

Chronic Obstructive Pulmonary Disorder (COPD) Case

Chronometer Analysis of clients 24-hour recall: Attached.

Excess body weight requires more oxygen by putting increased demand on the lungs to perform. Breo is known to deplete protein, calcium, folic acid, magnesium, potassium, selenium, vitamin C, Vitamin D and zinc. (1)

SOAP

60 yr old male

CC: labored breathing with frequent productive cough and shortness of breath

Subjective: Patient presents with chronic bronchitis, frequent productive cough and anxiety because of his shortness of breath

Med Hx: no past conditions reported, denies history of obesity

Rx: Albuterol 2 puffs, 4-6 times per day, Breo 1 puff twice per day

Family Hx: none provided

Social Hx: none provided

Smoking: previous smoker for 20 years; quit 5 years ago

Alcohol: does not drink

Diet Hx: consists of mostly processed foods, high carbohydrate, low protein; reports no water drinking

- Breakfast: 1 cup Instant Oatmeal with 1 tsp butter
- Lunch: 1 toasted cheese sandwich with 8 ounces of milk
- Dinner: 1 cup rice, ½ cup of chicken curry, ½ cup mixed vegetables
- Snack: 1 oz potato chips
- Dessert: 1 bag microwave popcorn

Weight Hx: reports a 10 lb weight gain over the past year

Food avoidances/allergies: none reported

Objective: 60 yr old male with COPD/ chronic bronchitis. Current weight: 200 lbs BMI: 28 (overweight)

BP: 110/70 mm/Hg, Pulse: 70 BPM Resp: 22 RPM Temp: 98.5 degrees F Pulse ox: 96%

Labs: CBC: WNL; Comp Metabolic Panel: CO2 36ng/ dL

Assessment:

The client, a previous smoker, presents with chronic bronchitis, seeking nutritional guidance to improve breathing. He worries about his shortness of breath and is experiencing a productive cough. His labs reveal high amounts of carbon dioxide. The client's respirations per minute were on the high side as well. The client also has gained pounds over this past year. Upon assessment of diet, the client consumes high amounts of refined carbohydrates and inadequate amounts of whole foods. His diet lacks adequate healthy fats, protein and fiber. Since COPD impairs the ability to properly excrete carbon dioxide, it may be beneficial to decrease intake of foods which may contribute to this metabolic waste

load. According to the respiratory quotient, diets high in carbohydrates increase carbon dioxide production, whereas protein and fat have a lessened impact. The high intake of refined carbohydrates may be contributing to his labored breathing and excess carbon dioxide in his labs.

Plan:

1. Increase healthy fats to 35% of diet. Fats have the lowest impact on carbon dioxide load. Higher-fat diet is recommended. Increasing healthy fats like polyunsaturated and monounsaturated fats from whole foods like avocados, nuts, olives, salmon and seeds. Beneficial saturated fats like coconut and grass fed ghee should be consumed in moderation.
2. Increase high-quality proteins to 30% of the diet. Proteins have the second least impact on carbon dioxide load. High-quality proteins include organic, pasture-raised meats and eggs, as well as nuts, seeds, legumes and beans.
3. Decrease refined carbohydrates. Carbohydrates contribute most to carbon dioxide load and should be decreased. A low carbohydrate diet of 35% of the diet is recommended, with the carbohydrates sourced from whole foods like vegetables, fruits, legumes, nuts and seeds.
4. Increase whole foods, like vegetables and fruits. Vegetables contain a very low amount of carbohydrate per weight. Whole foods contain healing, anti-inflammatory micronutrients, as well as fiber.
5. Increase fiber intake.
6. Increase antioxidant-rich foods.

Current Daily Calorie Intake: 1,847

Estimated Energy Requirements (BMR x physical activity factor):

BMR: $66 + (6.23 \times 200) + (12.7 \times 70) - (6.8 \times 60) = 1,793$

Although the case does not explicitly state the amount of activity the client is engaged in on a daily basis, based on his inability to breathe I have used "sedentary" as the activity factor.

