

# INTERNATIONAL INDIAN SCHOOL – DAMMAM

## MODEL EXAMINATION 2014

### Subject – Biology

Class - XI

SET- A

Time : 3 Hours 30 Minutes

Max Marks: 70

#### General Instructions :

1. All questions are compulsory.
2. This question paper consists of four sections A, B, C, D and **Open Text Book Assessment (OTBA)**.
3. Section A contains 9 questions of 1 mark each, Section –B is of 10 questions of 2 marks each. Section C has 7 questions of 3 marks each and Section D is of 2 questions of 5 marks each. OTBA – 2 questions of 5 marks each.
4. There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and the two questions of 5 marks weightage. Attempt only one of the choices in such questions.
5. Where ever necessary, the diagrams drawn should be neat and properly labelled.

#### Section A

1. Name two genera placed in the family solanaceae. [1]
2. What is corpus luteum. How does it function as an endocrine gland ?. [1]
3. What do the terms phycobiont and mycobiont signify? [1]
4. Name the type of bond by which the monomeres in the following are held together. [1]  
(a) polysaccharides (b) polypeptides .
5. What will happen to a plant cell if it is kept in a higher water potential. [1]
6. Trypsin acts at an alkaline PH. What provides this alkaline medium. Write two actions of trypsin. [1]
7. Compare choroid and retina. [1]
8. In a wheat field some broad leaved weeds were seen by a farmer. Which plant hormone would you suggest to get rid of them. [1]
9. What are mesosomes? [1]

#### Section B

10. Fill in the blanks : a to d in the different columns of the table given below. [2]

Class	Pigments	Stored food
Chlorophyceae	( a )	( b )
Phaeophyceae	( c )	( d )

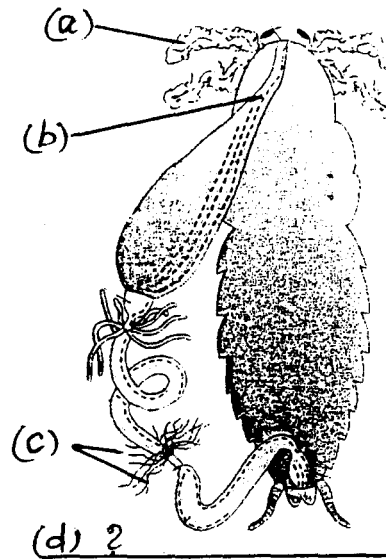
11. What is the significance of Juxtaglomerular apparatus in kidney function. [2]
12. Name the class of chordata that has: [2]  
 ( a ) placoid scales, powerful jaws and internal fertilization.  
 ( b ) scutes, no external ears and oviparous.  
 ( c ) operculum, air bladder and external fertilization.  
 ( d ) no neck, smooth skin with mucous glands.

13. What are trichomes. Mention their function. [2]

OR

How is fascicular cambium different from interfascicular cambium.

14. Identify the given picture and label the parts. [2]



15. How does temperature and PH affect the activity of enzymes. [2]
16. Show only by schematic diagram the Nitrogen cycle. [2]
17. There is a clear division of labour within the chloroplast. Justify. [2]
18. What is the importance of Fo-F1 particles in ATP production during aerobic respiration. [2]
19. Draw a neat labelled diagram of the duct system of liver, gall bladder and pancreas. [2]  
 (Label any four parts).

### Section C

20. (a). What is the role of calcium ions and troponin during contraction in striated muscles of humans. [3]  
 (b). Describe any two disorders of muscular system.
21. Name the organelle in animal cell that has its own genetic material. Explain with a neat labelled diagram. [3]
22. (a) Represent a pinnately compound leaf and palmately compound leaf diagrammatically. [3]  
 (b) What do you mean by the term pulvinus.

23. Name the three basic tissue systems in the flowering plants. Give the tissue names under each system. [3]

**OR**

Name the three permanent tissues found in flowering plants. Write one function for each.

