

Medical Selection of The First German Commercial Female Astronaut

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Knowledge for Tomorrow

Disclosure Information

I have no financial relationships to disclose.

I will not discuss off-label use and/or investigational use in my presentation.



Female Astronauts (61)

European Female Astronauts (3)



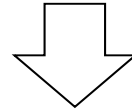
Job Advertisement

- Bachelor's degree in a „STEM“ field/ equivalent military education
- Several years of related professional experience
- Media competency
- Ability to communicate and work in teams
- Stable physical and mental condition
- German citizenship
- Fluent in English
- Advantageous: Experience in aviation or diving, knowledge of Russian language

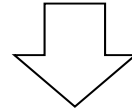


Selection Process

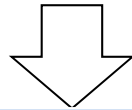
Job Advertisement



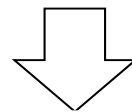
Application (including video)



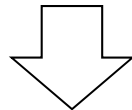
Medical Preselection (questionnaire)



Psychological Selection (2 step)



Medical Selection



Recommendation



Pseudonymized questionnaire



120

- Medical
 - History
 - Personal
 - Family
 - Radiation Exposure
- Sporting activities
- Nutrition



86



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Denial because of answers in the questionnaire

- Pregnancies
- Metrics
- Trauma



Psychological Selection



81

- First step: series of computerized basic aptitude and knowledge tests (e.g. attention, technical knowledge)



30



30

- Second step: Assessment including
 - group exercise
 - a dyadic cooperation test
 - a reaction-time test
 - a semi-structured interview



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Medical Selection of Space Flight Participants

- Medical Standards and Certification Procedures for Space Flight Participants International Space Station Program
- To ensure that the SFP pose an acceptable medical risk for the ISS program, and the transport to and from the ISS

