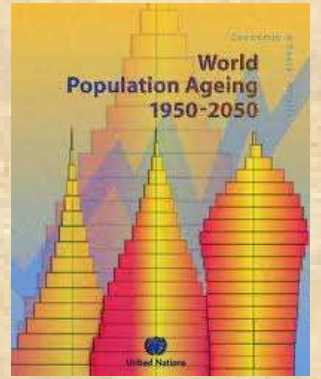
What Will Our Society Look Like in 2050?

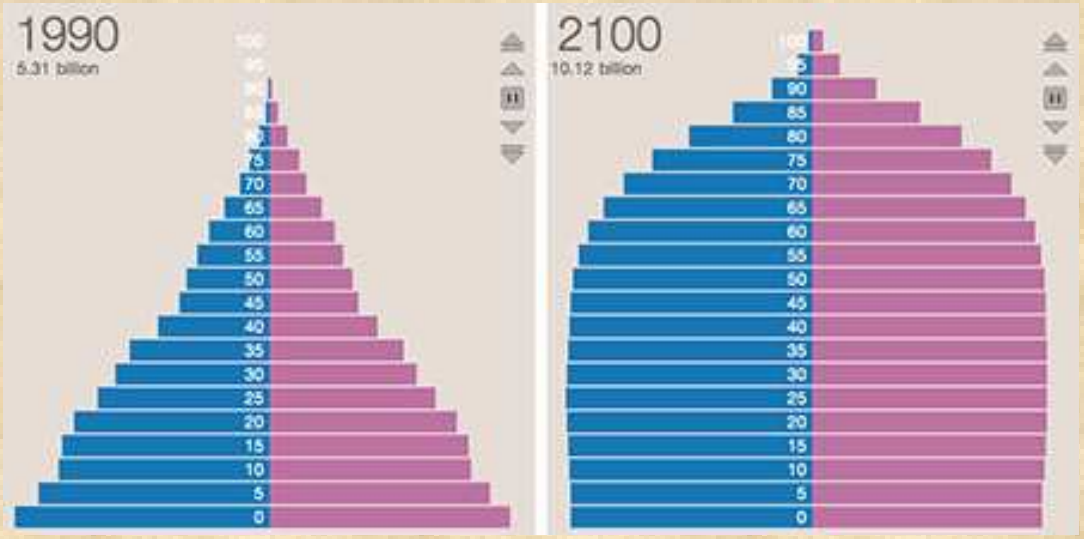
S. Jay Olshansky, Ph.D.
University of Illinois at Chicago

European Health Forum Gastein
Creating a better future for health in Europe

The Inevitable

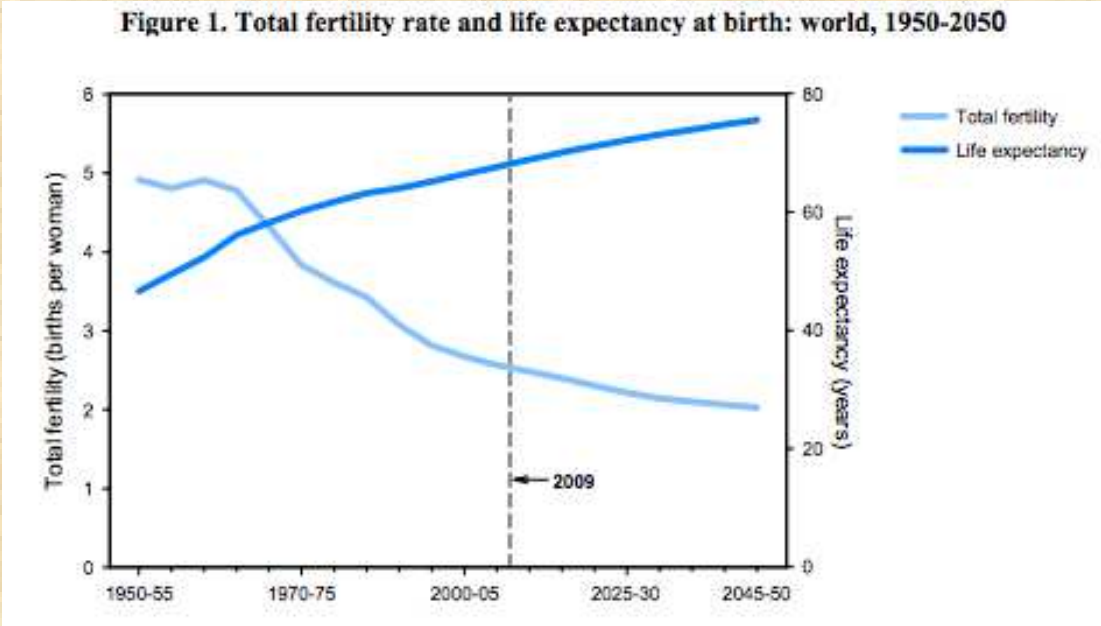
Demography Is Destiny!





