

Unit 3.2.4

The Role of Food in Influencing Mental Health

Key Knowledge and Key Skills

Key Knowledge 3.2.4

The role of food in influencing mental health.

Key Skills 3.2.5

Discuss links between food, behaviours and effects on health and wellbeing.

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Key Terms and Definitions

Anxiety is a mental illness where people worry excessively about everyday activities. It can lead to increased blood pressure, sweating, trembling, constant worry, and feeling weak and tired.

Depression is a serious mental illness where people constantly feel sad and show little interest in participating in everyday activities.

Dopamine is a hormone released in the brain that makes people feel good.

Hormones are chemicals produced and released by the body. They carry messages from one part of the body to another and coordinate various processes in the body, such as appetite and mood regulation, growth and development, sexual reproduction, bone density, and even sleep patterns.

Neurotransmitters form part of the nervous system; they are often called chemical messengers because they transmit messages throughout the body. A significant amount of neurotransmitters are found in the brain.

Oxidative stress occurs when there is an imbalance of free radicals and antioxidants in the body and can cause cell damage.

Serotonin is a hormone that helps to stabilise moods and controls wellbeing.

The term **mental disorder or illness** describes conditions where changes in emotion, thinking, and behaviour influence a person's social, work, and/or family life.

According to the World Health Organization, **mental health** is “a state of well-being in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community” (Beyond Blue, 2022).

Mental Health

The Australian Bureau of Statistics has reported that from 2020 to 2021, 17% of Australians aged between 16 and 85 years met with a health professional regarding a mental health issue (Australian Bureau of Statistics, 2021). These statistics indicate that the number of people with mental health issues in Australia is increasing. However, this may be due to more people seeking help for mental health conditions and the negative impact of the COVID19. The most common mental illnesses include anxiety, depression, psychotic disorders such as schizophrenia, and substance abuse.

Several studies have now discovered that the quality of a person's diet can significantly impact their mental health and wellbeing.

Watch this video about a study by Deakin University:<https://youtu.be/dodClrT9fgA>

Watch this video about the Food Mood Centre at Deakin University: <https://youtu.be/8pOLb3H3BjQ>

Why Does Food Impact Mental Health?

Hormones are chemicals produced and released by the body. Hormones coordinate various processes in the body, such as appetite and mood regulation, growth and development, sexual reproduction, bone density, and even sleep patterns. The hormones dopamine and serotonin are known as neurotransmitters and promote positive emotions.

Consuming a well-balanced diet high in antioxidants, B vitamins, omega-3, probiotics, and protein may boost dopamine and serotonin production in the body. Dopamine and serotonin are often referred to as the 'happy' hormones. They play a role in regulating emotions and helping people feel positive, motivated, and productive. Factors such as consistent sleeping routines, regular exercise, and a nutritious diet increase dopamine and serotonin levels in the body. However, eating a diet containing processed foods high in fat, salt, and sugar can reduce these hormone levels.



Foods that Promote Mental Health

Foods that contain Antioxidants

An imbalance between free radicals and antioxidants in the body can cause damage to the brain cells and reduce the amount of dopamine and serotonin produced. Consuming brightly coloured fruits and vegetables high in antioxidants may help prevent these problems and increase the amount of dopamine and serotonin the body produces. Foods high in antioxidants include avocados, berries, broccoli, carrots, cauliflower, citrus fruits, kale, mangoes, nuts, radishes, red capsicum, spinach, and sweet potato.

Foods that contain Vitamins

Vitamins play important roles in the physical and mental health of the body.

Vitamin B12 plays a vital role in the central nervous system. It is involved in the production of serotonin and other neurotransmitters in the brain. A vitamin B12 deficiency has been found in people who experience depression and anxiety (Young, et al., 2019). Animal sources such as dairy products, eggs, fish, meat, and poultry are excellent sources of vitamin B12. Other foods fortified with Vitamin B12 include some breakfast cereals, plant-based meats, soy milk, and yeast spreads like Promite or Vegemite.

