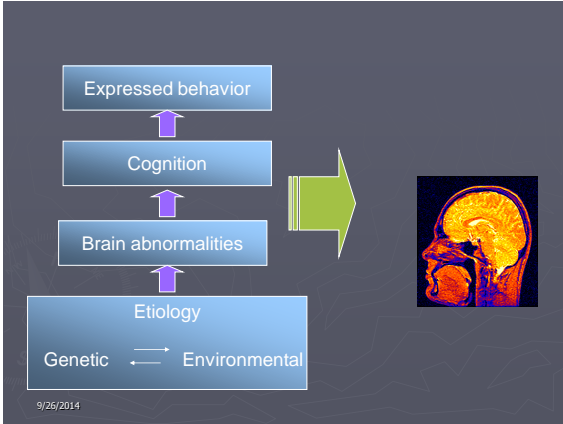


Characteristics

- ▶ Age: usually begins in early adulthood
- ▶ Gender: 32% female, 68% male
- ▶ Males tend to start at an earlier age
- ▶ Telescoping phenomenon
- ▶ Mean time: 16 hours per week
- ▶ Amount Lost: 45% of gross annual income
- ▶ Triggers:
 - Advertisements, Boredom, Stress

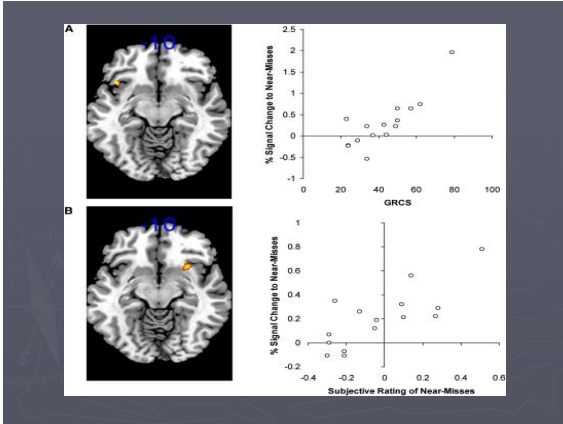


Neurocognition in Gamblers

- ▶ Executive function deficits, including
 - ▶ Planning
 - ▶ Cognitive flexibility
 - ▶ Inhibition
- ▶ Greater in pathological gamblers compared to controls.

Near Misses

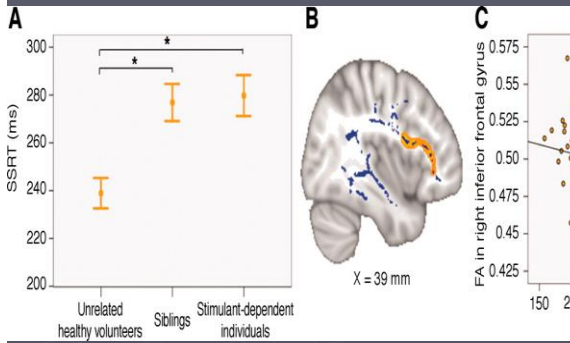
- ▶ Near-misses were associated with significantly greater signal in the ventral striatum and anterior insula
- ▶ Recruitment of win-related regions during near-miss outcomes underlies their ability to promote gambling behavior



Impulsivity

- ▶ A predisposition toward rapid, unplanned reactions to stimuli without regard to the negative consequences
- ▶ Choosing smaller immediate reward over larger delayed reward
- ▶ Impulsivity as an Endophenotype

Inhibitory Control - Familial



Treatment Implications

Self-Exclusion Programs

Voluntary Self-Exclusion:

- ▶ Two longitudinal studies assessing self-exclusion programs found that gamblers engaging in these programs had:
 - Lower gambling frequency and intensity
 - Lower number of problems (financial, psychosocial)
 - Experienced a reported greater sense of control over their urges to gamble and actual gambling behavior

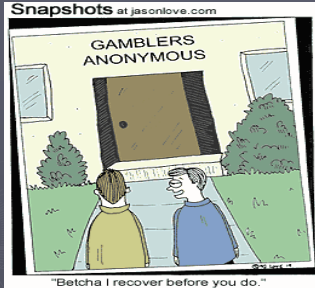
Exclusion Programs: Issues

- ▶ Promotion in many venues is not visible, and where present is promoted indirectly
- ▶ Previous studies indicate that many people are not aware of its existence
- ▶ Some casinos do not take requests for self-exclusion seriously

Exclusion Programs: Issues

- ▶ Self-exclusion has little value if individuals can revoke contract
- ▶ If only done at one casino and others allow entry, then limited success
- ▶ Obviously does not apply to non-casino gambling
- ▶ Evidence that patrons prefer longer, irrevocable contracts





GA High Dropout Rates

- ▶ 22.4% attended only 1 meeting,
- ▶ 15.5% attended only 2 meetings,
- ▶ 7.5% earned a 1-year abstinence pin.
- ▶ Those who stayed more likely to have initial realistic expectations of GA and a spouse in GamAnon.
- ▶ Those who dropped out more likely to endorse "controlled gambling," and did not identify with severity of problems as other members.

