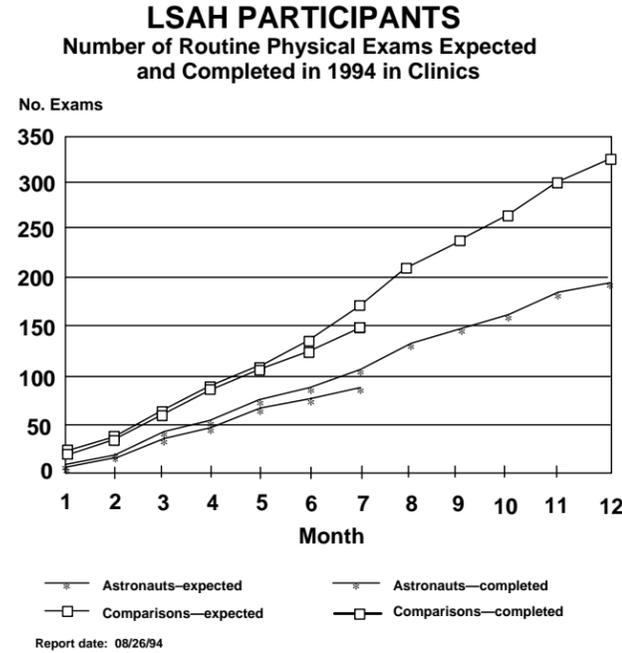


Participation Continues in the LSAH

Continued participation in the study has been very good. Participation in the study is essential for identifying health and physical changes within the two study groups over time. If there is no significant difference in the occupational risks for the two groups, we should not see a difference in the long term health status of the two groups.

Comparison participants are offered complete physical examinations in the JSC Occupational Medicine Clinic every other year. Half of the group is examined each year. Astronauts are offered physical examinations annually. Figure 1 shows the number of participants who, for 100 percent participation, are expected to undergo an examination each month of 1994. This figure also shows the number of participants in each group who have, to date, come into one of the JSC clinics for their examination. There are a few participants who receive examinations in other clinics and send their medical records to the LSAH. While Figure 1 does not include those examinations, those data are important and it is added to the LSAH data base.



Report date: 08/26/94
Figure 1. This graph shows the number of LSAH participants who have returned to the clinic for routine examinations in 1994 and the number of participants who were expected to return.

Policy changes for JSC retirees' medical records

Your medical records in the JSC Clinic are carefully safeguarded throughout your active NASA civil service career. When JSC employees retire, their medical records normally are transferred to microfiche and the hard copy mailed to the address designated through Human Resources.

Effective November 1, 1994, hard copy medical records will remain in the JSC Clinic for retiring JSC employees who are participating in the LSAH. These records will remain in the Clinic throughout the study.

This new policy helps ensure the continuity of your medical records, which is very important to you and to the LSAH. Pertinent medical history, treatments, immunizations, and event dates will be readily accessible and information can be easily added to your records.

Your medical records will continue to be protected under the Privacy Act of 1974. When your participation in the study ends, your medical file will be transferred to microfiche and the hard copy mailed to you at that time.

If you need a copy of your medical records for your private physician or if you have any questions, please contact the JSC Clinic's Medical Records Department at (713) 483-4111.

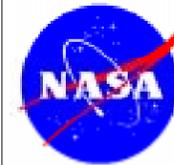
Moving?
New Phone Number?

Please let us know by calling

(713) 212-1362 or (713) 483-5785

or write us at:

Longitudinal Study of Astronaut Health
Flight Medicine Clinic/SD26
NASA/Johnson Space Center
Houston, Texas 77058



More baseline demographic data are needed

The LSAH database currently contains data extracted from 23,865 forms. These data include physical examinations, medical histories, vision examinations, periodic examinations, consultant reports, laboratory results, and mortality data for astronauts and comparison participants.

Table 1. Group values of selected baseline variables; Longitudinal Study of Astronaut Health