Folate is also essential in mental wellbeing because it helps the formation of neurotransmitters, including dopamine and serotonin (Miller, 2008). It can also assist with depression, irritability, and mental fatigue because it can be broken down by the body and used as an energy source. It has been found that low folate levels can increase depression symptoms. Folate is found in various fruits and vegetables, including asparagus, beetroot, broccoli, Brussel sprouts, citrus fruits, eggs, leafy greens like spinach and kale, and legumes. Beef liver, fortified breakfast cereals, nuts, and seeds also contain significant amounts of folate.

Vitamin D is produced by the body when the skin is exposed to the sun. Vitamin D assists calcium absorption and retention in the bones and teeth and regulates inflammation and the immune system. The body also needs vitamin D to produce dopamine and serotonin.

Watch this video to find out how a healthy diet may assist with mental health: <https://youtu.be/kQphqLfpG0A> and <https://youtu.be/CSHO9VdVRfg>

Foods that contain Omega-3 Fats

Omega-3s are polyunsaturated fatty acids that have many different functions in the body. They convert food into energy, help prevent cardiovascular disease and inflammation, and improve general wellbeing. Numerous studies have also proven that increasing omega-3 intake can enhance mental wellbeing and cognitive development, alleviate the symptoms of depression and other mental illnesses, and slow down the progression of dementia (Wani, et al., 2015). Omega-3 fatty acids play a role in brain function because they easily pass through the brain's cell membranes and interact with mood-related molecules in the brain. They also improve blood flow and increase the production of neurotransmitters in the brain (David Mischoulon MD PHd, 2020).

Further research is being conducted into the benefits of omega-3 fatty acids and the long-term safe use of omega-3 supplements. Meanwhile, people can obtain omega-3 fatty acids from fatty fish such as salmon, trout, and tuna. Plant sources include nuts, seeds, and even Brussel sprouts.

Foods that contain Probiotics and Prebiotics

Probiotics are live organisms that are found all over the body but mainly in the large intestine; they are often referred to as beneficial bacteria. Prebiotics come from food; they promote the growth of probiotics. Probiotics have a positive impact on the central nervous system. They send messages to the brain via the vagus nerve and can influence our emotions and reactions to stressful situations. Recent clinical studies suggest that prebiotics and probiotics could help ease depression and anxiety (Liu, et al., 2019). Prebiotics are found in a variety of food, including cold pasta, potato and rice, garlic, leeks, onions, and unripe bananas. Probiotics are found in fermented foods such as yoghurt and homemade kimchi and sauerkraut.

Foods that contain Carbohydrates

Fluctuations in blood glucose levels in the bloodstream may affect mood. Evidence suggests that people with high sugar levels in the blood are likely to be tired and have difficulty focusing. People with low sugar levels are more likely to experience anxiety and irritability (Kay, 2019). The glucose derived from low GI foods and starchy carbohydrates takes longer to digest and is steadily released into the bloodstream. This slow and steady release of blood glucose in the body helps people stabilise their moods and control anxiety. Some examples of low GI foods include basmati rice, legumes, sweet potatoes, and wholegrain cereals.

Foods that contain Protein-rich Foods

Research suggests protein-rich foods that contain the amino acids that assist in treating mental health conditions such as depression. When consumed on an empty stomach, the amino acid tryptophan is converted to serotonin, which can help people relax and obtain a good night's sleep. Other amino acids can be converted to dopamine and assist with the production of neurotransmitters in the brain. Animal products, such as dairy foods, eggs, meat, and poultry, are excellent protein sources.

Foods that inhibit Mental Health

Foods that contain Fat, Salt, and Sugar

The part of the brain that releases positive feelings is commonly referred to as the 'reward part of the brain.' Fat, salt, and sugar stimulate these receptors in the brain to release dopamine and serotonin. This release of dopamine and serotonin in the body results in an instant feeling of gratification and positivity. People who have low dopamine and/or serotonin levels are more likely to crave fat, salt, and sugar than those who have adequate amounts. Limiting the consumption of foods that contain high amounts of fat, salt, and sugar is challenging for some people because they need these foods to stimulate more dopamine and serotonin production in their bodies. They may overeat to keep experiencing the release of dopamine and serotonin that these foods stimulate. Over time, the body craves more fat, salt, and sugar to experience the dopamine and serotonin highs.

Another problem associated with eating foods high in fat, salt, and sugar to experience a high is that people often feel guilty and disappointed with themselves afterwards. This disappointment may also contribute to feeling depressed.

