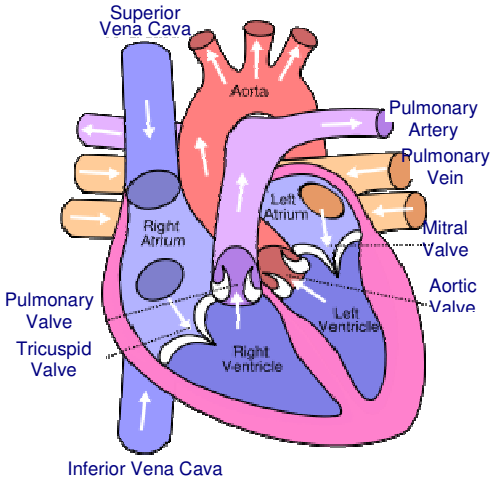
Learning Technical English Steven L. Hanft, Editor




for the Life Science Industries 28. January 2008, Vol. 7

Don't you want to improve your technical English skills & comprehension? **Then test your understanding by reading below, and then use the 'Questionnaire link' to answer questions, which are based on these texts. Please send your answers ⇨ *Mr. 'H', LTE News Editor.***

Introduction - The Human Heart: Our heart is composed of strictly cardiac tissue and is an involuntary muscle, whose cells under a microscope look somewhat similar to skeletal muscle. Through contraction, the heart pumps blood throughout the circulatory system. The heart consists of 4-chambers, two atria (also sometimes referred to as auricles), two ventricles. The average human heart is beating at 72 beats/min, therefore it will beat approx. 2.5 billion times during the lifetime of a 65 year old person. Between the auricles & ventricles are heart valves, which regulate blood flow. However, for the pumping heart, a whole host of problems can arise, leading to further complications. Through marvels in bio-engineering, certain medical *devices* (not to be confused with the verb; *to devise*) have been developed to treat human heart disease or ailments.



Medical Devices used in treating Heart Diseases & its Ailments – Part 1

The Jarvik-7: A man-made heart

The Jarvik-7 is an artificial heart and probably the best known of the artificial heart devices. Named for its designer, Dr. Robert Jarvik, it is designed to function like the natural heart. Clinical evaluations began in 1982, when surgeons at the Utah University implanted the device in a patient who survived for 112 days. The Jarvik-7 has two pumps, which act like the real heart's ventricles. Each sphere-shaped 'ventricle' made of polyurethane has a disk-shaped mechanism that pushes the blood from the inlet valve to the outlet valve. The 'ventricles' are pneumatically powered. Air is pulsed through the ventricular air chambers at rates of 40 to 120 beats/min. The artificial heart is attached to the heart's natural atria by 'cuffs' made of Dacron™ felt.


The Jarvik-7

The Heart-Lung Machine

Sometimes referred to as as cardiopulmonary bypass (CPB) this machine temporarily takes over the function of the heart & lungs during surgery, maintaining the circulation of blood and the O_2 content of the body. Operations requiring the opening of the chambers of the heart require the use of CPB to support the circulation during that period. CPB can be used for the induction of a total body *hypothermia*, a state in which the body can be maintained for more than an hour without perfusion (blood flow). If blood flow is stopped at normal body temperature permanent brain damage normally occurs in 3-4 min., and death can ensue.


Heart Lung machine in use during coronary heart by pass surgery

Data Sources: Texas Heart Institute / 'Biological Science', Prof. William T. Keeton, Cornell University, NY / Wikipedia / NY Times / American Heart Association

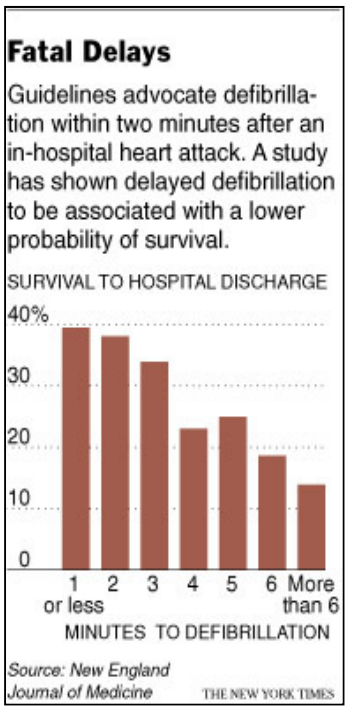
Check your understanding of the human heart and medical devices for treating heart ailments

If you click on the LTE Newsletter's 'Questionnaire link', you will find questions on the above texts to answer. Then please send your answers to Mr. 'H'. We look forward to helping you improve your technical English communication skills.

Life Science/Medical Research

Hospitals Slow in Heart Cases; NY Times, Jan. 3, 2008

In nearly a third of cases of sudden cardiac arrest in the hospital, the staff takes too long to respond, increasing the risk of brain damage and death, a new study finds. Researchers estimate that the delays contribute to thousands of deaths a year in the United States.



The study was based on the records of 6,789 patients at 369 hospitals whose hearts stopped because of conditions that could be reversed with an electrical shock from a *defibrillator* - a favorite device in TV hospital dramas, when a "code blue" is called and doctors and nurses come running with a crash to shock the victim back to life.

Food & Beverage

Polyphenols may counter unhealthy effects of high-fat foods; Institute for Food Technology Newsletter, Jan. 3, 2008

Polyphenols (found in red wine, fruits, and vegetables) may reduce health risks. For a study, six persons were fed three different meals. The control meal was turkey meat. The second meal consisted of turkey meat with polyphenols added after cooking followed with a glass of red wine. For the third meal the polyphenols were added before cooking, followed also by a glass of wine.

During the study the levels of malondialdehyde (MDA), a natural byproduct of fat digestion known to increase the risk for heart disease and other chronic conditions were measured. It was found that MDA levels nearly quintupled after the control meal, while MDA was nearly eliminated after subjects consumed the meals with polyphenols.

Personal Care

REACH Update January 2008: Pre-registration and SIEF Formation ▼

Dr. Annelie Struessmann, Technical Director, *CONUSBAT*, REACH 'Only Representative'

Pre-registration allows companies to continue manufacturing and importing their substances for several years until the registration deadline is reached...

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Mr. 'H' says:

Don't let language be a barrier to your success!

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