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What do Australian teens really eat and is it important?

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We often hear how bad teenager’s diets are. But are they really that bad? Is this a problem, given that teenagers need a lot of energy for growing? Are poor dietary behaviours just a temporary part of growing up? Should we be concerned?

Adolescence (10 to 19 years of age) is an important transition period in which we develop from children into adults. In adolescence, puberty heralds hormonal changes that lead to tremendous growth and other physical, psychological and emotional changes. During these years, we begin to have greater independence and develop our own identities, but also become more susceptible to social and societal pressures. All of these factors have the potential to influence what adolescents eat and drink. In this article, we provide some insights on what Australian adolescents eat and how this affects their health, using data collected in the Western Australian Pregnancy Cohort (Raine) Study and the Australian Health Survey (2011-12). We conclude with recommendations to support adolescents to have healthier diets.

What is the Raine Study?
The Raine Study includes 2868 young people born in Perth, Western Australia between 1989 and 1991 who have been followed up since their gestation (mother’s pregnancy), through childhood, adolescence, and now in adulthood (Raine Study 2015). It is one of the largest studies to successfully follow the development of a group young Australians across their lifecourse. Families participating in this study have provided environmental, developmental and health information over the years, making the Raine Study a unique and valuable resource covering a wide range of health areas.

What did teens in the Raine Study eat?
Information on usual food and drink consumption was collected from Raine Study adolescents and their parents at 14 years of age (2003-2006) using a food frequency questionnaire. This has provided valuable information about the diets of Australian teenagers:

The Australian Dietary Guidelines (ADG) recommends the amounts and kinds of foods to eat for optimum health and wellbeing, based on the latest scientific evidence (NHMRC 2013). To assess diet quality in Raine Study teenagers at 14 years of age, we compared their reported dietary intakes with ADG recommendations for 14-19 year olds.
Figure 1 shows the proportion of boys and girls in the Raine Study who met ADG recommendations at 14 years of age:

- Around half of all girls and boys ate the recommended 2 serves of fruit per day, but very few had the recommended serves of vegetables (3% and 2%, respectively)
- Only 7% of girls and 23% of boys ate the recommended 3 serves of dairy (milk, yoghurt or cheese) on average, per day
- Sixty five percent (65%) of boys and 52% of girls reported eating > 3 serves of discretionary items on average, per day. Discretionary items include biscuits, cakes, desserts, potato crisps and chips, takeaway burgers, savoury pastries and pies, sweets and confectionery, soft drinks, sports drinks, energy drinks and other sugar-sweetened drinks. These items are not an essential component of a healthy diet. Most discretionary items are high in kilojoules (energy), saturated fat, added sugars and/or salt. If chosen, discretionary items should be eaten only sometimes and in small amounts.

High intakes of fat and added sugars increase total energy intake and this leads to weight gain. A high intake of saturated fats is linked to a greater risk of heart disease in adults. At 14 years of age (Figure 2):

- Thirty five percent (35%) of Raine Study adolescents met the recommendation to consume less than 10% of their total energy from added sugars — these are sugars added to food or drinks by the manufacturer, cook or consumer.

- Only 5% met the guideline for saturated fat intake (<10% of total energy) and 17% met the guideline for total fat intake (<30% of total energy).

Figure 2: Proportion of Raine Study adolescents meeting guidelines for limiting energy obtained from fats and added sugars at 14 years of age.

Breakfast

Only 11% of Raine Study teenagers ate a good quality breakfast that included three or more of the core food groups i.e. grains, dairy, fruit, vegetables, lean meats/eggs/fish. The most popular breakfast foods were milk (high calcium, low fat milk most popular), then fortified breakfast cereals (Weet-Bix™ the most popular), then bread (white bread most popular). Almost half the teenagers in the Raine Study (49.5%) reported that they prefer to eat white bread, whereas the ADG recommend eating wholegrain, wholemeal or brown breads.

