Development of Aviation & Space Medicine in the UK

Sqn Ldr Bonnie Posselt

ST4 Aviation and Space Medicine

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Disclosures

I have the following financial relationships to disclose:

- Employee of: Royal Air Force

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All images are open source.

Scope

- Brief history of Aviation Medicine
- Development & recognition of the new specialty
- Training pathway and curriculum
- My experiences
- Opportunities to participate in Space activities

Background

Development

- Programme puts in place a structure which builds on many years of experience in ASM within the RAF
- Bring into line with changes in medical training
- Developed by group of senior ASM physicians under direction from JRCPTB
- Competency based spiral approach fostering life-long learning
- May work in military or civilian environment
- 66th medical specialty available

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Countdown to lift-off begins for Britain's first space doctors

Press Release

25 Mar 2016

The first generation of UK doctors specially-trained to work as part of the space programme has moved a step closer, with the General Medical Council (GMC) set to approve the curriculum later this year.

From next month, 'aviation and space medicine' will be added as a new specialty available to doctors, and then the GMC will ensure the proposed training meets its stringent standards.

UK doctors who want to boldly go in the footsteps of British astronaut Tim Peake, currently in orbit on board the International Space Station, will have to complete a training programme once it is approved by the GMC.

The new specialty will become the latest of more than 60 options available for doctors if they choose an area of medicine to

> "This is an exciting development, and we will work with the experts to make sure these highly specialist doctors receive appropriate and high-calibre training."
>
> Niall Dickson, Chief Executive of the General Medical Council

Space doctors wanted (no flying required)

Those hoping to enable the next Tim Peake, the British astronaut, to complete a mission to Mars have been warned that it is no ordinary job PA

Katie Gibbons
Published at 12:01AM, March 25 2016

Young doctors contemplating strikes next month could set their sights on the stars instead by signing up to Britain's first space medicine curriculum.

This country has a tradition of training some of the world's finest aviation doctors and now, following an update to the General Medical Council's guidelines, that expertise will be sent into space. From next month, trainee doctors will be able to specialise in space and aviation medicine.

Training will include visits to Nasa to learn from the latest in space technology and will be funded by businesses and organisations in the aviation and aerospace sector.

SPECIALTY TRAINING CURRICULUM

FOR

AVIATION AND SPACE MEDICINE

2016

Approved 7 September 2016

Joint Royal Colleges of Physicians Training Board

5 St Andrews Place
Regent's Park
London NW1 4LB

Telephone: (020) 3075 1649
Email: curriculum@jrcptb.org.uk
Website: www.jrcptb.org.uk

Aviation and Space Medicine

- The study of all factors affecting the human body in flight, in **health as well as sickness** and the means by which those flying may be **protected** against the potentially harmful effects of their **abnormal environment.**

- Consultants in the speciality act as experts on the medical and physiological aspects of Aviation and Space