VARIABLE	ASTRONAUTS (N=219)		COMPARISONS (N=658)	
	n	mean or %	n	mean or %
		<i>mean</i>		<i>mean</i>
* Age (years)	219	33.3	658	32.9
		%		%
Race (% white)	219	94.5	88	89.8
Sex (% male)	219	89.5	658	88.1
Highest level of education:		%		%
High School	219	0.0	508	5.7
College Degree		21.0		57.9
Advanced Degree		78.9		36.4
** Marital Status	219		508	
Married		82.9		97.7
Single		11.7		1.0
Divorced or Separated		5.4		1.3
Widowed		0.0		0.0
Blood Pressure:		<i>mean</i>		<i>mean</i>
Diastolic (mm Hg)				
Sitting	197	75.1	352	79.3
Recumbent	132	72.3	495	73.9
Systolic (mm Hg)				
Sitting	197	117.3	352	121.3
Recumbent	132	116.9	495	117.3
Heart Rate (beats per minute)				
Sitting	194	65.6	298	70.8
Recumbent	126	64.8	490	63.6
Height (inches)	219	69.7	655	69.6
Weight (pounds)	219	161.6	655	161.6
Body Mass Index	219	23.3	655	23.4

* Means for current age of living participants, as of August 1994, are: astronauts—48.3 years and comparisons—48.7 years.

** Marital Status is as documented in medical record and may be most recently noted rather than at baseline.

Table 1 shows some of the demographic characteristics of the two study groups at baseline. The baseline examination is defined as the first physical examination after selection. Comparison participants are selected to match each class of astronauts; therefore the baseline year differs for various study participants with the range of baseline years currently being from 1959 through 1992.

This table shows that there is missing information for a substantial portion of the comparison participants regarding important demographic characteristics. Age, race, sex, education, and marital status are known to be associated in some way with most chronic diseases. Collecting complete data for each of these factors is important, for multiple reasons, to the success of this study. The two study groups need to be characterized accurately, but more importantly, those background risk factors known to be associated with chronic diseases must be accounted for before risk can be examined in relationship to occupational exposures.

To collect the missing demographic data, and to collect additional lifestyle data, all LSAH study participants will be asked to complete a health lifestyle questionnaire.

The LSAH Health Lifestyle Questionnaire will be mailed to you soon. To learn more about the LSAH Health Lifestyle Questionnaire, see the article on page 2.

The Health Lifestyle Questionnaire will supplement LSAH data collection

Data will be reported only as group data

Epidemiological and clinical research throughout several decades have identified dozens of behaviors and conditions associated with the onset of disease, many relating to personal lifestyle. The term "lifestyle" refers to health-related behaviors and conditions.

The Health Lifestyle Questionnaire will be used to obtain information that is not consistently being collected from existing medical records or other records. Some of the items on the questionnaire have been asked on forms used in either the Flight Medicine Clinic or the Occupational Medicine Clinic. For example, drinking and smoking histories are obtained and recorded differently at the two clinics. The questions asked will pro-

vide data about characteristics of LSAH participants, things participants have done, or things that have happened to them (e.g. "Do you routinely take aspirin?" or "How satisfied are you with life?"). The main areas covered in the Health Lifestyle Questionnaire include demographic characteristics (marital status, race, education), exercise, health status (days of illness or hospitalization), use of prescription and nonprescription drugs, psychological states, and personal habits such as drinking and smoking. We must depend on your reports to gather these data.

When special groups, such as astronauts, are described, it is difficult to know what to make of such findings unless these special

groups are compared to people in similar circumstances. The LSAH comparison participants were selected because they matched the astronaut corps in terms of age, sex, and body mass index (see Table 1).

Comparing groups requires consistent data collection methods between the groups. If questions are asked differently between groups, different responses will be obtained. Systematic differences between data collection methods for the groups result in study bias. However, this potential bias will be eliminated if all LSAH participants complete the same questionnaire. The lifestyle data will be used to reveal lifestyle differences between the astronauts and

the comparison group. Although you will be asked questions about your own behavior and beliefs, the data will be analyzed and reported only as group data.

Right of privacy is the right of an individual to define when and on what terms personal or medical data should be revealed. You have the right to refuse to answer any questions on the Health Lifestyle Questionnaire, but most of the questions are fairly routine and innocuous. Furthermore, the ethical codes of medical research require that data be summarized and not revealed at an individual identifiable level. All LSAH data are handled in compliance with these guidelines and are maintained in a secure and confidential manner.

Flu vaccine is offered at the JSC Clinic

Each year's influenza (flu) vaccine contains three strains (usually two type A and one type B) representing the flu viruses that are likely to circulate in the United States in the upcoming winter. The decision about which strains to include is made in the spring preceding the flu season by the experts at the Centers for Disease Control in Atlanta, Georgia.

The vaccine is made from highly purified, egg-grown viruses that have been made non-infectious (inactivated). The trivalent flu vaccine prepared for the 1994-1995 season will include A/Texas, A/Shangdong and B/Panama strains. Personal immunity wanes in the year following a flu vaccination, and the virus strains may be different from year to year; therefore, vaccination is necessary each flu season to maintain

immunity.

