

LESSON 5 – ASSIGNMENT Clo Mudrik

1. List 5 foods which are common sources of carbohydrate and 5 foods in *your* diet which are poor sources of carbohydrate.

Sorry but as a diabetic type 1 I don't consume any type of "poor carbohydrate" or monosaccharide's or processed food. But I can list 5 foods that I won't include in my diet:

1. Candy is nothing more than pure sugar. Though it tastes good, candy is digested very quickly. This quick digestion will leave you feeling hungry soon after you finish eating it, even if you eat a large amount of it at a time. Candy is just empty calories; it contains nothing but energy. It's not a source of fiber, vitamins or minerals which makes it a very unhealthy option.
2. White Flours: Like sugar, white flour is digested very quickly. It's made by removing the part of the wheat that contains the most nutrients. Vitamins, minerals and fiber are all lost during the processing which causes them to also be digested and absorbed very quickly. When buying bread or pasta, make sure that the first ingredient listed on the nutrition label is 100% whole wheat flour.
3. Soda and soft drinks: Soda is just as bad as candy. It's actually liquid candy which is absorbed even faster. With its high calorie content, it won't keep you full for long and you'll be eating again in no time. Soda is also made from empty calories which gives you no positive health benefits. Replacing soda with water will help lower your daily calorie intake and get rid of some unwanted weight.
4. Pastries. Baked goods (doughnuts, pies, cakes) are a combination of bad carbohydrates all rolled into one neat package. They are usually made with white flour and plenty of sugar. Nutrients are scarce in both of these ingredients which makes these items a very unhealthy food choice.
5. Milk Chocolate or other flavored milk: While dark chocolate has been shown to contain antioxidants, most people go for the milk chocolate which is loaded with sugar and saturated fat. It wouldn't be that unhealthy but portion control is often ignored. Having a piece of chocolate every few days won't kill you, in fact it might even be healthy for you (if you're eating dark chocolate). Having an entire bar once a day is a different story.

2. In 1-2 sentences distinguish between monosaccharide and disaccharides.

A monosaccharide is the simplest sugar, a sugar building block. This is something like glucose, fructose, or galactose. If you put two monosaccharides together and let them bond, they form a disaccharide, like maltose or sucrose or lactose. A polysaccharide is basically a chain of monosaccharides bonded together. This is something like cellulose.

3. Select any 5 of the different sources of carbohydrates listed below and rank them in order of their carbohydrate value, with 1 being the highest, 5 the lowest. Give a short explanation of why you ranked them in the order you did. (2-3 sentences is sufficient)

1) Wholemeal Bread

Food Quantity: Average Slice

Carbs: 13g

Dietary Fiber: 2g

Net Carbs: 11g

Bread (like Wholemeal Bread), contains energy-giving complex carbohydrates (mostly in the form of starch) plus some dietary fiber for better health and digestion. However, some types of bread, when eaten alone, may raise blood sugar levels due to their high glycemic value

2) Steamed Potatoes

cooked w/o skin, flesh Food

Quantity: 1 cup

Carbs: 31.2g

Dietary Fiber: 2.8g

Net Carbs: 28.4g

Potatoes contain energy-giving complex carbohydrates (mostly in the form of starch) plus dietary fiber for better health and digestion. However, some types of potato-dishes, when eaten alone, may raise blood sugar levels. Also, some fried potato foods may be high in saturated fat.

3)Apples

raw, w/skin

Food Quantity: 1 apple

Carbs: 19.1g

Dietary Fiber: 3.3g

Net Carbs: 15.8g

The nutritional value of fruit, like Apples, makes it an excellent choice for both weight control and general health. Fruit contains energy-giving fructose (low on the glycemic index), several essential vitamins and minerals, phytochemicals, plus dietary fiber for better health, digestion and blood glucose control. So, even if you're counting carbs to lose weight, make sure you eat plenty of healthy fruit.

4) Fruit Salad Fresh fruit salad can be a snack, side dish or dessert. A fresh fruit salad provides essential vitamins and minerals along with other nutritional elements. Depending on the fruit and ingredients, nutrition in a fresh fruit salad can vary. As a general rule, however, the overall calories, carbohydrates, protein and fat will be the same.