Sugar sweetened drinks

Sugar sweetened beverages (SSB) include soft (or fizzy) drinks, cordial, fruit juice drinks (not 100% juice), sports drinks and energy drinks. They are discretionary items and should only be consumed sometimes, and in small amounts. Eighty nine percent (89%) of Raine Study teens consumed SSB at 14 years and of all the beverages studied, SSB were consumed the most (Figure 3). Boys and girls consumed at least 1 serve (1 cup) of SSB a day on average.
How do the diets of Raine Study teens compare with other Australian teens?

The Raine Study findings correspond with the latest Australian Health Survey (AHS) which surveyed a nationally representative sample of 12,153 adults and children from around Australia during 2011-2012 (ABS 2014). Those surveyed in the 14-18 year age group consumed the most discretionary items out of all age groups. Sixty one percent (61%) of 14-18 year olds in the AHS consumed SSB on the day prior to interview, compared to 34% for the surveyed population as a whole. Only 5% of 2-18 year olds met the ADG for recommended serves of fruit and vegetables per day.

Overall dietary patterns in Raine Study adolescents

All of the foods and drinks we consume contribute to our health, so it is important to look at the whole dietary pattern. In Raine Study teens, two major dietary patterns have been identified: a ‘Western’ and a ‘Healthy’ dietary pattern. The ‘Western’ dietary pattern is named so, because it includes lots of processed foods such as white bread, cakes, biscuits, sweets, sugary drinks, processed meats (sausages, ham) and low intakes of fruit, vegetables, fish and wholegrains, and is commonly consumed in the ‘Western’ or developed world. In contrast, the ‘Healthy’ dietary pattern included high intakes of fruit, vegetables, wholegrains and fish, and low intakes of processed foods, sweets and sugary drinks. At 14 years of age, we found that Raine Study teens who scored highly for the ‘Western’ dietary pattern spent more time watching television and were more likely to be overweight (Ambrosini 2009). This is in line with other research linking poor dietary habits with more time spent on watching TV, gaming and screen use.
Why does diet during adolescence matter?

Australia is ranked one of the fattest nations in the world. One in four young Australians (27% of 12–17 year olds) is overweight or obese (ABS 2011). Weight gain occurs when more energy is ingested than the amount actually needed by the body for daily activities and growth (if any). Overweight and obesity can lead to infertility, depression, skeletal and joint problems, digestive problems and difficulty participating in physical activity. Overweight is a risk factor for diseases in adult life including cancer, heart disease, stroke, fatty liver disease and diabetes. However, research shows that obese children and teens develop diabetes and fatty liver disease—conditions normally only seen in adults. Overweight and obesity affects quality of life and increases health care costs (Australian Institute of Health and Welfare 2015).

If overweight or obese as a child, there is a high chance of being overweight or obese as an adult too (Singh 2008). Research on adults shows repeatedly that it is difficult to lose excess weight and even harder to keep it off. Scientists are therefore very concerned about overweight and obesity among young people, because it increases their risk of premature disease and overweight may ‘track’ into adulthood. Therefore, preventing overweight and obesity in childhood is of great public health importance.

Ongoing research in the Raine Study has greatly improved our understanding of how dietary intake during adolescence can have short and long term consequences for mental and physical health:

Mental health

Raine Study teens who had a higher score for the Western dietary pattern were more likely to have emotional or behavioural problems (Oddy 2009). This was after taking account of family factors such as family functioning, family income, living with one or two parents, and parents’ education level.

Raine Study teens who ate a better quality breakfast at 14 years of age:

- Were more likely to be within the healthy body weight range; research suggests eating breakfast is good to kick start your metabolism and makes you feel full for longer.
- Tended to be more physically active; a good breakfast gives you the energy you need to be active.

Learning and Academic performance

Raine Study teens with a higher score for the Western dietary pattern performed less well:

- in their Western Australian Literacy and Numeracy Assessment (WALNA) test at 14 years of age (Nyaradi 2015); this might be because this dietary pattern is high in processed foods and may be low in vitamins and healthy fats (omega-3) essential for better brain function.
- at tests measuring visual attention, memory and attention, visual learning and memory, and psychomotor functioning (Nyaradi 2014).

