

The CT Scanner reading passage

The CT Scanner

A. The computed tomography scanner or the CT scanner, was initially designed to provide cross-sectional images of the brain. The word tomography is coined from 2 Greek words - tomos, meaning “section,” and graphia, meaning “picture.” Godfrey Hounsfield developed this technique in 1972 and was later recognised and awarded the Nobel Peace Prize for his work in the medical field. Within 4 years of this development, CT scans, also called CAT scans (computed axial tomography), were reconstructed, allowing them to scan the entire body for evidence of tumours, injuries, and other abnormalities. Unlike an X-ray, which takes a single picture, a CT scanner sends multiple beams into an area and takes photographs from many different angles.

B. While the original CT scans took Hounsfield several hours to reconstruct into a useful image, today’s CT scanners can construct an in-depth image in a split second. Creating a scanner that could produce images at a faster rate was important in the development of tomography, as it reduced the degree of distortion in an image due to movement of patients while breathing or moving. The new scanners provided images with better resolution, and also more comfort for the patients.

C. During a CT scan, a patient must lie on a special table without moving while the radiology technician identifies the specific area that needs to be photographed. The table slides into a round tunnel (gantry), where it can be rotated or moved forward and backwards to obtain the necessary view. Inside the doughnut-shaped machine, a number of X-ray images are taken, each creating a small slice of the image that doctors require. When passing through dense tissues like bones, the X-ray beams become weak and develop a white colour in the CT images. Tissues seen in the brains are less dense and the images come out as grey. Images that become black denote organs such as lungs and other parts that fill with air.

D. The CT scanner consists of several computer systems, with a host computer, which controls the entire process. One of the computers converts the raw data from scanning into an image, while another computer allows the technician to control the rotation of the gantry. After the data is processed, it is shown on a screen for radiologists and physicians to analyse. The data can be saved and printed to keep in the doctor’s records and to share and discuss with patients and their family members.

E. Physicians order CT scans for many reasons, including searching for tumours and assessing them. They can also check for cysts, kidney stones, and bone injuries. Without CT scanners, surgeons would have to perform many needless and costly operations. Brain, chest, and abdominal CT scans are done commonly, though physicians also rely on the CT scanner to guide their needles while draining an abscess or performing a biopsy. Most emergency or

shock-treatment centres contain a CT scanner for assessing trauma victims. CT scans can find out internal bleeding both in the brain and throughout the body.

F. In most cases, a patient should be given a contrast material before undergoing a CT scan. During “dynamic CT scanning,” iodine dye is either injected into the blood or added to a drink that the patient must consume approximately 45 minutes before entering the scanner. The liquid X-ray dye makes it easier for the scanner to see the organs and blood vessels when the pictures are produced. This contrast material is used mostly for chest or pelvic scans, whereas oral-contrast material is used for abdominal scans. In some cases, physicians need the pictures to be taken both before and after the contrast material enters the patient’s body. Patients who take the contrast material in their arm often report a warm sensation, and in rare cases, an allergic reaction occurs. Patients can suffer water loss when contrast material is injected. So it is avoided when scanning patients who suffer from kidney failure.

G. The hazards of radiation exposure caused by X-ray beams are generally considered minute compared to the benefits that a CT scan can provide. For example in cases of finding tumours and internal bleeding, CT scans provide information that can save a person’s life. Full-body scanning, which is saved for serious conditions such as coronary artery disease, remains a questionable procedure as prolonged exposure to these radiations is linked to cancer. CT scans are not done on pregnant women as the X rays can be harmful to the foetus. When pregnant women require an evaluation, most physicians choose to use other procedures like ultrasound scanning or MRI.

The CT Scanner IELTS reading questions

Questions 1-4

Do the following statements agree with the information given in the reading passage?

Write

- **TRUE** if the statement agrees with the information
- **FALSE** if the statement contradicts the information
- **NOT GIVEN** if there is no information on this in the passage

1. Godfrey Hounsfield won the Nobel Prize for inventing the computed tomography scanner technique.
2. The new CT scanner takes many minutes to develop images of the body parts.
3. The images of bones in CT images come in white colour.
4. CT scans can be done on pregnant women

IELTS Reading Matching Headings Question 5-11

Questions 5 - 11

The reading passage has three paragraphs, **A-G**.

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

Write the correct number, i-viii, as your answer to each question.

List of Headings:

- i) Brain and Chest Scan
- ii) Role of Computers
- iii) Invention CT Scan
- iv) High Cost of CT Scans
- v) The Risks of using the CT Scan
- vi) The Emergency Room Care
- vii) Faster and More Comfortable
- viii) How Doctors Use CT Scan
- ix) How The Patient is Photographed
- x) Enhancing Scan Images with Dyes

5. Paragraph A

6. Paragraph B

7. Paragraph C

8. Paragraph D

9. Paragraph E

10. Paragraph F

11. Paragraph G

IELTS Reading Table Completion Question 12-15

Questions 12-15

Complete the table below

Questions 12-15

Complete the table below

Write **NO MORE THAN THREE WORDS** from the passage for each answer.

Material	Function
12 _____	Rotate or move the table forward and backwards to obtain the necessary view.
13 _____	Makes it easier for the scanner to see the organs and blood vessels when the pictures are produced
14 _____	Used for abdominal scans.
Computer	Converts the 15 _____ from scanning into an image