Watch this video to find out about the relationship between sugar and dopamine: <https://youtu.be/IEXBxijQREo>

Written Activity One

My Better Eating Options

1. **Create** a healthy meal plan for one day that includes a variety of foods that are good for mental health.

Watch this video to find out what kinds of food will have a positive impact on your mental health:

<https://youtu.be/CSHO9VdVRfg>

Here are some websites that may help you complete this task:

<https://www.health.qld.gov.au/news-events/news/good-mood-food-how-food-influences-mental-wellbeing-anxiety-depression-stress>

<https://nutritionaustralia.org/division/nsw/nutrition-and-mood-whats-the-connection/>

<https://www.healthdirect.gov.au/food-drink-and-mental-health>

<https://www.mind.org.uk/information-support/tips-for-everyday-living/food-and-mood/about-food-and-mood/>

| Meal | What will I eat? | How will this promote mental health and wellbeing? |
|-----------|------------------|--|
| Breakfast | | |
| Snack | | |
| Lunch | | |
| Snack | | |
| Dinner | | |

Written Activity Two

Educating Others

1. **Create** a brochure, poster, or PowerPoint presentation about the benefits of eating a range of foods for mental health and wellbeing.

- Include lots of images of foods that are beneficial to mental health and wellbeing in your presentation.

Here is a helpful website where you can find lots of free images: <https://www.freepik.com/>

- Outline how each food you include in your presentation benefits mental health and wellbeing.

Practical Activity One

Response to a Design Brief: Mood Food

Read the design brief below. Design, make, and evaluate the product outlined in the design brief.

Design Brief

Mood Foods is a new food company that designs, makes, and sells food products that are thought to boost people's moods. Your task is to design and make some fresh pasta for their new pasta range to go with their carbonara sauce recipe. The pasta must contain a vegetable thought to improve people's moods. You will need to style and photograph your pasta for a practical activity next week.

Let's Research

Visit this [website](#) by Horticulture Innovation Australia to find out what foods assist with improving people's moods.

Website: <https://www.thegoodmoodfood.com.au/>

Let's Cook

Fresh Homemade Vegetable Pasta

Serves: 2 **Preparation Time:** 60 minutes

Equipment: Pasta Machine preferred **Cooking Time:** Nil

Ingredients:

1 ¼ cup pasta, semolina, or all-purpose plain flour 2 large eggs

Extra flour for dusting and rolling Vegetable Powder or ¼ cup juice or pureed vegetables prepared in advance.

To make the pasta dough:

1. Tie back your hair, **wash** your hands and **put** an apron on.
2. **Collect** and **measure** the ingredients.
3. **Sift** the flour and **place** it in a deep bowl.
4. **Make** a well in the centre.
5. **Crack** one egg at a time into a small bowl or cup and **pour** the egg into the flour. **Repeat**.
6. **Add** the oil, vegetable juice, powder, or puree.
7. Using a butter knife, **beat** the mixture until it is combined. **Mix** the dough until it forms the shape of a ball.
8. Lightly **sprinkle** some flour onto a clean work surface.
9. **Knead** the dough until it becomes firm and smooth.

Kneading develops the gluten in the dough.

Gradually **add** more flour until the dough is no longer sticky.

10. When the dough is smooth and no longer sticky, **set it aside** in a bowl and **cover** it with a tea towel.

Resting the dough helps the gluten in the dough to relax so that when you roll it out, it keeps its shape and does not shrink back.

Ideally, rest the dough for 30 minutes, but 10 minutes is okay if you are time restricted.

To make the shape of the pasta dough by hand:

1. **Watch** this video to see how to use a pasta machine: <https://www.youtube.com/watch?v=DMa02mpVchk>
2. **Divide** the dough into four pieces and **roll** each ball into a round shape. **Cover** the dough with a tea towel.
3. Lightly **sprinkle** the workbench with flour.
4. **Roll** the dough out until it is a large rectangle shape and thin enough to see your hand when you place it underneath the dough.

Make sure you move the dough around a little each time you roll it out.

To move the dough, gently **turn** it on the workbench, and when it is larger, move it by folding the dough over the rolling pin.

