• Obesogenic environment
  o **Obesogenic environment**: environment that promotes gaining weight and that is not conductive to weight loss
  o US has the highest rate of overweight and obesity in the world
    ▪ 68% overweight
    ▪ 34% obese
  o Portion size for most dishes in the US have doubled or tripled in the past 20 years

• Results from the NHANES study
  o National health and nutrition examination survey
  o Survey of 18,098 adults in the US using 2003-2010 data
  o Participants responded to questions about their diet in the past two days
  o Compared eating home-prepared meals with full-service restaurant and fast food restaurants
    ▪ Fast food restaurants compared to home meals
      • Worse in terms of fat
    ▪ Full-service restaurants compared to home meals
      • Worse in terms of sodium and cholesterol
    ▪ Home meals are the best for you

• Weight loss interventions have modest success
  o Average weight loss through diet and/or exercise interventions is 5-9% at 6 months, followed by a plateau (upland)
  o **Lifestyle changes** (exercise, eating more vegetables) are linked to better health outcomes (lower cardiovascular risk, lower risk of cancer) even when very little weight is lost.
  o Most patients who diet and lose weight regain most or all their weight within 5 years
    ▪ 1/3 to 2/3 of participants regain more weight than they lost initially

• Dieting as risk factor for obesity
  o **Yo-yo dieting**: successive cycles of dieting and weight gain
    ▪ Enhances the efficiency of food use
    ▪ Lowers metabolic rate
  o **Set point theory of weight**: each individual has an ideal biological weight, which cannot be greatly modified

• Biological regulation of eating
  o Two important hormones: leptin and ghrelin
  o Leptin and ghrelin signal to the brain whether the body has enough energy
  o **Leptin**: satiety hormones → inhibits appetite
    ▪ Discovered in 1994
    ▪ Secreted by fat cells
    ▪ In obesity, leptin levels are high, but in some people, the brain becomes insensitive to leptin if levels are high for long periods of time
  o **Ghrelin**: hunger hormone → stimulates appetite
    ▪ Discovered in 1999
    ▪ Secreted by specialized cells in the stomach
• Eating disorders
  o Developed due to the pursuit of thinness
    • Highest disability and mortality rates of all behavioral disorders
  o Lead to:
    ▪ Depression and anxiety
    ▪ Low self-esteem and a poor sense of mastery
• Anorexia nervosa
  o Anorexia nervosa: an obsessional disorder amounting to self-starvation
    • Body weight is well below optimum level
  o Causes
    ▪ Genetic factors: genes involving the serotonin, dopamine, and estrogen systems
    ▪ Interactions between genetic and environmental factors
    ▪ Dysregulated biological stress systems (HPA axis)
    ▪ Personality characteristics
    ▪ Family interaction patterns
  o Treating anorexia
    ▪ Therapy
      • Cognitive-behavioral approaches
      • Family therapy
    ▪ Prevention
      • Addressing social norms
      • Addressing the health risks of eating disorders
      • Urging symptomatic individuals to accept treatments
• Bulimia
  o Bulimia: characterized by altering cycles of binge eating and purging (throwing up)
  o People with binge eating disorders are characterized by
    ▪ Excessive concern with body and weight
    ▪ Preoccupation with dieting
    ▪ History of depression, psychopathology, and alcohol or drug abuse
    ▪ Difficulties with managing work and social settings
  o Causes
    ▪ Different stress responses
    ▪ Higher cortisol levels
    ▪ Large body mass
    ▪ Depression and substance abuse
    ▪ Genetics and hormonal dysfunctions
    ▪ Family values
    ▪ Low leptin functioning
    ▪ Hypothalamic dysfunction
    ▪ Food allergies
    ▪ Disordered taste responsivity
    ▪ Disorder of the endogenous opioid system
- Trauma
- Psychological inhibition

### Factors that decrease disease progression
- Optimism
- Active coping
- Extraversion
- Conscientiousness
- Spirituality

### Cancer

- **Cancer**: a set of more than 100 diseases with different causes and courses
- **Common feature**: they **result from a dysfunction in DNA**
  - **DNA**: part of the cell that controls growth and reproduction
  - **Cancer**: uncontrollable growth of cells
- **Interventions** help reduce risk factors and improve coping

### Risk factors
- Family history (genetics)
- Race-ethnicity
- Culture and lifestyle (example: smoking)
- SES
- Marital status
- Diet

### Known human carcinogens
- **Carcinogen**: substance or exposure that causes cancer
- Acetaldehyde (from consuming alcoholic beverages)
- Asbestos
- Engine exhaust (diesel)
- Tobacco
- UV radiation

### Stress and cancer

- **Cancer flourishes when stress hormones are high**
- Norepinephrine and epinephrine implicated in metastatic process
- Less clear that stress causes cancer onset
- Absence of close family ties in childhood predicts some cancers
- Depression and absence of a current social support network worsens the course of illness
- Women who are socially isolated are at greater risk of dying

### Adjusting to cancer

- Coping with physical limitations
  - Stem from the pain and discomfort
  - Fatigue and compromised nutrition
  - Body image issues
- Stress-reduction interventions (example: mindfulness)
- Promoting social support (family support or support groups)
- Dietary control
- Weight control and exercise
  - Adherence is very low (only 15% of patients) and especially difficult in adolescents
  - Psychologists can help teach coping skills and self-regulation needed to improve adherence

Lecture 15
- What is **hedonic adaptation**?
  - Adapting to positive changes and returning to baseline levels of happiness
- What does research suggest about the **role of money in happiness**?
  - Those who have more money are happier, but there are diminishing returns with each increase in financial resources
- According to Dr. Ann Masten, what does Michal Maddaus’ life trajectory from juvenile delinquent to esteemed surgeon suggest about resilience to adversity?
  - Resilience comes from **inspiring social connections** to others
- Dr. Laura Carstensen argues that we should look forward to growing older because
  - When we age, we become more selective in the relationships and activities we choose and focus primarily on the rewarding ones

Lecture 16
- Recognition of symptoms
  - Individual differences
    - Hypochondriasis: belief that normal bodily symptoms are indicators of illness
    - Neuroticism: pervasive negative affect; people either exaggerate symptoms or are more likely to notice real symptoms
  - Attentional differences
    - People who are focused on themselves are quicker to notice symptoms
    - People with more distractions and who attend less to themselves experience fewer symptoms
  - Situational factors
    - Boring situations make people more attentive to symptoms
    - **Medical students’ disease**: students believing they are ill with the same illness about which they are studying
  - **Stress**
    - Stress-related physiological changes are interpreted as symptoms of illness
  - **Mood**
    - Affects perception about symptoms and perceived vulnerability to illness
- Case study 1: **gastrointestinal problems** associated with stress
  - Common GI problems due to stress: heartburn, indigestion, nausea and vomiting, diarrhea, constipation and associated lower abdominal pain
  - **Functional dyspepsia**: a condition where there is no functional problem of the GI tract, but there is discomfort and pain in the upper GI tract