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(Dietetic Perspective)

What are dairy products?

Dairy products are derived from mammalian milk, from cattle to goats and even sheep, that is used to produce food items like yogurt, cheese, butter and more.

Specific health benefits and disadvantages of milk to society?

Benefits:

1. 8g of protein per 8 ounces
2. Excellence source of protein
3. Major source of calcium
4. Excellent source of calories
5. The most bioavailable form of calcium. Easiest accessible form of calcium to be absorbed in the human body.

Disadvantages:

1. Some individuals have difficulty tolerating the components of milk because of genetic factors (lactose intolerance) - genetically cannot produce lactase enzymes to digest lactose milk sugar.
2. For mass production of milk in current industrial farming industries, grain fed cattle produced higher omega 6 fatty acids in the milk which may have detrimental health effects. For instance, too much Omega-6 can raise blood pressure, increase risk of clotting, stroke, heart attack, and fluid retention. Common signs of fluid retention or edema is swelling in the hands, ankles, and feet. A2 milk shows less omega 6 content in comparison to A1 milk.

How important is milk in society's diet currently?

Milk is a common source of calcium and protein. The product mitigates osteoporosis and if you were to eliminate milk there is the risk of reduced bone density. There are of course other sources of calcium like seafood and dark leafy greens but fluid milk is the most readily available/absorbable form of calcium. Taking milk out of diet can be risky for bone health, calorie intake and loss of high quality protein in diet.

What is dairy intolerance? What is it and why do humans have it?

A dairy intolerance involves the digestive system's inability to break down the sugar lactose found in milk. Lactose makes up around 2 to 8 percent of the milk. Instead of being broken down and absorbed through the small intestine like normal, the undigested lactose moves toward the colon and is thus broken by bacteria. The sugar is fermented by the bacteria which subsequently increases the amount of flatulence, bloating and irritable bowel syndrome. This gives the body that uncomfortable gut pain no one desires.

There are four main ways why the body can be subjected to intolerant symptoms:

1. Carbohydrate : lactose

Can be impossible to digest if an individual does not make lactase. The human body makes lactase enzymes based on how much lactose is exposed to the gut. Either the genetic inability to make lactase, or the body not exposed to lactose often can cause inability to produce lactase enzymes.

2. Protein: Casein & Whey (Cause allergic reaction)

An allergy is a response the body makes to a specific peptide that triggers an immune response. The two main proteins in milk are casein and whey. The two main types of casein are A1 beta casein and A2 beta casein. Human bodies react differently to each protein. A1 is more prone to negative inflammatory effects on the gut while A2 milk protein is known for its improved digestibility.

3. Fat

Free range grass fed cows produce omega 3 fatty acids in the milk which provide health benefits to the human body. Omega 3 fatty acids is an essential nutrient to prevent and manage heart disease, heart attacks, and strokes. Farming styles have changed because in today's corporate farms they are using grains (corn and soybean) to feed the cattle. Subsequently the milk produced has more omega 6 which is dangerous for the body to ingest due to its increased risk of blood clotting and other cardiovascular diseases.

Naturally the fat that's in the cow's milk comes out in large globules. Fat clumps together and rise to the surface of the milk. Milk processors try to fix this look of the milk which subsequently brings problems:

1. Homogenize

Milk naturally clumps together at the top to form a thick layer of fat which can be seen as less desirable to ingest thus processors homogenise the milk to break the globules and dispersed the fat evenly in the milk. The micro-globules are shown to cause more health problems than the large globules that naturally float to the top. The homogenized milk creates particles so small that they are absorbed and digested differently than the large unhomogenised milk particles, possibly leading to increased risk of inflammation and dissatisfaction to gut health.

2. Pasteurize

Pasteurization is the process of treating foods with heat of about 212 degrees fahrenheit to eliminate pathogens and extend the shelf life. The risk here is that when milk is being pasteurized it also kills the good bacteria that our gut would highly benefit from.

*Note that DO NOT BUY A2 milk with a shelf life of 6 month because it distorts the quality of the milk protein.

4. Packaging a Fat Containing Substance

Compounds used to make the plastic container leach into the milk thus people inevitably digest components of the plastic container. It is easy for particles to migrate into fatty foods. People do not often think of this to be a problem but this is something to consider when the human body is experiencing a reaction.

