

# CURRICULUM VITAE

## Frans Johannes Cronjé

*MBChB(UP), BSc(Hons), MSc (Aerospace Medicine), DOM*

Date of Birth: 16 May 1966 (55 yrs); Place of Birth: London; England. Nationality: South African Citizen  
Home & Private Practice Address: 6 A Mountainview Drive; Ridgeworth; South Africa; 7530  
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Registrations: MP381545 (HPCSA); PR: 1505505; ECFMG Permanent Validation 2002; NC Medical Licensure 2001  
Family: Wife: Lucie (Registered Nurse); Daughters: Renee Sonika (29); Millicent Martha (19)

### PRESENT EMPLOYMENT:

1. Head of Baromedicine in King Hamad American Mission Hospital - 2023 - present
2. Private Medical Practitioner: 1993 – present
3. Divers Alert Network Southern Africa (DAN SA): Founder & President, 1993-2011; Director, 1993 – 2013; Board Member: 1993 - present. Scientific Advisor and Educator; 1993 - present
4. University of Stellenbosch; Faculty of Health Sciences: Senior Researcher & Lecturer 2007 – present.
5. Faculty member for the BScMedSc Hons in Underwater and Hyperbaric Medicine degrees respectively presented by University of Stellenbosch – 2007- present

### PAST EMPLOYMENT & EXPERIENCE

1. 1 Military Hospital: Internship (1992); Medical Officer Dept Anaesthesia, 1992 - 1993.
2. Institute for Aviation Medicine (IAM): Director of Hyperbaric Unit, 1993 – 1998; Senior Aviation Medical Examiner, 1993 - present
3. Medical Rescue International (DivEvac): Medical Director, 1993 - 1996
4. Duke University Medical Centre; Durham; NC; USA. Centre for Hyperbaric Medicine and Environmental Physiology: Clinical Hyperbaric Fellowship, Completed: 2002 – 2003
5. Invited professor – Director of Aerospace Medicine Programme (as part of postgraduate Baromedicine Degree) at the University of Belgrade, School of Medicine, Yugoslavia (now Serbia), 1998 – present.
6. Course Developer & Director: (1) Bennett & Elliott's Physiology and Medicine of Diving Course: 13-26 March 2002; 12-19 August 2006; (2) Diving & Hyperbaric Medicine Staff Training Course; 1997-present; Course Director (14 courses to date – 2 international) (3) HPCSA licensing course for audiologists in vestibular assessment: Vestibular Assessment and Rehabilitation Course, with course co-director, Christine Rogers, UCT -10-17 March 2008.
7. University of Pretoria, Department of Internal Medicine; Division of Aerospace Medicine: Extraordinary Senior Lecturer, part-time, 2006 - 2008; Lecturer & External Examiner in Aerospace Medicine, 1996 – 2005; Honorary Appointment: Department of Anaesthesiology, March 2000-2001;
8. On Faculty of 15 international wound care, diving medicine & hyperbaric medicine courses in the US and Europe.
9. International Position Papers: *HBO & Cerebral Palsy* (Malta; 2000) at the European Undersea & Baromedical Society Annual Scientific Meeting; *HBO and Stroke* (San Francisco; 2005) at the International Congress of Hyperbaric Medicine Triennial Scientific Meeting; *Cost-effectiveness of HBO in Wound Care* (Ravenna; 2006).
10. Member of the Expert Jury for European Consensus Conference on Oxygen and Tissue Repair – October 2006 (Ravenna, Italy).
11. Eugene Marais Hyperbaric Oxygen Therapy Centre: Owner, Private Medical Practitioner & Medical Director, 1998 to 2007.
12. Course Co-director (with Christine Rogers, Ron Tusa; Susan Herdman & Neil Shepard): 1<sup>st</sup> South African Vestibular Assessment and Rehabilitation Therapy Course, Cape Town, 26 – 31 January 2009.
13. Associate Medical Director & Senior Medical Officer – Emergency Medicine; Department of Health; Western Cape: 2011 – 2018 (the Baromedical Facility was repurposed as a TB Treatment centre and closed).

