



Nutritional Information for Alpha-1 Patients

The information in this section will provide you with a few pointers on general healthy eating and eating with Alpha-1 Antitrypsin Deficiency.

If you are having significant issues with either gaining or losing weight, your doctor may be able to refer to you a dietitian for specific nutritional counselling.

A Healthy Body Weight

- Achieving and maintaining a healthy body weight is your best defence against all preventable diseases and helps to prolong wellness in chronic disease.
- Extra weight strains all body systems especially the lungs and increases your risk of type 2 diabetes, heart disease, hypertension, high cholesterol, etc.
- Achieving a healthy body weight is a matter of balancing the energy in (the food you eat), with the energy that your body burns (from daily living and exercise).

How to Eat Right

- Make the right choices using Canada's Food Guide - it translates current nutrition research into practical information that can actually be used www.healthcanada.gc.ca/foodguide.
- Watch your portion sizes - eat 5 to 6 small meals each day instead of 3 large ones - this can be especially helpful during times of respiratory flare when your appetite is reduced.
- Choose low fat protein from meat, beans, and legumes.
- Choose higher fibre grains, fruits and vegetables. Fibre intake is associated with increased lung capacity in COPD¹
- Do not forget dairy!
 - Excellent source of calcium and vitamin D
 - Good source of calories when you need to gain weight
 - Dairy does not increase mucus production or make asthma-like symptoms worse.²

Get Active

- Be active in your day to day life - take the stairs instead of the elevator or escalator, walk a few extra blocks instead of taking transit.
- Get your heart rate up, aim for 30-60 minutes of exercise at least 3 times per week. Decreased physical activity is associated with increased risk of hospital readmissions for flares.³
- Studies looking at physical activity levels of people with COPD have found significant benefits to increasing activity levels. People who increased their exercise had improved strength in their breathing muscles, and decreased whole body inflammation.⁴

Lung affected

- Energy needs may increase by as much as 30% during an A1AT respiratory flare^{5,6}
 - Breathing becomes like exercise so you burn more calories when you breathe rapidly.
 - Also, systemic (whole body) inflammation occurs during a flare, this means your entire body is working harder to function, so your calorie needs increase.
- It is very common to lose significant weight during a flare both because of increased energy needs, but also because you may feel full sooner, or find that eating takes a lot of effort.
- Sudden, significant weight loss should be avoided because it is associated with decreased tidal volume, which leads to collapse of the alveoli in your lungs and decreased secretion removal⁷. This then makes you more susceptible to infection. There are a few steps that you can take to prevent this type of weight loss.

- Eat foods that are energy dense - make sure you get the best bang for your buck with each bite you take.
- If you find yourself feeling full quickly, eat small frequent meals to maximize what you are able to eat.
- Continue to eat a variety of foods from all food groups.
- Minimize your simple sugar intake
 - Acute COPD symptoms may result in insulin resistance due to changes in how your body digests glucose (sugar). One study found that people in acute flares had much higher levels of blood glucose when compared to people without COPD or those with COPD but not in an active flare.⁸
- Don't forget to drink lots of fluids. Your body requires more than average fluid, especially when your breathing is increased or you have increased mucus production. You actually lose a lot of fluid from both!⁹
- Corticosteroids used for treatment of inflammation have some nutritional side effects such as appetite changes (usually increased appetite), decreased blood sugar control and/or bone demineralization which need to be managed. Choose healthy snacks and don't forget your calcium and vitamin D supplements.¹⁰
- Some people find that gas and bloating can make breathing more difficult, this is because the increased pressure in your digestive system can increase the pressure on your diaphragm and therefore your lungs. To minimize gas and bloating:
 - Avoid overeating and foods that cause gas or bloating.
 - Avoid eating quickly or talking while eating.
 - Slowly increase the amount of fibre containing foods and drink lots of fluids.
 - Limit carbonated beverages.
- Iron is essential for normal oxygen transport in the blood. It forms the centre of the haemoglobin in your blood and oxygen attaches to haemoglobin for transportation around the body. Therefore, without iron, oxygen transport can be reduced.¹¹
 - Your doctor can check your iron status as part of routine blood work
 - Food Sources: Meat provides iron that is most efficiently used by the body, but vegetables are good sources too, but aren't used as easily by the body, choose green leafy veggies, and fortified grains.

