The american diabetes association recommends that people with diabetes who need e...

Health & Medicine, Alcoholism

Chapter 11: Disordered Eating

Question 1:

People with anorexia nervosa have deficits in their dietary intake. They do not take in the proper amount of nutrients and mineral and thus have abnormal bone density levels, which can affect the healing of bone and connective tissue. Studies have connected bone loss to injuries and diseases of the skeletal system later in life. When she gets old she will be at higher risk of breaking her bones and of developing osteoporosis.

Question 2:

The teen-aged girl is very active both in and out of school. She is taking advanced classes, is competing in tennis, and also pursues music. However, although she appears to be enjoying her life, she is also complaining that she does not have enough time to do everything she wants to do. She also thinks her parents are too strict. All this indicates that the teen-aged girl is under a lot of pressure. High levels of anxiety have been correlated with anorexia nervosa, so unless this student slows down, she is at high risk of developing a serious case of anorexia nervosa.

Question 3:

People with develop bulimia nervosa alternate dieting with binging, followed by induced vomiting. The problem seems to lie in a dieting regimen that is too severe to tolerate; the dieter then loses control and gorges on food. But the urge to keep their weight under control, and guilt over blowing their diet, drives bulimiacs to rid themselves of the food consumed by forcing

themselves to vomit it back. The cycle repeats itself every few days for at least 3 months.

Binge-eating disorder shares some characteristics with bulimia nervosa. Both bulimia nervosa and binge-eating disorder are characterized by cycles of uncontrolled binging where large amounts of food with thousands of calories is consumed, followed by feelings of guilty and depression.

However, people with bulimia nervosa maintain their weight within normal range whereas those with binge-eating disorder are over-weight or obese. In addition, people with binge-eating disorder do not vomit or go on extreme diet or exercise regimes. In addition, the cycles have to repeat themselves for a period of 6 months in order for the behavior to be diagnosed as binge-eating disorder.

Chapter 12: Sugars

Question 1:

Sugar alcohols cannot be broken down completely in the gastrointestinal tract so they remain undigested for long periods of time. Sugar alcohols can also ferment in the intestines and fermentation produces gas. The gas fills the intestines, which causes you to feel bloated. The gas escapes through the anus as flatulence.

Question 2:

No, I am not particularly excited over this product. First of all, the fact that rebaudioside is derived from a natural source does not meet that rebaudioside is itself “ natural,” so I see it as just another artificial

sweetener.

Second, there are many artificial sweeteners already out in the market and although none of them promote tooth decay, which is a good thing, the use of artificial sweeteners has not been shown to promote weight loss either. Some of them taste strange. All are just empty calories, which do not provide you with any energy.

Question 3:

The polysaccharides that provide the most calories in our diet are the simple sugars. Although both sugars and complex carbohydrates provide the body with 4 calories per gram, the simple sugars are easier to digest, which means that less energy is being used by our bodies to digest them so the net caloric input by simple sugars is higher than by the complex carbohydrates. Dietary fibers provide 2 calories per gram; it is not their role to supply energy. So, the ranking from highest to lowest caloric input is: simple sugars, followed by complex carbohydrates, followed by dietary fiber.

Question 4:

Fruits, and non-starchy and leafy vegetables without glucose, do not increase your blood glucose concentrations because these types of carbohydrates have a very low glycemic index. Fruits have fructose and fructose does not require insulin to pass into the cell.

Question 5:

The glycemic index for sucrose is low because the sucrose is a disaccharide made of one fructose and one glucose molecule. Only glucose requires insulin to pass into the cell.

Chapter 13: Diabetes

Question 1:

Therefore, an overweight individual who weighs 220 lbs should lose 7% of 220 lbs or: 220 lbs X . 07 = 15. 4 lbs OR 15 lbs and 6. 4 ounces.

Of course, there are other factors to take into consideration, including the other physical characteristics of the person: there is a big difference between a 5’3” person who weighs 220 lbs and a 6’3” individual carrying the same weight.

Question 2:

The glycemic index of an apple is 38. That of fructose is 19. The glycemic index is calculated by measuring how much the level of glucose in the blood goes up when 50 grams of a food containing carbohydrates is eaten.

Thus, it seems that the sugar in the apple does not all come from fructose. Some of it is probably glucose, which has a GI of 100. So the formula for the relative amount of the two sugars is 19x + 100y = 38. Or, to approximate:

If half the sugar were fructose and the other half were glucose, the apple’s GI would be 59, but it is much lower than that. If 95% of the sugar were fructose and 5% were glucose, 37. 24 GI would come from fructose and 2 GI from glucose. So, there is much more fructose than glucose in apples. Of course the whole thing would change were we calculating the amount of grams of each sugar. But either way, there is more fructose than glucose in an apple.

Question 3:

The GI of couscous is 61 while the GI of pasta is 48. The difference could be that couscous had more enriched flour while pasta has more whole grained coarse-ground flour.

