

Sexual Compulsivity and Addiction With Drs. Pat Carnes and Ken Rosenberg

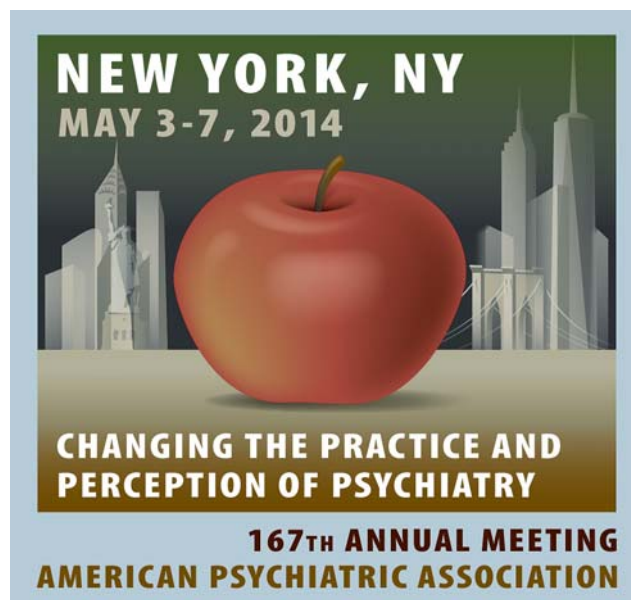
Directors: Ken Rosenberg, M.D.
Patrick Carnes, Ph.D.
Date: Saturday, May 3, 2014
Time: 1 PM - 5 PM
Location: New York Hilton Midtown
Mercury Ballroom



Seminar 3

AGENDA

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Sex Addiction Assessment and Treatment

AGENDA:

Patrick Carnes, PhD (80 mins.)

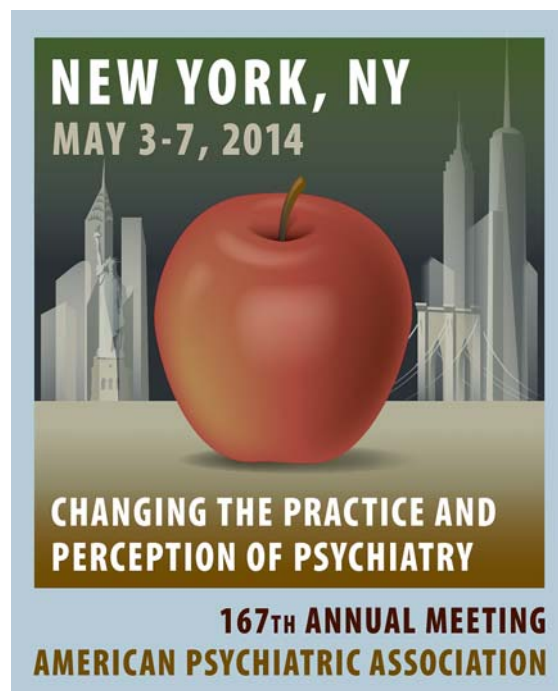
Break (15 mins.)

Ken Rosenberg, MD: Presentation and Videotape Cases (25 mins.)

Open Discussion about Cases and General Q & A (60 mins.)

OUTLINE

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Outline - Patrick Carnes, PhD

In this session, individuals will learn about the history and a general overview of sexual addiction. Family structures, bonding, and boundaries are examined. Identifying the danger signs, assessment of the 10 types of sex addiction, consequences of addiction and dependency, intervention, and treatment methods are outlined.

Session Objectives:

- * To introduce diagnostic criteria for sexual addiction
- * To understand the evolution and research of the Sexual Addiction Screening Test-Revised (SAST-R)
- * To utilize the SAST-R in a clinical setting
- * To describe the PATHOS, a sexual addiction screening test being developed for physician use
- * To introduce the Sexual Dependency Inventory - Revised (SDI-R)
- * To describe gender differences and co-occurring patterns of sexual anorexia
- * To provide overview of Cybersex and Internet pornography
- * To provide overview of sex addiction treatment
- * To describe evidenced-based data about recovery
- * To introduce the concept of task-centered therapy
- * To specify the research and conceptual foundations of a task centered approach to therapy
- * To understand task one including performables and therapist competencies

Outline - Ken Rosenberg, MD

In Dr. Rosenberg's presentation, individuals will learn about theoretical changes in the DSM V, which will add the subcategory of behavioral addictions. Dr. Rosenberg will also review the neurobiological and theoretical bases for sexual compulsivity and addiction.

Session Objectives:

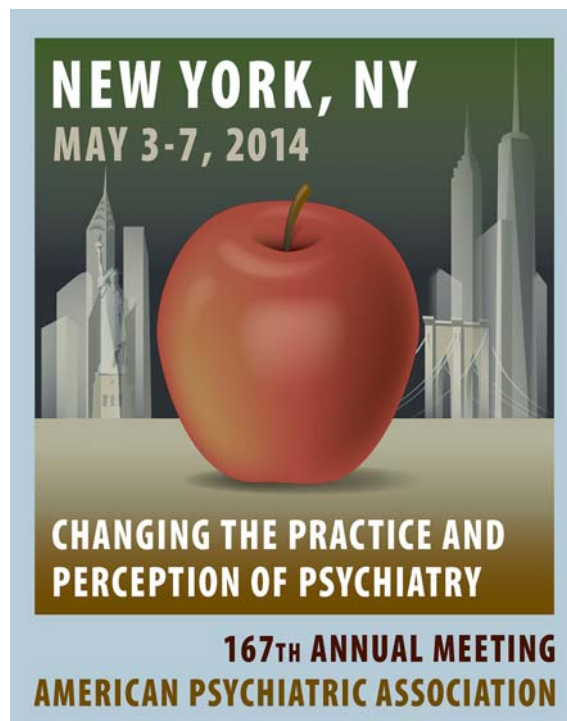
- * Discuss proposals for DSM V diagnoses related to sexual compulsivity and addiction.
- * Discuss the substantial similarities between substances of abuse disorders and the behavioral addictions of pathological gambling and internet addiction.
- * Review the theory of how dopamine is critical for acute reward and initiation of addiction, while end-stage addiction results primarily from anterior cingulate and orbitofrontal glutamatergic projections to the nucleus accumbens; and discuss how this theory may apply to behavioral addictions.
- * Discuss how environmental cues previously paired with morphine, cocaine or high-fat food (but not opiate withdrawal symptoms) were abolished by inhibition of the protein kinase C isoform, protein kinase M zeta (PKMzeta), in the nucleus accumbens core of rats.

* To describe SPECT and f-MRI scans of human subjects during sexual excitement suggest that similar structures are involved in sexual compulsivity and addiction.

* Review how the practices of addiction psychiatry may be adapted to treat sexual compulsivity and behavioral addictions.

SLIDES

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Sexual Addiction, Assessment & Treatment

Patrick J. Carnes, PhD
& Ken Rosenberg, MD

The Family Component

- Most addicts come from families with addicts and most have less than optimum attachment styles