### GRANTS, RESEARCH ACTIVITIES & PUBLICATIONS - UNIVERSITY OF STELLENBOSCH – 2007-

1. Successful Grant Application: Baromedical Research Foundation: 2007 - Sechrist 3200 HBO chamber donated to University of Stellenbosch for HORTIS Trial.
2. PI: Analysis of clinical outcomes of linear vs. deep stop decompression from 3.5 to 6 atmospheres absolute (350 -600 kpa) in awake rats. Department of Interdisciplinary Health Sciences; Division of Community Health.
3. PI: A prospective cohort study to evaluate the impact of a faith-based education seminar on self-assessed physical, mental and spiritual (religious) health parameters (PHYMSH Study); Department of Interdisciplinary Health Sciences; Division of Community Health: 2012 – 2015.
4. Co-investigator: The development of a comprehensive gene-based, pathology supported intervention program for improved quality of life in patients diagnosed with multiple sclerosis (MS). N07/09/203. PI: Prof SJ van Rensburg
5. Co-investigator: Application of personalized medicine using an integrated service and research approach. N09/08/224. PI: Professor MJ Kotze
6. Co-author: Kotze MJ, van Velden DP, Botha K, Badenhorst CH, Avenant H, van Rensburg SJ, **Cronje FJ**. Pathology-supported genetic testing directed at shared disease pathways for optimized health in later life. *Personalized Medicine* 2013; 10: 497-507. Department of Interdisciplinary Health Sciences; Division of Community Health.
7. Co-author: Davis W, van Rensburg SJ, **Cronjé FJ**, et al. The fat mass and obesity-associated FTO rs9939609 polymorphism is associated with elevated homocysteine levels in multiple sclerosis patients screened for vascular risk factors. *Metabol Brain Dis.* 2014 (in press).
8. Senior Lecturer – Interdisciplinary Health Sciences - SUN: BScMedSc Underwater Medicine; BScMedSc Hyperbaric Medicine: 2007 – present
9. Senior Lecturer – Interdisciplinary Health Sciences – SUN: International Interdisciplinary Wound Care Course: 2012 - present
10. University of Stellenbosch; MSc: Internal Examiner: 2013 Charles van Wijk: A prospective cross-over study investigating specific aspects of neuropsychological performance in hyperbaric environments. Department of Interdisciplinary Health Sciences; Division of Community Health.

## EDUCATION

1. **University of Pretoria, Pretoria, South Africa: Medical Doctor: MBChB (*cum laude*)** 1986 – 1991
2. National Association of Underwater Instructors (NAUI): Instructor 1991 – 1997; emeritus
3. Aviation, Diving & Hyperbaric Medicine Programmes: *Aviation Medical Examiner's Course (1993); Diving and Submarine Medical Officer's Course (1993); Primary Hyperbaric Training (1995); Advanced Hyperbaric Training (1995); Clinical Hyperbaric Medicine Practice (1995); Advanced Diving Medical Chamber Operation Team Training (1995); Medical Rescue International Flight Medical Attendant's Course (1995); Primary Wound Care Training Course (1996); Clinical Management of Problem Wounds (1996); Hyperbaric Medicine Team Training (1996); 2nd Postgraduate Course in Clinical HBO Therapy (1997); Advanced Problem Wound Management Course (1998)*
4. National Board of Diving and Hyperbaric Medical Technology: CHT (*with distinction*) 1996
5. **University of Pretoria: BSc (Hons) Aerospace Medicine (*cum laude*) 1997**
6. Southeast Texas Centre for Wound Care and Hyperbaric Medicine: 1-month fellowship with Dr Robert Warriner III 1998
7. Divers Alert Network: Instructor Training Programme: Instructor: 1996; Instructor Trainer Examiner: 2000
8. National Oceanic & Atmospheric Administration (NOAA): XXVI Physician Training Diving & Hyperbaric Medicine 2000
9. Education Commission for Foreign Medical Graduates (ECFMG): ECFMG Certificate Awarded – 19 June 2002; ECFMG Certificate Permanent Validation – November 2002
10. United States Medical Licensing Exam: Passed Steps 1, 2 & 3 2003
11. Academic Fellowship in Undersea and Hyperbaric Medicine at Duke University, Durham, NC, USA – successfully completed 2003
12. American Heart Association: Basic Life Support Instructor 2000; Renewed: 2002; 2004-
13. GN Otometrics -- Advanced ENG/VNG Training Programme: 2005
14. **University of Pretoria: MSc Aerospace Medicine (*cum laude*) 2005-2006**
15. University of Southampton: Advanced Balance Disorder Course: 2006
16. Towson University: Tinnitus Retraining Therapy; 2007
17. Emory University: Competency Training in Vestibular & Balance Rehabilitation; 2007
18. **Post Graduate Diploma in Occupational Medicine (*cum laude*) 2020-2021**