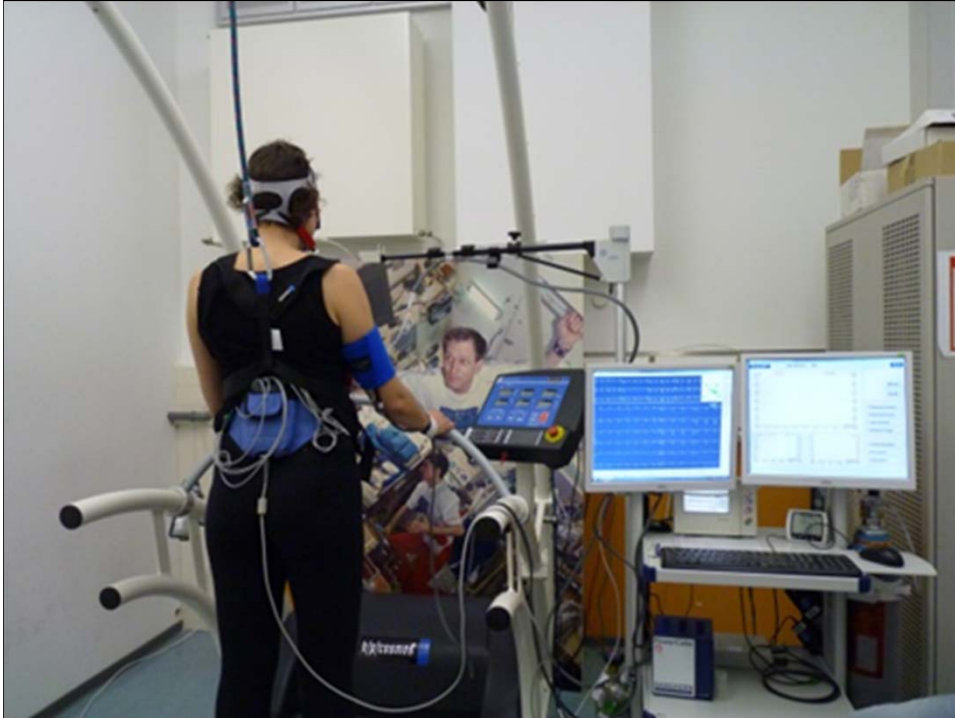


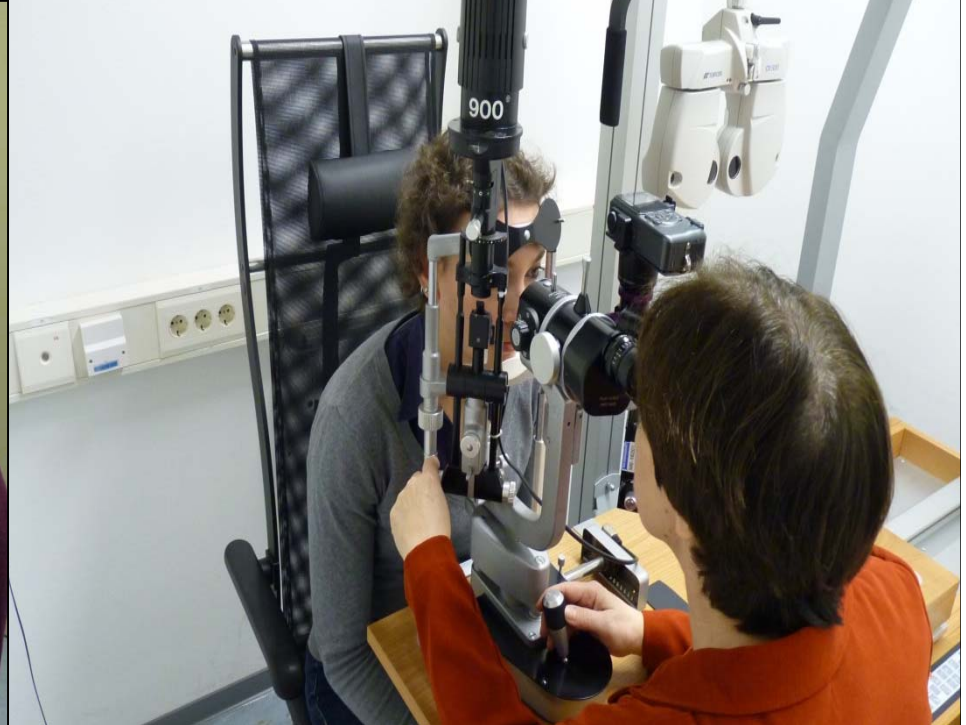
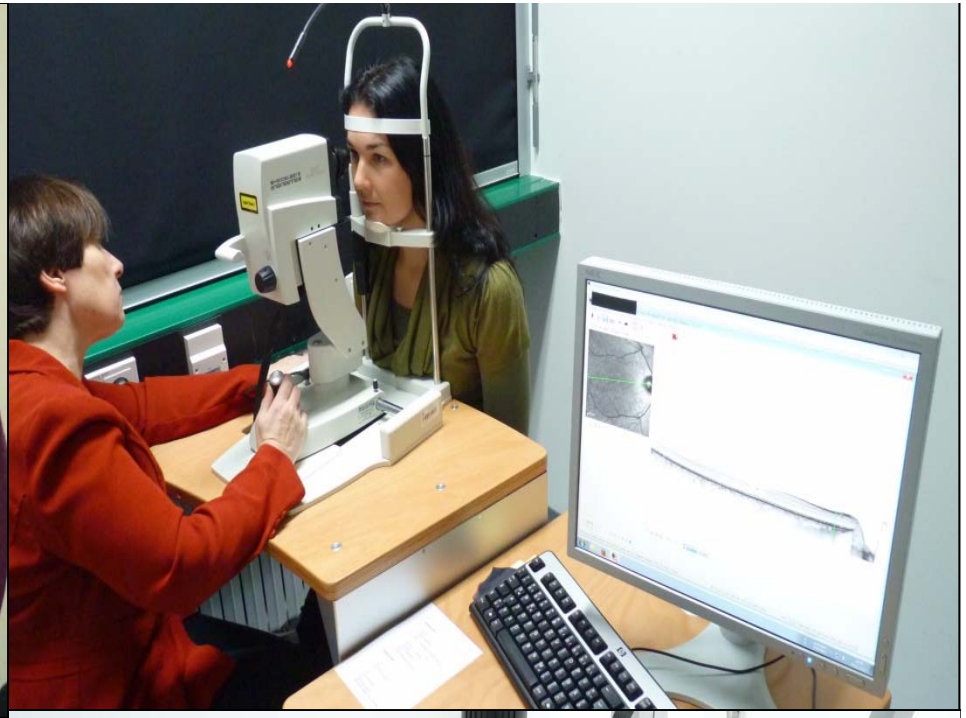
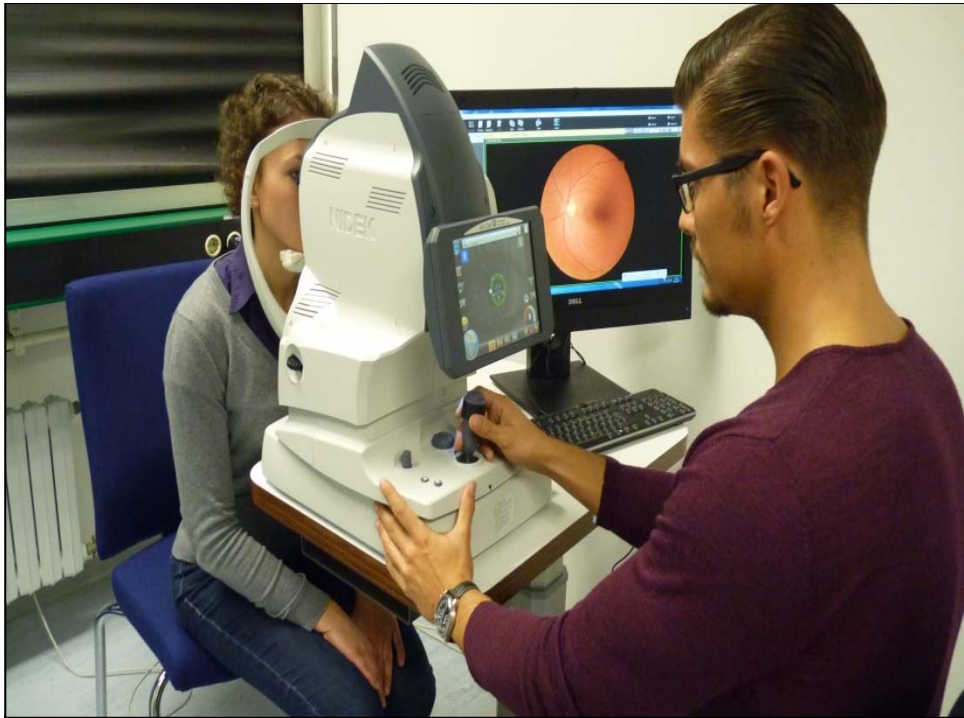
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Medical Examination of Space Flight Participants