Family

Addicts in Family 87%



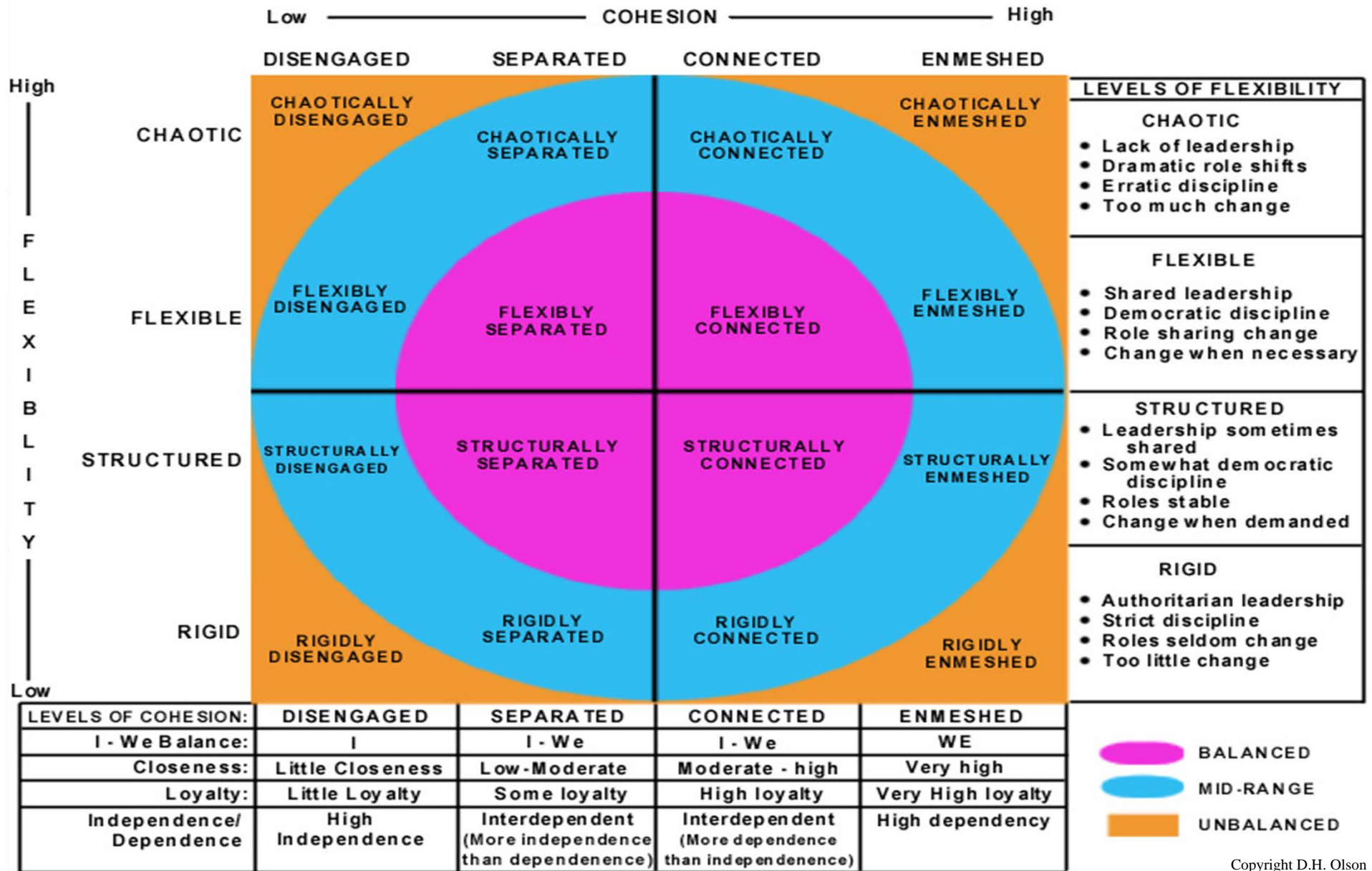
Rigid Family System 77%

Disengaged Family System 87%



Rigid and Disengaged
Family Systems 68%

Circumplex Model by David Olsen



Abuse/Early Trauma

- Most addicts report some type of abuse during childhood. Teicher's work has shown us how this abuse changes the brain and how it works forever.

Abuse/Early Trauma

- Emotional 97%
- Sexual 81%
- Physical 72%

Sexual Addiction Criteria

- This is how we define a problem area...it has nothing to do with “amount” or “number of times” a person has sex or masturbates.

Sexual Addiction

- Compulsive Behavior 94%
- Loss of Control 93%
- Efforts to Stop 88%
- Loss of Time 94%
- Preoccupation 77%
- Inability to Fulfill Obligations 87%
- Continuation Despite Consequences 85%
- Escalation 74%
- Social, Occupational, Recreational Losses 87%
- Withdrawal 98%



10 Diagnostic Criteria for Addiction

Loss of Control

Clear behavior in which you do more than you intend or want.

Compulsive Behavior

A pattern of out of control
behavior over time.

Efforts to Stop

Repeated specific attempts to stop the behavior which fail.

Loss of Time

Significant amounts of time
lost doing and/or recovering
from the behavior.

Preoccupation

Obsessing about or because of
the behavior.

Inability to Fulfill Obligations

The behavior interferes with
work, school, family, and friends.

Continuation Despite Consequences

Failure to stop the behavior even though you have problems because of it (social, legal, financial, physical).

Escalation

Need to make behavior more intense, more frequent, or more risky.

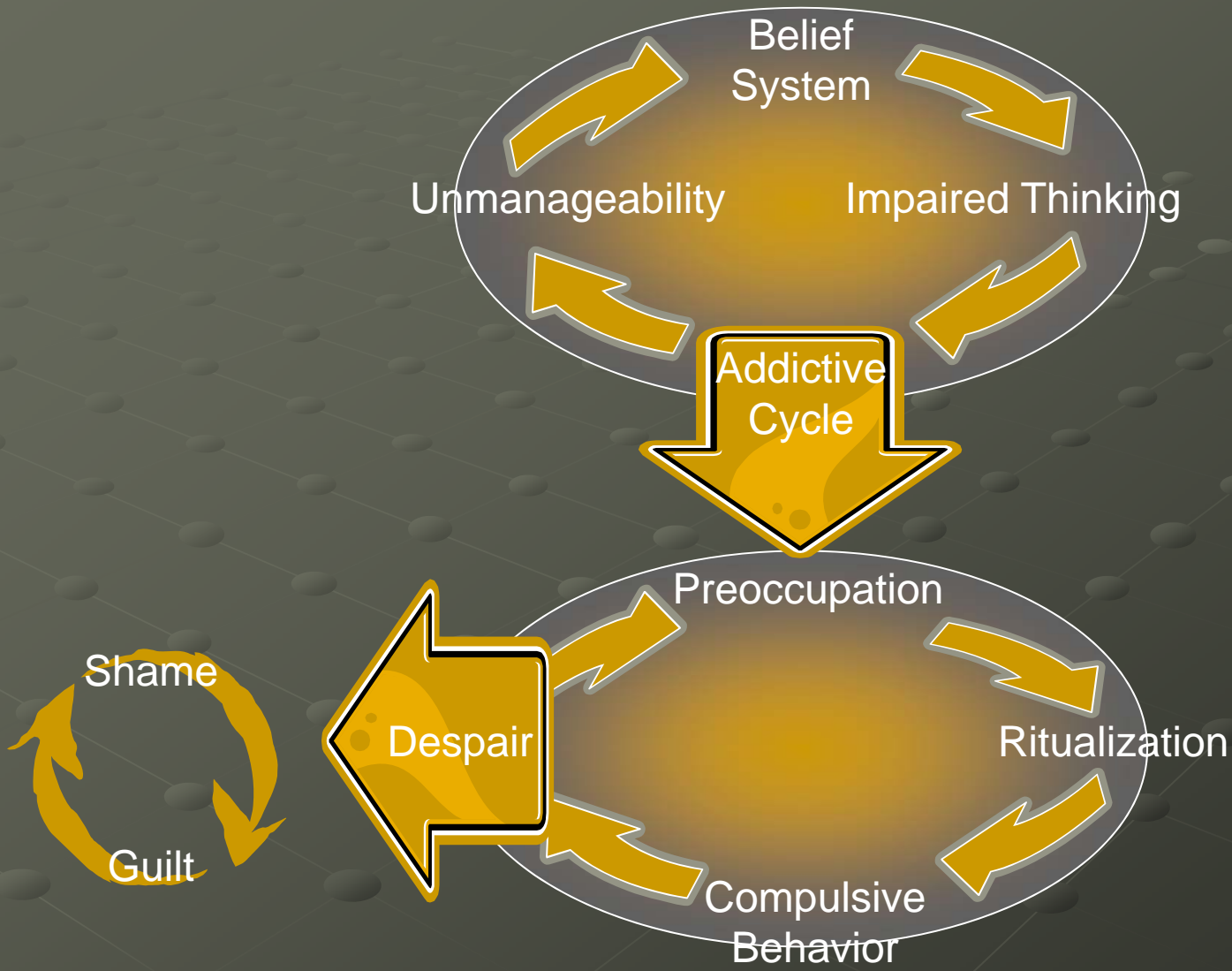
Losses

Losing, limiting, or sacrificing
valued parts of life such as
hobbies, family, relationships,
and work.

Withdrawal

Stopping behavior causes considerable distress, anxiety, restlessness, irritability, or physical discomfort.

The Addictive Cycle



Trauma Factors

- These are some of the factors that therapists look at when looking for the etiology of the problem...

8 Trauma Factors

- Reaction 64%
- Pleasure 64%
- Blocking 69%
- Splitting 76%
- Abstinence 45%
- Shame 72%
- Repetition 69%
- Bonding 69%

Sexual Behaviors

- Here are ways in which people act out when having a problem with sexual addiction.

Sexual Behavior

- Fantasy 18%
- Voyeurism 18%
- Exhibitionism 15%
- Seductive Role Sex 21%
- Intrusive Sex 17%
- Anonymous Sex 18%
- Trading Sex 12%
- Paying for Sex 15%
- Pain Exchange 16%
- Exploitive Sex 13%

Origins of the Ten Types

A total of 10 “types” of sexually compulsive behavior emerged in the sex addicts surveyed by Patrick Carnes, Ph.D.



