



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LYNDON B. JOHNSON SPACE CENTER
HOUSTON, TEXAS. 77058

REPLY TO
ATTN OF:

CB

March 14, 1973

MEMORANDUM

TO: CB/J. Kerwin

FROM: CB/W. Thornton ✓

SUBJECT: Food Overage

The original food overage list was supposed to have allowed for crew inputs and I passed the list around for comments the day it came out. The following day, however, Whirlpool was told to proceed with the list. It was a week later, after the food was largely packed, that I discovered no crew inputs were intended. A large flail ensued including another CCB in which Mr. Kleinknecht largely sided with the Weedon group, which accounts for the large quantities of "apple" and "cherry" drinks instead of puddings, peanut butter and other items requested. You also now have large amounts of strawberry Tang which Smith and Rapp claimed all crewmembers tasted and heartily endorsed. Glad you liked it. The only significant change I was able to effect was replacement of potato soup with some requested items. A copy of the current overage list is enclosed.

At the CARR I requested and was denied the following items: external identification of the mineral tablet containers (metal "books") with large visible letters in addition to the tiny complicated chemical ID tags, and identification on the cannisters of all overage food items and quantity. At the moment only cannisters completely filled with overage are identified by labels on the cannisters while a number of cannisters with both overage and regular food are not labeled with overage items. They are identified in an alphabetical overage list.

Paul Rambaut just submitted the memos on food utilization which are enclosed. What they say to me (Paul Rambaut agrees with this interpretation) is that you will be allowed to add a food item during the first 6 days of diet on the ground so long as it does not exceed 500 cal. and 15 gm. protein and some unspecified amount of minerals. If you increase the diet (inflight you can only continue this increase after demonstrated weight loss uncontrolled by candy, cookies, and sugar water), you must take pills inflight to maintain a constant mineral intake equal to preflight. There is no provision to change the diet, weight loss or not, unless you also changed it during the first 6 days preflight. Further you can only make this change after PI/PCS consultation, and it must be continued throughout the flight.

I have certain thoughts on this process, but since I have already been starved by the PI/PCS these thoughts might be biased. Your unbiased comments would be appreciated. We can then try to fight for the right to eat the overage if this should seem appropriate.

W. Thornton

William Thornton

Enclosures : Overage List & Weedon/Rambaut memos

cc:

CB/Skylab Astronauts

CA/T. U. McElmurry

CB/WThornton:cao:3/14/73:2321

OVERAGE SELECTED

SMALL CANISTERS

<u>BEVERAGE</u>		<u>PUDDING</u>		<u>WAFER</u>	
<u>ITEM</u>	<u>QTY</u>	<u>ITEM</u>	<u>QTY</u>	<u>ITEM</u>	<u>QTY</u>
APPLE DRINK	42	LEMON	7	HARD CANDY	24
CHERRY DRINK	21	BUTTERSCOTCH	14	PEANUTS	18
LEMONADE	32			MINTS	24
COFFEE	80			BUTTER COOKIES	192
GRAPE DRINK	32			BISCUITS	24
TEA W/LEMON & SUGAR	16			VANILLA WAFER	24
STRAWBERRY DRINK	34			FRUIT JAM	12
COCOA	2			DRIED APRICOTS	14
INSTANT BREAKFAST	2			PEANUT BUTTER	12
GRAPEFRUIT DRINK	16			TUNA SALAD	10
ORANGE DRINK	7				

