

Charles A. Berry, MD

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SIGNIFICANT SKYLAB 3 BIOMEDICAL OBSERVATIONS

PRELIMINARY SUMMATION

ORTHOSTATIC TOLERANCE REDUCED INFLIGHT AND POSTFLIGHT

CDR: (-40mm) MD6 (MOTION SICK, SADDLE DISCOMFORT)

(2' INTO -50) MD20 (? DEHYDRATED)

(4' INTO -50) MD 46 (? 1 HOUR AFTER MEAL)

SPT: (2' INTO - 40mm) MD5 (MOTION SICK)

● ORTHOSTATIC TOLERANCE NOMINAL AT R+5

● RESTING PULSE RATE HIGHER INFLIGHT

● STRESS HEART RATE HIGHER, VARIABLE INFLIGHT;

LOWER LAST HALF OF MISSION (2/3)

● LAST INFLIGHT LBNP RESPONSE COMPARABLE TO R+0

● CALF GIRTH DECREASED INFLIGHT (MOST RAPID MD1-6; LESS RAPID THEREAFTER)

● INCREASED LEG VOLUME DURING LBNP

● SYSTOLIC CARDIO-THORACIC RATIO DECREASED

● BLOOD PRESSURES: TENDENCY TO INCREASED SYSTOLIC AND DIASTOLIC, RESTING AND LBNP; STRESS PULSE PRESSURE TENDS TO DROP

● DECREASED DIASTOLIC PRESSURE AT -50mm MOST APPARENT IN INDIVIDUALS WITH DECREASED LBNP TOLERANCE INFLIGHT

● MINOR CHANGES OBSERVED IN MO93 (VCG) - NO CLINICAL SIGNIFICANCE

? PHYSIOLOGICAL SIGNIFICANCE

II.

PRELIMINARY SUMMATION

SKYLAB 3 BIOMEDICAL OBSERVATIONS (CONTINUED)

- CARDIAC ARRHYTHMIAS: SPORADIC AND NOT CLINICALLY SIGNIFICANT
 - CDR: ISOLATED PVC (093); RARE PAC
 - SPT: WANDERING ATRIAL PACEMAKER
 - PLT: OCCASIONAL PAC'S; RARE PVC
- NO APPARENT DECREASE IN EXERCISE TOLERANCE INFLIGHT (ML71)
- ALL SHOWED DECREASED EXERCISE TOLERANCE POSTFLIGHT: NOMINAL AT R+5
- CARDIAC OUTPUT DECREASED 4-6L/MIN POSTFLIGHT (-40%; SL-2, APOLLO 16, 17: -30%)
- INCREASED EXERCISE AND DEGREE OF PHYSICAL CONDITION INFLIGHT
AVERAGE DAILY EXERCISE:

	SL2	SL3
CDR:	2,900	3,900
SPT:	1,600	3,600
PLT:	2,000	6,500
- SUGGESTION OF INCREASED POSTFLIGHT A-V O₂ DIFFERENCE
- INFLIGHT VITAL CAPACITY DECREASED PLT 700-900 cc

III.

PRELIMINARY SUMMARY

SKYLAB 3 BIOMEDICAL OBSERVATIONS (CONTINUED)

- DIETARY INTAKE (CALORIC AND MINERAL) - GOOD EXCEPT EARLY INFLIGHT (MOTION SICK)
- BONE MINERAL OS CALCIS DECREASED ONLY IN SPT (-7%)
- WEIGHT:
 - 1. DECREASED EARLY INFLIGHT 5-6 LBS.
 - 2. DECREASED LATE INFLIGHT 2-4 LBS.
 - 3. RAPID INCREASE EARLY POSTFLIGHT 5-6 LBS.
- INCREASED URINARY CALCIUM EXCRETION INFLIGHT
- MILD TO SEVERE VESTIBULAR DISTURBANCES
 - 1. EARLY INFLIGHT
 - 2. POSTFLIGHT ON SHIP
- MICROBIOLOGY - S/L-2
 - SKIN FLORA INCREASED
 - NO TRANSFER OF PATHOGENS
 - FUNGAL FLORA DECREASED
 - INCREASED OMS ENVIRONMENTAL SAMPLES (S/L-2 AND 3)
 - DECREASED C/M ENVIRONMENTAL ISOLATES (S/L-2 AND 3)

IV.

PRELIMINARY SITUATION

SKYLAB 3 BIO MEDICAL OBSERVATIONS (CONTINUED)

- o MUSCLE STRENGTH: PLT: LEGS ↓ 20% ARMS ↓ 10%
SPT: LEGS ↓ 30% ARMS ↑ NO CHANGE 10%
CDR ARMS 20. ↓ 20% only.
- o PREFLIGHT "STAMINA" NOT REGAINED BY R+14
- o FLUID/ELECTROLYTE/HORMONAL CHANGES
 - ? INCREASED URINE VOLUME MDZ (2/3)
 - URINARY OSMOLALITY ELEVATED INFLIGHT
 - URINE SODIUM INCREASED IN SPT
 - TOTAL BODY EXCHANGEABLE K SLIGHTLY DECREASED
 - IMMEDIATE POSTFLIGHT URINE VOLUME DECREASED;
SPECIFIC GRAVITY INCREASED
 - ALDOSTERONE:
 1. PLASMA: INCREASED R+1
 2. URINE: INCREASED EARLY IN MISSION; DECREASED POST-FLIGHT
 - HYDROCORTISONE:
 1. URINARY: INCREASED INFLIGHT (3/3)
 2. PLASMA: DECREASED POSTFLIGHT
 - EPINEPHRINE: ↑ EARLY INFLIGHT AND POSTFLIGHT (3/3)
 - NOREPINEPHRINE: ↑ INFLIGHT (PLT)
↑ POSTFLIGHT (3/3)
 - ADH ?
 - ANGIOTENSIN ?

PRELIMINARY SUMMARYSKYLAB 3 BIO MEDICAL OBSERVATIONS (CONTINUED)

TOTAL SLEEP ↑ INFLIGHT

REM ↑ INFLIGHT

I. ↑↑ INFLIGHT

II. ↑ INFLIGHT

III. ↓↓ INFLIGHT

IV. ↓ INFLIGHT

o IMMUNOLOGY

- UNSTIMULATED AND PHA STIMULATED LYMPHOCYTES EXHIBIT REDUCED RNA

AND DNA SYNTHESIS TO NEAR ZERO AT R+0

o HEMATOLOGY

o ↓ RED CELL MASS (6, 20, ¹¹13 PERCENT)

-15.2 -15.6 -12.1 (-14.3)

o ↓ PLASMA VOLUME (18, 9, 12 PERCENT)

-25 -10.3 +2.6 (-3.4)

o POSTFLIGHT RETICULOCYTE RESPONSE BEGINNING R+5

o EVA

- 39 HOURS TOTAL TO DATE

- EASIER THAN IN WIF

- BTU RATES COMPARABLE TO LUNAR EVA

- LIQUID ^{OR} GAS COOLING ADEQUATE FOR WORKLOADS EXPERIENCED *—modify*