*The Ten Types
of Sex Addiction*

Research of the 10 Types

- In the original research conducted for *Don't Call It Love*, a series of 114 sexual behaviors was statistically analyzed.
- A total of 10 “types” of sexually compulsive behavior emerged in the sex addicts surveyed.

Fantasy Sex

- Sexually charged fantasies, relationships, and situations.
- Arousal depends on sexual possibility.

Seductive Role Sex

- Seduction of partners.
- Arousal is based on conquest and diminishes rapidly after initial contact.

Voyeuristic Sex

- Visual arousal.
- The use of visual stimulation to escape into obsessive trance.

Exhibitionistic Sex

- Attracting attention to body or sexual parts of the body.
- Sexual arousal stems from reaction of viewer whether shock or interest.

Paying for Sex

- Purchasing of sexual services.
- Arousal is connected to payment for sex, and with time the arousal actually becomes connected to the money itself.

Trading Sex

- Selling or bartering sex for power.
- Arousal is based on gaining control of others by using sex as leverage.

Intrusive Sex

- Boundary violation without discovery.
- Sexual arousal occurs by violating boundaries with no repercussions.

Anonymous Sex

- High-risk sex with unknown persons.
- Arousal involves no seduction or cost and is immediate.

Pain Exchange Sex

- Being humiliated or hurt as part of sexual arousal; or sadistic hurting or degrading another sexually, or both.

Exploitive Sex

- Exploitation of the vulnerable.
- Arousal patterns are based on target “types” of vulnerability.

Other Addictions

- Co-morbid or co-occurring addictions are very high.

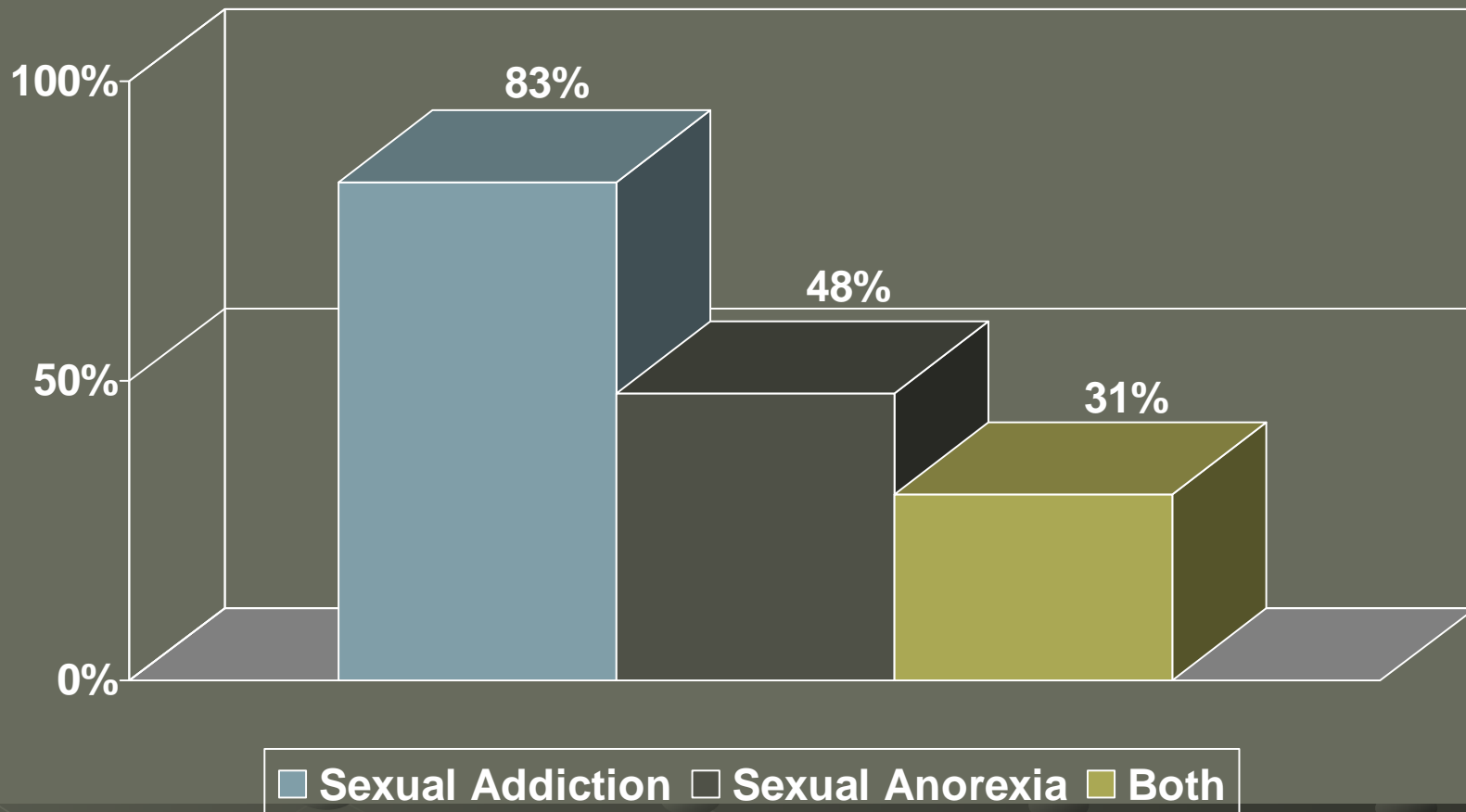
Other Addictions

- Chemical Dependency 42%
- Eating Disorders 38%
- Compulsive Working 28%
- Compulsive Spending 26%
- Compulsive Gambling 5%

