Obesity Action Coalition
Orlando Convention
2014

Mark S. Gold, MD
17th University of Florida Distinguished Alumni Professor

Disclosures

• None relevant to this talk content
• Founder, U.F. Florida Recovery Center
• Board of Directors & Stock Ownership: Xhale, HyGreen, Viewray, Axogen (NASDAQ)
• Chairman, Scientific Advisory Boards for Rivermend Health in Eating Disorders & Obesity and also Addiction & Psychiatry. They own Malibu Beach Recovery Center, Malibu Beach Recovery Center for Women, Latigo Canyon House, Wellspring Camps, A New Journey, Georgia Detox and Recovery Center, Bluff Plantation and Rosewood Ranch,
10/16/2014

Objectives

1. The learner will identify the 30 years of theory and experimental work on the food addiction concept.

2. The learner will list MRI, PET, Drug and Other Evidence that food can be an addictive substance.

3. The learner will identify how this paradigm shift could help us understand overeating and obesity, and how new approaches may be tested in Yale Food Addiction positive patients from lifestyle modifications like diet and exercise, meds for reducing appetite and fat absorption, to surgery.
How did I start Thinking About Obesity as an Addiction?

- I like French Fries
- Woodstock
- Yale- withdrawal; intoxication; St Kitts Monkeys
- Naltrexone
- Tobacco Cases
- Drug Addiction Treatment
  - HALT
  - Drug Craving…Eat…Chocolate/Cake/ Cookies
Drug Withdrawal and Hyperphagia: Lessons from Tobacco and Other Drugs

Paula J. Edge* and Mark S. Gold

Department of Psychiatry, College of Medicine & McKnight Brain Institute, University of Florida, Gainesville, FL, USA

Abstract: ‘Globesity’ is a descriptive term for the obesity epidemic now facing the U.S. and indeed, the world. Hyperphagia (i.e. overeating) can lead to metabolic syndrome which in turn can lead to Type 2 diabetes mellitus, heart disease, stroke, and some cancers. The World Health Organization even states that more people die each year from the consequences of obesity than from hunger. Something must be done to stem the trends of obesity and its resultant medical complications. Our work and that of others suggest that new obesity treatments and anti-obesity medications should be based on those already successful in treating other addictions. This paper looks at empirical evidence linking addictions to food and to drugs such as tobacco, alcohol, cannabis, amphetamines, and cocaine. Hypotheses are put forth as to why hyperphagia is so difficult to treat. Additionally, prenatal programming for addiction is explored. Lessons from successful drug treatment are elucidated and potential pharmaceutical targets for hyperphagia and obesity are suggested.

Keywords: Hyperphagia, metabolic syndrome, Type 2 diabetes mellitus, withdrawal, dopamine, reward pathways.

EVOLUTION OF A THEORY

1987
Psychiatry Research. 24, 185-199
Jeffrey M. Jonas and Mark S. Gold

1994
ASAM – MARK S. GOLD

2003
GUEST EDITOR: MARK S. GOLD

2004
EDITOR: MARK S. GOLD

2009
SPECIAL ISSUE: FOOD ADDICTION
EDITOR: Mark S. Gold

2010
Current Opinion in Clinical Nutrition and Metabolic Care; 13:355-365
Daniel M. Blumenthal and Mark S. Gold
NEUROBIOLOGY OF FOOD ADDICTION
From bedside to bench and back again: A 30-year saga.

- Since the 1970's through observation and experience, drugs of abuse and the drive for food appeared to be quite related.
- As pioneered by Bart Hoebel, food can become an object of desire and act in most respects as a drug of abuse.