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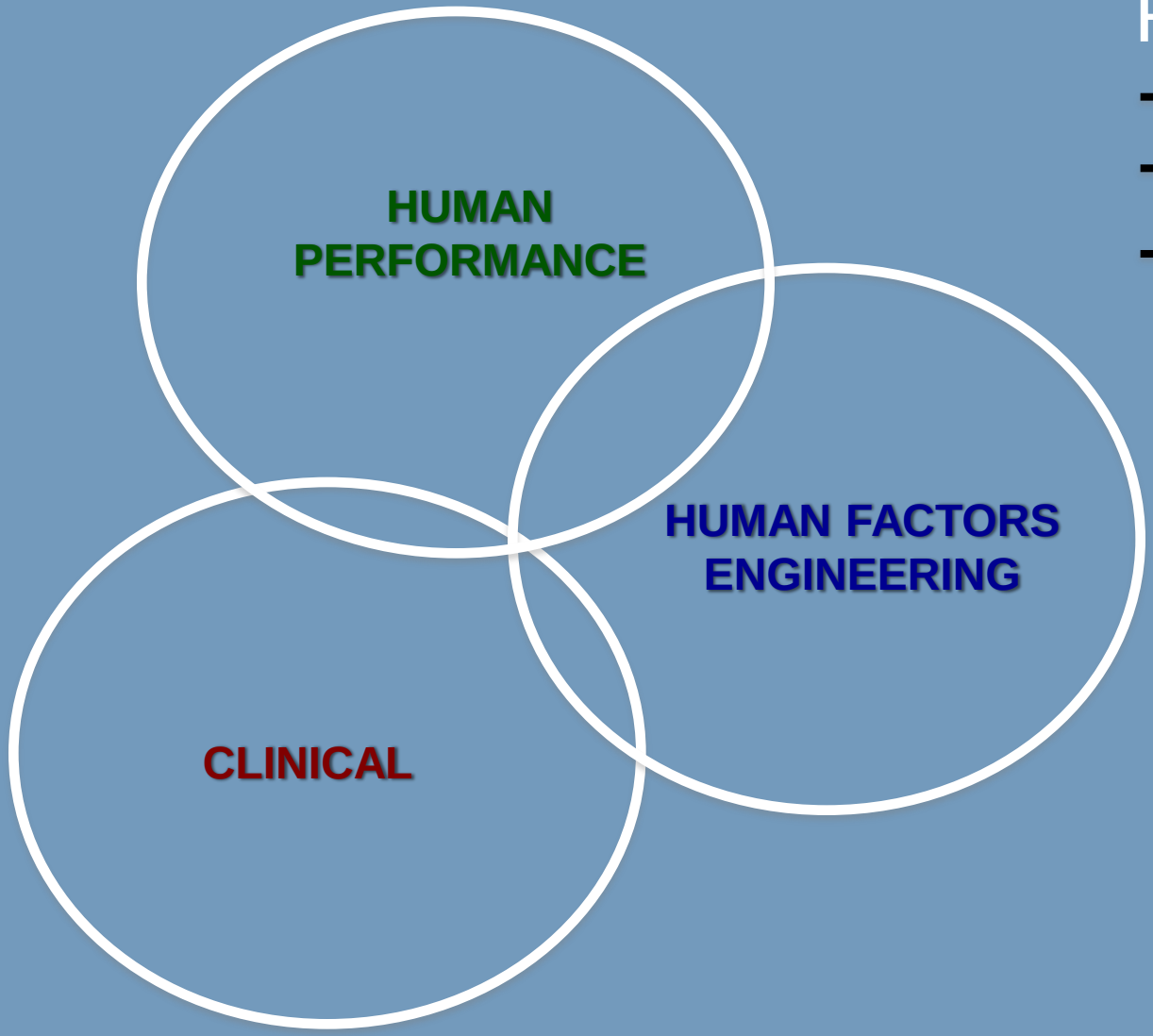