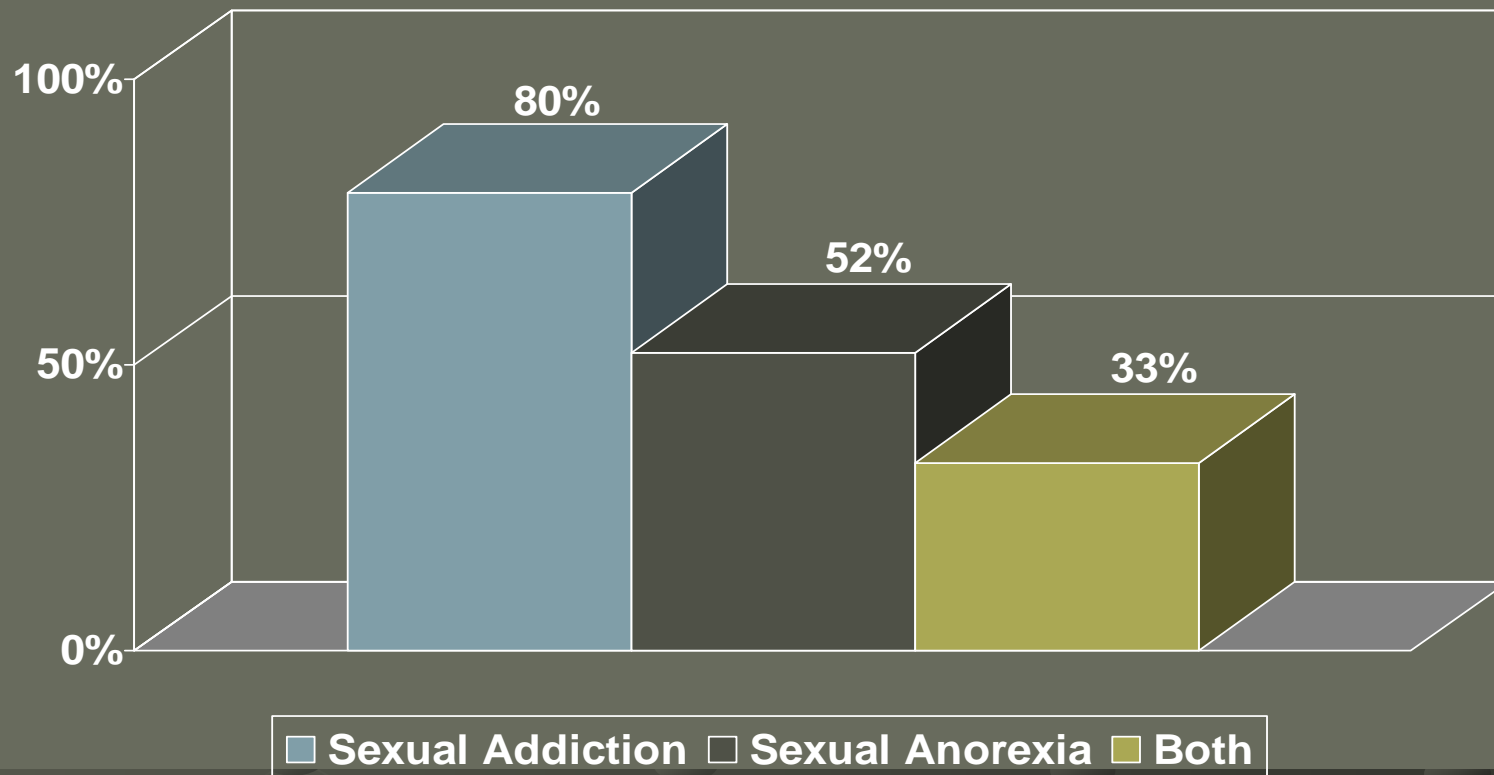


*Sex Addiction
Co-morbidity*

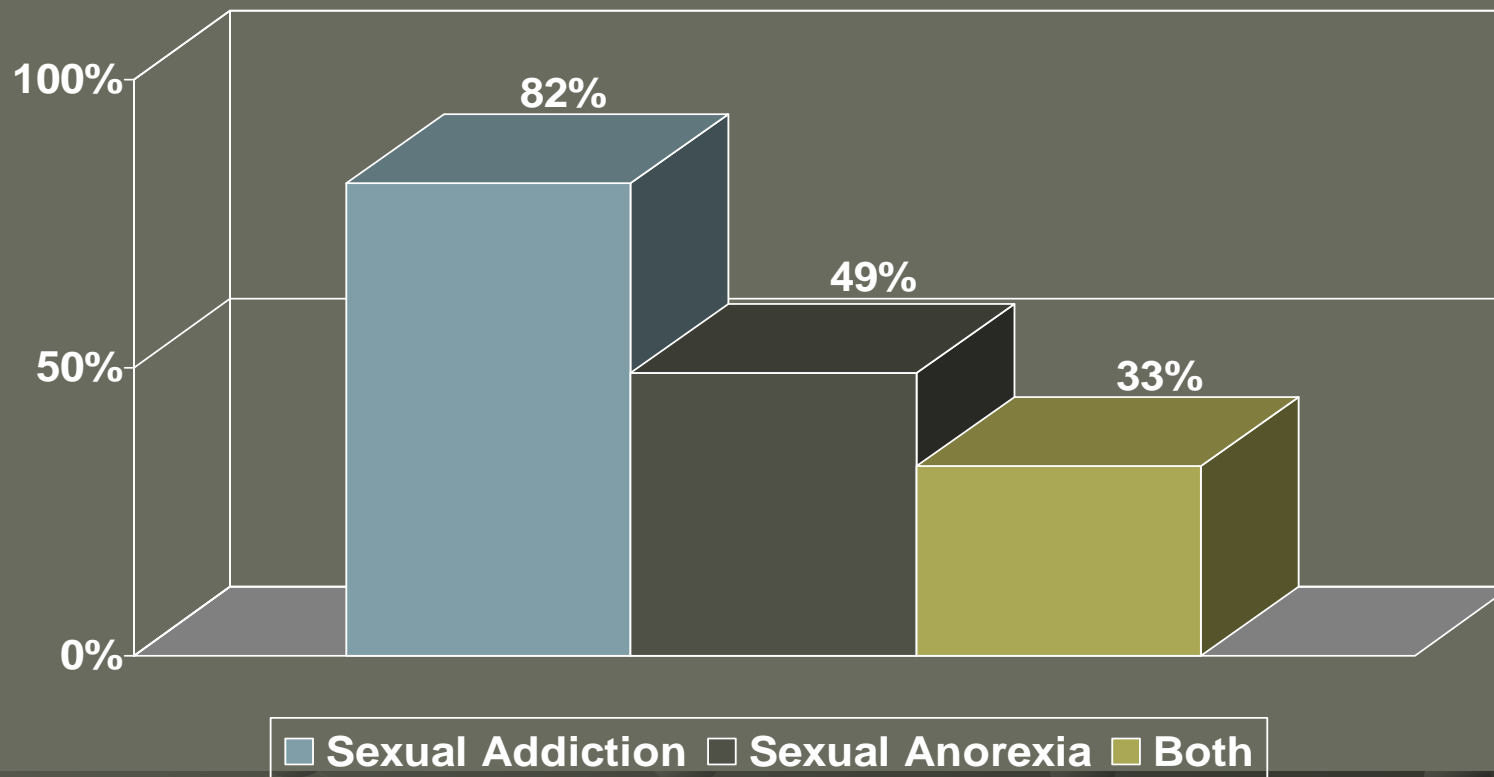
Gambling (N=103)



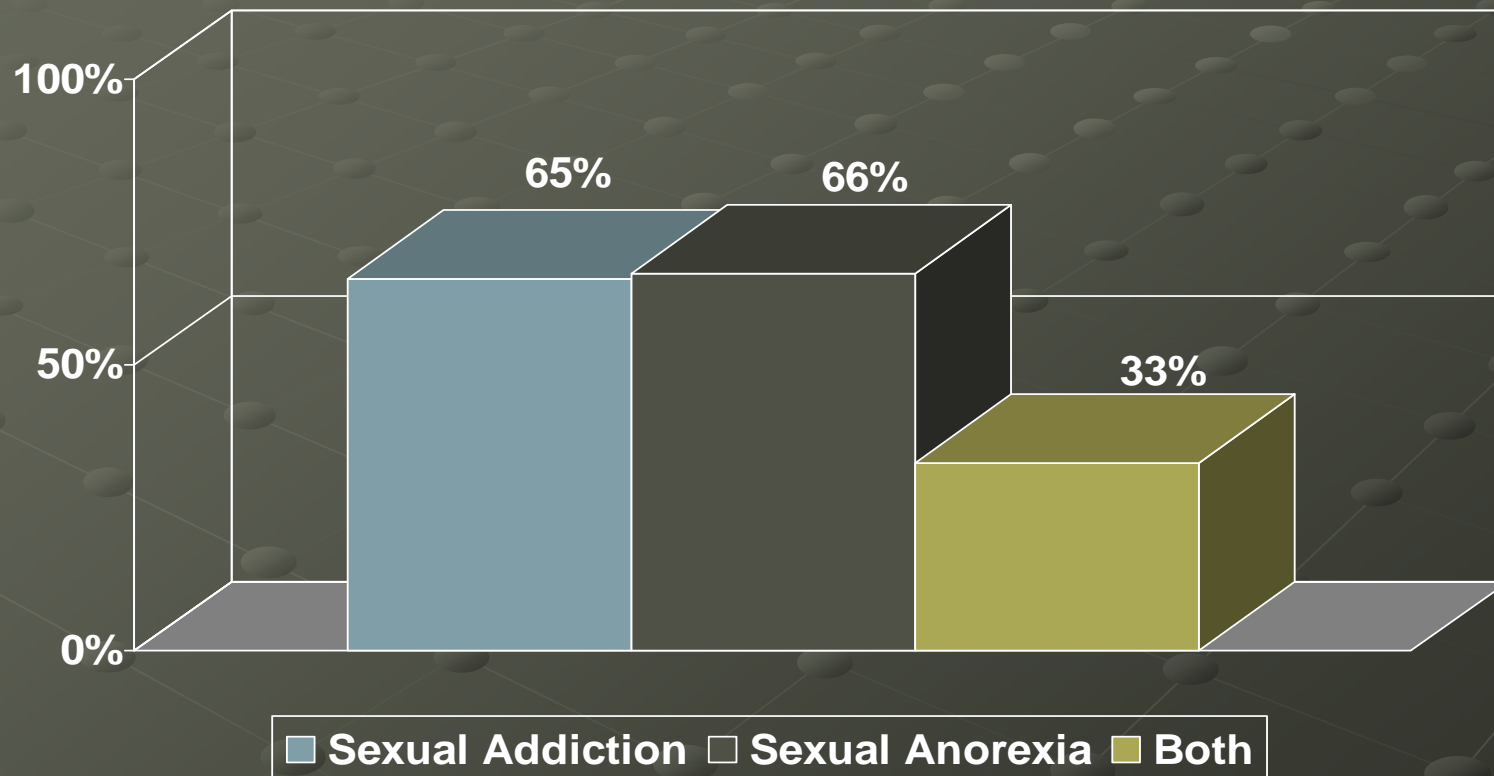
Alcoholism (N=740)



Substance Abuse (N=664)

