The Oldest Old

- The "oldest old" – those aged 85 and over – are the most rapidly growing elderly age group.
  
  - The oldest old represented 12.1% of the elderly population in 2000 and 1.5% of the total population. In 2050, they are projected to be 24% of elderly Americans and 5% of all Americans.
  
  - Centenarians – those aged 100 or more – represent a small but growing number of elderly Americans. The 1990 census reported 37,000 centenarians, while Census 2000 reported 50,000 centenarians in the United States.

Established Populations for Epidemiologic Studies of the Elderly (EPESE)

Epidemiology, Demography, and Biometry Program (EDBP)
National Institute on Aging (NIA)

- East Boston, 1982-83
  Senior Health Project
  (N=3809)
- Iowa, 1982
  85+ Rural Health Study
  (N=3673)
- New Haven, 1982
  Yale Health and Aging Project
  (N=2812)
- North Carolina, 1986-87
  Piedmont Health Survey of the Elderly
  (N=4163)

Key Issues

- Physical Function & Disability
- Behavior/Environment
- Genetics
- Age-related Diseases & Conditions
- Cognitive Function & Dementia
- Physical Function & Disability
- Genetics

Making Life Better™
The Graying of America
Percent of Total U.S. Population over 65 in 2000


The Graying of America
Percent of Total U.S. Population over 65 in 2030

U.S. Population Pyramids


Moving to the Sun Belt

Women Live Longer

U.S. Population by Gender and Age (2000)


Income and Aging
Total Money Income of U.S. Households (2005)


At Risk from Poverty
Percent of 65+ in Poverty in the U.S. (2005)

Older Adults More Likely to Have Disabilities
Percent of Americans with Disabilities (2002)

- 65+: 52.3%
- 15-64: 36.9%
- 0-14: 15.1%
- 0-14: 9.6%


Chronic Health Problems
Percent of 65+ with selected conditions, 2003-2004

- Heart Disease: 37.2% Males, 48.1% Females
- Hypertension: 54.7% Males, 54.7% Females
- Stroke: 10.1% Males, 8.5% Females
- Cancer: 23.8% Males, 18.1% Females
- Diabetes: 19.5% Males, 15.1% Females
- Arthritis: 42.9% Males, 55% Females

Source of data: U.S. Census Bureau, Older Americans Update 2006: Key Indicators of Well-Being, May 2006.
Aging In A Nutshell

**Metabolism** (the network of molecular and cellular processes that keep us alive)

eventually causes

**Pathology** (the network of molecular and cellular processes that kill us)

Problem 1: This Is Metabolism
Problem 2: This is Pathology

- Cancer
- Heart Disease
- Diabetes
- Incontinence
- Osteoporosis
- Macular Degeneration
- Alzheimer’s
- Stroke
- Sarcopenia
- Osteoarthritis
- Hormonal Imbalance
- Kidney Failure
- Parkinson’s
- Pneumonia
- Emphysema
- Sex Drive

... and LOTS more

Age Related Changes

- Sleep disturbance
- Loss of hearing
- Taste and smell sensitivity decreases
- Temperature sensitivity declines
- Less pain sensation
- Problems with balance → fall precautions

"I hope you don’t mind, but I used the computer to remove all those age spots and that hideous mole you have."
Age Related Changes

- Physical performance declines
- Muscle performance declines
- Muscle characteristics (sarcopenia)
- Metabolic changes
- Hormonal Changes

Figure 2: Average percent body fat versus age in men and women: estimates from the National Health and Nutrition Examination Survey III body mass index data using the formulas of Lean et al. (1996).
Age Related Changes: Running Speed

Sarcopenia seen in the magnetic resonance image of a cross section of a 25-year-old man's thigh (left) and another age 65 (right). The dark region is muscle, fat appears white.
Age Related Changes: Skeletal

- Connective Tissue/Collagen: As we age, cross links develop and result in tissue that becomes stiff and inflexible. Cross-linked collagen produces loss of elasticity, hardened arteries, joint stiffness.

- Bone degeneration through lack of calcium and protein → loss of bone mass and density (Osteoporosis).

Normal bone                                      Osteoporotic bone

- Very common: >60 years, 1 in 2 women, 1 in 3 men sustain an osteoporotic fracture.

Skeletal Systems

Changes in bone density with aging in women.