## AWARDS

1. Academic colours: University of Pretoria (1991) MBChB – *cum laude*; (1997) BSc (Hons) Aerospace Medicine – *cum laude*; MSc Aerospace Medicine (2006) – *cum laude*; Diploma in Occupational Medicine (2022) - *cum laude*
2. Poseidon award (South Africa): Contributions to Diving Safety. Rescue Sunday 1996
3. DAN America Award 1999: Contributions to Diving Safety & Research
4. Duke University Department of Anaesthesia, Dick Smith Post-Doctoral Clinical Research Award for "characteristics of doubtful versus non-doubtful cases of decompression illness in recreational divers." 2003
5. Postgraduate publication in 2005/6 University of Pretoria; Faculty of Health Sciences. 2006

## PUBLICATIONS

### Peer-Reviewed Journals

1. **Cronje FJ.** A review of the Marx protocols: prevention and management of osteoradionecrosis by combining surgery and hyperbaric oxygen therapy. *SADJ: Journal of the South African Dental Association*. Oct 1998;53(10):469-471.
2. MacFarlane C, **Cronje FJ**, Benn CA. Hyperbaric oxygen in trauma and surgical emergencies. *Journal of the Royal Army Medical Corps*. Oct 2000;146(3):185-190.
3. MacFarlane C, **Cronje FJ**. Hyperbaric oxygen and surgery. *South African journal of surgery*. Nov 2001;39(4):117-121.
4. **Cronje FJ**, Carraway MS, Freiburger JJ, Suliman HB, Piantadosi CA. Carbon monoxide actuates O(2)-limited heme degradation in the rat brain. *Free radical biology & medicine*. Dec 1 2004;37(11):1802-1812.
5. Marroni A, Bennett PB, **Cronje FJ**, et al. A deep stop during decompression from 82 fsw (25 m) significantly reduces bubbles and fast tissue gas tensions. *Undersea & hyperbaric medicine: Journal of the Undersea and Hyperbaric Medical Society, Inc*. Summer 2004;31(2):233-243.
6. Bennett PB, Marroni A, **Cronje FJ**, et al. Effect of varying deep stop times and shallow stop times on precordial bubbles after dives to 25 msw (82 fsw). *Undersea & hyperbaric medicine; journal of the Undersea and Hyperbaric Medical Society, Inc*. Nov-Dec 2007;34(6):399-406.
7. Mitchell SJ, **Cronje FJ**, Meintjes WA, Britz HC. Fatal respiratory failure during a "technical" rebreather dive at extreme pressure. *Aviation, space, and environmental medicine*. Feb 2007;78(2):81-86.
8. Niinikoski J, Bakker D, **Cronje FJ**, et al. ECHM-ETRS joint conference on oxygen and tissue repair, Ravenna, Italy, October 27-28, 2006: recommendations by the international jury. *The international journal of lower extremity wounds*. Sep 2007;6(3):139-142.
9. **Cronje FJ**, Meintjes WA, Bennett PB, Fitchat S, Marroni A, Hyldegaard O. Analysis of clinical outcomes of linear vs. deep stop decompression from 3.5 to 6 atmospheres absolute (350 - 600 kpa) in awake rats. *Undersea & hyperbaric medicine: journal of the Undersea and Hyperbaric Medical Society, Inc*. Jan-Feb 2011;38(1):41-48.
10. Davis W, van Rensburg SJ, **Cronje FJ**, et al. The fat mass and obesity-associated FTO rs9939609 polymorphism is associated with elevated homocysteine levels in patients with multiple sclerosis screened for vascular risk factors. *Metabolic brain disease*. Jun 2014;29(2):409-419.
11. Weir GR, Smart H, Marle J, **Cronje FJ**, Sibbald RG. Arterial disease ulcers, part 2: treatment. *Advances in skin & wound care*. Oct 2014;27(10):462-476.
12. Weir GR, Smart H, van Marle J, **Cronje FJ**. Arterial disease ulcers, part 1: clinical diagnosis and investigation. *Advances in skin & wound care*. Sep 2014;27(9):421-428.
13. Blum K, Febo M, McLaughlin T, **Cronje FJ**, Han D, Gold SM. Hatching the behavioral addiction egg: Reward Deficiency Solution System (RDSS) as a function of dopaminergic neurogenetics and brain functional connectivity linking all addictions under a common rubric. *J Behav Addict* 2014;3:149-56.

