




Nutrition, Stress & Health

KIN 69

Nutrition & Stress?



- Exact relationship unclear
- Certain food substances can produce a stresslike response – Pseudostressors (e.g. caffeinated sodas, coffee, tea, chocolate, nicotine etc.)
- Stress-related illnesses can be exacerbated by dietary habits (CHD, certain cancers)

Nutrition & Stress?

- Nutrients depleted by stress
 - Production of cortisol requires the use of vitamins -> depletion over time -> less effective stress response!
 - Deficiency in B-complex vitamins & vitamin C can result in anxiety, depression, insomnia, muscular weakness, stomach upset
 - Interfere w/ Calcium absorption -> increased risk of osteoporosis

Nutrition & Stress?



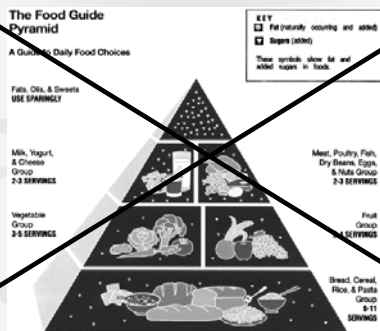
- Sugar the “culprit”?
 - B complex vitamins is required to break down sugar or things like processed flour...
 - Again, this may compromise our stress response since production of adrenal hormones also requires B complex vitamins
 - Ingestion of large amount of sugar all at once or missing meals and then ingesting sugary foods can result in hypoglycemia (aka sugar crash, food coma!)
 - Cortisol triggers gluconeogenesis -> elevate blood glucose level; Beta cells of the islets of Langerhans produce insulin; chronic stress can burn out these cells and result in diabetes – that’s why exercise is helpful!!!

Nutrition & Stress?

- More pepper, less salt please...
 - High sodium intake affect genetically susceptible individuals, causing hypertension
 - Sodium ingestion can raise blood pressure by retaining body fluids; further increase can happen if stress is encountered
 - Recommendation is no more than 2,000 milligrams of sodium per day (a double quarter pounder with cheese from McD’s has 1440 mg of sodium!)



The new & improved Food Pyramid!



Dietary Guidelines for Americans 2005

- Emphasize Physical Activity in conjunction with Nutrition in weight management
- More user friendly
 - how many calories should you be eating based on your activity level?
 - what should you include in those calories?
 - how do you measure a serving?
- Useful website:
 - <http://www.mypyramid.gov>

Here's the magic pill...NOT!

- Calories in = Calories out -> Same weight
- Calories in > Calories out -> Weight gain
- Calories in < Calories out -> Weight loss

YES, the KISS Principle!
Keep it simple, sexy ☺



If it's that simple...

- Why do we have the obesity epidemic?
- Why are we the "supersize" nation?
- >300,000 deaths annually in the U.S. were associated with overweight and obesity (USDHHS, 2001)
- An estimated \$117 billion USD in obesity related health care expenses annually!!!

Let's start with looking at nutrition...

- Energy consumption
- Food industry as the “bad” person?
- Role of environment on food choices and eating behaviors
- Potential solutions
- Who's responsible?

Calories in

Energy consumption

- “Average daily caloric intake increased by 24.5%, or about 530 calories, between 1970 and 2000” (USDA, 2001)
- Contributors to excess energy consumption:
 - Eating out
 - large portion sizes
 - Frequent consumption of high fat and calorie dense foods
 - Increased snacking behaviors

Eating out

- Total food \$ spent on food away from home has increased from 26% in 1970 to 39% in 1996 (Lin, Frazao, & Guthrie, 1999)
- % of total daily energy obtained from foods eaten away from home nearly doubled, 18% in 1977 to 34% in 1995 (Lin et al., 1999)
- Implication? People consume more caloric dense foods or larger portions, or both, when eating out compared to eating at home!
- 2010 projection – 53% of food \$ will be spent on food away from home (Harnack & French, 2003)

What & Where?

- Between 1977 & 1995, 200% increase in % of meals and snacks eaten at fast-food restaurants; 150% for other restaurant establishments (Harnack & French, 2003)
- Typically higher in calories and fat than foods eaten at home (Lin et al., 1999)
- Excessively large portion sizes (Young & Nestle, 2002)
- Children & adolescents who reported eating fast-food consumed 155 kcals on avg. > those who did not eat fast-food; 205 kcals for adults (Paeratakul et al., 2003)

Who?

- Lawyers suing fast-food companies attempt to paint a picture that “ill-educated people are duped by duplicitous fast-food franchises into biting into greasy hamburgers and french fries” But data is NOT supporting this argument!
- While obesity rate is still higher in the less educated population, college educated population accounted for the fastest growth in BMI between 1970s & 1990s
- % obese college-educated women nearly **TRIPLED** in this period vs. 58% increase in women w/o HS degrees
(Buchholz, 2003)

If it's not due to education, what then?

- > number of women in the workforce
- > 2-income households
- Higher incomes
- Smaller households (Lin et al., 1999)
- More affordable & convenient fast-food outlets
- Children & adolescents who grew up on fast-foods are more likely to continue that pattern as adults as they acquired the taste & habit for fast-foods that are often high in fat, sugar & sodium (The feel good factor, 2003c)
- The vicious cycle continues...



