JOHNSON SPACE CENTER
HEALTH RELATED FITNESS PROGRAM

Larry T. Wier, Ed.D.
NASA Johnson Space Center

- Emphasis on Health - not Athletics
- Program includes
  - medical clearance by exam and stress test (ACSM Guidelines)
  - prescribed exercise
  - education component
  - quarterly fitness appraisals
  - quarterly newsletter
  - nutrition intervention program

Education Component

- Courses
  - Initial HRFP I  12 weeks, 3 days/week
  - Refresher HRFPII  10 weeks, 4 days/week
  - Refresher HRFPIII  10 weeks, 5 days/week
- Lecture series on The Role of Exercise in Health;
  one hour per meeting
  - lecture: 15 - 20 minutes
  - prescribed exercise: 20 - 45 minutes
- Written cognitive final test
- Fitness appraisals at beginning, middle and end
Activity Ratings

Score (0 - 10)

Male

Female

2.5 Years

Start HRFP I

End HRFP I

Start HRFP II

End HRFP II

3.6

5.3

3.2

4.6

4.6

6.3

6.8

240
### Lecture Topics for HRFP 1 (12 weeks)

| The JSC Health Related Fitness Course | Strength Training |
| Components Fitness                  | Musculoskeletal Function |
| Body Leanness                        | Exercise Intensity |
| Exercise Prescription                | Principles of Training |
| Exercise in the South Texas Environment | Energy Expenditure 1 (VO_2 and Mets) |
| Energy Expenditure II (Calories)    | Physical Fitness Appraisals |
| Basic Nutrition                      | Weight Management |
| Cardiovascular Disease Risk Factors | Hypertension and Blood Pressure |
| Hyperlipidemia                       | Obesity |
| Psychological Stress and Depression | Age and Physical Exercise |
| Gender and Physical Exercise         | Orienteering |

**Note:** A lecture outline is provided at each class; a written exam is given at the end of the course.

### Lecture Topics for HRFP II (10 weeks)

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**Note:** A lecture outline is provided at each class; a written exam is given at the end of the course.
Lecture Topics for HRFP III (10 Weeks)

Energy Sources as Fuel
Anabolic-Androgenic Steroids
Special Consideration for
  Strength Training in Athletics
Designing Strength Training Programs
Protecting the Skin
Diabetes
Pulmonary Function and
  Respiratory Diseases
Pregnancy, Exercise and Fitness

Biomechanics of Fitness Exercise
Arthritis and Osteoporosis
Environmental Extremes:
  High Altitude and Underwater
Cold Stress
Supplements and Ergogenic Aids
Medications and Exercise
Exercise, Fitness and Self-Esteem

Note: A lecture outline is provided at each class; a written exam is given at the end of the course.

Program Evaluation

- Enrollment
  - October, 1983: 72 Active Members
  - Fall, 1992: 1419 Active Members
- 36% of the JSC civil servants and 401 contractors
- Drop-out Rate: 20% in the 12-week course
- Long-term adherence (90 minutes+/week for at least 2 years): 40%
- Membership reflects JSC population:
  - Avg age = 40 (JSC Avg age = 41)
  - Women = 33% (JSC female pop = 33%)
- Enrollees vs non-enrollees
  - at the start of program: medical statistics are the same
  - within 3 years: program compliers
    - increase aerobic capacity
    - decrease body fat and cholesterol
  - non-enrollees deteriorate as expected with aging
  - exercise level is the prevalent factor explaining difference in group changes
Nutrition Intervention Program

- Program includes
  - blood chemistry analysis at the beginning and after 12 weeks
  - series of lectures on diet and nutrition
  - private consultations with dietitian
  - yearly reviews

- Who is eligible
  - all JSC civil servants, contractors and spouses
  - family member who buys and prepares the food should attend
  - husband and wife teams are encouraged

- Lecture topics include
  - dietary guidelines set by the American Heart Association and National Cholesterol Education Program
  - label reading
  - dining out
  - meal planning and preparation

Research

Assessing Fitness

- %VO₂max and %HRmax Reserve Are Not Equal Methods of Assessing Exercise Intensity, *Medicine and Science in Sports and Exercise*, April, 1992

Aging

- Changes in Physical Fitness over Time: The Influence of Exercise, Body Composition, and Age, *JAMA*, (in press)
- The Role of Body Composition and Physical Activity on the Age-Related Decline in VO₂max in Women (Ages 21-63), *Medicine and Science in Sports and Exercise*, pending.

Program evaluation


Adherence


Blood lipids
