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Impulsive action and choice are differentially expressed in rat when exposed to a gambling task

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Impulsivity is considered as one of the important features associated with the development of a number of psychiatric disorders, including drug and gambling addictions. Generally, impulsivity can be categorized as impulsive action and impulsive choice. Recently developed rGT (rodent version of the gambling task) allows us to measure both impulsive action and choice in rat. In the present study, we examined how different exposure time, early (adolescent age) and late (adult age), to a gambling task differentially influences two types of impulsivity in rGT performances. Rats were trained in a touch screen chamber to learn the relationships between four different light signals on the screen and accompanied reward outcomes or punishments set up with different schedules. Depending upon their stabilized pattern of preference upon free choice, rats were categorized as risk-averse or risk-seeking group. After a series of experimental scheme, including extinction, re-acquisition, and acute cocaine injection, rats were re-tested for their premature response and preference in rGT. Interestingly, rats exposed early to gambling task showed increased impulsive action, while rats exposed late to gambling task showed increased impulsive choice, only in pre-categorized as high impulsive and risk-averse group. These results suggest that, different aspect of impulsivity can be differentially expressed in the process of decision-making, and influenced by the age exposed to a gambling task.

Biography

Jeong-Hoon Kim has completed his PhD from The University of Chicago, and Post-doctoral studies from University of California at Los Angeles School of Medicine. He is a Professor at the Department of Physiology, Yonsei University College of Medicine. He has published more than 40 papers in reputed journals. He has been serving as a Member of Board of Directors for a few related academic societies.

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