5. **Allow** your pasta to dry for about 10 minutes (if time permits). This stops it from sticking together.
6. Lightly **dust** the dough with flour first, and then cut it as required.

To make the shape of the pasta dough by machine:

1. **Watch** this video to see how to use a pasta machine: <https://www.youtube.com/watch?v=1VmcdjPrx7k>
2. **Divide** the dough into four portions.
3. **Cover** the dough that you are not using with a tea towel.
4. **Flatten** one piece of dough into a rough rectangle, **dust** with pasta flour, and pass through the rollers on the widest setting.
5. **Fold** firmly in half lengthwise, lightly **dust** with flour, and **pass** through the rollers.
6. **Repeat** step 4 until the dough is silky smooth (about 3 or 4 times).
7. **Decrease** the size of the rollers one notch at a time and **pass** the dough through.

Lightly flour the pasta machine if it is sticking. You can stop at the second last notch.

The past should be a rectangle shape and thin enough to see your hand when you place it underneath the dough.

8. **Allow** your pasta to dry for about 10 minutes (if time permits). This stops it from sticking together.
9. **Use** the sheet setting to make lasagne sheets, ravioli, or bow pasta.

Use the cutting setting to make fettuccine or tagliatelle.

For spaghetti carbonara, use the fettuccine setting.

To cook fresh pasta:

1. **Fill** a large saucepan with two-thirds hot water.
2. **Bring** the water to a rolling boil. Then, **add** a pinch of salt.
3. **Add** the pasta.
4. **Boil** the pasta for 3 minutes. Never cook freshly made pasta for longer.
5. **Drain** the pasta.
6. **Retain** some of the water the pasta was cooked in to add moisture or use it as a thickener if needed in the carbonara sauce.

| Carbonara Sauce | |
|--|---------------------------------------|
| Serves: 2 | Preparation Time: 10 minutes |
| | Cooking Time: 5 minutes |
| Ingredients: | |
| 1 teaspoon olive oil | 1 egg at room temperature |
| 2 rashers bacon, diced | 40 grams parmesan cheese, grated |
| 1/4 small onion, diced | Salt and pepper for seasoning |
| 1 clove of garlic, crushed or minced | Fresh parsley for garnishing, chopped |
| To make the sauce: | |
| <ol style="list-style-type: none"> 1. Tie back your hair, wash your hands and put an apron on. 2. Collect, measure, and prepare the ingredients. 3. Heat oil in a frypan. 4. Add the bacon and onions. Cook to your liking. 5. Add garlic and cook for one minute. 6. Remove from the heat and add the cooked fettuccine. 7. Stir until the pasta is coated. Place a saucepan lid on the fettuccine to keep it warm. 8. Whisk together the egg, cheese, and the reserved pasta water in a small bowl. 9. Make a well in the middle of the fettuccine and add the egg mixture; mix quickly until the egg is cooked. Keep stirring to avoid scrambling the egg. 10. Serve with cracked black pepper and parsley. | |

Source: <https://pastaevangelists.com/blogs/blog/how-long-to-cook-fresh-pasta>

Practical Activity Two

Response to a Design Brief: Brain-boosting Salad

Read the design brief below. Design, make, and evaluate the product outlined in the design brief.

| Design Brief |
|---|
| <p>Brain Boosters is a new food company that designs, makes, and sells food products that are thought to boost people's moods. Your task is to design and create a fresh salad using 8 ingredients for their new salad range that benefits mental health and wellbeing. You will need to use the ingredients that your teacher has provided to you.</p> <p>You will need to style and photograph your pasta for a practical activity next week.</p> |

Let's Research

Visit this [website](#) by Horticulture Innovation Australia to find out what foods assist with improving people's moods.

Website: <https://www.thegoodmoodfood.com.au/>

You might like to research a salad dressing you can make from scratch using the internet.

Let's Plan

List the ingredients and quantities of ingredients you will use in the table below.

Explain how you will prepare each of the ingredients.

| Ingredient | Quantity | How will this be prepared? |
|------------|----------|----------------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Let's Cook

Prepare your salad in class.

Let's Evaluate

Take a photograph of your salad.

Using PowerPoint, Word, or Publisher, annotate the photograph to explain how the different ingredients benefit mental health and wellbeing.

