute
American Cancer Society
USDA Choose my Plate
Recipes resources

- Cooking with Cancer Dr. Pineda
- Betty Crocker Living With Cancer
- Food for the Fight ACIR
- Eating Well With Cancer
Tilapia with Curry and Orange Rice

- Makes 4 servings.
- Per serving: 375 calories, 12 g total fat (<1 g saturated fat), 39 g carbohydrate, 29 g protein, 3 g dietary fiber, 514 mg sodium.

- 3/4 cup long-grain brown rice
- 3/4 cup orange juice
- 1 cup water
- 3/4 tsp. salt, divided
- 1/4 cup sliced almonds, preferably toasted
- 2-4 tsp. mild curry powder
- 4 tsp. canola oil
- 4 (4-oz.) tilapia filets
- 1 navel orange
- 1/2 cup chopped scallions, green and white parts
- Freshly ground black pepper

Directions
- Place rice and orange juice in medium saucepan. Add water and 1/4 teaspoon salt. Bring to boil over medium-high heat, cover tightly, reduce heat to simmer and cook until rice is tender, 45-50 minutes. Off the heat, let rice sit, covered, for 10 minutes. Fluff with fork, and set aside.
- While rice cooks, preheat oven to 400 degrees F.
- If almonds are not toasted, spread on baking sheet and bake for 5 minutes, or until golden, watching carefully as they will burn easily. Immediately transfer nuts to a plate and cool to room temperature. If nuts are already toasted, skip this step.
- In small bowl, mix together curry powder, oil and 1/2 teaspoon salt to make a paste. With brush, spread one-fourth of paste over each filet, coating lightly, and arrange seasoned filets on baking sheet in one layer. To peel orange, use paring knife to remove a thin slice from top and bottom. Standing fruit on a work surface, work knife blade along the curve of the fruit, removing peel and pith in strips. Cut orange horizontally into 8 slices. Arrange 2 slices on top of each filet.
- Bake fish for 7-10 minutes, or until it is white and flakes easily at thickest part.
- To serve, place one fish filet on each of 4 dinner plates. Mix almonds and scallions into Orange Rice, and season to taste with salt and pepper. Spoon one-fourth of rice onto each plate. If desired, add steamed broccoli raab or spinach, drizzled with a bit of extra virgin olive oil. Serve immediately.