

WELCOME !

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Nutritional Considerations in ALS

Guest Speaker:
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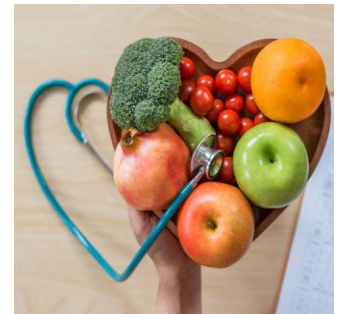
Why is Food so Important?

- Social
- Emotional
- Culture
- Religion
- Physical



Why is Nutrition Important in ALS?

- Nutrition: independent risk factor for disease progression
 - Calories to maintain weight. Resting energy expenditure known to be higher in ALS.
 - Adequate nutrition necessary to maintain highest possible level of function



Why is Nutrition Important in ALS?

- Improved endurance
- Protect body from infection and illness
- Preserve enjoyment of food and maintain socialization



ALS COSMOS Study

- Amyotrophic Lateral Sclerosis Multicenter Cohort Study of Oxidative Stress
- 302 patients
- Modified Block Food Frequency Questionnaire,
- Function was measured using the ALS Functional Rating Scale–Revised (ALSFRS-R)
- Respiratory function was measured using percentage of predicted forced vital capacity (FVC).

ALS COSMOS

- Macronutrient intake did not impact ALSFRS-R score or percent FVC
- Milk was negatively associated with ALSFRS-R and FVC BUT milk based supplements slowed functional decline/stabilized weight in another study. *
- Regression analysis of “good food groups” showed that eggs, fish, poultry, nuts and seeds, beneficial oils, fruits and vegetables in general were positively associated with ALSFRS-R scores and percent FVC.



ALS COSMOS

- Good micronutrient intake was positively associated with ALSFRS-R scores and percent FVC.
- Key micronutrients:
 - Carotenes- carrots, pumpkin, sweet potato, broccoli, spinach
 - Lycopene-strong antioxidant properties. It's the pigment that gives red and pink fruits, such as tomatoes, watermelons and pink grapefruit.
 - Fiber from vegetables and grains.



ALS COSMOS

- Omega-3 fatty acids-oily fish, tuna, mackeral, herring, nuts and seeds (walnuts, chia seeds, flaxseeds), oils (flaxseed oil, canola oil) and fortified eggs, milk, soy milks.
- Omega-6 fatty acids-soybean, corn, safflower, sunflower oil, nuts, seeds, meat poultry, fish, eggs.
- Isoflavones- **Soy** and its products, and legume seeds (lentils, beans, peas) are the richest sources of isoflavones, and fiber from vegetables and grains.



Fatigue and Poor Appetite

- Six small meals-reduce fatigue at meals and fuel body throughout the day
- Select foods that are easy to chew and swallow
- Drink supplements between meals
- Eat your favorite foods
- Cook aromatic foods/presentation/company
- Select calorie-dense foods

Fat calories can be Fab calories

- Protein – 4 kcal/g. Important to help maintain muscle mass.
- Carbohydrate – 4 kcal/g. Major source of energy in the average diet.
- Fat-9 kcal/g. Most calorie-dense nutrient. Increased circulating cholesterol may have neuro-protective benefits.
- Kasarskis equation [Maintaining Adequate Nutrition: A Continuing Challenge in ALS | The ALS Association](#)
- My Data Helps app, search for ALS Nutrition

Calorie-Dense Foods

- Add calories without volume with butter, cheese, gravy, cream, mayo, peanut butter, dressing, dips
- Whole fat dairy
- Ice-cream –yum!
- Casseroles
- Calorie containing beverages
- “Healthy”- olive oil, olives, nuts, nut butters, seeds, avocado, dried fruit



Food Preparation

- Occupational therapist recommends assistive devices/feeding assistance for those with UE weakness.
- Convenience meals
- Batch cook meals and freeze single serving portions
- Caregivers setting up snacks/beverages where they are accessible
- Meals on wheels



