

Space Nutrition



Volume 3

Putting the "T" in ISS

Issue #2

Muscles in Motion

Exercise affects almost all systems of the human body, in people on Earth as well as in astronauts during space flight. Exercise is one of the most common means to try to counteract the negative effects of space flight on the heart, blood vessels, muscle, and bone. The Exercise Physiology Laboratory at NASA is a team of scientists and engineers who are trying to understand the effects of microgravity on human performance, and to develop exercises to help keep astronauts healthy during and after their missions. The Exercise Team at NASA builds exercise equipment that will work without gravity, and then assures that the exercises will help keep crew members healthy. It's a tough job - but the Exercise Team is up for the challenge!



The International Space Station (ISS) is just that - a combined effort of 16 countries working together to build the most incredible orbiting outpost ever (at least to this point in human history!). The 16 countries are represented by 5 main groups, also known as the "International Partners." These partners are the Canadian Space Agency (CSA), the European Space Agency (ESA), the Japanese space agency (NASDA), the Russian space agency (RSA), and the United States space agency (NASA). Representatives from each of these agencies work together to help plan and define every single aspect of the ISS - from the vehicle and modules, to experiment hardware, and to food and nutrition.

Curiosity Corner

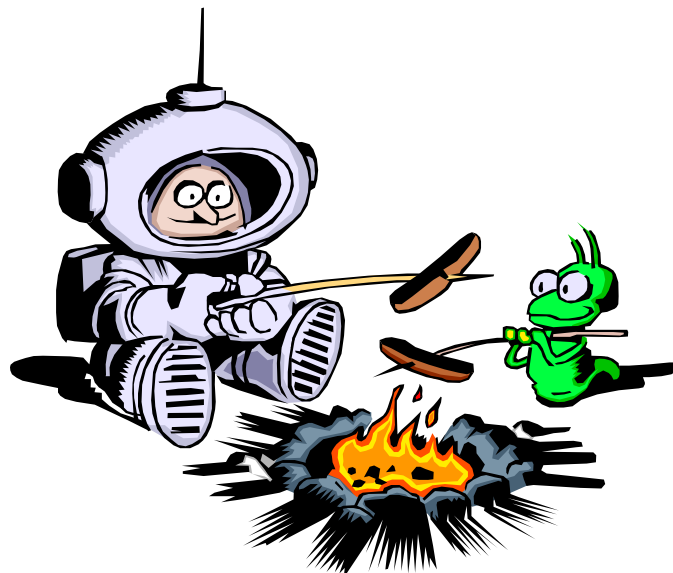
Alex from Texas asks -

If a 12-year-old boy went up in space for 2 weeks, would he have to eat the same number of calories and exercise as much as he does on Earth, to "stay in shape?"

Adult astronauts need to eat the same amount in space as on Earth. They must also exercise daily to keep their muscles, heart, and bones in good shape. Because we don't know the effect of microgravity on growing bodies, it will be a while before kids can fly in space.

Send your comments or questions to:

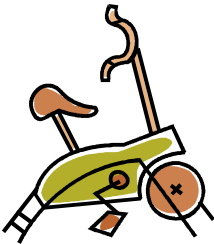
Space Nutrition Newsletter
 Nutritional Biochemistry Laboratory
 Mail Code SK3
 NASA - Johnson Space Center
 Houston, TX 77058



The international Nutrition Working Group was formed in 1999. We have met several times, and more often have teleconferences to discuss plans and issues regarding food and nutrition. These teleconferences are held at 6:00 in the morning in Houston. Can you calculate what time this would be in Montreal, Canada; Cologne, Germany; Moscow, Russia; and Tokyo, Japan? Currently we are developing a plan to include food from all countries on the ISS, so crew members will get a great variety of foods while they live on the ISS.

Did you know?

