

Countermeasure and Functional Testing (CFT) Study

Long duration bed rest study to test effectiveness of exercise on loss of muscle, bone and cardiovascular function.

Astronauts experience changes to their bodies during exposure to the microgravity conditions of space flight. These changes include sensory changes, coordination disturbances, cardiovascular de-conditioning and loss of muscle mass and strength.

Head-down bed rest helps researchers study people on Earth in a way that causes some of the changes the body goes through while traveling in space. During the head-down bed rest portion of this study, the subject's body is tilted down slightly (head down and feet up), for 70 days, 24 hours a day.



To mimic exercise done in a microgravity environment, test subjects run on the sZLS vertical treadmill.

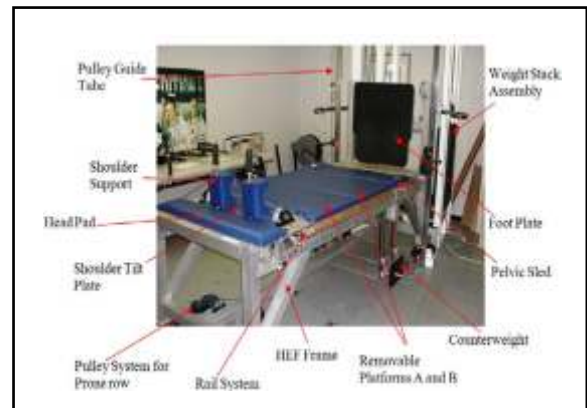
The Countermeasure and Functional Testing (CFT) program has been designed to minimize loss of muscle, bone and cardiovascular function during bed rest.

The iRAT Study includes various combinations of high intensity interval-type training as well as resistance exercise and daily aerobic exercise to maintain muscle size and strength, bone health, and cardiovascular function during bed rest.

Participants in the exercise program will do their training while lying down on specially designed exercise equipment. Aerobic exercise will use a treadmill and cycle, and resistance (weight lifting) exercise will be done on special weight machines. Subjects will participate in a three-week pre-training program to familiarize themselves with the equipment and exercises.

Specific exercises and intensities are rotated so that each workout is different, with some days being

heavier and some lighter. On resistance training days, subjects do 30 minutes of continuous moderate intensity aerobic exercise. On alternate days, they also will do high intensity interval aerobic exercise. Interval aerobic exercise alternates with periods of exercise and periods of rest.



All exercise training during bed rest will be conducted on specially designed exercise equipment.

Time Commitment

Qualified participants spend the duration of the study (usually 97 to 105 days) living in the bed rest facility of NASA's Flight Analogs Research Unit (FARU) at the University of Texas Medical Branch in Galveston, TX.



Volunteers demonstrate resistance exercises on the Horizontal Exercise Fixture or "HEF"

For more information on this or other NASA Flight Analogs Studies, call toll free 866-572-8378 or visit our website: www.bedreststudy.com.