24. What are the main steps in aerobic respiration? Where does it takes place? [3]
25. (a) Explain the role of diaphragm and ribcage in the process of inspiration. [3]  
(b) John smokes at least ten cigarettes every day and has been in the habit for years. What do you think will be the physiological consequence of his habit? Is John's habit harmful to him alone.
26. (a) Briefly explain systemic and pulmonary circulation. [3]  
(b) What is SA node. Write its function.

### **Section D**

27. (a) Write scientific term for each of the following: [5]  
(i). Exchange of genetic material between two homologous chromosome.  
(ii) Point at which two sister chromatids are held together.  
(iii) Nuclear division in mitosis.  
(iv) Inactive stage shown by the cells which do not divide further.
- (b) Enumerate the events that occur in different stages of mitosis.

**OR**

- (a) Write scientific term for each of the following.  
(i) Lens shaped openings found in the periderm.  
(ii) An axis bearing flowers in a particular manner.  
(iii) Lateral appendages at the leaf base of dicot leaves.  
(iv) A sterile stamen.

(b) Describe the arrangement of floral members in relation to their insertion/position on thalamus.

28. (a) Draw a neat labelled diagram of human eye. [5]  
(b) Explain polarization and depolarization of the membrane of a nerve fibre.

**OR**

- (a) What is photophosphorylation? Explain the two ways of this mechanism occurring in chloroplast.

INTERNATIONAL INDIAN SCHOOL DAMMAM  
MODEL EXAMINATION 2013-2014  
OPEN TEXT BOOK ASSESMENT

CLASS-XI

MAX MARKS -10

General instructions-

1. Read the open text material carefully before answering the questions.
2. Both the questions are compulsory.

BIOLOGY

TIME-30 MTS

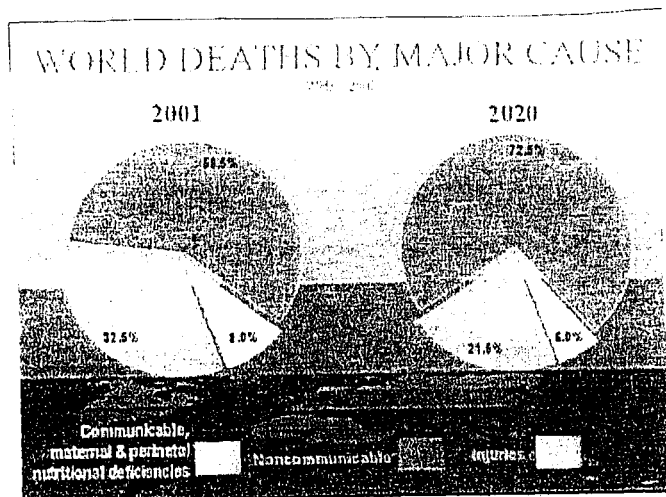
Answer the following questions

QUESTION NO 1.

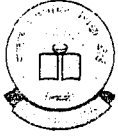
- a) "Obesity may be a problem or become a problem". Justify the given statement.
- b) Suggest certain ways to develop a healthier life style for the adolescents.
- c) Peer group plays an important role in the food choices of today's youth. Comment.  
2+2+1 marks

QUESTION NO 2.

Study the given diagram and answer the questions given below –



- a) Communicable and non communicable diseases contribute to more than nine million deaths worldwide. Name one disease which is communicable and one which is non communicable.
- b) Elaborate what you understand by the life style diseases and how you can control them.
- c) Injuries also contribute to the casualties. How and which area will you create awareness among people to decrease it. 1+2+2



