



Sir Magdi Yacoub: Surgeon, Knight, and “King of Hearts”



Sir Magdi Yacoub

He has been called the King of Hearts by the Royal Society, the United Kingdom’s National Academy of Science. It is a reference to his status as a legendary physician and his pivotal role as a world leader in heart transplantation. By any measure, Sir Magdi Yacoub has been a powerful influence in shaping cardiovascular medicine, reportedly performing more

transplants than any other surgeon in the world and providing insights on basic mechanisms of heart structure and function.

Although he retired from the UK’s National Health Service in 2001, he continued to head his research program at Harefield Hospital in London. Sir Magdi’s research is primarily conducted at the Harefield Heart Science Centre and is based on the belief that improving our understanding of important clinical cardiac problems requires a broad basis in research at both clinical and fundamental levels. The principal research program is focused on two major themes, heart failure and tissue engineering.

“In heart failure we are investigating basic mechanisms of severe heart failure at clinical, physiological, metabolic, cellular, and molecular levels,” he has reported. “Over the past 10 years we have developed a special interest in reverse remodeling, using a unique combination therapy (the Harefield protocol) that combines the use of the left ventricular assist device to produce maximal unloading with pharmacologic therapy to induce adaptive physiological hypertrophy. We are also actively pursuing heart failure therapy involving cell transplantation, gene therapy, or a combination of the two.”

Research in tissue engineering is aimed at the development of a viable cardiac valve capable of reproducing the sophisticated functions of the normal valve. This research is based on understanding the specific cellular and molecular characteristics of the component parts, during development and in the adult, on examining the properties of stem cells and their suit-

ability for deriving valve tissue, and on examining the optimal cellular environment and scaffolds for engineering valve tissue.

Sir Magdi was born and educated in Cairo, where he qualified as a doctor in 1957. After qualification he did a spell as a houseman and then as registrar. In 1962 he moved to England to take up the post of surgical officer, and then surgical registrar at the London Chest Hospital. The following year he became Senior Surgical Registrar at the National Heart Hospital and Brompton Hospital, where he worked for the next 5 years under Lord Brock and Donald Ross. After a year in the United States as Assistant Professor at the University of Chicago Medical School, he returned to England to take up the position of Consultant Cardiac Surgeon at Harefield Hospital, a position he still holds in addition to being Director of Medical Research and Education.

Under his leadership, Harefield Hospital became Britain’s leading transplant center, performing over 200 heart transplants a year. Knighted in 1991, he was also Consultant Cardiac Surgeon to the National Heart Hospital from 1973 to 1989 and in 1986 was appointed to be the first British Heart Foundation Professor of Cardiothoracic Surgery at the National Heart and Lung Institute in association with the Royal Brompton Hospital. In 1995, the Institute became a Department of the Imperial College School of Medicine.

Sir Magdi continues to head his research program as Founder and Director of Research of the Magdi Yacoub Institute (formerly known as Harefield Research Foundation) and is British Heart Foundation Professor of Cardiothoracic Surgery, in an academic capacity. He is a pioneer in the field of heart and lung transplantation and one of the world’s leading cardiac surgeons. He performed his first heart transplant operation at Harefield Hospital in 1980. He completed hundreds of these operations; the 1,000th transplant was done in 1989. Sir Yacoub has specialized in working with children with congenital heart malformations and has done pioneering work on the “switch” operation. Sir Magdi’s other surgical interests include the homograft and pulmonary autograft aortic valve replacement, and aortic root repair.

Sir Magdi has made a remarkable contribution to heart and heart-lung transplantation not only as the surgeon who performed more transplants than anyone, but as a scientist interested in the fundamental aspects of organ transplantation. He attracted 80 to 90 colleagues who are closely involved with the clinical work of his department and are investigating physiolog-

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ical and disease processes at molecular and cellular levels. The department is rapidly becoming one of the leading academic departments of cardiothoracic surgery in the world.

"I always wanted to be a surgeon, because I had a lot of admiration for my father, who was also a surgeon," according to an interview published by BBC News. "I also wanted to be a heart surgeon. That was motivated by the fact that my young aunt, a sister of my dad, died in her early 20s of a correctable heart disease. Heart surgery was in its infancy, but I had heard about great surgeons in different countries,

including Britain. I'd heard about particular ones who I'd targeted and wanted to go and work with and learn from them. I couldn't have done what I have done if I had stayed in Egypt, for the simple fact that heart surgery was not developed in Egypt, and the kind of studies I wanted to pursue were not available there."

Sir Magdi has returned to Egypt regularly "to work with my colleagues there. I have a charity called the Chain of Hope, where we target children from poor areas where heart surgery is not available, and we offer our services." ■