

Eat Smart, Power Strong: Your Mitochondrial Nutrition Grade



<https://www.smithbrothersfarms.com/eat-the-rainbow-challenge>

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Mito Action Webinar
April 2026

Disclosures

I have no financial disclosures

Goals



To provide an overview of the many components in a nutrition assessment



To explain the basic nutrition needs essential for overall health in individuals with mitochondrial disease



To provide some strategies for meal planning and meal preparation- while navigating fatigue and muscle strength

Webinar Outline

Quiz- Pre webinar nutrition quiz. What is your grade?

Share nutrition findings from our Paper

Brief overview of nutritional needs

Tips for meal planning

Tips for meal preparation

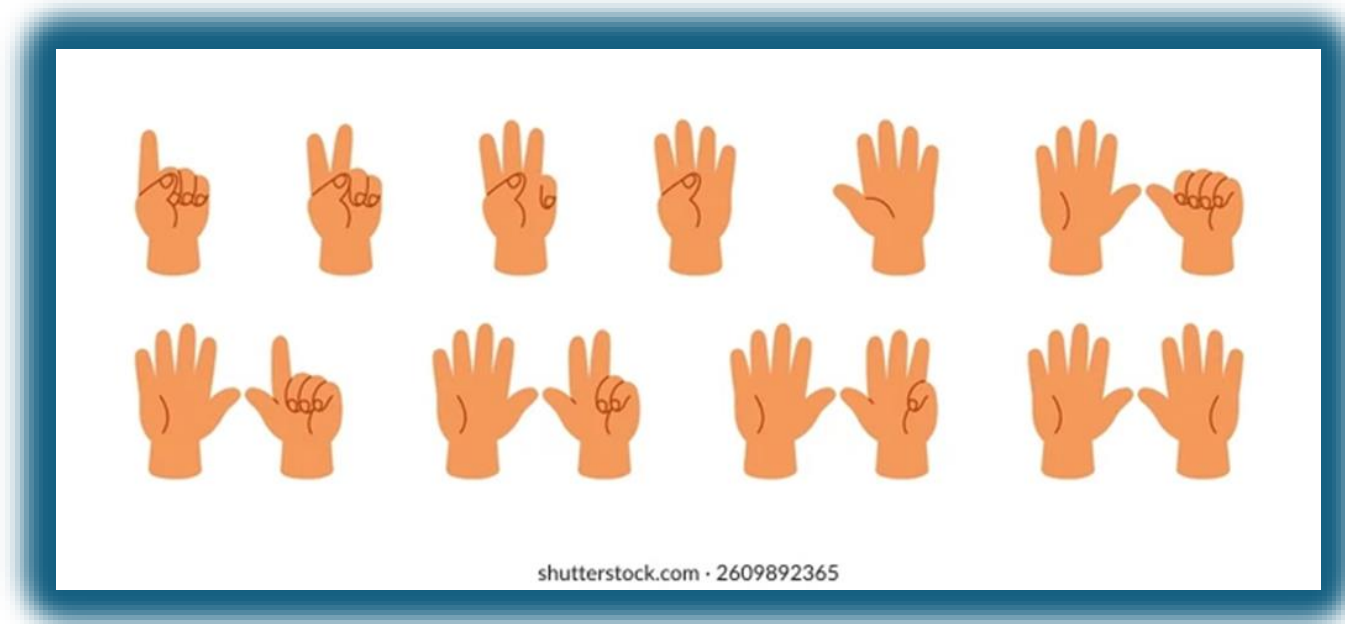
Resources (for you and the non-mito dietitian)

Quiz- Did your grade improve?