Protect

→ Survive

→ Function

→ Perform

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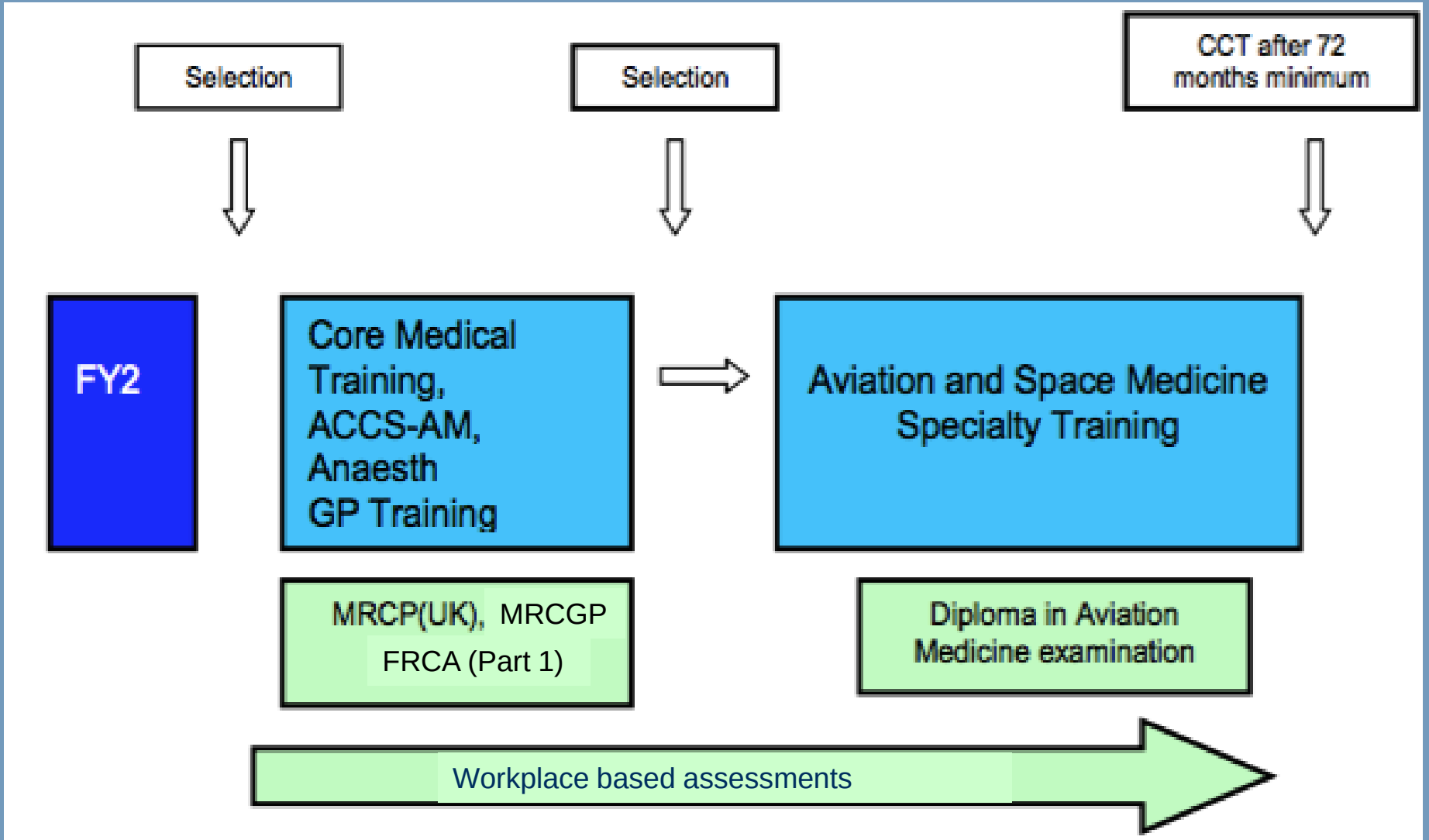
Training Pathway



Curriculum

- Good medical practice
- Good clinical practice
- Relationships with patients, communication and governance
- Medical leadership
- 48 competency titles in total

Role Specific Competencies

- Regulation and structure of international bodies
- Aeromedical disposition
- Hypoxia
- Acceleration
- Accident Investigation
- Equipment integration
- Aeromedical evacuation
- Thermal
- Human factors
- Noise and vibration
- Spatial disorientation
- Vision
- Space Medicine

8. Global Aviation Health

Aviation health

To progressively develop the ability to shape aviation health practice in the UK and understand how legislation and practice in the UK are influenced by global developments.

Knowledge	Assessment Methods	GMP
Understand the role of the international organisations in shaping aviation health practice in the UK.	mini-CEX, CbD, MCR	1
Understand the organisation of aviation health services across the EU and globally.	mini-CEX, CbD, MCR	1
Understand how legislation and practice in the UK are influenced by global developments.	mini-CEX, CbD, MCR	1,2
Understand the implications for health of global travel and the role of WHO, ILO and other similar bodies.	mini-CEX, CbD, MCR	1
Understand the implications of terrorism and emerging risks to the safety of aviation workers and passengers.	mini-CEX, CbD, MCR	1
Skills		
To advise managers and others of their legal obligations under international directives.	mini-CEX, CbD, DOPS, MCR	1,2,3
To ensure professional practice is compliant with relevant health and safety and employment law.	mini-CEX, CbD, DOPS, MCR	1,2,3
To identify relevant symptoms of disease from employees and passengers returning from foreign travel.	mini-CEX, CbD, DOPS, MCR	1,2,3
To provide appropriate advice to travellers on health and safety.	mini-CEX, CbD, DOPS, MCR	1,2,3
Behaviours		
Respond appropriately to cultural differences in health promotion and disease management.	mini-CEX, CbD, MCR	1,2,3
Enthusiasm to develop new skills relevant to the changing needs of aviation health.	mini-CEX, CbD, MCR	1,2,3
Keep updated on government guidance on health impacts related to global threats to health and safety.	mini-CEX, CbD, MCR	1,2,3

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9. Clinical Presentations and Aeromedical Disposition

Cardiovascular disease

The trainee will be able to assess a patient with cardiovascular disease to produce a valid differential diagnosis, investigate appropriately, and formulate and implement an aeromedical management plan.

