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Terje Saehle

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ABOUT ME

- Medical doctor. Aerospace medicine physician, Chief Medical Officer of Norwegian Civil Aviation Authority and member of European Space Agency Medical Board. Board-certified specialist in neurosurgery. Board-certified specialist in community medicine (public health).
- Neuroscientist and Ph.D. in intracranial pressure dynamics.
- Postgraduate Master of Science (M.Sc.) training in extreme medicine, diving medicine, maritime medicine, offshore medicine, jungle medicine, polar medicine and wilderness medicine. Professional PADI certified Rescue diver and certified Coastal skipper.

WORK EXPERIENCE

04/2020 – CURRENT Bodø/Oslo, Norway

CHIEF MEDICAL OFFICER (AEROSPACE MEDICINE) CIVIL AVIATION AUTHORITY (CAA) - NORWAY

As the Chief Medical Officer, I lead and support the medical team at the Section of Human Performance at the Norwegian Civil Aviation Authority (CAA). I am also responsible for guidance, approval and supervision of aeromedical centers and aeromedical examiners / flight surgeons across all of Norway, as well as decisions in the most complex aeromedical cases. The work involves frequent travel, and I represent the national aviation and space authorities at various international forums, conferences or workshops. I also represent the aeromedical discipline in media and in public relations. Each year I deliver several lectures in aviation medicine, space medicine or human factors. I have been widely involved in risk analysis and human factor related issues in aviation or air traffic control. This has led to broad insight into most aspects of aviation involving a human operational role.

31/08/2018 – CURRENT Cologne, Germany

MEMBER OF EUROPEAN SPACE AGENCY MEDICAL BOARD (ESA MB) CAA NORWAY/ESA

I have been a member of European Space Agency (ESA) Medical Board since 2018. The fundamental responsibility of the Board is to maintain the health, safety and well-being of humans in spaceflight. The main functions include review and approval of experiments conducted before, during and after spaceflight. ESA Medical Board is also involved in assessment of general spaceflight related medical challenges. These tasks have provided me with thorough insight in responsibilities, requirements and environmental challenges for crewmembers.

30/04/2019 – 30/05/2023 Cologne, Germany

CHAIRMAN OF EUROPEAN SPACE AGENCY MEDICAL BOARD (ESA MB) CAA NORWAY/ESA

In 2019, I was elected Chairman of ESA Medical Board. As Chairman, I have coordinated ESA MB tasks, been directly involved in the continuous medical recertification of ESA astronauts and collaborated closely with colleagues at NASA with corresponding responsibilities. In May 2023, I chose to resign from the Chairmanship and continue as Board member, due to both paternity leave and prioritization of Norwegian projects.

31/12/2014 – 30/04/2020 Bodø/Oslo, Norway
DEPUTY CHIEF MEDICAL OFFICER (AEROSPACE MEDICINE) CIVIL AVIATION AUTHORITIES - NORWAY

In 2015 I was appointed as the Deputy Chief Medical Officer at the Norwegian Aviation Authorities. Following a major reorganization in 2017, the Chief Medical Officer was transferred to the Strategy department, and I inherited the main responsibilities for the aeromedical team in the Section of Human Performance. In 2020, I was appointed as the Chief Medical Officer.

31/12/2013 – 31/12/2014 Bodø, Norway
FLIGHT SURGEON / AEROSPACE MEDICINE PHYSICIAN CIVIL AVIATION AUTHORITIES - NORWAY

Including training abroad and at a national aeromedical center

31/12/2013 – CURRENT Oslo, Norway
MEDICAL CONSULTANT (NEUROSURGERY, DIVING/OFFSHORE/MARITIME MEDICINE & EXPEDITION MEDICINE) NOVAMED (SOLE PROPRIETROSHIP)

This sole proprietorship includes consultant services within the fields of neurosurgery, diving medicine, offshore medicine or maritime medicine. These activities accounted for a third of my source of income during the period 2014-2019 and was done in parallel with other full-time jobs, studies or projects.

