The role of Diet in the life of patients living with Neuroendocrine tumors

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Objectives

- Provide a Brief overview of Neuroendocrine tumors and Symptoms related to nutrition among NET survivors.
- Identify a healthy diet for patients based on symptoms.
- Application of foods into diet and provide resources
- Summarize the importance of diet adjustments when needed to improve quality of life.

Effects of NET and GI Consideration

- Over expression of hormones including serotonin and other peptides
- Altered GI structure, function and motility
- Organ involvement and surgical procedures
- Mediation and treatment

Basic Mechanisms Responsible for Clinically Significant Diarrhea

- Osmotic diarrhea
- Secretory diarrhea
- Decreased contact time / surface area
- Probable combination of the above

Contributing Factors of Osmotic Diarrhea

- Malabsorption such as lactose intolerance
- Ingestion of poorly absorbed substrates such as: sorbitol, mannitol, Epson salt or antacids
- Diarrhea will stop

Contibuting factors to Secretory Diarrhea

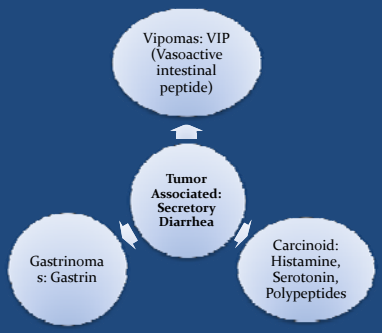
Intestinal water secretion water exceeds absorption

Bacterial toxins

Drugs (laxatives,some types of asthma medications, antidepressants, cardiac)

Miscellaneous: heavy metals, organic toxins, and plant products (e.g. arsenic, insecticides, mushroom toxins, caffeine)

Causes of Secretory Diarrhea



Causes of Non-Secretory Diarrhea

Changing Food Into Energy

- Intake calories as:
  - Carbohydrates
  - Proteins
  - Fats
- Results in:
  - Formed stools
  - Runny stools
  - Fatty stools

Assesment of Diarrhea Related Problems

- Rapid transit times (30-60 min post-prandial stool)
- Watery explosive stools
- Floating foul stools

Dietary Factors that May Worsen Diarrhea

Dietary Factor	Source
Caffeine	Coffee, tea, cola, OTC headache remedies
Fructose (in quantities surpassing the gut's absorptive capacity)	Apple juice, pear juice, grapes, honey, dates, nuts, figs, soft drinks (especially fruit flavored), prunes
	Sugar-free gum, mints, sweet cherries, prunes
Lactose	milk, yogurt, soft cheeses

Use of medications to Control Diarrhea and Steatorrhea

- Anti Diarrhea drugs - Imodium, Kaopectate
- Tincture of opiate or codeine
- Cholestyramine
- Pancreatic Enzymes
- Probiotics

Factors Resulting in Increased Motility

- Activity
- Stress
- Foods
  - Concentrated sweets
  - Mix solids and liquids
  - Extreme hot or colds
  - Fiber types

Problems associated with Chronic Diarrhea and Malabsorption

- Involuntary Weight loss
  - Inadequate absorption of calories
- Vitamin and mineral losses
  - Fat soluble vitamins, Mg, K
- Uncontrolled stools
- Gas / bloating

Most Prevalent QOL Concerns for NET Patients

- Fatigue
- Diarrhea
- Worry about illness getting

Also considered the worst aspects of physical distress and most common reasons for social restrictions

Most prevalent and worst aspect of emotional distress

Frojd et al. Health and Quality of Life Outcomes 2007, 5:18

Review Nutrition Status

Current weight vs Usual weight
BMI
Muscle Mass
Hand Grip,
CMP, mg, Hgl. Vit D other Vitamins if lab affordable.
NET markers for over expression
Stools BRACH scale
Previous surgeries

Characteristics of Steatorrhea

- Excessive excretion of fecal fat
  - Large, greasy
  - Foul smelling
  - Stool floats
  - May see oil droplets
  - Pale stools

Anti-diarrhea Medications

- They treat only the symptoms
- They work by slowing down the movement of the gut
- This allows more time for water to be absorbed which makes the stool less watery

Probiotics

- Useful in treating diarrhea related to antibiotic use from bacteria overgrowth
- Helps replace normal flora to the GI tract
- High dosage may increase gas or diarrhea

Cholestyramine

- Used when bile salts are thought to play a role in the diarrhea
- Action is to binds bile acids, keeping them from reaching the colon and thereby stopping bile-acid-induced diarrhea
- Common after gallbladder removal or presence of short bowel syndrome

