

# **Computer Gaming Addiction in Adolescents and Young Adults, Solutions for Moderating and Motivating for Success**

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# **Computer Gaming Addiction in Adolescents and Young Adults, Solutions for Moderating and Motivating for Success**

- Background of the problem
- Theories of Addiction – Recent Science NIDA
- Theory of Gaming Addiction
- Assessment and Treatment methods
- Case Studies
- Questions

# Computers and Interactive Technology



1984 - Personal Computers for business and hobby use



2006 - Too Wired?

# It's a "Dangerous" World

- Media attention to MySpace and Pedophiles
  - News reports of abductions, murders linked to MySpace
  - Stepped up Law Enforcement Entrapment
    - "To Catch a Predator...n"  
Dateline NBC - Perverted-Justice.com
- Larger, Widespread Problem - Excessive Computer Use
  - Lowered Academic/Occupational Performance
  - Excess Gaming - Social Isolation, Anxiety, Depression
  - Online socialization: exposure to deviant peers (MySpace)
  - Health problems
    - Repetitive Stress Injury, obesity, vision problems, sleep
  - Family Conflict

# Symptoms of Problematic Computer Gaming

- Does not believe there is a problem (parents have problem)
- Lies about use - (claims only 20-30 hours, actual 40+)
- Stays up late, sneaks game play in the middle of the night
- Has trouble getting up in the morning to go to school
- Has become isolated, withdrawn from this real world friends
- Constant arguments, violence (parents, siblings) regarding use
- Repetitive stress injuries due to excess use
- Game play has increased steadily over the past year
- Spends time on-line in researching game related items
- Admits playing helps improve mood, often irritable otherwise
- Thinks about playing everyday, plays daily
- Previously an honor student, now failing classes
- Parents failed attempts to limit use, removal of computer

# MMORPG: Addiction Risk

Massively Multi-player On-line Role Playing Game

- Everquest (“Evercrack”) - adults
- World of Warcraft (“Warcrack”)
- Second Life, Maple Story



# Common Patterns Observed

- Increasing game play, starts with a few hours, evolves to most if not all available free time (>25 hours/week)
  - Baby sitter, low cost entertainment
  - “At least he is not going out and getting into trouble”
- Increasing social and guild involvement and responsibility to guild members - > play, > rewards (loot)
  - Raids, increasing participation points
- Weekend play binges - 12hrs+ / day
- Decreasing real life social involvement
  - Play commitments often 7 days a week
- Increasing effort made to manage lifestyle
  - Do minimum in school, sports, work, etc.
  - Work around WOW or other parental controls

# Make Love, not Warcraft



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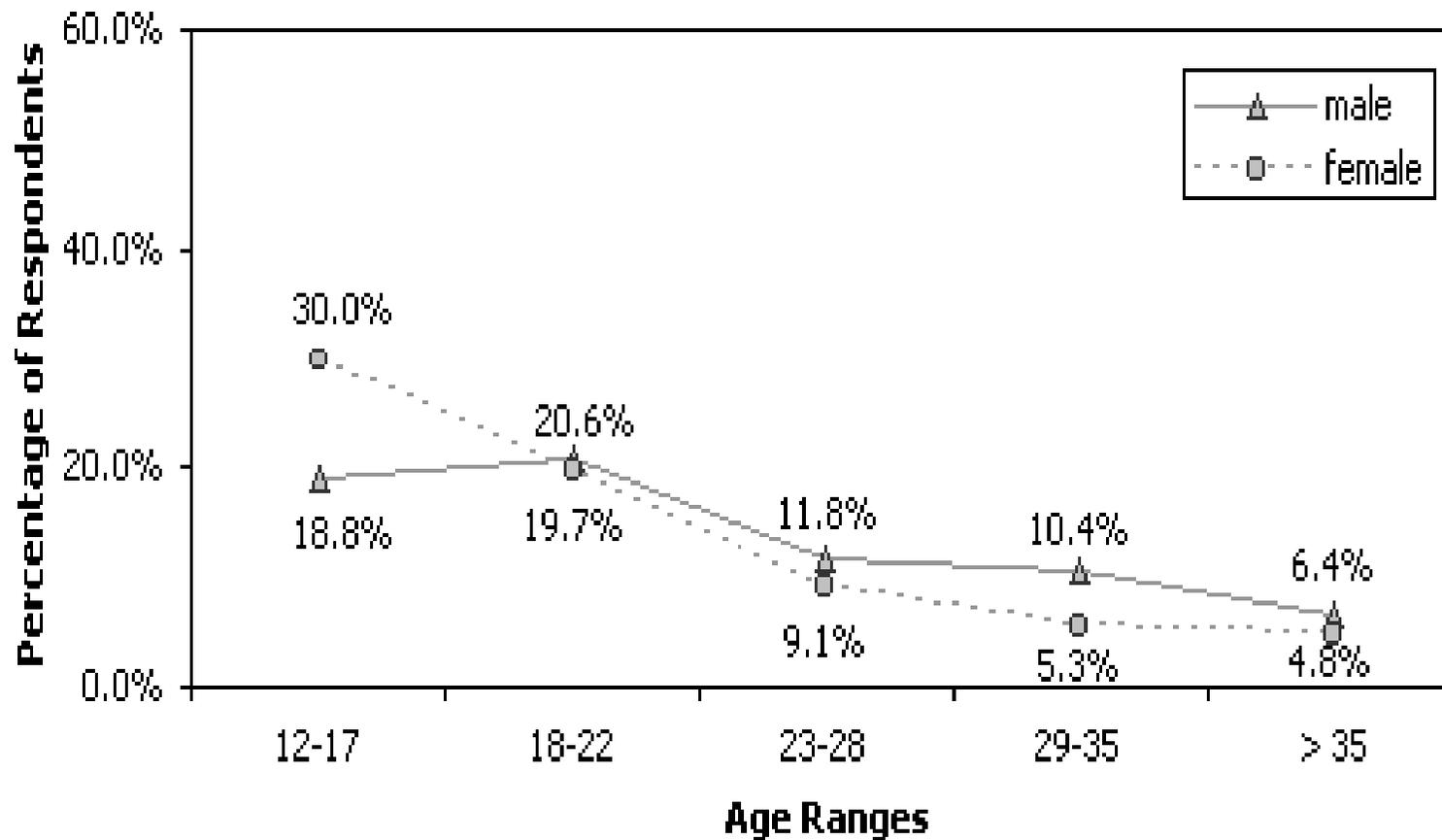
# How Big of a Problem?

- >12 Million subscribers to World of Warcraft alone
- Many new games emerging, some targeting younger children
- MMORPG Survey (Yee, 2002) Everquest (Sony)
  - Players report playing 23 hours per week on average.
  - 50% of players self-report being “addicted”
  - 70% report having played 10+ hours straight
  - 18% report playing on-line caused them financial, health, relational or work problems
  - Younger the player, greater self-report of addiction
  - Respondents 88% male, 12% female
- On-line limits imposed by government of China

# MMORPG Research 2002

I have tried to quit the game but was unsuccessful.

