

Subject : Comparison of Metabolic Costs
QTM VS TTM

Bill.

I apologize for not reading this sooner. I think you have adequately established a comparison between the TTM and QTM. (I didn't clearly get a definition of active vs. passive treadmill systems until pg 2) ^{Examinor pt.}

The equivalency of the 2 treadmills is adequately established in this paper.

The big question which now arises is establishing an agreed on definition of what hardware is necessary to be flown. To do this several other questions must first be resolved.

1. What is an acceptable level of compliance in the lower body which will not endanger shuttle entry? This may require a chart of flight duration vs. degradation.
2. What type of exercise is necessary to combat this problem? And the degree of effectivity of each.
 - a. Running in place -
 - b. TTM -
3. What ^{exercise} equipment is necessary? What are the options?
 - a. None
 - b. TTM
 - c. Bungee restraint & harness
4. TTM status.
 - (a) Weight reductions. - how much weight and at what cost?
 - (b) Storage

If the question of adequate conditioning comes down to the bungee / harness system vs the TTM, you need to show the Δ in capability between the two. You also need to have some figures available on potential weight savings which can substantially reduce the 40+ lb weight. (Right now everyone in management is weight conscious). The consideration of flying the Treadmill as an FTO to measure and investigate orthostasis may be ~~more easily~~ another way to get the TTM onboard. This would probably mean going through the Life Science Directorate to sponsor a program.

The paper you have written is excellent!