Cholestyramine

- It is Not absorbed by the body
- Adverse effects
  - Interaction with medications by reduced effect
  - Constipation, bloating , abdominal pain, irritation of anal area

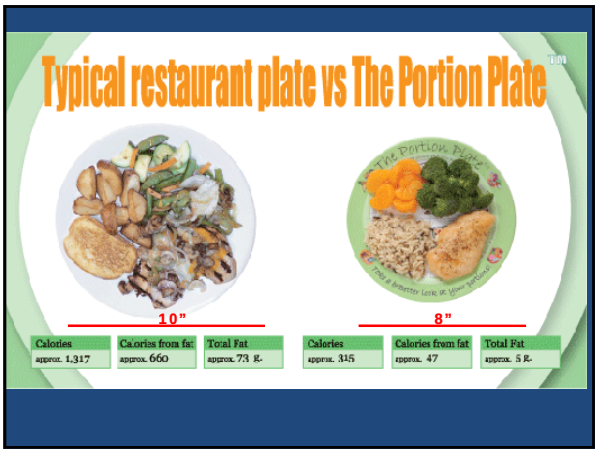
Contributing Factors to Steatorrhea

- Insufficient release of lipase
- Short bowel syndrome
- Gallbladder removal
- Side effect of medications (SMS analogs)

Pancreatic enzymes

- Provide lipase and enzymes to aid in digestion of fats, carbohydrates and protein
- Take with feedings
- Adjust dosage with amount of fat in the diet

A healthy diet for patients based on symptoms



Adjustments in Diet Improves Stool Output

- Proteins
- Carbohydrates
- Fats
- Fluids

Treatment Plan

- Take medication as prescribed
- Modify diet
- Keep records
- Report problems

USDA Base Modified for Plan

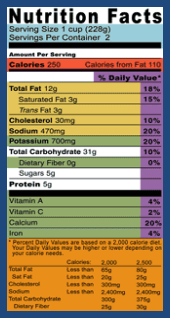
Application of foods into diet

- Food Consistency – Changes foods for better tolerances
- Portion Control -Changes in the amounts of foods
- Avoidance of Trigger Foods- Fats, sugars, Amines

Food Groups

Food Labels

- Look For . . .
  - Serving Size
  - Calories
  - Fat
  - Sodium
  - Carbohydrates
  - Dietary Fiber



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

Recipes resources

- Cooking with Cancer Dr. Pineda
- Betty Crocker Living With Cancer
- Food for the Fight ACIR
- Eating Well With Cancer

Resources for CAM

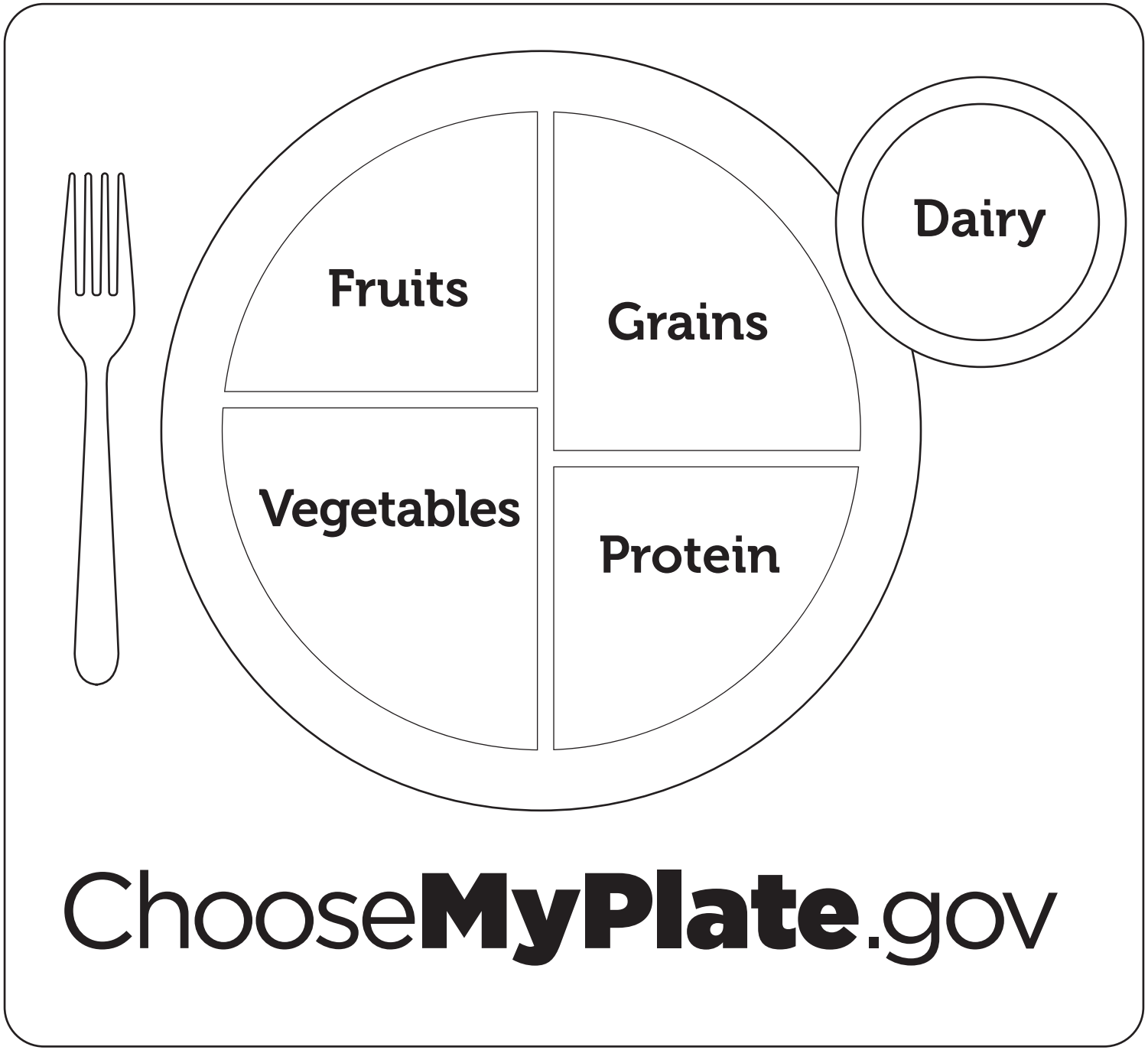
- http://www.cancer.net
- http://nccam.nih.gov
- http://www.ftc.gov
- http://www.mskcc.org
- http://www.fda.gov
- http://ods.od.nih.gov