N male = 2760, N female = 406



Yee, 2002

# **Iowa State University (2009)**

## **National Institute of Media and the Family**

### **Survey of Video Game Play**

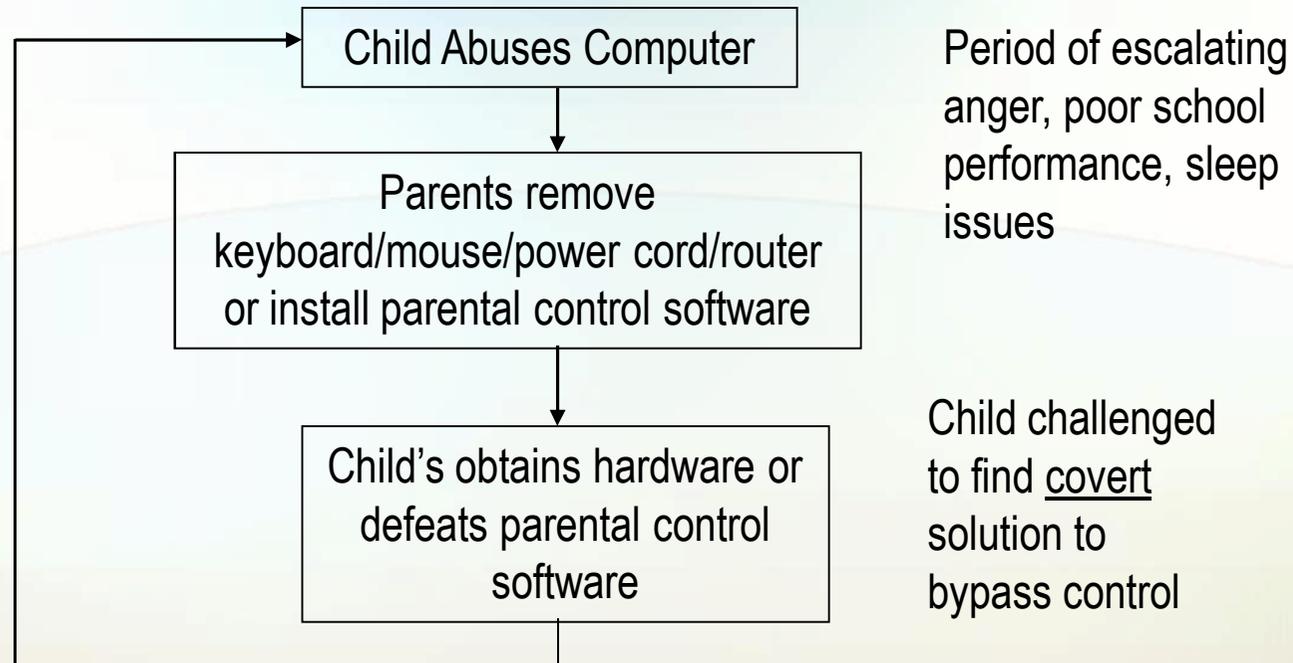
- Nationwide Harris Poll Online survey
- Sample of 1178 youth 8-18 years of age
- 11 Questions Similar to Criteria for Pathological Gambling:
  - Negative Consequences of Play
  - Avoiding important academic, occupational or social responsibilities
  - Problematic behaviors as a result of play
- 8.5% of respondents met 6 or more criteria
- Pathological use correlated to 25 hours/week of play

# Is this a Parenting Problem? Yes and No

- Poor parenting not direct cause. Can affect adults!
- Technological Divide makes parents vulnerable
  - “I know he spends too much time gaming but he is a computer genius - it will help his future career.”
- Relatives, friends have lots of advice - they tell parents: “Just take away the computer!” , Why can’t you control your kid? , Just tell him to knock it off!
  - Shame prevents parents from seeking professional help
- Parents have no experience in dealing with an addicted (previously compliant) child: lies, denial, sneaking around
- Rationalization - “At least he is not using drugs”
- Professional advice can be conflicting and confusing

# Attempts at Controlling Excesses

Repeated  
cycles  
damage  
relationship

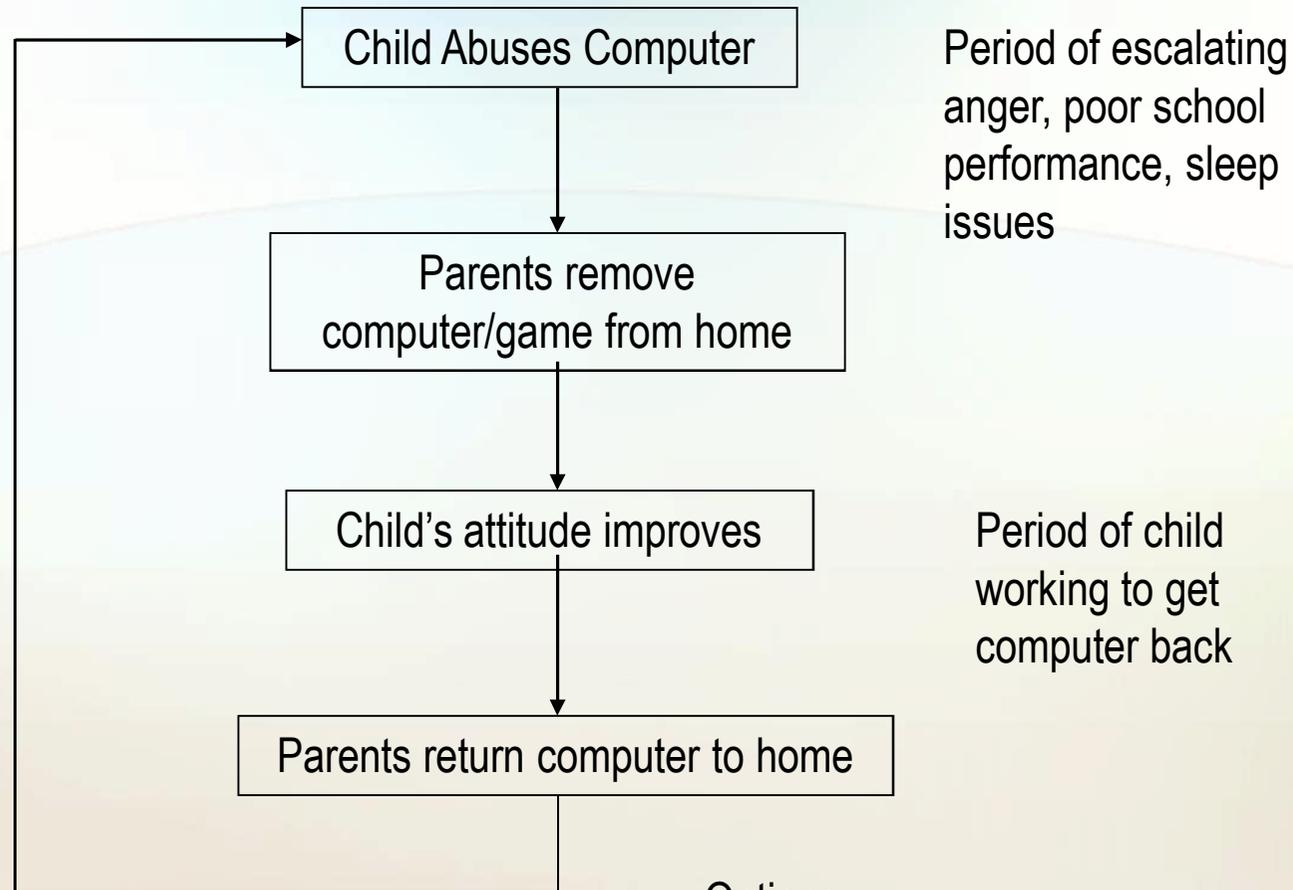


Options:

1. Parents give up
2. Remove computer from home
3. Seek professional tx

# Abstinence / Relapse Cycle

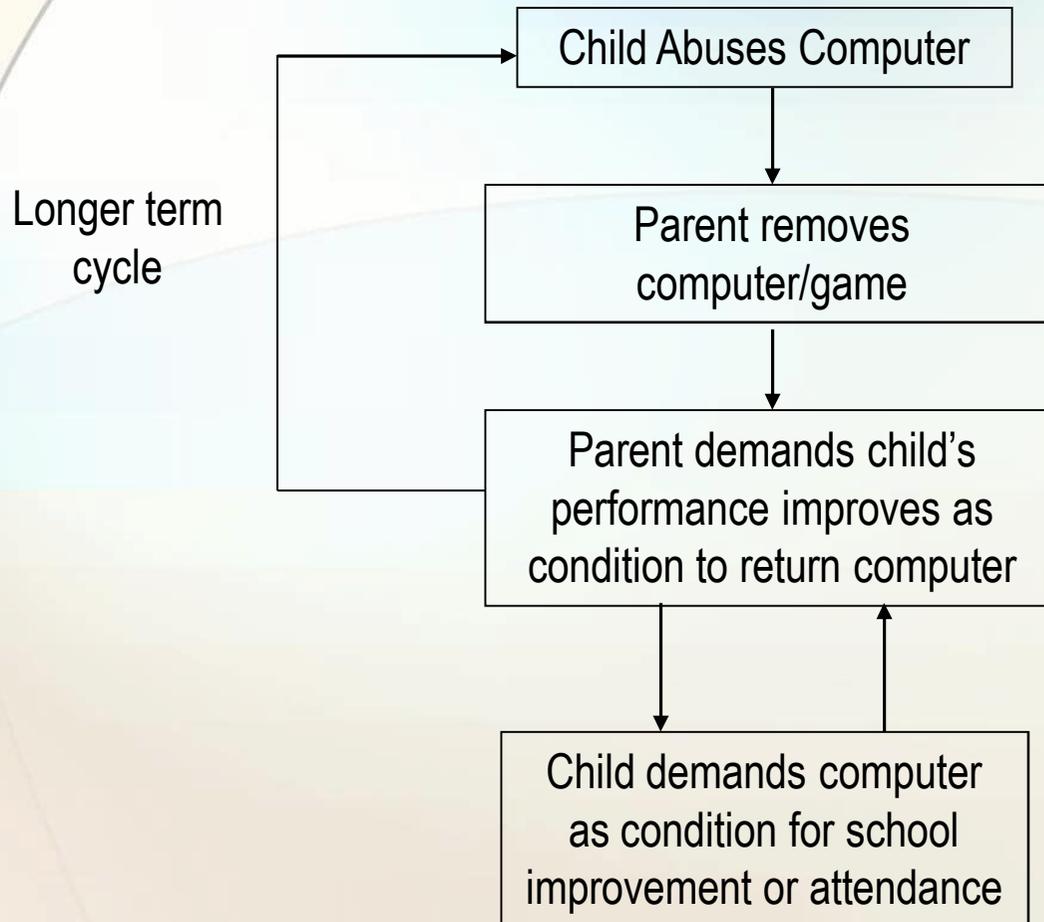
Repeated  
cycles  
damage  
relationship



Options:

1. Give up
2. Remove computer longer term
3. Seek professional tx

# Parent-Adolescent Power Struggle



Period of escalating anger, poor school performance, sleep issues. Parents finally have had enough! Sometimes this is encouraged by mental health professionals.

Period of parents and child locked in power struggle

Options:

1. Give up
2. Seek (new) professional tx
3. Send child to RTC

# PC Moderator



- External Hardware device - locks on desktop computers
- 18 gauge stainless steel case with hardened steel padlock
- Cannot be removed even by opening computer case
- VGA or DVI models available
- No technical computer knowledge required
- Setup can be done prior to installation
- Works with any operating system
- Cannot be hacked



# Theories of Addiction

- Moral Choice - Free Will
  - Poor character, low willpower, “sin”
- Genetic Basis
  - Addiction Gene and Addictive Personality
- Learned Behavior - Social Learning
  - Do what we observe, early childhood
- Disease Model - Mesolimbic
  - Reward system, dopamine hypothesis

# Addiction Theories and Treatment

Affect Regulation Theory

Harm Reduction Theory

Behavioral and Learning

Moderation Theory

Biological and Neurological Theories

Psychoanalytic Theories

Cognitive Behavioral Theories

Relapse Prevention

Dual Diagnosis Theory

Self Medication Theory

Eastern Theory

Sociological Theory

Existential Theory

Stages of Change Theory

Family Systems Theory

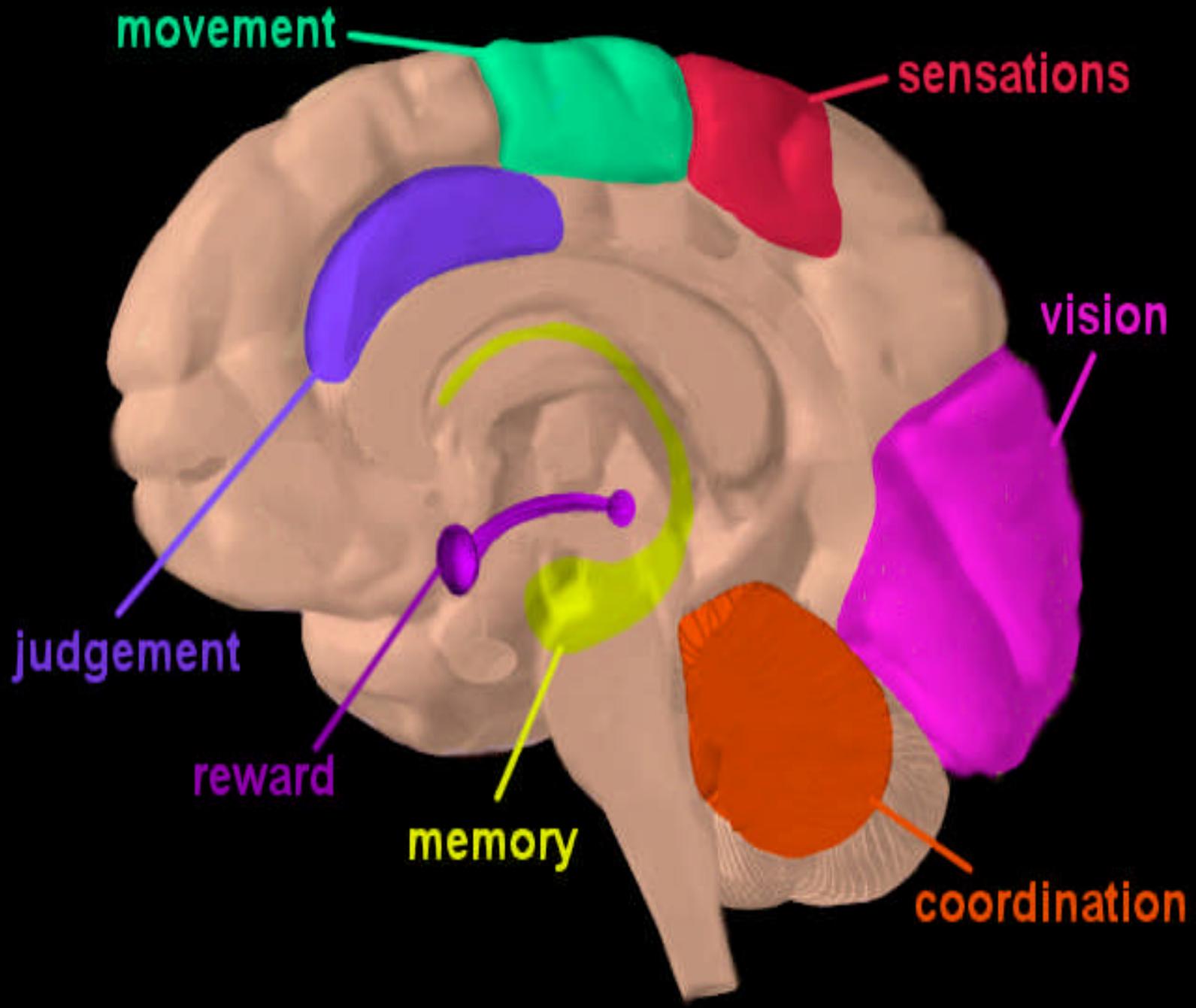
(Addictioninfo.com, 2007)

