

They should then be placed in a polythene bag. Seafood should also have its entrails removed and washed, then placed into polythene bag as well. By placing it polythene bag, it prevents cross-contamination between various seafood and further cross-contamination can be prevented by placing bags of seafood on a tray in the freezer so as to inhibit the possibility on the growth of micro-organisms as freezer will form ice, making condition unfavourable for them due to lack of moisture. Thus, they will not multiply in such extreme low temperature.

Question 2: Heat Transfer and Cooking Method

2 There are many methods of cooking food.

- (a) Name and describe different methods of heat transfer. [5]
 - (b) Discuss the advantages and disadvantages of microwave cookery. [5]
 - (c) Describe the effects of moist and dry heat on starch. [5]
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- (a) There are three methods of heat transfer, mainly conduction, convection and radiation. Conduction refers to the transferring of heat without any medium but directly from the heat source to food (from the hotter part to the cooler part). This allows food to be cooked as heat energy would be converted to kinetic energy, causing particles in food to vibrate faster and thus, producing heat to warm and cook food. Another method is via convection whereby heat is transferred through currents of water. Food can be cooked as the hotter part of the liquid would rise, while cooler part of liquid will sink. This is known as convection current which allows the food to eventually be cooked. Lastly, radiation is another method whereby heat is not transferred directly on to the food or across any medium but via rays emitted from machine such as microwave oven. These rays can be infrared rays which would penetrate into the food to heat and cause vibrate to the molecule, to vibrate molecules to produce heat due to friction during vibration. This can eventually allow food to be heated or thawed or even cooked.
- (b) Microwave cookery are generally useful as they can allow food to be thawed or reheated rapidly due to the ability of the ray emitted by microwave. Not only that, microwave cooking is also a healthy method of cooking as it does not involve the usage of oil other saturated fats. There will also be lesser loss of nutrients in the process unlike boiling (where water-soluble vitamins are lost). They are also a quick method in cooking as ready-prepared meal can be eaten after a fast reheating through microwaves. However, microwave cooking may not be as advantageous as it seems as not all type of food can be cooked by microwave such as water and eggs.

Research also proven that prolong usage of microwave may cause health problems. Furthermore, food cooked through microwave may taste bland unless the food is well-seasoned.

- (c) Under moist heat, starch may granules and starts to absorb water and swell. Starch may eventually burst causing a change in structure. This process is known as gelatinisation. Under dry heat, texture of baked products may also be formed due to gelatinisation. In dry heat such as baking process, dextrinisation will also occur whereby starch are hydrolysed due to the heat produced, forming smaller chains of dextrans which produces a texture and flavour to baked products. Gluten may also developed from starch and may expand during heating, giving the cake or baked products a structure. Caramelisation and Maillard Browning occurs as proteins had reacted with the starch. Gelation may also occur in moist heat, whereby a semi-solid mixture would be formed as the insoluble amylose net had begun to trap liquid, to form gel.

Question 3: Food Labels

Reading and understanding food labels will enable one to make healthier food choices. Discuss the statement with relevant example. [15]

Food labels are an imperative tools and mandatory information that are stated on different food products. Generally, food labels are useful as it allows consumers to make choices based on the information stated on the packaging of the product. One example is the net weight. Net weight refers to the weight of the product, excluding the packaging. With availability of net weight, consumers are able to make their decisions based on the weight to see which products is more value of money as compared to others. This may allow consumers to choose the one which is more value for money and higher in quantity to achieve enough nutrients from the product itself, allowing the person to have healthier choices. For instance, cheese. Consumers may choose to have milk with higher quantity (heavier) but a lower price whilst acquiring suffice calcium which is important for strong bones and teeth.

Another information found on the food labels to assist decision of healthier food choices is the nutritional claims. Nutritional claims comes in different way, depending on the product. This is oftenly used to attract customers as these claims always means that the product has been further processed to allow it to be healthier. Nutritional claims includes 'free', 'lite', 'reduced', 'high in', 'enriched', 'fortified' and 'low'. Such nutritional claims allowed consumers to make a healthier food choice since they are much more healthier than the original product. For instance, milk can be processed, making it low in saturated fats and fortified with Vitamin D. With these, there are healthier as compared to the original milk without much process, as saturated fats may promote cardiovascular disease and a reduction will reduce the chances. Similarly, Vitamin D deficiency can be reduced especially when fortified with Vitamin D in the product. Thus, food choice will be healthier. Consumer will also be attracted to these nutritional claims and healthier food choice, which is due to availability of the food labels.

Thirdly, the nutritional information panel which is also found on the food label, allows consumers to have a healthier food choice. This is because consumers are able to make comparison between similar products and see which product contains the highest or the lowest in terms of nutrients through serving size, due to the explicit information found on the nutritional information panel. An example will be choosing biscuits, some biscuits have higher fibre content than others, while others have higher quantity of fats (which is unhealthier). Hence, with the availability of nutritional information panel, consumer can make comparison between the products and select the ideal one, that is healthier.

With the nutritional information label, consumer can also plan a well-balanced meal. This is made possible due to the value of each nutrients present in the food products (in servings and per 100g/ 100ml).

