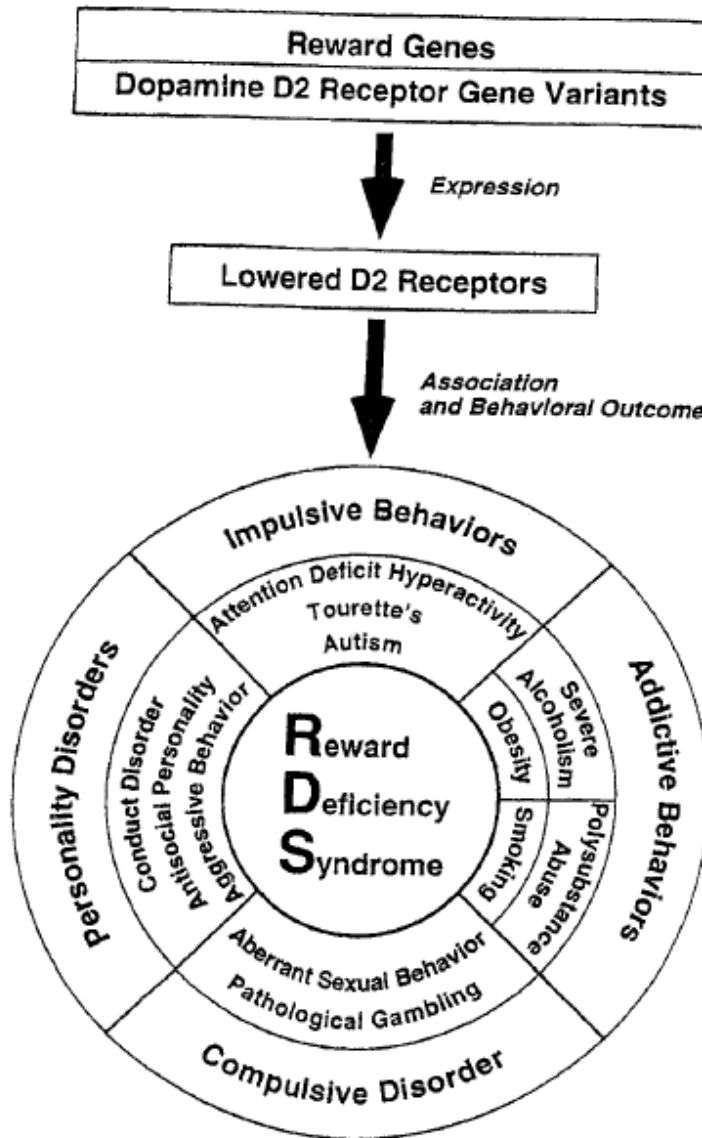


"THE REWARD DEFICIENCY SYNDROME":



The Reward Deficiency Syndrome comprises a spectrum of impulsive, compulsive, addictive, and personality disorders that are based on a common genetic deficiency in the dopamine D2 receptor, according to the authors. The type of disorder that is manifested by any particular individual is determined by their genetic and environmental factors, which are not yet fully understood. An incomplete predictive model based on Bayes' Theorem suggests that an individual who carries the A1 allele of the dopamine D2 receptor has a 74% chance of developing one of the disorders of RDS.

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ACUPUNCTURE IN THE TREATMENT OF CHEMICAL DEPENDENCY

The experience of the Miami Drug Court shows that acupuncture is a safe, inexpensive way to help most felons succeed at treatment and avoid continued addiction, probable rearrest, and possible death. In fact, acupuncture is considered "State-of-the-Art Treatment" in the domain of chemical dependency.⁶ The State of Oregon concurred by mandating that "synthetic opiates [i.e. Methadone] shall be used only when . . . detoxification with acupuncture and counselling have proven ineffective or upon the written request of a physician . . . showing medical need. . . ."⁷

Why? Because acupuncture works, and it is very inexpensive. Eighty percent of arrestees, nationwide test positive for drugs. Hugh Rodham, Public Defender for Dade County, Florida, now refers all of his drug abusing clients for acupuncture through the Miami Drug Courts.⁸ Acupuncture provides the physical support which keeps felons enrolled in the treatment and counselling process, dramatically relieving the biochemical stress of withdrawal and rapidly accelerating physiological recovery.

