

## Stress

*Contents:* A series of activities concerning mental stress.

*Time:* 1 to 2 periods or more, depending on number of parts used. Some parts could be done for homework.

*Intended use:* GCSE Biology, Human Biology and Integrated Science. Links with work on hormones and response to stimulus, respiration and circulation of the blood.

*Aims:*

- To complement work on hormones, response to stimulus, respiration and circulation of the blood
- To develop awareness of the causes, symptoms and prevention of stress and stress-related disorders
- To provide opportunities to practise skills in oral communication within a group.

*Requirements:* Students' worksheets No.806

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The unit includes a number of activities, not all of which need be tackled.

*Activity 1* can be done individually, but may be better handled by students talking to each other in small groups.

*Activity 2* In small groups students discuss the stresses which might act on the people in the pictures.

*Activity 3* can be done individually but may go better in groups.

*Activity 4* begins with outline information on pulse-taking. The main part of the activity, observing a volunteer under artificial stress, can be tackled in small groups or with the whole of the class observing 'guinea pigs'. It needs careful handling because of the artificial nature of the stressful situation but will work where the students understand the objective and are interested in the results.

*Activity 5* links with Activity 3, covering in a short exercise the danger to health of chronic tension and anxiety. Students might discuss the suggestions given for tackling stress, and share their own experiences of coping with tension or anxiety.

### Further activity

After drawing together students' responses, if time permits, the teacher might introduce the idea of life events — events which occur in most people's lives and necessitate coping with some degree of change or loss and hence some degree of stress. These are *normal* events in a person's life from the cradle to the grave — going to school for the first time, examinations, childbirth, moving home, bereavement, etc. Life events can be pleasurable or painful but some people cope with change or loss better than others.

### Further resources

Useful information leaflets can be obtained from: MIND (National Association for Mental Health), 22 Harley Street, London W1N 2ED.

# STRESS

Mental stress is something we all experience at times. There are times when stress can be positive and spur us on to achieve a particular goal. But problems and anxieties can build up so we seem to be constantly under stress.

There is a direct link between stress and mental health, but it is not the whole answer. No one has a life free from stress — but not everyone becomes mentally ill.

So what is stress? Why do you feel it? What does it do to you?

## Activity 1

Think of a situation which has made you feel tense, worried, frightened or uncomfortable. For example:

- Exams
- First meeting with boy/girlfriend
- Interview

Answer questions 1 and 2. You may like to discuss them with members of your group.

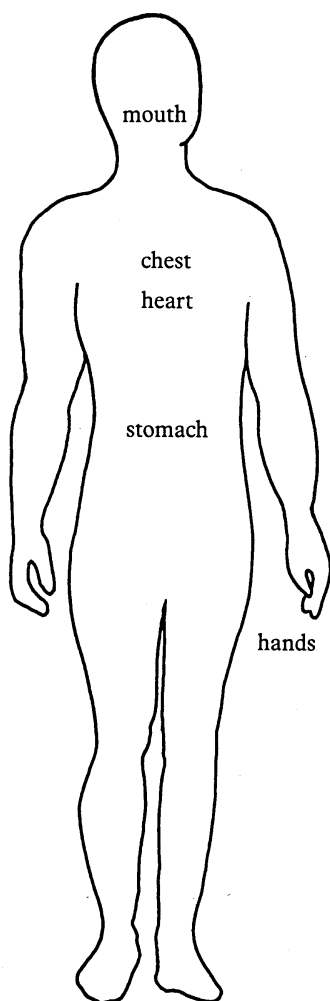


Figure 1

### Questions

- 1 How did you feel in this situation?
- 2 What happened to the parts of your body shown in Figure 1?

### Activity 2

Look at the pictures on this sheet.

Discuss with your group what might be the stresses on the people involved in each picture.