## OPEN TEXT MATERIAL

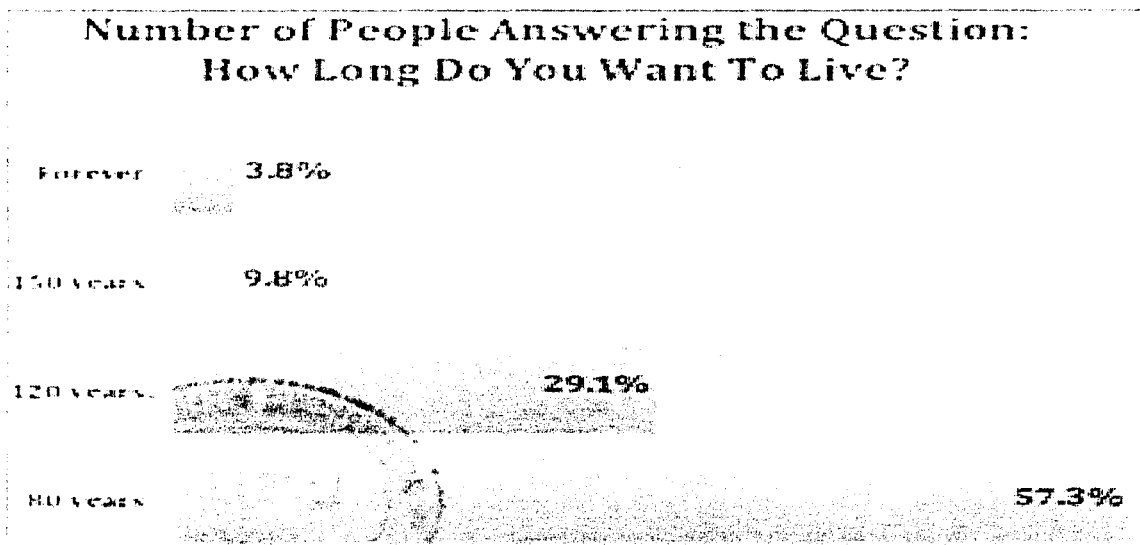
### 1. Theme - Life & Living

#### Abstract:

Globalization is an ultra modern term which is spreading its aura in every corner of the world, so it takes India also in consideration. For a country to become developed and achieve higher standards of success, it is of great significance. This widespread of the spirit of globalization is also affecting the style of working, which ultimately affects the health of the country. Since most of the working population of the country is youth, it is indirectly affecting the future of the country. Awareness about such consequences can lead to their prevention and it is a well known fact that "Prevention is always better than cure".

India is sitting on the cradle of progress. With massive change in economic policy of Liberalisation, Privatization and Globalization in 1991, India has moved on the path towards modernisation and great technical and professional advancements. There has been a tremendous growth of private sector enterprises in our country and a rise in number of school and college going educated youth who are employed in these sectors.

A survey on willingness of the people to live a long life reveals following result:



**Statistics-1** [Source: Survey conducted by NIH]

[[http://www.google.co.in/search?hl=en&site=img&pb&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs\\_l=img.](http://www.google.co.in/search?hl=en&site=img&pb&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs_l=img.)]

The interpretation which can easily be drawn is, more than 50% of the population wants to live atleast for 80 years and not below.



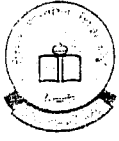
India's youth force is highest in the world, which is extremely determined, ambitious, tech-savvy and confident. The youth vigour is seen as the prime agent for contributing to the country's economic intensification and development. Youngsters are employed in large number in BPO (Business process Outsourcing), IT and KPO (Knowledge Process Outsourcing) industries, and are being provided handsome salaries. The most striking feature about India's youth is its desire to stay ahead in the rat race of cut-throat competition, and to succeed as fast as possible.

But this picture of 'India shining' comes at a cost and studies reveal that this cost has to be paid by none other than the very factor that is bringing the country to the brink of high growth, prosperity and development. Majority of college-going students and young working population is concentrated in metropolitan cities, Delhi, Mumbai, Bangalore, Chennai and Kolkata and the urban cities like Pune, Ahmedabad, Hyderabad, Surat, Kochi, Kanpur, Indore etc. Rapid urbanisation, growth of professionalism and the desire to earn fast and more money, has proved extremely detrimental to the country's youth. Despite the growth in industry and commerce, the foremost and important sector, neglected in the process, is health. It is observed that there has been a significant difference in life style of urban young population compared to the traditional, rather 'disciplined' style of living. It is seen that the life style adopted by majority of youth is extremely disorganised and unhealthy, and is further coupled with a defective diet. This can be owed to the idea that time is converted to money, and corporate and personal ambitions are being kept over and above health priorities.