# Computer Addiction Treatment Methods

- Counseling/Psychotherapy (individual/family/parent)
  - Depression, anxiety / academic, career, life rewards
- Medication
  - Helps with diagnosed anxiety, depression, OCD, ICD
- Abstinence - take away the computer, game
  - Possible serious problems, encourages power struggles
- 12 step programs for computer addicts
  - Few programs available
- Residential Treatment / Wilderness Programs
  - Few specialized programs
- Controlled use (harm reduction)

# Understanding Drug Abuse and Addiction: What Science Says

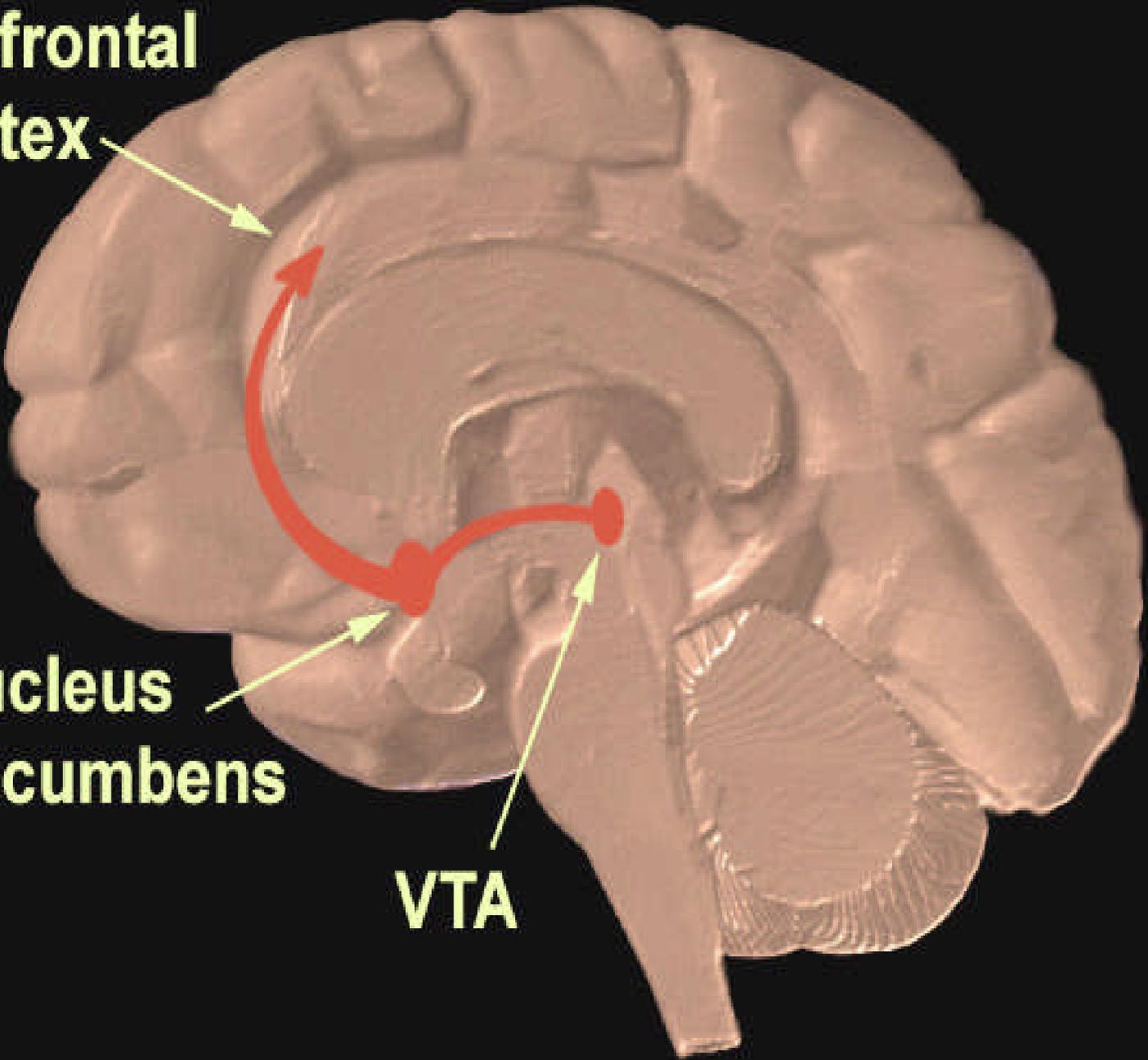
*Developed by the  
National Institute on Drug Abuse (NIDA)  
National Institutes of Health  
Bethesda, Maryland*

