EFFECT OF MICROGRAVITY ON VISUAL CONTRAST THRESHOLD DURING STS SHUTTLE MISSIONS

VISUAL FUNCTION TESTER - MODEL 2 (VFT-2)

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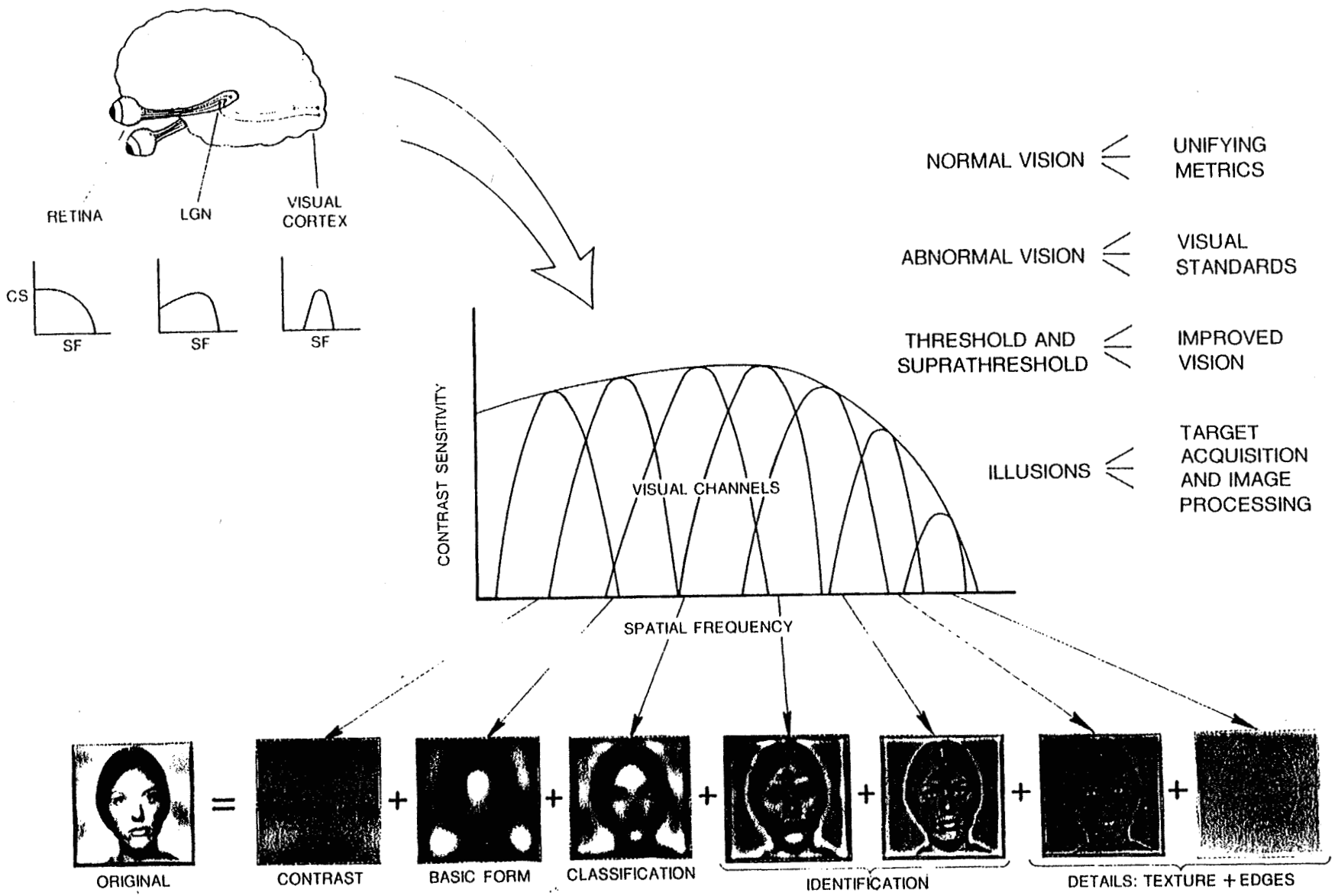
PURPOSE (VFT-2)

- Previous contrast threshold studies, both U.S. and Soviet, at different test distances and may be affected by age, lighting, and method of target presentation
- Determine effect of microgravity on distance visual contrast threshold over mission duration
- Use variable contrast adjustment device under controlled lighting condition to obtain more precise threshold measurement
- Test at multiple spatial frequencies and with additional target types to more completely evaluate


RETINA
LGN
VISUAL CORTEX
CS
SF
SF
SF
NORMAL VISION
UNIFYING METRICS
ABNORMAL VISION
VISUAL STANDARDS
THRESHOLD AND SUPRATHRESHOLD
IMPROVED VISION
ILLUSIONS
TARGET ACQUISITION AND IMAGE PROCESSING
CONTRAST SENSITIVITY
VISUAL CHANNELS
SPATIAL FREQUENCY
ORIGINAL
CONTRAST
BASIC FORM
CLASSIFICATION
IDENTIFICATION
DETAILS: TEXTURE + EDGES

HE-79-3-2

METHODS (VFT-2)

SUBJECTS

- 5 Flights, 12 STS Astronauts
  - -- 3 subjects with no post flight data
  - -- 1 uncorrected (no glasses)
  - -- 1 SCL, 1 Toric-SCL

APPARATUS

- Visual Function Tester - Model 2 (VFT-2)
  - -- Small, hand-held, battery powered
  - -- Three target types:
    - Square-wave gratings (detection task)
    - Disks (detection task)
    - Tribars (orientation task)

PROCEDURE

- SAME AS VFT-1

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2
3
4
5
6
7
8
A B C D E F
1
2
3
4
5
6

RESULTS

VISUAL CONTRAST THRESHOLD

- Insufficient number of subjects for report at this time
- VFT-2 manifested on STS-53 (2 astronauts) scheduled to fly Dec 92
- Preliminary reporting of visual psychophysical study may affect subsequent data and should be avoided