

Set Task Assignment 4

Food	Weight of Contents(g)	Calories(Cal)	Kilojoules(Kj)	Joules(j)
Goji Berries	250	205.95	865	205950
Chia seeds	150	667.86	2,805	667860
Brazil Nuts	250	519.64	2,182.5	519640
Rice Cakes	150	585.71	2,460	585710
Raw Cashews	250	451.78	1,897.5	451780
LSA(Grounded Linseed, Sunflower Seed and Almond)	200	1133.33	4,760	1133330
Roasted Buckwheat	500	1841.66	7,735	1841660
Almond Butter	300	1891.42	7,944	1891420
Oven roasted and salted Macadamias	200	1476.19	6,200	1476190
Banana Chips	300	1550.71	6,513	1550710

1 Calorie = 4,200 Joules = 4.2 Kj

1Kilojoule(Kj)=1000 Joules

LESSON 4 – ASSIGNMENT

1. Name two foods you found for sale in your set task, list their calorie content and convert it to joules, showing your calculations.

-Goji Berries 1Cal- 4.2Kj

X-865Kj

X= $865/4.2=205.95$ Cal

1Cal-1000Joules

205.95Cal-Y

Y=205.95 x 1000=205950 Joules

-LSA 1Cal-4.2Kj

X– 4,760Kj

X=4,760/4,2=1133.33

1Cal-1000Joules

1133.33-Y

Y=1133.33x1000=1133330Joules

2. Complete the following sentence:

Basal metabolic rate (BMR) is the base rate at which your body consumes calories for basic metabolic functions like maintaining internal temperature, repairing cells, pumping blood, powering muscles at rest, etc. In other words, it is the rate at which your body consumes calories when at rest.

3. Describe how any two different food groups of your choosing affect metabolic rate.

Our metabolism is the term to describe how our body transforms energy (think burns calories) to be able to run all its functions to keep us alive. Our metabolic rate is the rate at which our body burns calories.

Protein: the increase in the ingestion of proteins may be associated to factors that may favour weight loss, weight loss maintenance and an increase in insulin sensitivity. Some studies have shown that such ingestion of protein leads to an increase in diet induced thermo genesis, increasing energy expenditure.

According to some authors, the increase in the level of blood amino acids affects the satiety centre, resulting in appetite reduction. The amino acids also stimulate insulin secretion, which in association with glucose shows a synergistic effect, resulting in the reduction or maintenance of blood glucose levels. However, the mechanisms involved in all these effects, as well as the adverse effects of long term high protein ingestion, like the increase in renal damages and the greater cardiovascular diseases risk have not been well established yet.

Carbohydrates: the CHO is the most important energy source and storage form in the body as glycogen (in muscle or liver), the consumption of CHO is indicated before, during (when feasible) and after exercise. After the activity, the enzymes that work on glycogen resynthesis are at maximum activity. This effect lasts for about an hour and so it's important to start soon CHO intake end of the activity, to seize this moment of high absorption to facilitate the restoration of glycogen, especially if the athlete is training or other evidence on following. If endurance athletes burn much fat during the activity, what is the importance of CHO? The reactions of oxidation of fat depend on the CHO to happen. This concept does away with the prejudice that the CHO fatten actually need them for both for exercise and weight loss. Even in long races, glycogen is important for changes of pace, as in a sprint to the end of a race or climbing a mountain cycling event. The deficit of CHO is a limiting factor for activities of all intensities.

a) Moderate intensity (below 75% VO₂ max): In this case the limiting factor is the provision of glucose by the liver. These activities can be maintained for long periods (more than 3 hours) and a decrease in blood glucose. Even if the brain is a good consumer of lactate during exercise, the nervous system uses a lot of hepatic glucose so there is a security system that allows glucose to the nervous system.

b) Intense Intensity (above 75% VO₂ max) activities are held for up to 2 hours. In these situations the limiting factor is the muscle glycogen, rather than circulating glucose. These activities lead to depletion of muscle glycogen and prevent the maintenance of exercise. Were supplemented during the activity, the increase in muscle glycogen reserves must be done by feeding. Baseline values that are 300-400 g can go up to 900 g with a diet high in CHO.

c) Maximum Activities: In this case the limitation is not properly in the absence of energy substrate, but in the anaerobic metabolism of muscle glycogen. The degradation of glycogen in this activity leads to an acidosis that results in fatigue. No food strategy was established today to change this. Jobs that used alkaline solutions to combat the acidosis did not have satisfactory results.

