

Lyndon B. Johnson Space Center  
Houston, Texas  
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Reply to Attn of

SD/90

To: Distribution

From: SD/William E. Thornton, M.D.

Subject: Standardization for Physical Measurements

We are entering a flight phase where accurate knowledge of biomechanical and physiological parameters of exercise will be crucial to mission success. Data being gathered at this time will be used by various elements of space station design and should form the basis of planning for inflight physiological countermeasures.

Information from 1-g studies is available from a few investigators and labs is but may not be fully understood. This data does not exist for weightlessness for while a number of devices have been developed and used in space; resources to properly document their performance was not previously available.

Currently a number of developments in flight exercise and testing equipment are in work, and measurements are being made. The most active programs of measurement are by myself and the biomechanics lab which is using two treadmills I developed.

There appears to be a wide divergence of opinion, and especially practice, as regards the necessary procedures and performance standards to gather valid data. This is an appropriate time to establish mutually agreed upon procedures and standards to ensure valid data. It is requested that we immediately undertake the establishment of standards. It would also be a good time to establish mutually agreed upon plans for needed studies. I would like to meet with Mr. Perner, Dr. Pool, and Dr. Greenisen to discuss this matter. I will take the action to coordinate an appropriate meeting date and location.

William E. Thornton, M.D.

cc:  
SP34/M. Greenisen

SD/WETHornton:acs:2-28-90:32785

Distribution  
SD/S. Pool  
SP/C. Perner