Estimated energy requirements = $1,793 \times 1.2 = 2,151$

Caloric Intake Goal: ~2,100

Part 2: Individualized Nutrition Planning

Goals:

Macronutrients

Current Carb intake:	61%	Current Protein intake:	18%	Current Fat intake:	21%
	227.3 g/day		66.6 g/day		79.6 g/day
Goal:	35%	Goal:	30%	Goal:	35%
	183.7g/day		94.5g/day		81.6g/day

Specifics and Rationale:

Protein:

Increasing protein consumption is of particular importance in this case, as the client claims to take Breo, which is a corticosteroid. Corticosteroids deplete protein by inhibiting protein synthesis and promote protein catabolism. Therefore, it is important to increase intake of protein in order to avoid muscle wasting. (2)

Excellent sources of protein include organic free range chicken, turkey and various cold water fish. Plant based forms of protein are also a great option and include: lentils, quinoa, tempeh, nuts and seeds, beans

In addition, studies have shown that a diet high in healthy fats and lower in carbohydrates are especially beneficial in those with COPD.

Fat:

Based on the conometer analysis, the diet is primarily composed of inflammatory fats, specifically 11g of trans fats. The type of fats consumed in this case is the real concern, not the amount. Trans fats are fats made in labs and are often labeled as hydrogenated or partially hydrogenated oils on packaged foods and are the main oil used in fast foods and margarine. Trans fats should be completely avoided as they are pro inflammatory and contribute to a significant amount free radicals and oxidative stress in the body.

*Make sure to read all the ingredients when purchasing packaged foods as the FDA only requires >0.5g on nutrition facts. This means that is there is less than 0.5g of trans fats it can be labeled as 0g.

In addition to the trans fats, the Omega-6 FA to Omega-3 FA ratio is out of balance. It is important to maintain an appropriate balance in the diet as these two substances work together for better health outcomes. Omega-3s are anti inflammatory and Omega-6s tend to be pro inflammatory. A realistic healthy balance of these two fatty acids is about 4:1 (omega 6: omega 3). Currently his ratio is about 14:1 which is typical of an inflammation-promoting standard american diet (SAD). Omega-6s are highly

concentrated in most processed foods and vegetable oils (sunflower, safflower, corn, cottonseed, and soybean). In addition, it is highly concentrated in red meats.

When the amount of fried and processed foods is drastically cut down or eliminated in conjunction with increasing omega-3 intake, the balance of these two fatty acids will improve naturally.

*See below for good sources of Omega-3 FAs.

By incorporating a variety of healthy fats such as monounsaturated fatty acids (MUFAs) should replace the unhealthy fats listed above. MUFAs are concentrated in avocados/oil, olives/oil and nuts and seeds. Other healthy fats with high smoke points include: unrefined coconut oil, grass-fed ghee.

Carbohydrates

For this case, the focus should be to shift carbohydrate sources away from processed, refined carbohydrates towards nutrient dense, fiber rich carbohydrate sources found in fruits, vegetables and whole grains. In addition, the amount of carbohydrates has been decreased due to the fact that carbohydrates yield the most carbon dioxide, and in order to expel excess carbon dioxide the lungs are placed under even greater stress which is important to avoid in for someone with compromised lung function.

Micronutrients

<p>Nutrient: Vitamin C</p> <p>Current Unit/day: 14.3 mg</p> <p>Goal: 1,000 mg/day</p>	<p>Nutrient: Potassium</p> <p>Current Unit/day: 1763 mg</p> <p>Goal: 4.7 g/day</p>	<p>Nutrient: Magnesium</p> <p>Current Unit/day: 316.7 mg</p> <p>Goal: 420 mg/day</p>
<p>Nutrient: Vitamin D</p> <p>Current Unit/day: 194 IU</p> <p>Goal: 600 IU/day</p> <p>*(PCP may increase after running serum lab test)</p>		

Specifics and Rationale:

Vitamin C: The antioxidant activity of vitamin C may be protective against further oxidative damage to the respiratory system that could result from pollution and aging. In addition, Vitamin C is a cofactor in the synthesis of collagen, thus may aid in the repair of bronchial and alveolar tissue. In a cross sectional study, higher intake of vitamin C or fresh fruit was associated with better pulmonary function in both smokers and non smokers. (3)

Potassium: Potassium helps maintain the body’s fluid balance. It helps contract muscles, send nerve impulses and maintain healthy heart function. People with chronic obstructive pulmonary disease show a slower rate of potassium exchange and studies show serum levels are also generally much lower than controls without COPD. (9) Potassium levels should be closely monitored and potassium-rich foods encouraged. Good food sources include oranges, bananas, potatoes, spinach, asparagus, strawberries and tomatoes.