Employers have fixed long hours of working for their people, in the way it suits them and young employees are constantly engaged in monotonous and immobile practice of spending hours in front of computer screen, working. They do not realise that even though they may be progressing financially and seem to be securing their lives and their family's future, they are moving towards an even more insecure future, as they are becoming more vulnerable to serious health risks. It is very unfortunate that they are not conscious about the facts that smoking, consuming calorie rich fast food, alcoholism and drug consumption and eventually becoming couch potatoes while not at work or engaged in anything, will, at the end of the day, cut their life span and hinder the country's progress at large.



Picture-1



[[http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs\\_l=img.](http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs_l=img.)]

Have you seen any couch  
potato around you?

Today our eating habits are different from those of a generation ago in all ways. Fast food, takeaways and eating out are parts of life for modern teenagers. There are many changes during adolescence that can cause changes in eating behaviour. It can be very difficult for parents of teenagers to convince their children about the benefits of healthier eating when they are also competing with the powerful messages advertising the taste of unhealthy but enticing food.

Innumerable health issues, which are coming up among today's youth, show a growing concern among the medicos and health experts. Usually, such issues are attributed to conflicts prevailing in the country over the last 24-25 years. Sedentary, deskbound life styles and less physical activity are other contributing factors to it. "Change in dietary habits, obesity (which is rapid nowadays due to sedentary life style), less outside activity and more time spend on social websites are the contributing factors responsible for health issues among youth" says Dr. Aadil Ashraf, senior post graduate, Deptt. of medicines, Shri Maharaja Hari Singh (SMHS) hospital in Kashmir.

Common problems which arise due to today's life style are:

Obesity, a very common problem, arising due to change in life-style

In modern living, there is very limited physical activity, which does not require a dense, calorie rich food but this is the kind of diet which teenagers are normally taking that leads to increase in their weight.

Obesity leads to other problems, like young people start to fight to control the weight, which further leads to diet related disorders like Anorexia, which is more than just a problem because of or with the food. It is a way of using food or starving oneself to feel more in control of life and to effortlessly ease tension, stress, anger and anxiety.

Bulimia nervosa is a disorder in the eating disorder range or spectrum. It is a characteristic disorder of binge eating and characterized by episodes of overeating and then hiding this habit from others and feeling ashamed of. Bulimia is characterized by episodes of secretive, undue excessive eating followed by inappropriate methods of weight control, such as self induced vomiting, abuse or misuse of laxatives and diuretics or excessive, self planned, self directed exercise. It is a psychological disorder. This is another condition that goes beyond control dieting. The cycle of overeating and purging becomes an obsession similar to an addiction to drugs or other substances. This disorder generally occurs after a number of unsuccessful attempts of dieting. Binge



eating is not triggered by extremely intense hunger. It is a response to depression, tension, stress or other feelings related to body weight, shape or feeding habits.

Dr. Ashraf says, "There is a rapid increase in mental illness", by adding that the mental illness has become common here. For him, conflicts and increase in competition level are some of its contributing factors.

Various life style diseases including diabetes, drug abuse, depression, obesity, cardio-vascular diseases and various forms of cancer are taking a heavy toll on the health of people. This was stated by the Deptt. of community medicine, Sher-e-kashmir Institute of medical Sciences(SKIMS).