The JSC Clinic is now offering this year's flu vaccine to all NASA personnel, LSAH participants, and on-site contractors who wish to receive the vaccine. The dates and times for vaccine administration will be published in the Space News Roundup, or you may call the clinic at (713) 483-4111 for information. The usual hours for administering the vaccine are 10:00 a.m.–noon and 2:00 p.m.–3:30 p.m., Monday through Friday. You will be asked to read and sign a consent for vaccination form before receiving the vaccine.

Please note - the vaccine WILL NOT be administered to anyone who is allergic or hypersensitive to eggs, has a febrile illness, or is pregnant.

Reduce your risk of noise-induced hearing loss

According to the American Speech-Language-Hearing Association (ASHA), more than 20 million people in the United States are exposed to dangerous noise levels on and off the job that could result in hearing loss. Therefore, it is important to understand how the ears are affected by noise and how to avoid damage to them so that they will continue working throughout your lifetime.

Noise induced hearing loss occurs when hair cells in the inner ear are damaged and can no longer signal the auditory nerve to send electrical impulses (sounds) to the brain. These hair cells, when damaged by noise, do not regenerate. Consequently, hearing loss resulting from noise damage is permanent. Even a one-time exposure to extremely loud noise, such as a gunshot, can damage hearing; however, the most common cause of noise induced hearing loss is caused by repeated or long-term exposure to loud noise. The rate and magnitude of hearing loss depends on the intensity and frequency of the noise and the length of the exposure to the noise. Louder noises produce hearing loss at a faster rate than do moderate levels of noise. Longer exposure to noise at the same level causes more damage than a short exposure causes.

Sound has both frequency and intensity. Frequency, or pitch, is measured as sound vibrations per second, or hertz (Hz). The frequency of a locomotive horn is approximately 250 Hz, while the frequency of a table saw is approximately 4,000 Hz. Intensity, or loudness, is measured in decibels (dB). A conversation voice is around 65 dB; a lawnmower around 90 dB.

Excessive exposure to noise at or above 85-90 dB, which is referred to as the caution zone, is dangerous. Continuous exposure to noise at this level or greater can cause permanent loss of hearing. Short exposure to extremely loud noise (greater than 140 dB), known as acoustic trauma, can also cause permanent hearing loss.

Warning Signs of Hazardous Noise

Sounds that are louder than 80 dB are considered potentially harmful to hearing. The ASHA suggests observing these warning signs to determine if a noise level is hazardous:

- You must raise your voice to be heard
- You cannot hear someone less than two feet away.
- Speech around you sounds muffled or dull after you leave a noisy area.
- You have a pain or ringing in the ears (tinnitus) after exposure to noise.

Symptoms of Noise-Induced Hearing Loss

There are very few symptoms of noise-induced hearing loss. It is usually a slow, painless process going unnoticed until the damage is so serious that understanding speech becomes difficult. Symptoms of hearing loss are usually vague: feelings of pressure or fullness in the ears, speech that seems to be muffled or far away, and a ringing sound in the ears that is noticeable in quiet places.

Audiometric testing (hearing test) is currently the best way to detect hearing loss. It is especially important for persons who are often exposed to workplace and/or recreational noise to have an annual hearing test. Regular testing identifies those who have started to lose their hearing before they acquire a significant auditory impairment.

Protecting Your Hearing

Hearing loss caused by noise is permanent. The first consideration in protection against noise-induced hearing loss is to avoid loud noise whenever possible. However, if noise exposure cannot be avoided, follow these recommendations to protect hearing:

- Wear hearing protectors such as ear plugs or earmuffs. With well-fitted hearing protectors, you can still hear and understand voices and other sounds.
- Have your hearing tested on a regular basis.
- Limit periods of exposure to noise.
- Avoid loud music from stereos and personal radios.
- Alternate a noisy activity such as using a power tool with a period of quiet.
- Soundproof your home with sound-absorbing draperies and carpets and cushion appliances to minimize noise.

For additional information regarding noise-induced hearing loss, contact the JSC Clinic or discuss it with your physician at your next routine physical examination.

Noise Levels	dB	Examples
Painful	140	firearms, air raid siren
	130	jackhammer
	120	jet plane takeoff
Extremely Loud	110	rock music
	100	chain saw
	90	lawnmower
Very Loud	80	alarm clock
	70	busy traffic, vacuum cleaner
	60	conversation, dishwasher
Moderate	50	moderate rainfall
	40	quiet room
Faint	30	whisper