31/12/2006 – 31/12/2013 Oslo, Norway
NEUROSURGEON OSLO UNIVERSITY HOSPITAL, DEPARTMENT OF NEUROSURGERY

During my neurosurgical career, I have performed slightly more than a thousand brain surgeries and several hundred spinal surgeries. My subspecialties are hydrocephalus and shunt surgery, functional neurosurgery and stereotactic procedures. Shunt surgery requires a basic competence in fluid dynamics and involves principles of plumbing applied to the brain and in drainage of cerebrospinal fluid. Functional neurosurgery includes implantation, revision and utilization of electrical devices and wires in treatment of conditions like epilepsy or movement disorders. Stereotactic neurosurgery involves assembling and manipulating mechanical devices, which are used to obtain a very high precision during surgery in deeper and non-visible parts of the brain.

In parallel with normal clinical and surgical tasks, I have been involved in a high number of research projects. I have published 17 scientific articles in peer-reviewed and reputable journals, and in 2012 I received the Jack Perkins Prize (shared) for the best article in Medical Engineering & Physics. During my training, I also received the prestigious Beito award as the best neurosurgical resident among 70-80 participants from more than 6 different countries.

As the elected representative of young neurosurgeons and residents over several years, I facilitated high quality guidance and training of the residents. I authored a neurosurgical handbook, which is still used by both surgeons and nurses. I also co- authored the hydrocephalus guidance booklet which is used by the department.

I became board-certified as a specialist in neurosurgery in 2012.

14/12/2005 – 31/12/2006 Oslo, Norway
EMERGENCY PHYSICIAN OSLO EMERGENCY WARD

Oslo Emergency Ward specializes in the immediate care of patients suffering from acute illness or injuries. The spectrum of medical conditions is broad and range from minor lacerations or psychiatric problems to life-threatening emergencies.

14/08/2005 – 31/12/2005 Oslo, Norway
NEUROSURGICAL RESIDENT OSLO UNIVERSITY HOSPITAL (PREVIOUSLY NORWEGIAN NATIONAL HOSPITAL)

14/01/2004 – 14/08/2005 Gjovik, Norway
MEDICAL INTERN GJOVIK HOSPITAL AND THE MUNICIPAL HEALTH CENTER OF DOKKA

The Norwegian medical internship program, including 6 months practice in general surgery, 6 months practice in internal medicine and 6 months training in family medicine

EDUCATION AND TRAINING

08/2016 – 12/2021 Norway
COMMUNITY MEDICINE NORSAM (Norwegian Society of Community Medicine)

I trained in this specialty in parallel with my primary medical disciplines (neurosurgery, aerospace medicine and extreme medicine). The 5 years long training requirements for board certification as community medicine specialist was completed in 2022. The curriculum includes training in preventive medicine, global health and humanitarian medicine, management and leadership, methodological knowledge and scientific methods, emergency preparedness, infection control and interdisciplinary collaboration.

Website https://www.legeforeningen.no/foreningsledd/fagmed/Norsk-samfunnsmedisinsk-forening/

14/09/2020 – 14/05/2021
POSTGRADUATE MASTER OF SCIENCE (MSC) DEGREE IN EXTREME MEDICINE University of Exeter

The MSc Extreme Medicine programme at University of Exeter was completed with distinction over 3 years as a part time study. The first 2 years constitute the Diploma in extreme medicine (see below), and the last year leads to Masters qualification. The topic of my MSc thesis was “Cerebral hemodynamics in hypergravity (+gz) and microgravity (0g)”. In fall 2021, I was awarded the Extreme Medicine Prize by University of Exeter as the graduating student with the highest overall mean score on the program.

Website https://www.exeter.ac.uk/postgraduate/courses/medicine/extrememedicinemsc/

14/09/2017 – 14/05/2019
POSTGRADUATE DIPLOMA IN EXTREME MEDICINE University of Exeter

The study includes practical training in logistics and planning of expeditions, delivering healthcare in challenging environments, leadership, teamwork and other non-medical knowledge or technical skills that contribute to safety in remote and wilderness settings. Students are challenged to think critically and to work collaboratively in small teams to perform at the highest level in extreme environments. Residential courses include environment-specific modules at various locations around the world.

2018 – 2019
POLAR MEDICINE World Extreme Medicine

Practical training in expedition planning, polar travel, survival and cold weather medicine, situational awareness and rescue during a short winter expedition in an arctic environment in Norway.

