


Puspa Shrestha

Best Quality Resource Site for Class 11 And 12 Students
(Based on Updated Curriculum 2077)

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Puspa Shrestha

“Take care of your body. It's the only place you have to live.” - *Jim Rohn*

Reading

You May Scoff...

Before you read

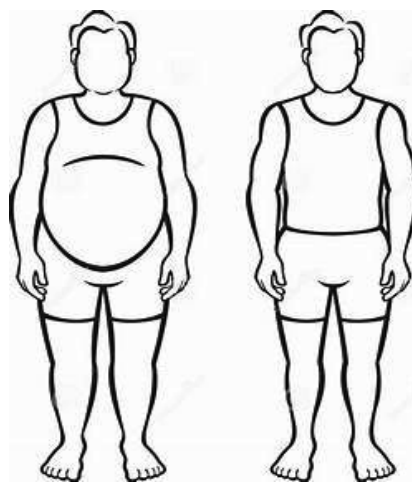
- a. Do you think that ‘eating less and moving more’ can be a good suggestion for health?

Now read the following article about staying slim.

Who needs diets and exercise? There are plenty of other ways to stay slim.

The holidays are a time of excess. Eat, drink and be merry, for tomorrow we diet - or perhaps not! Unfortunately, we do not all have the self-discipline and **determination** it takes to cut back on cake and hit the gym. But fear not - there could be other ways to shift the fat and stay **trim**.

Just to get this straight, if you over-eat and under-exercise you will gain weight. However, growing evidence suggests that other factors also contribute to excess **adiposity**. Last year, David Allison at the University of Alabama in Birmingham, Ala., **highlighted** this when he discovered that humans are not alone in piling on the pounds. He looked at wild animals, lab animals, even animals kept on the same highly controlled diets for decades, and found that all were becoming heavier (*Proceedings of the Royal Society B*, vol. 279, p. 1626). Allison concludes that whatever factors are fattening up the animals that live around us might also help explain the human obesity epidemic.



That being the case, identifying these alternative factors should give us new ways to fight the **bulge**. The good news is that researchers worldwide are beginning to do just that. It is not yet known how much each factor contributes to obesity, but we can **nevertheless** suggest ways of avoiding them – and some are far less painful than dieting or pounding the tarmac.

Get vaccinated

If you catch a cold this holiday season, you may have to stock up on new clothes as well as tissues. That's because at least one common cold virus has been linked to obesity. Nikhil Dhurandhar of the Pennington Biomedical Research Centre in Louisiana discovered that adenovirus-36 (AD-36) **boosts** both the number of fat cells in the body and the amount of fat inside these cells. He also found that obese people are nearly three times as likely as those of healthy weight to test positive for AD-36 antibodies, indicating current or past infection (*Obesity*, vol. 14, p. 1905). Another study reported that children with AD-36 antibodies weighed an average of 23 kilograms more than children without them (*Paediatrics*, vol. 126, p. 721).

The “fat effect” of AD-36 might **persist** for several years in humans, although nobody knows for sure. Meanwhile, another 10 microbes have been reported to make animals fatter. While it sounds alarming, this could actually be good news in the fight against **flab**. “If indeed some infections contribute to obesity in people, we could have a potentially very simple and effective prevention strategy – vaccination,” says Dhurandhar.

Chill!

While extreme stress tends to make people lose weight, the everyday kind can have the opposite effect. So, for the sake of your waistline, take a deep breath, and don't let the festive family **bickering** get to you.

Failing that, try giving the new-year diet a miss. One recent study found that moderate calorie **restriction** made mice much more sensitive to stress, and this effect persisted once the diet was over. The mice went on to choose more high-fat food than those that had never had their food restricted (*Journal of Neuroscience*, vol. 30, p. 16399).