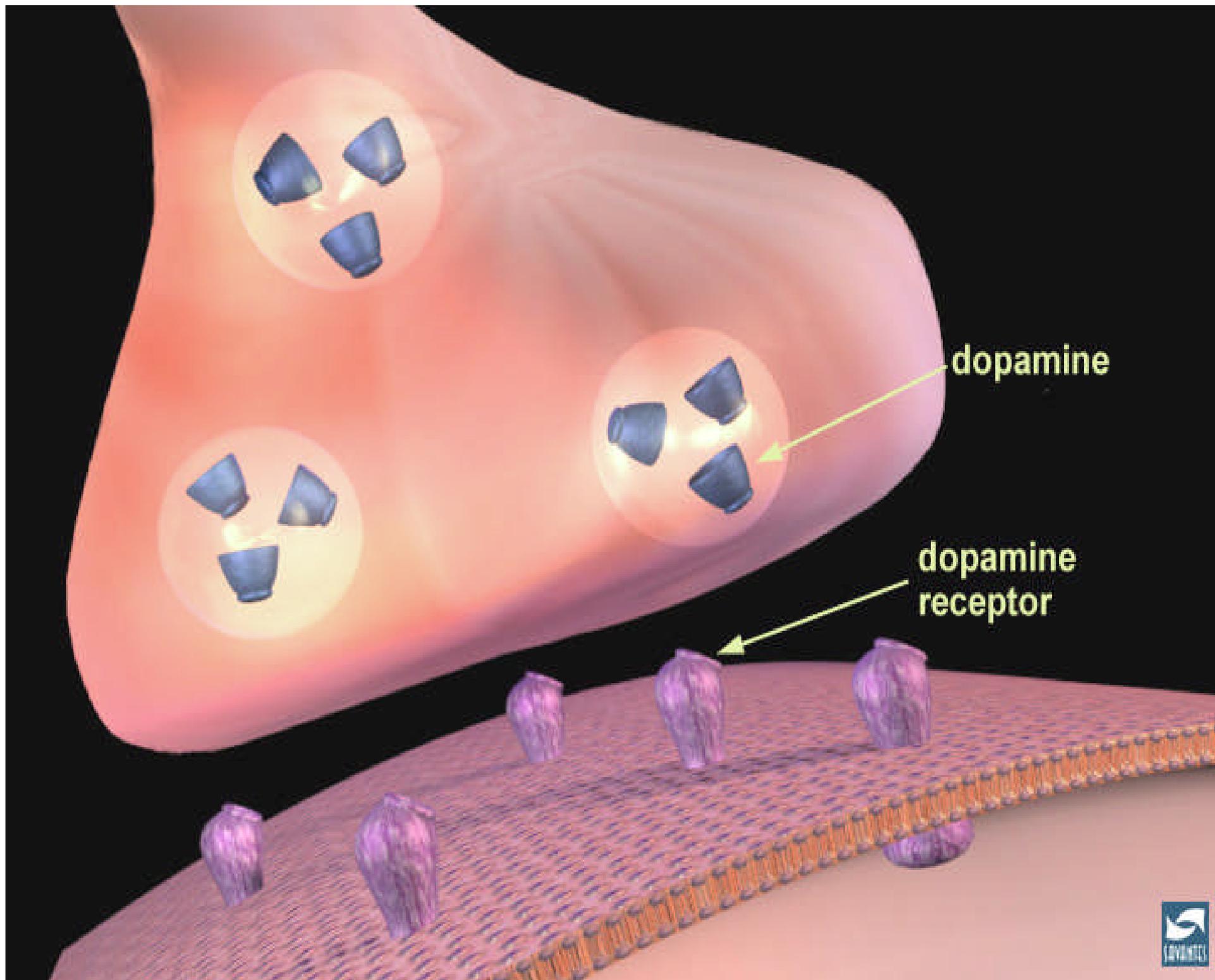


**prefrontal cortex**

**nucleus accumbens**

**VTA**

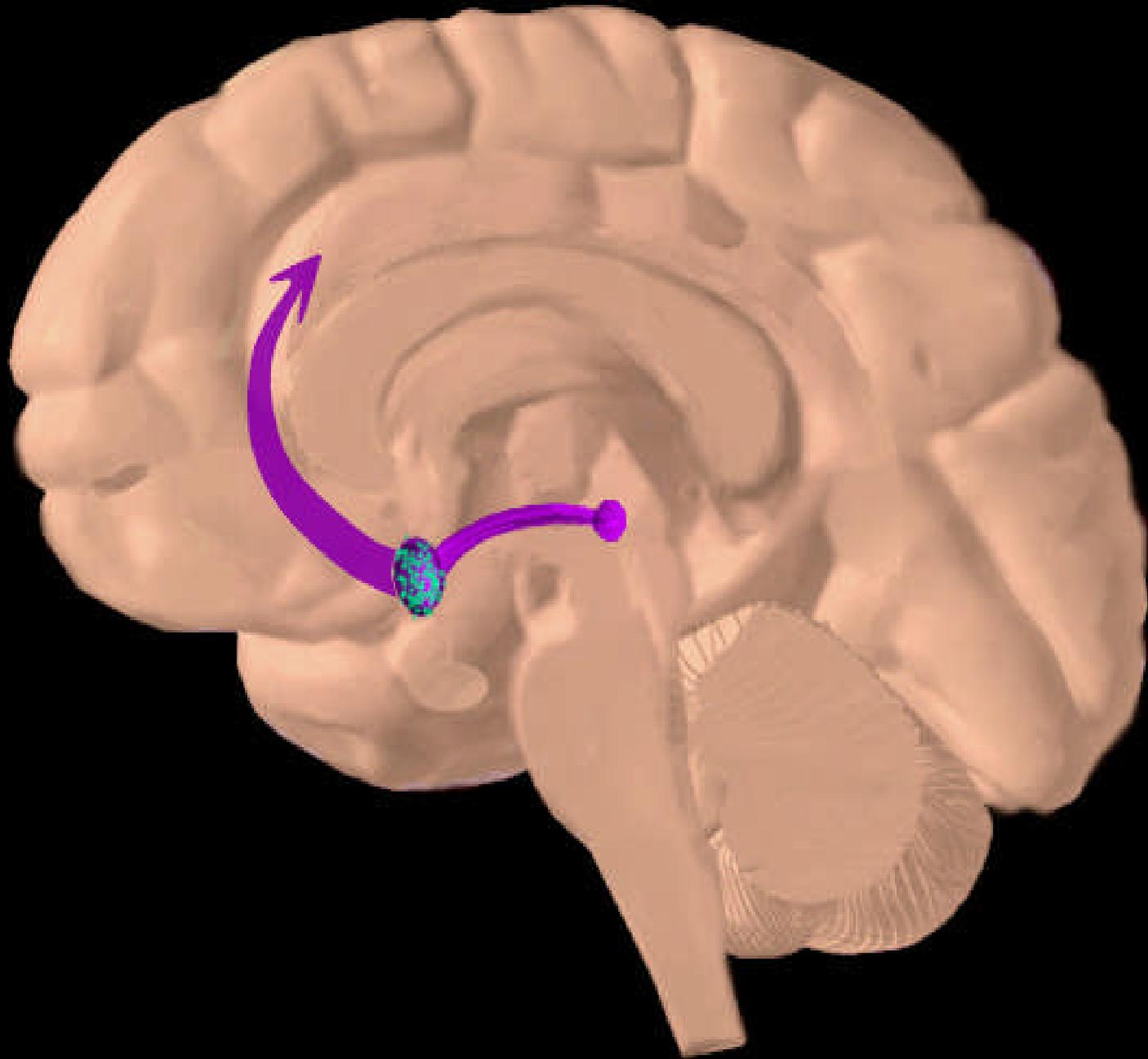


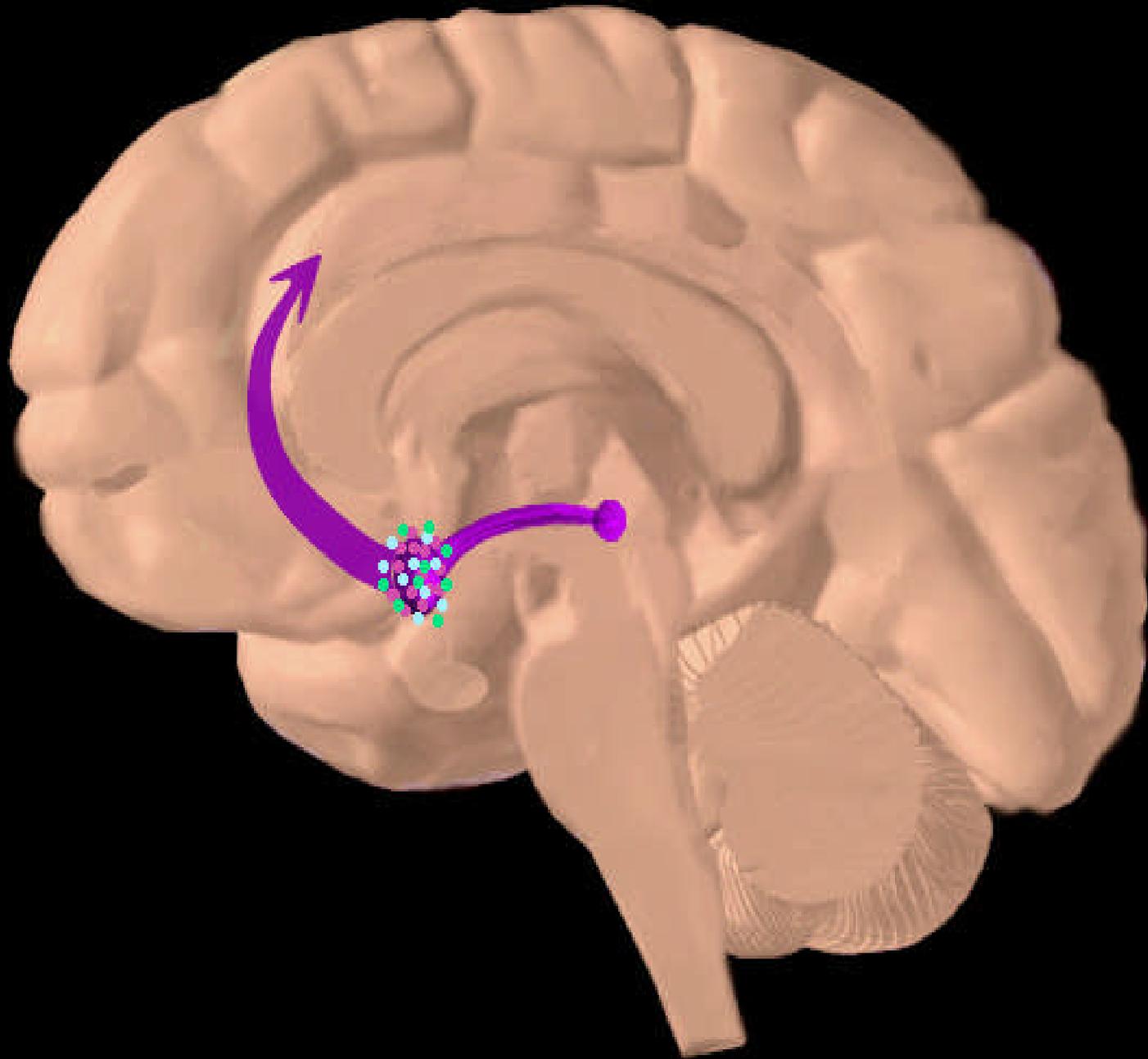


dopamine

dopamine  
receptor







# Natural Rewards

Food  
Water  
Sex  
Nurturing

# Behavioral Addictions

## Addictive Behaviors

Gambling  
Computer Gaming  
Eating/food  
Relationships  
Shopping  
Sexual

## Sum of Learning Reward Pathway



- >Dopamine burst:
  - >Novelty
  - >Excitement
  - >Pleasure
- >Reinforcement
  - >Meaning

## Life's Rewards

Academics  
Athletics  
Career  
Relationships  
Success  
Spirituality

# Gaming as Behavioral Addiction

- Experiencing rewards of game play causes significant activation of the reward pathway - PET scans observed
  - Importance or reward within the game, novelty of reward
- Games are designed to be addicting (“compelling”)
  - Behavioral psychology used - reinforcement schedules
  - Subscription model - no end to play
- Adolescents, young adults sensitive to reward system stimulus with significant brain development
  - Mastery, Success Identity, Autonomy
- More play time = greater rewards = greater reinforcement
- Large percentage of individuals self-report being addicted

# Theory of Computer Gaming Addiction:

- *An individual becomes addicted to computer gaming when, as a result of game play, sufficient rewards are applied in sufficient quantity through a sufficient schedule of reinforcement.*
  - This theory considers that a net combination of *individual differences* (genetics, developmental characteristics and life experiences), *competing/complementary* reward systems within the individual's environment and the *net effects of the game's reward system* determine who gets addicted and who does not.
  - Similar to other addictions, we can assume relationships between the risk of addiction and 1) amount of play (> play= > risk), 2) age of onset of play (< age of onset = > risk) and 3) game design qualities (> reward system, > risk)

# Science of Addiction Guides Treatment

- Addiction is a disease where the reward pathway is hijacked
  - Repeated application of a substance or rewarding behavior
