

Ricardo Velluti, a Pioneer in Latin American Sleep Research

Monica Levy Andersen*
Sergio Tufik

Departamento de Psicobiologia,
Universidade Federal de São Paulo -
São Paulo - Brazil.

The Latin American sleep medicine and research community received with great sadness the news of Ricardo Velluti's death, who passed away on June 18th, 2022. Dr. Velluti was a prominent Uruguayan neuroscientist and a pioneer in the study of sleep in Uruguay and Latin America. He graduated from the Faculty of Medicine of the Universidad de la República - Montevideo, serving as a professor in the Department of Physiology since 1985. From this department he published most of his seminal works on the interplay between the sleep-wake cycle and sensory neurophysiology, mostly auditory system. Later in life, he became an Honorary Professor at the University Latin American Center for Human Economics (CLAEH) in Punta del Este, Uruguay, where he continued working on sleep neurobiology.

Dr. Velluti began working with sleep research on the decades of 1960 to 1980, a time in which sleep research was more related to basic physiology than to medical practice. Early in his scientific career, he became interested in two topics related to neurophysiology, which were initially conducted as parallel research lines. The first was related to sleep neurobiology, especially focused on brain pO₂ control during sleep and wakefulness¹⁻⁴, while the second was devoted to auditory neurophysiology⁵⁻⁷. Eventually, he merged both topics into a single one and this combination brought a deep insight into the mechanisms of information processing during the different stages of the sleep-wake cycle⁸⁻¹³.

He kept working on until recently and his works contributed greatly to the development of basic research on the effects of sleep on sensory processing, providing important clinical insights to the field. The research carried out in Velluti's laboratory concerned the influence of acoustic stimulation on sleep behavior and the mechanisms of neuronal processing of acoustic information along the complex auditory pathways of the central nervous system during the wake-sleep cycle.

Altogether, Dr. Velluti published more than 70 articles. We have had the opportunity to publish a couple of them at *Sleep Science*, with highlights to a brilliant review about the participation of neurophysiological sensory functions in active sleep processes¹⁴⁻¹⁶. He was the editor and author of two fundamental books: *The Auditory System in Sleep*¹⁷ and *The Physiologic Nature of Sleep*¹⁸, together with another forefather of sleep medicine research, Dr. Pier Luigi Parmeggiani.

Along all these studies and publications, Dr. Velluti has worked with many other renowned Uruguayan sleep researchers, including Dr. Jaime Monti, Dr. José Luis Peña, Dr. Pablo Torterolo, and Dr. Marisa Pedemonte, being also responsible for training several researchers in the area. With Marisa the relationship went beyond work, and we can surely say they were the most lovely couple in Latin American sleep research. They married, had children, become lifelong partners and lived more than 35 years together.

Dr. Velluti also played a significant role in the management of science in his home country, participating as a member of the *Comisión Nacional de Investigación Ciencia y Tecnología* (CONICET), being the founder of the first *Sociedad Uruguaya de Investigación en Sueño*.

We have had the pleasure to spend nice moments with Dr. Velluti, in congresses and meetings across Latin America and beyond. In 2018, we were pleased to share the offering of the "Velluti Prize" for basic research and the "Tufik Prize" for clinical research at the Congress of the Latin American Federation of Sleep Societies (FLASS) in Punta del Este, Uruguay.

The sleep research community will miss this exceptional researcher. Ricardo Velluti was a brilliant scientist and stood out with excellence in our continent. His work has placed him at the forefront of the approach of auditory processing during sleep and wakefulness. We are sure his legacy will continue and his works will remain inspiring generations of Latin American researchers.

***Corresponding author:**
Monica Levy Andersen
E-mail: ml.andersen12@gmail.com

DOI: 10.5935/1984-0063.20220049

REFERENCES

1. Velluti R. Human cortical pO₂. *Acta Neurol Latinoam*. 1977;23(1-4):189-94.
2. Velluti R. An electrochemical approach to sleep metabolism: a pO₂ paradoxical sleep system. *Physiol Behav*. 1985 Mar;34(3):355-8.
3. Velluti R, Monti JM. PO₂ recorded in the amygdaloid complex during the sleep-waking cycle of the cat. *Exp Neurol*. 1976;50(3):798-805.
4. Velluti R, Roig JA, Escarcena LA, Villar JI, Austt EG. Changes of brain pO₂ during arousal and alertness in unrestrained cats. *Acta Neurol Latinoam*. 1965;11(4):368-82.
5. Lorenzo D, Velluti JC, Crispino L, Velluti R. Cerebellar sensory functions: rat auditory evoked potentials. *Exp Neurol*. 1977 Jun;55(3 Pt 1):629-36.
6. Velluti R, Crispino L. Cerebellar actions on cochlear microphonics and on auditory nerve action potential. *Brain Res Bull*. 1979 Sep/Oct;4(5):621-4.
7. Velluti R, Platas A, Iglesias L. An adequate head-holder to be used in auditory and posterior cranial fossa research. Technical note. *Acta Neurol Latinoam*. 1980;26(2):129-31.
8. Pedemonte M, Peña JL, Torterolo P, Velluti RA. Auditory deprivation modifies sleep in the guinea-pig. *Neurosci Lett*. 1997 Feb;223(1):1-4.
9. Pedemonte M, Peña JL, Velluti RA. Firing of inferior colliculus auditory neurons is phase-locked to the hippocampus theta rhythm during paradoxical sleep and waking. *Exp Brain Res*. 1996 Nov;112(1):41-6.
10. Peña Junior JL, Pedemonte M, Ribeiro MF, Velluti R. Single unit activity in the guinea-pig cochlear nucleus during sleep and wakefulness. *Arch Ital Biol*. 1992 Jul;130(3):179-89.
11. Peña JL, Pérez-Perera L, Bouvier M, Velluti RA. Sleep and wakefulness modulation of the neuronal firing in the auditory cortex of the guinea pig. *Brain Res*. 1999 Jan;816(2):463-70.
12. Velluti R, Pedemonte M, García-Austt E. Correlative changes of auditory nerve and microphonic potentials throughout sleep. *Hear Res*. 1989 May;39(1-2):203-8.
13. Velluti RA. Interactions between sleep and sensory physiology. *J Sleep Res*. 1997 Jun;6(2):61-77.
14. Pedemonte M, Rivera F, Testa M, Velluti R, Dajas F, Nadruz E. Achyrocline satureioides (LAM) DC. would improve sleep quality in patients with obstructive sleep apnea syndrome: a pilot study. *Sleep Sci*. 2013;6(4):135-40.
15. Averbuch M, Páez S, Meza M, Pedemonte M, Velluti R, Escobar F, et al. Current status of Latin American sleep societies. *Sleep Sci*. 2011;4(1):34-6.
16. Velluti R, Pedemonte M. Sensory neurophysiologic functions participating in active sleep processes. *Sleep Sci*. 2012;5(4):131-8.
17. Velluti R. *The auditory system in sleep*. Cambridge: Academic Press; 2008. DOI: <https://doi.org/10.1016/B978-0-12-373890-5.X5001-7>
18. Parmeggiani PL, Velluti RA. *The physiologic nature of sleep*. London: London Imperial College Press; 2005. DOI: <https://doi.org/10.1142/P388>