Yale Hosts Historic Conference on Food and Addiction

- New Haven, Conn. — In what is believed to be the first meeting of its kind, Yale University is convening nearly 40 experts on nutrition, obesity, and addiction tonight and Tuesday to discuss the controversial topic of food and addiction.
- Nora Volkow, MD, director of the National Institute on Drug Abuse, will be the keynote speaker Monday evening at the private meeting in New Haven. "It is important that we study the reasons that people behave in unhealthy ways even when they are aware of potentially devastating consequences," Volkow said. "We believe we can learn a lot about obesity by looking at what we know about the science of drug addiction. In this meeting we will be discussing the commonalities in the brain's reward mechanisms related to compulsive eating as well as drug use for non-medical reasons.
- Among the topics of discussion for the meeting: MRI research and other work that shows strong similarities in ways drugs and certain foods affect the brain; the relationship between eating and reward systems in the brain; psychological similarities between food cravings and cravings for drugs, and the implications of this work for government policy, clinical intervention, and the law.
- Although terms such as “chocholic” and “carbohydrate addict” are prevalent in popular culture, there is little scientific consensus about food as an addiction, said Yale Psychology Professor Kelly Brownell, who is co-chair of the meeting. "Everything changes if food is found to have addictive properties, especially the legal and legislative landscape around marketing foods to children," said Brownell, director of the Rudd Center for Food Policy and Obesity at Yale, which is hosting the meeting. "People often use the language of addiction to explain their relationship with food cravings, withdrawal, irresistible impulses—it is all there."
- Co-chair Mark Gold of the University of Florida, who will address the meeting Tuesday, said that in the past, addiction was defined by tolerance and withdrawal. "After our work and that of others on cocaine, it was clear that addiction was more like a pathological, often fatal attraction," Gold said. "The definition of addiction was changed and gambling and sex addiction were considered addictions. Overeating and obesity are candidates for Addictive Disease and such a hypothesis is both testable in humans and can produce novel approaches and treatments for a major public health problem."
- Gold said that food, especially highly palatable food, can produce the same effects as drugs of abuse. "It is common for people to eat more than they intend despite dire consequences," he said. "Failed diets and attempts to control overeating, preoccupation with food and eating, shame, anger, and guilt look like traditional addictions."

Handbook of Food Addiction

Mark S. Gold, MD
University of Florida

Kelly D. Brownell, PhD
Dean, School of Public Health, Duke University


Food and Addiction

A Comprehensive Handbook
Kelly D. Brownell, Mark S. Gold
$115.00
Available in Hardback, Aug 2012

ISBN13: 9780199738168
ISBN10: 0199738165

Assembles leading scientists and policy makers from fields such as nutrition, addiction, psychology, epidemiology, and public health to explore and analyze the scientific evidence for the addictive properties of food.
Increasing Scientific Interest

Number of publications containing the words “food addiction”

Gearhardt, Davis, Kuschner, & Brownell, under review

DRUNK MONKEYS
Intravenous Ghrelin Administration Increases Alcohol Craving in Alcohol-Dependent Heavy Drinkers: A Preliminary Investigation.


Abstract

BACKGROUND:

There is a need to identify novel pharmacologic targets to treat alcoholism. Animal and human studies suggest a role for ghrelin in the neurobiology of alcohol dependence and craving. Here, we were the first to test the hypothesis that intravenous administration of exogenous ghrelin acutely increases alcohol craving.

METHODS:

This was a double-blind, placebo-controlled human laboratory proof-of-concept study. Non-treatment-seeking, alcohol-dependent, heavy-drinking individuals were randomized to receive intravenous ghrelin (7 mg/kg), 3 mg/kg or 1 mg/kg placebo, followed by a cue-reactivity procedure, during which participants were exposed to neutral (water) and alcohol cues. The primary outcome variable was the increase in alcohol craving (also called urge to drink alcohol), assessed by the Alcohol Visual Analog Scale.

RESULTS:

Out of 100 screened, 44 individuals received the study drug. Repeated measures of analysis of covariance revealed a group effect across ghrelin doses in increasing alcohol craving (p < .05). A dose-specific examination revealed a significant effect of ghrelin 7 mg/kg versus placebo in increasing alcohol craving (p < .05) with a large effect size (0.1-0.94). By contrast, no significant ghrelin effect was found in increasing either urge to drink ice cream or food craving (p > .10). No significant differences in side effects were found (p > .10).

CONCLUSIONS:

Intravenous administration of exogenous ghrelin increased alcohol craving in alcohol-dependent heavy-drinking individuals. Although the small sample requires confirmatory studies, these findings provide preliminary evidence that ghrelin may play a role in the neurobiology of alcohol craving, thus demonstrating a novel pharmacologic target for treatment.