Additional Examinations

- Neurology
 - Gynecology
 - Dentist
 - Psychiatry
 - Bone density
 - MRI brain
- Because of radiation issues the orthopantogram and chest x-ray were only performed after the final selection



Medical Selection Board

- All medical data were presented in an anonymized way

DIE STRONAUTIN		Ears – Nose – Throat Exam		DLR	
Name:	T-1				
Birth Date:					
Date:					
(see attached audio- and tympanometry)					
	Normal	Abnormal	Comments		
Head and Neck Exam (external)	<input type="checkbox"/>	<input type="checkbox"/>			
Ear (R):					
General External	<input type="checkbox"/>	<input type="checkbox"/>			
Canal	<input type="checkbox"/>	<input type="checkbox"/>			
Drum (pneumatic otoscopy)	<input type="checkbox"/>	<input type="checkbox"/>			
Ear (L):					
General External	<input type="checkbox"/>	<input type="checkbox"/>			
Canal	<input type="checkbox"/>	<input type="checkbox"/>			
Drum (pneumatic otoscopy)	<input type="checkbox"/>	<input type="checkbox"/>			
Audiogram					
	500 Hz	1000 Hz	2000 Hz	3000 Hz	4000 Hz
AD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Normal	Abnormal	Comments		
Nose – Right Nostril	<input type="checkbox"/>	<input type="checkbox"/>			
Nose – Left Nostril	<input type="checkbox"/>	<input type="checkbox"/>			
Sinuses (R)	<input type="checkbox"/>	<input type="checkbox"/>			
Palpation / Percussion	<input type="checkbox"/>	<input type="checkbox"/>			
Secretions	<input type="checkbox"/>	<input type="checkbox"/>			
Sinuses (L)	<input type="checkbox"/>	<input type="checkbox"/>			
Palpation / Percussion	<input type="checkbox"/>	<input type="checkbox"/>			
Secretions	<input type="checkbox"/>	<input type="checkbox"/>			
Nasopharynx	<input type="checkbox"/>	<input type="checkbox"/>			
Hypopharynx	<input type="checkbox"/>	<input type="checkbox"/>			
Larynx	<input type="checkbox"/>	<input type="checkbox"/>			
Other observations:					
Examining Physician: M.D.					







After the selection ...

- Basic training (Space systems)
- Parabolic flight
- Private Pilot License
- USA
- Education and outreach
- Public Relations



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Conclusion

- The rate of denials is only about half of the denials of professional astronaut selections, because of the lower requirements
- As many applicants came out of the space area it made sense to pseudonymize the medical information for decision making to exclude possible bias.
- To perform the necessary radiation examination it makes sense from an administrative perspective to include it into the medical selection process





Dominika-Maria Elmenhorst

Thank you for your attention