



MEDICALS FOR SPACE TOURISTS

IS A JAR - MEDICAL CLASS 2 SUFFICIENT?

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JAR - Medical Class 2 (Private Pilots)



- Questionnaire
 - Physical Examination (incl. blood pressure, height, weight, heartrate)
 - Laboratory tests (BC, Lipid profile, Urinalysis)
 - EKG (at rest)
 - Ophthalmology (Visual acuity, Colour vision, Fundoscopic examination, Perimetry)
 - Hearing (clinical evaluation)
-
- Pulmonary function testing and Exercise stress test only on indication

(27) Do you smoke tobacco? Never No Date stopped:
 Yes state type and amount:

(28) Do you currently use any medication ?
 No Yes State drug, dose, date started and why:

(29) Alcohol - state average weekly intake:

General and medical history: Have you a history of any of the following? YES or NO (or as indicated) must be ticked after each question. Elaborate YES answers in the remarks section.

		Yes	No			Yes	No			Yes	No	Family history of:		Yes	No
101	Eye trouble/Eye operation			114	Frequent or severe headaches			126	Admission to hospital			150	Heart disease		
102	Spectacles and/or contact lenses ever worn			115	Dizziness or fainting spells			127	Any other blood tests/disorders			151	High blood pressure		
				116	Unconsciousness for any reason			128	Any other illness or injury			152	High cholesterol level		
103	Spectacles prescriptions change since last medical exam.			117	Neurological disorders: epilepsy, seizure, paralysis, etc			129	Visit to medical practitioner since last medical exam.			153	Epilepsy		
												154	Mental illness		
104	Allergy or hay fever			118	Mental disorders of any sort: depression, anxiety, etc			130	Refusal for life insurance			155	Diabetes mellitus		
105	Asthma or lung disease							131	Refusal for flying licence			156	Tuberculosis		
106	Heart or vascular trouble			119	Treatment of alcohol/drug/ Substance abuse			132	Conviction for a civil, criminal or traffic offence			157	Allergy/asthma/		
107	High or low blood pressure											158	Inherited disorders		
108	Kidney stone or blood in urine			120	Attempted suicide			133	Medical rejection from or for military service			159	Glaucoma		
109	Sugar or albumine in urine			121	Motion sickness requiring drugs							Females Only			
110	Stomach trouble			122	Malaria or other tropical disease			134	Award of pension or compensation for injury or illness			170	Gynaecological conditions		
111	Deafness or ear disorder			123	Anaemia / Sickie cell trait							171	Obsietric complications		
112	Nose, throat or speach disorder			124	A Positive HIV test							172	Menstrual problems		
113	Head injury or concussion			125	Sexually transmitted disease							173	Last menstruation date		

(30) Remarks: If previously reported and no change since, so state.