Nutrition Quiz



Quiz



Nutrition Paper

Neurotherapeutics
<https://doi.org/10.1007/s13311-023-01418-9>

ORIGINAL ARTICLE



Optimized Nutrition in Mitochondrial Disease Correlates to Improved Muscle Fatigue, Strength, and Quality of Life

Donna DiVito^{1,2} · Amanda Wellik² · Jessica Burfield^{1,2} · James Peterson² · Jean Flickinger² · Alyssa Tindal^{2,3} · Kimberly Albanowski² · Shallee Vishnubhatt² · Laura MacMullen² · Isaac Martin² · Colleen Muraresku² · Elizabeth McCormick² · Ibrahim George-Sankoh² · Shana McCormack^{4,5} · Amy Goldstein^{2,5} · Rebecca Ganetzky^{2,5} · Marc Yudkoff² · Rui Xiao^{5,6} · Marni J. Falk^{2,5} · Maria R. Mascarenhas^{3,5} · Zarazuela Zolkipli-Cunningham^{2,5}

Accepted: 26 July 2023
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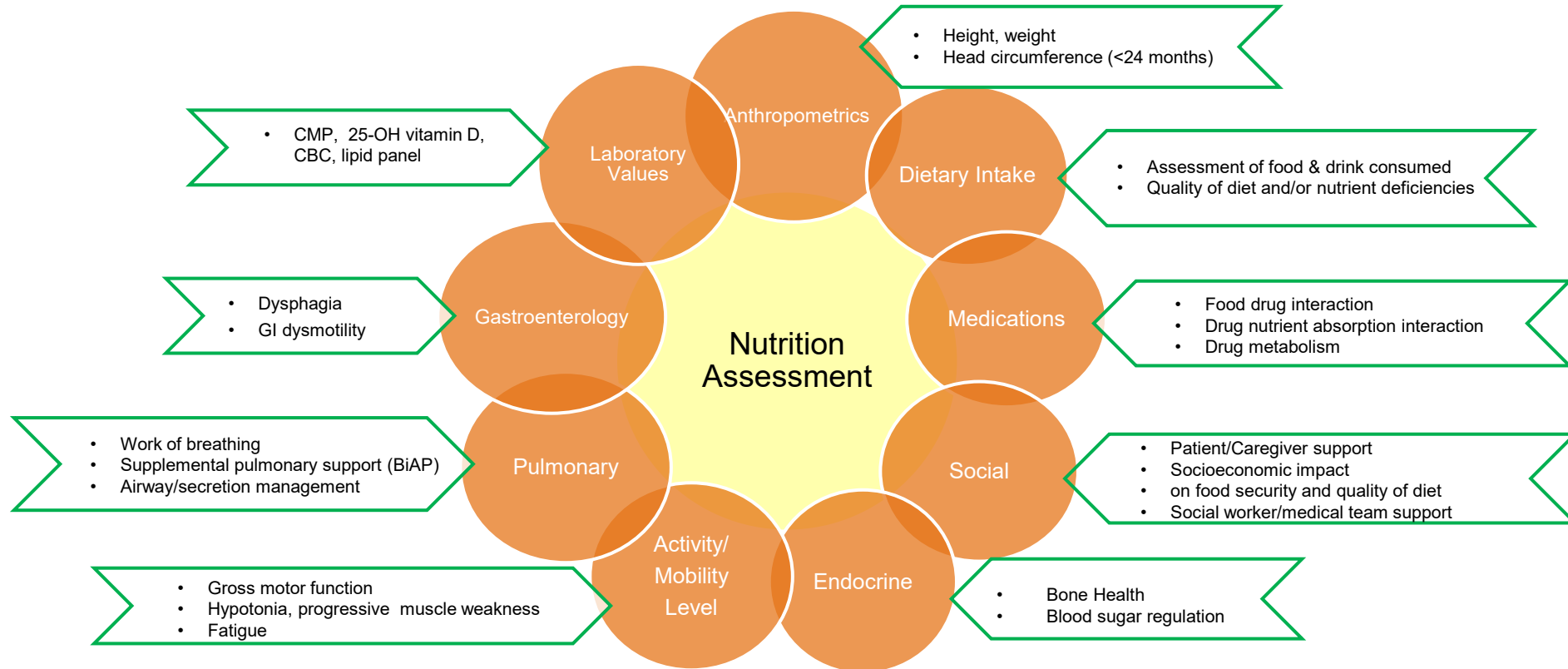
Paper findings

- ❖ 74% experienced at least one GI symptom. Most common symptoms are dysphagia and constipation
- ❖ 50% adults and 47% of children consumed inadequate calories
- ❖ Hydration was inadequate
- ❖ In adult patients who were appropriate weight, overweight, or obese, their BMI masked inadequate nutritional intake

Good News

- ❖ Optimizing your nutrition can improve your muscle fatigue and quality of life

What is a Nutrition Assessment?