Knowledge	Assessment Methods	GMP
Understand the clinical presentation, signs, symptoms, pathology, prognosis and treatment regimes for the main cardiovascular diseases including: • coronary artery disease • rate and rhythm disturbances • conduction disturbances • valvular disease • pericarditis • myocarditis • endocartitis • cardiomyopathy • congenital heart disease • ion chanelopathies • peripheral • great vessel disease, hypertension	CbD, mini-CEX, DAvMed, MCR	1
Understand how these clinical presentations can influence licensing decisions, future/continued employment and passenger travel.	CbD, mini-CEX, DAvMed, MCR	1
Skills		
Ability to assess a patient with cardiovascular disease and implement a management plan in conjunction with cardiovascular specialists.	CbD, mini-CEX, MCR	1
Interpret the history and clinical signs to list appropriate differential diagnoses.	CbD, mini-CEX, MCR	1
Order, interpret and act on initial investigations and know when to refer patient/aviation workers for further management.	CbD, mini-CEX, MCR	1,2
Ability to interpret clinical finding with regard to licensing, future/continued employment and passenger travel.	CbD, mini-CEX, MCR	1,2
Behaviours		
Be responsible for identifying the clinical condition and licensing implications and take responsibility for these.	CbD, MSF, PS, MCR	1,2
Recognise the contribution and expertise of cardiology specialists.	CbD, MSF, PS, MCR	1
Communicate in a timely and thoughtful way with patients/aviation workers.	CbD, MSF, PS, MCR	1,3
Show empathy to patients and aviation workers regarding licensing decisions and future/continued employment.	CbD, MSF, PS, MCR	1,2,3,4

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Return to flying medical assessments

To progressively develop the ability to determine fitness for return to flying by carrying out altitude chamber medical assessments.

Knowledge	Assessment Methods	GMP
Determine fitness for return to flying.	mini-CEX, CbD, DAvMed, MCR	1
Skills		
Perform medical examination of personnel undergoing decompression.	mini-CEX, CbD, DOPS, MCR	1
Demonstrate an understanding and ability to detect medical conditions prohibiting decompression.	mini-CEX, CbD, DOPS, MCR	1
Brief the patients deemed fit for decompression explaining the actual procedure and potential hazards in detail.	mini-CEX, CbD, DOPS, MCR	1
Behaviours		
Show empathy with those who potentially may lose flying category and/or livelihood.	mini-CEX, CbD, PS, MCR	1,3,4