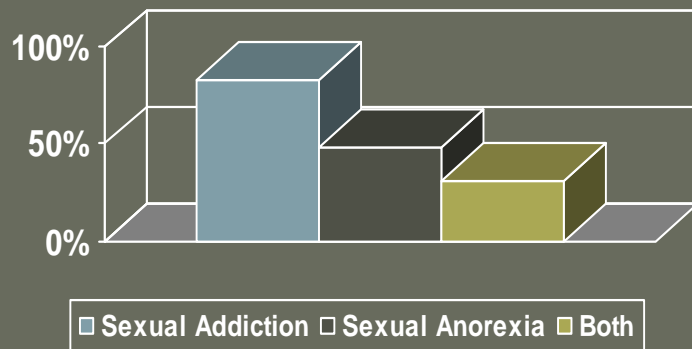


Eating Disorder (N=213)

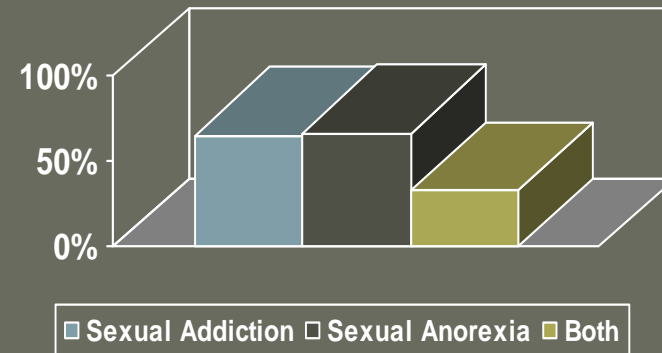


Addiction Interaction

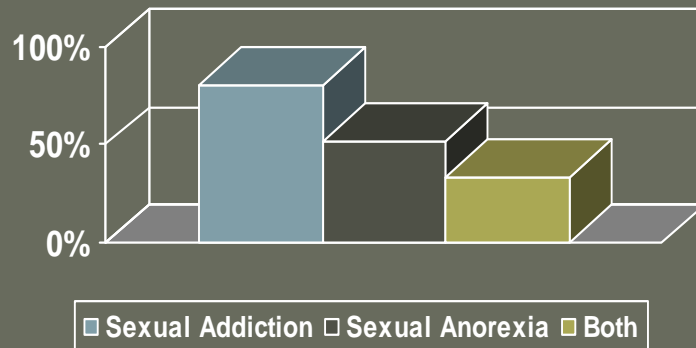
Gambling



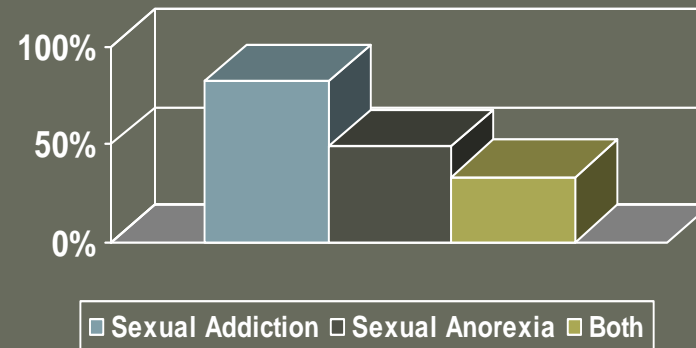
Eating Disorder



Alcoholism



Substance Abuse



Addiction Interaction

- It is important to treat *all* of the addictions and to understand *how* they are linked together

Addiction Interaction

- Cross Tolerance 61%
- Withdrawal Mediation 56%
- Replacement 43%
- Alternating Addiction Cycles 41%
- Masking 45%
- Ritualizing 41%
- Intensification 61%
- Numbing 54%
- Disinhibiting 42%
- Combining 46%

Sexual Addiction Assessment

Initial Assessment

- Sexual Addiction Screening Test – Revised (SAST-R) available on www.SexHelp.com.
- Designed to assist in the assessment of sexually compulsive behavior which may indicate the presence of sex addiction.
- Developed in cooperation with hospitals, treatment programs, private therapists, and community groups, the SAST-R provides a profile of responses which help to discriminate between addictive and non-addictive behavior.
- Comprised of 45 yes or no questions.

SDI-R Categories Outline

- Demographics
- Sexual Addiction Screening Test (SAST)
- The Ten Sexual Addiction Types Scales
- Consequences Scales
 - Family/Friends
 - Financial/Business
 - Legal
 - Preoccupation/Loss of Control
 - Motivation for Change Scale

SDI-R Scoring

- C – Score = Current problem behaviors; dynamic issues.
- E – Score = Ever or historical problem behaviors; static issues.

Diagnosis & Treatment Pattern for Compulsive Sexual Behavior

Presentation of Sexual Issues

In-depth Sexual History Date from
Family/Employer

Pattern ← → Situational

Compulsive

- Repetitive cycles
- Efforts to stop
- Resulting life problems

Other Mental Issues

- Mood disorders
- Anxiety disorders
- Abnormal personality traits
- Other addictions

Inpatient

- Suicidality
- Failure to stop
- Risk to self or others

Outpatient

- Commitment to therapy
- Support of family
- Periods of abstinence from self-destructive sexual behavior

Task-Centered Therapy

Sexual Addiction Treatment

Using the Task Centered
Approach

Treatment Choices

(Refer to article 18.4 Sexual Addiction in Reference Manual)

| <u>Type of Treatment</u> | <u>Helpful</u> | <u>Not Helpful</u> |
|--------------------------|----------------|--------------------|
| Inpatient Treatment | 35% | 2% |
| Outpatient Group | 27% | 7% |
| After Care (Hospital) | 9% | 5% |
| Individual Therapy | 65% | 12% |
| Family Therapy | 11% | 3% |
| Couples Therapy | 21% | 11% |
| 12-Step Group (SA based) | 85% | 4% |
| 12-Step Group (Other) | 55% | 8% |
| Sponsor | 61% | 6% |
| Partner Support | 36% | 6% |
| Higher Power | 87% | 3% |
| Friends' Support | 69% | 4% |
| Celibacy Period | 64% | 10% |
| Exercise/Nutrition | 58% | 4% |



The Stages of Recovery

Recovery Over Time

| WORSE 2ND 6 MONTHS | BETTER 2ND/3RD YEARS | BETTER 3 YEARS PLUS |
|--|---|----------------------------------|
| Sex addiction relapse | Financial situation* | Healthy sexuality |
| Health Status | Coping with stress* | Primary relationship |
| | Spirituality | Relationship w/ family of origin |
| | Career Status* | Relationship w/ children |
| | Friendships* | Life satisfaction |