Website https://worldextrememedicine.com/products/courses/polar-medicine/polar-medicine-norway/ 2017 – 2018 Costa Rica
JUNGLE MEDICINE AND SURVIVAL World Extreme Medicine

Immersive training in jungle medicine, including a 7-day expedition in the tropical rainforests of Costa Rica. The course curriculum included survival skills, tropical medicine, logistical knowledge and pre-hospital skills required on a jungle expedition.

Website https://worldextrememedicine.com/products/jungle-medicine/jungle-medicine-costa-rica/ 08/2018 – 09/2018 Greystoke, United Kingdom
DISASTER MEDICINE World Extreme Medicine and University of Exeter

High fidelity simulation training in disaster medicine, including several days of practical, logistical and medical challenges.

18/04/2018 – 21/04/2018 Dartmoor, United Kingdom
HUMAN FACTORS AND SITUATIONAL AWARENESS World Extreme Medicine and University of Exeter

This module focused on developing personal skills in managing human factor challenges in extreme environments. The

training included an intensive weekend with outdoor exercises/challenges to stimulate reflection on personality, team interaction and situational awareness. Individual personality testing was conducted for all participants, both before and during the practical challenges. My SDI (strength deployment inventory) profile demonstrated a high degree of adaptability and was the only one profile among 16 participants that remained unaffected by the applied physical and mental stress.

12/01/2018 – 13/01/2018
PREHOSPITAL TRAUMA World Extreme Medicine

Practical course in prehospital management of trauma, emergency care and dynamic risk assessment. The course focused on improving both the skills to work individually and the ability to contribute to effective team work in a variety of situations.

Address London Ambulance Service

09/2017 – 2017 Corfe Castle, United Kingdom
EXPEDITION AND WILDERNESS MEDICINE World Extreme Medicine and University of Exeter

Comprehensive training in prevention, assessment and management of challenges that may occur during expeditions or in the wilderness. The course also included hands-on training in wilderness expedition dentistry.

20/02/2017 – 22/02/2017
MARITIME MEDICINE (SEAFARER´S DOCTOR CERTIFICATION) Norwegian Center for Maritime Medicine

Maritime medicine is a medical discipline encompassing all medical aspects of working at sea, including preparedness for medical emergencies at sea.

14/05/2013 – 14/05/2016
PHILOSOPHIAE DOCTOR (PH.D.) University of Oslo

From 2013 to 2016 I conducted research projects addressing intracranial pressure dynamics, based on my interest in both physics and neurosurgery. These resulted in several publications and in my Ph.D. thesis; "Pathophysiology and treatment of hydrocephalus - role of static and pulsatile intracranial pressure". This topic is of high relevance to both neurosurgery and aerospace medicine, including the assessment and understanding of spaceflight associated neuro-ocular syndrome (SANS).

I also participated in various research projects prior to my Ph.D., including both clinical studies and laboratory projects. These resulted in a high number of scientific publications in peer-reviewed international journals.

01/2016 – 03/2016
HUMAN SPACEFLIGHT EdX (KTHx)

This 5-week long part-time KTHx course in human spaceflight (SD2905) encompasses political and economic perspectives of human space travel, space environment, space vehicles, life-sustaining systems and more.

06/2015 – 08/2015 Galveston/Houston, United States
PRINCIPLES OF AVIATION AND SPACE MEDICINE NASA and University of Texas Medical Branch

This 4-week course in aerospace medicine was held at UTMB/NASA JSC

31/12/2013 – 14/03/2015
DIPLOMA IN AVIATION MEDICINE AND TRAVEL MEDICINE European School of Aviation Medicine and Norwegian Institute of Aviation Medicine

Includes completion of Basic course (2006), Advanced course (2014) and Diploma course (2015) in Aviation medicine

12/2014 – 2015 Oslo/Bodø, Norway
LEADERSHIP DEVELOPMENT PROGRAM Center of Management

11/2014 – 12/2014 Bergen, Norway
DIVING AND HYPERBARIC MEDICINE PHYSICIAN Norwegian Navy and Center for Maritime Medicine

Diving medicine includes prevention, diagnosis and treatment of conditions resulting from human exposure to the undersea environment. The scope of the course also encompassed hyperbaric physics, diving technology, saturation diving and recompression chambers. A few of us underwent a controlled and medically supervised exposure to 7.5 ATA (equals sea water depth of 65 meters) to familiarize with the clinical effects of nitrogen under pressure.