In two full years of operation, 4,296 felony drug possession arrestees entered the Miami program. The 1,600 graduates have a 3 percent re-arrest rate. The 1,153 individuals still in the program have a 7 percent re-arrest rate. Cost is only \$750 per client for a full year of acupuncture treatment.⁹ What would it cost not to treat these patients with acupuncture? On a more positive note, imagine the savings if our national recidivism rate were only 3 percent. The City of New York also saves millions of dollars each year with acupuncture detox programs that dramatically reduce the time the City must house newborns while the mothers recover from crack cocaine addiction.¹⁰ Without acupuncture, what would the expense to society be? Bullock and Culliton noted that in a six month alcoholism treatment study, compliance and retention increased from 5 percent of the patient population without acupuncture to 35 percent with acupuncture.¹¹

Dr. Jay Holder, Director of the 250 bed Village Addiction Treatment Center in Miami and the first American ever to be awarded the Albert Schweitzer Prize in medicine, conducted the first true placebo study of acupuncture in the treatment of chemical dependency. Dr Holder concluded that "patients who complete at least ten days of auricular [ear acupuncture] therapy and do not receive intercurrent medications would be ten times more likely [96 percent] to complete a thirty day residential program than they would without auricular therapy."¹²

In the realm of addictionology, these figures compare with Michael Jordan's performance in basketball.

The real key to resolving the problem of chemical dependency, which afflicts 15 percent of the population, is education—starting with health care professionals, who in turn should educate their patients on the nature, prevention, and treatment of drug addiction. However, acupuncture is presently America's only primary care profession which offers significant, comprehensive training leading to certification as a Certified Addiction Professional. Medical schools generally only teach two to three hours on the treatment of chemical dependency during the entire education of an MD. In fact, the western medical tradition is itself drug dependent and continually sends out a strong pro-drug message with every prescription written. Acupuncture does just the opposite.

In what other areas could our federal government save money by supporting the expanded use of acupuncture in the U.S.?

STROKE, PARALYSIS AND BRAIN DAMAGED BABIES

The Veterans Administration, in association with the Boston University School of Medicine, has conducted landmark research with the use of acupuncture to treat paralysis caused from stroke. Federal researchers found that "61 percent of the stroke patients with paralysis showed significant improvement following acupuncture", and are now able to predict with 95 percent accuracy which stroke patients are likely to benefit from acupuncture."¹³ Once again, acupuncture proves to be safe and cost-effective.

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ABSTRACT

REWARD DEFICIENCY SYNDROME (RDS): A BIOGENIC MODEL FOR THE
DIAGNOSIS AND TREATMENT OF IMPULSIVE, ADDICTIVE, AND
COMPULSIVE BEHAVIORS.

Kenneth Blum, Ph.D.*; Eric R. Braverman, M.D.**; Jay M. Holder, D.C.***,
Joel F. Lubar, Ph.D.****; Vincent J. Monastra, Ph.D.*****; David Miller, M.A.*****,
Judith O. Lubar, M.S.W.*****; Thomas J.H. Chen, Ph.D.*****
& David E. Comings, M.D.*****

*Adjunct Professor, Department of Biological Sciences, University of North Texas, Denton, Texas, President and CEO, PhamcoGenomics, San Antonio, Texas; Medical and Scientific Director, Department of Clinical Sciences, PATH Medical Foundation, New York, New York; Cofounder and Vice President, American College of Addictionology and Compulsive Disorders, Miami Beach, Florida; Board of Directors, PATH Foundation and ACACD.