Liver affected

- The liver plays a large role in digestion, so a liver affected individual may experience a number of nutritional difficulties
- This happens because when the liver is chronically inflamed, it can become cirrhotic which means that healthy liver cells are replaced by scar tissue. Scar tissue prevents the liver from performing all of its functions.
- A number of specific complications can occur with liver disease:
 - Portal hypertension: blood pressure increase in the large vein going through the liver, results in blood backing up
 - Medical treatment is necessary, nutritional suggestions may be made by your doctor and dietitian
 - Ascites: accumulation of fluid in abdomen.
 - The abdomen can become quite distended with fluid which may result in decreased appetite or early satiety because the fluid displaces space in the stomach.
 - Nutritional treatment: includes sodium or fluid restriction
 - Hepatic Encephalopathy: Confusion and altered consciousness due to accumulation of chemicals usually filtered by the liver.
 - Treatment will be medically guided, but may include the use of a prebiotic called lactulose.
 - Historically, a reduced protein diet was recommended, but we now know it is more important to maximize nutritional status with adequate protein intake.

Alternative Treatment

- Alternative treatments are very tricky as there isn't usually a lot of research done.
- The internet is full of anecdotal evidence from people who have tried various treatments, but scientific research is slow to investigate.
- There are 1000s of products on the market, but only few scientists are investigating their effectiveness.
- People often think that natural products are harmless because they're natural. However, this isn't always the case; natural products can still be harmful and/or interact with any medications that you may be on. It is important that you tell your healthcare providers about any naturopathic supplements that you are taking.

Supplements commonly used for A1AT

- Co Enzyme Q10
 - A recent study found that CoQ10 levels were lower during an alpha-1 flare; this was thought to be due to the oxidative stress of the flare.
 - Despite this observation, researchers do not know if lower levels of CoQ10 have a negative effect on the body, therefore it is not known whether supplementing it can be helpful during a flare.
 - At this time, there are no recommendations from the scientific community to supplement with CoQ10.
- Milk Thistle
 - Current research looking at milk thistle is only in the alcoholic and hepatitis C populations. A 2011 study indicated more potential effect in the alcoholic liver disease populations than on the Hep C population.
 - A recent Cochrane review (which combined the findings from all previous studies on the topic) in these populations found no effect on liver disease symptoms.
 - There is no indication that milk thistle is helpful in A1AT.
- Oregano oil
 - Oregano Oil has very strong anti-microbial properties and is used in food preservation.
 - There is some thought that it may be helpful in treating symptoms of the common cold; however there is no published research looking at oregano oil in treating a cold.
 - One study looked at its use in treatment on bacteria e.g. E. Coli in intestinal cells. It was found that the activity of the bacteria was greatly reduced, but when taken in very high amounts, damage to the intestinal cells occurred.
 - This study deliberately looked at a very high dose, so this doesn't automatically suggest regular use of it is harmful, it just suggests that more is not better.

¹ Aniwidyansih W, Varraso R, Cano N, Pison C. Impact of nutritional status on body functioning in chronic obstructive pulmonary disease and how to intervene. *Curr Opin Clin Nutr Metab Care*. 2008 Jul;11(4):435-42. Review. PubMed PMID: 18542004; PubMed Central PMCID: PMC2736295

² Wüthrich B, Schmid A, Walther B, Sieber R.(2005). Milk consumption does not lead to mucus production or occurrence of asthma. *J Am Coll Nutr*. Dec;24(6 Suppl):547S-55S.

³ Aniwidyansih, 2008

⁴ Garcia-Aymerich J, Serra I, Gómez FP, Farrero E, Balcells E, Rodríguez DA, de Batlle J, Gimeno E, Donaire-Gonzalez D, Orozco-Levi M, Sauleda J, Gea J, Rodriguez-Roisin R, Roca J, Agustí AG, Antó JM; Phenotype and Course of COPD Study Group. Physical activity and clinical and functional status in COPD. *Chest*. 2009 Jul;136(1):62-70. Epub 2009 Mar 2. PubMed PMID: 19255291.

⁵ Aniwidyansih, 2008,

⁶ Aniwidyansih, 2008

⁷ Fernandes AC, Bezerra OM. Nutrition therapy for chronic obstructive pulmonary disease and related nutritional complications. *J Bras Pneumol*. 2006. Sep-Oct;32(5):461-71. Review. English, Portuguese. PubMed PMID: 17268751.

⁸ Aniwidyansih, 2008

⁹ Fernandes, 2006

¹⁰ Fernandes, 2006.

¹¹ Fernandes, 2006.