Figure 1. Top 10 U.S. Children’s Health Concerns, Percent Rated as “Big Problem” in 2013

1. Childhood obesity, 38%
2. Drug abuse, 34%
3. Smoking & tobacco use, 32%
4. Bullying, 29%
5. Stress, 25%
6. Alcohol abuse, 24%
7. Child abuse & neglect, 23%
8. Teen pregnancy, 23%
9. Internet safety, 21%
10. Depression, 20%

Source: C.S. Mott Children's Hospital National Parenting Project on Children's Health, 2013.
Too many high calorie beverages.

What is the result?
Is Soda the new Tobacco?

by Mark Bittman
Published February 12, 2010

Sugar: It's not addictive the way nicotine is, but we drink too much of it.

Drinking Sugar
Per capita daily caloric intake of sugar-sweetened beverages by younger Americans:

<table>
<thead>
<tr>
<th>AGE</th>
<th>2-5</th>
<th>6-11</th>
<th>12-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>SODA</td>
<td>250</td>
<td>300</td>
<td>350</td>
</tr>
<tr>
<td>FRUIT PUNCH</td>
<td>200</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>OTHER DRINKS</td>
<td>100</td>
<td>150</td>
<td>200</td>
</tr>
<tr>
<td>100% JUICE</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Sources: Pediatrics (data from 1999-2004)
Robert Wood Johnson Foundation

For a better start in life
start COLA earlier!

How soon is too soon?
Not soon enough. Laboratory tests over the last five years have proven that babies who start drinking soda during that early formative period have a much higher chance of gaining acceptance and "fitting in" during those awkward pre-teen and teen years. So, do yourself a favor. Start them on a menu of soda and other sugar-carbonated beverages right now, for a lifetime of guaranteed happiness.

The Sodies Pop Board of America 1315 W. Had Ave. Chicago, I.L.
Image courtesy of: Yale Rudd Center for Food Policy & Obesity

Senior Citizen Coca Cola
4.2 gms. = 1 teaspoon of sugar, so this looks like 1 cube is about the same!

NYC Anti-Obesity Commercial
Access to sugar (25% glucose) leads to escalating intake

Access to sugar (25% glucose) leads to escalating intake.
How Sugar Affects the Brain

Wall Street Journal

Food May Be Addicting for Some

By KEVIN HELLIKER
April 5th

A new study suggests that people who struggle to say no to chocolate, french fries or other junk food suffer from something more insidious than lack of willpower: They may actually have an addiction.

Source: WSJ
A new study suggests that people who struggle to say no to chocolate, french fries or other junk food suffer from something more insidious than lack of willpower: They may actually have an addiction.

Source: WSJ

Are you addicted to food?

- Is food addiction real? Are some people addicted to eating the way others are addicted to drugs or alcohol? Scientists say yes. Food addicts struggle with food in much the same way that all addicts struggle - and brain scans seem to confirm that food addiction exists on a neurological level as well as on a behavioral level. This is important, because when it comes to losing weight, food addicts need intensive help - ordinary weight-loss programs simply won’t do.
- Are you a food addict? Find out by answering the questions posed in the slides that follow. This abbreviated version of the Yale Food Addiction Scale was provided to CBS News by one of its creators, Ashley Gearhardt, a psychology doctoral student at Yale University.
Eating more than you intended?

• How often do you find yourself consuming certain foods even though you are no longer hungry?

Feeling you should cut back...

• How often do you worry that you should cut down on eating certain foods?
Feeling Sluggish....

How often do you feel sluggish or fatigued from overeating?

Food withdrawal

How often do you experience physical withdrawal symptoms like agitation and anxiety when you cut back on certain foods (excluding coffee, tea, cola, and other caffeinated beverages and foods)?
Eating no matter what!

Do you sometimes keep consuming the same types or amounts of food despite significant eating-related emotional or physical problems?

Neglecting activities?

How often do negative feelings about overeating interfere with important activities, such as work, recreation, and spending time with family and friends?
Eating isn’t much fun anymore

Have you found that eating the same amount of food no longer reduces negative emotions or increases feelings of pleasure the way it used to?

Significant distress

How often does you feel significant distress as a result of your eating- or food-related behavior?
Significant Impairment

How often do issues related to food or eating decrease your ability to function effectively - that is, keep up with your daily activities, work responsibilities, social activities, etc.)?

Are you a food addict?