Bone health

Our bones are largely made up of calcium and other minerals such as phosphorus, magnesium and potassium, which must be obtained from the diet. Adolescence is a key time for building up bone strength, therefore what we eat in adolescence determines our bone strength in adulthood. In the Raine Study, a dietary pattern at 14 years of age that included modest dietary protein, calcium and potassium intakes, was associated with better bone mineral content and density at 20 years of age (Van den Hooven 2015). This dietary pattern featured moderate intakes of low-fat dairy products, whole grains, vegetables and fruits.

Heart health

- Heart disease kills more Australians than any other disease (NHFA 2016). High blood pressure is a risk factor for heart disease. Raine Study teens who had a higher intake of dietary omega-3 and omega-6 fatty acids had lower blood pressure (O’Sullivan 2011). Fish and seafood are the best sources of these beneficial fats, but they can also found in sunflower seeds, walnuts, brazil nuts and sunflower and canola oils.

- Being overweight increases the risk of heart disease. A higher score for the ‘Western’ dietary pattern in Raine teens at 14 years of age almost doubled the chances of being...
overweight or obese at 17 years of age (Ambrosini 2014).

- Drinking 1.3 cups of SSB per day or more at 14 years of age was linked to a greater risk of overweight and obesity and more cardiometabolic risk factors at 17 years of age (Ambrosini 2013).

Summary

The diets of Australian teenagers could be much improved. At 14 years of age, Raine Study teens did not eat nearly enough vegetables, dairy, wholegrain cereals, or high quality breakfasts. Most Raine Study teens consumed too many discretionary items, probably as snacks between meals; this increased total fat, saturated fat and added sugar intakes to above recommended levels. High sugary drink consumption was also common. There were similar findings among teens in the 2011-12 Australian Health Survey. The diets of Australian teenagers is a concern and requires significant improvement to reduce the risks of poor health in the short and long term.

What can be done?

A multitude of factors can influence what we choose to eat and drink: cultural preferences; income; where we live; what our friends or parents eat; age, gender and life stage; our cooking skills and food knowledge.

Teenagers are influenced by their peers, social media and popular culture. Adolescents and children are especially vulnerable to food marketing and advertising. Extremely cheap fast foods are usually marketed at teens and young adults, who have small budgets. All of these factors begin to have a greater influence over what teens eat as they gain independence from their parents, spend more time with their friends and are able to purchase their own meals and snacks.

As well as these external influences, the teenage brain is thought to be particularly sensitive to reward. This means that teens may be more sensitive to the hedonic or pleasurable response to eating salty, sweet or fatty foods (De Cock 2015). This may be a strong factor that drives teens to seek out discretionary items like chocolate, crisps and sugary drinks.

Tackling poor diets needs action on several fronts. Scientific evidence suggests that dietary patterns are formed in childhood and carry into adulthood therefore, developing healthy eating habits early is important. Nutritionists and educators believe that food literacy, cooking and eating skills are life skills that need to be brought back into the National School Curriculum, as early as kindergarten.

Science also tells us that people are more likely to change their behaviours if their environment supports it. Therefore, we need to make it easier for everyone to make healthier eating choices. Currently, our food environments are dominated by cheap, unhealthy options. Social marketing may also have a role to play, to make healthy eating ‘the norm’.

Public health advocates have argued for many years for the banning of junk food advertisements and promotions to children. Price promotions that make ‘upsizing’ serve sizes more economical, for example drinks and snacks in cinemas, do not encourage healthy eating. In some countries, the price of discretionary items like SSB, has been increased by adding taxes to discourage their consumption.

Much more needs to be done to develop healthy eating skills early in life and to shape our environments so that healthy food choices are easier for adolescents, and the population as a whole.

Acknowledgements The authors wish to acknowledge and thank all families who took part in this study and the entire Raine Study team, including data collectors, cohort managers, data managers, clerical staff, research scientists, and volunteers.
Student activities:
1. Discuss some of the changes that occur during adolescence.
2. How might these changes influence teenagers’ diets?
3. What did the Raine study identify about the diets of Australian teenagers?
4. What are discretionary food items and how often should they be eaten? Why?
5. What associations did the Raine study find with teenagers who had a better quality breakfast?
6. What is a Western dietary pattern and why do you think it is called that?
7. What physical health associations did the Raine study find with a Western dietary pattern?
8. What mental health associations did the Raine study find with a Western dietary pattern?
9. If you were on the school council at your school, what measures would you propose to improve the food that is available at school?
10. If you were employed by the Australian Institute of Health and Welfare, what public health policies would you propose to improve the diets of Australian teenagers? Address a broad range of influencing factors in your proposal.