Some examples per 100g:

Fruit salad, (peach and pear and apricot and pineapple and cherry), canned, extra heavy syrup, solids and liquids 22.77g, 1cup or 58.97g, (peach and pear and apricot and pineapple and cherry), canned, heavy syrup, solids and liquids, 19.11g, 1cup or 48.73g, (peach and pear and apricot and pineapple and cherry), canned, juice pack, solids and liquids 13.05g, 1cup or 32.49g, (peach and pear and apricot and pineapple and cherry), canned, light syrup, solids and liquids 15.14g, 1cup or 38.15g, (peach and pear and apricot and pineapple and cherry), canned, water pack, solids and liquids 7.87g, 1cup or 19.28g, (pineapple and papaya and banana and guava), tropical, canned, heavy syrup, solids and liquids 22.36g, 1cup or 57.47g.

5) Corn Flakes

Food Item: Corn Flakes Cereal

Food Quantity: 1 cup

Carbs: 24.1g

Dietary Fiber: 1g

Net Carbs: 23.1g

Although many cereals have vitamins added, many cereal-brands typically contain refined carbohydrates. These refined carbs are digested quite fast and may contribute to spikes in blood sugar levels, causing appetite swings and food cravings. The negative effects of these "refined carbs" are one reason why so many obesity patients are turning to low carb diets for improved health and weight control. (A low carb weight loss plan is a ketogenic type diet which puts the body into ketosis, and burns fat by a process known as gluconeogenesis.)

4. Select any 3 factors which affect the bodies demand for carbohydrate and give a single sentence description of how they do so.

- Sex: Carbohydrates should provide 45%–65% of daily calories for men and women. Most of those calories should come from the complex carbohydrates in high-fiber and unrefined foods, such as bran cereal and other whole-grain products, brown rice, beans and other legumes, and many fruits and vegetables. These carbohydrates are digested and absorbed slowly, so they raise the blood sugar gradually and don't trigger a large release of insulin. People who eat lots of these foods have higher HDL ("good") cholesterol levels and a lower risk of obesity, diabetes, and heart disease. Some studies have shown that fiber may help reduce the risk of colon cancer. Men need more fiber than women: 38 vs. 25 grams a day before the age of 50 and 30 vs. 21 grams a day thereafter.
- Age: the newborn baby will need the breast feeding and the mother's milk (around 70 Kcal/100ml-Fat 51%, carbohydrates 43 % and protein 6%), Childhood is the early stage where there is the formation and growth. The food at this stage is essential for proper growth and development. This stage it is important to respect meal times and to be performed. The child must eat grains, vegetables, meats, legumes and fruits. Parents should not encourage the consumption of sweets and foods of low nutritional value. In adolescence have a balanced diet is also critical because nutritional needs are greatest during this phase. It is important to take care as teenagers often wish to have a lean body and do anything to achieve it, often without guidance from a health professional, which can lead to nutritional deficiencies and eating disorders like anorexia and bulimia. The adult is the maintenance phase, and is also very important to have adequate food. This is perhaps the most difficult stage, because it depends on the eating habits established, cultural, and financial, among others. Despite all this, one must weigh the importance of healthy eating both for the proper functioning of an organ as disease prevention and better health when old. Nutrition during aging at this stage, as well as nourishing food, you can treat certain diseases and protect the body. Must take into account factors such as: physical health, mental and emotional eating habits before, changes in ability to chew, swallow, digest and absorb food, etc.. It could also reduce the taste and smell. As people get older, their needs for energy will decrease, but on the other hand, the need for nutrients increases. Therefore, priority should be given foods of high nutritional value.
- Physical Activity: Carbohydrates are energy and the need for it is proportional of the intensity and frequency of the physical activity.

These are 3 conditions that affect the body demand for carbohydrates:

1 Lactose Intolerance: Humans, like the other mammals, provide milk for their young from their mammary glands. This milk is perfectly suited for the very specific needs of the developing human infant, but it is not designed to meet the needs of calves or kids or other baby mammals. It is meant for feeding human infants only. While the above statement may seem ridiculously obvious, it is not as obvious to many people that human babies should not receive milk from cows or goats except in emergencies where human milk is simply unavailable. In those exceptions, milk from another species of mammal is preferable to no milk at all. The idea that we need calcium, fats, proteins or anything else from milk beyond the age of three is not only entirely false and totally ungrounded in fact, but it has caused a tremendous amount of harm and suffering for humans. "How did these ideas get started and popularized so widely, then?" you may ask. The simple but sad answer is that the, dairy industry is primarily responsible. (This entire subject will be treated in greater depth in a future lesson devoted entirely to the subject of milk and dairy products in the diet.) As incredible as it may seem that so many people would actually put profit before human health, it is, nonetheless, true.

