

**READING PASSAGE 3**

You should spend about 20 minutes on **Questions 27-40**, which are based on Reading Passage 3 on pages 11 and 12.

Questions 27 – 31

Reading Passage 3 has five sections, **A-E**.

Choose the correct heading for each section from the list of headings below.

Write the correct number, **i-vii**, in boxes 27-31 on your answer sheet.

**List of Headings**

- i** An experiment using people who are receiving medical treatment
- ii** The experiment that convinced all the researchers
- iii** Medical benefits of hypnosis make scientific proof less important
- iv** Lack of data leads to opposing views of hypnotism
- v** The effects of hypnosis on parts of the brain involved in vision
- vi** Inducing pain through the use of hypnotism
- vii** Experiments used to support conflicting views

- 27 Section **A**
- 28 Section **B**
- 29 Section **C**
- 30 Section **D**
- 31 Section **E**

## Hypnotism – is it real or just a circus trick?

- A** Hypnosis has been shown through a number of rigorously controlled studies to reduce pain, control blood pressure, and even make warts go away. But because very few studies have attempted to define the actual processes involved, most scientists are sceptical of its power and uses. That scepticism has driven David Spiegel, a professor of psychiatry at Stanford University School of Medicine, USA, and other researchers to take a hard look at what happens in the brain during hypnosis.

Among researchers there are two schools of thought. One claims that hypnosis fundamentally alters subjects' state of mind: they enter a trance, which produces changes in brain activity. The other believes that hypnosis is simply a matter of suggestibility and relaxation. Spiegel belongs to the first school and over the years has had a debate with two scientists on the other side, Irving Kirsch, a University of Connecticut psychologist, and Stephen Kosslyn, a Harvard professor.

- B** Kirsch often uses hypnosis in his practice and doesn't deny that it can be effective. 'With hypnosis you do put people in altered states,' he says. 'But you don't need a trance to do it.' To illustrate the point, Kirsch demonstrates how a subject holding a small object on a chain can make it swing in any direction by mere suggestion, the chain responding to minute movements in the tiny muscles of the fingers. 'You don't have to enter a trance for your subconscious and your body to act upon a suggestion,' Kirsch says. 'The reaction is the result of your focusing on moving the chain in a particular direction.'

Spiegel disagrees. One of his best known studies found that when subjects were hypnotised and given suggestions their brain wave patterns changed, indicating that they had entered a trance. In one of his studies, people under hypnosis were told their forearms were numb, then given light electrical shocks to the wrists. They didn't flinch or respond in any way, and their brain waves resembled those of people who experienced a much weaker shock. To Kirsch this still wasn't enough to prove the power of trance, but Stephen Kosslyn was willing to be convinced. Many external factors could have been responsible for the shift in the subjects' state of mind, but Kosslyn wondered, 'Is there really something going on in the brain?'

- C** To find out, Spiegel and Kosslyn decided to collaborate on a study focusing on a part of the brain that is well understood: the circuit which has been found to process the perception of colour. Spiegel and Kosslyn wanted to see if subjects could set off the circuit by visualising colour while under hypnosis. They selected eight people for the experiment conducted at Massachusetts General Hospital. The subjects were put in a scanner and shown a slide with coloured rectangles while their brain activity was mapped. Then they were shown a black and white slide and told to imagine its having colour. Both tasks were then repeated under hypnosis.

The results were striking. When the subjects truly saw the coloured rectangles, the circuit lit up on both sides of the brain; when they only had to imagine the colour, the circuit lit up only in the right hemisphere. Under hypnosis, however, both sides of the brain became active, just as in regular sight; imagination seemed to take on the quality of a hallucination.

After the experiment, Kosslyn was forced to admit, 'I'm absolutely convinced now that hypnosis can boost what mental imagery does.' But Kirsch remained sceptical, saying, 'The experiments demonstrate that people are experiencing the effects of hypnotic suggestion but don't prove that they are entering a trance.' He also argued that subjects were told to *see* the card in colour when they were hypnotised but only to *imagine* it in colour when they weren't. 'Being told to pretend you're having an experience is different from the suggestion to have the experience.'

- D** Spiegel, however, is a clinician first and a scientist second. He believes the most important thing is that doctors recognise the power of hypnosis and start to use it. Working with Elvira Lang, a radiologist at a Harvard Medical Centre, he is testing the use of hypnosis in the operating room just as he and Kosslyn did in the scanner. Spiegel and Lang took 241 patients scheduled for surgery and divided them into three groups. One group received standard care, another standard care with a sympathetic care provider and the third received standard care, a sympathetic care provider and hypnosis. Every 15 minutes the patients were asked to rate their pain and anxiety levels. They were also hooked up to painkilling medication which they could administer to themselves.

On average, Spiegel and Lang found the hypnotised subjects used less medication, experienced less pain and felt far less anxiety than the other two groups. Original results published in *The Lancet* have been further supported by ongoing studies conducted by Lang.

- E** Spiegel's investigations into the nature of hypnosis and its effects on the brain continue. However, if hypnosis is ever to work its way into mainstream medicine and everyday use, physicians will need to know there is solid science behind what sounds like mysticism. Only then will their reluctance to using such things as mind over matter be overcome. 'I agree that the medical use of hypnotism should be based on data rather than belief,' says Spiegel, 'but in the end it doesn't really matter *why* it works, as long as it helps our patients.'