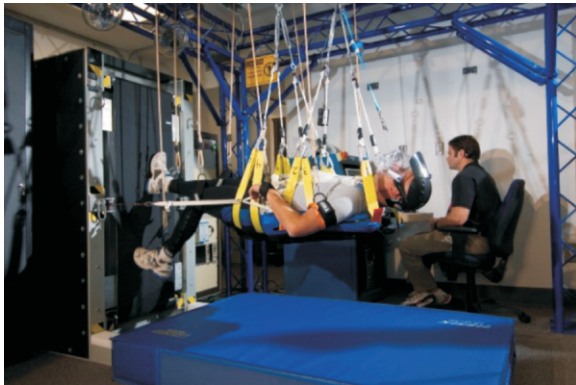


Integrated Resistance and Aerobic Training (iRAT) Study

14-day trial for feasibility testing and evaluation

Astronauts experience changes to their bodies during exposure to the micro-gravity conditions of space flight. These changes include sensory changes, coordination disturbances, cardiovascular de-conditioning and loss of muscle mass and strength. These changes may effect their ability to work and perform crucial functional tasks during the initial reintroduction to a gravitational environment immediately following landing on a planetary surface.

Current flight exercise countermeasures are not fully



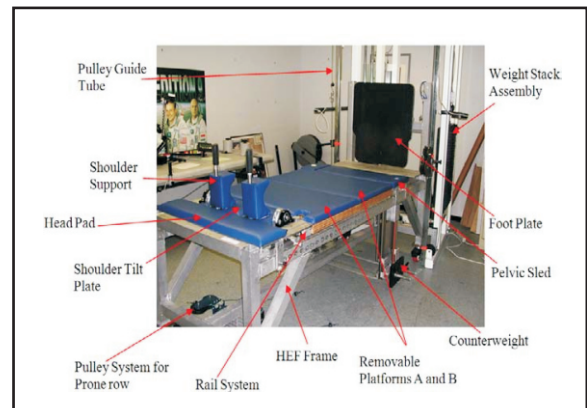
To mimic exercise done in a micro-gravity environment test subjects run on the sZLS vertical treadmill.

protective of cardiovascular, muscle and bone health, so NASA is developing a ground-based exercise regimen to refine and optimize the countermeasures. A new integrated resistance and aerobic training (iRAT) program has been designed to minimize loss of muscle, bone and cardiovascular function.

The iRAT includes high intensity interval-type aerobic exercises on alternating days with continuous aerobic exercise. Resistance exercise is performed 3 days per week on the same day as the continuous aerobic exercise, but separated by 4-8 hours.

Eventually, the study will require 70 days of six-degree head down tilt bed rest, but initially, NASA will conduct a shorter version of the exercise program involving 14-days of horizontal bed rest to evaluate the feasibility of implementing the iRAT exercise prescription in normal subjects.

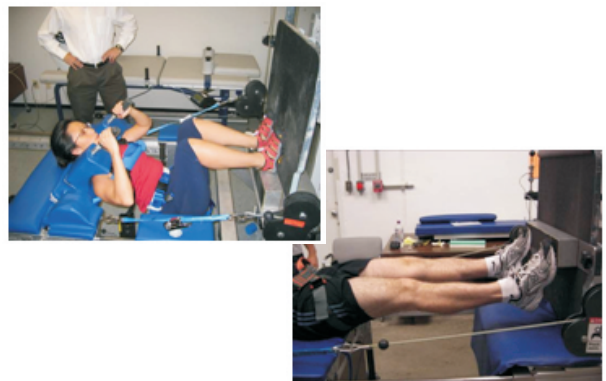
This feasibility study aims to determine whether a 2 or 3 week pre-bed rest training program will be sufficient to prepare subjects to perform the in-bed rest exercise program and to assess the metabolic impact (caloric cost) of performing the exercise sessions while in bed rest in order to better estimate how many calories to add to the standard NASA bed rest diet for exercising subjects.



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

The feasibility portion of the study will evaluate:

- Subject readiness to complete the iRAT exercise prescription as written after a two or three week exercise ramp-up period.
- The metabolic cost of the iRAT exercise protocols and resting metabolic rate throughout bed rest.



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

For more information call toll free 866-572-8378 or visit www.bedreststudy.com