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Midbrain Mutiny: The Picoeconomics and Neuroeconomics of Disordered Gambling

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By Don Ross, Carla Sharp, Rudy E. Vuchinich, and David Spurrett. (2008). MIT Press, Cambridge, Mass., USA. x; 301pp. ISBN: 978-0-26-218265-2, \$40.00 USD (hardcover).

Editor's Note: This review by Dr. Ari. Kalechstein is the second in a two-part series on neuroeconomics. The first part is published in our 23rd issue.

Disordered Gambling – Addiction or Not Addiction. That is the Question.

Disordered gambling has been on the radar of researchers and clinicians for decades. It gained acceptance as a diagnostic entity approximately 30 years ago with the publication of DSM–III ([American Psychiatric Association, 1980](#)). However, from this reviewer's perspective, the condition of disordered gambling has long been underappreciated with respect to the prevalence of the disorder or the level of devastation with which it is associated. Several factors most likely underlie the increased interest in the condition. First, with the advent of online gambling and easier access to land-based gambling venues in many countries, more people are affected by the disorder. Second, a growing appreciation for the existence of behavioral addictions has emerged amongst researchers, clinicians, and laypeople. Third, the advent of technologies that enable researchers and clinicians to characterize brain structure (e.g., magnetic resonance imaging, or MRI) and function (e.g., fluorodeoxyglucose positron emission tomography, or FDG–PET) have spurred an interest in the study of addiction. Finally, as the field of neuroeconomics has gained traction in the scientific community as a legitimate area of study, there has been increased interest in the related phenomenon of

disordered gambling.

Not surprisingly, this increased interest in disordered gambling has been accompanied by an increase in the number of peer-reviewed articles on the topic. Yet, there existed, to this reviewer's knowledge, very few scientific texts on the topic at the time this book was published (e.g., [Glimcher, 2004](#)). Thus, one potential indicator of increased interest in disordered gambling is that this text prepared by Ross, Sharp, Vuchinich, and Spurrett was published at approximately the same time as that of Dr. Peter Politser's book, entitled *Neuroeconomics: A Guide to the New Science of Making Choices* (reviewed in the last issue of JGI).

With regard to the intended audience, it is this reviewer's opinion that the text is prepared in a manner that will stimulate interest across a broad readership. For example, neurologists, neuropsychiatrists, neuropsychologists, and cognitive neuroscientists are likely to appreciate the chapters that focus on brain structure and function. Experimental psychologists, particular those with a behavioral theory background, can appreciate the probative nature of the chapters that focus on this topic. Moreover, interested treatment providers will find useful the chapter on the clinical implications of disordered gambling.

The authors have prepared the text in a manner that aims to educate readers regarding the fields of picoeconomics and neuroeconomics. It is assumed that the reader is familiar with the structure and function of the brain, such as the cognitive functions mediated by specific regions of the brain and/or particular neurotransmitters, behavioral theory, and various clinical syndromes that occur in conjunction with disordered gambling. Readers without a background in these areas may find the book less accessible. Thus, the text is most appropriate for relatively knowledgeable researchers and clinicians. Graduate students who are brave and interested are encouraged to read this book. Other readers are encouraged to wade in at their own discretion.

Using picoeconomics and neuroeconomics as a context for the discussion of disordered gambling, the authors review a wide array of topics. These include chapters that focus on defining the basic concept of addiction, impulsive consumption, addiction from a neuroeconomics perspective, the place of disordered gambling within the field of addiction, clinical evidence that disordered gambling is anchored in neuroscience, and, finally, why it is that gambling disorders should be parsimoniously renamed as addictive gambling.

Overall, Ross and colleagues provide a thorough review of multiple topics in 249 densely packed pages. In retrospect, the first chapter portends the authors' intent to cover a wide array of topics in the book, when they begin by asking the question, "Is there such a thing as addiction?" They then seek to prove the point by recruiting research findings from seemingly diverse sources and effectively

integrating them. While such a question might initially be dismissed because the answer seems obvious, the authors do not accept the premise as a *fait accompli*. Instead, they provide a methodical and well-reasoned argument in support of the premise that the concept of addiction exists and that the fields of neuroeconomics and neuroscience are well-positioned to explain how and why addiction occurs.

Much of the text reviews extant literature while concurrently discussing disordered gambling and the concept of addiction. It is the final chapter, however, in which the historical data are truly synthesized and the authors' thinking is crystallized. Ross and colleagues argue strongly for the reconceptualization of pathological gambling as addictive gambling. Moreover, they offer formidable counterarguments to those researchers who disagree with them (on a personal note, I found it refreshing that the authors were willing to take a bold stand, rather than providing a milquetoast opinion). Regardless of whether one agrees with them (and this reviewer is withholding his opinion as a courtesy to future readers), researchers and clinicians would be well-served to read and carefully consider the logic presented in this text. It is this kind of bold thinking that will serve as catalyst for researchers and clinicians who study addictive gambling.

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