

Murray William Johns

11 Feb 1937 – 2 January 2025

Dr Murray Johns was a Monash University medical graduate (MBBS, 1965 and PhD, 1973) and Alfred Hospital resident doctor (1966-1968), who died on 2 January 2025.

Having completed secondary education at Geelong Grammar, he studied science at the University of Melbourne, majoring in geology (BSc, 1958), and then worked within the Victorian Government's Department of Mines in the specialty of hydrology and specifically ground water.

In 1963, he decided to change the direction of his career and study medicine (MB, BS, Monash, 1966). He was one of three lateral entry students into the first year of Monash's new medical school.

In 1969 following 3 years of residency at the Alfred Hospital, Murray joined two Alfred Hospital surgeons, Professor Hugh Dudley and Associate Professor John Masterton, to undertake sleep research.

Both surgeons had developed an interest in sleep medicine having served in the Royal Navy in the Arctic Circle and realised the impact of continuous sunlight in summer and continuous darkness in winter had on the sailors' health!

About this time, an entirely new behavioural state, called rapid-eye-movement sleep, was discovered. There was an emerging hypothesis (subsequently not supported) that if people did not have REM-sleep they might become psychotic. In the Department of Surgery, the question arose whether REM-sleep deprivation could cause or contribute to post-operative delirium, a very disturbing but temporary condition, with features of a psychosis, which was fairly common after surgery.

Together, they set up an experimental sleep laboratory in the Monash Department of Surgery at the Alfred Hospital in Melbourne, Australia. Dr Bruce Cornell, biophysicist in the Department of Surgery, and Dr Johns developed a sleep monitoring system for the recording of patients' sleep in hospital wards and the intensive care unit.

Dr Johns completed his PhD studies as a National Health and Medical Research Council research scholar. His thesis was entitled "Sleep in Health and Disease" (Monash University, 1973). To our knowledge, Dr Johns was the first person in Australia to undertake a PhD in adult sleep medicine. One of his earliest papers highlights an important persisting clinical problem today, namely "Sleep habits and symptoms in male medical and surgical patients", published in the British Medical Journal in 1970 (BMJ, 1970;2:509-512). Collaborative projects at the time explored broad impacts of disturbed sleep: "Hormone Studies during Sleep" (F.P. Alford, H.W. Baker, H.G. Burger, D.M. de Kretser, B. Hudson, M W Johns, J P Masterton, Y.C. Patel, G.C. Rennie.); "Mental status and psychiatric assessment of patients undergoing open-heart surgery" (Dr Alan Large, psychiatrist); and "Studies of sleep habits, personality and stress" (Dr David Bruce, clinical psychologist).

Following his PhD, Dr Johns went on to undertake 4 years of postdoctoral training in sleep research at the Brain Research Institute, University of California Los Angeles, and later at the MRC Environmental Physiology Unit in England to further his interest in sleep medicine.

He returned to Melbourne in 1977 and after a stint in general practice, developed Australia's first private sleep clinic at the Epworth Hospital, Richmond in 1988. He convinced the Epworth Hospital that sleep was important to healthcare, and became the inaugural Director of the Epworth Sleep

Centre, diagnosing and treating adults with a wide range of sleep disorders, until he retired from clinical practice in 2002. By then the Epworth Sleep Centre was well known for its broad clinical practice and research in sleep medicine, nationally and internationally.

It was during this time that he collaborated with sound engineer Dr David Burton and assisted in the development of the modern digital sleep monitor and the basis of the Australian publicly listed company, Compumedics. Up until this digital conversion, sleep recordings were cumbersome ink recordings. This company now manufactures and distributes sleep diagnostic systems worldwide.

Dr Johns has a special interest in the state of sleepiness (or drowsiness). He developed the Epworth Sleepiness Scale (ESS) in 1990, that has become a world standard method for measuring a person's subjective experience of 'daytime sleepiness', used in both clinical practice and research every day across the globe. The original publication has now been cited nearly 20,000 times (Google Scholar) and has been translated into 60 languages.

Dr Johns became acutely aware of the dangers of drowsy driving through patients in his own practice who had survived 'drowsy driving' accidents. In 1994, in addition to his clinical practice, he began a novel program of research developing methods and technology to continuously monitor drivers for drowsiness (which he differentiated from "fatigue") in real time. The Johns Drowsiness Score, based on the velocity, amplitude and duration of eyelid movements, accurately detected driver drowsiness and driving impairment. He became the Founding Director and Chief Scientist of another Australian biomedical company, Optalert, which he established specifically to develop and commercialize Optalert™ technology. That company now provides drowsy driving monitoring technology to transport industries, particularly mining, in many countries around the world. These contributions no doubt influenced the European Union to mandate inclusion of alertness monitoring technology in new motor vehicles from 2023, and promises to have a global impact on road safety.

In 1988, Dr Johns was a founding member of the Australasian Sleep Association, of which he is now an Emeritus Lifetime Member. Between 1998 and 2016 he was an Adjunct Professor in the School of Life and Social Sciences, Swinburne University, and was awarded an Honorary Doctorate by Swinburne University in 2017. In 2024, he was made a Fellow of Monash University, in recognition of his significant contributions to sleep medicine.

Dr Johns had a brilliant mind that spanned across a range of areas – clinical medicine, research, statistics, electronics and engineering. He was an innovative thinker with a real passion for improving peoples' lives through sleep (in particular by managing drowsiness). He was a gifted teacher and excellent mentor – and had a natural ability to convey complex technical information to teach and guide others. He spent countless hours with people from sales, marketing, engineering, software, government and executive level, educating them on the importance of sleep and how drowsiness monitoring can save lives. His passion was contagious and has been the major driver for the Optalert team over the years, as well as the sleep research community.

Accordingly, he will be remembered as one of Australia's early pioneers in the sleep field, whose legacy will be recognised and appreciated by generations of researchers and clinicians.