JOHNSON SPACE CENTER HEALTH RELATED FITNESS PROGRAM

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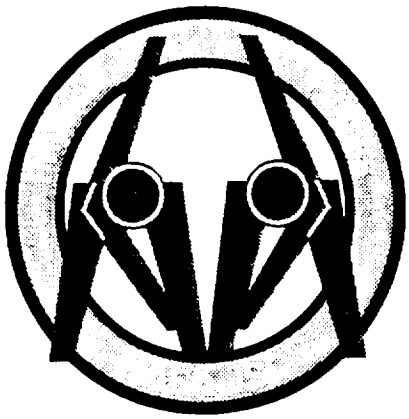
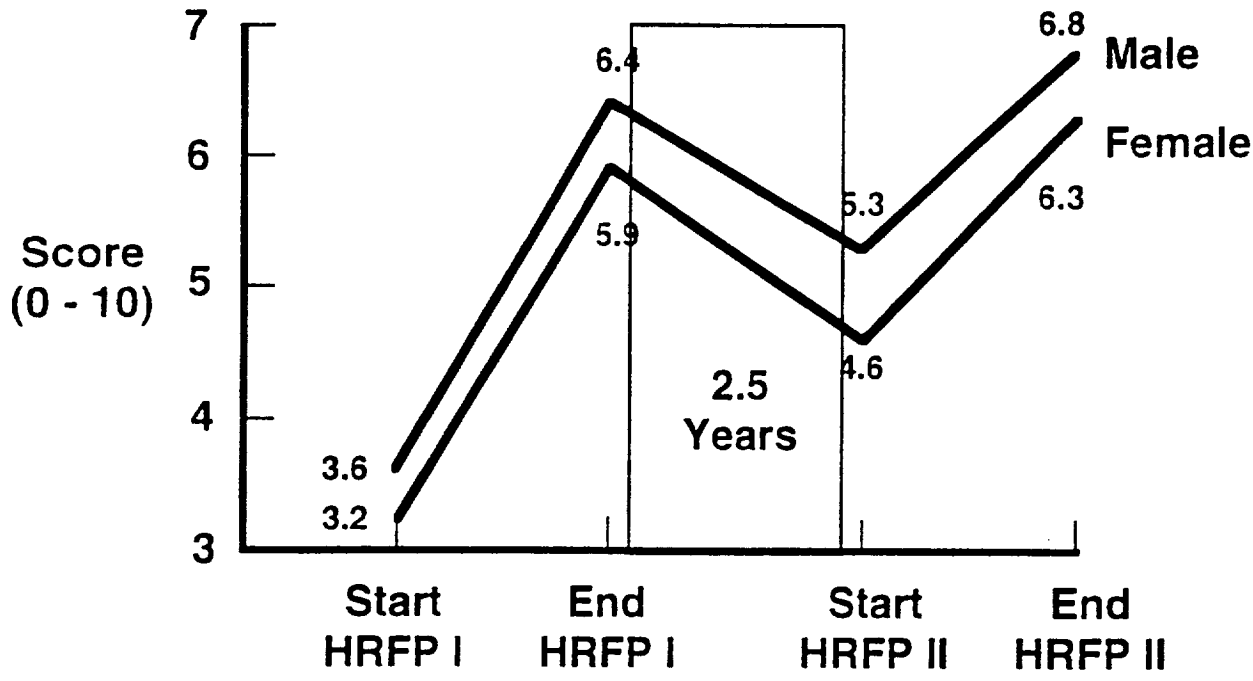


- ❑ Emphasis on Health – not Athletics
- ❑ Program includes
  - medical clearance by exam and stress test (ACSM Guidelines)
  - prescribed exercise
  - education component
  - quarterly fitness appraisals
  - quarterly newsletter
  - nutrition intervention program

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



Lecture Topics for HRFP 1 (12 weeks)

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

Introduction to HRFP II
Common Injuries
Reading the Labels
Dieting and Exercising on the Go
Blood Lipids
Exercise and Air Pollution
Exercise for Seniors
Motivation for Adherence to Exercise
Evaluating the NASA/JSC HRFP
Protecting the Back
Weight Watching Tips
Diet Analysis
Exercise and Cancer Risk
Exercise for Children
Psychological Benefits of Exercise

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

Accuracy of VO_2max Prediction Models to Measure Change, *Medicine and Science in Sports and Exercise*, April, 1990

Prediction of Functional Aerobic Capacity Without Exercise Testing, *Medi ine and Science in Sports and Exercise*, January, 1990

%VO_2max 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 VO_2max in Women (Ages 21-63), *Medicine and Science in Sports and Exercise*, pending.

Program evaluation

Evaluation fo the NASA/JSC Health Related Fitness Program, *Aviation, Space and Environmental Medicine*, May, 1989

Adherence

Risk Profiles for Estimating Exercise Behavior, *Medicine and Science in Sports and Exercise*, April, 1988

Factors Affecting Compliance in the NASA/Johnson Space Center Fitness Program, *Sports Medicine*, July, 1989

Blood lipids

Effects of Body Composition and VO_2max on HDL-C: Cross Sectional and Longitudinal Analyses, *Medicine and Science in Sports and Exercise*, April, 1991