For people whose score suggests that they are food addicts, conventional weight-loss programs may be ineffective, Gearhardt says. For these people, she says, involvement with Overeaters Anonymous or Food Addicts Anonymous and/or seeing a therapist who specializes in addictive behaviors or disordered eating may be the way to go.
to eat or not to eat?

The Target is Always “The Brain”

The nucleus accumbens lighting up
What is An “Addiction”?
Look at Criteria Used to Study Substance Dependence

Anticipation  
BINGEING  
Tolerance

CRAVING

Cross-sensitization

Increased Consumption

Negative affect
Physical signs

Enhanced locomotion

Decreased Dopamine D2 Receptors in Obese Human, Monkey and Rodent

<table>
<thead>
<tr>
<th>Species</th>
<th>BMI</th>
<th>Weight</th>
<th>ARG, autoradiography</th>
<th>PET [11C]raclopride</th>
<th>ARG [3H]spiperone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bonnet macaques</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zucker rat</td>
<td>23</td>
<td>650 g</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dopamine Receptor Levels are Low in Obese Subjects

Comparison Subject | Obese Subject
BMI: 23            | BMI: 50

Wang et al., 2000

ARG, autoradiography; PET, positron emission tomography
With the soaring number of individuals affected by obesity, many of whom are children, we need to begin to consider alternatives to traditional efforts for combating this often deadly and costly condition. Perhaps ‘food addiction’ will soon join other non-drug addictions, such as sexual compulsivity and gambling.

Weight Obsessed USA

• Most of us are thinking about our weight
• Many are on a diet
• Much of the media is obsessed with the nearly anorexic and those who have had short term weight loss, relapsed, and become obese
• Loss of control over eating, eating more than intended, eating to full or over-full, too many food “lets eat” signals and too little counter-balancing controls

Should Sugar be Controlled Like Alcohol?

• There are 30% more obese people in the world than malnourished people.
• Over past 50 years, sugar consumption has tripled worldwide.
• Sugar consumption is linked to rise in non-communicable disease.
• Sugar’s effects on the body can be similar to those of alcohol.
• Regulation could include tax, limiting sales during school hours and placing age limits on purchase.

What is in a Chicken Nugget?

Drugs of Abuse vs. Food

DA- Drugs increase extracellular DA each time they are administered
ACh- Aversion. ACh is increased during withdrawal (DA is low)
Opioids- antagonists precipitate withdrawal signs

DA- With food, DA release wanes with repeated access
ACh- Satiety. ACh increases during a meal (DA is high)
Opioids- antagonists do not precipitate withdrawal
Current “Treatment” Strategies for Obesity

• Blame the patient
• Diet
• Tapes, books, classes
• Exercise
• Detoxification and abstinence
• Take drugs of abuse or related prescribed medications
• Surgery
• All the above...and again

Psychoeducation is a treatment

• Structured Eating Approaches like managing shopping, food inventory in the home, eating out vs cooking, counting calories, snack restrictions, weight and weighing related feedback loops, portion control, CBT and plate filling and eating strategies
• Newly reported Lifestyle Study shows cost savings to society and health benefits with this strategy over the long term.
EAT SLOWLY

THE NEW (AB)NORMAL

Recent signs have been growing. In the 1970s, America was eating more than one and a half times larger portions than in the 1950s. And studies are now showing that a meal is healthier the longer it takes to be eaten. The CDC is pushing for more smaller portion meals on the menu. A lot of food is wasted and food costs are high. We can also ask the managers at our favorite restaurants to offer smaller meals.

1950s

NOW

40 oz

30 oz

20 oz

10 oz

Soda

4.2 oz

3.7 oz

1.4 oz

Hamburger

2.1 oz

1.7 oz

French Fries

7.4 oz

5.2 oz

2.6 oz

Soda

The CDC: www.cdc.gov/HealthyWeight/Lifestyle/PortionSize/
Guidelines call for most Americans to cut back on certain rich, fattening foods and ingredients. Americans get nearly 800 calories a day from just two problematic nutrients: solid fats and added sugars ("SoFAS"). We’re advised to limit those, as well as fast foods, refined grains, saturated fat, and trans fats. Most people eat too much sodium (salt), which is linked to high blood pressure, a risk factor for heart and kidney disease.
Variety and Hyperpalatability in Food Choices: Good or Bad?

