Learning Objectives:
- Learn nutrition strategies and simple culinary skills to promote easy, quick, and affordable healthy cooking styles for self, future patients and the community;
- Identify healthy cooking approaches that are also culturally appropriate and budget friendly for cost conscious individuals & families;
- Identify the evidence based information to support identification of the healthiest overall dietary patterns, including but not limited to healthiest macronutrients (carbohydrates, fats, proteins);
- Understand how to plan menus, including portion size and life cycle concerns
- Understand the concept of dietary patterns and not individual nutrients in relation to risk for chronic disease and optimal health
- Clarify current nutrition controversies versus core, agreed upon concepts
- Recognize the importance of acting as a team leader or group member as necessary to facilitate optimal learning experiences

Format:
- Each culinary lab will begin with a brief introduction to identify the underlying nutrition concepts of the class
- Each culinary lab will identify core culinary skills incorporated into the lab’s lesson plans. Students will have the opportunity to watch very short pod-casts of the key culinary skills prior to starting the lab
- Labs’ intent is not to just provide ‘recipes’ but lifelong culinary skills and core nutrition concepts
- Students will participate in designated small groups and each group focuses on preparation of specific foods
- Time allowed to taste all food preparations and discuss the lab’s underlying nutrition concepts and practiced culinary skills
Culinary Lab # 2:

Culinary Skills/Techniques demonstrated today:
- Cutting skills: slicing, chopping, mincing
- How to maximize flavor with citrus zesting
- Use of whole grain (quinoa), cooking techniques
- Fish basics- cooking techniques, storage, purchasing
- Use of nuts (walnuts) as a source of ALA

Techniques/ Resources to Review: General

How to slice, dice and mince vegetables (repeated from Lab #1)

How to zest citrus: (new to Lab #2)

How to prepare and cook quinoa: (new to Lab #2)

How to prepare fish in parchment: (new to Lab #2)

How to buy fresh fish:

Patient Education application:
- Introduction to food label reading
- Zesting citrus is a simple, inexpensive way to enhance flavor and use less sodium
- Use of nuts as a HEART healthy snack (watch total calorie intake)
- Omega fats: DHA AND EPA
- Healthy grains (quinoa)
Nutrition Concepts:

Background:

Nuts:
- Numerous randomized clinical trials and epidemiologic studies have observed that nut intake in the context of a healthy, calorie balanced dietary pattern is associated with a reduced risk of CHD and ischemic heart disease. Also, 25 RCT have observed a dose response relationship between nut intake and total/LDL cholesterol risk reduction. Intake of 67 g/nuts daily (walnuts) included in a healthy, calorie balanced diet demonstrated an average LDL reduction of ~ 13% (AJCN 100:256-259, 2014; JAMA Jan 25, 2016);
- Walnuts are a source of α linolenic acid (ALA) 18:3 (n-3) (1 ou = 28 gm wt= 12 to 14 halves= 2.5 g of α linolenic acid (ALA), 18 g total fat, 125 mg potassium; 2 g fiber; 25% recommendation for copper; 10% recommendation for magnesium, 190 kcal). A small % (1-8% range) of ALA can be converted to DHA & EPA
- Bioactive ingredients in nuts: micronutrients, tocopherols, phenolic compounds (anti-inflammatory)

Seafood:
- According to the Dietary Guidelines for Americans, 2015, only 10% of the US population ingests the recommended seafood intake of 8 ounces weekly (DGA recommendations) or The American Heart Association’s recommendation of fish consumption (preferably fatty fish) twice weekly @ 3.5 ounce servings each; These fish consumption recommendations would result in a daily intake of 250 mg of EPA and DHA (DGA) and 500 mg of EPA and DHA (AHA), respectively.
- Statements from these organizations indicate that the benefits outweigh the risks of consumption for adults; however, risk/benefit needs to be considered during the life cycle stages. Children and pregnant women are advised to avoid mercury risk seafood such as shark, swordfish, king mackerel, tile fish and to consume 12 ounces weekly of other fish;
- Recommendations for intake of omega 3 fats (eicosapentaenoic acid – EPA; 20:5 (n3) and docosahexaenoic (DHA); 22:6 (n3) vary widely globally. In the US, the Institute of Medicine recommends that α linolenic acid (ALA) 18:3 (n-3) Adequate Intake (AI) is at 0.6% to 1.2% of total calories, with ~ 10% of this from EPA and DHA. No Dietary Reference Intake from the Institute of Medicine is available for EPA and DHA. Endogenous synthesis from ALA of EPA and then DHA is between 1-8%. Sources of ALA include walnuts, pumpkin seeds, canola oil, flaxseeds.