Brain imaging studies by Rajita Sinha, director of the Yale Stress Centre at Yale University showed that stress increases activity in the ventral striatum, a region associated with reward and habits (*Neuropsychopharmacology*, vol. 36, p. 627). “So it increases craving for high calorie foods in those who have a habit of consuming them,” she says. Instead of counting calories, she recommends mindfulness, stress reduction and meditation techniques to cultivate an awareness of how your thoughts and behaviour can undermine your health. “They can help with taking control over the **urges** and stress-related eating of high-calorie food”.

Everybody say “om”.

Over the past three decades, homes in the US and UK have become warmer. Fiona Johnson at University College London and colleagues think this may be making us fatter (*Obesity Review*, vol. 12, p.543). Simona Bo of the University of Turin, Italy, agrees. In a study of more than 1500 middle-aged adults, her team found that those whose home temperatures ranked in the top third were about twice as likely to become obese over the six-year period of the research (*International Journal of Obesity*, vol. 35, p.1442).

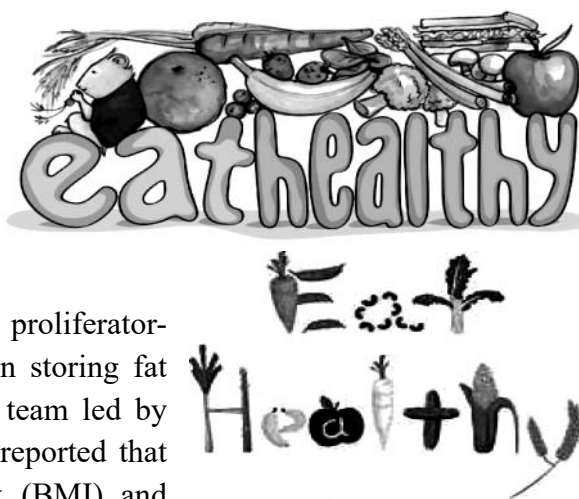
Shivering obviously burns energy, but you don't need to be freezing for your body to chew through extra calories. Most fat on our bodies is a type called white fat. But when temperatures get down to about 18°C, brown fat – which is abundant in babies and which adults mostly carry around their necks – starts burning energy to warm you up.

Unfortunately, if you were not regularly exposed to cold, your brown fat deposits shrink and so too does your capacity to burn off that extra holiday treat. Any change will help, though, says Johnson. You burn steadily less energy as environmental temperatures rise from 15°C to 28°C. “So turning down the thermostat by any amount is likely to have some small effect,” she says. Do try this at home.

Watch the packaging

As well as looking at the nutritional labeling, you might also want to watch the actual material your food comes wrapped in. Some plastic packaging and cans contain endocrine disrupter chemicals that can leach into food and drinks, and evidence is starting to link some of these to expanding waistlines.

Endocrine disrupters change the normal functioning of hormones. Many interfere with the functioning of the thyroid, which produces hormones that regulate metabolic rate. One group, known as phthalates, also seems to activate a receptor in the cell nucleus called PPAR (peroxisome proliferator-activated receptor)-gamma, involved in storing fat and metabolizing glucose. In 2010, a team led by Elizabeth Hatch at Boston University reported that men with a bigger body mass index (BMI) and waist circumference had higher blood concentrations of metabolites of phthalate



(*International Journal of Andrology*, vol. 33, p.324). Other research has linked obesity to exposure to bisphenol A, which is another endocrine disrupter.

Debate continues over whether these chemicals are harmful or not, and avoiding them is tricky. But look out for PVC packaging – labeled “Type 3” for recycling purpose – which can contain phthalates or bisphenol A. And be especially wary when buying fatty foods in which endocrine disrupters tend to accumulate, posing a potential double threat.

Turn down the lights

If your idea of a holiday workout is lifting glasses of beer late into the night, then it’s not just the extra calories you need to worry about. Randy Nelson and his team at Ohio State University in Columbus found that mice exposed to light at night weighed 10 per cent more at the end of the eight-week study than mice that had experienced a standard light/dark cycle, even though they ate the same total number of calories and did the same amount of exercise (*Proceedings of the National Academy of Sciences*, vol. 107, p.18664). Several other studies have found that shift work makes people fatter.