As such, consumers can utilise these information to plan a well-balanced meal so that they will not exceed the recommended amount of nutrients he/she should consume within a day (such information can be retrieved from the recommended dietary allowance). Hence, this will eventually allow a person to have a well-balance and healthier meal or food choices as they can know how much should they consume or what suits them better to meet the requirement.

Next, ingredients list on the food label can also assist consumer to make healthier food choices after reading and deciphering it. Some ingredients within the food are rather unhealthy such as presence of a myriad of additives (whereby too much consumption of it will have negative effect on the body). Others may have substiution to provide flavour to food via herbs and spices. As such, ingredients list allows consumers to know which product has which ingredients, so that he/she can have the healthiest option rather than unhealthy one with lots of additives. For example, when choosing canned food. Some canned food have presence of additives such as concentrated salt or sugar solution, while others have dilute ones. Consumer can know whether if it is concentrated or diluted through the ingredients list and thus, knowing which is better, allowing them to have healthier option.

Lastly, food label can allow consumer to know whether have healthier food choice is through the Singapore Healthy Diet symbol. With this symbol, consumer can know whether if the product is healthier than others as the symbol are usually awarded to food with lesser salt, sugar or fat content and higher in fibre, vitamins, etc. Hence, consumer will prefer those with Singapore Healthy Diet Pyramid symbol, which shows that they will have a healthier choice due to food labels.

Question 4: Meal Planning (Infants)

Explain points to consider when planning, preparing, cooking and serving meals for infants (birth – 2 years old). [15]

New-birth to the age of two years are usually classified as infants. These group of people usually a still undergoing growth and development. Hence, it is important that they have a well-balanced meal which are having the nutrients in the right proportion. These group of people requires Vitamin D, calcium and phosphorous in large amount as they are the key in the development of strong bones and teeth, whereby they can usually be acquired from milk powder or the breast milk (which is more ideal since they contains natural immunity against diseases).

Not only that, they will also need more of Vitamin C and high biological value proteins as they are responsible for the replacement of worn-out tissues as well as the growth of new tissues to allow the organs to work even better. Vitamin C can be acquired from fruits and vegetables while high biological value proteins can be acquired from soya bean. However, these infants may not have teeth or have weaker jaws and hence, fruits and vegetables can be pureed to make it easier for consumption. Soya bean milk drink can also be given to these infants since no chewing or biting is required. Through this, they will be able to obtain Vitamin C and HBV proteins.

Not only that, they need to consume Vitamin B9, B12 and Iron in large amount as they are responsible for the manufacture of new red blood cells and cells. These red blood cells are important as it will allowed gaseous exchange to occur whilst allowing blood to flow around the body. Otherwise, they may develop problems such as anaemia overtime. B9, B12 and Iron are usually from meat-products and thus, they should only be given when their teeth have fully developed. Before that, they should acquire these from the milk as well.

When these infant had reached approximately seven months, it is the time whereby they can be given pureed food to allow them to acquire the nutrients as stated above. However, they should still be given milk products so that they will acquire all of the nutrients they may need for development.

As they grow up and their teeth have been completely formed, they should be given food to chew so as to train their jaw muscles for chewing. These can be simple food such as baby-bites (a form of biscuits customised for babies) or toast. These infant as they grow may also begin to learn and walk and during this period of time, they should be given carbohydrate to provide them with the necessary energy to practice walking.

They should also have fruits and vegetables to prevent problems such as constipation and have suffice amount of water to prevent dehydration. However, sweet drinks should be omitted as they may be prone to develop obesity and thus, the most ideal drink for them is still plain water and milk.

When preparing meal of the infants, they should have small portion of food rather a large one and thus, slicing is often required. This is because they may not be able to chew or swallow a large piece of food at once as their jaw muscles are not as flexible yet and thus, smaller piece of food will facilitate chewing and digestion process. Bones should also be removed from the food source (such as fish or meat) as they have yet to have to ability to differentiate between bones and meat, and it will cause adverse consequence if these infant had accidentally swallowed bones.

Meals prepared and given to them should also be given in a small and frequent that are colourful (such as using vegetables of different colours – carrot, broccoli, corn) to stimulate their appetite. They are not recommended to have only three meals that are full as their digestion process have yet to be advanced unlike adults or teenagers.

As mentioned earlier, food should be pureed or rather should be soft since they have yet to developed strong jaw muscles. Thus, the ideal cooking method for them would be boiling or steaming since they are methods which can make food soft due to heat.

Boiling may often induce the lost of water-soluble vitamins into the water and thus, water used to boil vegetables such as broccoli should be used to make soup from it. This can increase the nutritional intake of the infant whilst reducing wastage of food and deficiency to the maximum. Not only that, boiled food usually taste bland and thus, minimal seasoning should be done before hand to allow flavour and aroma to be introduced.

Steaming are usually for the meat-like product such as fishes whereby they can allow food to be soft overtime. However, just like boiling, food will usually tastes bland and thus, they should be well-seasoned before hand to allow food to induce flavour and aroma.