Source: (2013)
### Table 2. Pooled Relative Risk and 95% Confidence Interval of CHD Mortality According to Fish Consumption

<table>
<thead>
<tr>
<th>Fish Consumption</th>
<th>&lt;1/wk</th>
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<th>1/wk</th>
<th>2–4/wk</th>
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<td>≥12 y</td>
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<td>Dietary assessments‡</td>
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<td>Self-administered FFQ</td>
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*Men included in 5 studies with 100% male participants; women included in 4 studies (100%, 62%, 62%, and 61% women, respectively) with 88% female participants. Oster’s study was included in one group (women, 47%).
†Average follow-up period for all 11 studies was 11.6 years; 5 studies had follow-up period <12 years.
‡Seven studies used self-administered FFQ.

**Source:** Circulation 109:2705, 2004

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**Fish consumption data and CVD Nutrients, 2013**
WHY IS QUINOA CONSIDERED A ‘HEALTHY’ CARBOHYDRATE?

- Technically a seed, not a grain
- Contains all of the essential amino acids in a pattern parallel to recommendations and is 16% protein, higher than other grains (8g/pro/1 cup or 185 gms)
- Fiber (high: 5 gms/1cup: 2.5 soluble and 2.5 insoluble)
- Provides 58% RDA for manganese, 30% magnesium, 19% folate, 18% calcium, 15% iron, 13% zinc (excellent source of micronutrients)
- Contains flavonoids: quercetin and kaempferol (anti-inflammatory)
- Considered a ‘low glycemic’ carbohydrate (slow absorption of the carbohydrate and hence a more moderate plasma glucose peak)

Food label reading:

- What is the serving size and most importantly- does it make sense?
- Always read the ingredients list carefully!
- Don’t be fooled by terms:
  - REDUCED = 25% of the original, REDUCED is not the same as “LOW”
  - ZERO isn’t zero: In the legal label world, less than 0.5 grams is equal to zero
  - SUGAR FREE (does NOT mean it contains no carbohydrates)
  - LOW or “LITE” = 1/3 of the original value
  - HIGH Fiber: ≥ 5 grams per serving
  - Good Fiber: 2.5-5 grams per serving
- % DAILY VALUE: Recommendations based on a 2,000 kcal diet
  - 100% DV: total fat = 65 grams
  - 100% Saturated fat= 20 grams
  - 100% Cholesterol= 300 milligrams
  - 100% Sodium= 2400 milligrams
  - 100% Carbohydrate= 300 Grams
  - 100% Fiber= 25 grams
  - 100% calcium= 1,000 milligrams
  - 5 % OR LESS IS CONSIDERED A LOW SOURCE
  - 20% OR MORE IS CONSIDERED A HIGH SOURCE
### Fresh Fish vs Boxed Fish vs the Alternatives

#### Nutrition Facts

**Image 1:**
- **Serving Size:** 1 fillet (85g)
- **Servings Per Container:** 2
- **Ingredients:**
  - SALMON, WATER, CANOLA OIL, LESS THAN 2% OF: NATURAL FLAVOR, SUGAR, SALT, WHEY MODIFIED CORN STARCH, MALTODEXTRIN, SPICES, ONION POWDER, KANTHAN GUM, DEXTROSE, CITRIC ACID, POLYSORBATE 80, CARAMEL COLOR, MALTIC ACID, LACTIC ACID, SODIUM TRIPOLYPHOSPHATE (TO RETAIN FISH MOISTURE), PROPYL GALLATE (TO PROTECT FLAVOR).
  - CONTAINS: SALMON, MILK.

**Image 2:**
- **Serving Size:** 1 fillet (126g)
- **Servings Per Container:** 2
- **Ingredients:**
  - SALMON, WATER, LESS THAN 2% OF: CANOLA OIL, SEA SALT, GARLIC POWDER, CORN STARCH, BUTTER (CREAM, SALT), SODIUM TRIPOLYPHOSPHATE (TO RETAIN FISH MOISTURE), SPICES, NATURAL FLAVORINGS, TITANIUM DIOXIDE, (TO PROTECT FLAVOR), MALTODEXTRIN, NONFAT MILK, CITRIC ACID, COLORED WITH TURMERIC AND ANNATO EXTRACTS, DRIED PARSLEY, KANTHAN GUM.
  - CONTAINS: SALMON, MILK.