* *Continue to improve three-years plus*

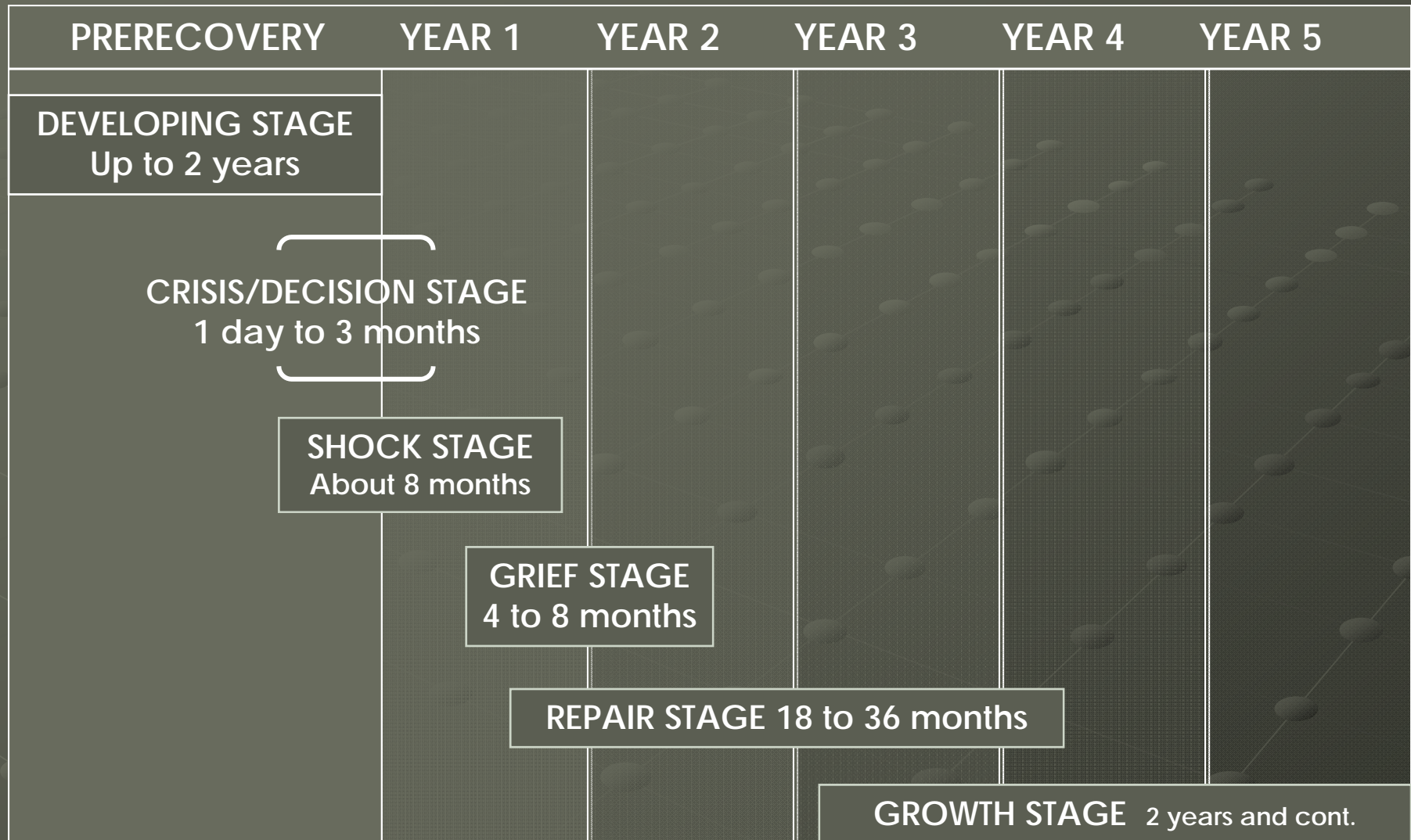
The Course of Recovery Over Time

| PRERECOVERY | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 | YEAR 5 |
|-----------------------------------|--------|--------|--------|--------|--------|
| DEVELOPING STAGE Up to 2 years | | | | | |
| | | | | | |

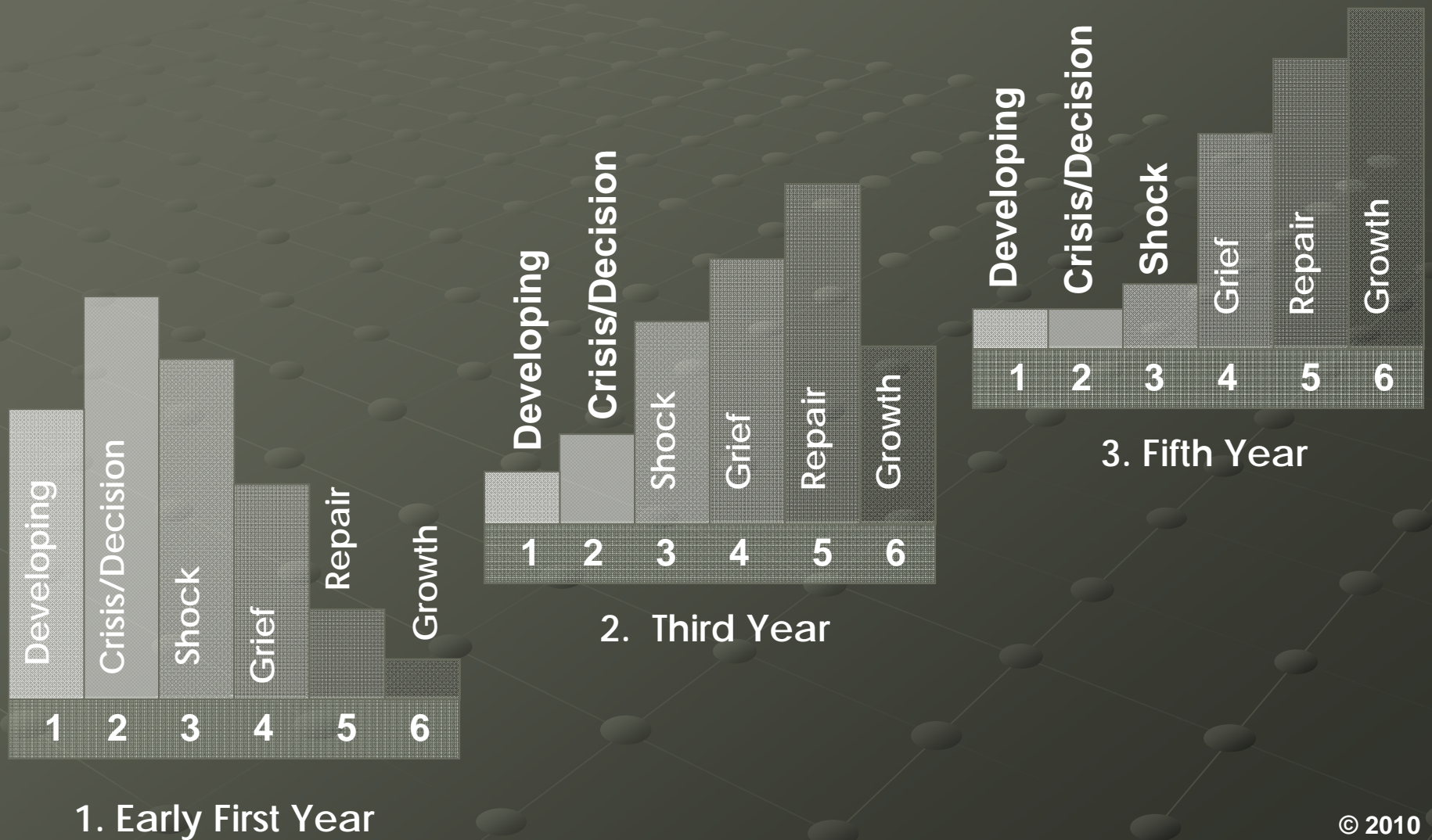
Sub-Stages of the Developing Stage

- Ambivalence
- Recognition
- Despair

The Course of Recovery Over Time



Stage Mix in Recovery



Using the Tasks

- Individual Therapy
- Group Therapy
- Twelve Step Meeting
- Sponsor
- Steps One through Nine
- Family Participation
- Family Recovery
- Couples Recovery
- Exercise/Nutrition

Hypersexual Disorder

A. Over a period of at least six months, recurrent and intense sexual fantasies, sexual urges, and sexual behavior in association with four or more of the following five criteria:

- (1) Excessive time is consumed by sexual fantasies and urges, and by planning for and engaging in sexual behavior. [15]
- (2) Repetitively engaging in these sexual fantasies, urges, and behavior in response to dysphoric mood states (e.g., anxiety, depression, boredom, irritability). [16]
- (3) Repetitively engaging in sexual fantasies, urges, and behavior in response to stressful life events. [17]
- (4) Repetitive but unsuccessful efforts to control or significantly reduce these sexual fantasies, urges, and behavior. [18]
- (5) Repetitively engaging in sexual behavior while disregarding the risk for physical or emotional harm to self or others. [19]

B. There is clinically significant personal distress or impairment in social, occupational or other important areas of functioning associated with the frequency and intensity of these sexual fantasies, urges, and behavior. [20]

C. These sexual fantasies, urges, and behavior are not due to direct physiological effects of exogenous substances (e.g., drugs of abuse or medications) or to Manic Episodes. [21]

D. The person is at least 18 years of age.

Specify if: Masturbation, Pornography, Sexual Behavior With Consenting Adults, Cybersex, Telephone Sex, Strip Clubs, Other:

Specify if:

In Remission (During the Past Six Months, No Signs or Symptoms of the Disorder Were Present)

In a Controlled Environment

(Kafka, MP Arch Sex Behav (2010) 39:377-400) (Kafka, M P, Jour Sex and Marital Therapy, 36:276-281, 2010) Sexual and Gender Identity Disorders Working Group for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM V)

Disordered Gambling

A. Persistent and recurrent maladaptive gambling behavior as indicated by five (or more) of the following:

1. is preoccupied with gambling (e.g., preoccupied with reliving past gambling experiences, handicapping or planning the next venture, or thinking of ways to get money with which to gamble
2. needs to gamble with increasing amounts of money in order to achieve the desired excitement
3. has repeated unsuccessful efforts to control, cut back, or stop gambling
4. is restless or irritable when attempting to cut down or stop gambling
5. gambles as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)
6. after losing money gambling, often returns another day to get even ("chasing" one's losses)
7. lies to family members, therapist, or others to conceal the extent of involvement with gambling
8. has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling
9. relies on other to provide money to relieve a desperate financial situation caused by gambling

Internet addiction appears to be a common disorder that merits inclusion in DSM-V. Conceptually, the diagnosis is a compulsive-impulsive spectrum disorder that involves online and/or offline computer usage and consists of at least three subtypes: excessive gaming, sexual preoccupations, and e-mail/text messaging.