  - Dopamine - level and speed of rise determines reward “learning”
  - Craving driven by mesolimbic (midbrain) “learning”
- Addiction treatment involves **NEW** learning in reward pathway  
.... *Not discontinuance*
  - New learning (connections) mediate and supplant old information.  
“Extinction” - **Abstinence does not cure addiction**
    - New medication treatments for substance abuse are “opiate blockers” reduce substance’s effect on the reward system (i.e. Naltrexone)
    - AA, NA - new meaning in life, higher power, helping others, accountability
- Gaming Addiction Treatment: **Reduce the Rewards of Game Play**
  - Drug to block natural rewards to cure behavioral addictions?

# Strategies for Treating Behavior Addiction

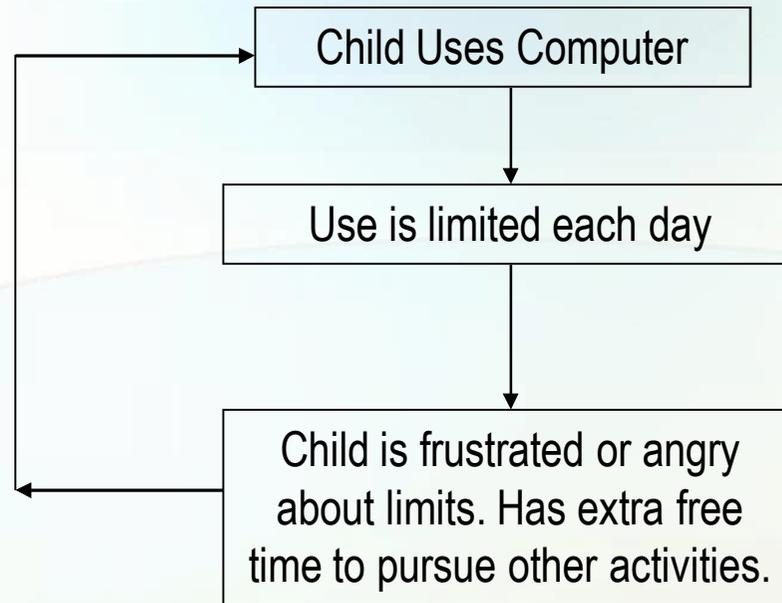
- **Based on the dopamine theory of addiction, four treatment strategies are proposed:**
  - • Reduce the rewards from the behavior
  - Reduce the *anticipated* rewards from the behavior **through repeating the behavior with reduced rewards (new learning).**
  - Reduce complementary reward systems (new learning)
  - Increase competing reward systems to displace the addiction (new learning).

# Implications for Treatment: Altering the Game's Reward System

- Cannot directly change the game's reward system, but indirectly we can change the rewards through the amount of game play:
  - Participation points - more you play, greater loot
    - Modest reduction dramatically reduces opportunity to gain rewards
    - Continued play with reduced rewards = new learning
  - Social rewards
    - Reduction in available computer time = significant reduction in available pre and post activity socializing and "pseudo-play"
- In China, they require altering game's rewards system (lose 1/2 points) after 3 hours of play if player is under 18
  - Players circumventing these controls

# Harm Reduction Treatment

Repeated daily cycles + real world rewards = addiction broken



Reduce amount of ALL computer time according to limits set by parents on a daily basis.

Child learns to tolerate feelings of frustration. Parents gain confidence and learn to tolerate their feelings.