Summary Activity

| <p>What is the main idea about the key knowledge & key skills?</p> | |
|---|--------------------------|
| <p>Briefly outline why the following foods influence mental health and provide some food examples.</p> | |
| Influence | Examples of food sources |
| Antioxidants | |
| Vitamins | |
| Omega-3 fats | |
| Probiotics and Prebiotics | |
| Carbohydrates | |

| | |
|---------------------|--|
| Protein-rich Foods | |
| Fat, Salt and Sugar | |

Exam Preparation

Section A - Multiple Choice Questions (5 marks)

Question 1

People can improve their mental health by:

- a. Eating a wide variety of food.
- b. Earning more income.
- c. Consuming a variety of different coloured and types of fruits and vegetables.
- d. Including fats in their diet.

Question 2

A diet high in sugar can be linked to:

- a. Difficulty in concentration and tiredness.
- b. Improved mood.
- c. An ability to cope in stressful situations.
- d. Improved general wellbeing.

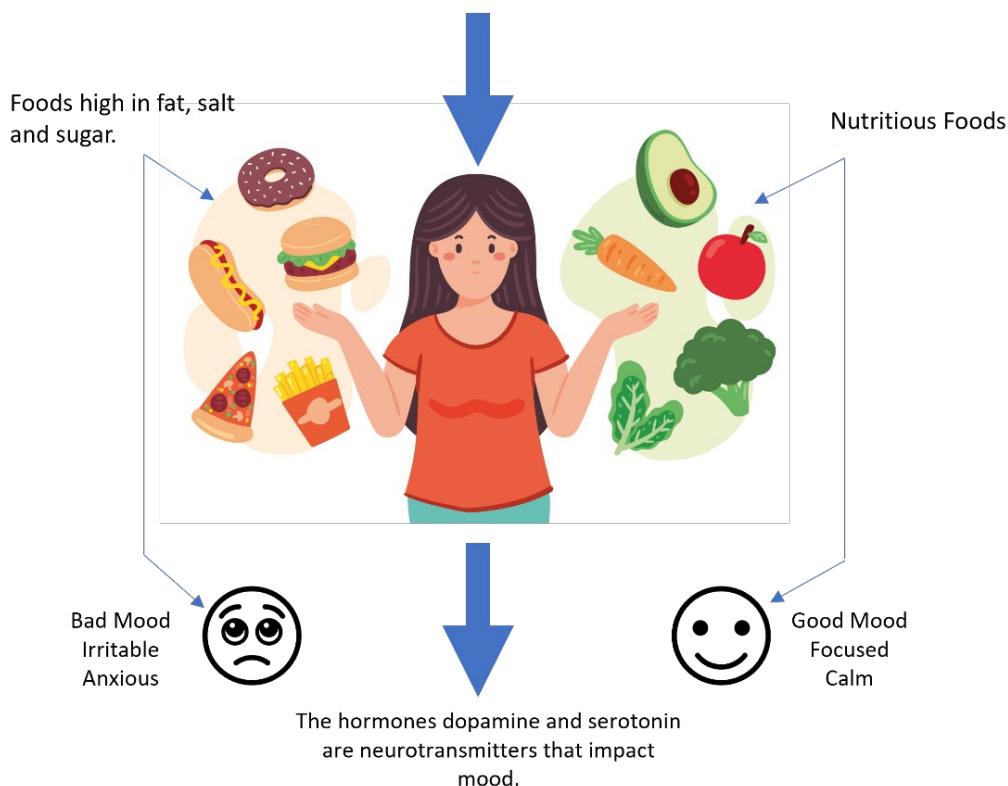
Question 3

Which of the following meals is most likely to contribute to positive mental wellbeing:

- a. Spicy noodles with green vegetables.
- b. Fried basmati rice served with kimchi and a garden salad, topped with nuts.
- c. Pasta salad.
- d. Chicken schnitzel with mashed potato and three vegetables.

Question 4

The food we consume send messages to the brain.



The diagram above shows that:

- Consuming healthy foods causes high levels of irritability and anxiety.
- Consuming unhealthy foods triggers the reward section of the brain to produce neurotransmitters.
- Increasing the consumption of nutritious foods can promote positive mental health.
- Eating promotes positive self-esteem.

Question 5

Consuming which of the following are considered beneficial to mental wellbeing?