08/2014 – 09/2014 Bergen, Norway
OFFSHORE MEDICINE (OFFSHORE PHYSICIAN CERTIFICATION) Norwegian Center for Maritime Medicine

31/12/2006 – 31/05/2012
NEUROSURGERY (BRAIN- AND SPINE SURGERY) Oslo University Hospital, Department of Neurosurgery

I completed the specialty training in neurosurgery within the minimum allowable time (6 years), and in 2012 I received my board-certification as a specialist in neurosurgery.

Neurosurgery is often referred to as brain surgery, but it is in fact much more diverse. Neurological surgery is concerned with both surgical and non-surgical medical conditions or injuries in the brain, spinal cord of peripheral nervous system. Many consider neurosurgery to be among the most challenging surgical specialties, in which even minor errors may have catastrophic consequences. The procedures include minimally-invasive techniques, endoscopes and the use of modern neuronavigation or other advanced technology to achieve high precision and minimal scarring.

31/08/2006 – 14/12/2006
MATHEMATICS (MAT1100, CALCULUS UNIVERSITY LEVEL) University of Oslo

University level integral and differential calculus, complex number, vectors, matrices and continuity. The studies were completed as part-time studies in parallell with a full-time clinical job as a physician at the Emergency Ward.

07/2005 – 08/2005
COASTAL SKIPPER CERTIFICATION COURSE

14/08/1996 – 14/05/2003
CANDIDATUS MEDICINAE Norwegian University of Science and Technology (NTNU), Faculty of Medicine

14/08/1998 – 31/01/1999 Mexico
PADI RESCUE DIVER PADI

PUBLICATIONS

Abductor pollicis longus tendon interposition for arthrosis in the first carpometacarpal joint – 2002
Study on hand surgery and optimal treatment of thumb arthrosis.

Saehle T et al. Acta Orthop Scand. 2002 Dec;73(6):674-7.

Is ventriculomegaly in idiopathic normal pressure hydrocephalus associated with a transmantle gradient in pulsatile intracranial pressure? – 2010
Prospective study on transmantle pulsatile pressure gradients in normal pressure hydrocephalus

Eide PK, Saehle T. Acta Neurochir (Wien). 2010 Jun;152(6):989-95.

Morphological characterization of cardiac induced intracranial pressure (ICP) waves in patients with overdrainage of cerebrospinal fluid and negative ICP – 2012
Assessment of intracranial pressure wave morphology in patients with CSF overdrainage and low or negative intracranial pressure.

Eide PK, Sroka M, Wozniak A, Sæhle T. Med Eng Phys. 2012 Oct;34(8):1066-70.

Chemokines as markers of local inflammation and angiogenesis in patients with chronic subdural hematoma: A prospective study – 2012
Investigation of various chemokines in chronic subdural hematomas. Collected in the operating theater, centrifuged and analyzed in the laboratory.

Stanisic M, (...), Saehle T. Acta Neurochir (Wien). 2012 Jan;154(1):113-20;

Local and systemic pro-inflammatory and anti-inflammatory cytokine patterns in patients with chronic subdural hematoma: A prospective study – 2012
Prospective study on subdural cytokines in patients with chronic subdural hematoma

Stanisic M, (...), Sæhle T. Inflamm Res. 2012 Aug;61(8):845-52.

Stimulation of motor cortex for pain relief – 2014
Case study on a patient with debilitating chronic pain and effective pain relief following implantation of motor cortex stimulator.

Sæhle T. Tidsskr Nor Laegeforen. 2014 Apr 29;134(8):846.

Long-term follow-up of thalamic deep brain stimulation for essential tremor – 2014
Follow-up study on a large cohort of patients undergoing deep brain stimulation due to tremor, verifying high long-term satisfaction and continuing effect.

Børretzen MN, Bjerknes S, Sæhle T et al. BMC Neurol. 2014 Jun 5;14:120.