After age three, most, if not all, people do not secrete the enzyme, lactase, which is needed to break down the disaccharide, lactose, into the simple sugars, glucose and galactose. As you know, undigested sugars are fermented in the stomach and intestine by bacteria. However, it is not the bacteria that are causing the problem, for they are doing what their role in nature requires of them. The bacteria simply play their part in preparing the offending substance, in this case, lactose, for elimination from the body. The cause of the problem is the ingestion of food not appropriate for humans

over three. The solution is obvious and simple, but the powerful and influential dairy industry will do (and does) everything it can to keep this information a secret and to try to disprove it. Besides this, governments are on the side of industry, and individuals in government who can't be coerced to change are removed from positions that enable them to act in favor of human health.

2. Diabetes Mellitus: diabetes mellitus, defined as the insufficient production of insulin needed to metabolize sugar, has in common with dental caries the fact that it is caused by an unhealthful diet containing refined sugars, flours, grains and other unwholesome foods. Depending upon an individual's condition, special care and provision may have to be made for the diabetic who is going on the Life Science regime. Those using insulin, especially in very large amounts, should consult an experienced Hygienic professional before making very great changes in diet.

3. Hypoglycemia: This condition is also known as low blood sugar and hypoglycemia is caused by the same things as cause diabetes. However, people are often diagnosed as hypoglycemic when, in fact, they just have a case of body toxicity. The symptoms of hypoglycemia are many and can also occur when a person is not actually suffering from this condition—hence, the incorrect diagnoses in many cases.

5. Give any 3 questions you might ask someone when you are trying to determine their specific carbohydrate requirements.

- Weight and Height?
- What is the daily routine of exercise?
- If she/he has any allergy or intolerance?

6. List 5 foods, which are a common source of fats.

- Vegetables that contain fats (with the exception of coconuts) are good sources of unsaturated fats. Avocados and olives are two good examples.
- Vegetable spreads can be used as substitutes for butter and margarine. Unlike butter, they contain little saturated fat and unlike margarine are not made from hydrogenated oils and are therefore free of trans fat. They're made from vegetable oils, which have some positive health effects.
- Oils: Olive and canola oils are rich in unsaturated fats. They are great substitutes to use for butter while cooking and add their own unique flavor to foods.
- Nuts contain high amounts of monounsaturated fats, which have been shown to protect against cardiovascular disease. Nuts can be used as great snacks which will help you get to your next meal without binging on junk foods such as potato chips or doughnuts. Peanut butter also contains healthy fats.
- Fish are rich in unsaturated fats. They also contain omega 3 fatty acids, which are heart healthy. Fish are a great substitute to meats such as beef and pork that are high in unhealthy, saturated fats.

7. Select any person you know and in a table distinguish between saturated and unsaturated fats in their diet. Indicate the person's age, sex and occupational status.

My partner Tiago Miranda is 25 years old, male and is an Arborist that means he does heavy physical work for at least 7 hours/day and also trains Capoeira and Circus for 2 hours at evenings.

-Saturated fat in his diet: ghee (clarified butter), Rice bran spread and coconut oil.

-Unsaturated fat: Avocado, Olive Oil, Hazelnut Oil, Canola Oil.

8. Explain the relative value of 5 alternative sources of fats selected from different products you saw in the supermarket/store, which you visited.

-Harmful dietary fat:

- Saturated fat. This is a type of fat that comes mainly from animal sources of food. Saturated fat raises total blood cholesterol levels and low-density lipoprotein (LDL) cholesterol levels, which can increase your risk of cardiovascular disease. Saturated fat may also increase your risk of type 2 diabetes.
- Trans fat. This is a type of fat that occurs naturally in some foods, especially foods from animals. But most trans fats are made during food processing through partial hydrogenation of unsaturated fats. This process creates fats that are easier to cook with and less likely to spoil than are naturally occurring oils. These trans fats are called industrial or synthetic trans fats. Research studies show that synthetic trans fat can increase unhealthy LDL cholesterol and lower healthy high-density lipoprotein (HDL) cholesterol. This can increase your risk of cardiovascular disease.