The normal curve (A) steepens following menopause. A woman who begins with diminished bone density (B) even before menopause is at great risk. (C) use of diet and exercise regimens can help to slow bone loss.
Aging & the Immune System

- Immunocompetence
- Stress response
- Inflammatory response
  - Infection in older adults is more difficult to detect
  - Slight & subtle symptoms should be taken seriously!
  - Older adults often have serious infection without a fever!

Cancer incidence is age-related

Rates per 100,000 individuals, summed over 17 types of cancer.
Cardiovascular Disease

- Over age 65--half of all deaths
- Changes in cardiovascular system:
  - Heart needs more time to relax between contractions
  - Less flexible walls of aorta
  - Elastin, collagen, and fat in heart wall increase, muscle decreases
- Women’s risk increases after menopause

Diabetes type II
(insulin-resistant)

<table>
<thead>
<tr>
<th>Age</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>20–39 years</td>
<td>2.2%</td>
</tr>
<tr>
<td>40–59 years</td>
<td>9.2%</td>
</tr>
<tr>
<td>60 years and over</td>
<td>19.2%</td>
</tr>
</tbody>
</table>

(1999-2000 data)
So then, what happens to sexual health?

Reproductive System

- Female: Menopause (full year without menstrual cycle)
- Male: Changes in levels of testosterone which impacts energy, sexual function.
  - Males can suffer from erectile dysfunction-impotence, with biological and neurological (Parkinson’s, dementia) causes.
- DHEA levels decline with age


- DHEA: an adrenal steroid hormone

---

**Serum androgen levels**

- SHBG (nmol/L)
- Androstenedione (ng/dL)
- Testosterone (ng/dL)
- DHEA (ng/dL)
- Free Testosterone (ng/dL)
- DHEAS (µg/dL)
Why should we care?

Fun Not fun

Reproductive Aging

- The reproductive system ages faster than the body as a whole
  - The human body matures at about the age of 25
  - At this point, the body begins to deteriorate
  - The organs become less efficient and sensory problems occur
- By age 45, our reproductive organs are in the state that our other organs have reached by eighty!
  - Females: Menopause, around 50 the female sex hormones slow down.
  - Males: Climacteric, male sex hormones begin decreasing around 50 and by 80 very few are produced.
Marital Satisfaction Over the Life Course

U-shaped pattern
1. high in early years
2. decline during child-rearing years
3. rise again, peaking in the retirement years

Marriage and Sexual Activity

Both men and women continue to find satisfaction and enjoyment in sexual activity as they get older.
REMEMBER ….

• Older adults were once young adults too!
  – Myths and expectations
    • What changes as we age
    • Older patients don’t talk about sex
    • Older patients don’t want to talk about sex
    • Older patients don’t want to have sex
  – Education
    • Menopause
    • Dementia
    • Chronic illness
    • Sexual abuse

Definition of Sex *per the WHO*

• “….the integration of the romantic, emotional, intellectual and social aspects of sexual beings in ways that are positively enriching and that enhance personality, communication and love.”
  – (Woods, 1984: 117)
What do you think about when …

You think about older adults having sex …

Common Beliefs About Sex & Aging

• The old folks were all “victorians” when it came to sex even when young
• Sexual desire dies in old age
• If an older woman enjoys sex after 70, she must have been a nymphomaniac
• Older adults are not
  – Desirable
  – Desirous
  – Capable
• Physical illness → obviates sex
What Old Research Tells Us …

- Kinsey → general decline in interest and activity
- Masters and Johnson → sharp decline in interest after age 60

The Naked Truth with Dr. Ruth

• 97% of those sampled liked sex
  – 54% of men and 65% of women were sexually active > 70
  – Women in survey had intercourse 1.4x/week
• Women 80-102
  – 25% had a regular partner
  – Touching and caressing 64%
  – Masturbation 40%
  – Intercourse 30%
• 91% approved of unmarried widowed having sex
• Quality more important than frequency
• Sexual activity often dependent on older partner

Women: Physiology & Pleasure

• Reduced size of vagina and vulva
• Decreased vascularity and secretions
• Thinner, more lax vaginal walls
• Atrophic vaginitis common
• Libido may decline but rarely disappear
  – Mood disorders
  – Medications
• 50% report dryness
• 30% report decreased orgasm
• 20% report burning
• Dyspaurenia