- Antioxidants, omega-3 fats, probiotics, prebiotics, and protein-rich foods.
- Antioxidants, saturated fats, and protein-rich foods.
- Fat, salt and sugar.
- All of the above.

Section B – Short Answer Responses (20 marks)**Question 1 (3 marks)****Fish Salad Ingredients:**

| | | | |
|-------------|------------------|-----------|------------|
| – Fish | – Lemon | – Lettuce | – tomatoes |
| – Olive oil | – Nuts and seeds | – Yoghurt | – Butter |

a. Identify one ingredient in the fish salad that has a positive influence on mental health. (1 mark)

b. Explain why consuming this ingredient can influence mental health. (2 marks)

Question 2 (2 marks)

Explain why eating a wide variety of nutritious food is important for positive mental health. (2 marks)

Question 3 (10 marks)

Study the ingredients for the *Salmon Buddha Bowl with Zesty Herb Dressing for One or Two* below:

Salmon Buddha Bowl with Zesty Herb Dressing for One**Salmon Buddha Bowl Ingredients:**

1 Australian Salmon Skin-On Fillet
 1 tablespoon olive oil
 ½ wholemeal cous cous
 1 teaspoon finely grated lemon rind
 50g rocket leaves
 ¼ red cabbage
 4 asparagus stalks
 1 tablespoon pepitas (pumpkin seeds)
 1 tablespoon sunflower seeds
 1 teaspoon pine nuts

Zesty Herb Dressing for One:

1-2 tablespoons flat-leaf parsley, chopped
 1 tablespoon dill, chopped
 ½ - 1 small garlic clove, peeled and halved
 1 tablespoon Greek-style yoghurt
 1 tablespoon homemade mayonnaise
 2 teaspoons lemon juice

Source: <https://www.taste.com.au/recipes/salmon-buddha-bowl-zesty-herb-dressing-recipe/ppwr8qws>

a. Identify five ingredients in this meal that positively impact mental health. (5 marks)

b. Modify this recipe to ensure it is suitable for someone with wheat intolerance. (2 marks)

c. i). Identify one social factor that might influence a person's decision to make this recipe. (1 mark)

ii). Explain why this social factor might influence a person's decision to make this recipe. (2 marks)

Exam Preparation

Section A - Multiple Choice Questions (5 marks)

Question 1

People can improve their mental health by:

- Eating a wide variety of food.
- Earning more income.
- Consuming a variety of different coloured and types of fruits and vegetables.**
- Including fats in their diet.

The answer is not A. The question states eating a wide variety of food but does not specify that the food needs to be healthy.

The answer is not B. Earning a higher income may not necessarily result in someone consuming more nutritious food. Earning a higher income may also result in a person exercising less, working longer hours and experiencing more stress.

The answer is C. Eating various coloured and types of fruits and vegetables can improve mental health.

The answer is not D. Not all types of fats promote mental health. Omega three fatty acids assist with mental health.

Question 2

A diet high in sugar can be linked to:

- Difficulty in concentration and tiredness.**
- Improved mood.
- An ability to cope in stressful situations.
- Improved general wellbeing.

The answer is A. People with high sugar levels in the blood are likely to be tired and have difficulty focusing.

The answer is not B, C, or D. A diet high in sugar has a negative impact on mental health, not a positive impact.

Question 3

Which of the following meals is most likely to contribute to positive mental wellbeing:

- Spicy noodles with green vegetables.
- Fried basmati rice served with kimchi and a garden salad, topped with nuts.**
- Pasta salad.
- Chicken schnitzel with mashed potato and three vegetables.

The answer is not A. This seems to be a nutritious meal but does not contain various coloured vegetables. It is not the most likely meal to contribute to positive mental wellbeing.