Kulsoom Bhat, SKIM's Public Relations Officer (PRO), while quoting various health experts in a seminar on 'life style diseases and the role of community medicine', organized by the hospital in January, says, over use of internet causes internet addiction disorder, which is seen as the most modern life style disease. She adds, the speakers viewed physical inactivity, improper diet, tobacco, alcohol and stress as the main contributing factors that cause increased risk to human health, taking the form of very specific life style diseases.

Referring to a study conducted by hospital's Deptt. of General Surgery, Clinical Biochemistry and Endocrinology, Bhat says, obesity has been found to be an important factor associated with the risk of having gall bladder stone diseases followed by raised cholesterol. She, while quoting experts, says, metabolic syndrome is a growing health problem and is closely associated with cardiovascular diseases and non-alcoholic fatty liver diseases.

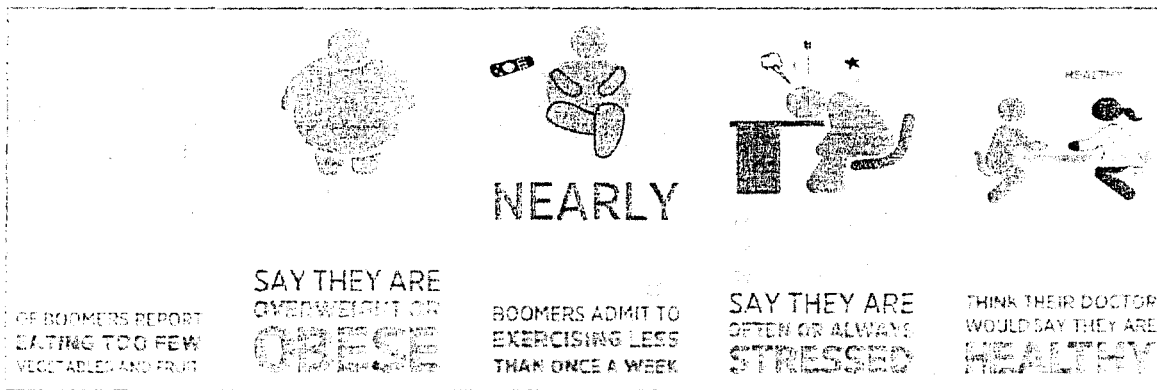
Study revealed that people with high blood pressure, diabetes and hyperglyceridemia are at high risk of having metabolic syndrome. It further brought to the light the fact that these problems can be curtailed through multidisciplinary treatment, including life style modifications, combined with therapeutic pharmacotherapy.

The stress of modern day living is causing an enormous burden on healthcare globally. Poor eating timings and habits, sleep deprivation and sedentary lifestyles have contributed to the growth of lifestyle diseases such as diabetes and hypertension, leading to a literal explosion of cases with cardiovascular complications.

The situation is worse in a country like India where historically the ratio of a physician to population is 1,00,000 to 1. Lack of expertise in complete disease management from the provider's side and lack of understanding of life style diseases among people, has created a complicated situation. Experts forecast that by 2020 nearly half the deaths will occur from complications of lifestyle diseases in India.

Can we plan something to adopt a healthy lifestyle in our VISION 2020?