DiVito D, Wellik et al. Optimized Nutrition in Mitochondrial Disease Correlates to Improved Muscle Fatigue, Strength, and Quality of Life. Neurotherapeutics. 2023 Oct;20(6).

Detailed nutritional evaluations should include assessments of medications, muscle mass and strength, fatigue, bone health, and dysphagia

Adult weight expectations

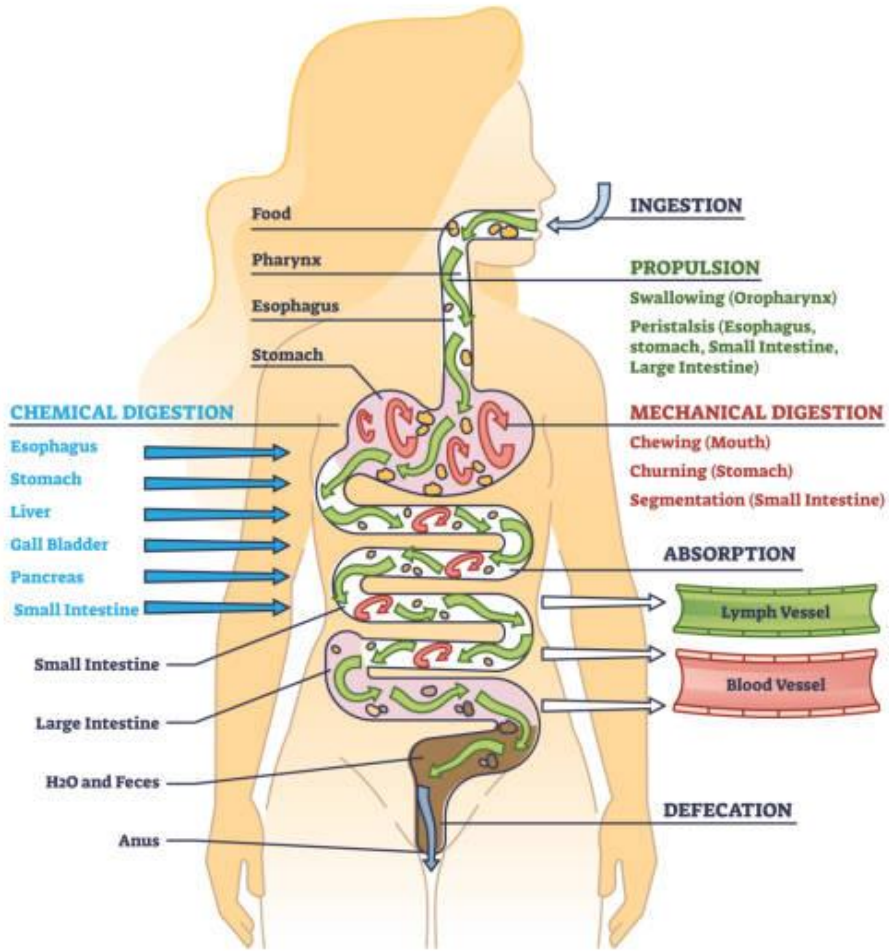
Reach optimal weight for YOU. Talk with the dietitian to determine your weight goal

Maintain your weight

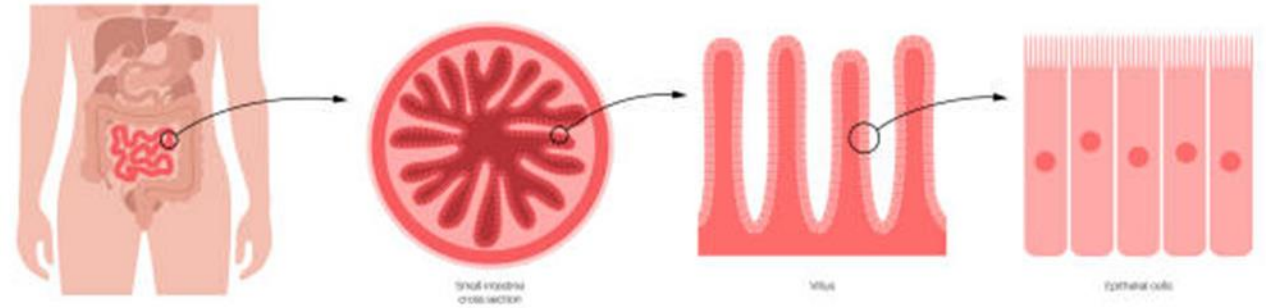
Remember you can be at your goal weight, be overweight/obese and still be malnourished.