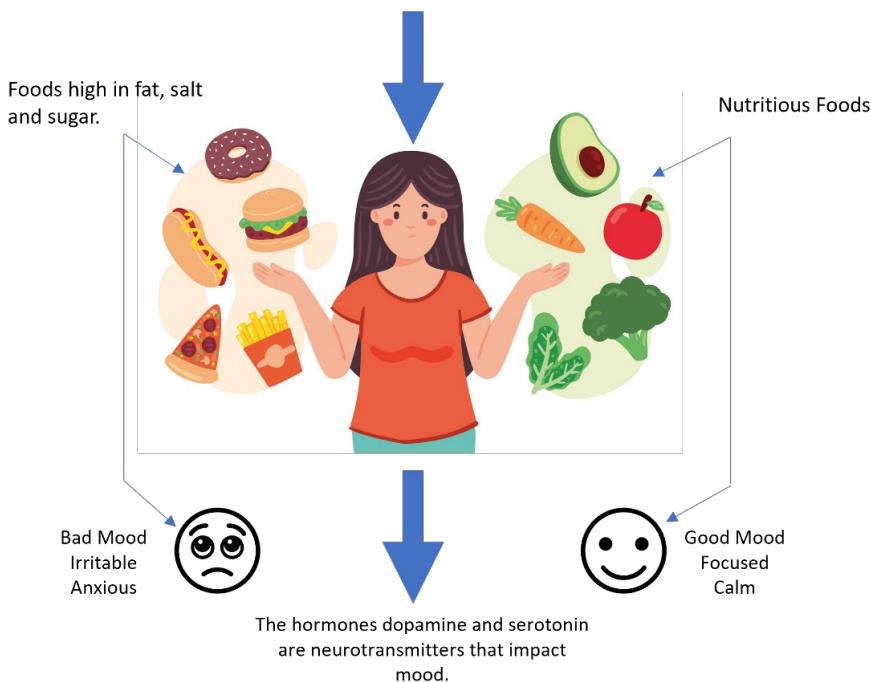
The answer is B. This meal contains low GI basmati rice, kimchi with probiotics, a garden salad that contributes to variety, and nuts containing Omega 3. All of the foods contribute to positive mental wellbeing.

The answer is not C. More information about the pasta salad needs to be provided to determine if it will contribute to positive mental wellbeing.

The answer is not D. More information about the meal needs to be provided to determine if it will contribute to positive mental wellbeing.

Question 4

The food we consume send messages to the brain.



The diagram above shows that:

- Consuming healthy foods causes high levels of irritability and anxiety.
- Consuming unhealthy foods triggers the reward section of the brain to produce neurotransmitters.
- Increasing the consumption of nutritious foods can promote positive mental health.**
- Eating promotes positive self-esteem.

The answer is not A. The diagram links irritability and anxiety with consuming foods high in fat, salt, and sugar.

The answer is not B. The diagram does not mention the reward centre of the brain.

The answer is C. The diagram makes a direct link between nutritious foods and a good mood.

The answer is not D. Eating does not always promote positive self-esteem.

Question 5

Consuming which of the following are considered beneficial to mental wellbeing?

- Antioxidants, omega-3 fats, probiotics, prebiotics, and protein-rich foods.**
- Antioxidants, saturated fats, and protein-rich foods.
- Fat, salt and sugar.
- All of the above.

The answer is A. All of these foods contribute to positive mental wellbeing.

The answer is not B. Omega-3 fats contribute to positive mental wellbeing, not saturated fats.

The answer is not C. Fat, salt and sugar do not contribute to positive mental wellbeing.

The answer is not D.

Section B – Short Answer Responses (20 marks)

Question 1 (3 marks)

Fish Salad Ingredients:

| | | | |
|-------------|------------------|-----------|------------|
| – Fish | – Lemon | – Lettuce | – tomatoes |
| – Olive oil | – Nuts and seeds | – Yoghurt | – Butter |

a. Identify one ingredient in the fish salad that has a positive influence on mental health. (1 mark)

For 1 mark, the student needed to identify one ingredient in the salad that influences mental health.

Any one of the following responses were accepted:

Fish, olive oil, nuts and seeds, and yoghurt.

b. Explain why consuming this ingredient can influence mental health. (2 marks)

For 2 marks, the student needed to briefly explain why fish, olive oil, nuts and seeds are beneficial to mental wellbeing.

One of the following responses was accepted:

Fish, olive oil, nuts and seeds contain omega 3. Omega 3 alleviates the symptoms of depression and other mental illnesses as well as enhancing mental wellbeing.

Or

Fish contains protein, proteins can help with the production of serotonin which helps people relax and dopamine which is known as a feel good hormone.