Magnesium: People with COPD often have low levels of magnesium. Lack of magnesium may be associated with poor nutrition or it may be caused by drugs taken to manage COPD, like Breo. Magnesium is important for normal lung function.(10)

Vitamin D: Patients with COPD often have vitamin D deficiency, which is associated with decreased immune function. Adequate serum vitamin D levels in patients with COPD reduces the risk of moderate or severe exacerbation. (11)

Meal plan

Food(s):	Rationale:
<p>Antioxidants: Blueberries, strawberries, cranberries, pomegranates, red wine, tea, dark chocolate, onions, leeks, dark leafy greens, cabbage, eggs, citrus fruit, plant oils, red yellow and orange vegetables and fruits.</p>	<p>Oxidative stress is an important feature in the pathogenesis of COPD. Targeting oxidative stress with antioxidants or boosting the endogenous levels of antioxidants is likely to be beneficial in the treatment of COPD. (4)</p>
<p>Anti inflammatory foods/herbs: Focus on a variety of whole unprocessed fresh fruits and vegetables, nuts and seeds, wild cold water fish, lean meats and unrefined whole grains.</p> <p>Foods containing Omega-3’s: Walnuts, sardines, wild-caught salmon, mackerel, herring, anchovies, chia seeds, ground flax seeds, hemp seeds, dark leafy greens, olive oil, olives</p> <p>Fermented foods: Sauerkraut, kimchi, lacto fermented vegetables, kombucha, miso.</p> <p>Herbs/spices: ginger, turmeric, basil, oregano, green</p>	<p>COPD is recognized as a systemic inflammatory disease associated with increased production of inflammatory cytokines. Therefore it is important to nutritionally focus combatting this inflammation. (2)</p>

<p>tea, cayenne, cinnamon, rosemary, garlic, cloves, sage</p> <p>Nuts/seeds: walnuts, almonds, cashews, chia seeds, hemp seeds, pumpkin seeds, pecans, pistachios, brazil nuts, sunflower seeds</p>	
<p>Foods to limit/avoid: (5)</p> <ul style="list-style-type: none"> ● Caffeine should be avoided as it can reduce the efficacy of Breo ● Gas forming foods *specific to the person: cruciferous vegetables, spicy, carbonated beverages, food sensitivities, foods known to cause gas specific for the person ● High sodium ● Red meat ● Dairy ● Processed foods and refined sugar 	<ul style="list-style-type: none"> ● Dairy is known to cause mucus production, leading to difficulty breathing. ● Carbonated beverages and spicy foods can cause gas and bloating which can lead to labored breathing. ● Excess sodium in the bloodstream not only can raise blood pressure, it also reduces the amount of water in the tissues of the bronchi and bronchioles, causing the mucus in the respiratory tract to become thicker, making breathing and clearing more difficult.

Supplementation

Supplement:	Dose:	Rationale:
High quality fish oil	<p>A daily supplement containing a profile of: 700-1,000mg of EPA and 200-500 mg of DHA</p> <p>*in the smallest amount of pills.</p>	<p>In addition to the anti-inflammatory properties of omega-3's, supplementation has been shown to improve exercise capacity in patients with COPD. (6)</p>
Vitamin D3	<p>*Dependent upon serum levels</p>	<p>COPD has been associated with an increased risk of Vitamin D deficiency, especially in those that take corticosteroids. (7)</p>

Men's multivitamin and mineral complex	As directed on bottle	In order to supplement the vitamins and minerals still deficient in the diet.
N-Acetylcystine (NAC)	600mg/day	Supplementation of NAC in patients with COPD has been shown to enhance clearance of mucus by the cilia. In addition, NAC is a precursor to glutathione which is the predominant antioxidant in lung tissue. (8)