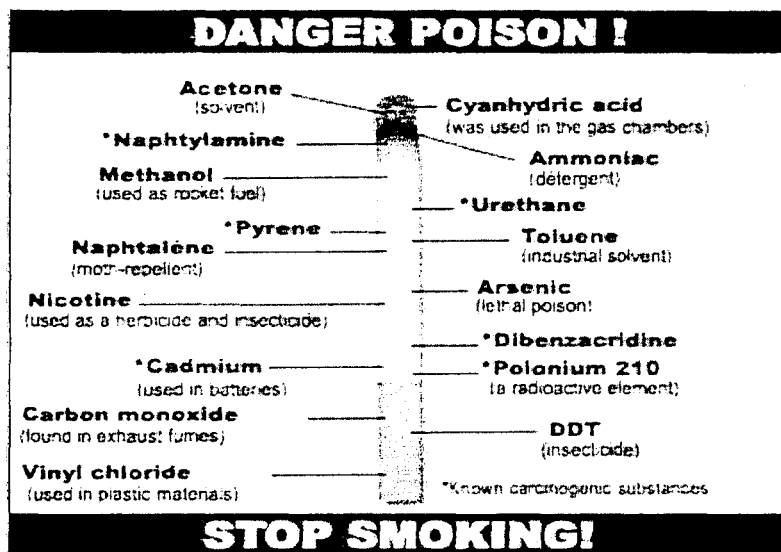


Picture-2

[Source:[http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs\\_l=img.](http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs_l=img.)]

RJ, 33 years old, was highly dedicated to his job and lived a very hectic lifestyle. He was considered as the hardest working employee in his organisation. He never liked to waste time during lunch hours and worked continuously during office time. He either frequently ate from outside, grabbing quick meals from hawkers or stalls, cafes and fast food restaurants, or he just skipped food. He never had time for exercise and was very overweight. He was also a heavy smoker, and frequently used the excuse that cigarettes helped him deal with stress.

Research on the most fascinating components of so called harmful substances uncovers the components, intake of which is being enjoyed by smokers:



Picture-3

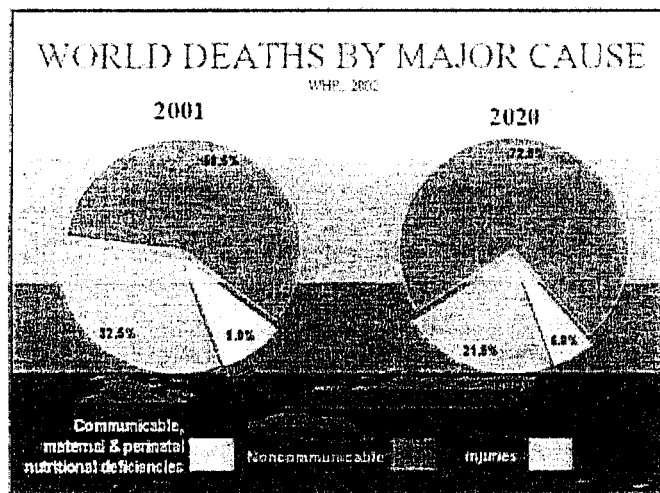
[[http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs\\_l=img.](http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs_l=img.)]



One day, he suffered with severe chest pain and collapsed because of that. His colleagues rushed him to the hospital. Upon investigations, the doctor revealed that he had partial blockage of his blood vessels and had suffered a heart attack during the meeting.

RJ's lifestyle is characteristic of many working people who tend to focus more on their careers than their health. This kind of lack of concern for their health is extremely disturbing and alarming. It is because of this that incidences of non-communicable diseases (NCDs) such as heart diseases have been on the rise.

Non-communicable diseases (NCDs) are diet-related chronic diseases and the main ones include heart diseases, obesity, diabetes, hypertension and different cancers. According to the World Health Organisation (WHO), more than nine million deaths worldwide, attributed to Non Communicable Diseases, occur before the age of 60.



*Statistics-2: [Source: WHR, 2002]*

[[http://www.google.co.in/search?hl=en&site=img&hp&t&tm=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs\\_l=img.](http://www.google.co.in/search?hl=en&site=img&hp&t&tm=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs_l=img.)]

The pie chart above reveals that the larger number of deaths is contributed by non - communicable diseases, which includes life style related diseases too.

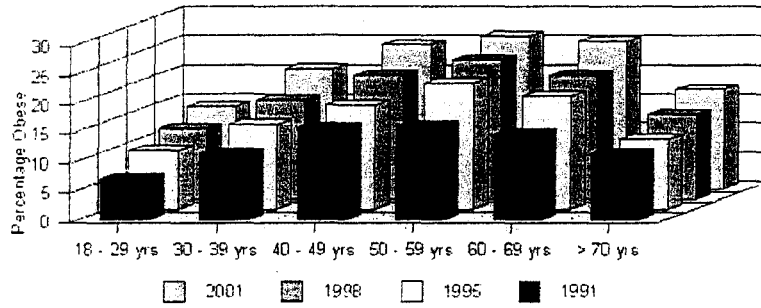
The report of the year 2011 of National Health and Morbidity Survey (NHMS) gives clear indications of the rise in NCDs and its risk factors.