Protein Foods

- Protein requirements 1.2-1.5 g/kg
 - Meat
 - Fish
 - Eggs
 - Dairy (cottage cheese, Greek yogurt)
 - Nuts and nut butters
 - Seeds
 - Beans



Oral Nutrition supplements

- Ensure / Equate / Boost PLUS has 100 extra calories per serving
- Carnation Instant Breakfast
- Kate Farms / Enu
- Ensure Clear (juice)
- Lutrish shakes
- Benecalorie
- Homemade shakes



Brain Power Smoothie

- Ingredients:
- 2 cups blueberries
- 1 cup pomegranate juice (or any berry juice)
- 1 cup ice cubes
- 1 Tbsp. chia seeds
- 1 ripe banana, peeled
- half of an avocado, peeled and pitted
- <http://www.gimmesomeoven.com/brain-power-smoothie-blueberry-avocado-smoothie-recipe/>
- Nutrition: 620 calories, 8 g protein, 20 g fat, 117 g carbohydrate, 22 g fiber

Dysphagia

- Coughing and/or choking on food or liquid while swallowing
- A wet or gurgling-sounding voice immediately after swallowing food or liquid
- Difficulty chewing
- Food escaping out of the mouth during chewing or liquid spilling from the lips
- Prolonged mealtimes
- The need for smaller bites and/or sips
- Difficulty managing saliva
- Shortness of breath during meals

Ways to Manage Dysphagia

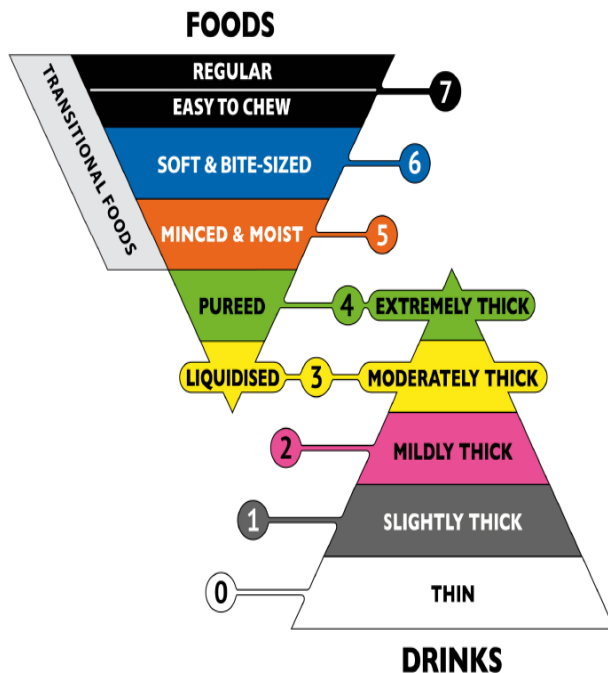
- Swallow strategies under guidance of the Speech Therapist, Video Swallow Study
- Diet modification
- Dietary supplements
- Feeding tube placement



