

A RECOMMENDED APPROACH TO PERSONAL  
EXERCISE DURING THE SHUTTLE ERA

SPACE AND LIFE SCIENCES DIRECTORATE

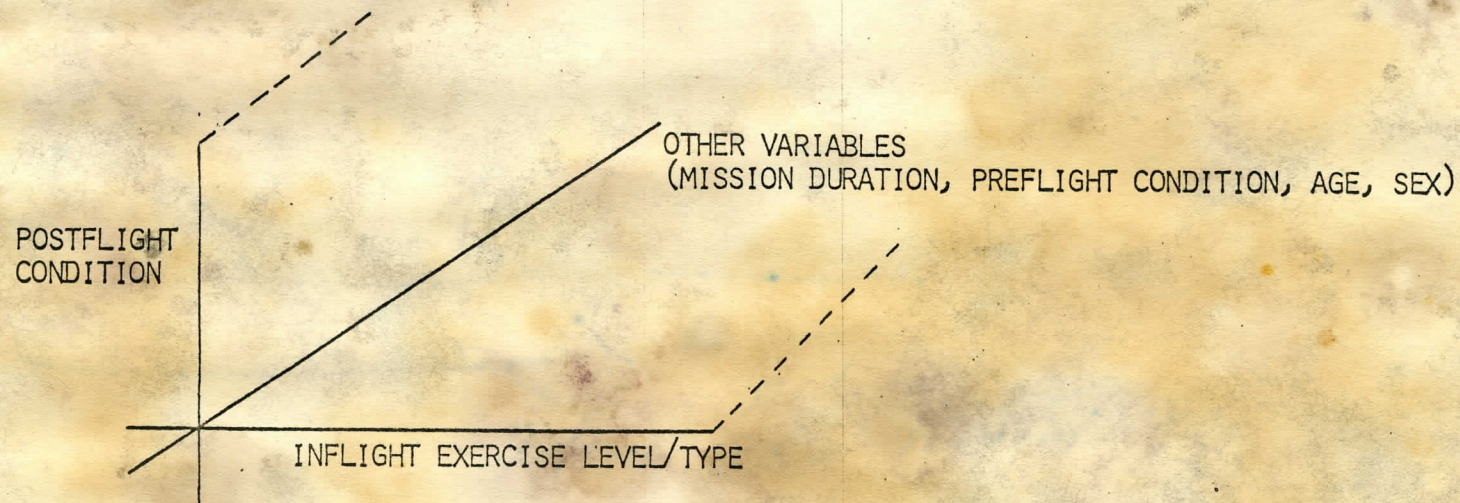
FEBRUARY 15, 1978

JOHN A. RUMMEL, PH.D.  
CHARLES F. SAWIN, PH.D.



## RECOMMENDED APPROACH FOR SHUTTLE

- VOLUNTARY BUT STRUCTURED PROGRAM FOR ALL CREW MEMBERS
- NEED LARGE N TO FILL IN MATRIX



- ACUTE (LIMITED MISSIONS, LIMITED CREW PARTICIPATION) RESEARCH PROGRAM WILL NOT ANSWER THESE QUESTIONS



RECOMMENDED APPROACH FOR SHUTTLE (CONT'D)

- EACH CREW MEMBER SELECT ONE OF FIVE EXERCISE LEVELS FROM ZERO TO EXHAUSTIVE FOR INFLIGHT
- EACH CREW MEMBER SELECT WHETHER TO USE SAME PROGRAM PREFLIGHT FOR TEN WEEK PERIOD
- FOR THOSE WHO ELECT TO EXERCISE - DOCUMENT
- MINIMAL PRE- AND POSTFLIGHT TESTS TO DETERMINE EFFECT OF ZERO-G EXPOSURE
  - AEROBIC (5 MIN 100 WATTS, HEART RATE ONLY)
  - MUSCLE (TBD) (CYBEX ACCORDING TO DR. THORNTON)

*had not been mentioned  
This was ~~being~~ ~~added~~  
to me ~~about~~ until it was  
shown in the ~~briefing~~ briefing -  
W.T.*



## IMPLEMENTATION

### ● SHORT TERM

-EVALUATE EXERCISE MODALITIES DURING OFT

- A) REDESIGNED SKYLAB PACKAGE (ROTARY ERGOMETER + QUANTITATIVE ISOKINETIC MUSCLE EXERCISER)
- B) MODIFIED OFF THE SHELF ROTARY ERGOMETER (+ QUANTITATIVE ISOKINETIC MUSCLE EXERCISER)
- C) CB APPROACH(ES)

-SELECT FINAL EXERCISE MODALITIES FOR OPERATIONAL SHUTTLE

### ● LONG TERM

-IMPLEMENT STRUCTURED/VOLUNTARY PROGRAM FOR CAREER ASTRONAUTS

-S & LD/FOD DEVELOP ACCEPTABLE DOCUMENTATION APPROACH

-S & LD EVALUATE EACH PS ON A CASE BY CASE BASIS TO DETERMINE WHETHER PRESCRIBED EXERCISE PROGRAM IS NECESSARY



ACTIONS REQUIRED

- S & LD/FOD AGREEMENT/DECISION ON SHUTTLE PERSONAL EXERCISE
- JOINT S & LD/FOD MEMO STATING EXERCISE REQUIREMENT (IN ORDER TO IMPACT BUDGET))
- FORMAL S & LD/FOD PROPOSAL TO UTILIZE OFT FOR EXERCISE DEVICE EVALUATIONS