References


CAN DIET AND NUTRITION AFFECT OUR LEARNING, BEHAVIOUR AND MENTAL HEALTH?

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About 13 years ago I put out a media release to help recruit volunteers for my PhD research project which aimed to investigate the effects of omega-3 fatty acids on learning and behaviour in children with symptoms of attention deficit hyperactivity disorder (ADHD). One of the journalists who interviewed me asked ‘Why are you interested in this topic; I mean, we all eat what we eat and we’re all okay?’.

My response was that we are not all okay! Sixty three percent of Australians are overweight or obese (ABS 2013), which has doubled in the past 20 years – and this includes 1 in 4 children and teenagers. Chronic diseases are now an epidemic, with heart disease the leading cause of death in countries like Australia. These diseases are directly related to lifestyle factors including poor diet and inadequate physical activity.

This journalist’s well-meaning question highlighted to me that people don’t really seem to make the connection between what we eat and our health – and this particularly applies to how we think, feel and behave. Mental health problems carry the fourth largest burden of disease, affecting 45% of Australians aged 18-65 at some stage in their life, and one in nine Australians have a coexisting physical and mental health problem (AIHW 2012).

Mental health problems like depression, anxiety, ADHD and conduct disorder affect one in seven children and teenagers (Australian Government Department of Health 2015). Of course there are many factors that contribute to mental health problems like genes and environmental circumstances – but what about diet and nutrition?

We know that Australian children and teenagers are eating excessive ‘non-core’ processed food that is high in unhealthy fats and sugar and artificial additives, and not enough nutritious food, particularly fruit and vegetables (Department of Health 2007). These highly processed food diets have become the norm – which is a huge concern (Moodie et al. 2013). What effect is this having on our health?

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**Nutrition and brain function**

Many people understand that poor diet/highly processed foods can lead to physical health problems like obesity, diabetes, liver disease and heart disease, which are all associated with chronic inflammation. Our brain is an organ, just like the heart, liver, kidneys and lungs. And the brain is also affected by poor health, like inflammation, poor blood glucose control (leading to diabetes) and excess weight. In fact some studies have shown that inflammation increases our risk for depression. Our brain also has particularly high requirements for nutrients and energy from food to work properly (Gomez-Pinilla 2008; Nyaradi et al. 2013). In fact nutrients are the building blocks of the brain and without them it would not develop or work at all. Let’s have a brief look at just some of these.

Sixty percent of the brain is made up of fat, which is an essential component of all our cell membranes. In the brain, the omega-3 fatty acid called DHA is more concentrated than anywhere else in our body (apart from the retina in the eye). As well as having a structural role, DHA is needed for a whole range of important brain functions including transmission of chemicals that influence our learning, our mood and our behaviour.

Zinc is an essential nutrient that is needed for hundreds of biochemical reactions that take place in the body, including synthesis of neurotransmitters that help our brain work properly. It is important for learning and memory, and low levels may contribute to depression and mental illness. Magnesium is needed for hundreds of processes, many of which are important for brain function including nervous system regulation, protein synthesis and making new neural connections. It is also great for reducing stress and can assist with sleep. Iron is needed to transport oxygen around the bloodstream which is critical for the brain to work properly.

Many other minerals such as iodine and selenium and a range of vitamins such as B, C, D and E also have important roles in the brain. Polyphenols from fruit and vegetables can help to maintain healthy brain function by preventing oxidation and inflammation, which have both been associated with mental illness.

**Learning, behaviour and mental health - research studies**

A growing number of studies, including my PhD project, have shown that low levels of omega-3s are associated with mental health problems like ADHD, depression and schizophrenia, and that supplementation with fish oil can help alleviate symptoms (Sinn et al. 2010). Children who were underperforming at school showed improved learning and behaviour after DHA supplementation (Richardson et al. 2002). We recently reported low levels of omega-3s in children with ADHD and autism, and these were correlated with their symptoms (Parletta et al. 2016). There is further evidence that a range of other nutrients may also...
be involved in ADHD such as zinc, magnesium and iron (Sinn 2008).