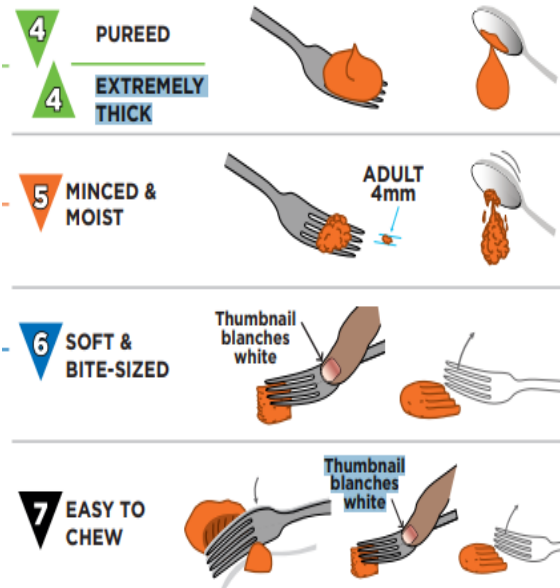
Diet Modification

Diet Level	Examples of Food
Level 1: Pureed	Pudding, pureed oatmeal, bread, meats, hummus, pureed fruit and vegetables
Level 2: Mechanical Soft	Scrambled eggs, meatloaf, well-cooked vegetables, pancakes, mashed potatoes, canned/cooked fruit
Level 3: Advanced	Bread slices, muffins, pasta, casseroles, baked potatoes, soft/ripe fruits, fish
Level 4: Regular	No food avoidances or restrictions
Nectar Thickened Liquids	Slightly thicker than water
Honey Thickened Liquids	Consistency of honey at room temperature

Diet Modification



FOOD TEST INSTRUCTIONS



Copyright: The International Dysphagia Diet Standardisation Initiative 2016
@ <https://iddsi.org/framework/>

Regular Diet

- Sample Menu provides:
 - 1700 calories, 82 g protein, 25 g fiber
 - 20% of calories as protein
 - 53% of calories as carbohydrate
 - 27% of calories as fat

Breakfast

1 egg
1 cup bran cereal
1 cup skim milk
5 prunes

Lunch

4 oz salmon
1 cup brown rice
1 cup broccoli

Dinner

2 oz deli turkey
1 oz cheddar cheese
1 slice wholegrain bread
Side garden salad (1.5 cups)
1 T Italian dressing
1 cup grapes

Snacks

1 medium apple
1 low fat yogurt

Beverages

34 oz Water
8 oz coffee with 2 oz skim milk

Pureed Diet

- Sample Menu provides:
 - 1750 calories, 85 g protein, 15 g fiber
 - 20% of calories as protein
 - 53% of calories as carbohydrate
 - 27% of calories as fat
- Note ↓dietary fiber and ↑saturated fat intake increased in order to meet calorie needs

Breakfast

1 egg pureed with 0.5 oz cheese
1 cup cream of wheat with 8 oz whole milk and cinnamon
6 oz prune juice

Lunch

3 oz salmon pureed
1/2 cup pureed rice with 1/4 cup chicken broth
1/2 cup broccoli pureed with 1 tsp olive oil

Dinner

1 cup canned mashed sweet potato with 2 T butter and 1 T brown sugar

Snacks

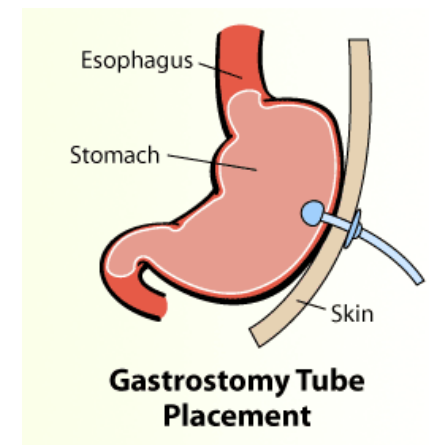
1 cup Cottage cheese with 1/2 cup peaches and 1/2 cup fruit juice pureed

Beverages

34 oz Thickened (Nectar Thick) Water
6 oz coffee with 2 oz whole milk (Nectar thick)
Ensure Plus (350 kcal, 13 g protein)

Feeding Tube

- Indications for feeding tube placement:
 - Weight loss
 - Chewing/swallowing difficulties –Eating has become a burden
 - Prolonged mealtimes
 - Fatigue after meals
 - No appetite/no interest in food
 - Decline in respiratory function
- Maintain/supplement nutrition, hydration, alternate route for medications.