Question 4:

Hypoglycemia refers to low blood sugar levels. When blood sugar levels drop below their original levels, the adrenal gland response is to release adrenaline that inhibits a further drop. Adrenaline is a hormone and a neurotransmitter. It increases heart rate, constricts blood vessels, dilates air passages and causes the “ fight or flight response.” These symptoms are expressed as irritability and confusion.

Question 5:

The ants were attracted to the sugar in the urine. People with either Type 1 or Type 2 diabetes have high levels of sugar in the blood. That means that the cells cannot the sugar they need. So then the body breaks down muscle tissue in an effort to get energy to the cells. This causes the weight loss.

Chapter 14: Alcohol

Question 1:

0. 789 g= 1mL

14g= X= (14gX1mL)/. 789g= 17. 74mL of alcohol in a 12-oz beer.

12oz X 29. 6 mL= 355. 2 mL of total volume

Therefore ABV= 17. 74mL/355. 2 mL=. 049= 5%

Therefore, the % alcohol content in a 12-oz beer is 5%.

Question 2:

First of all, the values in the table represent average values of alcohol drank and absorbed at an average rate. How fast was the person drinking? Was the person eating while drinking?

Different people absorb alcohol at different rates. People also drink at different rates; it takes the body several hours to break down the alcohol, and as a person drinks more, the lag time between the alcohol intake and the use of the alcohol by the body increases; that is, it takes longer for the body to absorb the alcohol.

People also have different bodies. Women and people with low body weight have less water in their bodies so they absorb alcohol at a lower rate.

Question 3:

One factor is the sex of the person: women's bodies have less water than men's so they will absorb alcohol at a lower rate.

Another factor is age: elderly people's bodies also have less water.

Question 4:

Each gram of alcohol has 7 calories.

ABV= alcohol/total volume

12oz X 29. 6 mL= 355. 2 mL of total volume

So, for the 7% beer we have: xg/355. 2mL=. 07; therefore, x= 25g.

Thus, the amount of calories is 25x7= 175 calories

And, for the 4. 5% beer we have: xg/355. 2mL=. 045; therefore, x= 16g.

Thus, the amount of calories is 16x7= 112 calories

THUS, a 7% ABV has 175-112= 63 more calories than a 4. 5% ABV.

Chapter 15: Proteins

Question 1:

Proteins are the building blocks for many types of enzymes that help the body build and repair itself. Immunoproteins are proteins of the immune system that fight infection. The immune system is the body's defense mechanism.

Protein deficiency would decrease the amount of immunoproteins, so the body would not be able to fight an infectious disease.

Question 2:

Probably her nitrogen excretion would decrease because her protein needs would go up. The nitrogen from the metabolism of proteins would be used for the production of proteins to sustain the fetus. To sustain the pregnancy the woman would need to make more proteins.

Question 3:

A DNA mutation that caused changes in the genes sequence would alter that gene so that either the protein it made would be different and would function differently, or it could not make the protein at all, or make too much of it.

The mutation could result in a protein deficiency or in toxic levels of the protein or in a different function of the protein. All these could have serious effects on the function of the body.

Question 4:

If a person begins to eat less carbohydrates or fats, which are the main sources of energy, then the body would have to try to get some of its energy from proteins. When proteins are broken down to produce energy, the nitrogen is removed. Some of the nitrogen is used by cells to make more proteins, but the excess in excreted in urine.

Question 5:

For the body to make proteins it has to have all the essential amino acids at the right levels. If even one protein is missing, protein formation would stop; the whole process of making proteins would shut down.

There is no way that this person could meet their protein needs because the protein source that the person is consuming provides only half the necessary amount of the essential amino acid. The body might be able to make some protein for a while, but as soon as this one amino acid is depleted or goes below the amount needed by the cells, the production of protein would stop altogether.

For protein formation to occur all the amino acids have to be present at the proper levels required by the cells.

Question 1:

The food chain starts with primary producers, which are the plants. Next come the herbivores, or primary consumers, followed by the secondary

consumers, and so on. As we move up the food chain 90% of the available energy is lost to metabolism. That means that a herbivore uses 90% of the energy it gets from its food for its own survival and there is only 10% available for the secondary consumers, and so on.

So, it takes a lot of energy to grow, say, a cow. And we still have not taken the energy it takes to provide water for the cow.

Vegans restrict their diets to plant products, so they do not get any fat from eggs or milk products. Their caloric intake is low so the likelihood of exceeding the recommended caloric intake is also very low.

Question 3:

Foods that are frequently fortified with minerals and vitamins include: peanut butter and any other nut butters (cashew, almond, walnut), breakfast cereals, meat analogs, meat extracts, many types of milks (goat, cow, buffalo), rice and rice products, soy products, and many other products in the market.

Question 4:

If you combine Food A with Food B you would need 50% more of the missing amino acid f AA3 for these proteins to be complementary.