Weight alone does not reflect your nutritional status!

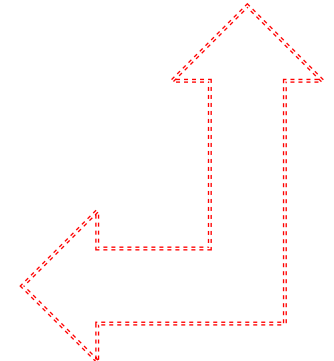
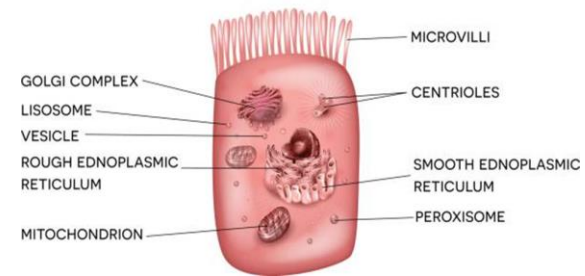
DIGESTION PROCESSES



ABSORPTION PROCESSES



INTESTINAL EPITHELIAL CELL



GI Symptoms

Dysphagia

Loss of
appetite

Nausea

Reflux

Vomiting

Abdominal
pain

Dysmotility

Diarrhea

Constipation

Feel full fast

Gastroparesis

A condition characterized by delayed gastric emptying without a mechanical obstruction

Causes

- Idiopathic (not known)
- Autoimmune related
- Post viral
- Rheumatological conditions
- Complication of diabetes

Diet Strategies for GI Motility Issues

- Increase hydration
- Increase fruit and vegetables
- Improve food quality
- Alter macronutrient composition
- Small frequent meals



Meet with a
dietitian to plan
HOW

Do you have trouble chewing and/or swallowing?

Dysphagia

Signs/Symptoms

- Frequent coughing/choking
- Frequent pneumonias
- Young children head turning at fork

Obtain swallowing evaluation, such as a Modified Barium Swallow Study (MBSS) to determine if a “modified consistency” diet is needed.

Performed by speech-language pathologist (SLP) or Occupational therapist (OT) depending on your state



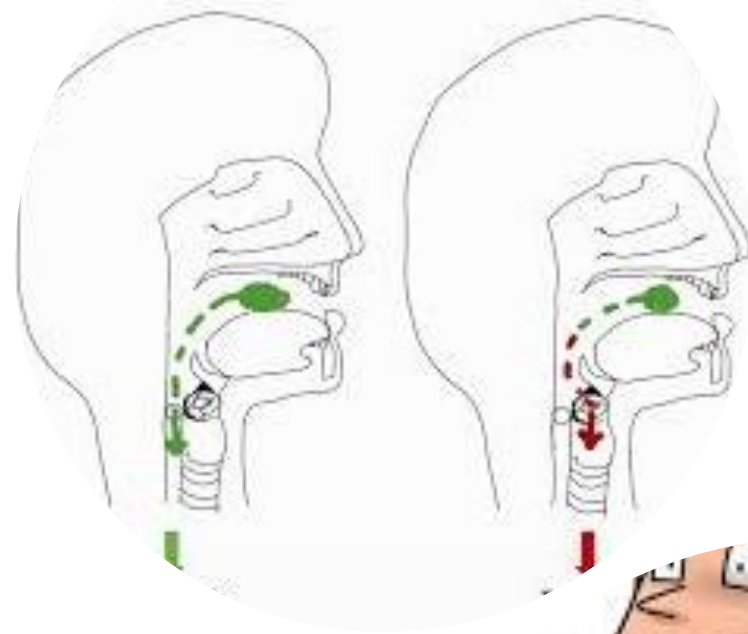
International Dysphagia Diet Standardization Initiative (IDDSI)
www.iddsi.org/resources

When you need a feeding tube...