Summary

Nutrition is so important for so many reasons for people living with NETS.

Conclusion

Making a Meal plan with diet adjustments as needed can improve tolerances and symptom control improved quality of life.



USDA Center for Nutrition Policy and Promotion

10 tips
Nutrition Education Series

choose MyPlate

10 tips to a great plate

Making food choices for a healthy lifestyle can be as simple as using these 10 Tips.
Use the ideas in this list to *balance your calories*, to choose foods to *eat more often*, and to cut back on foods to *eat less often*.

1 balance calories

Find out how many calories YOU need for a day as a first step in managing your weight. Go to www.ChooseMyPlate.gov to find your calorie level. Being physically active also helps you balance calories.

2 enjoy your food, but eat less

Take the time to fully enjoy your food as you eat it. Eating too fast or when your attention is elsewhere may lead to eating too many calories. Pay attention to hunger and fullness cues before, during, and after meals. Use them to recognize when to eat and when you've had enough.

3 avoid oversized portions

Use a smaller plate, bowl, and glass. Portion out foods before you eat. When eating out, choose a smaller size option, share a dish, or take home part of your meal.

4 foods to eat more often

Eat more vegetables, fruits, whole grains, and fat-free or 1% milk and dairy products. These foods have the nutrients you need for health—including potassium, calcium, vitamin D, and fiber. Make them the basis for meals and snacks.

5 make half your plate fruits and vegetables

Choose red, orange, and dark-green vegetables like tomatoes, sweet potatoes, and broccoli, along with other vegetables for your meals. Add fruit to meals as part of main or side dishes or as dessert.

6 switch to fat-free or low-fat (1%) milk

They have the same amount of calcium and other essential nutrients as whole milk, but fewer calories and less saturated fat.

7 make half your grains whole grains

To eat more whole grains, substitute a whole-grain product for a refined product—such as eating whole-wheat bread instead of white bread or brown rice instead of white rice.

8 foods to eat less often

Cut back on foods high in solid fats, added sugars, and salt. They include cakes, cookies, ice cream, candies, sweetened drinks, pizza, and fatty meats like ribs, sausages, bacon, and hot dogs. Use these foods as occasional treats, not everyday foods.

9 compare sodium in foods

Use the Nutrition Facts label to choose lower sodium versions of foods like soup, bread, and frozen meals. Select canned foods labeled "low sodium," "reduced sodium," or "no salt added."

10 drink water instead of sugary drinks

Cut calories by drinking water or unsweetened beverages. Soda, energy drinks, and sports drinks are a major source of added sugar, and calories, in American diets.

USDA United States Department of Agriculture
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Go to www.ChooseMyPlate.gov for more information.

DG TipSheet No. 1
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