Some placebo-controlled studies have shown that vitamin/mineral supplementation can help improve cognitive performance and IQ in school children who had less than optimal levels of these nutrients to start with (Benton 2008; Schoenthaler et al. 2000). Juvenile offenders showed significantly less violent behaviour after being given vitamin/mineral supplements, and this effect was greatest in those whose blood nutrition levels rose during the study (Schoenthaler & Bier 2000).

It is important to note that taking vitamins/minerals is not going to make anyone smarter than their potential. However it seems that suboptimal levels of nutrients can impact on our mental health and cognitive performance before we see any physical symptoms of nutritional deficiency. Therefore we may not be aware that we are suffering from low nutrient levels, and indeed there is evidence to suggest that many people do not get adequate nutrition from their diets.

**It seems that suboptimal levels of nutrients can impact on our mental health and cognitive performance before we see any physical symptoms of nutritional deficiency.**

It is also important to note that nutritional supplements are just that: supplements; they do not replace a healthy diet. In a large Australian population based study that following children up from birth into their teens, poor diets have been associated with increased risk of cognitive and behavioural problems while healthy diets are protective (Raine study, 1989- ). Another population study with teenagers also showed that over time, unhealthy diets were associated with greater risk of mental illness while healthy diets were associated with less risk of mental illness (Jacka et al. 2011).

These studies highlight the importance of focusing on healthy diets and nutrition in children and teenagers for better mental health and wellbeing. We will look at brain food as part of a healthy diet further below.

Some great resources to learn more about the brain-food link:

- http://www.foodforthebrain.org/

**Behavioural food reactions**

A seemingly growing number of children are sensitive to certain components of food that can affect their behaviour. These are different to food allergies as they don’t involve an immune response. Artificial food colours and preservatives have been shown to increase hyperactive behaviour in school children in the UK (McCann et al. 2007), and may contribute to symptoms of ADHD (Stevens et al. 2013). In fact children with ADHD can react to a range of natural and artificially occurring substances and additives in food which can have mild to severe effects on their behaviour and ability to focus (Pelsser et al. 2011). Food reactions can have an effect on mood and behaviour in teenagers as well. There are some great online resources for those who are interested in reading further information in this area:

- http://foodintolerancepro.com/

**Gut and brain**

These food reactions may be related to poor gut health. There has been an explosion of interest in recent years regarding the 100 trillion bacteria that live inside our bodies, mostly in our gut – in fact our bodies have more bacteria than human cells so you could say we are more bacteria than human! Many of these bacteria are our friends and they are critical for our health – for instance they help to keep the lining of our stomach and intestines healthy so we can absorb nutrients and keep out toxic material and undigested food particles, they help our body fight disease and pathogenic bacteria, they help to make and absorb nutrients – and they play an important role in signaling messages to our brain. This is called the ‘gut-brain axis’. Our diet has an important influence on the bacteria in our gut and therefore this is another way that food can influence our learning, mood and behaviour. Plant foods that contain fibre are particularly important for the good bacteria to feed on and perform their functions, while pathogenic bacteria thrive on a diet high in sugar and refined carbohydrates. Some interesting resources for further reading:

Brain food

So what is a healthy diet for mental health and wellbeing? A healthy diet for our body is also a healthy diet for our brain. There are a lot of different diets out there so it can easily be confusing to know what is healthy. However it is actually quite simple. The important factor that these diets have in common is that they focus on eating whole foods (i.e. cooked from raw ingredients) and avoiding processed foods (i.e. food from a packet). So this is an excellent start to being healthier and feeling better.

A healthy diet includes a variety of fruit and vegetables, legumes (such as lentils, chickpeas, kidney beans, cannellini beans etc.), wholegrains (such as oats, quinoa, barley, rye, millet, amaranth, corn, etc.), nuts and seeds. It is very important to eat a good amount of healthy fats – in particular from extra virgin olive oil, avocado, oily fish (e.g. salmon, tuna, mackerel), and nuts (e.g. almonds, hazelnuts, walnuts).