REVISED OWS OVERAGE LIST

LARGE CANISTERS

<u>AMBIENT</u>			<u>AMBIENT</u>			<u>*FROZEN</u>	
<u>ITEM</u>	<u>QUANTITY</u>		<u>ITEM</u>	<u>QUANTITY</u>		<u>ITEM</u>	<u>QUANTITY</u>
ASPARAGUS	9		SAUSAGE PATTIES	9		FILET MIGNON	9
GREEN BEANS	19		CORN FLAKES	4		ICE CREAM	9
MASHED POTATOES	19		SCRAMBLED EGGS	19			
GERMAN POTATO SALAD	4		RICE KRISPIES	7			
CREAMED PEAS	4		MACARONI & CHEESE	9			
MASHED SWEET POTATOES	4		SALMON SALAD	9			
CREAM STYLE CORN	19		SHRIMP COCKTAIL	15			
PEA SOUP	2		CHICKEN & RICE	9			
TURKEY RICE SOUP	17		PORK & POTATOES	19			
STEWED TOMATOES	4		BEEF HASH	7			
STRAWBERRIES	23		SPAGHETTI & MEAT	10			
PEACH AMBROSIA	14		CHICKEN & GRAVY	6			
POTATO SOUP	6		VEAL & BARBECUE	9			
BREAD	19						
PEACHES	25						
APPLESAUCE	25						
PEARS	15						
PINEAPPLE	10						
TURKEY AND GRAVY	5						

* QUANTITY AND SELECTION LIMITED BY AVAILABLE SPACE.



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS 77058

CPJ
Dr. Horner

REPLY TO DB3-73-108
ATTN OF:

PRELIMINARY

MEMORANDUM

TO: CA/Director of Flight Crew Operations
FROM: DA/Director of Life Sciences
SUBJECT: Skylab Food Overage Utilization

In accordance with discussions held with several Skylab astronauts on October 30, 1972, and summarized in the attached correspondence, the following mission rules have been formulated for utilization of the overage food items (i.e., items bearing the designation "O") during the in-flight phase of Skylab.

a. Energy adjustment items (i.e., butter cookies, apple drink, cherry drink, hard candy, and mints) may be consumed without restriction up to a limit of 300 kilocalories per day. The caloric value of these items will be included in the in-flight food logs. Such items must be reported in the Evening Status Report.

b. Any overage item may be used to replace an identical item in the nominal menu which is determined to be unusable prior to consumption. For purposes of inventory control, such items must be reported in the Evening Status Report.

c. If a crewmember loses weight in-flight while completely consuming his nominal menus and cannot adjust these weight losses by consuming palatable quantities of energy adjustment items, he may consume, from overage, the same items which were added to his preflight menu to maintain weight. This will represent a modification in the nominal menu which will recur on each occasion the particular menu day recycles for the remainder of the flight. Such a continuing change to the in-flight menus will be made in consultation with the PI/PCS. The names, quantities, and locations of these items will be transmitted with the daily supplement information. Complete consumption of these items will be assumed unless otherwise reported.

2

If these guidelines are acceptable, it is proposed they be added to the in-flight checklist and the crew be apprised of them. Your comments are requested.

Richard S. Johnston

Enclosure

PRELIMINARY

cc:

CB/Dr. William E. Thornton

CG3/Dock J. Hudson

DA/Lawrence F. Dietlein, M.D.

DB3/Michael W. Whittle, M.D.

DB4/William H. Shumate, Ph.D.

DD4/Charles E. Ross, D.O.

DB3/PC Rambaut:mb:3/9/73:5056

OFFICIAL FILE COPY

CONCURRENCES

OFFICE CODE ▶	DB3/PCR	DB3/MCS	DB/RLJ	DB/ELM	DA/LFD			
INITIALS ▶								
DATE ▶								



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA, MARYLAND 20014

Building 31 Room 9A 52
Area Code 301 - 496 5877

November 9, 1972

Mr. Richard S. Johnston
Director
Life Sciences Division - Code D.A.
Manned Spacecraft Center
NASA
Houston, Texas 77058

PRELIMINARY

Dear Mr. Johnston:

Enclosed is the memorandum which describes in the introduction and in the numbered paragraphs 1, 2 and 3 the essence of our group discussion on October 30 and the changes in the dietary intake control system generally agreed on. I understand from Dr. Rambaut that you have already seen a copy of this memorandum which I left in Houston.

I think it important to indicate to you in this covering letter, and to the astronauts as well, that as described in numbered paragraph 4, it is very difficult to provide much relaxation of intake requirements for calories and protein without affecting the levels of other elements, particularly calcium. As I trust all must be aware by this time, if the intake levels of calcium particularly and of other elements with almost equal importance are not maintained within the tolerances set and finally agreed on before, during and after flight, the value of experiment M-071 will be greatly reduced. Specifically, as I said on October 30, if more than minor and/or relatively rare aberrations from planned levels in intake occur, the interpretability of the data will be greatly reduced or may even reach uninterpretability altogether.