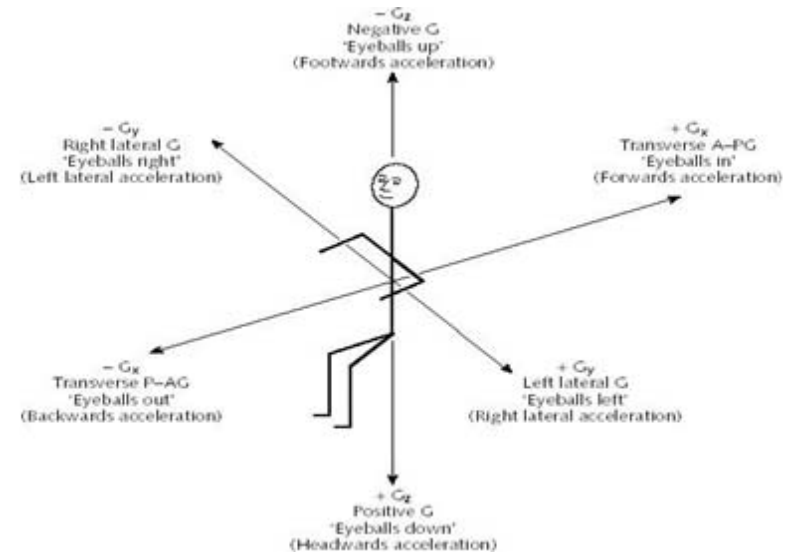
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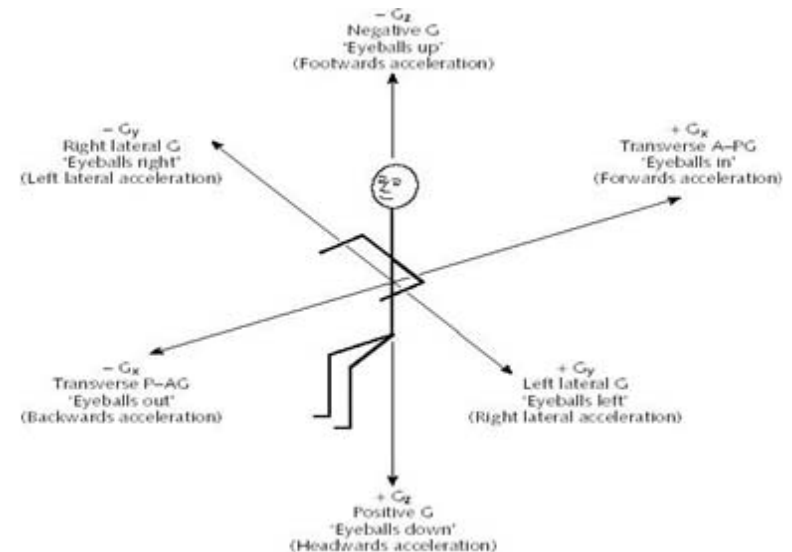
Risk Factors during Suborbital Space Flights

- Acceleration and resulting G-forces
 - + Gz-Axis defined as critical
- Barometric Pressure Changes
 - Altitude (hypoxic) hypoxia
 - Body caves with trapped gases
 - Decompression sickness
- Radiation
- Microgravity



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All these stressors could aggravate passenger's individual pre-existing medical conditions!

All these stressors could cause a medical problem, even for healthy passengers due to individually reduced tolerance!

Is a JAR - Medical Class 2 sufficient for Space Tourists ?



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It depends

on the **R I S K**

you are willing to take!





Some standpoints in detail.....



**„There should be no medical screening
at all“**



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➤ Passengers

might be decided to fly
and willing to take every kind of risk...





**„A reviewed medical history questionnaire
is sufficient – no need for further exams“**



„A reviewed medical history questionnaire is sufficient – no need for further exams“

➤ Federal Aviation Administration

„Guidance for Medical Screening of Commercial Aerospace Passengers“
(Final Report 2006)

- up to a max. G-load of + 3Gz
- barometric pressure not exceeding 8.000 ft
- no pressurized suit
- passengers perform emergency evacuation on their own and are not compromising the safety of others

Passenger's informed consent to all risks of suborbital space flight is required





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Training will simulate the trip



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Participants will engage in altitude chamber training and a g-force experience



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- German Aerospace Center –
Institute of Aerospace Medicine (AMC)



Recommendations for Training:

- Centrifuge ride at 3 Gz for 5 min.
- Hypobaric chamber and exposure to hypoxia
- Parabolic flight

DRAMA UM 48-JÄHRIGEN IM „PHANTASIALAND“

Achterbahnfahrt in den Tod



Die „Black Mamba“ im Vergnügungspark Phantasialand. Die Achterbahn wurde in der Vergangenheit mit zahlreichen Preisen ausgezeichnet

Foto: Heide Rishi

**IN DEN USA GAB ES IN DEN LETZTEN JAHREN ZWEI ÄHNLICHE
TODESFÄLLE.**

IN EUROPA IST NUR EIN FALL BEKANNT:

**IM DISNEYLAND PARIS STARB 2007 EINE 14-JÄHRIGE IM ROCK‘N‘-
ROLLER-COASTER AN EINEM HERZINFARKT.**

www.bild.de vom 16.05.2011



Conclusion:

We have to avoid similar mishaps during private human space flight

Simulating the main stress factors during pre-flight training could lead us to a kind of evidence based decision about someone's medical qualification to participate in suborbital space flight