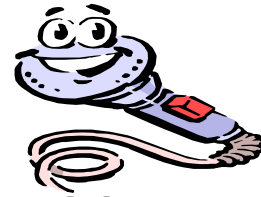
- The food system on ISS currently includes half US food, and half Russian food. The menus are designed so that there are 10 days of menus, which then repeat throughout a mission. So, for a 180-day mission, you would see the same foods 18 times! How often does the menu in your school cafeteria repeat?
- Exercise and nutrition are important components of a healthy lifestyle, whether you live on the ISS or on Earth. Developing good eating and exercise habits when you are young will help you keep healthy as you get older.
- What you do when you are 10 to 20 years old can have big effects on how healthy (or sick) you are when you get older. Bone is a great example of this. If you eat and exercise right through your teen (and pre-teen) years, you'll be less likely to get osteoporosis when you are older.
- Different types of exercises can help different parts of the body. Aerobic exercises, like running on a treadmill or riding on a bicycle, can help protect against the loss of muscle strength and changes in the heart and circulation. Weight lifting, a form of what is called "resistive" exercise, can also help slow bone loss.
- July 29, 2003 marked the 1000th consecutive day that people have been living and working aboard the International Space Station.



Word of the Month

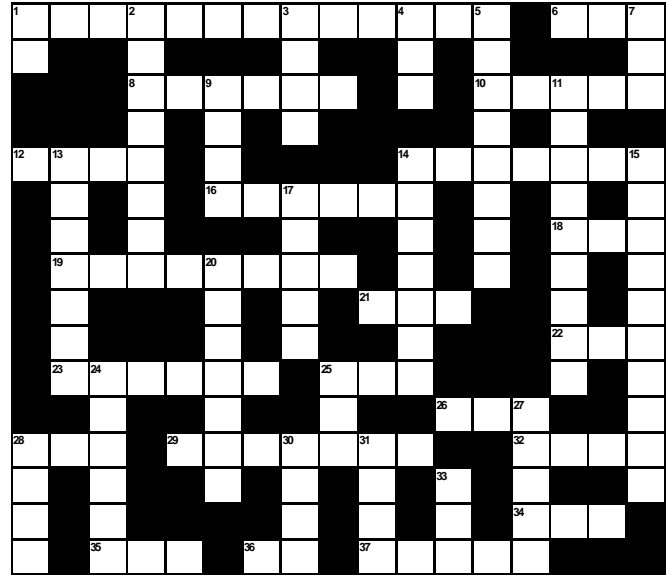
Circulatory

Can you guess what this word means? Look for the meaning of the "Word of the Month" in the next issue of Space Nutrition.



FUN CORNER

"Space and Other Trivia" Crossword



Across

- Between nations
- Prefix for before
- Cosmonaut home
- Japanese Space Agency
- Halt!
- Space vehicle
- Solid ___ Booster
- Part of mouth
- CSA: ___ Space Agency
- Greek prefix meaning "life"
- Trans Lunar Insertion
- Far away
- Indefinite period of time
- International Space Station
- Organ for hearing
- Astronaut Mike Foale's birthplace
- Water and horse sport
- Russian Space Agency
- Earth's star
- ___ Lu
- Change

Down

- Information Technology
- Germany belongs to this space agency
- Three
- No Earlier Than
- Native tongue
- European Space Agency
- Celestial body
- Orbiting object
- Educator
- Mir or ISS
- A journey with a specific objective
- ___ room
- US laboratory module on the International Space Station
- Exit
- Extravehicular activity
- Tennis, basketball, or baseball
- Leave
- Opposite of sea
- US Space Agency
- Earned Run Average

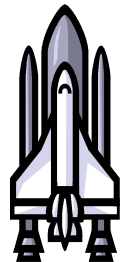
Check out these cool NASA links for more fun space science facts!

<http://www.jsc.nasa.gov/news/factsheets/food.pdf>

<http://www.nasa.gov/audience/forkids/index.html>

<http://www.spaceflight.nasa.gov>

<http://spaceresearch.nasa.gov>



Check out the Nutritional Biochemistry Laboratory's website for more information about nutrition and space.

<http://haco.jsc.nasa.gov/biomedical/nutrition/>