14. Blum K, Febo M, Smith DE, Roy AK, 3rd, Demetrovics Z, **Cronje FJ**, Femino J, Agan G, Fratanio JL, Pandey SC, Badgaiyan RD, Gold MS. Neurogenetic and epigenetic correlates of adolescent predisposition to and risk for addictive behaviors as a function of prefrontal cortex dysregulation. *J Child Adolesc Psychopharmacol* 2015;25:286-92.
15. Kotze MJ, Luckhoff HK, Peeters AV, Baatjes K, Schoeman M, van der Merwe L, Grant KA, Fisher LR, van der Merwe N, Pretorius J, van Velden DP, Myburgh EJ, Pienaar FM, van Rensburg SJ, Yako YY, September AV, Moremi KE, **Cronje FJ**, Tiffin N, Bouwens CS, Bezuidenhout J, Apffelstaedt JP, Hough FS, Erasmus RT, Schneider JW. Genomic medicine and risk prediction across the disease spectrum. *Crit Rev Clin Lab Sci* 2015;52:120-37.
16. Blum K, Liu Y, Wang W, Wang Y, Zhang Y, Oscar-Berman M, Smolen A, Febo M, Han D, Simpatico T, **Cronje FJ**, Demetrovics Z, Gold MS. rsfMRI effects of KB220Z on neural pathways in reward circuitry of abstinent genotyped heroin addicts. *Postgrad Med* 2015;127:232-41.
17. **Cronje FJ**, Sommers LS, Faulkner JK, Meintjes WA, Van Wijk CH, Turner RP. Effect of a Faith-Based Education Program on Self-Assessed Physical, Mental and Spiritual (Religious) Health Parameters. *J Relig Health* 2015.
18. Lyubisa M, Burman F, **Cronje FJ**. Optimizing the hyperbaric chamber pressurization profile during standard Hyperbaric Oxygen Therapy (HBOT). Submitted to UHM 17-01-2024.

#### Non Peer-reviewed Journals

1. **Cronjé FJ**. Hyperbaric Oxygen Therapy in Cerebral Palsy – A position paper. EUBS Workshop. Malta, 14-17 September 2000.
2. **Cronjé FJ**. History of recreational scuba diving. Dr Peter Bennett Symposium 2004, Durham, NC: 42-49.
3. Kotze MJ, van Velden DP, Botha K, Badenhorst CH, Avenant H, van Rensburg SJ, **Cronje FJ**. Pathology-supported genetic testing directed at shared disease pathways for optimized health in later life. *Personalized Medicine* 2013; 10: 497-507.

#### Editorial Letters

1. **Cronjé FJ**. Oxygen therapy and wound healing--topical oxygen is not hyperbaric oxygen therapy. *S Afr Med J* 2005;95(11):840.
2. **Cronje F**. Hyperbaric oxygen therapy for children with cerebral palsy. *S Afr Med J* 2001;91:615-6.
3. **Cronjé FJ**. Hyperbaric oxygen therapy for children with cerebral palsy. *S Afr Med J* 1999;89(4):359-60; author reply 361.
4. **Williams KA, Cronje FJ, Avenant L, Villet MH**. Identifying flies used in maggot debridement therapy. *S Afr Med J* 2008;98(2):630-631

#### MSc Thesis

1. **Cronjé FJ**. A study of the application of reduction gas analysis in determining the relationship between carboxyhaemoglobin and tissue CO levels in brain, heart, and skeletal muscle after extreme exposure to CO poisoning in rats: Masters of Science Thesis: University of Pretoria, 2006.

