

Celebrating breakthroughs in addiction science

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For two decades, The BASIS has increased awareness about addiction, helping to reduce stigma and, ultimately, improve lives. To celebrate our 20th anniversary, we asked readers to nominate scientific articles that they believe represent breakthroughs in the study of addictive behavior. We thank all who responded. Today, we review the nominated articles:

1. Marlatt, G. A., Baer, J. S., Kivlahan, D. R., Dimeff, L. A., Larimer, M. E., Quigley, L. A., ... Williams, E. (1998). Screening and brief intervention for high-risk college student drinkers: Results from a 2-year follow-up assessment. *Journal of Consulting and Clinical Psychology*, 66(4), 604-615.

When we first started publishing The BASIS, most substance use programs focused either on people who had not yet starting using (i.e., primary prevention) or on people who already had developed a substance use disorder (i.e., tertiary prevention). This approach ignored a substantial segment of the population: people who were using substances, potentially in unhealthy ways, but had not yet developed addiction. Our first breakthrough article ushered in a new era in prevention. In 1998, G. Alan Marlatt and colleagues from the University of Washington [published a randomized control trial](#) evaluating a new protocol called Screening and Brief Intervention. The investigators screened students during their senior year of high school and invited those who were at high risk for problem drinking to complete a study during their first two years college. During their freshman year of college, some of the high-risk students, selected randomly, completed a brief intervention. The brief intervention included personalized feedback, conversations about risk and potential behavior change, and education. In general, students drank less and experienced fewer drinking problems over time. **But, those who completed the brief intervention showed a sharper decline in drinking and drinking-related problems.** These and other early studies documented the effectiveness of Screening and Brief Intervention. Researchers later added a Referral to Treatment component, and the result -

[SBIRT](#) - represents a major paradigm shift in substance use disorder prevention. Today, health workers deploy SBIRT in diverse settings, and clinicians can now be reimbursed for providing these services.

2. Kendler, K. S., Jacobson, K. C., Prescott, C. A., & Neale, M. C. (2003). Specificity of genetic and environmental risk factors for use and abuse/dependence of cannabis, cocaine, hallucinogens, sedatives, stimulants, and opiates in male twins. *American Journal of Psychiatry*, 160(4), 687-695.

Some people are more likely than others to experience addiction - that much is clear. But, is this vulnerability specific to a certain expression of addiction, or more general? This is a central question in the etiology of addiction, and [our second breakthrough article](#) attempted to answer it. Researchers led by Kenneth Kendler of Virginia Commonwealth University gathered detailed substance use histories among male twin pairs. They found, in their words, “that **both the genetic and the shared environmental risk factors were entirely nonspecific in their effect.**” In other words, a person who inherits genetic risk factors or accumulates risk from his or her environment is more susceptible to many different expressions of addiction, such as dependence on opioids, stimulants, and sedatives - not more susceptible to only one expression of addiction. These and many other findings lend support to the [Syndrome Model of Addiction](#), which suggests that various expressions of addiction have both common underlying causes and unique characteristics.

3. Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiologic advances from the brain disease model of addiction. *New England Journal of Medicine*, 374, 363-371.

Since we began publishing *The BASIS* during 1996, many researchers have tried to answer questions about addiction by examining the addicted brain. A [recent paper](#) by Nora Volkow, George Koob, and A. Thomas McLellan that **reviews two decades of research on the brain disease model of addiction** is our third breakthrough article. Volkow and her colleagues describe studies documenting dysfunction of the brain’s reward circuitry among people who are addicted. Over time, affected people become less and less able to experience pleasure engaging

in everyday activities, like playing with their kids or trying out new foods. Powerful cravings, and painful feelings during withdrawal, have observable origins in brain circuitry and combine to initiate and maintain the cycle of addiction and relapse. Though their focus is on the neurobiology of addiction, Volkow and her co-authors maintain that social and environmental factors play an important role in making certain people more likely to use substances initially and to progress from use to addiction. The brain disease model of addiction has helped inform new approaches to prevention, treatment, and relapse prevention.

4. Stockwell, T. , Zhao, J., Panwar, S., Roemer, A., Naimi, T., & Chikritzhs, T. (2016). Do “moderate” drinkers have reduced mortality risk? A systematic review and meta-analysis of alcohol consumption and all-cause mortality. *Journal of Studies on Alcohol and Drugs*, 77(2), 185-198.

Our fourth breakthrough article is a meta-analysis by Dr. Tim Stockwell of the University of Victoria's [Centre for Addictions Research](#) in British Columbia, Canada. [This meta-analysis](#) investigated the claim that people who drink moderately are at lower risk than abstainers for a [wide variety of health conditions](#), including cancer, dementia, the common cold, and even liver cirrhosis. After combing through 87 published studies that examined the relationship between drinking frequency and all-cause mortality, Stockwell and colleagues found that the claims about the health benefits of drinking resulted, in large part, from a methodological problem called “abstainer bias.” In short, study authors had compared moderate drinkers against abstainers, but many people in the abstainer groups had stopped drinking due to poor health. When Stockwell and colleagues removed these kinds of studies from their analyses, the protective effects of moderate drinking compared to abstaining disappeared. Rather, they concluded, **“the pattern of results is more consistent with a linear dose response”- the more you drink each day, the more likely you are to die.** Readers should be skeptical about claims that low-volume drinking will provide health benefits.

We intend to keep using The BASIS to inform readers about advances in the prevention and treatment of addiction. Thank you for joining us on this journey!

-Heather Gray, Senior Editor, The BASIS

What do you think? Please use the comment link below to provide feedback on this article.