Further reading:
• http://www.bbcgoodfood.com/howto/guide/10-foods-boost-your-brainpower
• http://www.webmd.com/diet/eat-smart-healthier-brain

A diet that is high in plant foods is naturally high in nutrients and fibre. This includes a variety of fruit and vegetables, legumes (such as lentils, chickpeas, kidney beans, cannellini beans, etc.), wholegrains (such as oats, quinoa, barley, rye, millet, amaranth, corn, etc.), nuts and seeds. It is very important to eat a good amount of healthy fats – in particular from extra virgin olive oil, avocado, oily fish (e.g. salmon, tuna, mackerel), and nuts (e.g. almonds, hazelnuts, walnuts). Eggs are a great source of nutrition – the focus on cholesterol is a myth. Dietary cholesterol does not raise our cholesterol or lead to heart disease. Cholesterol is made by the liver when we eat too much refined carbohydrates (sugar, white flour, bread, pastries, biscuits, cakes, etc). And in fact research is now showing that diets high in healthy fats, low in refined carbohydrates and high in plant foods have the best impact on our health and are better for maintaining a healthy weight.

• http://chriskresser.com/do-gut-microbes-control-your-food-cravings/
• http://goo.gl/79hA1H
Final thoughts

Many people worry that they can’t cook/prepared healthy food or that it is too expensive. It is a shame that schools have cut back on home economic classes to teach cooking skills. However there are classes, websites and cookbooks that can teach basic skills and healthy recipes that are tasty, cheap and easy to prepare. It is a priceless investment in our health and wellbeing. Cooking and sitting down to a home cooked meal with family or friends can be one of the greatest pleasures in life and a perfect time for connecting with those close to us.

Improving our diet and nutrition status won’t necessarily solve all our problems. But a healthy diet can certainly help to give us the building blocks, strength and resilience that we need to pursue a productive and happy life.

Student activities:

1. In what ways might our diets affect our brain (and therefore our learning, behaviour and mood)?
2. What nutrients are important for brain function and what are some of their functions?
3. What types of foods are good for healthy brain function?
4. What foods should we avoid for healthy brain function?
5. Why has fish been called ‘brain food’?
6. Can nutritional supplements replace a healthy diet? Why/why not?
7. Discuss some of the problems associated with highly processed foods.
8. What are some of the roles of the good bacteria that live in our gut?
9. How can we promote a healthy gut environment, and how might this help with our brain function?
10. Discuss some ways you could include healthy brain food into your diets, including recipe and snack ideas.
11. Design a food diary with columns for time of day, food/drinks consumed, and mood. Complete the food diary (one sheet per day; record the day on top) for 7 days.
12. Try replacing processed/takeaway foods and sugary food/drinks with brain healthy food for 7 days and record each of the following before and after:

On a scale of 1-10 (where 1 = terrible and 10 = fantastic) rate:

a. your mood (how happy you feel);

b. your energy levels;

c. your concentration with school work;
   and

d. the quality of your sleep.
References with weblinks

Let’s start with a few facts. Australians’ waistbands have increased over the past three decades, with recent data showing 68% of men, 55% of women and 25% of children are overweight or obese.

Excess body fat is a problem for the individual. And it’s ultimately a problem for society because it overloads the national health budget.

Health problems due to excess body fat include an increased risk of type 2 diabetes, coronary heart disease, high blood pressure, asthma, sleep apnoea, musculoskeletal conditions (including osteoarthritis) and certain types of cancer (especially colorectal and breast cancer in post-menopausal women).

There is good evidence to show genes play a role in obesity and explain why some people gain more weight than others when their energy intake exceeds their body’s needs. But genetic factors can’t explain the rapid increase in excess body fat over the past 20 to 30 years.

So what has changed? Two obvious factors stand out.

Physical activity has decreased as we have embraced labour-saving devices and sedentary behaviours. Changes in urban design and the use of cars for transport also play major roles.

