

# ARMSTRONG LABORATORY SPACE VISUAL FUNCTION TESTER PROGRAM

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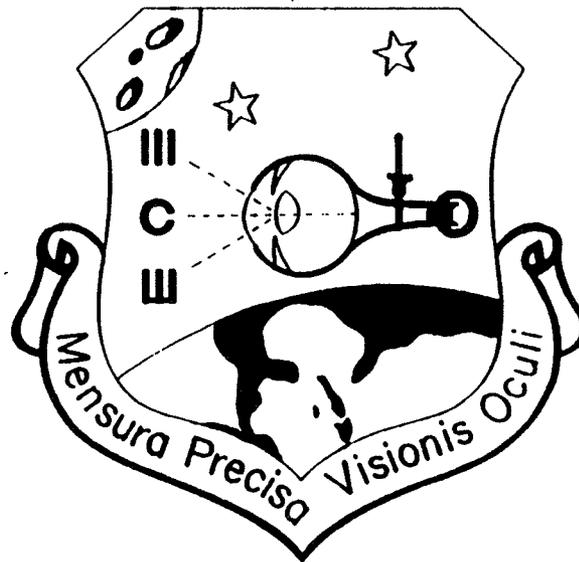
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# SPACE VISION LOGO

MEL "BROOKS" O'NEAL PRESENTS:

## *Space BALLS*

(SPACE CALIBRATED EYEBALLS)



# **INTRODUCTION**

**Many astronauts and cosmonauts have commented on apparent changes in their vision while on-orbit. Comments have included descriptions of earth features and objects that would suggest enhanced distance visual acuity. In contrast, some cosmonaut observations suggest a slight loss in their object discrimination during initial space flight. Astronauts have also mentioned a decreased near vision capability that did not recover to normal until return to earth.**

# **DUNTLEY SPACE VISION EXPERIMENT**

## **VISUAL ACUITY**

- **Hand-held device**
  - **Square wave bar gratings**
  - **High and low contrast**
  - **Tested at optical infinity (distance vision)**
- **Also used ground targets**

## **RESULTS**

- **Gemini V and VII**
  - **No significant change in acuity**

# USSR SPACE VISION EXPERIMENTS

## VISUAL ACUITY

- Square wave gratings
- High (94%) and low (13%) modulation contrast
- Tested at 30 cm (near vision)

## RESULTS

- Voskhod
  - Two subjects
  - 5 - 10% drop in high contrast acuity
- Soyuz 4 & 5
  - Four subjects
  - Three showed ~ 10% drop in both high and low contrast acuity
  - One showed ~ 20% improvement in high contrast acuity
- Soyuz 9
  - One subject
  - 18% drop in high contrast visual acuity
  - 4% drop in low contrast visual acuity

# **VISUAL FUNCTION TESTERS**

- **Model 1 (VFT-1) : Multi-Visual Functions**
- **Model 2 (VFT-2) : Visual Contrast Threshold**
- **Model 4 (VFT-4) : Visual Near Point/Facility**