Light at night might alter circadian clock genes, changing an individual’s metabolism, Nelson suggests, “It’s difficult to specify an appropriate light cycle for everyone,” he adds. But he recommends keeping a **consistent** pattern throughout the week and, if possible, avoiding blue wavelengths of light at night (*New Scientist*, 7 May, p.44). Produced by many LED bulbs, these are known to be especially disruptive to the circadian system.

Move to the country

A brisk walk or jog outdoors can only help in the battle against the bulge, unless you are doing it in a busy city. Breathing polluted air can cause extra fat to accumulate around your stomach and also make your cells less sensitive to insulin, increasing your risk of developing type 2 diabetes. “We believe that air pollution plays a very important role in the current obesity epidemic,” says Xiaohua Xu of Ohio State University.

Xu exposed young mice to air heavily polluted with fine particles for 6 hours a day, five days a week, and found that after 10 weeks they had about 50 per cent more abdominal fat than mice that were fed the same diet but inhaled filtered air. The fatter mice also had elevated blood levels of a protein involved in **inflammation** called tumour necrosis factor-alpha. Xu believes this may help explain the changes to their fat cells, as well as their decreased sensitivity to insulin.

Another study found a strong link between levels of fine particulate air pollution and the prevalence of type 2 diabetes in North Americans (*Diabetes Care*, vol. 33, p.2196). “We were shocked that the association held up as well as it did,” says John Pearson at Harvard University, who led the research. Fine particles can blow around the globe so you can never entirely escape them, even if you can afford to move out of the city. But if you have a choice, it still might be worth picking a rural ramble over an urban jog.

Have a lie-in

If you need an excuse for spending more time in bed during the holidays, this could be it: too little sleep can make you fat. Simona Bo of the University of Turin, Italy, found that the adults who became obese during her six-year study slept an average of about 6.3 hours a night, compared with about 7.2 hours for those who maintained a healthier body weight. The link between sleep and weight held even when her team took into account other important causes of obesity, such as low level of physical activity. Rachael Taylor at the University of Otago, New Zealand, has found that children aged between 3 and 5 who sleep less than the average of 11 hours a night are also more likely to be overweight or obese by the time they are 7 years old. (BMJ, vol. 342, p. 2712)

Sleep **deprivation** reduces the secretion of leptin, a hormone that suppresses appetite, and increases levels of ghrelin, a hormone that stimulates appetite. “Or it could be as simple as less sleep means more time to eat”, says Taylor. Either way, an extra hour in bed sure beats going to the gym.

Emma Young

Ways with words

A. Ten words in the bold face in the text correspond to the definitions below. Match the definitions with the corresponding words.

- a. in spite of what has just been said or referred to
- b. a strong desire or impulse
- c. the ability to continue trying to do something, although it is very difficult
- d. to attract attention to or emphasize something important
- e. arguing about things that are not important
- f. not having things or conditions that are usually considered necessary
- g. continue to exist

- h. soft loose flesh on a person's body
- i. to improve or increase something
- j. a limiting condition on something

Now, make sentences of your own using the same words in bold type.

B. The words 'restriction' and 'awareness' are nouns with the suffixes '-ion' and '-ness'. Make a list of as many words as you can which end in '-ion' and '-ness'.

C. Pronounce the words. The sound of the letter given on the left is silent.

- a. **b**: climb, dumb, doubt, comb, thumb, debt, lamb
- b. **d**: Wednesday, handsome, sandwich, handkerchief
- c. **h**: hour, honest, honour, heir, ghost, ghee, exhaust, exhibition
- d. **k**: know, knee, knowledge, knit, knife
- e. **n**: column, autumn, condemn, hymn, damn
- f. **p**: receipt, cupboard, pneumonia, psychology

Comprehension

A. Write whether the following statements are True, False or Not Given.

- a. During the holidays people eat and drink more than usual.
- b. Getting too little exercise and eating too much is the reason why people put on weight.
- c. David Allison's research involved studying rats under laboratory conditions.
- d. You may need to go shopping for clothes if you come down with a cold.
- e. Adenovirus-36 (AD-36) decreases the percentage of fat in the fat cells.
- f. Vaccination against infections could be used in the future to prevent obesity.
- g. People under severe stress can experience breathing difficulties.
- h. A study indicates that mice that have never been on a diet choose fatty food, when given a choice between high-calorie or low-calorie food products.
- i. Rajita Sinha has been studying the connection between brain activity and behaviour.
- j. Specific hormones regulate our appetite.