Swallow study shows food and or liquids are entering your lungs (aspiration) not your stomach

And/or

Not able to
chew/swallow/digest/absorb
enough calories



Overview of Nutrition Needs (not wants!)

What are “Nutrients?”

Macronutrients

Micronutrients

Mitochondrial Supplement Therapies

Prescribed
by
Physicians
NOT
Dietitians

Multivitamin

B50 complex

Coenzyme Q10

Antioxidants (vitamin E and or alpha-lipoic acid, biotin)

Plus others depending on diagnosis/findings

How many calories do you need?

Muscle
strength

Muscle bulk

Lung
function

Medications

Mobility

Growth

Uncontrolled
movements

How much protein do you need?

Needs

- If no metabolic restrictions, normal needs for age or dietary reference intake and/or 15-20% of overall calorie intake

Types

- Not all protein is made the same.
- Not all protein is absorbed the same.

Protein supplements

- If not consuming enough calories, the dietary protein sources will be used for energy and not muscle maintenance or building.

Are you hydrated? drinking enough?

Hard stool/poop	
Skin looks dry like an alligator or crepe paper	
Pinch your skin and it stays wrinkly	
Feel tired	
Require a modified consistency diet-thick liquids	

Ways to improve your Hydration

Eat more 'juicy' high antioxidant fruits

Fun cup

Use straw

Encourage two more sips

Specialized adaptive cup

Swallow evaluation to make sure not avoid liquids as uncomfortable when swallowing

Tips for Meal **P**lanning

Selecting & Scheduling Meals, Meds and Supplements

If delayed stomach emptying,
ensure low osmolality (concentration) of
meal + meds+ supplements

Remember:

High osmolality takes longer to leave
the stomach

and

can slow down the rate of stomach
emptying time

and

contribute to nausea/vomiting!

Strategy:

- Space out meds/food/supplements
- Spread out fats and/or protein sources
- Dilute with water



High concentration



Low concentration

Selecting & Scheduling Meals, Meds and Supplements continued

Plan for maximizing **absorption** of nutrients by considering

1. Timing
2. Dose (amount)
3. Combinations

Ask your dietitian:

Review of supplement dose for maximizing absorption AND timing with food preferences/meal composition macro/micro nutrients.

Tips- Fatigue

Food Transportation

- Pack in store and pick up
- Delivery from store to door

Pantry Staples

- Canned fish/chicken
- Cooked or uncooked protein sources
- Previously prepared frozen meals
- Nutrition drinks all or part of meal/snack

Daily Planning

- If more energy in the morning, chew more in morning or plan half chew/half soft textured
- Save evening for soft textured food or nutrition drink

Tips - Food Selection

Fresh

Frozen

Canned

Pantry 'staples'

- ❖ 1-2 different types of berries
- ❖ Bananas/avocado
- ❖ 2 green leafy vegetables
- ❖ Potato- white and orange
- ❖ Orange or purple vegetables
- ❖ Calcium sources: cow milk or non-dairy milk (calcium fortified), yogurt
- ❖ Protein: fish+ beans+ animal sources + eggs+ nuts + seeds
- ❖ Carb sources: Oatmeal, bread/tortilla/sandwich round

Tips for Meal Preparation

Meals: Preparation

Power Prep

- Kitchen Tools for modifying the consistency of meals
- Handheld mixer, coffee bean grinder, Potato masher

Power nutrition

- Add beans to meals
- Add vegetables to all meals
- Add fruit or have fruit as snacks during the day or in smoothie

Adjusting calories for each plate at the table

- Use kitchen to modify the consistency
- Add calorie booster (butter, nut butter, heavy cream, cheese)
- Add power nutrients

Too tired to chew

- Nutrition drink (180kcal or 240kcal or 360 kcal per 8oz)
- Pureed meal



Resources

High Antioxidant Food List

Fruits

Apricot
Any Berry
Nectarine
Peach
Plum
Pomegranate

Vegetables

Artichoke
Asparagus
Broccoli
Spinach

Legumes

Black beans
White beans
Tempeh
Tofu
Soy

Nuts & Seeds

Almonds
Chestnuts
Hazelnuts
Pecans
Walnuts

Adaptive Meal Equipment

Ask an Occupational Therapist

Mechanical arm support

Wrex (Wilmington Robotic Exoskeleton)



Adaptive utensils, cups



Recipe Ideas



www.eatright.org/recipe

Recipes
With a focus on healthful ingredients that offer nutrition and variety, these recipes are developed by registered dietitian nutritionists and show how easy it can be to prepare and serve healthful foods.