All of the variants share the following four components:

- 1) *excessive use*, often associated with a loss of sense of time or a neglect of basic drives,
- 2) *withdrawal*, including feelings of anger, tension, and/or depression when the computer is inaccessible,
- 3) *tolerance*, including the need for better computer equipment, more software, or more hours of use, and
- 4) *negative repercussions*, including arguments, lying, poor achievement, social isolation, and fatigue

Editorial, Am J Psychiatry 165:306-307, March 2008

doi: 10.1176/appi.ajp.2007.07101556

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The Substance-Related Disorders Work Group... has proposed to tentatively re-title the category, Addiction and Related Disorders. The work group had extensive discussions on the use of the word "addiction." There was general agreement that "dependence" as a label for compulsive, out-of-control drug use has been problematic. It has been confusing to physicians and has resulted in patients with normal tolerance and withdrawal being labeled as "addicts." This has also resulted in patients suffering from severe pain having adequate doses of opioids withheld because of fear of producing "addiction." Accordingly, the word "dependence" is now limited to physiological dependence, which is a normal response to repeated doses of many medications including beta-blockers, antidepressants, opioids, anti-anxiety agents and other drugs. The presence of tolerance and withdrawal symptoms are not counted as symptoms to be counted for the diagnosis of substance use disorder when occurring in the context of appropriate medical treatment with prescribed medications. Finally, the work group is addressing the disorder **pathological gambling**, which is currently listed under the diagnostic category Impulse-Control Disorders Not Elsewhere Classified. (APA WEB SITE)

Kenneth Paul Rosenberg, MD

Neurobiology Review:

1. Dopamine (from the ventral tegmental area to the nucleus accumbens) is critical for acute reward and initiation of addiction; end-stage addiction results primarily from cellular adaptations in anterior cingulate and orbitofrontal glutamatergic projections to the nucleus accumbens. by decreasing the value of natural rewards, diminishing cognitive control (choice) and enhancing glutamatergic drive in response to drug-associated stimuli. (Kaliva PW, Volkow ND The Neural Basis of Addiction: A Pathology of Motivation and Choice, Am J Psychiatry 2005; 162:1403-1413)

Kenneth Paul Rosenberg, MD
Neurobiology Review:

2. There are substantial similarities between the behavioral addiction of pathological gambling and substances of abuse disorders. In chromosomal linkage studies, a reward deficiency model of lower normal activation of this area: the D2A1 allele of the D2 dopamine receptor gene (DRD2) has been implicated in pathological gambling. Naltrexone and longer acting Nalmefene (with less liver toxicity) indirectly affect the mesolimbic dopamine system, helping both alcohol addiction and pathological gambling. (Potenza, M N, Should addictive disorders include non-substance related conditions? APA Journal compilation, 2006 Society of the Study of Addiction, Addiction 101,(Suppl 1) 142-151)

Kenneth Paul Rosenberg, MD
Neurobiology Review:

3. PKM Zeta is a molecule that is sufficient and necessary for the consolidation of memories – a process known as long-term potentiation (or LTP.) (Sacktor, et al, 2007). PKMzeta activity in the accumbens core is a critical cellular substrate for the maintenance of memories of reward cues. Interfering with this memory molecule causes rats to forget long-term addiction-related cues. Environmental cues previously paired with morphine, cocaine or high-fat food (but not opiate withdrawal symptoms) were abolished by inhibition of the protein kinase C isoform, protein kinase M zeta (PKMzeta), in the nucleus accumbens core of rats. (Li, Inhibition of PKMzeta in nucleus accumbens core abolishes long-term drug reward memory. In submission.)

Kenneth Paul Rosenberg, MD

Neurobiology Review:

4, SPECT and f-MRI scans of human subjects during sexual excitement suggest that similar structures are involved in sex and addiction.

- 1. Giorgiadis found blood flow in the prefrontal cortex, and especially the orbitofrontal cortex, relates to the degree of sexual control. During orgasm, Giorgiadis found that the frontal lobe blood flow is decreased, aiding in the person experiencing a loss of control during orgasm. Numerous studies demonstrated that lesions of the lateral orbitofrontal cortex cause impulsive tendencies, including hypersexuality. Orbitofrontal cortex is also the key area cited by Volkow as critical in modulating craving and decision-making in chemical addiction.**
- 2. Sexual dimorphism -- differences between male and female brains-- may account for differences in sexual compulsivity. Giorgiadis found men are more responsive than women to sexually explicit material in the activation of the lower brain systems, namely the amygdala and possibly hypothalamus. During arousal, women show more activation of the left frontoparietal regions, areas involved in mental representations, empathy and perspective. This suggests that males are more reactive to sexually arousing material, while women respond more thoughtfully. There is also less concordance between subjective arousal and the objective signs of arousal in females such as lubrication and engorgement (Brody S. Intercourse orgasm consistency, concordance of women's genital and subjective sexual arousal, and erotic stimulus presentation sequence. *J Sex Marital Ther* 2007;33: 31-9 Brody S, Laan E, van Lunsen RH. Concordance between women's physiological and subjective sexual arousal is associated with consistency of orgasm during intercourse but not other sexual behavior. *J Sex Marital Ther* 2003;29:15-23)**

Gender similarities are greater than the differences. Once sex proceeds beyond arousal, to the point of orgasm, the female brain reacts similarly to the male. In fact, Gizewski found increased brain activation in females during midluteal phase.

Kenneth Paul Rosenberg, MD
Neurobiology Review:

5. Computational theory supports the potential for behavioral addictions. Redish's computational model accounts for vulnerabilities in the planning or habit systems of the brain, with vulnerabilities such as the need to maintain constant set points (homeostasis) and constant specific levels of critical biological parameters (allostasis), as well as vulnerabilities in assessment and searching functions of the brains which can be linked to those anatomical centers which receive dopaminergic input from the ventral tegmental areas and input from the opioid systems. (Redish, AD, Jensen S, Johnson A, A unified framework for addiction: Vulnerabilities in the decision process Behavioral and Brain Sciences, 2008 31 415-487)

6. In Mihaly Csikszentmihalyi's 1990 book Flow: The Psychology of Optimal Experience, he writes that the addict becomes a captive of a certain order. Carnes notes that addiction is a phantom optimal experience and a perversion of flow. The ultimate Attention Deficit Disorder.

7. Carne's clinically-based Addiction Interaction Disorder allows for multiple addictive behaviors to exist as part of a single illness. Carnes writes, "What it means is that addictions do more than co-exist. They in fact, interact, reinforce and become part of one another. They, in effect, become packages. These packages can be unbundled and each addiction approached separately, which is the current level of practice. Yet equally important is that they can be approached as a whole." (Bargains with Chaos: Sex Addicts and Addiction Interaction Disorder. Carnes, PJ, Murray, R E, Charpentier, L)

Kenneth Paul Rosenberg, MD
Neurobiology Review:

8. Further evidence for Addiction Interaction Disorder:
 1. 69% of men, 79% of women and 80% of gay men with sex addiction fit the diagnostic criteria for other addictions,
 2. Chemical addictions are incorporated into sex addiction behaviors. 40% of heterosexual men, 40% of heterosexual women, and 60% of homosexual men engage in sexual acting out while simultaneously involved in other addictions.
 3. Sex addiction co-occurs with sexual disorders such as sexual aversion or sexual anorexia. Sexually addicted men were found to have higher anxiety $F(1, 38) = 6.122, p < .05$ and avoidance $F(1, 37) = 4.685, p < .05$ in their romantic relationships.
 4. Among 225 male and female outpatients who met American Psychiatric Association criteria for pathological gambling, Grant and Steinberg found that 19.6% also met criteria for compulsive sexual behavior. Among the subjects with both conditions, 70.5 % developed compulsive sexual behavior first. There was no association with chemical addiction. (Grant, JE Steinberg MA, Sexual behavior and gambling, Sexual Addiction and Compulsivity 12:235-244, 2005.)