The basis for the difficulty in being able to provide flexibility in calories and protein to the degree really desired by the astronauts is that review of the food items reveals that very few protein-calorie foods are sufficiently low in calcium, sodium, etc. to avoid serious impact on the level of these latter elements. Miss Reid is preparing a list of food items which can be used as "additives" which I shall go over with Doctors Rambaut and Smith.

A really workable list may be relatively short. (List consisted of drinks, cookies & potato soup) w.r.

I think you should also realize that this attempt of ours to put some flexibility into the food system introduces serious perturbations into an already complex matter. The dietitians have to this point already put out tremendous effort to fit the foods available (with their many restraints on preservability, etc.) into relatively palatable diets. A great deal of extra work at present and during the experiment is laid on by this effort. Despite these considerable difficulties our intent remains to provide as workable and pleasant a diet system as possible. (i.e., why don't you eat sugar

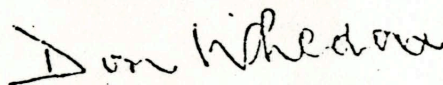
cookies & shot up-)

This is
apparently
Weedon's
only
concern
with
the
whole food
program
w.r.

I plan to be in Houston next on November 20 primarily to consult with Doctors Rambaut, Smith and Leach. I would be glad to meet with you further on this matter at that time and, if you think advisable, with Dr. Kerwin and others of the astronaut group.

With all best wishes.

Sincerely yours,



G. Donald Whedon, M.D.

Director

National Institute of Arthritis,
Metabolism, and Digestive Diseases

Enclosure

cc:

Dr. Rambaut
Dr. Smith
Dr. Kerwin
Dr. Leach
Mr. Michel
Dr. Lutwak
Miss Reid

30 October 1972.

MEMORANDUM

TO: DA/Richard S. Johnston

FROM: G. Donald Whedon, M.D.

SUBJECT: M-071 Dietary Intake Controls

PRELIMINARY

In an effort to improve the capacity of the Skylab M-071 dietary intake system to respond to changes in expressed dietary needs on the part of the crew or in alterations in requirements made apparent by changes in weight or other indices, yet continue the effort to follow the investigational principle of minimal variation in dietary intake, certain changes in the system were agreed upon in a meeting with Dr. Kerwin and other Skylab prime and back-up crew. These changes are for the purpose of allowing:

- a) Adjustment to anticipated differences in caloric requirements between preflight and in-flight phases of the study; and
- b) Consumption of certain calorie and protein items in-flight above the processed in-flight diet.

1. From the feeding tests and astronaut interviews taking place now (October - November, 1972), the principal investigator (P.I.) and NASA staff will determine appropriate in-flight caloric and protein levels and menus.

2. During the 21-day pre-flight and 3-day post-flight phases, astronauts will be served in-flight diets, but, as determined by changes in weight or apparent need for greater amount of food, astronauts may request and be served additional food items which may increase the mean daily intake by up to 500 calories per day and up to 15 gm. of protein. Such increases above the core in-flight diet will be planned in advance of the study or if required during the preflight phase, will be limited as closely as possible to the first 6 days. Thereafter, the agreed-on (new) pre-flight intake levels will be maintained but the tolerances about the mean to be allowed are ± 500 calories and ± 15 gm. protein and the tolerances of other elements are to be within previously stated limits.

/Continued

To: Richard S. Johnston

2

30 October 1972

PRELIMINARY

3. During the in-flight phase, if weight losses or crew appetite indicate desirability to increase protein or calorie intake, crewmembers may take additional food items provided they do not increase the protein intake by more than 15 gm. on that day or increase the calorie intake by more than 500 calories. Certain food items must be excluded from this choice because of great impact on intake level of other elements.

4. It must be realized that this change in system to allow greater flexibility in calories and protein, may have a considerable impact on the effort to hold calcium, phosphorus and other elements at the same mean level (+ previously stated tolerance pre-flight, in-flight and postflight. Hence, increased numbers of elemental supplements are likely to be required, particularly in-flight.