According to the survey, the prevalence for the following has increased compared to previous years:

- ✧ Diabetes - increased from 11.6% (2006) to 15.2%.
- ✧ Hypertension in adults above 30 years old - increased from 32.2% (2006) to 32.7%.
- ✧ Obesity - increased more than three-folds from 4.4% (1996) to 15.1%.



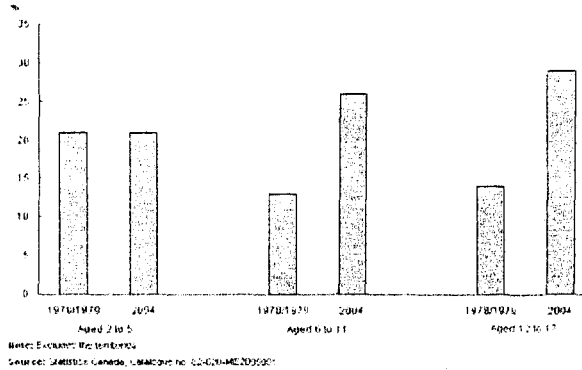
### Prevalence of Obesity by Age



**Statistics-3** [Source: Survey conducted by NGO]

[[http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs\\_l=img.](http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs_l=img.)]

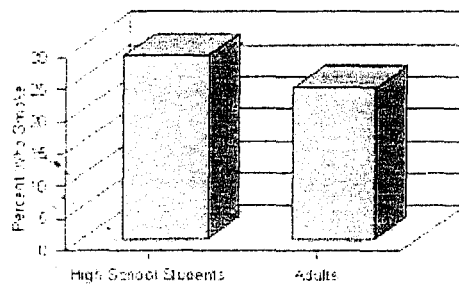
Overweight and obesity rate, by age group, 1978/1979 and 2004



**Statistics-4**

[[http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs\\_l=img.](http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs_l=img.)]

### Prevalence of Smoking



**Statistics-5** [Source: Data by NIH]

[[http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs\\_l=img.1%252F%20ig8.gif%3Bhttp%253A%2](http://www.google.co.in/search?hl=en&site=imghp&tbn=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=life+style+diseases&gs_l=img.1%252F%20ig8.gif%3Bhttp%253A%2)]



These changes have been occurring in our country and worldwide over the past few decades, but the most worrying fact is that most of the people do not realise that their health is in danger.

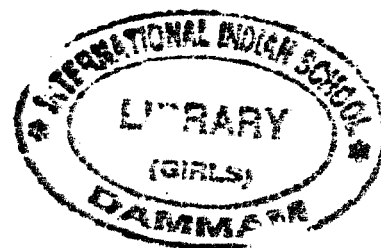
These lifestyle disorders affect adolescents in all ways, that is, psychological, emotional, physical and behavioural. Stress is very common in all diseases. They generally eat abruptly leading to other common problems, like gain in weight and nutrient deficiencies leading to anaemia etc.

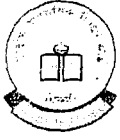
A major cause of concern is the lack of exercise leading to excess weight. Adolescents who are involved in sports or dancing may want to change their diet for fitness or morphological appearance. This is all - right in moderation and temperance, but if they are becoming obese or cutting down their food too much, this may be a problem or may cause a problem. In these situations, an exercising schedule should be made and followed strictly. They like to go out with their peer group/friends and it is very common for this age group to eat 'fast food' which is readymade and easily available. This could mean that they won't want to eat the evening meal. Doing this once or twice a fortnight is not harmful to them but excessive indulgence into this practice should be avoided.