• Stress  Leakage of small amounts of urine during physical movement (coughing, sneezing, exercising, sex)
• Urge  Leakage of large amounts of urine at unexpected times
• Overactive Bladder  Urinary frequency and urgency
• Functional  Untimely urination because of physical disability, external obstacles, or problems in thinking or communicating that prevent a person from reaching a toilet
• Overflow  Unexpected leakage of small amounts of urine because of a full bladder.
• Mixed  Usually the occurrence of stress and urge incontinence together.
• Transient  Leakage that occurs temporarily because of a situation that will pass (infection, taking a new medication, colds with coughing).
Men: Physiology & Pleasure

- Diminished libido
- Diminished erectile function
  - Increased need for stimulation
  - Inadequate rigidity
- Decreased ejaculatory demand
- Decreased ejaculatory power
- Prolonged refractory phase
  - 1 week

Menopause

- Definition
  - Women
    - Cessation of menses for 1 year
    - FSH > 40 mIU per ml on two occasions 1 week apart
    - Estradiol < 20 microgm/ml
  - Men
    - Low T-Nation … who knows?
Women and Menopause

- Annual Exam
- HRT
  - Relieves vasomotor sx
  - Prevents urogenital atrophy
  - Maintains integrity of mucous membranes
  - Prevent osteoporosis
- Physiologic estrogen replacement
  - 0.625 CEE premarin
  - 1 mg of micronized estrogen
  - 0.05 transdermal
- Contraindications
  - Breast CA or other neoplasia, vaginal bleeding, phlebitis, liver disease, pregnancy
- Add progestin if woman has a uterus

Men and Menopause

- Low-T Nation
  - Definitely trendy
    - Aging is definitely associated with lower sex steroids
    - Multiple causes → check pituitary and testicular causes
- T-replacement may not necessarily improve function
  - Works better for 45-55 year old men than 65-75 year old men
  - Watch out for increasing PSA
Men and Menopause

- Sildefanil and side-effects
  - Acute ischemia
  - CHF
  - Reduced vision
  - Hypotension
  - Liver and renal failure
  - Drug interactions
  - Death
Positive Self-Perception of Aging

- Positive Self-Perceptions of Aging Increase Longevity
- Positive Self-Perception – 5 items (1975)
- Subjects: 338 m 322 w (50 94) community dwelling
- Each point of + self-perception of aging ↓ risk of dying by 13%
  - Most positive survived 22.5 years, most negative 15 years (~ 7.5 yrs)
  - Not affected by self report loneliness or health status

Positive Self-Perception of Aging

- High Self-efficacy
- Focus on problem solving
- Visualize success
- Calm, clear thinking
- Persistent
- Likely to succeed
- Creative
  - Creative people continue to excel in their vocations even unto very old age (80s/90s)
    - Examples: Verdi, Pablo Picasso, Henri Matisse, Arthur Rubenstein, GB Shaw, Winston Churchill, Frank Lloyd Wright

Making Life Better™
The Benefits of Maintaining Sexual Activity in Late Life

- Sex burns fat
  - The physical activity of sex is like walking up 2 flights
- In men, sex stimulates the release of GH and testosterone, which strengthen bones and muscles
- Sex prompts the release of substances that bolster the immune system
- Some studies suggest that sex 3x/week can slow aging

The Health Risks of Sexual Activity in Late Life

- For men, medications for ED, may pose risks if they have angina or CAD
- For women, vaginal discomfort or pain during intercourse may occur
- For both men and women, there is an increase in STIs
  - Chlamydia, GC, HIV and genital herpes do not respect age
Maximizing Your Sexual Experience

• Knowledge → your best ally
  – Talk to your partner openly about
    • Your sexual expectations
    • Your changing abilities
    • New ways to be physically intimate

• Even if intercourse is not possible
  – Talk to your partner openly about
    • Touching, hugging, and hand holding

• Stay active → enjoy regular physical activity

Maintaining Your Sexual Experience

• Stay healthy and eat healthy and maintain a healthy weight
• Stop smoking and limit alcohol intake
• If depression or anxiety are affecting your sex life, talk to your physician
• Always use a condom when having sex with a new partner and use condoms until you are sure you are both STI free
Maintaining Your Sexual Experience

- If you are a woman who suffers from vaginal discomfort, talk to your doctor
  - Water based lubricants to help with vaginal dryness
  - Take time to be properly stimulated
  - Try new things with your partner … “hope you can believe in”

- If you suffer from ED, talk to your doctor about possible treatment
  - These are not aphrodisiacs!