Research assessment: Type 2 Diabetes

This sample is intended to inform the design of assessment instruments in the senior phase of learning. It highlights the qualities of student work and the match to the syllabus standards.

Dimensions assessed

- Knowledge and understanding
- Reasoning and communicating processes

Assessment instrument

The response presented in this sample is in response to an assessment task.

**Preamble**

Diabetes is Australia’s fastest growing chronic disease. More than three million (or one in four) Australian adults over the age of 25 have either diabetes or impaired glucose tolerance (pre-diabetes). Over one million Australians have diagnosed diabetes (Type 1 or Type 2), while Type 2 diabetes represents 85% to 90% of this number (www.australiandiabetescouncil.com/About-Diabetes).

**Issue**

The number of people diagnosed with Type 2 diabetes is growing in Australia. Is educating people more about food, health and lifestyle choices going to reduce the statistics, or are other steps necessary? How can individuals take proactive steps to prevent this disease and maintain their wellbeing?

**Task**

You are to use an inquiry process to research this issue from a range of points of view, analyse information from a variety of sources, then evaluate and synthesise the evidence to justify and support your conclusions.

Write an argumentative essay justifying your conclusions about the above issue.

**To do this you will need to:**

**Research**

- investigate the issue
- develop a key question for research. Create a set of sub-questions to assist in researching this key question. You might want to focus upon your arguments and sub-arguments
- collect a range of sources in order to conduct your analysis and evaluation and provide supporting evidence for your conclusions
- remember to keep an accurate record of all sources you reference
Analyse and evaluate
- interpret, analyse and evaluate the evidence from your research
- develop other questions and understandings that may be needed to do further research

Synthesise and draw conclusions
- make links between Type 2 diabetes in Australia, food choices, health, lifestyle and possible actions to combat this disease
- use information from your research to justify your conclusion/s
- synthesise your analysis and evaluation of the information into a conclusion

Communicate
- present your conclusion in a persuasive essay
- use language that persuades your audience
- clearly support and justify your conclusion with evidence
- indicate where this evidence comes from through appropriate in-text referencing.

Instrument-specific criteria and standards

Student responses have been matched to instrument-specific criteria and standards; those which best describe the student work in this sample are shown below. For more information about the syllabus dimensions and standards descriptors, see www.qsa.qld.edu.au/11788.html#assessment.

<table>
<thead>
<tr>
<th>Knowledge and understanding</th>
<th>Standard A</th>
<th>Standard C</th>
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</thead>
<tbody>
<tr>
<td>The student work has the following characteristics:</td>
<td>The student work has the following characteristics:</td>
<td></td>
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<tr>
<td>• description of a comprehensive range of significant facts and definitions relevant to diabetes</td>
<td>• description of facts and definitions that relate to diabetes</td>
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<tr>
<td>• thorough explanation and application of relevant key concepts related to food choices and wellbeing.</td>
<td>• explanation and application of key concepts related to food choices and wellbeing.</td>
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<table>
<thead>
<tr>
<th>Reasoning and communicating processes</th>
<th>Standard A</th>
<th>Standard C</th>
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<tr>
<td>The student work has the following characteristics:</td>
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<tr>
<td>• thorough analysis of significant, relevant information from a variety of sources</td>
<td>• analysis of relevant information from sources</td>
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<tr>
<td>• synthesis and discerning and detailed evaluation of evidence, justification of valid and supported conclusions or solutions</td>
<td>• synthesis and evaluation of evidence, justified conclusions or solutions</td>
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<tr>
<td>• effective use and sustained control of communication using appropriate modes and language for the intended purpose and audience.</td>
<td>• suitable communication, appropriate modes and language for the intended purpose and audience.</td>
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</tbody>
</table>

Note: Colour highlights have been used in the table to emphasise the qualities that discriminate between the standards.

Key: Quality words
Cognitive words
Student response — Standard A

The annotations show the match to the instrument-specific standards.