Nourishing Behaviors

Practice(s):	Instructions:	Rationale:
Increased Hydration	Drink 80-100 oz of water/day	It is important that people with COPD drink enough fluids in order to keep the mucus in the airways thin. Dehydration leads to thicker mucus, which can further block the passage of air. (5)
Aerobic Exercise: Brisk walking Jogging Swimming Dancing Biking Elliptical Hiking	20-30 minutes 4-6x/week *While you are exercising you should inhale through the nose and exhale through your mouth with the pursed breathing technique described below.	Aerobic exercise can be extremely helpful for someone with COPD because it improves circulation and lung function. (5)
Acupuncture	If interested in pursuing this form of therapy, will provide trusted practitioner contact.	Clinical trials have shown that acupuncture can be helpful for people with COPD. These studies have shown to reduce shortness of breath, enhance ability to walk, and the improvement of functional pulmonary testing. (5)

Breathing techniques: (5)
pursed lip breathing
and diaphragmatic
breathing

Pursed lip breathing technique: This technique is a quick and easy way to slow down the pace of breathing to make each breath more effective.

- While relaxing shoulders and neck, take a normal breath slowly through your nose while keeping the mouth closed.
- Then purse your lips - position them as if you were going to whistle.
- Slowly and gently exhale through the pursed lips

*always make sure that your exhalation phase is longer than your inhalation phase

Diaphragmatic Breathing:

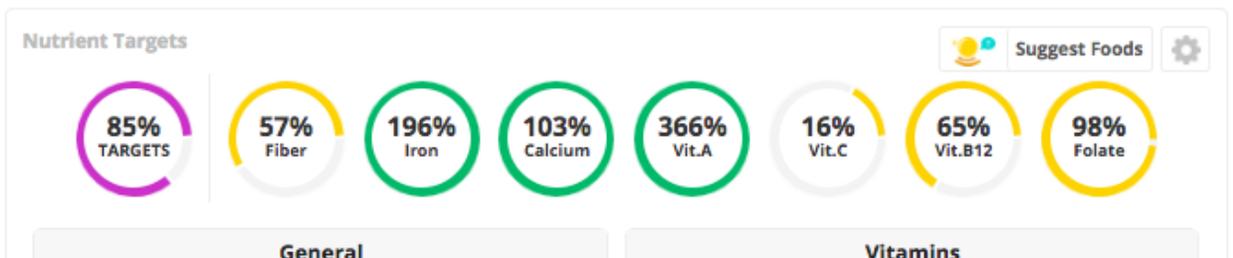
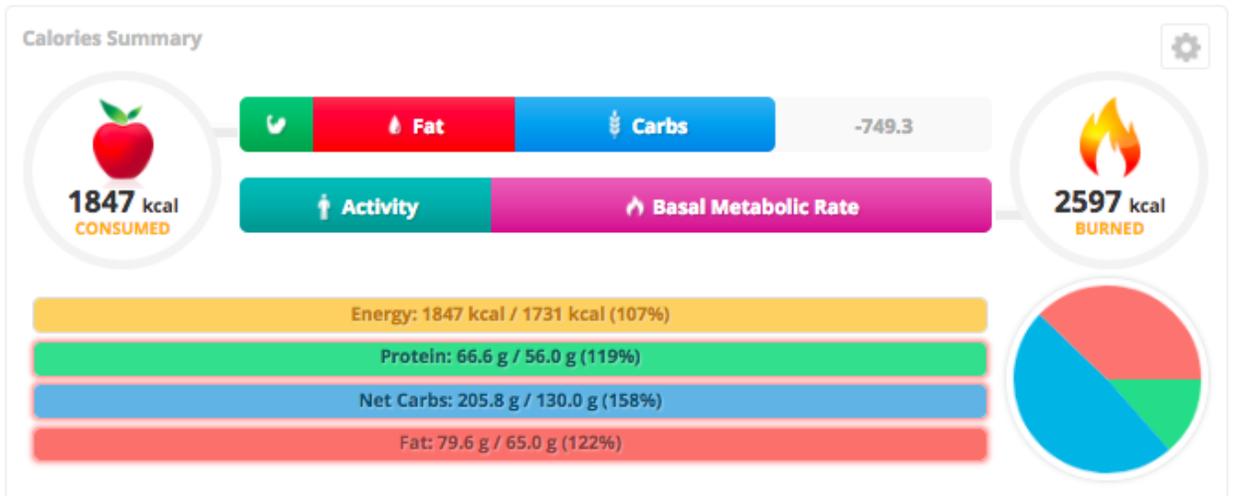
- Lie on your back on a flat surface with a pillow under your knees and one under your head. Your knees should be slightly bent
- Place your left hand on your upper chest and your right hand on your abdomen (this allows you to feel your diaphragm expand as you breath)
- Inhale slowly through your nose so that your stomach moves out against your right hand.
- You should feel your right hand move out. Your left hand on your chest should not move at all.
- Tighten your stomach and let them move back in as you exhale with the purse lip technique
- As you are exhaling you should feel your right hand moving in, the left is still.
- One DB has been perfected you can try standing up.
- Practice this type of breathing for 5-

