

3.2 Medical Requirements Overview**TABLE 3.2: MEDICAL REQUIREMENTS OVERVIEW**

MRID# and Title:	MR006L Exercise Treadmill Test
Sponsor:	Medical Operations
IPT:	Bone, Muscle and Exercise
Category:	Medical Requirements (MR)
References:	Astronaut Medical Evaluation Requirements Document (AMERD), JSC 24834 Appendix A, Section III (3.6.2) Appendix B, Section V (5.1.a.1.b) and Section V (5.1.c.7.a)
Purpose/Objectives:	To assess preflight cardiovascular status.
Measurement Parameters:	Blood pressure, ECG, oxygen consumption, and heart rate.
Deliverables:	Assessment of cardiovascular status.
Flight Duration:	≥ 30 days
Number of Flights:	Every Expedition
Number and Type of Crew Members Required:	All U.S. crewmembers
Other Flight Characteristics:	None

3.3 Preflight Training – No Preflight Training

3.4 Preflight Activities

TABLE 3.4: PREFLIGHT ACTIVITIES

Preflight Activity	Description:	The crewmember begins at 1.7 mph on a 10% grade and progresses to his/her aerobic capacity. The Crew Surgeon can terminate the test at any time based upon clinical signs and symptoms. The crewmember may also terminate the test at any point during the protocol. Tests that are terminated for non-cardiopulmonary reasons (i.e., leg fatigue) before reaching 90% predicted maximum heart rate are considered non-diagnostic. Bruce Protocol:				
		<u>Stage</u>	<u>Speed (mph)</u>	<u>Grade (%)</u>	<u>Time (min)</u>	<u>Cumulative Time (min)</u>
		1	1.7	10	3	3
		2	2.5	12	3	6
		3	3.4	14	3	9
		4	4.2	16	3	12
		5	5.0	18	3	15
		6	5.5	20	3	18
		7	6.0	22	3	21
	Schedule:	Duration:	Schedule:		Flexibility:	Personnel Required:
		Exercise Treadmill Test: 1.5 hours	L-180 days L-30/45 days		N/A	Kelsey-Seybold Clinic Personnel / Crew Surgeon / Crewmember
Ground Support Requirements Hardware/Software	Preflight Hardware:		Preflight Software:		Test Location:	
	Quinton 1860 Treadmill		N/A		U.S.	
	Marquette CASE 15 electrocardiograph and treadmill monitor		N/A		U.S.	
	Paramed Blood Pressure Monitor		N/A		U.S.	

Testing Facilities	Minimum Room Dimensions:	Number of Electrical Outlets:	Temperature Requirements:	Special Lighting:
	14 ft x 14 ft	One 220 V and at least 3 110V outlets	20 - 25°C	N/A
	Hot or Cold Running Water:	Privacy Requirements:	Vibration/Acoustic Isolation:	Other:
	N/A	Access to room must be controlled during testing.	N/A	N/A
Constraints/Special Requirements:	<p>Test Termination Criteria:</p> <ul style="list-style-type: none"> • Development of a new Left Bundle Branch Block (LBBB). • New Horizontal ST depression equal to or greater than 3mm for 4 consecutive beats. • Sequential Ventricular Premature Beats of 7 beats or more. • Sequential Atrial Premature Beats of 7 beats or more. • New onset of Atrial Fibrillation or Paroxysmal Supraventricular Tachycardia (PSVT) of 7 beats or more. • Progressive drop of pulse or systolic blood pressure during exercise. • Blood Pressure Systolic greater than 240; Diastolic greater than 130. • Evidence of Heart Block; 2nd degree Type II or 3rd degree. <p>Test will be repeated at Crew Surgeon discretion.</p> <p>Recommend no strenuous exercise 24 hours prior to testing, no meals permitted 2 hours prior to testing, no alcohol or other vasoactive substances (e.g., cold medications) 24 hours prior to testing and no caffeine or nicotine 8 hours prior to testing.</p>			
Launch Delay Requirements:	N/A			
Notes:	MAT Coordinator will avoid test duplication with annual exams and Physical Fitness Evaluations as much as possible.			
Data Delivery	Data/Report to Designated Recipients (Nominal/Contingency):			
	Preliminary report will be provided to the flight surgeon within 24 hours. A final report will be delivered within 1 week.			

3.5 In-Flight Activities – No In-Flight Activities

3.6 Postflight Activities – No Postflight Activities

3.7 Summary Schedule

TABLE 3.7: SUMMARY SCHEDULE

ACTIVITY	DURATION	SCHEDULE	FLEXIBILITY	BLOOD VOLUME	PERSONNEL REQUIRED	CONSTRAINTS
Preflight Training – N/A						
Preflight						
Exercise Treadmill Test	1.5 hours	L-180 days L-30/45 days	N/A	N/A	Kelsey-Seybold Clinic Personnel/ Crew Surgeon/ Crewmember	MAT Coordinator will avoid test duplication with annual exams and Physical Fitness Evaluations as much as possible.
In-Flight – N/A						
Wheels-Stop – N/A						
Postflight – N/A						

Note: Recommend no strenuous exercise 24 hours prior to testing, no meals permitted 2 hours prior to testing, no alcohol or other vasoactive substances (e.g., cold medications) 24 hours prior to testing and no caffeine or nicotine 8 hours prior to testing.