Why can't we order healthier foods when eating out?

"Despite the popularity of the Atkins and South Beach diets, the more stringent recommendations about cholesterol levels, and the ongoing concerns about an obesity crisis in America, most of us don't really want to eat healthier when we walk into a fast-food establishment. The industry is adding new menu items that are genuinely healthier – knowing they're likely to be poor sellers. Fast-food companies understand something fundamental, and fundamentally contradictory, about consumers: No matter how much they tell pollsters they care about healthy food, they don't really give a hoot once they've crossed the threshold of a fast-food joint." (Boyle, 2004)

Fast-food joints who tried...

- D'Lites – lean burgers on multigrain buns 1980s
- McDonald's - McLean Deluxe burger
- Taco Bell – Border Lights...the list goes on
- Potential reasons for consumer reluctance:
 - Taste – retraining taste buds!
 - Cost – Wendy's & McD's salads ...without the finger or rat ☺
 - Marketing – interpretation of language is key!
 - Portability – study on grab-and-go containers

Supersize me...

- Compounding the general poor nutritional content of fast-foods is the "megaportions"
- "With the exception of sliced white bread, the sizes of marketplace portions exceed federal standards, often by at least a factor of 2 (bagels, sodas) and sometimes by as much as 8 (cookies)" [Young & Nestle, 2003]
- Studies showed portion sizes directly affects energy intake
- "Participants consumed 30% more energy when offered the largest portion of mac & cheese compared to the smallest portion" (Rolls, 2003)
- What's interesting (or disturbing) is that participants did not differ much in their perceived levels of hunger & fullness despite differences in intake
- Also, <1/2 of the subjects noticed the difference in portions served

Human Eating Behavior... (Rolls, 2003)

- People tend to eat in units
 - Cookie, sandwich, bag of chips, candy bar
- Is the behavior of "eating more when offered more" a natural human instinct or a learned behavior?
 - 3-yr-olds' "intake is relatively unaffected by environmental cues such as portion size
 - 5-yr-olds' responded similarly to adults by eating more when offered more!
 - Study results support the hypothesis that "environmental influences, such as rewarding children for cleaning their plates, may undermine the ability to respond appropriately to physiologic cues related to hunger"
- If so, PARENTAL INFLUENCE may play a big role in their children's eating preferences & habits, AND ultimately their weight & health!!!

Parental Roles...

- "Mothers' dietary disinhibition mediates familial similarities in degree of overweight for mothers and daughters" (Cutting et al., 1999)
- Dietary disinhibition – overeating that occurs in the absence of hunger has been linked to binge eating, bulimic episodes, and higher weight outcomes in adults
- As a "provider", food served by parents to their children in their early years creates a pattern for the rest of the child's life
- As an "enforcer", parents are cautioned to avoid exerting external restrictions to their child's food intake as these external cues could eventually override their internal self-regulation signals!!! (McCaffree, 2003)

Want a snack?

- The other main source of caloric intake
- Snacking increased from once a day in the 1980s to 1.6x's a day in the 1990s (Lin et al., 1999)
- Between 1970s and 1990s, men & women doubled the calories consumed between meals (by between 160 and 240 calories) [Buchholz, 2003]
- And guess what? Most of these calories are consumed at home! Perhaps related to:
 - Telecommuting
 - Sedentary desk jobs
 - Time spent watching TV or using other media

What do we do about this?

- Environmental Factors
 - Information
 - Portion size
 - Paradoxical consumer behaviors
 - Media
- Personal Responsibility

Changing Environmental Factors...

- Nutrition information to be made available @ restaurants and on packages to help consumers make their food decisions
 - McDonald's included nutrition info on packaging of their product line
- More variety of healthier food choices
 - Burger King's new Chicken Baguette line (5g of fat & 350 calories); make it a Lite Combo meal w/ a side salad and bottle of H2O
 - McDonald's to replace beef tallow w/ a liquid canola oil lower in saturated fat
 - Frito-Lay offers reduced-fat Doritos in school lunch rooms
 - Recently, Santa Clara school district talked about banning fundraising with junk food!

Changing Environmental Factors...

- Problem w/ "supersizing" and "megaportions" needs to be addressed
- Consumers and researchers are urging food industry to serve smaller portions (Rolls, 2003)
- Incentives & rewards to encourage food industry to reduce portion sizes?
 - McDonald's phased out their signature Supersize fries & drinks in its U.S. restaurants end of 2004
 - Perhaps insignificant to nation's overall food consumption, but has symbolic value!

Paradoxical consumer behaviors...

- “Price decreases alone, rather than a combination of price decreases and health messages, were associated with a higher level of increased purchases of some healthy food items” (Horgen & Brownell, 2002)
- Health messages, such as labeling the food as “healthy”, might be perceived by consumers as bad tasting, and hence negatively affected sales
- “Price reductions of 10%, 25%, 50% on low-fat snacks were associated with significant increases in low-fat snack sales; percentages of low-fat snack sales increased by 9%, 39% and 93% respectively” (French et al., 2001)
- Promotional signs labeling snacks as “low-fat”, as well as encouraging low-fat snack choice, were only weakly associated with increases in sales
- Average profits were NOT affected, WIN-WIN possible!