Kenneth Paul Rosenberg, MD
Clinical Associate Professor, Psychiatry
Cornell Medical College/ New York Presbyterian Hospital

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- 2) *withdrawal*, including feelings of anger, tension, and/or depression when the computer is inaccessible,
- 3) *tolerance*, including the need for better computer equipment, more software, or more hours of use, and
- 4) *negative repercussions*, including arguments, lying, poor achievement, social isolation, and fatigue

Editorial, Am J Psychiatry 165:306-307, March 2008

doi: 10.1176/appi.ajp.2007.07101556

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The Substance-Related Disorders Work Group... has proposed to tentatively re-title the category, Addiction and Related Disorders. The work group had extensive discussions on the use of the word "addiction." There was general agreement that "dependence" as a label for compulsive, out-of-control drug use has been problematic. It has been confusing to physicians and has resulted in patients with normal tolerance and withdrawal being labeled as "addicts." This has also resulted in patients suffering from severe pain having adequate doses of opioids withheld because of fear of producing "addiction." Accordingly, the word "dependence" is now limited to physiological dependence, which is a normal response to repeated doses of many medications including beta-blockers, antidepressants, opioids, anti-anxiety agents and other drugs. The presence of tolerance and withdrawal symptoms are not counted as symptoms to be counted for the diagnosis of substance use disorder when occurring in the context of appropriate medical treatment with prescribed medications. Finally, the work group is addressing the disorder **pathological gambling**, which is currently listed under the diagnostic category Impulse-Control Disorders Not Elsewhere Classified. (APA WEB SITE)

Kenneth Paul Rosenberg, MD

Neurobiology Review:

1. Dopamine (from the ventral tegmental area to the nucleus accumbens) is critical for acute reward and initiation of addiction; end-stage addiction results primarily from cellular adaptations in anterior cingulate and orbitofrontal glutamatergic projections to the nucleus accumbens. by decreasing the value of natural rewards, diminishing cognitive control (choice) and enhancing glutamatergic drive in response to drug-associated stimuli. (Kaliva PW, Volkow ND The Neural Basis of Addiction: A Pathology of Motivation and Choice, Am J Psychiatry 2005; 162:1403-1413)

Kenneth Paul Rosenberg, MD

Neurobiology Review:

2. There are substantial similarities between the behavioral addiction of pathological gambling and substances of abuse disorders. In chromosomal linkage studies, a reward deficiency model of lower normal activation of this area: the D2A1 allele of the D2 dopamine receptor gene (DRD2) has been implicated in pathological gambling. Naltrexone and longer acting Nalmefene (with less liver toxicity) indirectly affect the mesolimbic dopamine system, helping both alcohol addiction and pathological gambling. (Potenza, M N, Should addictive disorders include non-substance related conditions? APA Journal compilation, 2006 Society of the Study of Addiction, Addiction 101,(Suppl 1) 142-151)

3. PKM Zeta is a molecule that is sufficient and necessary for the consolidation of memories – a process known as long-term potentiation (or LTP.) (Sacktor, et al, 2007). PKMzeta activity in the accumbens core is a critical cellular substrate for the maintenance of memories of reward cues. Interfering with this memory molecule causes rats to forget long-term addiction-related cues. Environmental cues previously paired with morphine, cocaine or high-fat food (but not opiate withdrawal symptoms) were abolished by inhibition of the protein kinase C isoform, protein kinase M zeta (PKMzeta), in the nucleus accumbens core of rats. (Li, Inhibition of PKMzeta in nucleus accumbens core abolishes long-term drug reward memory. In submission.)

4. SPECT and f-MRI scans of human subjects during sexual excitement suggest that similar structures are involved in sex and addiction.

- 1. Giordis found blood flow in the prefrontal cortex, and especially the orbitofrontal cortex, relates to the degree of sexual control. During orgasm, Giordis found that the frontal lobe blood flow is decreased, aiding in the person experiencing a loss of control during orgasm. Numerous studies demonstrated that lesions of the lateral orbitofrontal cortex cause impulsive tendencies, including hypersexuality. Orbitofrontal cortex is also the key area cited by Volkow as critical in modulating craving and decision-making in chemical addiction.**
- 2. Sexual dimorphism -- differences between male and female brains-- may account for differences in sexual compulsivity. Giordis found men are more responsive than women to sexually explicit material in the activation of the lower brain systems, namely the amygdala and possibly hypothalamus. During arousal, women show more activation of the left frontoparietal regions, areas involved in mental representations, empathy and perspective. This suggests that males are more reactive to sexually arousing material, while women respond more thoughtfully. There is also less concordance between subjective arousal and the objective signs of arousal in females such as lubrication and engorgement.**
- 3. Gender similarities are greater than the differences. Once sex proceeds beyond arousal, to the point of orgasm, the female brain reacts similarly to the male. In fact, Gizewski found increased brain activation in females during midluteal phase.**

Kenneth Paul Rosenberg, MD

Neurobiology Review:

5. Computational theory supports the potential for behavioral addictions. Redish's computational model accounts for vulnerabilities in the planning or habit systems of the brain, with vulnerabilities such as the need to maintain constant set points (homeostasis) and constant specific levels of critical biological parameters (allostasis), as well as vulnerabilities in assessment and searching functions of the brains which can be linked to those anatomical centers which receive dopaminergic input from the ventral tegmental areas and input from the opioid systems. (Redish, AD, Jensen S, Johnson A, A unified framework for addiction: Vulnerabilities in the decision process Behavioral and Brain Sciences, 2008 31 415-487)

6. In Mihaly Csikszentmihalyi's 1990 book Flow: The Psychology of Optimal Experience, he writes that the addict becomes a captive of a certain order. Carnes notes that addiction is a phantom optimal experience and a perversion of flow. The ultimate Attention Deficit Disorder.

7. Carnes's clinically-based Addiction Interaction Disorder allows for multiple addictive behaviors to exist as part of a single illness. Carnes writes, "What it means is that addictions do more than co-exist. They in fact, interact, reinforce and become part of one another. They, in effect, become packages. These packages can be unbundled and each addiction approached separately, which is the current level of practice. Yet equally important is that they can be approached as a whole." (Bargains with Chaos: Sex Addicts and Addiction Interaction Disorder. Carnes, PJ, Murray, R E, Charpentier, L)

8. Further evidence for Addiction Interaction Disorder:

1. 69% of men, 79% of women and 80% of gay men with sex addiction fit the diagnostic criteria for other addictions,
2. Chemical addictions are incorporated into sex addiction behaviors. 40% of heterosexual men, 40% of heterosexual women, and 60% of homosexual men engage in sexual acting out while simultaneously involved in other addictions.
3. Sex addiction co-occurs with sexual disorders such as sexual aversion or sexual anorexia. Sexually addicted men were found to have higher anxiety $F(1, 38) = 6.122, p < .05$ and avoidance $F(1, 37) = 4.685, p < .05$ in their romantic relationships.
4. Among 225 male and female outpatients who met American Psychiatric Association criteria for pathological gambling, Grant and Steinberg found that 19.6% also met criteria for compulsive sexual behavior. Among the subjects with both conditions, 70.5 % developed compulsive sexual behavior first. There was no association with chemical addiction. (Grant, JE Steinberg MA, Sexual behavior and gambling, Sexual Addiction and Compulsivity 12:235-244, 2005.)

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REFERENCES

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SELF-ASSESSMENT

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Exam for Sexual Addiction Dx & Tx

1. The family systems of the sexual addiction are usually _____ and _____.
 - a) Disengaged & Chaotic
 - b) Rigid & Disengaged
 - c) Separated & Flexible
 - d) Structured & Enmeshed

2. Which of the following is not part of the stages of recovery?
 - a) The developing stage
 - b) The crisis/decision stage
 - c) The repartitioning stage
 - d) The shock stage and the grief stage
 - e) The repair stage and the growth stage

3. In the task-centered approach, there are a total of _____ areas of competency that make for successful recovery.
 - a) 10
 - b) 20
 - c) 30
 - d) 40

4. The addictive system includes:
 - a) The belief system of the addict
 - b) Impaired thinking
 - c) The addictive cycle and unmanageability
 - d) All of the above

5. In the original long-term study published in *Don't Call It Love* _____% of addicts reported that they had been sexually abused.
 - a) 50
 - b) 60
 - c) 72
 - d) 81

6. Please list the three diagnostic criteria of sexual addiction.
 - 1) _____

2) _____

3) _____

7. Please list the three "types" of sexual behavior often found in sexual addiction.

1) _____

2) _____

3) _____

8. Please list the two assessments instruments that can aid with the diagnosis of sexual addiction.

1) _____

2) _____

9. DSM V is likely to include the following diagnoses

- a) Behavioral Addictions
- b) Pathological Gambling
- c) Hypersexual Disorder
- d) All of the above

10. Neurobiological theories that may account for addiction include the following:

- a) Nucleus Accumbens
- b) Orbitofrontal Cortex
- c) PKM Zeta
- d) All of the above