4. Select three factors other than food intake that can affect digestion. Describe in single sentence dot points how each affects digestion. Use no more than 5 points for each factor.

Factors Influencing Digestion and Absorption of Nutrients:

Any number of factors may result in maldigestion or malabsorption, either of which will diminish nutrient delivery to needy cells. It is important to consider that a problem early in the GI tract (i.e., the mouth or esophagus) is likely to create a cascade of problems later in the GI tract. For instance, the pain associated with esophagitis (an irritation in the esophagus from frequent vomiting, frequent alcohol consumption, or gastric reflux) may inhibit normal drinking patterns to the point of changing normal bowel habits, causing colonic irritation and, of course, dehydration. The most common problem areas include the following:

* Mouth: irritations, dental caries, mouth sores: Diseases of the Mouth Any condition that affects the mouth can have an impact on food intake. Dental caries, cold sores, sensitive gums, and swollen tongues all have the potential of limiting food intake and, therefore, restricting nutrient and fuel exposure to needy tissues. Regular visits to a dentist will resolve the majority of these problems. However, a B-vitamin deficiency (particularly deficiencies of vitamins B2 and B6) may also lead to mouth and tongue problems that inhibit food intakes.

* Small intestine: malabsorption from celiac disease or Crohn's disease or other inflammation (often from alcohol): Celiac disease is an intestinal intolerance of the protein gluten (found in wheat, barley, rye, and oats). It is associated with dermatitis herpetiformis, which occurs in 70 to 80 percent of people with gluten-induced GI tract damage.

* Large intestine: Crohn's disease irritation, with possible bowel obstruction associated with a fluid and electrolyte imbalance: Crohn's Disease Crohn's disease is a regional inflammation of the ileum but may affect the entire small or large intestine. It is associated with abdominal pain and frequent diarrhea; with bowel obstruction a serious problem for the Crohn's patient.

5. (I'm using my data collected in my everyday calculation!!!)

I will calculate for me: Height 161cm and 49 Kg

BMI: 18.9

Your ideal weight is: 58.32

140kj -1kg weight

My ideal (roughly) intake is 6,860KJ daily

When I run(8Km/h) I burn 820.6128KJ/ 30min.

- Stretching class I burn 307.524KJ/30 min.,

- Biking 430.5336KJ/ 30 minutes;

- Cooking 307.524KJ/ 30 min.

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4)Rice Cakes	150	585.71	2,460	585710

To burn 100g of:	Time:	Running	Stretching Class	Biking	Cooking
-Buckwheat 1,547KJ		56.55min	2hs51min	2h19min	2hs51min
-Banana Chips 2,171KJ		1h32min	3h52min	2h52min	3h52min
-Macadamias 3,100KJ		2h28min	5h04min	4h	5h04min
-Rice Cakes 1,640KJ		1h04min	3h06min	2h30min	3h06min

6. List five negative consequences of mismatching calorie intake with physical activity.

Points to consider when planning the calorie intake and physical activities:

- Weight loss weight gain is: $\text{Calorie intake} - \text{Physical activity} = \text{weight loss or weight gain}$. The more calories you consume the more weight you will gain;
- Exercise must to be adapted for the goal; regular exercise should not to be neglected;
- Metabolism and biorhythm must to be taken in consideration when matching calorie intake and physical activities;

Negative consequences of mismatching:

1. Protein-energy malnutrition: The protein-calorie malnutrition is caused by an inadequate intake of calories, resulting in a deficiency of protein and micronutrients (nutrients required in small amounts, such as vitamins and some minerals). Rapid growth, infection or chronic disease may increase the need for nutrients, particularly in children who are already malnourished;
2. Malnutrition: It is a deficiency of essential nutrients and can be the result of an insufficient intake due to poor diet, poor absorption of food intake of the intestine (malabsorption), abnormally high consumption of nutrients by the body, or the excessive loss of nutrients by processes such as diarrhea, bleeding (hemorrhage), renal failure.
3. Over nutrition: It is an excess of essential nutrients and can be the result of overeating (overeating), or the excessive use of vitamins or other supplements.
4. Change of Energy levels depending of the intake of wrong quantities and types of carbohydrates, proteins and fats;
5. Effects on immune system, leading to develop disease/sicknesses;