

COOK CATHETERS ON-BOARD COLUMBIA SPACE SHUTTLE



We all heard that 2,478 baby jellyfish joined seven United States astronauts on board the space shuttle Columbia recently ...

... but did you know that Cook Inc. catheters were used in another experiment aboard that same flight? Working together with National Aeronautics and Space Administration (NASA), Cook Inc. custom-developed a specialized catheter several years ago—the CPUMY-400-NASA-401J—to use in Spacelab Life Sciences 1 mission this May.

This was the first shuttle flight devoted entirely to biomedical research. Specifically, the goal of the mission was to study the mechanisms, magnitudes and time courses of certain physiological changes that occur during space flight, and to investigate the consequences of the body's

adaptation to weightlessness and readjustment to normal gravity.

Eighteen experiments were conducted on board Columbia, investigating the body's systems and their reactions to space flight. The blood, immune, musculoskeletal, nervous, brain, eyes and inner ears, and pulmonary and cardiovascular systems were among those studied. The Cook catheter was used in one such experiment, *Cardiovascular Adaptation to Zero Gravity*, developed by Dr. C. Gunnar Blomqvist of the University of Texas Health Science Center.

This investigation was designed to track fluid redistribution in the body during space flight and correlate it with changes in cardiovascular function, heart size and cardiac response to exercise. Central venous blood pressure—the pressure exerted by the blood against the right atrium in the heart—was one of the measurements taken in this investigation.

To measure this pressure, before the mission, a cardiologist inserted the special Cook catheter into the arm vein of each specialist and advanced

the tube to a point just above the heart. Each catheter was attached to a monitoring system outside the body to measure and record pressure changes near the heart. By noting corresponding changes in central venous pressure, scientists can determine the degree and speed of bodily fluid redistribution, a phenomenon noted in astronauts during previous space flights.

The measurements were taken for 24 hours; the catheters were then removed. Upon return to Earth, catheters were reinserted to observe the central venous blood pressure changes associated with reintroduction back to normal gravity.

Said Dr. Arnauld Nicogossian, director of NASA's life sciences division, in the Houston Post, "We need to understand better the (body) mechanisms for one simple reason—if you understand the mechanism, then you can develop strategies to cope with those changes (that occur during space flight)." Keep watching the *Angiogram* for updates on the results of this experiment that Cook Inc. was proud to have been a part of.