What we eat and drink has also changed. We eat more. We snack more often. We quench our thirst with sweetened beverages. Portion sizes for drinks, meals and snacks have all increased and foods and drinks that were once kept for special occasions are now daily “treats”.

In spite of calculations showing that our increased food intake and decreased exercise output have increased our national girth, we continue to ignore such obvious factors.

Instead we look for a magic bullet cure-all, with diets high on the list of possible saviours.

The need to consume less is generally an unwelcome message to individuals and to the corporate world, where the “economy” we worship depends on continued increases in consumption. Anything that might decrease consumption of any food or drink is strenuously opposed by those whose profits depend on market growth.

Diets and diet products are also money spinners. Diet books that target a specific scapegoat are also supported by companies who cash in with new product formulations to fit.

When health authorities suggested cutting kilojoules by eating less fat in the 80s and 90s, the food industry responded with literally hundreds of low-fat products, which replaced fat with sugars and refined starches.

When this move failed and was replaced by a low carb craze in the 2000s, a flood of low carb products followed.

Initially, any diet will “work”. Despite protestations to the contrary, every diet is based on some way of restricting kilojoule intake.

Some diets proudly proclaim you can eat as much butter and cream as you like, but then forbid almost everything you might have with these items. But there’s a limit to the number of fatty chops topped with butter that most people could eat.

Many people also like the rigidity of a diet’s rules – at least for a few weeks. After that, the rules are gradually broken.

We saw this with the CSIRO’s diets. After 12 months, those on low protein diets increased their protein intake to normal levels, while those on high protein diets reduced their protein intake.
Long term, no diet has proved effective. After the initial weight loss, most people on any diet regain most of what they lost. There’s no mystery to this. Much of the early weight loss is due to a loss of water. Our muscles store about 500 to 600g of glycogen (a store of energy), each gram stored with almost 3g of water. A few days on a low carb diet will deplete these stores and produce a rapid weight loss.

A high protein/low carb diet will force the body to convert some protein to glucose to maintain essential blood glucose levels (humans can’t convert fat to glucose). The leftover parts of protein must be excreted by the kidneys, which increases urine output.

Gaining fat is a slow process, usually occurring over many years. So the aim to lose it in weeks is a pipe dream. Burning off fat stores occurs slowly and only the extremely obese can hope to lose a kilogram a week.

As weight is lost, it also takes less energy to move the body. And while movement is often easier with less bulk to carry, those who aim to lose weight without increasing physical activity are doomed to fail.

The plethora of diets, diet books and diet gurus prolong the hope for a magic formula that will melt away the kilos.

But it’s time to get real and realise diets don’t work. The best solution to the obesity epidemic is to prevent it with healthier eating patterns and more physical activity.

If it’s too late for that, the solution is to make gradual changes to poor eating and exercise habits – and to make changes you can live with forever.

This magic formula of moving more and consuming less will take time and effort but you can bet it will work.

Student activities:
1. List the health problems that are associated with being overweight or obese.
2. Outline at least 10 factors that have contributed to the dramatic increase in overweight and obesity.
3. Why do rigid/fad diets not work in the long term?
4. What is a more effective way of achieving and maintaining a healthy weight?
5. What are the national dietary and physical activity guidelines for teenagers?
6. Highly processed, takeaway food, sweetened drinks, frequent ‘treats’ and sedentary activities like computer games, internet and social media have become the norm in our society, and industry has played a significant role in this. Come up with some ideas as to how this can be addressed.
7. Individually or in small groups come up with at least 10 different ways for busy teenagers to be more active in their daily lives.
8. Individually or in small groups, design a tasty 14-day menu plan of healthy meals (breakfast, lunch, dinner) and snacks, ensuring that each day provides at 2-3 serves of fruit (not juice) and at least 5 serves of vegetables; at least two meals include protein, wholegrain carbohydrates, and healthy fats (e.g. avocado, nuts, extra virgin olive oil); with no more than 2 serves of red meat per week and no processed or takeaway food or sweetened drinks. Try to include at least 3 serves of fish and 3 serves of legumes per week.
9. Try planning and cooking one of your dinner recipes for your family. Ask your mum or dad for help or guidance if you need.

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