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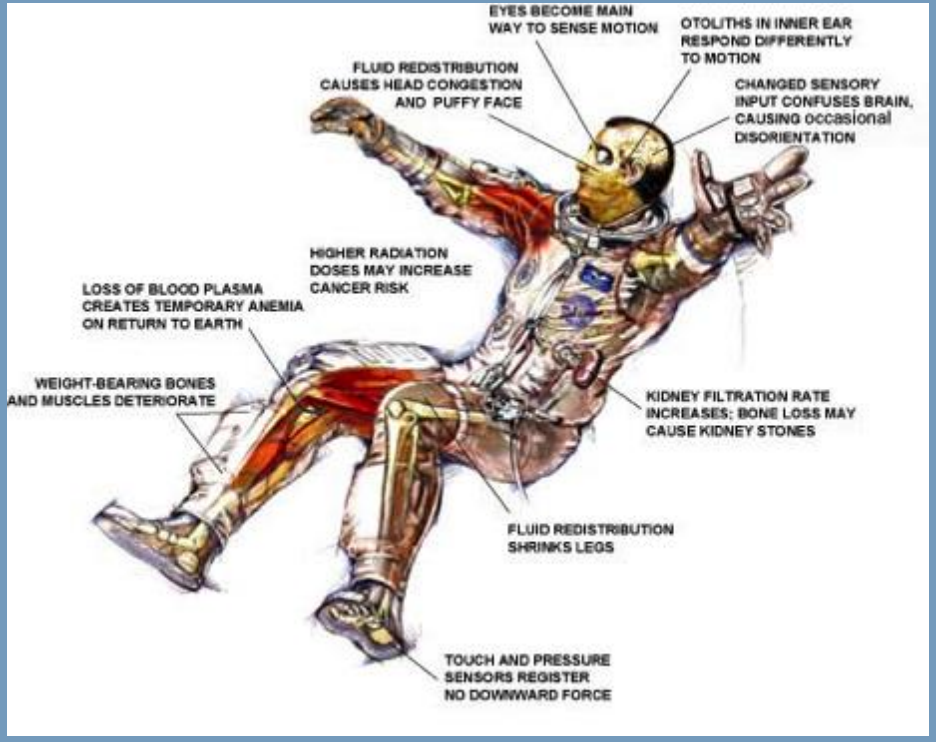


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Methods of assessment

- Workplace-based assessments WPBAs
  - mini-Clinical Evaluation Exercise (mini-CEX)
  - Case-Based Discussion (CbD)
  - Direct Observation of Procedural Skills (DOPS)
  - Multi-Source Feedback (MSF)
  - Multiple Consultant Reports (MCR)
  - Patient Survey (PS)
  - Audit Assessment (AA)
  - Teaching Observation (TO)

- ARCP
- Host LETB responsible for delivery of training

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Diploma in Aviation Medicine

- 26 Weeks – Full time
- Split between KCL and RAF CAM
- Visits
- Written and oral examinations

Methods of obtaining competencies

- JRCPTB approved setting
- Civil Aviation Authority
- Medical clinics- aviation medicine centers
- RAF Centre of Aviation Medicine
  - Centrifuge and hypobaric chambers
  - Disorientation trainer
  - Accident Investigation
- Aeromedical Evacuation Control Centre
- Industry
- Aviation Medicine Flight –MOD Boscombe Down
  - x2 Hawk TMk1 aircraft
- National and international meetings
- 3-6 months working outside the UK

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Challenges and opportunities

- Sponsorship
- Availability of places
- Military vs. civilian

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KING'S College LONDON

INTERNAL

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STUDY PROGRAMMES

MSc Human & Applied Physiology
MSc Space Physiology & Health
MSc Aviation Medicine

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Skinsuit – Julia Attias and Phil Carvil, graduates of MSc in Space Physiology and Health at KCL, currently PhD students at KCL

http://www.bbc.co.uk/news/health-26458868

CASE MEDICINE

HOME AVIATION ALTITUDE DIVE TEMPERATURE SPACE

ABOUT US KNO2WLEDGE PROJECTS EDUCATION NEWS EVENTS CONTACT

AVIATION

Encompasses the various adverse biological, psychological and physiological responses to the aerospace environment.

ALTITUDE

The lack of oxygen at altitude is a significant physiological challenge that impairs performance and can lead to serious illness.

DIVE

The pressure changes encountered by divers far exceed those seen in any above-water activities.

TEMPERATURE

Extremes of temperature, both heat and cold, can have serious detrimental effects on the human body but adaptation can help to avoid them.

SPACE

Understanding the effects of microgravity experienced in space flight will help mankind to safely explore his surroundings outside the Earth's atmosphere.

Welcome to CASE

The Centre for Altitude Space and Extreme Environment Medicine

The Centre for Altitude Space and Extreme Environment Medicine (CASE Medicine) consists of a group of clinicians and scientists with specialist interests and training in medicine and physiology of extreme environments.