It should be understood that skipping meals actually hinders the process of weight control. Skipping breakfast is not a good practice. Many researches show that this is the most important meal of the day.

All such harmful practices are contributing to a number of chronic diseases in the long run, like heart stroke and diseases, cancer, diabetes, obesity, stress and respiratory infections at a very young age. Improper, faulty life style and dietary habits can be seen as going against nature and against mother earth too, the result of which definitely does not augur very well for the future. Rise in fast food joints across the country and immersion of a western culture of clubbing and eating out and alcoholism, especially in the metropolitan and urban cities, has only accelerated the process of '**Progression towards regression**'. Contemporary lifestyle has become a disease in itself, gradually working as a leisurely poison, leading to fatal consequences.

Lifestyle diseases are spreading very rapidly across the world. Quoting Dr. Syed Shuja Qadri, senior resident community medicine, the PRO of SKIMs says, these diseases are different from other diseases as they are potentially preventable and can be controlled with changes in diet, life style and environment, and are manageable through life style modifications like proper sleep, age appropriate and regular exercise, effective handling of stress, good work-life balance and abstaining from alcohol and smoking to maintain and organize life style.





### COUNTERTHINK - "DELUSIONS OF TYRANTS"



Picture-4

[Source: [http://www.google.co.in/search?hl=en&site=img&tbm=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=lifestyle+diseases&gs\\_l=img.](http://www.google.co.in/search?hl=en&site=img&tbm=isch&source=hp&biw=1708&bih=833&q=lifestyle+diseases&oq=lifestyle+diseases&gs_l=img.)]

What is needed today is an extension of focus from organ based expertise – endocrinology, nephrology, neurology and cardiology to a more holistic approach where physicians can provide holistic care in a clinical setting, helping people avoid medical complications which require expensive treatment in hospitals. This new approach towards health and well being requires a dedicated team effort of physicians, dieticians, nutritionists, yoga experts and physiotherapists who work across their traditional silos.

The World Health Organisation and the World Economic Forum has recently said that India will incur an accumulated loss of 236.65 billion by 2015 on account of unhealthy lifestyle and wrong diet. It is seen that 31.2 percent of India's urban population is overweight or can be called as obese. Two out of three employees in India are victims of stress in the cities. India is also considered as the diabetes capital of the world. Studies show that the possibility of Indians suffering from a lifestyle disease is 4% more than that of any other nationality. Such is the grim, grey, dark side of the prettified picture of 'India shining'.

The situation demands a general growth of awareness among today's youth, shaking them from their compliances towards the self-destructive life-style they have adopted, and requires to make them realise the dangers posed by it. It urgently calls for implementation of workplace health programmes, as the work place environment largely influences the youth to promote better health behaviour. Moreover, the corporate needs to adopt a healthier work style for their employees and also for themselves. On a personal level, we are required to strive towards leading a more fit and suitable lifestyle that nurtures the body, mind and soul by consuming a diet that is truly balanced in its nutrient value, and finding time for regular physical exercises from our busy schedules. There is

also an emergent need to give equal time to have a better social life and go back to the old, popular saying 'early to bed and early to rise, makes a man healthy, wealthy and wise'.

Since we uphold the country's future, there is the dire need to ensure that we take care of ourselves as the country depends on us. The country can not hope to move forward if its own people are not healthy enough to contribute towards its rise to glory and sustainable development.

**References:**

- ✧ [Dailykashmirimages.com/news-multiple-health-issues](http://Dailykashmirimages.com/news-multiple-health-issues)
  - ✧ [ncbi.nlm.nih.gov/pmc/articles](http://ncbi.nlm.nih.gov/pmc/articles)
  - ✧ [youthkiawaz.com/2012/02](http://youthkiawaz.com/2012/02) by Tanim Banerjee
  - ✧ [bfysportsfitness.com/articles](http://bfysportsfitness.com/articles)
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