<p>Breakfast Kickstart the day with a healthful morning meal. Learn About ></p>	<p>Entrees Lunch and dinner are ready in no time with these healthful recipes. Learn About ></p>	<p>Snacks and Sides Prepare the perfect side dish to pair with an entree or snack in a snack to keep you going through the day. Learn About ></p>
<p>Salads Add more fruits and vegetables to your day with these souped-up salad recipes. Learn About ></p>	<p>Soups and Stews A great way to warm up from the inside out, these soups and stews are as nutritious as they are flavorful. Learn About ></p>	<p>Desserts While some sweet treats can be a source of added sugars, dessert can be an enjoyable part of a well-balanced eating pattern. Learn About ></p>
<p>Beverages From fruity smoothies to warm spiced drinks, these healthful beverages are tasty and easy to prepare. Learn About ></p>	<p>Baby Food See how to make baby food suess at home using healthful ingredients. Learn About ></p>	

Sharon Palmer MSFS, RDN

The Plant-Powered Dietitian

www.sharonpalmer.com/recipes/

[View More](#)

A Taste of My Top Recipes

Breakfast

- Cereals
- Smoothies, Beverages
- Breakfast Entrees

Lunch

- Salads
- Soups, Stews, Chili
- Sandwiches, Burgers
- Bowls

Dinner

- Salads
- Soups, Stews, Chili
- Appetizers, Snacks
- Main Dishes
- Side Dishes
- Vegetables
- Pasta Dishes
- Tacos, Burritos, Quesadillas
- Comfort Food

Sweet Treats

- Cookies, Bars
- Pies, Crisps, Crumbles, Cobbler

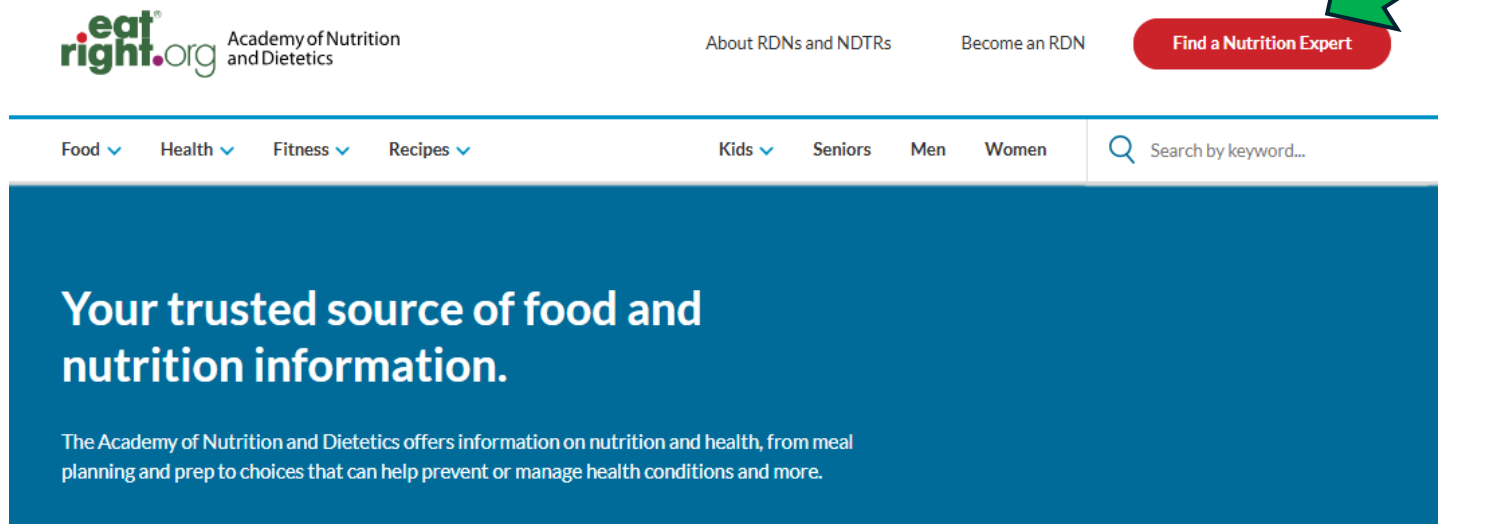
APRIL 15, 2026
Jade Edamame Bowl with Spicy Peanut Dressing

