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Nicotine, Tobacco Use, and the 55th Nebraska Symposium on Motivation

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Tobacco use is a worldwide health problem. As so well stated by Mackay and Ericksen (2002), “No other consumer product is as dangerous, or kills as many people. Tobacco kills more than AIDS, legal drugs, illegal drugs, road accidents, murder, and suicide combined” (p. 36). Imagine the lives saved, and the amount of pain, emotional suffering, and fiscal burden alleviated, if we could devise approaches that helped current tobacco users quit and remain abstinent, and prevented new smokers from emerging. Although these idealistic goals are worth pursuing, improving cessation rates by only a small fraction, or making small gains in preventing people from experimenting with tobacco, would nevertheless translate into significant improvement in the health and well-being of countless thousands worldwide as well as financial savings to employers, government institutions, and the health care system. Even such small, incremental steps require a concerted and coordinated effort by basic scientists, clinical researchers and practitioners, and policy makers to discover the basis of tobacco dependence and apply that knowledge to the implementation of prevention policies and smoking cessation aids. This year’s Nebraska Symposium on Motivation was devoted to research on the drug that is widely believed to form the basis of tobacco use and dependence, nicotine.

For over 50 years, The Nebraska Symposium on Motivation has provided a forum for discussing the concept of motivation and its application to understanding behavior (Benjamin & Jones, 1979; Bevins & Bardo, 2004). Although researchers and theorists who have participated in The Symposium over the years have disagreed about the meaning and potential usefulness of this construct (e.g., Birch, 1961; Gallistel, 1975; Schneirla, 1959), one conclusion that emerges from this scientific dialog is that at least some of the processes captured within the definition of this construct likely mediate key aspects of behavior.

In the area of drug addiction and dependence, there appears to be an increasing use of motivation and related constructs (e.g., incentive processes, cravings, drug seeking, etc.) when discussing drug use and dependence. For the 50th Nebraska Symposium on Motivation, Bevins and Bardo (2004) did a search on Medline that spanned from 1998 to 2002. That search used the term “motivation” with the word “alcohol”, “nicotine”, “amphetamine”, “heroin”, and “cocaine”. In this five-year period that search found 729 hits. We repeated this simple search for 2003 to July 2007 and found 1,247 hits. Notably, we went back and re-conducted the 1998 to 2002 search for just “motivation” and “nicotine” and found 141 hits in this 5 year window. In the subsequent 5 year window (up to July 2007) this number increased to 263—a near doubling. An increase was also seen for the co-occurrence of “motivation” and “smoking” (426 to 682) and for “motivation” and “tobacco” (170 to 343). This pattern indicates a need to critically discuss motivation as an explanatory

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construct, while empirically defining the processes underlying this construct in a manner that avoids tautologies.

For The 55th Nebraska Symposium on Motivation, we gathered leading scientific experts on nicotine dependence and tobacco use on the University of Nebraska-Lincoln campus. The diversity of their expertise (see list of contributors) reflects our bias that effective strategies for decreasing tobacco use and preventing initiation will require a translational approach in which genetic, neurobiological, individual, and cultural factors motivating tobacco use and nicotine dependence are considered. At The Symposium, the exchange of empirical and theoretical ideas and the discussion of these ideas were richer and more extensive than we could have imagined. We thank the contributors and all those who attended The Symposium for this. Further, we hope that the collection of chapters in The 55th Volume of the Nebraska Symposium on Motivation will continue to stimulate this exchange of ideas and discussion among its readers. Only through open communication and the scientific testing of ideas that emerge from this conversation will we be able to eventually eliminate the number one preventable cause of premature death—tobacco use and nicotine dependence.

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