Benefits

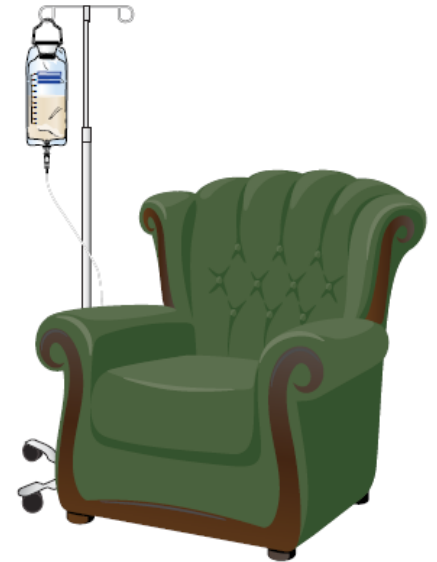
- Promotes adequate intake of:
 - Calories, protein & fluid
 - Weight stabilization
- Decreased risk of aspiration
 - No choking, chewing & swallowing problems
- Improve quality of life
- Easy medication administration
- Feeding times=simple, shorter
 - Energy saved for other activities

Things to Consider....

- Placement
 - Sedation necessary
 - Infection risk
- After placement
 - Clogging may occur
 - Infection at feeding tube site
 - Replacement of tube
 - Daily care
 - Intolerance to tube feeding formula

How is it used?

- Syringe feeding
 - Gravity feeding (IV pole and bags)
 - Pump assisted feedings.
-
- Orders generally through DME provider.
 - Insurance coverage varies.



Tell Your Patients About

The Oley Foundation



- FREE information and support for patients on home tube or IV feedings
- www.oley.org
- (800) 776-OLEY
- www.feedingtubeawareness.org

Hydration

- Increased risk for dehydration due to dysphagia and limited mobility
- Monitor urine concentration, bowel function
- Eat foods with a high water content e.g. canned and fresh fruit/ vegetables, drinkable yogurt, pudding, juice, purees, cream soups, smoothies, nectars
- Straw, long straw, nosey cup



Constipation

- Inactivity, weakened abdominal muscles, insufficient fiber and fluid intake
- Increase fiber –fruit, vegetables, whole grains
- Increase fluids
- Prune Juice
- Laxatives and stool softeners

Move It!

- 1 Cup Unprocessed Bran (Store in freezer)
- 1 Cup Apple Sauce
- ½ Cup Prune Juice
- Mix together well-store in refrigerator (1-2 tablespoons per day – adjust as necessary)

Vitamin Supplements

- Vitamin D –study showed association between low levels and ALS. Screening for deficiency*.
- Multi-vitamin with minerals for general health. Should have the approval of US Pharmacopeial Convention
- Coconut Oil
- www.ALSuntangled.com



- * Camu W, Tremblier B, Plassot C, Alphandery S, Salsac C, Pageot N, Juntas-Morales R, Scamps F, Daures JP, Raoul C. Vitamin D confers protection to motoneurons and is a prognostic factor of amyotrophic lateral sclerosis. Neurobiol Aging. 2014 May;35(5):1198-205. doi: 10.1016/j.neurobiolaging.2013.11.005. Epub 2013 Nov 13. PMID: 24378089.

Resources

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- Körner, S., Hendricks, M., Kollewe, K. *et al.* Weight loss, dysphagia and supplement intake in patients with amyotrophic lateral sclerosis (ALS): impact on quality of life and therapeutic options. *BMC Neurol* **13**, 84 (2013). <https://doi.org/10.1186/1471-2377-13-84>
- [Kasarskis EJ, Mendiondo MS, Matthews DE, Mitsumoto H, Tandan R, Simmons Z, Bromberg MB, Kryscio RJ; ALS Nutrition/NIPPV Study Group. Estimating daily energy expenditure in individuals with amyotrophic lateral sclerosis. *Am J Clin Nutr*. 2014 Apr;99\(4\):792-803. doi: 10.3945/ajcn.113.069997. Epub 2014 Feb 12. PMID: 24522445; PMCID: PMC3953880.](#)