- Diversity in food choices may be associated with promoting excess food intake and increased BMI
- Inhibitory cognitive control over desire to eat is suppressed in women, but not in men
- Long term habituation to palatable food can occur and is important in our understanding of regulating food intake


Exercise in Greenwich
Group Approach Better than ‘Going it Alone’

CONCLUSION: Use of the WW program yielded significantly greater weight loss than a self-help approach, suggesting it is a viable community-based provider of weight loss treatment, as recommended by the USPSTF. Further, high usage of 3 access modes was associated with greater weight loss results.


How is it possible that Obesity is one disease?

• It is a disease but it could be caused by a medical illness like thyroid disease
• It can occur in Eating Disorders like bulimia with overeating and even obesity and Type 2 DM
• It can be the result of a post addiction and successful drug abstinence state
• It can be a stand-alone food addiction
Gastric Bypass Surgery Changes Neural Responsivity and Desire to Eat

- Postoperative reductions in mesolimbic (striatal) responsivity were associated with reductions in wanting, but not liking, for high-versus low-calorie foods.
- Reductions in food wanting were also related to reductions in inhibitory (prefrontal cortex) activation.
- Supports notion that wanting, but not liking, is processed through the dopaminergic reward pathway.


Post-Bariatric Sensitivity to Alcohol: Is Food Addiction Involved?

- Sensitivity to alcohol in post-bariatric surgery patients may be more than physiologic (altered absorption and time to brain)
- If food and alcohol compete for same brain reinforcement sites, abstinence from one may make abuse of the other more likely

Obesity treatment “is high priority” among drug research, said Dr. Mark Gold, chair of psychiatry at the University of Florida, who focuses on addiction and eating habits. They’ve failed most of the time before. Our brains crave calories to store for hard times, said Gold. Unfortunately for us, that worked very well when we had little food and we needed incentive to hunt. Right now, with abundant food, it’s very easy to get food and fast food, he said. The global obesity epidemic is due to food being widely available. The food has evolved, but our brains haven’t really changed from the time that we had to hunt and grow our own food. Many of our brains’ pathways are linked to appetite, he said. It’s hard to create a drug to suppress appetite when there could be many unknown factors involved.

U.S. FDA panel: Novo Nordisk’s liraglutide safe, effective for obesity

9/11/2014
(Reuters) - Novo Nordisk’s drug liraglutide is safe and effective enough to warrant a use in chronically obese patients with at least one weight-related health issue, an advisory panel to the U.S. Food and Drug Administration concluded on Thursday. The panel voted 14 to 1 to recommend the drug, which is already approved to treat brand name Victoza. It would be sold under the name Saxenda if approved for obesity. According to analysts, it could generate $1 billion in revenue for the company.

The FDA typically follows the recommendations of its advisory panels.

In a study, half of obese patients given a daily 3 mg injection lost at least 5 percent while 22 percent lost more than 10 percent. The drug is proposed for use in patients at least one other weight-related condition, such as hypertension.
Table 2: New medications for treating obesity (continued)

<table>
<thead>
<tr>
<th>Drug name (manufacturer)</th>
<th>Components (prior treatment use)</th>
<th>Possible side-effects (seen in clinical trials)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenformin, metformin</td>
<td>Glucose reduces glucose levels and increases insulin sensitivity, so you'll be less hungry and less likely to overeat.</td>
<td>Possible serious side effects of Glucophage include glucose intolerance and increased risk of hypoglycemia. Less serious side effects include headache, muscle pain, weakness, or loss of balance and coordination.</td>
</tr>
<tr>
<td>Ziconotide</td>
<td>Severe Treatment</td>
<td>Serious side effects: headache, anxiety, and confusion.</td>
</tr>
<tr>
<td>Topiramate</td>
<td>Severe treatment. The specific mechanism of weight loss resulting from topiramate is unknown, however, there are some common theories about how it helps to facilitate weight loss.</td>
<td>Common side effects include dizziness, dry mouth, difficulty sleeping, high blood pressure, irritability, nausea, vomiting, diarrhea, or constipation. Withdrawal symptoms may occur if you stop taking this medication suddenly.</td>
</tr>
</tbody>
</table>

This is not a complete list of side-effects and others may occur. Tell your doctor about any unusual or bothersome side-effect.
BELVIQ (lorcaserin)

• Take one 10 mg tablet twice a day with or without food for weight loss.