- Indirectly change rewards through the amount of game play
- Simple, strong face validity regardless of diagnosis
- Rate of reduction based on individual assessment
- Reduce chance of serious abreaction, depression
- Individual, family psychotherapy, medication as needed

# Parental Limit Setting Struggle

- Inconsistent limits : Absent parenting, poor monitoring
- Family/marital issues - differences in parenting
- Parental mood disorder, ADHD, crisis
- Lack of computer knowledge and subject to manipulation
  - Lack of parental authority over the computer (Administrator)
- Anger over past struggles - residual feelings
- Overcoming strong negative feelings when maintaining limits
  - Unable to tolerate an upset, angry child / young adult
- Unreasonable expectations/faulty cognitions
  - “Child is old enough to monitor themselves!”
- Lack of treatment confidence

# Automated Parental Limit Setting: Computer Parental Controls

- Borrowed ego strength for parents
  - Deflects anger and frustration
- Surrogate parental supervision and monitoring
  - Convenient, consistent and reliable limits
- Less family, marital conflict
  - Agreed upon settings
  - Reduced child and parental anger and frustration
  - Promotes reasonable use and sharing of computer
- Use the computer as a reward for completing other responsibilities or activities

# Solutions to Limit Setting



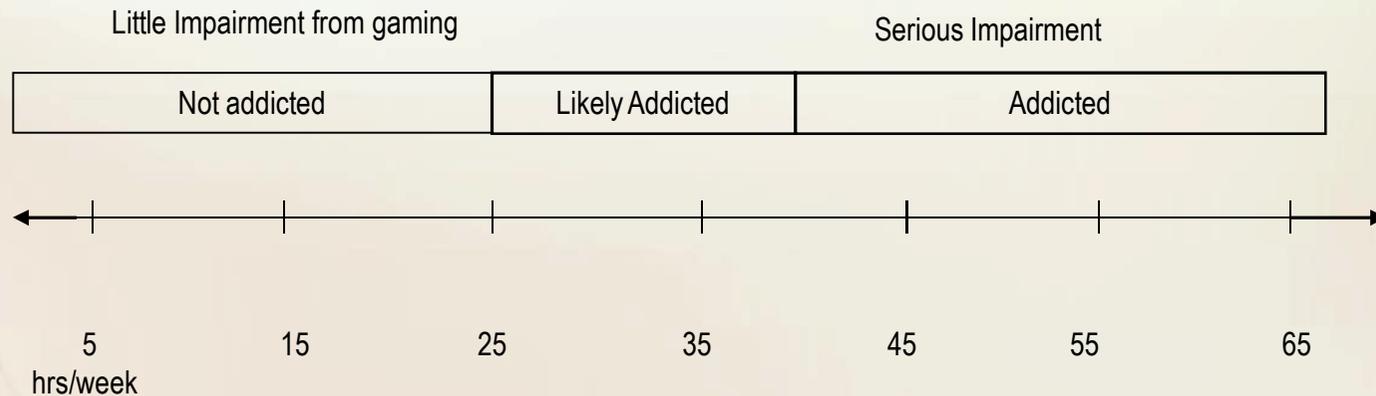
- Parental Controls for the Game or Application
  - Limits application time (World of Warcraft)
    - Limited to application (pseudo play risk)
    - Can be circumvented
  - XBOX 360. PS3 and other consoles
    - Limited parental control capability
- Internet Service Provider (ISP)
  - Usually limits only internet time/access
- Parental Control Software with Time Limit Features
  - Net Nanny, KidsWatch, PC Time Cop, Euff PC
  - Parents must be System Administrator, potential for hacking
- Windows Vista
  - Limits use in 1 hour blocks, System Administrator, hacking risk
- PC Moderator
  - Limited to PC Desktops, limited parental control features, most expensive solution
  - Requires hardware installation

# Treatment of Gaming Addiction

- **Engage client and/or parents/spouse in participation**
  - **Motivational interviewing**
    - Empathize with both parent and child / both spouses: neutral
    - Difficult, impossible with younger/less verbal clients
      - High denial, little ambivalence, few consequences
      - No desire to cut back or reduce play - “>play goal”
  - **Educate parents/client regarding addiction theory**
    - Looking at you as expert
    - Use of “addiction” diagnosis to guide treatment
  - **Explain possible courses of treatment**
    - Behavioral treatment
    - Family/marital therapy
    - Referral to other specialists including physician if necessary

# Gaming Addiction Assessment

- **Assess the problem**
  - Identify the negative impact on health, academic, occupational and social domains
  - Identify the impact on the family/couple
  - Assess for related issues
    - Depression, anxiety, system, developmental delays, other
  - Identify the amount and times of play AND pseudo-play



# Clinical Assessment: Continuous Process

- First Session Assessment
  - Written Questionnaires/Structured Interviews
  - Identify if Addicted or Symptoms of other Issues
    - Guides Development of Treatment Plan
      - If Addicted, Behavioral Therapy
      - Individual/Family/Marital Psychotherapy
- Ongoing Assessment
  - Written Questionnaires/Structured Interviews
  - Direct Measurement of Use (logs, S/W, PC Moderator)
  - Life Balance Worksheet
  - Review Treatment Goals

# Computer/Video Gaming Dependence Diagnosis

*proposed*

Maladaptive pattern of play leading to clinically significant impairment or distress as manifested itself in the following occurring over the same 12 month period:

- (a) Play more than 25 hours per week (1,3) *and*
- (b) 3 or more of the following symptoms related to playing:
  - a. Irritability, anxiety and depressive symptoms when unable to play (2)
  - b. Persistent desire or attempts to cut down or limit play by self *or others* (4)
  - c. Important social, academic, occupational or recreational activities are given up or reduced because of play (6). Example of impairment :
    - Excess school absences or sick days at work
    - Declining academic or occupational performance
    - Relationship problems and conflict over use
  - d. A great deal of time is spent thinking about gaming and engaging in related activities both off and online when not playing (5)
  - e. Lying about play or secretive play
  - f. Physical health problems including: declining personal hygiene, weight gain and repetitive stress injuries such as tendonitis or carpal tunnel syndrome. (7)
  - g. Inadequate sleep as a result of excess and late night play (3)

# Computer/Video Gaming Abuse Diagnosis

*proposed*

A. Maladaptive pattern of play leading to clinically significant impairment or distress as manifested by one (or more) of following occurring within a 12 month period:

(1) Recurrent play resulting in a failure to fulfill major role obligations at work, school, or home (e.g. repeated absences or poor work performance related to excess gaming; neglect of children or household) (1)

(2) Continued play despite having persistent or recurrent social or interpersonal problems caused by or exacerbated by the effects of excess gaming (e.g. arguments with spouse or parents about excess use and consequences of such excesses)

B. The symptoms have never met the criteria for Gaming Dependence.

# “Diagnosis” and Treatment Plan

- “Addicted” or “Likely Addicted” (Dependent/Abuse): Behavioral Treatment
  - 25 hours/week or more
  - Significant impairment in academic, social, occupational domains
  - Health or hygiene problems related to use
- “Not Addicted”: Family/Individual therapy, Parent Counseling
  - 25 hours/week or less
  - Minimal impairment in academic, social or occupational domains
  - Has gone weeks/months without playing
  - Is not currently playing
- Related Problems - other MH DX, Family/Marital issue
  - Add medication evaluation and psychotherapy

# Treatment of Gaming Addiction

## Behavioral Treatment Protocol

- **Discuss goals for behavioral treatment**
  - **Ask both parents/spouse and child separately:**
    - “What do you think is a reasonable amount of time?”
    - “What are important responsibilities that have been taking a back seat to the gaming?”
  - **Negotiate to starting point - how much and when each day**
- **Reduce the amount of play time to agreed upon levels for now**
  - **Children/teens - parental controls**
  - **Adults - self monitoring first, then external controls if not successful**
  - **Result:**
    - Reduces the indirect reward from play - participation points
    - Reduces the amount of pseudo-play time
    - Reduces social rewards from game play
    - Increases sleep, positive health impact
  - **Gradual or rapid decrease as needed**