Paradoxical consumer behaviors...

- Altering perceptions by developing a new vocabulary for healthy foods? (Wellman, 2004)
- For example, some parents view low-fat foods as “adult” products. So instead, emphasize a product as great tasting and suitable for the whole family may encourage parents to choose the product for their kids
- Rather than using ingredient-oriented language, such as “low-fat” and “low-carb”, emphasize “balance and moderation” to help consumers develop a healthier relationship with food
- Offer multi-pack food in appropriate portion sizes

Make it more accessible, affordable and portable!

Power of the Media...

- “Most children under age 6 cannot distinguish between program content and commercials, and most children under age 8 do not understand that the purpose of advertising is to sell a product” (Kaiser Family Foundation Report, 2004)
- Food products marketing via cross-promotions with popular TV and movie characters – use young children’s accepting behavior to educate!!!
- E.g. Marketing experts of dried fruit snacks have attributed the substantial sales increase to the use of exclusive licensing agreements that involve toys based on media characters
- Kraft Foods Inc. (2005) said it would stop advertising less-nutritious products on television, radio and in magazines aimed at kids under 12.

Power of the Media...

- Nickelodeon Networks began partnering with produce companies, putting SpongeBob SquarePants on spinach packages and Dora the Explorer on bags of organic soybeans
- Disney characters will be used to market foods only in which fat does not exceed 30 percent of the calories in main dishes; saturated fat does not exceed 10 percent of calories; and added sugar does not exceed 10 percent of calories for main and side dishes, and 25 percent for snacks.
- Starting this month, Disney is also changing children's meals at its theme parks by including water or low-fat, 100 percent fruit juice with side dishes such as applesauce or carrots in place of soft drinks and french fries. Parents who want soda or fries will have to request them. 90% parents stuck with nutritious option

Personal Responsibility

- You need to understand what role nutrition play in your life as a whole
- So, instead of chasing after the next fad diet, ask yourself how your nutritional decisions affect your life, your family, and society!



My Top Ten Essential Questions...

1. What are the benefits of over-consumption? What are the costs? Perform a cost-benefit comparison. What conclusions can you draw?
2. What do you value in life? Are your current eating behaviors helping you get closer to or farther away from what you value?
3. What does good parenting mean to you? Is taking your kids to McDonald's the best way to reward their good behaviors? If so, why? If not, how else can a parent reward their children?
4. What does freedom mean to you and how important is it in your life? How does your health fit into this picture?
5. With freedom comes responsibilities, what responsibilities are associated with the freedom you desire? Specifically, what are your responsibilities in exchange for freedom associated with good health? Are you willing to take on these responsibilities, even if they may not be gratifying in the short term?

My Top Ten Essential Questions...

6. What challenges or obstacles do you foresee in acting responsibly? What can you do to overcome them?
7. What have you learned from answering the above questions? How can you share this knowledge with your significant others (i.e. children, family, friends)?
8. How might your significant others benefit from your actions should you decide to act on the responsibilities you listed above?
9. How might our society benefit from your actions should you decide to act on the responsibilities you listed above?
10. Create specific goals, actions and timelines that are congruent with your answers to the above questions.

Too serious way to look at food?

- Food plays a salient role in many cultures and is associated with abundance, family bonds, special occasions and celebrations
- How do we expect people (you and me included) to view what we eat and how much we eat as a responsibility?
- Ok, let's travel back in history, remember food was once simply a means to survival? In fact, for some people in this world, this is still the case!
- With scientific & technological advances, food evolved to a form of hedonic pursuit through socialization & commercialization
- Seems more glamorous than a means to survival?
- Remember the 300,000+ deaths & the \$117B health care costs? How about the activities we can't do or the time we can't spend with our children because we are obese?

Parting thoughts...

- We need to look beyond calories, nutrient contents, diet books & infomercials
- It is time for humanity as a whole to re-evaluate what role food should play in sustaining a healthy America
- Food is meant to sustain and enhance lives, NOT to destroy them
- So do we "Eat to live" or "Live to eat"?



Humor 😊

- A couple goes out for a meal at a Chinese restaurant and orders the "Chicken Surprise".
- The waiter brings the meal, served in a lidded cast iron pot.
- Just as the wife is about to serve herself, the lid of the pot rises slightly and she briefly sees two beady little eyes looking around before the lid slams back down.
- "Good grief! Did you see that?" she asks her husband.
- He hasn't, so she asks him to look in the pot.
- He reaches for it and again the lid rises, and he sees two little eyes looking around before it slams down. Rather perturbed, he calls the waiter over, explains what is happening, and demands an explanation.
- "Please sir," says the waiter, "what did you order?"
- The husband replies, "Chicken Surprise."
- "Ah ... So sorry," replies the waiter, "I bring you Peeking Duck."