#### Nutrition Facts

**Image 3:**
- **Serving Size:** 100 grams
- **Amount Per Serving:**
  - Calories: 116
  - **Calories from Fat:** 3%
  - **% Daily Value**
    - Total Fat: 3g (5%)
    - Saturated Fat: 1g (3%)
    - Trans Fat: 0g
    - Cholesterol: 52mg (17%)
    - Sodium: 87mg (3%)
    - Total Carbohydrate: 0g
    - Dietary Fiber: 0g
    - Sugars: 0g
    - Protein: 20g
  - Vitamin A: 2%
  - Vitamin C: 0%
  - Calcium: 1%
  - Iron: 4%
  - *Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Note: Not a significant source of dietary fiber, vitamin A, and vitamin C. 310mg EPA and DHA Omega-3 fatty acids per serving.

**Fish, salmon, pink, raw**
Nutrition Facts

Serving Size 2
Servings Per Container: 1
Amount Per Serving
Calories 360
Calories from Fat 140
% Daily Value *
Total Fat 15g 22.00 %
Saturated Fat 6g 30.00 %
Cholesterol 20mg 6.00 %
Sodium 530mg 22.00 %
Total Carbohydrate 43g 14.00 %
Dietary Fiber 4g
Sugars 4g
Protein 14g
Vitamin A 10.00 %
Vitamin C 4.00 %
Calcium 20.00 %
Iron 10.00 %

* % Daily Value is based on a 2,000 calorie diet.

Serving Size: 2.5 oz (70g) / about 1/3 Box (Makes about 1 cup)
Servings Per Container: about 3

Amount Per Serving
Calories 250 25
Calories from Fat 25 10
Total Fat 3g* 5 % 3 %
Saturated Fat 1.5g 8 % 3 %
Trans Fat 0g
Cholesterol 10mg 3 % 3 %
Sodium 570mg 24 % 30 %
Total Carbohydrate 47g 16 % 16 %
Dietary Fiber 2g 8 % 8 %
Sugars 6g
Protein 3g 10 % 11 %
Vitamin A 0% 15%
Vitamin C 0% 15%
Calcium 10% 15%
Iron 10% 15%

* Amount in Box. Margarine with 0g Trans Fat and 2% Reduced Fat Milk preparation contains 13g total fat (4.5g sat fat, 0g trans fat), 720mg sodium, 10g total carbohydrate (2g dietary fiber, 7g sugars), and 10g protein.
**Percent Daily Values are based on a 2,000 calorie diet.

Your daily values may be higher or lower depending on your calorie needs:

Calories: 2,000 2,500
Total Fat Less than 65g 75g
Sat Fat Less than 20g 25g
Cholesterol Less than 300mg 300mg
Sodium Less than 2,400mg 2,400mg
Total Carbohydrate 300g 375g
Dietary Fiber 25g 30g
Protein 50g 65g
### Nutritional Information

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### Nutrition Facts

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<tbody>
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<td>Sugars (g)</td>
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<td>Protein (g)</td>
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<td>Iron</td>
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Station #1: Toasted Quinoa Salad with Scallops and Snow Peas
Source: Fitness Magazine

Prior preparation: “How to Make Quinoa” video
http://www.cookinglight.com/cooking-101/techniques/how-to-make-quinoa
https://www.youtube.com/watch?v=6QMb_b8qhVQ (how to trim snow peas)

12 ounces dry sea scallops or dry bay scallops
4 teaspoons soy sauce, divided
4 teaspoons canola oil, divided
1 1/2 cups well rinsed quinoa
2 teaspoons minced garlic
3 cups water
1 teaspoon salt
1 cup trimmed snow peas
1/3 cup rice vinegar
1 teaspoon toasted sesame oil
1 cup thinly sliced scallions
1/3 cup diced red bell pepper
1/4 cup cilantro as garnish

Yield: 4 Servings
326 kcal/ serving
32 g carbohydrate (4g fiber)
15g fat (1g sat. fat)
16g protein

Rinsing quinoa removes any residue of saponin, quinoa’s natural, bitter protective covering.