<table>
<thead>
<tr>
<th>Comments</th>
<th>Home Economics — Type 2 Diabetes</th>
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<tbody>
<tr>
<td>thorough analysis of significant, relevant information from a variety of sources</td>
<td>In recent years, Australia has surpassed United States of America as the ‘fattest nation’ on earth (Low Glycaemic Diet, 2010). Statistics shows that two out of every three people are either overweight or obese. In Australia there are approximately three million people who suffer from diabetes and furthermore, half of the three million people are unaware that they have diabetes. It is reported that out of the three million people who have diabetes, 85 to 90 per cent of those people have diabetes type II (Garvan Institute, 2010). Type 2 diabetes usually occurs in people over the age of 45, but in recent years this has changed. It has now been discovered that young adults and even young children can get Type 2 diabetes which can result in becoming disabled and developing life-complications such as blood sugar control, cancer and cardiovascular disease just to name a few. As the Australian population is on the rise, it can be strongly argued that if people follow the Government campaigns and programs there will be a reduction in the amount of people diagnosed with Type 2 diabetes and this will impact upon their future lifestyle and health and therefore wellbeing.</td>
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<tr>
<td>description of a comprehensive range of significant facts relevant to diabetes</td>
<td>With Australia’s exponential growth in population each year, obesity and becoming overweight have tripled over the last two decades and according to Australian Diabetes, Obesity and Lifestyle Study (AusDiab) above 85 to 90 per cent of those has type II diabetes. Type II diabetes is also known as non-insulin dependent diabetes or mature-age onset diabetes (Australia Bureau of Statics, 2006) and is often linked with high blood pressure, abnormal body fat and the ‘apple shape’ where there is extra weight around the body at the waist (Talking diabetes No. 42): Many of the common factors that contribute to Type 2 diabetes are the lack of physical activity, the food that is eaten, weight, cholesterol levels and smoking. In addition, a family history of diabetes, ethnic background and age should also be considered.</td>
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<tr>
<td>thorough explanation and application of relevant key concepts</td>
<td>After finishing a meal, our body needs insulin where it triggers a hormone in the pancreas to channel sugar from our body into our cells (Garvan Institute, 2010). However, in people with Type 2 diabetes, their pancreas does not produce enough insulin in their body to go around therefore an overproduction of glucose occurs in the liver and large amounts of glucose in the blood is very unhealthy. This overproduction of glucose damages the cells in the body and not enough energy is generated for the body (What’s good for you, 2006). Nevertheless, it does not mean the person has to give up foods with a high sugar contents or never consume sugar again. It simply means the person should increase their daily exercise and eat more healthy meals and snacks. They could do this by walking up the stairs instead of taking the lift or replacing a burger with a simple garden salad when out dining. The idea of eating a healthier diet is also promoted by the Government campaign called the ‘Swap It, Don’t Stop It’. This campaign educates people to eat less and exercise more so eating smaller portions instead of large portions or getting off the bus a couple of stops instead of going straight to work/school.</td>
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<tr>
<td>synthesis and discerning and detailed evaluation of evidence valid and supported conclusion</td>
<td>Physical activity plays a big role in the health of people who have Type 2 diabetes. It can prevent and delay the chances of getting Type 2 diabetes and, along with a healthy lifestyle is also the biggest predictor of future health. International research has demonstrated that maintaining a healthy, stable lifestyle, being physically active and making health food choices can reduce the development of Type 2 diabetes by 58 per cent. (Better Health Channel, 2011). Despite the fact that we live in such a modern society with technologies surrounding us, physical activity can now be done without</td>
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leaving the comfort of our own home. In this case, a popular games console that was released in 2006 worldwide, is now owned by many families and has allowed families to create their own ‘physical activity’ games which can be simply done in the living room. As a result of this people then have no need to go outside or the gym to do their daily exercises knowing that they have a console that can provide them with information on kilojoules used and possible exercise. Still, many people are not getting enough physical activity each day so the Government has designed a program called ‘Find your 30 minutes of exercise of activity a day’. This encourages people to be active daily and also change their unhealthy habits which includes unhealthy eating, inadequate physical activity, being overweight, smoking and harmful alcohol consumption (Find your 30, 2009).

As mentioned above, not having sufficient exercise can lead to the development of Type 2 diabetes and it is also important to maintain a healthy balanced diet through better choices. Being able to maintain a healthy diet can not only reduce Type 2 diabetes, but also improve long-term body issues such as cholesterol, high blood pressure and some cancer (Better today Health Channel, 2011). From many centuries ago, our great grandparents would have provided family meals from scratch and bring it to the plates. They were high in dietary fibre, low in glycaemic and filled with fresh vegetables and fruits (Low GI Health, 2010). However in today society the foods that we buy or often order are processed food. They do not contain high nutritional values, vitamins or the freshness because they have been processed to last longer, and so, additional amounts of sugars and salt are added to the food. Examples of these are frozen meals that need to be microwaved and fast food burger restaurants where the buns contain high amounts of sugar in order to preserves their freshness (Fast Food restaurant, 2011). Eating these type of meals can be avoided if people made they own nutritious meals rather than going out to eat or made better food choices and simply following the new Government program, Swap It, Don’t Stop It! can make them think about their choices.

The continuous consumption of processed foods has contributed largely to the number of people suffering from Type 2 diabetes. The lack of home prepared meals using the combination of fresh vegetables, whole grains and lean meat had decreased in the last couple of decades as people does not have the time to cook, but also because of the life style we have. Being able to cook simple meals that are low in glycaemic and high in nutritious and vitamins will not only help the person to lose 5-7% of their weight but also dramatically reduce the development of diabetes by 58%. However, if people continuously choose to eat unhealthy food, significant problems can arise such as financial issues from doctors and hospital treatments and buying prescribed drugs. As a result of these financial implications, the government is spending $217.6 million each year to the illness of Type 2 diabetes (Dr Geoffrey C Marks, 2001).