If you combine Food A with Food C you would need 40% more of the missing amino acid f AA2 for these proteins to be complementary.

If you combine Food B with Food C you would need 60% more of the missing amino acid f AA2 for these proteins to be complementary.

Question 1:

Celiac disease is an allergy not to wheat in general, but to a particular component in wheat: gluten. It is an autoimmune disease. So, this means that if you are not allergic to gluten, you do not have celiac disease, even though you are still allergic to some other component in wheat.

Question 2:

Antihistamines because many foods contain histamines and antihistamines neutralize their effect and are often used to treat food allergies.

Question 3:

A person with numerous food allergies is most likely allergic to various chemicals in the food, like histamines, sulfites, or gluten, to name a few. Genetically modified foods are an unknown quantity, in that they could have chemicals not normally associated with the unmodified form of the food. Labeling these products would help people avoid these foods.

Question 4:

Flaxseed oil would spoil faster than olive oil, which would spoil faster than lard.

Saturated fats are more stable than unsaturated fats, therefore they spoil at a slower pace.

Polyunsaturated fats, like Omega-3 fatty acids are less stable than monounsaturated fats. Flaxseed oil is polyunsaturated whereas olive oil is monounsaturated.

Question 2:

Partially hydrogenated oils have different molecular configuration caused by the hydrogen bonding to adjacent carbons in the molecules. The configuration changes from " cis" to " trans."

Question 3:

[(14 g of fat X9 calories per gram of fat)/390]100= 32. 3 % of total calories from fat

versus

[(12 g of fat X9 calories per gram of fat)/270]100= 40 % of total calories from fat

Question 4:

First, 1 tbsp of mayonnaise has 11. 0 grams of fat and 99% of the total calories come from fat. One gram of fat has 9 calories. So, one tbsp of mayonnaise has 99 calories.

If a 160 lb person burns 4. 5 calories per minute of walking, to burn the 99 calories in 1 tbsp of mayonnaise, the person would have to walk 99/4. 5= 22 minutes

Question 5:

The " reduced cholesterol" would contain at most: . 25 (40mg standard cholesterol)= 10 mg of cholesterol (75% less)

The " less cholesterol" would contain at most: . 75 (40mg standard cholesterol)= 30 mg of cholesterol (25% less)

Chapter 19: Nutrition

Question 1:

The blood cholesterol levels dropped down 45 mg/dL for total cholesterol and 55 mg/dL for LDL, and went up 15 mg/dL for HDL.

The magnitude of the reduced risk of heart disease for the drop in total cholesterol is from a high risk category (borderline) down to desirable/optimal risk.

The magnitude of the reduced risk of heart disease for the drop in LDL is from a very high risk category (borderline) down to borderline high risk.

The magnitude of the reduced risk of heart disease for the rise in HDL is from a borderline high down to a desirable/optimal risk.

Question 2:

B: Total cholesterol, 220 mg/dL, LDL cholesterol 180, HDL cholesterol 30 mg/dL

The LDL is the same for both profiles, so this does not come into play. So we need to determine whether the higher level of HDL, the “ good cholesterol,” in blood lipid profile A counters the higher total cholesterol of this profile.

HDL helps get rid of cholesterol from the blood by transporting it to the liver. Levels above 40 mg/dL for men and 50 mg/dL for women are considered to be good for the heart. High levels of HDL affect total cholesterol, but that doesn't matter.

Question 3:

The consumption of trans fat raises blood cholesterol levels more than the saturated fats do. The higher the blood cholesterol, the likelier it is that plaque will collect in the arties raising the risk of heart disease.

Question 4:

Total cholesterol is at a desirable/optimal risk level: affected by LDL/HDL

LDL is at a near optimal risk level: whole grain, vegetables, fruits---high carbohydrate diet

Question 4:

Triglycerides are at high risk levels: high carbohydrate diet, high alcohol intake

The type of diet that can account for this type of lipid profile is a high carbohydrate diet.

Chapter 20: Vitamins

Question 1:

The football player should take vitamin C to speed the repair of his ACL, because

vitamin C is a coenzyme that activates the proteins that build and maintain ligaments.

Question 2:

Deficiency in vitamin C and vitamin K may cause people to bruise easily.

Vitamin K helps the clotting of blood during bleeding, thus, vitamin K deficiency causes bruising because the blood cannot clot and forms hematomas.

Question 3:

Vitamin A is the vitamin that is only found in animal products.

The phytochemical that this vitamin can be synthesized from is beta-carotene.

Question 4:

Choline is not sensitive to heat so it is not lost.

Question 5:

The 4 ounces of chicken in the jambalaya provided niacin in the largest quantity:: AI/RDA: 3oz of chicken provide 7. 9 milligrams of niacin; 4 oz provide 10. 5 milligrams of niacin.

3 oz of pork provide . 8 milligrams of thiamine, the highest level shown; 4 oz of pork provide 1. 1 milligrams of thiamin.