

Paper Reference(s) 4BI1/2B
Pearson Edexcel International GCSE (9–1)

Biology

Unit: 4BI1

PAPER: 2B

Text Booklet

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WITH THE QUESTION PAPER.**

Heart transplant

A heart transplant is an operation to replace a damaged or failing heart with a healthy heart from a donor who has recently died. In the United Kingdom, 200 heart transplants are carried out each year.

5 A heart transplant may be considered if you have severe heart failure and medical treatments are not helping. Conditions that may eventually require a heart transplant include coronary heart disease and cardiomyopathy, where the walls of the heart have become stretched, thickened or stiff. Some people born with an abnormal heart may also benefit from a heart transplant.

10 A heart transplant needs to be carried out as soon as possible after a donor heart becomes available. The procedure is performed under general anaesthetic where the patient is unconscious. During the operation, a heart-lung bypass machine is used to keep the patient alive.

20 A cut is made in the middle of the patient's chest. The patient's heart is removed, leaving behind a section of the right and left atria, the two upper chambers of the heart. The new heart is connected to the aorta, the pulmonary artery, and the remaining part of the atria. The new heart is stimulated to start beating and the patient is taken off the bypass machine.

30 The patient will need to stay in hospital for around two or three weeks after a heart transplant. The patient will also need to take medicines called immunosuppressants for the rest of their life. Without these medicines, the transplant will not be successful.

35 After going home, the patient is encouraged to take part in a cardiac rehabilitation programme. This involves following an exercise plan to help regain strength and mobility. They should avoid strenuous activities such as pushing, pulling or lifting anything heavy for 6 to 12 weeks. Most people can start returning to many of their normal activities within a few months.

40 The patient does not usually need to have a special diet after a heart transplant. A balanced diet can ensure they stay as healthy as possible. They should not smoke and should avoid drinking alcohol.

45 A balanced diet may also help reduce the risk of some of the side effects of the immunosuppressant drugs including weight gain, osteoporosis and diabetes. Immunosuppressants also make the patient more vulnerable to infections, including food poisoning.

50 Most people can return to their normal activities after a heart transplant and experience a significant improvement in their symptoms for many years. After a heart transplant, 75% of people will live at least five years.