Most fats that have a high percentage of saturated fat or trans fat are solid at room temperature. Because of this, they're typically referred to as solid fats. They include **beef fat, pork fat, shortening, stick margarine and butter.**

- Healthier dietary fat:

- Monounsaturated fat. This is a type of fat found in a variety of foods and oils. Studies show that eating foods rich in monounsaturated fats (MUFAs) improves blood cholesterol levels, which can decrease your risk of heart disease. Research also shows that MUFAs may benefit insulin levels and blood sugar control, which can be especially helpful if you have type 2 diabetes.

- Polyunsaturated fat. This is a type of fat found mostly in plant-based foods and oils. Evidence shows that eating foods rich in polyunsaturated fats (PUFAs) improves blood cholesterol levels, which can decrease your risk of heart disease. PUFAs may also help decrease the risk of type 2 diabetes. One type of polyunsaturated fat, omega-3 fatty acids, may be especially beneficial to your heart. Omega-3s, found in some types of fatty fish, appear to decrease the risk of coronary artery disease. They may also protect against irregular heartbeats and help lower blood pressure levels.

Foods made up mostly of monounsaturated and polyunsaturated fats are liquid at room temperature, such as **olive oil, safflower oil, peanut oil and corn oil.**

9. Select any 3 factors, which affect the bodies, demand for fat and give a single sentence description of how they do so.

- Sex: Both men and women should keep their total fat consumption below 30%–35% of daily calories. Since fat is the most calorie-dense food (9 calories per gram), levels as low as 20%–25% are appropriate when weight is an issue. To achieve these goals, cut down on saturated fat from animal products and certain vegetable foods — palm oil, palm kernel oil, cocoa butter, and coconut. And it's just as important to reduce your consumption of trans fatty acids, the partially hydrogenated vegetable oils found in stick margarine, fried foods, and many commercially baked goods and snack foods. Make up the difference by including more unsaturated fats in your diet. Monounsaturated fats are healthy for both men and women; olive oil is a good source. The two omega-3 fatty acids found in fish are highly desirable for both sexes. But the vegetable omega-3 found in canola oil and flaxseed oil, alpha-linolenic acid (ALA), is a different matter. Like the marine omega-3s, ALA is good for the heart.
- Age: For proper growth, children and teens need healthy diets that provide the recommended fat intakes. Children less than 2 years of age need more calories due to rapid growth and development.

Age Group	Total Fat Limits
Children ages 2 to 3	30% to 35% of total calories
Children and adolescents ages 4 to 18	25% to 35% of total calories
Adults, ages 19 and older	20% to 35% of total calorie

Ref.: <http://www.rgnutri.com.br/sap/tr-cientificos/ccg.php>

- Physical Activity: They are the major energy reserve of the body and the main source of energy when the body is in homeostasis or steady state, times when aerobic metabolism is predominant. A diet rich in fat is harmful to everyone and also for the athlete because it reduces the capacity of resistance, prevents optimal muscle glycogen storage and disrupts the functioning of the liver, worsening hepatic glycogen deposition. On the other hand, fat has a very high-energy power. Our body has a store of energy in the form of fat that is practically inexhaustible, which makes activities such as Ultramarathonist and runs over 100 km. In these activities, after depleting glycogen, up to 90% of our energy comes from fat. The more trained the athlete, the greater its ability to use fat as energy saving and CHO. A high intake of lipids in the body is the result of exercise training as well as resistance training increases fat burning efficiency, mainly by the increase in the number and size of mitochondria. The type of fat recommended to be eaten (not just for athletes) is unsaturated or polyunsaturated fat (like olive oil). Animal fats (saturated) are less healthy and lead to increased cholesterol. Although there is approximately 10 times less fatty acids (FFA) circulating than CHO, FFA can enter the cell 40 times faster and produce 2 to 3 times more energy per unit weight. Fat is important for practitioners to exercise power by being a component of hormones such as testosterone, which is one of the factors that lead to hypertrophy. Still, there is insufficient evidence to support any lipid supplementation. A possible situation in high-level bodybuilders is that people are generally looking for low-fat eating. With this there is the possibility of low-fat diet is also poor caloric, making an even bigger gain in muscle mass by a caloric deficit.

10. What is the role of fat in the body? Give a one-paragraph answer including a simple description of 2 different physiological processes involving fat.