Pursed lip breathing helps to prolong exhalation, which then helps to slow down the rate of breathing. It also helps to improve ventilation of the lungs, keeps airways open longer, and decreases the amount of work required for breathing.

Diaphragmatic breathing helps the lungs to expand so that they take in more air. This technique helps to strengthen the diaphragm as well as to decrease the work of breathing by slowing it down.

10 minutes 3-4 times/day

Description	Amount	Unit	Calories
 Potato chips, ruffled or rippled	1	oz	150.57
 Rice, White, Long-Grain, Regular, Enriched, Cooked	1	cup	205.41
 Chicken Curry, Homemade	6	oz	175.2
 Mixed Vegetables, Peas and Carrots, Cooked from Frozen	0.5	cup, cut pieces	38.4
 Grilled Cheese Sandwich	1	sandwich	305.5
 Milk, 1 % Fat, Lowfat	8	oz	95.25
 Popcorn, Microwave	1	bag - each 3.2 oz	534.53
 Instant Oatmeal, Flavored, Dry	2	packet	319.92
 Butter, Whipped, Salted	1	tsp	22.59



General		
Energy	1847.4 kcal	107%
Alcohol	0.0 g	No Target
Caffeine	0.0 mg	No Target
Water	550.9 g	15%

Carbohydrates		
Carbs	227.3 g	175%
Fiber	21.5 g	57%
Starch	136.1 g	No Target
Sugars	51.7 g	No Target

Lipids		
Fat	79.6 g	122%
Monounsaturated	36.6 g	No Target
Polyunsaturated	16.0 g	No Target
Omega-3	0.9 g	57%
Omega-6	13.9 g	82%
Saturated	21.0 g	20,971 g
Trans-Fats	11.2 g	11,237 g
Cholesterol	109.7 mg	No Target

Protein		
Protein	66.6 g	119%
Cystine	0.7 g	98%
Histidine	1.1 g	99%
Isoleucine	1.7 g	118%
Leucine	3.6 g	112%
Lysine	2.2 g	74%
Methionine	0.9 g	118%
Phenylalanine	2.0 g	161%
Threonine	1.5 g	98%
Tryptophan	0.5 g	129%
Tyrosine	1.6 g	126%
Valine	2.3 g	123%

Vitamins		
B1 (Thiamine)	1.9 mg	157%
B2 (Riboflavin)	1.7 mg	132%
B3 (Niacin)	26.2 mg	164%
B5 (Pantothenic Acid)	4.4 mg	88%
B6 (Pyridoxine)	2.0 mg	154%
B12 (Cobalamin)	1.6 µg	65%
Folate	390.3 µg	98%
Vitamin A	10966.6 IU	366%
Vitamin C	14.3 mg	16%
Vitamin D	194.7 IU	32%
Vitamin E	8.6 mg	57%
Vitamin K	50.2 µg	42%

Minerals		
Calcium	1025.9 mg	103%
Copper	0.9 mg	102%
Iron	15.7 mg	196%
Magnesium	316.7 mg	75%
Manganese	4.7 mg	204%
Phosphorus	1326.0 mg	189%
Potassium	1763.0 mg	38%
Selenium	70.1 µg	127%
Sodium	2834.0 mg	189%
Zinc	8.2 mg	74%