Or

Yoghurt can contain probiotics. Probiotics have a positive impact on the central nervous system and could play a role in easing anxiety and depression.

Note: The Food Studies Study Design states that students need to know the role of food in influencing mental health and understand the links between food, behaviours and effects on health and wellbeing. Therefore, it is unlikely students will need to explain why these foods impact mental health in detail. The text provided covers this in detail to help students understand the concept. However, it is unlikely they will need to know this content in this level of depth.

Question 2 (2 marks)

Explain why eating a wide variety of nutritious food is important for positive mental health. (2 marks)

For 2 marks, the student needed to explain why eating a wide variety is important for positive mental health.

A wide variety of fruits and vegetables contain a variety of antioxidants. Consuming brightly coloured fruits and vegetables high in antioxidants may help prevent these problems and increase the amount of dopamine and serotonin the body produces.

Question 3 (10 marks)

Study the ingredients for the *Salmon Buddha Bowl with Zesty Herb Dressing for One or Two* below:

Salmon Buddha Bowl with Zesty Herb Dressing for One**Salmon Buddha Bowl Ingredients:**

1 Australian Salmon Skin-On Fillet

1 tablespoon olive oil

½ wholemeal cous cous

1 teaspoon finely grated lemon rind

50g rocket leaves

¼ red cabbage

4 asparagus stalks

1 tablespoon pepitas (pumpkin seeds)

1 tablespoon sunflower seeds

1 teaspoon pine nuts

Zesty Herb Dressing for One:

1-2 tablespoons flat-leaf parsley, chopped

1 tablespoon dill, chopped

½ - 1 small garlic clove, peeled and halved

1 tablespoon Greek-style yoghurt

1 tablespoon homemade mayonnaise

2 teaspoons lemon juice

Source: <https://www.taste.com.au/recipes/salmon-buddha-bowl-zesty-herb-dressing-recipe/ppwr8qws>

a. Identify five ingredients in this meal that positively impact mental health. (5 marks)

The student was awarded one mark for each correct response (up to five).

Any of the following were accepted.

Salmon, olive oil, cous cous, lemon, rocket leaves, red cabbage, asparagus, pepitas, pine nuts, and Greek-style yoghurt.

b. Modify this recipe to ensure it is suitable for someone with wheat intolerance. (2 marks)

The student was awarded one mark for identifying the ingredient that contained wheat.

Cous cous contains wheat.

The student was awarded an additional mark for suggesting one substitution.

Any of the following grains were accepted.

Buckwheat, farro, millet, rice, sorghum, teff, and quinoa could be used as a substitute.

c. i). Identify one social factor that might influence a person's decision to make this recipe. (1 mark)

The student was awarded one mark for identifying one social factor.

The student must use the social factors from the study design, for example, money was not accepted.

Any of the following social factors were accepted:

Accommodation, available time, cultural norms, education, income and location.

ii). Explain why this social factor might influence a person's decision to make this recipe. (2 marks)

Any of the following answers were accepted.

Accommodation – someone with limited kitchen facilities, perhaps just a stove, might make this recipe as there is no other heating appliance needed except a stove. Other than the salmon and grains, everything else is served fresh.

Available Time – The only ingredients that need to be cooked in this recipe are the salmon and couscous. Both of these ingredients take little time to cook. The remaining ingredients are served fresh. Someone could make this dish who has limited available time to prepare and cook food.

Cultural Norms – This might be a family's regular dish each week. This could be part of a special weeknight ritual/ meal. (It is difficult to provide an answer for cultural norms; therefore, it is best to select a social factor that better applies to the recipe.

Education – People who have had some education about nutrition and cooking might be more inclined to make this meal because they understand the benefits of the ingredients for mental health.

Income – Salmon tends to be an expensive ingredient. People on a limited income might be unable to afford to make this dish or have to substitute the salmon for something cheaper, like frozen fish.

Location – People who live near the sea or on a salmon farm might make this dish because it may be easier for them to obtain salmon.

Starter Activity One

Mood Booster

Visit this website: <https://www.thegoodmoodfood.com.au/mood/mood-booster/>

Go to the section that says ‘**Pick your Mood**’ according to the colours represented.

Select the colour yellow.

Read about how eating different types of coloured fruits and vegetables can alter your mood.