We conduct research, teach courses and offer advice in the areas of space, aviation, high altitude, extreme temperatures, and dive and hyperbaric medicine. Central to our work is the concept that the study of human systems stretched to breaking point in extreme environments can increase our understanding of critically ill

Twitter Feed

@CASE_Medicine / Nov 13 06:52

RT @DivingLDC: Divers still hitting the water through the winter? Remember cold water & body temp is a very real contributing fact... https://t.co/RaL2RD1Vga

Funding and support

Current funding opportunities

NIHR Academic Clinical Fellowships

Background Information

wships are specialty training posts that incorporate
demic Clinical Fellows (ACFs) spend 75% of their time
l training and 25% undertaking research or educationalist

Related content

Resources and links

NIHR ACF Posts and Run Through

THE BLOG

Boldly Going Where Few Have Gone Before: Meet Space Gynecologist Dr. Varsha Jain

03/09/2016 03:59 pm ET | **Updated** Mar 14, 2016

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Sezin Koehler
Author, Crime Rave and American Monsters

Once upon a time, not so long ago, people feared that if a woman went into space while on her period, the blood would reverse its flow into her body — also known as retrograde menstruation — causing pain and possible death. This was one of many false notions that kept women from being included on space missions because back in those dark ages even the world's brightest operated under socio-cultural misperceptions surrounding the still-taboo subject of a woman's "time of the month." It's been more than three decades since the first American woman went where none had gone before, and times have certainly changed. For the first time in history, in 2013, NASA boasted its first ever gender-equal training class of astronauts. Today, the female

TRENDING

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Here Are The Three Reasons Why Medicare Is Doomed

3 NBA Teams Reportedly Stop Staying At Donald Trump Hotels

http://m.esa.int/Our_Activities/Human_Spaceflight/Concordia/Scientific_spring_in_isolated_Antarctica

space-environments.co.uk

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UK Space Environments Association

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http://space-environments.co.uk

http://www.ukspacelabs.co.uk

UK Space Environments Association

Resource Centre

Easily share equipment, facilities and services to enhance project development

Community

Home | Subscribe

We are currently in a soft launch period where membership is free for the next few months. To take advantage of this offer please subscribe here with the code **ready4launch.**

Human Space Physiology Training Course 2016 - Call for Applications

Written by Julia Attias on 08 November 2016. Posted in General News

This training course, offered by ESA's Education and Space Medicine Offices, will be held from Monday 30 January to Thursday 2 February 2017 at ESA's Redu Centre in Belgium.

· What is the ESA Academy?

– Hands-on space projects

– **Satellites**

· CubeSats - Fly Your Satellite!

· European Student Earth Orbiter

– **Experiments**

· Drop Your Thesis!

· Fly Your Thesis!

· Spin Your Thesis!

· REXUS/BEXUS rocket & balloon experiments

– Training & learning programme

· About the training and learning programme

· About the training and learning centre

– **Training courses**

ESA > Education > ESA Academy

Search here

· Registration form

Related links

· Space Medicine Offices

· Space Physiology & Health MSc

ESA PRESENTS AN EXCITING NEW TRAINING COURSE ON HUMAN SPACE PHYSIOLOGY

Keeping fit in space

4 November 2016 What is it really like to live in space? And what happens to the body in microgravity? Now, thanks to a new training course being offered by ESA's Education and Space Medicine Offices, medical and biology university students can find out.

ESA's Education Office is inviting BSc and MSc university students studying medicine, allied healthcare subjects, life, biomedical or biomedical sciences to apply to the Human Space Physiology training course. The course will be held between 30 January and 2 February 2017, when selected students will be invited to the ESA Academy Training and Learning Centre at ESA's Redu Centre in Belgium.

Students will discover how spaceflight represents a significant physiological challenge for the human body. Having evolved in Earth's gravity, our bodies must adapt when in microgravity. These changes to the human body must be understood in order to be able to develop effective strategies to support humans during prolonged missions to space.

HuSC
Human Spaceflight Capitalisation Office

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Supporting Human Space Flight in the UK

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Abyss
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ROYAL AERONAUTICAL SOCIETY

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AEROSPACE MEDICAL ASSOCIATION

UK SPACE CONFERENCE 2017

UK SPACE CONFERENCE 2017

30 May – 1 June 2017, Manchester

Summary

- Specialty recognition
- Set curriculum training pathway
- Currently limited training numbers
- Sponsored training
- Considerable future opportunities

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Any Questions?

AIR38Gp-CAM-AMW-AMSPR@mod.uk

@bonposselt

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