1. Toss scallops with 2 teaspoons soy sauce and set aside.
2. Rinse quinoa in a colander under cold water for several minutes. Drain thoroughly
3. In large skillet, add 1T oil and quinoa, cook over low-medium heat; stir constantly.
4. Cook 6 minutes until quinoa begins to color, watch carefully. Add garlic; stir 1 minute. Add water and salt; bring to a boil. Cook 15 minutes until water is absorbed. (After boiling stir once, cover, don’t stir again and cook medium heat 15 minutes. Check at 10 minutes to avoid burning) Let stand covered 5 minutes.
5. While this is cooking, wash and dice bell pepper; wash snow peas, rinse, drain, trim
6. Add snow peas to quinoa; let stand 5 minutes more, covered.
7. Mix 3T oil, 2t soy, vinegar, and 1t sesame oil in bowl. Add cooled quinoa, snow peas, scallions, bell pepper and toss together.
8. Remove scallops from marinade, pat dry, cook in remaining canola oil (2t) until golden and firm; 2 minutes.
9. Stir scallops into the quinoa.
Station # 2: Packaged Fish vs Fresh Fish with Walnut Topping

**Prior preparation:** Zesting citrus for maximum flavor
Watch video in class on how to zest citrus

Gorton’s packaged salmon, (Simply Bake™) and fresh, wild caught salmon- Fresh made with a walnut crusted topping:

1. Read package directions for the Gorton’s salmon & tilapia. Follow package instructions for this filet;
2. Fresh salmon fillet, rinse and pat dry
3. Prepare Walnut crust for salmon: (recipe from www.walnuts.org)
   a. 1½ cups fresh walnuts
   b. 3 tablespoons dry bread crumbs
   c. 2 tablespoons of lemon rind, finely grated
   d. 3 tablespoons of fresh dill, finely minced
   e. Lemon juice to taste for sprinkling on fish once cooked (~ 2 tablespoons)

**First:** Using the micro-planer carefully grate the lemons. Be careful to only include the lemon rind and NOT the white part underneath the rind. Continue until you have 2 tablespoons of lemon rind. Set aside.

**Next:** Place nuts in food processor and chop only until COARSELY chopped. Add everything else and pulse until the mixture is crumbly. Season with salt and pepper to taste.

4. In two small baking dishes, add filets from the Gorton’s package in one of them and the fresh salmon filet in the other baking dish. For the fresh fish, put the skin side down in the pan.
5. Spoon a few tablespoons of the walnut mixture evenly among the FRESH filets. Gently press the mixture into the fish surface.
6. In an oven that has been pre-heated to 350 degrees, (heated until the oven reaches the desired temperature), cook fresh filet, cook for 25 minutes. Fresh filet should be covered tightly with foil.
7. Follow Gorton’s package for directions on how to cook the Simply Bake™ Fish
8. Just prior to serving, sprinkle with the lemon juice.
Station # 3: Ginger Garlic Fish Baked in Parchment  
Source: Rachael Ray from Food Network

Prior preparations: Watch Ginger-Garlic Fish in Parchment preparation video  

1. Preheat oven to 350 degrees
2. Any type of fish can be used for this recipe, we are using cod  
   a. 4 pieces of parchment cut into 12 inch long pieces  
   b. Cut filet into 4 or 5 even portions  
   c. 1 bunch of scallions, rinse cold water, drain, cut into 3 inch long pieces at an angle  
   d. ½ pound of fresh mushrooms- white or shitake (remove stems and slice)  
   e. 3-4 inch size piece of fresh ginger, peel and then just slice thinly  
   f. 4 large garlic cloves- thinly sliced

3. Mix together: 3 Tablespoons of honey, 2 Tablespoons of rice wine vinegar, 3 Tablespoons of tamari sauce
4. Cut one piece of parchment per cod filet. Cut each piece ~ 12 inches long.
5. Place one of the parchment pieces in the center of a large bowl. In the middle of the parchment add the following ingredients in order: scallions, mushrooms, ginger, garlic, then add fish on top; Drizzle each fish with about 1/4th of the honey mixture.
6. Carefully seal the edges of the parchment paper, to be sure it’s thoroughly sealed. Place parchment packets on a cookie sheet and bake in pre-heated oven for 25 minutes.