Surgical Site Infections after Deep Brain Stimulation Surgery: Frequency, Characteristics and Management in a 10-Year Period – 2014
Retrospective review of all reported cases of infections among 588 deep brain stimulation implantations carried out in a 10-year period. Infection was suspected in 5.6 % of all implants, in line with other international studies.

Bjerknes S, Skogseid IM, Sæhle T, Dietrichs E, Toft M. PLoS One. 2014 Aug 14;9(8)

A randomized controlled dual-center trial on shunt complications in idiopathic normal-pressure hydrocephalus treated with gradually reduced or "fixed" pressure valve settings – 2014
Double-blinded, randomized controlled dual-center study on the effect of gradual reduction of valve opening pressure in CSF shunt treatment of normal pressure hydrocephalus.

Sæhle T, Farahmand D, Eide PK, Tisell M, Wikkelsö C. J Neurosurg. 2014 Nov;121(5):1257-63.

Association between ventricular volume measures and pulsatile and static intracranial pressure scores in non-communicating hydrocephalus – 2015
Study on correlations between static or pulsatil intracranial pressure and ventricular volume in non-communicating hydrocephalus. Also, intracranial compliance was assessed and compared in treated versus untreated hydrocephalus patients.

Sæhle T, Eide PK. J Neurol Sci. 2015 Mar 15;350(1-2):33-9.

Intracranial pressure monitoring in pediatric and adult patients with hydrocephalus and tentative shunt failure: a single-center experience over 10 years in 146 patients – 2015
Retrospective review of intracranial pressure wave parameters in a large cohort of hydrocephalus patients admitted to the Neurosurgical department due to suspected shuntfailure.

Sæhle T, Eide PK. J Neurosurg. 2015 May;122(5):1076-86.

Characteristics of intracranial pressure (ICP) waves and ICP in children with treatment-responsive hydrocephalus – 2015
Intracranial pressure and pressure wave characteristics such as amplitude, rise time and rise time coefficient were retrospectively determined in patients treated surgically for their hydrocephalus and compared to a reference group of non-treated patients.

Sæhle T, Eide PK. Acta Neurochir (Wien). 2015 Jun;157(6):1003-14.

A double-blind randomized trial on the clinical effect of different shunt valve settings in idiopathic normal pressure hydrocephalus – 2016
Prospective double-blinded, randomized, controlled, double-center study on patients with iNPH, evaluating the effects of valve opening pressure on clinical improvement.

Farahmand D, Sæhle T, et al. J Neurosurg. 2016 Feb;124(2):359-67.

Intracranial compliance and pulsatility in hydrocephalus (in Norwegian) – 2016
Summary of studies supporting the role of intracranial compliance in the understanding of cerebrospinal fluid dynamics and hydrocephalus.

Sæhle T. Tidsskr Nor Laegeforen. 2016 Dec 20;136(23-24):2034.

No journey to the moon without space medicine (in Norwegian) – 2019
Review article on space medicine and medical challenges in manned spaceflight

Sæhle T. Tidsskr Nor Laegeforen. 2019 Dec 9;139(18).

Nevrokirurgisk kompendium for leger i spesialisering ved Rikshospitalet (book) – 2008
Neurosurgical text book for residents and nurses, authored by the undersigned during the first years of residency at the Neurosurgical department, Oslo University Hospital - Rikshospitalet. Printed approx. 500 copies by the department.

Sæhle T. Oslo: Rikshospitalet, 2008. NO-OsNB 990929268194702202. 236 pages (book).

Cerebral Hemodynamics During Exposure to Hypergravity (+G z) or Microgravity (0 G) – 2022
Systematic review on the effect of weightlessness or gz acceleration on cerebral blood flow.

Saehle T. Aerosp Med Hum Perform. 2022 Jul 1;93(7):581-592.

Central Nervous System Neoplasms in Microgravity (chapter) – 2022
Chapter on brain tumors in microgravity (book: Spaceflight and the Central Nervous System).

Johnson, K.V.L., Michael, A.P., Saehle, T. (2022). In: Spaceflight and the CNS. Springer

Evidence-Based Aeromedical Assessments – 2025
Evidence-Based Principles applied in the Context of Aeromedical Assessments

Saehle, T. (2025). In: Aerospace Medicince and Human Performance (2025)