**Medical Director, Department of Clinical Sciences, PATH Medical Foundation, New York, New York; Department of Psychiatry, New York School of Medicine, New York; Board of Directors PATH Foundation.

***Cofounder and President, American College of Addictionology and Compulsive Disorders, Miami Beach, Florida; Department of Addiction Studies, Graceland University, Independence, Missouri; Chairman, Department of Addiction Medicine, Exodus Israeli/Bikur Cholim Hospital, Jerusalem, Israel.

****Professor, University of Tennessee, Knoxville, Tennessee.

*****Clinical Director, Family Psychology Institute & Attention Disorders Clinic, Endicott, New York.

*****Ph.D. candidate and Adjunct Professor, Department of Addiction Studies, Graceland University, Independence, Missouri.

*****Director, Southeastern Biofeedback Institute, Knoxville, Tennessee.

*****Director, Toxicology Research Center, Chang Jung Christian University, Tainan, Taiwan, Republic of China.

*****Chairman, Department of Medical Genetics, City of Hope National Medical Center, Duarte, California.

The dopaminergic system, and in particular the dopamine D2 receptor, has been profoundly implicated in reward mechanisms in the brain. Dysfunction of the D2 dopamine receptors leads to aberrant substance seeking behavior which includes but is not limited to alcohol, drug, tobacco, and food) and other related behaviors (pathological gambling, Tourette's and attention deficit hyperactivity disorder). In this paper we propose that genetic variants of the D2 dopamine receptor gene and other "reward genes" are important common genetic determinants of the emerging concept first coined by Blum - "REWARD DEFICIENCY SYNDROME". This article reviews the results of studies concerning particular classes of biological phenotypes that may have relevance to not only alcohol dependence but to the above mentioned related addictive, compulsive and impulsive disorders. Broadly defined these classes include brain neurotransmitter systems and neuroelectric potentials. Evidence is presented from many global scientific studies, concerning genotypic variation in severe alcoholics, high-risk relatives, psycho-stimulant abusers, opiate addicts, carbohydrate bingers, dependent tobacco smokers, polysubstance seekers, pathological gamblers, violent offenders, schizoid/avoidant personality types and ADHD, Tourettes and Autism among other related RDS behaviors. The results of these studies strongly suggest that etiology of RDS is mediated in part through sub-optimal neurotransmitter functioning, in particular a hypo-dopaminergic activity. The paper also points out the fact that the genetic antecedents for RDS behaviors are *polygenic* in nature and multiple gene variants contribute to the overall variance of the syndrome. Research opportunities are offered with respect to specific candidate genes that have been cloned from these neurotransmitter systems that could be most fully utilized in both association and possibly family-based linkage studies, only if 1000's of probands are employed in the latter case. Additional evidence is submitted, suggesting that characteristics of particular neuroelectric potentials (e.g. the amplitude and the latency of the P300 components of the event-related potential) may provide the cleanest dimension of potential markers that could be used to identify children at risk for RDS. The paper also discusses the conflicting findings with regard to the association studies of the minor *TaqI A1* allele of the dopamine D2 receptor (*DRD2*) gene with alcoholism. The authors conclude that meta analyses strongly favor the positive association and failure of association is due to failure to assess alcoholics for severity of their disorder and to screen controls for substance use and other RDS behaviors. The article favorably reviews data involving the use of multiple modalities for the treatment of RDS including pharmaceutical, nutraceutical, neuro-feedback, electrophysiological, auricular therapy and chiropractic. Further studies involving well defined animal models of RDS, such as the Lewis rat, showing hypodopaminergic limbic function, provides the field with a model to dissect the multiple genetic mechanisms involved in this complex disorder, possibly by employing Quantitative Trait Loci experiments. Finally, multiple domains of inquiry should not be viewed as "unfocused" but rather as an economical means for utilizing highly characterized samples of potential RDS probands having discrete, well characterized phenotypes.