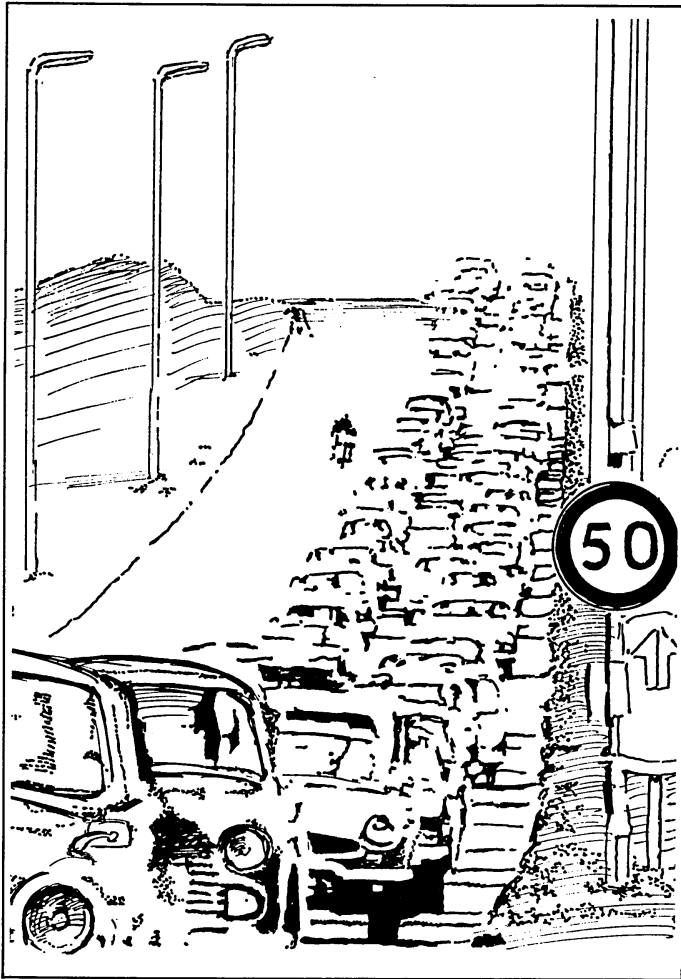


Figure 2



Figure 3



Figure 4

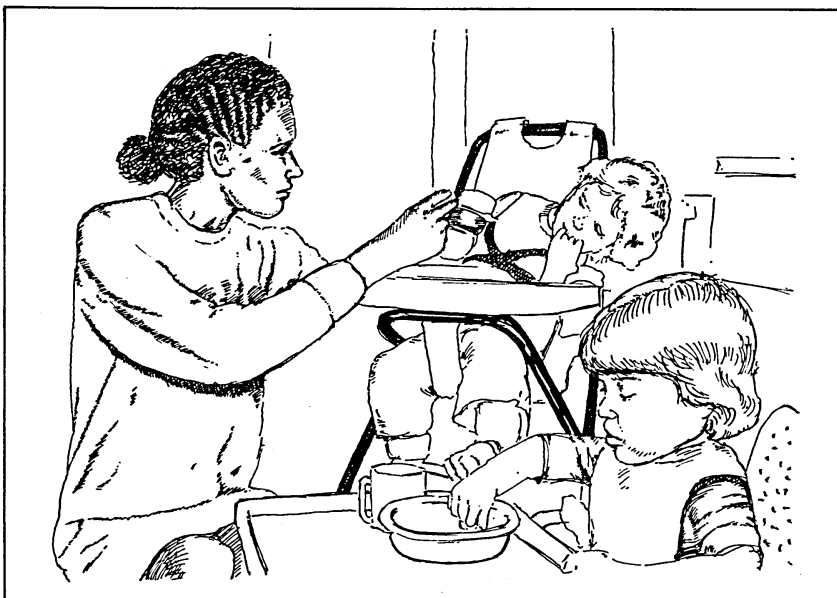


Figure 5

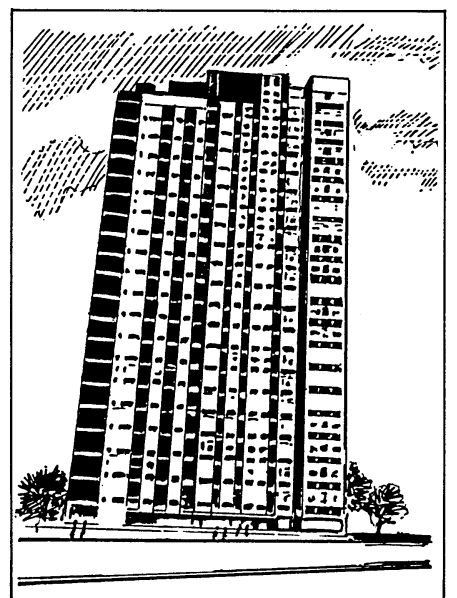


Figure 6

### Activity 3 Flight or fight?

Let's look in more detail at what happens in our bodies when we are under stress. The changes which happen have been called the 'flight or fight' syndrome. Under stress our bodies prepare to react to a threat or danger. Our early ancestors met dangers frequently in their lives — a dangerous animal perhaps. They could react by fleeing or fighting this animal. Those who could respond to danger quickly survived.

This physical reaction was a response to immediate physical danger. Although we are not likely to meet many wild animals today, our bodies still react in the same way to a stressful situation.

The feelings you have in a stressful situation all relate to this flight or fight reaction. Can you see the link? Your body is expecting you to flee or fight. It prepares you for action.

Table 1

What happens	How this makes you feel	How this prepares for 'flight or fight'
The <i>heart</i> beats faster, blood pressure rises, more blood is sent to muscles therefore the blood vessels have to dilate (widen). The blood carries the oxygen and glucose needed to produce energy		
The <i>lungs</i> work faster so that more oxygen goes into the blood		
The <i>muscles</i> become tense		
The <i>stomach</i> has blood diverted away from it to the arms and legs		
The <i>salivary glands</i> dry up as the digestive system slows down		
As your heart is pumping the blood more quickly, your temperature increases, so you sweat to cool your body down.		