APRIL 5, 2026
Matcha Green Tea Lemon Muffins

MARCH 28, 2026
Best Homemade Seitan

How to find a dietitian

<https://www.eatright.org>



The screenshot shows the top navigation bar of the eatright.org website. The logo 'eatright.org Academy of Nutrition and Dietetics' is on the left. In the center, there are links for 'About RDNs and NDTRs' and 'Become an RDN'. On the right, a red button labeled 'Find a Nutrition Expert' is highlighted with a green arrow pointing to it. Below the navigation bar is a search bar with the text 'Search by keyword...'. The main content area has a blue background with the text 'Your trusted source of food and nutrition information.' and a paragraph below it: 'The Academy of Nutrition and Dietetics offers information on nutrition and health, from meal planning and prep to choices that can help prevent or manage health conditions and more.'

Insurance Company

Call your Insurance company or search their website for in network providers

Resources to share with a non-Mito Dietitian

Neurotherapeutics
<https://doi.org/10.1007/s13311-023-01418-9>

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Accepted: 26 July 2023
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- Components of a Nutrition Assessment, “Flower”
- Guidelines for the healthcare professional on estimating energy needs

What to bring to a nutrition appointment



Food diary

**For example: lunch
peanut butter and jelly
sandwich and 8oz milk**

Peanut butter and jelly sandwich: two slices on Italian bread, two tablespoons jelly and two tablespoons peanut butter, ate half..

- Type of bread
- Sliced bread, Italian,
- Wrap
- Roll- potato, brand name,
- Cow milk, 2% fat



GI Symptom diary

Make notes of your GI symptoms on the side of food diary and write the time they occur



**List of all medications,
supplements and
doses.**

Pictures of all supplement's front and back of label
if taking a mito cocktail, bring the list of ingredients and doses



**Include times at
school/work and
therapy times**

What to bring to a nutrition appointment

6am Wake up

7am medication (names of medications) + mito cocktail

8am breakfast

9am leave school/work

10 am medication (names)

12 pm lunch

12:30 (after food) medication

1pm PT (Monday, Thursday)

2:30 pm snack + Medication

4pm arrive home from school/work

5pm dinner

8pm medication (names)

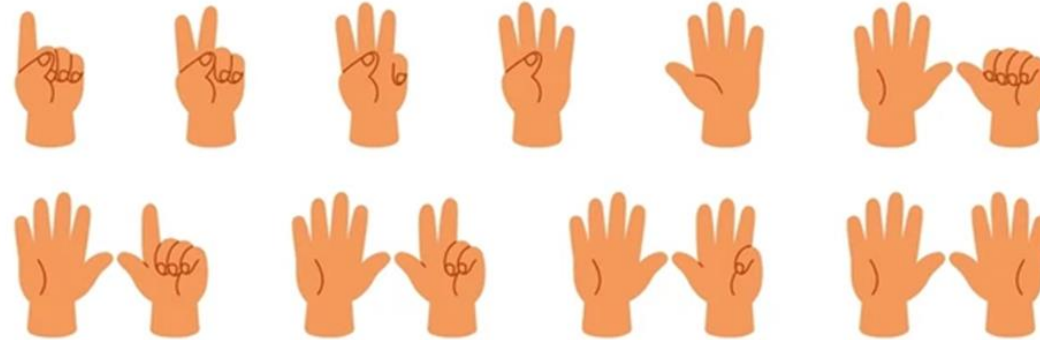
10pm sleep



Example of a typical day

Nutrition Quiz





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Did your nutrition grade improve?

Now go eat smart, power strong!