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Free Class

- The **etiology** of chronic obstructive pulmonary disease (COPD) is long-term exposure to lung irritants, predominantly cigarette smoking, that damage the lung and airways. Other irritants can cause COPD, including: cigar smoke, secondhand smoke, pipe smoke, air pollution and occupational exposure to dust, smoke, or fumes.(2) The two main forms of COPD include: chronic bronchitis and emphysema.
- **Criteria for COPD - Chronic bronchitis** : A chronic productive cough lasting more than 3 months occurring within a span of 2 consecutive years. Often secondary to chronic obstructive pulmonary disease (COPD). (1)
- **Treatment** focuses on relieving symptoms, preventing complications, and slowing progression of the disease. Therapy aims to reduce the overproduction of mucus, tempering inflammation, and minimizing cough. Common interventions include: bronchodilators, glucocorticoids to reduce inflammation and mucus production, phosphodiesterase-4 inhibitors which decrease inflammation and promote airway smooth muscle relaxation, smoking cessation, and pulmonary rehabilitation: education, lifestyle modification, regular physical activity and avoidance of exposure to known pollutants either at work or living environment. (1)
- **Avoid** the following: caffeine should be avoided as it can reduce the efficacy of some COPD medications, gas forming foods can cause bloating and discomfort (food allergies/sensitivities), dairy increases mucus formation, and excessive sodium reduces the amount of water in the tissues of the bronchi and bronchioles, causing the mucus in the respiratory tract to become thicker, making breathing and clearing more difficult.
- Macronutrient distribution can be helpful in reducing some metabolic load in the lungs. Diets high in carbohydrates tend to increase carbon dioxide load in the lungs. A mixed diet with protein and fats reduces this load on the lungs (12). Accordingly, a **mixed diet** is recommended over a high-carbohydrate diet.
- Eat a diet with adequate **protein**. When people with COPD are taking a prescription corticosteroid, protein consumption is of particular importance. Corticosteroids deplete protein by inhibiting protein synthesis and promote protein catabolism. Therefore, it is important to increase intake of protein in order to avoid muscle wasting. (3) Excellent sources of protein include organic, free range chicken, turkey and various cold water fish. Plant based forms of protein are also a great option and include: lentils, quinoa, tempeh, nuts and seeds, beans.
- COPD lifestyles need to be **client specific**. Certain foods, like spices and broccoli might increase inflammation in some people, while for other people, it can help or decrease symptoms of COPD. (5)
- Include **antioxidant-rich foods**. Oxidative stress is an important feature in the pathogenesis of COPD. Targeting oxidative stress with antioxidants is likely to be beneficial in the treatment of

COPD. (4) Examples include blueberries, strawberries, cranberries, pomegranates, tea, dark chocolate, onions, leeks, dark leafy greens, cabbage, eggs, citrus fruit, plant oils, red yellow and orange vegetables and fruits.

- Focus on **anti-inflammatory foods**. COPD is recognized as a systemic inflammatory disease associated with increased production of inflammatory cytokines. (3)
- **Eat small, frequent, nutrient-dense meals** that provide adequate calories. Meals that are easy to prepare, resting before meals, and taking a multivitamin is also recommended.(3)

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Shrimp, Broccoli and Mushroom Stir Fry



1 broccoli head



2 garlic cloves minced



1 onion chopped



1/2 pound of sliced mushrooms with Vitamin D.



1 tablespoons of corn starch + 1/2 tsp



1 pound of fresh shrimp



2 tablespoons of Tamari



1 tsp of rice vinegar



1/2 cup of vegetable broth



4 tbs of avocado oil.



1 tablespoon of lemon juice



Directions

1. Prepare shrimp and toss with 1 tbs of corn starch, add salt + pepper.
2. Make the sauce, by adding Tamari, vinegar, sweetener, 2 tsp of corn starch and Vegetable broth together.
3. Cook shrimp in medium-high heat in wok with avocado oil until golden, but not completely cooked. Once golden remove shrimp from pan and set aside.
4. Add more avocado oil to wok and cook garlic, onions, salt until soft. Then add broccoli with a little more salt and cook until broccoli gets tender. Once broccoli is soft add the mushrooms.
5. Add the shrimp and sauce into the wok, bring to a boil then turn off heat.
6. Enjoy!

Benefits and Rational

- Shrimp and mushrooms have high amounts of Vitamin D.
- Use of pharmaceuticals for COPD has shown to deplete serum levels of Vitamin D which is thought to be a cause of the high levels of osteoporosis in COPD patients. (4)
- Healthy fat sources, and a high-fat diet has been shown in a 1999 study to decrease the bodies oxygen consumption need, thereby reducing stress on the lungs.