As well as all this, there are other bodily changes which you do not feel directly:

The *liver* converts glycogen to glucose, to help produce energy

The *pancreas* releases extra insulin to deal with the extra glucose

The *adrenal glands* produce adrenalin, a hormone which tells the body to do all these things.

All these changes are getting you ready for the fight or flight. But in most modern stressful situations you can neither fight nor run away.



Figure 7

#### Question

3 Table 1 shows some of the things that happen in your body under stress. Make a copy of the table and fill in the blanks in the second and third columns.

## Activity 4 Putting on the pressure

During this activity you will need to know how to take your pulse.

Usually the pulse is taken at the wrist as shown in Figure 8.

Slip your fingers into the hollow at the side of the wrist and press your fingertips lightly over the artery. Do not use your thumb because it has a pulse of its own.

To take the pulse, use a watch with a second hand. Count the number of beats in a minute. The average pulse rate in an adult is 72 beats per minute but it can vary between 60 and 80. In elderly people it is between 50 and 60. In young babies it is about 120.

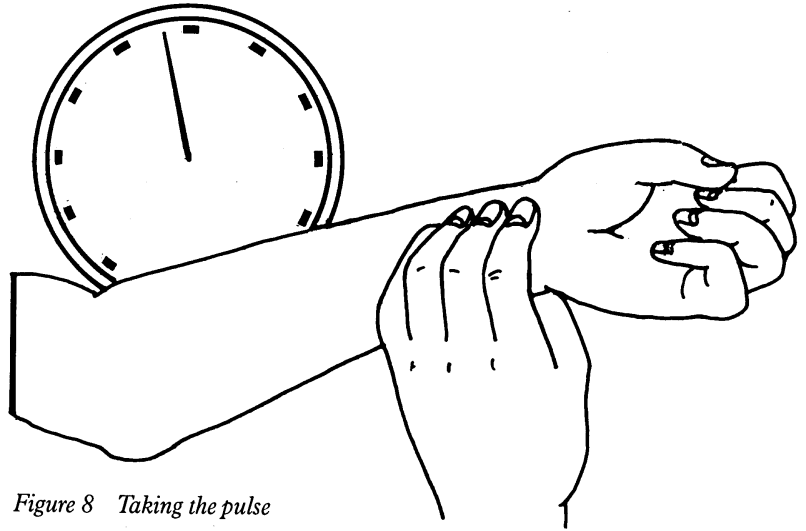


Figure 8 Taking the pulse

### Creating a stressful situation

You are going to put a volunteer member of your group in a stressful situation. You will take their pulse before and after the stress and note any changes. You will have to decide how to create an artificially stressful situation. You could:

- Ask the volunteer to give a five-minute talk
  - Use role-play to create a stressful situation (for example, an interview, examination, etc.)
- A** Measure the volunteer's pulse rate before and after the stressful situation has been created.
- B** While the volunteer is in the stressful situation, notice his/her posture, expression etc.
- C** Ask the volunteer how they felt. What did they notice about their:
- hands? heart? mouth? skin? chest? stomach?

#### Question

- 4 What were your observations in A, B and C?

## Activity 5 Stress and health

Imagine living with the physical symptoms of stress day in and day out. This may give you some understanding of how people feel who experience chronic tension and anxiety.

Sometimes the tension and anxiety become so great that they interfere with people's ability to cope with their everyday lives. This can lead to mental health problems such as **phobias** and **depression**. The first signs people get that they are under pressure are minor physical ailments. These might be headaches, stomach and digestive troubles, aches and pains or problems with sleeping.

### Mix and Match — Join the Matching Boxes

Long periods of muscle tension may lead to:

rashes or allergies

If blood pressure stays high for long periods of time it may contribute to:

digestive disorders  
— ulcers  
— constipation  
— diarrhoea

If the skin is sweating a lot it may lead to:

overbreathing with giddiness, fainting,  
increase in asthma attacks

If the lungs are working faster for long periods it may lead to:

heart and circulation disease leading to heart  
attacks and strokes

If the stomach has a restricted blood supply for long periods of time it may lead to:

headaches, backache, aches and pains in  
muscles, especially in the neck and  
shoulders

### How can we tackle stress and anxiety?

One way to reduce stress is to change your life to remove whatever is causing the stress. This is not always easy.

There are many other ways people can try to tackle stress and anxiety. Some examples are:

- *Relaxation techniques* Relaxation is a skill that can be learnt. Evening classes, books and tapes use a variety of methods such as physical exercise, meditation and yoga.
- *Keeping healthy* Regular exercise, a sensible balanced diet and getting away for a break or holiday help beat the effects of stress.
- *Assertion training* Many people who lack confidence suffer stress. Assertion training tries to give people more confidence and a more positive attitude to themselves and their life.
- *Medical help* Doctors often prescribe minor tranquillisers for people who are under stress. They can be a useful way to help someone over a crisis. But tranquillisers may not help people to deal with the *cause* of stress. They can also have unpleasant side effects.
- *Talking therapies* Talking about problems with a friend, a counsellor or in a group can often help people to understand their stress and do something about it.