B. Answer the following questions.

- a. In what sense are the holidays a time of excess? When can a person gain weight?
- b. According to David Allison, which factor contributes to excess obesity?
- c. What, according to Dhurandhar, can be the way of preventing fatness?
- d. What is the relationship between chill and obesity? How can saying ‘om’ help reduce fatness?
- e. Why is it necessary to be careful while buying plastic packaged fatty foods?
- f. Why does Nelson suggest avoiding blue wavelengths of light at night?
- g. How does breathing polluted air affect one’s fatness?
- h. What is the link between sleep and weight?

Critical thinking

- a. What do you do to keep yourself fit? What food do you avoid and why?
- b. Healthy citizens are the greatest asset of a country. What can a state do to keep her citizen healthy?

Writing

- a. Yoga can be good to stay physically and mentally healthy. Do you practise any yoga? Write an essay on the benefits of yoga.
- b. How can a person be mentally healthy? Provide about ten tips to a person to stay mentally fresh and healthy.

Grammar

Concord/subject-verb agreement

Subject-verb agreement is the correspondence of a verb with its subject in person (first, second, or third) and number (singular or plural).

A. Read this text and notice the subject-verb agreement.

The human body is like a machine. All machines need fuel to give them energy. The fuel for the human body is food. Most of the energy comes from two substances in our food: carbohydrates and fats. Carbohydrates are found in food like potatoes, bread, rice, wheat, corn, etc. and sugar. Fats come from food like meat, oil, cheese and butter. All junk food contains lots of carbohydrates and

fats. If you eat a lot of junk food, you will probably get fat and it may cause a lot of diseases.

B. Complete the sentences by choosing the correct verbs from the brackets.

- a. Everyone (has/have) problems in their life. Countries also (has/have) problems, and so (do/does) the world. One of the greatest problems (is/are) the growing population. The population in some countries (is/are) huge.
- b. A number of my friends (love/loves) riding bicycles, but neither my brother nor my sister (own/owns) a cycle. At 4 o'clock, either my mother or father (is/are) coming to pick me up in a car.
- c. The pair of shoes on the floor (is/are) mine. The shoes (was/were) made in China. The three thousand rupees I spent on them (was/were) worth it.

C. Are the following sentences correct? If not, correct them.

- a. Every one of the workers receive the same benefits.
- b. There is two gerbils in my bathroom.
- c. Both of my friends live in Kathmandu.
- d. Scissors is used to have our hair cut.
- e. You and your friends are welcome to join us
- f. Are the news on at five or six?
- g. The man with all his children live in the city.
- h. Mathematics are Prem's favourite subject, while Economics is Alina's favourite subject.

Listening

A. Look at the picture and guess the answers to these questions.

- a. Who are these people?
- b. What is the man doing?

B. Listen to the recording and complete these sentences.

- a. The man wants to try out for the company team.
- b. He was a player during high school.
- c. The woman suggested that her husband should cut back on the foods.
- d. She also suggests him trying to build up his cardiovascular system.
- e. She wants to be the man for a long time.

C. Find information on recommended exercises for different age groups and people with certain health risks and discuss your findings with a partner.

Speaking

Describing places

A. Work in pairs. Take turns to describe the village in the given picture.



B. Describe a place that you have recently visited.

Project Work

“Eat Healthy Stay Healthy” is the slogan to keep oneself healthy and active. Here are some sources of healthy food: BERRIES, FRUITS, VEGETABLES, GRAINS, LENTILS and NUTS. Research the benefits of these food items and present them in class.