

Low Methionine Diet

Disclaimer. This is an information article only for people who are wishing to start an LMD. You should be carefully monitored by a health professional. If you have cancer, you should be under the care of an Oncologist. LMD should only be used as a potential adjunct care alongside standard of care therapies suggested to you by your Oncologist.

As a health practitioner, I do not usually support a vegetarian or vegan diet. The only exception is cancer, under strict supervision, and for a short period only.

How to Succeed

Getting Started

The first thing to do when deciding to go for the LMD for cancer is to...relax!! Most patients find the idea of the LMD to be overwhelming, they do some research and then decide that it will be terrible, hard and something that they are not capable of achieving. This is far from the truth! Everything takes preparation, time, education and effort. Instead of diving head first into a restricted diet, it is best to have a full understanding of what you need to do in order to execute it properly.

There are many questions that a patient has when starting the LMD. Below are some of the main questions that I receive from patients.

How many calories per day do I need?

Calories should be worked out for you by a registered health professional familiar with treating cancer. To calculate yourself, you can use a simple online calculator. An example calculation would be the energy requirements for a 45 year old female who weighs 62 kg and partakes in some light activity each day. This person would need 1750 calories per day to maintain their body weight.

If a person is considering the LMD, it is very important to consider the calorie requirements per day and start to work these out.

CALORIE CALCULATOR: <https://www.mayoclinic.org/healthy-lifestyle/weight-loss/in-depth/calorie-calculator/itt-20402304culator>

Will I become iron deficient?

Cutting meat from the diet will deplete iron stores. The LMD is intended for short-term use, not forever. It is crucial to work with your health care professional in order to monitor your iron levels. Iron infusions are not recommended with cancer as iron can fuel cancer growth. There are some supplements that you may take that can support iron levels during the low methionine diet.

Where do I get protein?

LMD is low in protein as methionine is an amino acid which is a building block of protein. You will need to do food calculations in order to see how much protein you are getting. General requirements are 0.8 g/kg per day for protein. This can be achieved on the LMD with some careful planning.

Do I have to be strict and follow this to the letter?

Therapeutic LMD levels are strict. 2mg/kg/day is the level of methionine which is considered a 'medical diet'. This level should be overseen by a doctor or health professional familiar with the LMD.

Can I just do this sometimes?

Studies have shown that just reducing methionine by 30-40% can benefit. For a person that starts out as a heavy meat-eater, reducing the majority of their meat will lower methionine significantly therefore helping with their cancer. Some patients can cycle their methionine starting with one week on, then one week off, then gradually increase the time 'on'. There is some research to suggest that using methionine restriction in a certain time frame before and after chemotherapy can potentially help the effects of that chemotherapy.

Doesn't fruit feed cancer?

Cancer does use glucose as a fuel source, but it also feeds from fatty acids and glutamine. Restricting glucose for cancer is often ineffective as cancer is flexible in using nutrients to survive. If you cut glucose, cancer can then use more glutamine. I never suggest fruit juices for anybody, even cold pressed, as the juice is taken without the fiber that is designed to slow down the sugars absorption. Juice alone can have detrimental effects on blood sugar and insulin so I do not suggest. Whole fruit, in

season and in moderation will not cause or fuel cancer.

The idea of taking away methionine is that you are taking away the ‘building blocks’ for cancer. It’s like a bricklayer that is building a wall. Methionine is the bricks and sugar is the energy to keep him going all day. If you take away the bricks (methionine) then it doesn’t matter how much energy (sugar/carbs) that you give him, he won’t have the materials to build the wall.

Won’t I be hungry all the time?

The biggest mistake people make on the LMD is to just have vegetables and fruit and nothing else. One of the most important things to add into the diet is fat. Fat is very important in LMD as it gives the most ‘bang-for-buck’ for calories, meaning, you can get away with a smaller amount of food but have a higher amount of calories. Fat is important as it signals the brain that the stomach is full, protein and carbohydrates do not work in the same way. Adding fats such as ghee, coconut oil and animal fats can increase calories, create a feeling of fullness and contribute to wellness.

The diet is boring!