To conclude the argument, it is strongly argued that it is important that Governments are working towards changing the choices of Australian people and the society to become a healthy nation and to decrease the amount of people with Type 2 diabetes. Instead of the Government spending millions of money on treating diabetes, more money could be spent on educating the public on how to prevent getting Type 2 diabetes and prevent long term life complications such as blood sugar controls, cancer, cardiovascular disease and so on. It is important to not take technologies for granted, such as the some games consoles, ‘which can provide exercise’ and either use these for being physical active or do exercise outdoors or at the gym to get at least thirty minutes of exercise daily. To maintain wellbeing, it is important to combine this exercise with eating plenty of healthy, low glycaemic foods to prevent the development of Type 2 diabetes and simply make better choices by following the ‘Swap It, Don’t Stop It’ program.
On balance, the qualities of the student work can be matched to the descriptors for Standard A. Coverage of significant facts and definitions relevant to the impact of diabetes is comprehensive. That is, it demonstrates a breadth of knowledge of the key ideas.
Diabetes is a rapidly growing disease with over three million Australian adults with either type II diabetes, type I diabetes or an impaired glucose tolerance. There is also a concern with children with type II diabetes which is at present one in every hundred. This is easy to prevent in children with a healthy balanced diet, managed weight and exercise yet more cases are being diagnosed of young people with type II diabetes.

Type 2 Diabetes is a disease of the pancreas which usually develops later in life and progresses into partial or complete deficiency of insulin. Insulin is a hormone which is developed by the body to regulate blood sugar levels therefore if type II diabetes is present within the body blood glucose levels will raise to dangerous levels because there is no insulin present which limits the cells from processing glucose. (www.diabetesaustralia.com.au)

At this present time diabetes is not a very openly talked about topic in individuals due to such things as embarrassment and lack of knowledge. Australians need to be more aware of the pressing issue within the community. At this point in time many Australians do not know how to recognise symptoms of diabetes either type I or type II or ways to prevent the disease therefore explaining the rising levels of the disease in our community.

The disease needs to be a more openly spoken topic to help reduce the amount of unnoticed cases before the disease develops into a life or death matter. Support from such organisations as Diabetes Australia and Queensland Health is limited plus not very well publicised. The Organisations in question have to take proactive steps to ensure that the disease is a common known issue amongst Australians. They must actively promote and advertise symptoms linked to this life threatening disease to educate the average citizen on how to look after their body. This education needs to begin earlier in life in order to develop healthier choices with food and physical activity to reduce the risk of type II diabetes developing due to people forming bad habits that they will find hard to break.

Type II diabetes has many short term and long term effects. There are a variety of short term symptoms such as lack of energy, constant thirst, and frequent urination with a large amount of sugar in the urine which is caused by the excess glucose being dropped off in the kidneys and then excreted in urine. Another sign that you have early developing diabetes is major weight loss; weigh loss is most commonly associated with juvenile diabetes.

undiagnosed diabetes is actually a common occurrence within the community. This is major worry due to severe long term effects to the eyes, blood vessels, heart, nerves and kidneys. Eventually the disease can lead to coma and death due to the extremely high levels of glucose within the blood as it does not break down because of the lack or non-existence of insulin.

The three major causes of type II diabetes within mature adults are obesity, heredity and alcohol abuse (helpguide.org). Obesity impacts due to the person being overweight and the body cannot produce adequate amounts of insulin to break down the large amounts of sugars being ingested. With the low amounts of insulin the person in question will become seriously ill if steps are not taken to reduce their weight. They would need to reduce their weight using a diet that helps them lose weight and also reduce the amount of sugar and bad fats in their diet. They should eat smaller portions of food at meals and change the type of carbohydrates and fats they eat. Exercise is another way they can help reduce their weight. (helpguide.org) So if young people start exercising and get
used to not eating too much it can stop them developing diabetes later in life.

Hereditary influences are due to diabetes running in the family line and often it is gene related and cannot be controlled. Individuals that have this link within their family must be cautious as to what they eat and also their weight. Persons with hereditary diabetes should stick to a low GI diet to limit weight gain and have a controlled slow trickle of glucose entering the blood stream.

Alcohol abuse is also a major cause due to the large amounts of sugar within alcohol and a suppressed appetite with little to no nutritional value caused by the effects of the alcohol it is a common side effect of abusing this particular drug. In this instance people should seek help with their addiction to lower blood sugar levels and take stress of their body.

Individuals that are worried about their weight and the fact that they could develop diabetes should stick to a low glycaemic index diet so there is a constant trickle of glucose entering the blood system which will essentially balance your energy and keep you fuller for longer. This diet will help you lose weight and lower the risks of diabetes.

In conclusion diabetes is still a major problem within the community with over 3 million. The government must take proactive steps to ensure that the Australian adults that have the disease as stated above are fully aware of the risk involved with developing diabetes. They must also advertise simple low GI diets that will lower the risks and create a healthy community. Diabetes must not be taken lightly as it is a serious disease and must be acted upon fast to limit the chances of a full insulin blockage. There should also be classes that teach students about the risks therefore preparing them for a healthy life by informing them of the right and wrong things to eat while they are young before bad habits develop.

References:
www.helpguide.org/life/healthy_diet_diabetes.htm

Acknowledgments

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