UNIVERSITÀ DEGLI STUDI DI PALERMO

BEHAVIOURAL ANALYSIS, BEYOND WHAT THE HUMAN EYE CAN INTUITIVELY PERCEIVE

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Has, since 2005, served as a Research Associate at the University of Palermo - Italy, Institute of Human Physiology “Giuseppe Pagano,” Laboratory of Behavioral Physiology, Department of Experimental Biomedicine and Clinical Neurosciences. He graduated from the University of Palermo with degrees in Medicine and Surgery, a Medical Specialization in Sport Medicine, and a Ph.D. in Neurosensorial Physiopathology. Dr. Casarrubea currently teaches Human Physiology at the School of Dentistry and at the School of Medicine and Surgery and leads a laboratory of Behavioral Physiology. He has authored and coauthored numerous research papers, book chapters, and conference proceedings concerning the study of anxiety-related behaviour, the relationships between anxiety and pain, and the behavioural effects produced by the administration of psychoactive drugs. He regularly presents the results of his experiments to different conferences of Neurosciences and Behavioural Sciences. His current research activity is funded by the University of Palermo and is focused on the application of multivariate approaches to the study of anxiety-related behaviour in rodents. He is member of the Physiological Society of Italy (S.I.F.) and of the Technologies of Knowledge Interdepartmental Center (C.I.T.C.), University of Palermo - Palermo, Italy.

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WEDNESDAY MARCH 1ST 2017, 03:00 P.M. – NENCKI INSTITUTE OF EXPERIMENTAL BIOLOGY – KONORSKI HALL, SECOND FLOOR

The behaviour can be defined as the reaction of a living being to external [2] or internal [3] causal factors. Such a reaction is structured on the basis of a sequence of events in time [4]. Normally, the scientific study of behaviour requires, as a very first step, the construction and/or the utilisation of a reliable ethogram, namely, a formal list of individual components of the behavioural repertoire and their description. Such behavioural components, in their isolation, can be easily characterized by means of conventional quantitative assessments such as, for example, frequencies, per cent distributions, latencies, durations etc. Nonetheless, the possibility to characterize each behavioural component through even hundreds of numbers does not imply the possibility to use those numbers to figure out what the behaviour is, in its wholeness and functional uniformity [1][5]. A given behaviour can be understood, from a functional perspective, only if the relationships among its constitutive components are assessed [1, 6 - 9]. The reasons for this lie in the meaning itself of the word "*function*" and in its teleological implications. Actually, the *function* of a system, its aim in a physiological view, emerges from the relationships between the elements of the system itself and can be only understood taking into account these relationships. Therefore, purely quantitative approaches to the study of behaviour must necessarily be partnered with more advanced approaches, such as multivariate ones. The usefulness of these techniques, indeed, lies in the possibility that they offer to analyse the relationships between the elements of a given behavioural sequence, leading the researcher greatly beyond what is intuitively observable and/or deducible by means of conventional quantitative evaluations.

M.C.

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