Roles of fat in the body:

- As a source of heat and energy(fats may supply twice the caloric energy of carbohydrates, we find that they must undergo a longer digestive process before they are ready for an essentially carbohydrate metabolism. In general, carbohydrates do a more efficient job of providing the body with readily usable fuel. Fats are valuable in that they may provide a form of stored energy, but strictly speaking, they are not a necessity in the diet as far as a fuel source goes.
- As padding and insulation for the organs and nerves;
- As a regulator for the fat-soluble vitamins (A, D, E and K)- Some of the vitamins are termed "fat-soluble." This means that fatty compounds must be present in the intestines for these vitamins to be absorbed. The fat soluble vitamins are A, D, E and K. The other vitamins (B, C, etc.) are termed "water-soluble."
- If these fat-soluble vitamins are obtained from the foods in which they naturally occur and eaten in an unprocessed state, they will be readily absorbed by the body. The wholesome foods, which contain these vitamins, also contain the necessary fatty compounds for their absorption.
- As a source of the essential fatty acids.

11. Develop a set of guidelines you might give to a friend with no education in nutrition, so they can determine their appropriate daily fat intake. Use no more than 300 words.

(I am in a raw diet at the moment-means 90% of my diet is raw and I managed to reduce my insulin intake in half, no chicken or duck, red meat once a month-B12 and fish 4 times/week so is not a vegan diet!)



An example 2000 kcal.raw diet for one day:

Fruit: 100g red peppers, 200g tomatoes, 300g oranges, 200g apples, 500g bananas, 100g pears, 50g peaches, 50g raspberries, 200g kiwi fruit, 100g strawberries, 50g mangos.

Green leafy vegetables and broccoli: 200g lettuce, 100g kale, 100g spinach, 100g broccoli.

High-fat foods: 200g avocado, 30g almonds, 20g hazelnuts, 10g flaxseed, 3g Brazil nuts

Other: 100g carrots, 100g peas.

This provides 700 mg calcium, 700g magnesium, 9mg zinc, 50g protein, 100 micrograms selenium, 3g omega-3 fatty acids, 8,000mg potassium, 1100g folate, 2 mg vitamin B1, 2.4mg B2, 6mg B6, 1100mg vitamin C, 30mg vitamin E, 6000g of vitamin A (from carotenoids) and about 1000g vitamin K.

It may be too high (80g) in fibre for some people, particularly the very old or the very young, and it contains arguably too little sodium (270mg). The iodine content may also be low, depending on the soil where the produce is grown. The balance of fatty acids is excellent. The diet contains no cholesterol or trans-fats and just 4% of calories as saturated fat while providing 5% omega-6, 1.5% omega-3 and 18% monounsaturated fat. Intakes of carotenoids, vitamin C, folate, vitamin K, vitamin E, magnesium, selenium and potassium are all much higher than in conventional diets and can be expected to promote health. Zinc and protein intakes are adequate. The calcium content has been adjusted for the low availability of calcium from some of the foods, particularly spinach, and is probably adequate. Vitamin B12 and vitamin D must be addressed separately.

I do think it's not JUST the fat intake we shall watch but also: The World Health Organization and regional Medical Associations recommend daily cholesterol ingestion less than 300mg and for people with cardiac condition less than 200mg. To avoid Cholesterol excess intake we may consider to take care of the ingestion of saturated and Tran saturated fats and the total of 10% daily. I think we must to have an holistic approach of nutrition:

1. Have 3 meals a day (not a fast food snack!);
2. Include variety of grains (rice, corn, buckwheat, amaranth, millet, quinoa) or starches as kumaras, potatoes- as close of natural as forms of Carbohydrates;
3. Eat at least 5 portions of vegetables and 4 portions of fruits;
4. Choose carefully the type of Protein and the combination that will give you energy and won't make you feel heavy or produce lots of gases (in Brazil we have the "Rice and Beans");
5. Have 1 portion of healthy fat as close as you can from natural state-avoid the processed and added hydrogen;
6. Avoid Soft drinks, processed juices, cakes and food that use white/processed sugar;
7. Less SALT!
8. Drink at least 2 l(6 to 8 glasses of water/day);
9. Exercise and avoid Alcohol and smoking.

I can suggest the traditional food pyramid to illustrate the food/fat intake too!