What is A2 milk?

The traditional A1 milk is known to cause inflammation and bloating to the gut. This discomfort has led scientists to find an alternative. A2 milk has shown that when digested it does not produce the same negative effects and that the human body can better tolerate the A2 protein. A2 milk is a type of cow's milk that lacks the form beta casein protein called A1.

Where does A2 milk come from?

A major component of milk is protein; casein and whey. The two forms of casein are A1 and A2. Most milk products hold more of the A1 protein but A2 milk specifically holds A2 protein. Thousands of years ago cows only produced A2 protein but ever since they were domesticated they predominantly produce A1 protein because the common cow, Holsteins, who only provide A1 milk make most milk per pound of grain. Now farmers need to specifically breed cows in order to get the A2 protein.

Why is there mass production of a1 protein?

Cows used to be grass fed naturally in the field. Today there is much less of that and more industrial farming in confined spaces. Cows are fed grain based products like corn and soybeans. Corn has much more food energy than grass thus will make the cows increasingly fat and produce more milk. Holstein cows are the main providers of milk that are subjected to this environment. Holstein cows produce the most milk per pound of feed and additionally produce only A1 milk. Although farmers know that A1 milk is not desirable for the human body, the production continues because A1 milk is easier to make which subsequently leads to increased revenue. Since Holstein cows produce the most milk on the market, when it all

comes down to it, A1 milk continues to be put on shelves because it costs less to make which means more money in the farmers pockets. I am sure if it was cheaper to make A2 milk and cows produced a higher quantity of it then there would be less A1 and more A2 milk on the market.

Is a2 milk more expensive?

Yes it certainly is. A2 milk cost about twice as much as A1 milk. Interestingly if you were to buy non organic A2 milk then the cost is similar to A1 milk.

Can you tell by the cow which will produce a2 protein?

Yes for instance the most commonly seen cows are Holsteins which primarily produce A1 milk. Other breeds like Jersey, Normande, Guernsey, and Brown Swiss are less commonly seen but primarily produce A2 milk.

Cows who produce the A2 protein undergo selective breeding. This means two cows who both make A2 protein are bred together.

Does A2 milk have the ability to reduce cardiovascular disease?

There have been correlations to A2 milk reducing the risk of some cardiovascular diseases. A2 milk has less fat content than A1 milk. A1 beta casein can increase the risk of fat build up in injured blood vessels thus increasing the probability of heart disease, stroke, and high blood pressure.

Incorporating A2 milk into the diet can promote better digestive health and reduce inflammation, digestive discomfort, and bloating. It is very important to keep our gut healthy. The gut contributes to a strong immune system and supports heart health, brain health, effective digestion along with an improved mood by allowing proper nutrients to be absorbed.

If one's gut health is not in superb condition be sure to stock up on probiotics. This will build our "good" bacteria through eating foods like yogurt, sauerkraut, kimchi, kombucha, pickles, and probiotic supplements.

Why is it important nutritionally to know about A2 milk

Ultimately it is important to understand your body's response to the dairy. The evaluation of the body can tell you whether your body will do better with A2 milk. For instance:

1. Dairy Intolerance

Our ability to digest lactose depends on our genetic material and gut health. Both A1 and A2 milk contain the same amount of lactose which is the sugar in the milk. The difference between the milk is not the sugar, it's the protein. If the body does not tolerate A1/ regular milk because of the lactose there is just as much of a chance the body will not tolerate A2 milk. But, if the body is experiencing an inflammatory response due to the milk protein then the A2 milk is more likely to relieve the discomfort.

2. A2 milk and dairy Allergy

An allergy is an autoimmune response. The body will believe the dairy substance is a foreign invader. Common signs of an allergy are swollen lips, tongue, eyes, and face. Also wheezing, tight chest, shortness of breath, cough, nose blockages, and more. These serious conditions can lead to death. If you have an allergy to milk do not try A2 milk.

3. A2 milk and dairy sensitivity

A dairy sensitivity is an immune response where protein based components of the milk are seen as a foreign invader thus producing an inflammatory response. A2 milk can be better tolerated if you have a sensitivity to regular cows milk (A1 protein) since the proteins are different.