Serotonin Receptors

• 7 families 5HT1 through 5HT7.
• 14 subtypes of 5HT receptors.
• Belviq is a 5HT2c receptor agonist (it “stimulates” the 5HT2c receptor).
5HT2c knockout mice lack the 5HT2c receptor and overeat.

9/10/2014
(Reuters) - A new diet pill Contrave got approval to be sold in the United States on Wednesday, only the third obesity treatment in more than a decade to win approval from the Food and Drug Administration.
Made by Orexigen Therapeutics Inc, Contrave is a combination of the antidepressant bupropion and Orexigen's formulation of naltrexone, designed to prevent drug dependence. [1.usa.gov/1wpwu04]

Naltrexone & Bupropion
Naltrexone 8mg / bupropion mg 90 bid
Can increase to 2 tabs bid.
It could work for food addiction when you look at components.
**Bariatric Surgery Type 1**

**Pros**
Statistically significant weight loss results and improvement in obesity related health issues. Considered “gold standard”.

**Cons**
Moderately affects the absorption of essential vitamins and nutrients like B12, folic acid, and iron

- **Roux-en-Y gastric bypass** is a procedure in which a small pouch is made at the top of the stomach, and the upper intestine is connected to the new pouch. It limits the amount of food that can be eaten, limits absorption of some foods, and also causes changes in hormones that regulate food intake.
Bariatric Surgery Type 2

Pros
No cutting, stapling or stomach rerouting required and band can be adjusted until correct capacity is achieved.

Cons
Requires the most effort to achieve success, with slowest reported weight loss.

• Lap-Band® surgery induces weight loss by placing a band around the top portion of the stomach, thereby reducing the capacity of the stomach. Food eaten passes through the remaining portion of the stomach and into the small intestine where it is absorbed.

Bariatric Surgery Type 3

Pros
Most effective option for patients at highest risk for surgery or as bridge to other procedures

Cons
Relatively new procedure, with long-term effectiveness yet to be proven.

• Laparoscopic sleeve gastrectomy is a procedure where the stomach is stapled and divided into a narrow tube which reduces the amount of food that can be eaten, and also causes changes in hormones that regulate food intake. The small intestine is not changed.
Gastric Bypass Surgery Changes Neural Responsivity and Desire to Eat

- Postoperative reductions in mesolimbic (striatal) responsivity were associated with reductions in wanting, but not liking, for high-versus low-calorie foods.
- Reductions in food wanting were also related to reductions in inhibitory (prefrontal cortex) activation.
- Supports notion that wanting, but not liking, is processed through the dopaminergic reward pathway.


Bariatric Surgery: Lower complications with higher surgical skills

- Michigan Bariatric Surgery Collaborative (MBSC)
- Assess relationship between technical skill of 20 MBSC surgeons and postoperative complications in 10,343 patients undergoing laparoscopic gastric bypass
- Surgeons divided into quartiles by blinded rating of their surgical skills; bottom (1st quartile), middle (2nd & 3rd quartile) top (4th quartile)
- Surgical skill related to number of complications, mortality, readmission and returns to emergency room

Chris Farley....Heroin & Cocaine

• Chris once said, “I have a tendency toward the pleasures of the flesh. It’s a battle for me, as far as weight and things like that.”
• He had been in rehab at least a dozen times, and was scheduled to go again when he died.
• His last day was Wednesday December 17th, 1997. He spent it primarily with a hooker called Heidi. Chris hired hookers regularly. Heidi was hired for Farley by a friend for $2,000. She joined Farley at a party in Lincoln Park (in Chicago) at 11 AM.
• There were drugs going around. Later that day, Heidi took Farley back to her apartment – where they continued to smoke crack and snort heroin. Chris claimed he’d been up for 4 days, without sleep. They tried to have sex, but Chris couldn’t.
• Cut to 11 PM – Chris and Heidi were back at his apartment in the Hancock building. They supposedly tried sex again, unsuccessfully, and finally at 3am she decided to take off. Farley was clearly inebriated, and as she was leaving his apartment, he collapsed about 10 feet from the door. Heidi