Swiss Muesli



2 Bananas



1 cup of blueberries



1 Cup of sliced almonds



1 cups of strawberries



1 cups of grapes



2 Kiwis



4 cups of non-dairy milk like almond milk or cashew milk.



2 cups of whole rolled oats



2 Apples



1 cup roasted hazelnuts



Directions

1. First add oats with dairy free milk.
2. Let oats soak at least 20m, leaving it sit for a few hours or overnight on the counter is better.
3. In the mean time, cut up all the fruit you have into small piece.
4. Mix the fruit, almond slices, and chopped roasted hazelnuts with the soaking oats. If hazelnuts are not pre-roasted, slightly roast hazelnuts in a pan without oil.
5. Portion out two cups of Muesli for each breakfast.
6. Let the left overs soak in the fridge for the next days breakfast.
7. Enjoy!

Swiss Muesli Benefits and Rational

- Contains lots of antioxidants, vitamin C and protein.
- People who have smoked or are smoking have increased free radicals and oxidants that lead to oxidative stress and subsequent inflammation. Antioxidant therapy is recommend.
- Smokers and people who just quit smoking have been shown to have low concentrations of serum vitamin C, E, Carotene and Selenium. Which have been shown to be significant contributors to COPD's systemic effects. Research has shows that high vitamin C levels, and other vitamins can increase pulmonary function. (3)

COPD Soup

Ingredients:

2 tablespoon avocado oil
9 cloves of garlic, minced
1 yellow onion, diced
3 carrots, thinly sliced
3 celery stalks, roughly chopped
1.5 tablespoon fresh grated ginger
1.5 tablespoon fresh grated turmeric (or 1 teaspoon ground turmeric)
9 cups low sodium chicken broth
1.5 lbs. boneless skinless chicken breast
1.5 teaspoon freshly chopped rosemary
1.5 teaspoon freshly chopped thyme, stems removed
¾ teaspoon salt
Freshly ground black pepper
1.5 cup whole wheat **organic pearl** couscous (important it is pearl couscous for consistency in soup)
1 cup frozen peas

Soup Instructions and Rationale

1. In large pot over medium high heat, cook garlic, onion, carrots and celery in oil until onions become translucent.
 2. Next add grated ginger and turmeric, cook for 30 seconds. Next add chicken broth, chicken breast, rosemary, thyme, salt and pepper.
 3. Bring soup to a boil, then stir in couscous. Reduce heat to medium low and simmer uncovered for 20-30 minutes. Once chicken is cooked remove from pot and shred with two forks. Add chick back to pot, then stir in frozen peas. Serve!
- Thyme contains a similar substance to Theophylline which is also used in pill form to treat wheezing and shortness of breath in COPD. Theophylline helps relaxed and open air passages in the lungs.(1)
 - Anti-inflammatory rich soup with protein and whole grains. Ginger and turmeric are great for digestion and a powerful anti-inflammatory agent to use in recipes. Garlic is full of anti-bacterial and anti-inflammatory properties. Soup will also help loosen phlegm in COPD clients.



Latin Hot Coco Benefits and Rational

- Contains lots antioxidants to help reduce inflammation in lungs
- Cocoa beans contain Theophylline and also a little caffeine which gives a similar effect as nicotine by increase the metabolism rate, helping to reduce metabolism slow down when people quit smoking. (1,2)
- This hot coco has a kick with some cayenne pepper, exactly what client stated he enjoys. Specific to the person, certain spicy foods might increase breathing difficulty, however research has also shown that capsaicin helps break up mucus and relieve phlegm. Increasing breathability in some people. (5)
- Introduces non-calorie sweetener to help in potential weight loss.
- Even though dairy products are a good source of protein, vitamins and minerals, it increase mucus production in most people. Flare-ups in people with COPD can be triggered by an increase in mucus productions, leading to shortness of breath. Testing alternatives to dairy products, like almond,

Latin Hot Coco Directions

Ingredients:

8 cups of cashew milk (without sugar)
2 cup of water
1/2 cup of raw cocoa powder
6 teaspoon of ground cinnamon
4 pinches of cayenne pepper
2 teaspoon of stevia or to taste
4 pinch of salt (optionable)
Raw Honey for extra sweetness (optionable)

Instructions:

1. Heat water and milk.
2. Add all ingredients to hot water.
3. Adjust measurements to suit taste and enjoy!

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