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BROADCAST EXCERPT

NEWSCASTER: Any day now, the first permanent artificial heart will be beating in a human being. The same model has kept animals alive for up to nine months. And doctors hope that it can help save the lives of the millions of people who die of heart disease every year. Kristi Witker begins her series on bionics with a report on the search for a machine equal to the human heart.

KRISTI WITKER: The heart beats a hundred times a minute, forty million times a year. Just creating a machine that durable is a major challenge. Scientists have experimented with hearts made of rubber, hearts made of steel, even a nuclear powered heart. The machine had to be small enough to fit in the chest, powerful enough to pump for a lifetime. But it also had to pump gently, so it wouldn't destroy red blood cells.

In 1969, this one kept a patient alive for three days. Last summer, this one performed for thirty-six hours. Both were implanted only until a human heart was donated for transplant. This latest model, developed at the University of Utah is made of polyurethane, an inert substance which the body doesn't reject the way it often does a transplant. And this heart can be mass produced, unlike donor hearts which are in short supply.

MAN: This artificial heart is made in two halves. One for the left side, the arterial part, and one for the right side. And it is driven by compressed air.

(MACHINE SOUNDS)

WITKER: Once this heart was developed, surgical teams tested it on calves.

MAN: This will snap into here and this will snap into here.

WITKER: A decade ago, a calf could only survive three days

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with a primitive artificial heart. Tennison lived for nine months. Although permanently tied to an air compressor, he was able to exercise on a tread mill and grew from two hundred and fifty to three hundred and fifty pounds. The reason Tennison finally died was not failure of his artificial heart, but the fact he'd grown too large for it.

Researchers also had success with sheep which, unlike calves, do not keep increase in size. But these latest tests scientists think they've found a heart capable of lasting a lifetime.

MAN: What this means is a new life. And obviously we're doing research not for calves, but we're doing research for human beings. There are many problems that have to be worked out with human implantation, but we feel that we can consider these problems now, to take a serious look, taking that big step.

WITKER: The Federal Drug Administration has given the Utah team permission to try the heart in seven people. But finding the ideal patient is difficult. The experiment can be performed only on someone without any other chance of survival.

In the first test, the humans, like the animals, will have to be tied to large air compressors. Although the machine could be mounted on wheels, it is still a very limited kind of existence. The search continues for the artificial heart that will not only prolong life, but make it possible for the patient to forget that it's a machine, not heart that beats in his chest.

This is Kristi Witker for Independent Network News.