Approaches to Treatment

- ▶ Improve the brakes
- ▶ Decrease the gas
- ▶ Combination

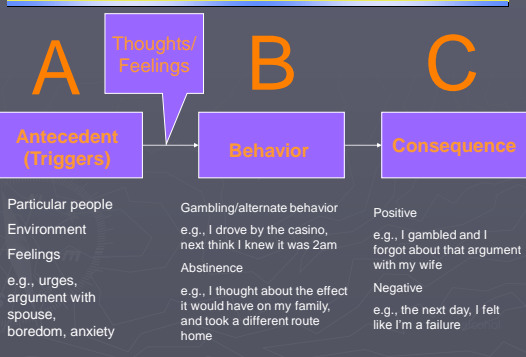
Psychosocial Treatments

- Multiple controlled studies
- Cognitive Behavioral Therapy
- Sessions 1 to 16
- Increased awareness of irrational cognitions, and cognitive restructuring.
- Identification of gambling triggers and the development of non-gambling sources to compete with the reinforcers associated with gambling.

Cognitive Behavioral Therapy

- ▶ Psychoeducation
- ▶ Increased awareness of irrational cognitions, and cognitive restructuring.
- ▶ Identification of gambling triggers and the development of non-gambling sources to compete with the reinforcers associated with gambling.

Functional Analysis



Brief Interventions

- ▶ Interventions ranging from a single brief session to 4 sessions
- ▶ Self-Help Workbooks
- ▶ Designed to introduce treatment, engage patient into treatment and to target at-risk and problem gamblers
- ▶ Easy to implement

Imaginal Exposure

Client and Therapist develop an imaginal exposure script that includes all the relevant internal and external triggers that relate to your gambling

Urges or cravings can be activated using exposure to triggering events via imaginal exposure exercises.

Relapse Prevention

- ▶ Variant of cognitive-behavioral therapy; main approach is:
 - Identification of "triggers" to resume use
 - Planning and rehearsal of avoidance
 - Planning and rehearsal of escape
- ▶ "Slip" not equal to relapse

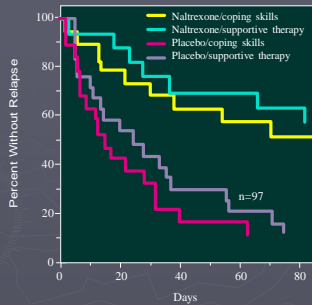
Motivation to Quit Gambling

<p>1) Positive aspects of gambling (what are the positive things gambling gives me?)</p>	<p>2) Negative aspects of quitting (what do I lose if I stop gambling?)</p>
<p>3) What are the negative consequences of gambling (current and future?)</p>	<p>4) What are the advantages of quitting gambling (what do I have to gain?)</p>



Copyright © 2002 United Feature Syndicate, Inc.

Rates of Never Relapsing According to Treatment Group (n=97)



O'Malley et al, Arch of Gen Psychiatry, Vol 49, Nov 1992

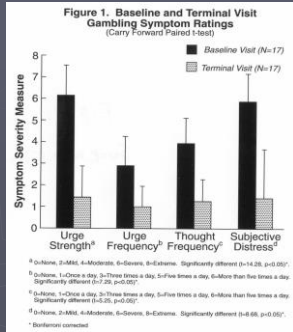
Naltrexone for Gambling Disorder

METHODS

- n=77 with GD
- Double-blind, placebo-controlled
- 11-weeks
- Dose titration: 25mg/d – 250mg/d

RESULTS

- Significant benefit in CGI-Improvement (both patient and clinician-rated) and Gambling Symptom Rating Scale



Cognitive Enhancers with CBT

N-acetylcysteine (NAC)

- Amino-acid and antioxidant
- Potentially modulates brain glutamate transmission
- Levels of glutamate within the nucleus accumbens mediate reward-seeking behavior
- Lacks significant side effects

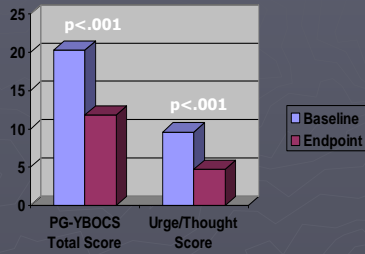
Open-Label study of NAC in Gambling Disorder

- n=27 subjects, mean age 50.8 years, 44.4% female
- Dose titration from 600mg/d to 1800mg/d
- Required to have moderate cravings to gamble

Open-Label Study of NAC in GD

RESULTS

• YBOCS: Scores decreased 41.9% from baseline to endpoint



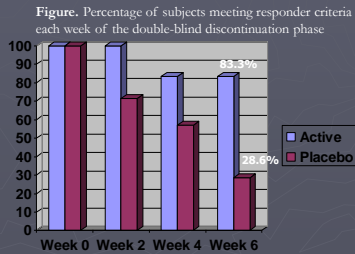
Open-Label Study of NAC in GD

Responders ($\geq 30\%$ decrease in PG-YBOCS and "Much" or "Very much" improved on CGI-I scale) randomized to NAC or placebo for 6-weeks

RESULTS

• N=16 (59.3%) met responder criteria

• Mean effective dose: 1476.9 (± 311.3) mg/d



Memantine In Gambling

- ▶ Memantine antagonizes NMDA (N-methyl D-aspartate) receptors, a type of glutamate receptors.
- ▶ Impulsive decision-making may be dependent on neural regions within the prefrontal cortex that are under probable glutamatergic control.

QUESTIONS?