Many patients report to me that they find the LMD boring and tedious. As the diet is mainly plant-based, people are often limited to seasonal produce, and perhaps even limited and poor quality produce depending on where they live. Often, this is a matter of learning new ways to prepare foods as well as having good knowledge of the methionine content of foods. Having the knowledge then gives the freedom of being about to choose foods as the patient will have a general idea just by looking at the food item/meal. We all get stuck in a rut with the foods that we eat. You can see this as an opportunity to try foods that you wouldn’t normally eat as well as learning new cooking methods.

Getting started with a food diary

I suggest to my patients to keep a food diary for at least a few days, ideally one week. Using the tools below (myfooddata.com), calculate the details of your food. Have a look at daily calories in total and also calculate how much methionine you consume in a normal day. For a person that is currently eating meat this total may come as a shock. For the already vegetarian/vegan, there may be a few things to adjust and the quantities of methionine can be high in certain foods that are not animal products.

It is a great idea to have the methionine food chart printed, laminated and placed in the kitchen to have on hand when preparing meals. Patients coming from an already plant-based diet, will still need to be cautious of certain foods that contain very high levels of methionine, such as brazil nuts.

Tools: Online Methionine Calculator

The best online methionine calculator is at My Food Data website.

<https://tools.myfooddata.com/protein-calculator>

Go to the website and choose 'tools' and then 'amino acid calculator'. Not every food will be there, but the majority will. Calculating processed foods can be a big issue unless you know the breakdown of the ingredients.

Superfoods to help boost nutrition

With a restricted diet, it is really important to look at the quality of the foods that you are taking in. Good quality food will ensure that you get the optimal level of nutrition with everything that you consume. As you will be cutting a lot of food when you embark on the LMD, it is important to consider how we can use special tricks to optimise nutrition.

Fermented Foods

Fermented foods are amazing for gut health. There is a lot of information out there about gut health but it truly is the most important aspect of health. The level of gut function in a person can even determine the effectiveness of their treatments. There is a lot of research on Immunotherapy outcomes and other people's gut bacteria. Standard of care therapies such as chemotherapy can hurt their gut so it is important that we are always working on this aspect.

Fermented dairy can be consumed in small amounts as this is paramount in keeping the gut well populated. I suggest Goats Milk Kefir. Although this is higher in methionine, it is one exception in the diet - in small amounts.

Fermented Vegetables are an excellent product and they should be used with every meal if possible. Even consuming some of the juice from the fermented vegetables can help immensely with digestion. Most commercial fermented vegetables are pasteurised so it is good to make your own if you have that option.

Soaking Nuts

Some nuts, especially macadamia nuts, are an excellent choice for the LMD. Nuts are fantastic as they contain high levels of fat which can help you to feel full.

Nuts and seeds can be challenging to any digestive system - even the top notch ones. Nuts and seeds are protected by natural chemical compounds - this protective coating is designed to hinder breakdown in a digestive system in order for the seed to be excreted and grow! This coating also plays a role in. This coating is hard to digest!!

You may have come across 'activated' nuts in the health food store. This just means they have been prepared so that your body is able to digest and extract nutrients from them

Before eating nuts or seeds, they should be neutralized or broken down before they are consumed.

Methods that can be used to 'activate' nuts and seeds include soaking, sprouting, fermenting and cooking.

Buy Organic

Buying organic, or at least, fresh is very important. Pesticides sprayed on foods can disrupt the gut bacteria as well as putting a heavy burden on the body's detoxification systems. If organic is not an option, then at least try to access fresh local produce. Supermarket fruit and vegetables can be kept in storage for many months before you buy it which means that their nutrient profile diminishes over this time. Fresh and organic produce tastes a lot better as well.

Grocery Ideas.

It is good to have some ideas about foods that you can grab off the shelf if you need something in a hurry or have limited time to prepare foods. Below are some ideas for off the shelf foods that can be incorporated into the LMD.

Grocery Items.

COYO Coconut Yoghurt

This is a great option for the LMD as it contains only a few ingredients which are all low in methionine. The yoghurt comes in many flavours, including a plain one that can be used on curries and also as a topping for fruit salad. The high fat content means that it will be filling.

You can make your own coconut yogurt and add in probiotics at the same time.