#### Book Chapters

1. **Cronjé FJ**. Diving and Hyperbaric Medicine. In *Handbook for Air Medical Crew*, Trauma Link. 2001.
2. **Cronjé FJ, van Bever Donker S C, Burman F, Taite AJ, and Fitzpatrick L V**. The use of hyperbaric oxygen therapy in the treatment of children with cerebral palsy -- a position paper. In *The Proceedings of the 2nd International Symposium on Hyperbaric Oxygenation in Cerebral Palsy and the Brain-Injured Child*. Best Publishing. Flagstaff, AZ. 2002: 131-150
3. **Cronjé FJ, Duim W**. The use of hyperbaric oxygen therapy acute and sub-acute stroke – a correlation between stroke type and response to HBO exposure in fifteen patients. In *The Proceedings of the Fourteenth International Congress on Hyperbaric Medicine*. Best Publishing. Flagstaff, AZ. 2003: 266-269.
4. **Marroni A, Cronjé FJ, Meintjes WAJ et al**. Dysbaric Illness. In *Handbook of Hyperbaric Medicine*. Springer-Verlag; London. 2005:701-748
5. **Cronjé FJ, Duim W, Marroni A et al**. Cerebrovascular Incidents (Stroke). In *Handbook of Hyperbaric Medicine*. Springer-Verlag; London. 2005:553-565
6. **Weir G, Cronje FJ. Chapter 8: Ischemia and hypoxia: the therapeutic options**. In *The Wound Care Practice, 2<sup>nd</sup> Ed. Sheffield PJ, Smith P (eds)*. Best Publishing. Flagstaff, AZ. 2007:501-511.
7. **Marroni A, Cronje FJ, Pierri M, Cialoni, D**. Dysbaric Illness. In *Handbook of Hyperbaric Medicine*. Springer-Verlag; London 2016 (In press).

#### Books

1. **Balestra C, Germonpre P, Marroni A, Cronjé FJ**. PFO and the diver. Best Publishing. Flagstaff, AZ. 2007.
2. **Bennett PB, Cronjé FJ, Campbell E**. Fitness to dive for scuba divers and diving instructors. Flagstaff, AZ: Best Publishing, 2006.

#### SELECTED PRESENTATIONS AT CONFERENCES & ANNUAL SCIENTIFIC MEETINGS (ASM)

1. **Cronjé FJ**. Use of transcutaneous oximetry in aviation medicine. SASAEM ASM 1994
2. **Cronjé FJ**. Review of HBO at the Institute for Aviation Medicine. SAUHMA ASM 1995
3. **Cronjé FJ**. Respiratory function in pilots. SASAEM ASM 1996
4. **Cronjé FJ**. Hyperbaric oxygen therapy in South Africa. SAUHMA ASM 1997
5. **Cronjé FJ**. Use of altitude chamber to assess abnormal lung function in pilots. SASAEM ASM 2000
6. **Duim W, Cronjé FJ**. The use of hyperbaric oxygen in acute and sub-acute stroke – a correlation of stroke type, pathophysiology and treatment response in fifteen patients. World Federation of Neurology Conference ASM 2001 (London).
7. **Cronjé FJ, Duim W**. The use of hyperbaric oxygen in acute and sub-acute stroke. International Congress of Hyperbaric Medicine Triennial Conference 2002.
8. **Cronjé FJ**. Pathophysiology of decompression illness. Advanced Hyperbaric Medicine Conference 2003 (Columbia)
9. **Cronjé FJ, Freiburger JJ, Denoble PB, et al**. The diving neurocheck. UHMS ASM 2003 (Quebec)
10. **Cronjé FJ**. A study of the application of reduction gas analysis in determining the relationship between carboxyhaemoglobin and tissue CO levels in brain, heart, and skeletal muscle after extreme exposure to CO poisoning in rats breathing air, oxygen and hyperbaric oxygen. UHMS ASM, 2004 (Sydney)
11. **Cronjé FJ**. Cost-effectiveness analysis on HBO therapy and wound healing. European Consensus Conference on Oxygen and Tissue Repair. Ravenna, Italy, 2006

## **OTHER**

### **Southern African Undersea and Hyperbaric Medical Association (SAUHMA)**

President: 1996-97; 2000-01; 2006-07; 2005-06; 2021-23; Life-member: 2008

### **Divers Alert Network Southern Africa**

President; CEO & Medical Director: 1996-2012

Board Member: 1993 - present

DAN Instructor Trainer Examiner

### **Board Member of Divers Alert Network (America). 501(c)3 Company: 2002-2005**

### **Member of Wound Healing Association of Southern Africa**

Founding President and Inaugural Conference Programme Coordinator: 2004-2005

President: 2005-2007; Life-member 2005

### **Southern African Aerospace Society Medical Association**

Life-member: 2008

### **International Congress for Hyperbaric Medicine**

17<sup>th</sup> President 2008-2011