# Treatment of Gaming Addiction

## Behavioral Treatment Protocol

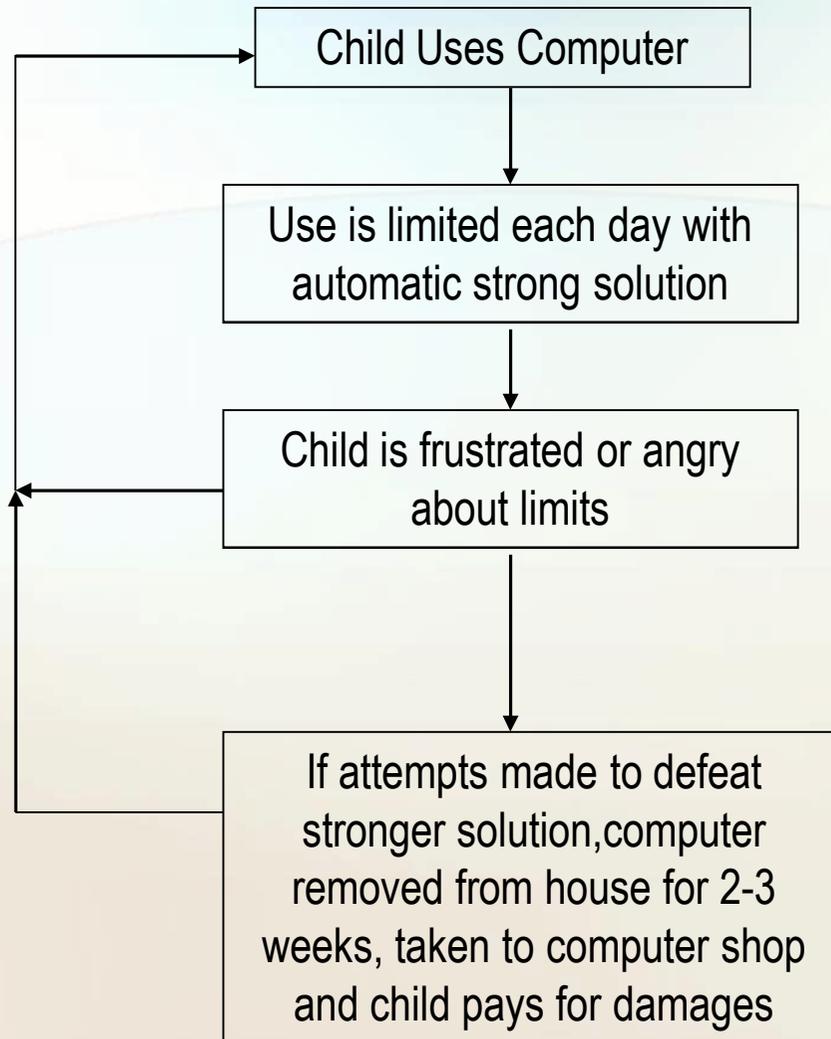
- **Increase positive, pro-social activities and rewards**
  - Improvements in school, work, **relationships** = greater satisfaction
  - Counseling, academic, career guidance, life goal setting
- **Use game time as reward for participation in competing activities**
  - Sports, extracurricular, social activities
- **Medical and/or psychotherapeutic treatment of related issues**
  - Medication evaluation for mood disorders, ADHD, other MH dx
  - Evaluation for developmental issues
  - Evaluation for learning disabilities
  - Career, spiritual, relationship exploration (>meaning)
  - Supportive therapy for parents/spouse
- **Follow up - change/add parental controls if necessary**

# Moderating Use: Daily Struggle

Repeated daily cycles + real world rewards = addiction broken

= addiction broken

Longer term cycle (rarely happens more than once)



Child allowed to use computer according to limits set by parents on a daily basis.

Child learns to tolerate feelings of frustration. Parents gain confidence and learn to tolerate their feelings.

Child learns that overtly defeating stronger solution is costly (pay for damaged computer, OS)

# Implications for Treatment:

- Game may be greatest single motivator in child's life:
  - Make play contingent on completing other day-to-day responsibilities and non-play activities
  - Start slow and increase non-game activities over time
- Stop complementary rewards
  - Magazine subscriptions, new computer equipment, etc.
- Competing responsibilities/activities should offer their own rewards:
  - Social, academic, employment, athletic
- Behavioral intervention has face validity
  - Game play is a behavioral intervention

# Tip the Scales toward Real World Rewards

- Use assessment to identify areas needing help
  - Academic, social, family relations, etc.
- Parents / Significant Others must work aggressively
  - Encourage a success identity- real life rewards
  - Work to improve family relationships - quality time
- Parents / Significant Others must be patient
  - Withdrawal can be minimized, however irritability, depression are possible temporary issues
  - Game rewards have overtaken real life rewards - it will take time for new learning
- Parents / Significant Others must be consistent
  - Stick with behavioral interventions to the letter
  - Clear message to child / significant other
- Seek additional professional help as needed
  - Parents may need technical and medical help



# Brief Treatment of Computer Gaming Addiction: Session-by-Session Sample

Session 1: Establish rapport, assess, educate  
Meet with parents and child (2 hours)

Session 2: Review assessment, establish goals for Tx,  
Goals for self control (adults, older adolescents)

Session 3: Review progress/problems with self-set limits  
Discuss family/relational issues, assess  
Plan parental control install (between sessions)

Session 4+: Review progress, individual/family issues  
Reassess

# Adults with Computer Addiction

- Failed college/university or adult child living at home
  - Conditions set on continued parental financial support
  - Behavioral Treatment Protocol
- Spouse with a computer gaming addiction
  - Marital Counseling
  - Behavioral Treatment Protocol
- Attempts to Self Regulate computer time
  - Use Software or PC Moderator to help self-monitoring
- Adult away from home or living on their own
  - Parents contacting you, limited help (intervention)
  - Don't enable the behavior through ongoing support
  - Parents can pay for individual treatment

# Case Study - 17 years old

- 17 y/o male WOW Addiction
- Declining / failing grades
- School refusal began after demand for improvements
  - Parent: “2 weeks of attending school and doing h/w, get computer back”
  - Child: “Give me back computer or I won’t go to school
  - 30 days later... still not in school
- Setup PC Moderator with computer time allowed for attending school, even part day
  - 1 hour school= 1/2 hour computer time
- Back in school full time within 1 week
  - Limits set to daily (2 hours) and weekend (5 hours) use and contingent on doing h/w each weekday

# Case Study - 19 years old

- 19 y/o male WOW addiction, 91 hrs/week maximum
- Failed college
  - Attended 1 year at local university, dropped out moved home.
  - Failing first term at local community college
- Set conditions for continued financial support by parents
  - PC Moderator on computer
    - Parents are “custodians” of the device
    - PC Moderator helped with denial and negotiated limits
  - Reasonable use limits 3 hrs/day + weekend = 25 hrs/week
  - Attend local college, successfully passing courses
- Enrolled in college, passed first courses, got job and was successful at balancing work, school and fun within 4 months

# Going Forward: Prevention and Early Intervention

- Parent education
  - Parent handouts, parent meeting and technology education
    - Limit daily use, use built-in parental controls where possible
- School / Education at-risk identification
  - Middle, high school and college/university
    - At-risk evaluation
  - Educators, school counselors and consultants
- Health professionals
  - Primary care physicians, psychiatry, psychology, MFT/counselors
  - Agreed upon assessment (DSM x) and validated treatment methods
- Gaming industry - promote responsible entertainment

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