Plantasy Foods Soups

These soups come in powder in a little sachet and can simply be mixed with hot water. The ingredients in these soups are LMD friendly. They contain coconut milk and cassava flour as a thickener. The soup has a decent amount of calories which can help top you up.

The suitable soups are:
Creamy Tomato Soup
Cock-a-leekie Soup.

Coconut Wraps

<http://www.nucoconut.com/coconut-wraps/>

Most bread and wraps will be high in methionine. Also, it is difficult to calculate the amount of methionine in processed foods. These wraps are perfect for low-methionine. They contain a very small amount of methionine and can be used to wrap up any filling. They are very tasty. Make sure that the wraps that you buy contain coconut only. Some bread and wraps will advertise that they are coconut, however, when you check the label the coconut portion could be only a few percent.

These wraps come in a few different flavors, including cinnamon which can be used as a sweet wrap.

Cassava and Coconut Flour Wraps

Cassava flour is very low in methionine, making it a good substitute for flour in baking. You can purchase these Cassava and Coconut Wraps from iHerb for a decent price and use them for either wraps or pizza bases.

Pasta.

Cassava Pasta

Cassava Pasta is an excellent pasta substitute for the LMD. You can purchase this pasta from iHerb. It comes in all different shapes as well. Jovial Brand of Pasta comes in so many options, you can substitute for any recipe containing pasta.

Eco Organics Sweet Potato Noodles.

These are fantastic and are 100% sweet potato flour. Calculated to be 39 mg of methionine for 40g of dry pasta. This can be added in for variety but still keeping with low methionine.

Cereal

Although processed foods are not the best, there are times when you may feel like something different or just need something to pack quickly for breakfast. This cereal can be topped with fruit and coconut yogurt.

<https://au.iherb.com/pr/nuco-coconut-crunch-cereal-10-58-oz-300-g/101026>

Treats

High-cocoa Chocolate.

It is only human to feel like having a treat every now and again. A good quality dark chocolate can be added into the LMD. Cocoa itself contains about 10mg of methionine per five grams.

Baking

Baking for LMD can be great as there are quite a few clever ways that you can substitute regular things for baking.

Egg replacement

As eggs are high in methionine, they require replacement when baking.

Option 1. Tapioca Egg Replacement.

Tapioca starch is used as a binding or thickening agent for sauces, puddings, and condiments

Simply use one tablespoon of tapioca starch and blend it with three teaspoons of water to replace one egg. You can use a little coffee grinder for this purpose.

Option 2. Gelatin Egg

1 tbsp Apple Cider Vinegar

1 tbsp Gelatin

¼ C hot water

Flour Replacements

There are quite a few options for flour replacement in the LMD. Coconut flour is a nice choice as it is high in fiber, high in fat and low in methionine. Cassava Flour is another great option and it has a very small amount of methionine. Green Banana flour is another option as well, this flour is highly beneficial for the gut bacteria as it is a form of resistant starch.

Usually, you cannot just substitute normal flour with one of the above flours, there has to be some adjustments made to the recipes. There are millions of recipes online that include using these flours. Once you familiarize yourself with the methionine content in foods, you can get creative with baking.

Coconut Flour

Coconut flour is just ground down coconut meat. Although there is not much data on the methionine level of coconut flour, simply put the weight for coconut meat into the methionine calculator.

Coconut flour is a bit trickier to bake with as it contains a lot of fiber. Trouble can arise when coconut flour is used for baking where there are no eggs used to bind it up. The 'cotton-mouth' effect of some products that contain coconut flours is due to the high level of fiber. It is advisable to always have water when eating coconut flour products as fiber soaks up water.

The trick to baking with coconut flour is to always use a fresh bag of flour that is smooth and contains no lumps. Measure accurately in weight rather than cups.

Green Banana Flour

Green Banana Flour has been a hot topic in the last couple of years due to its amazing benefits on the gut microbiome. As this is a fruit, it would contain very little methionine. On calculation, there would be approximately 18 grams of methionine in 70g of green banana flour.

Cassava Flour

100g = 27.7mg methionine

Cassava Flour is another excellent flour replacement. You can make wraps, pizza bases etc using this flour and it has very little methionine.

READ MORE HERE: <https://integrativecare.com.au/low-methionine-diet-for-cancer>