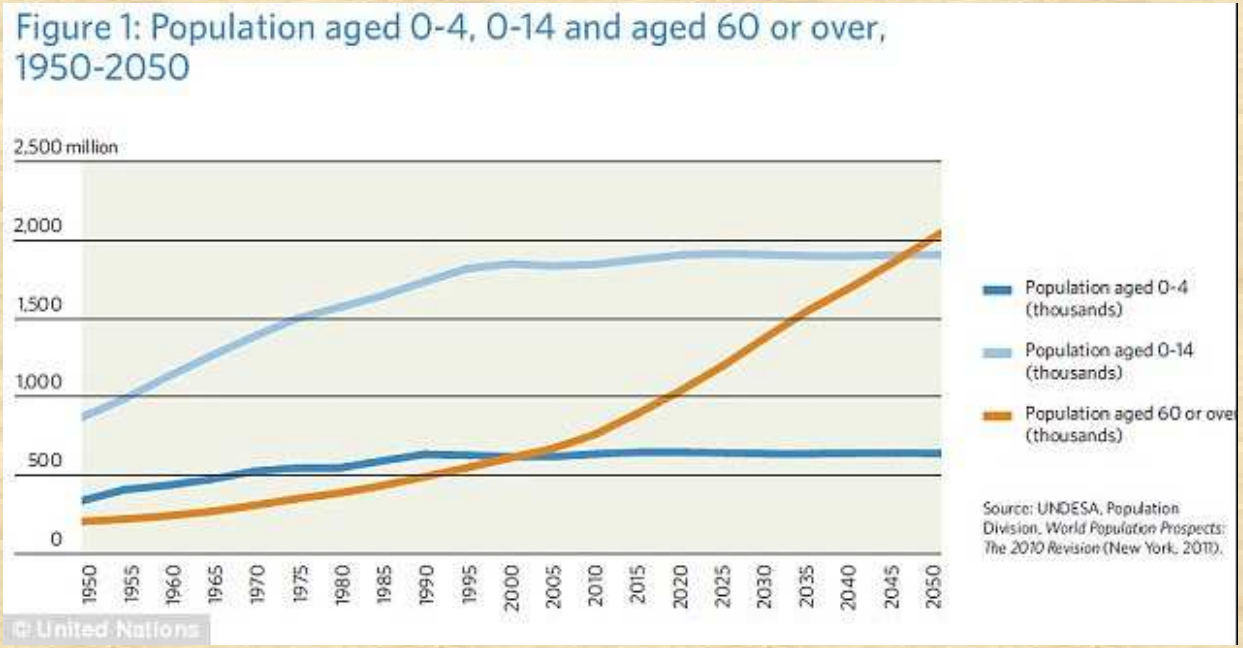
Source: United Nations, 2009

Demography Is Destiny!



Source: United Nations, 2009

Demography Is Destiny!



Source: United Nations, 2009

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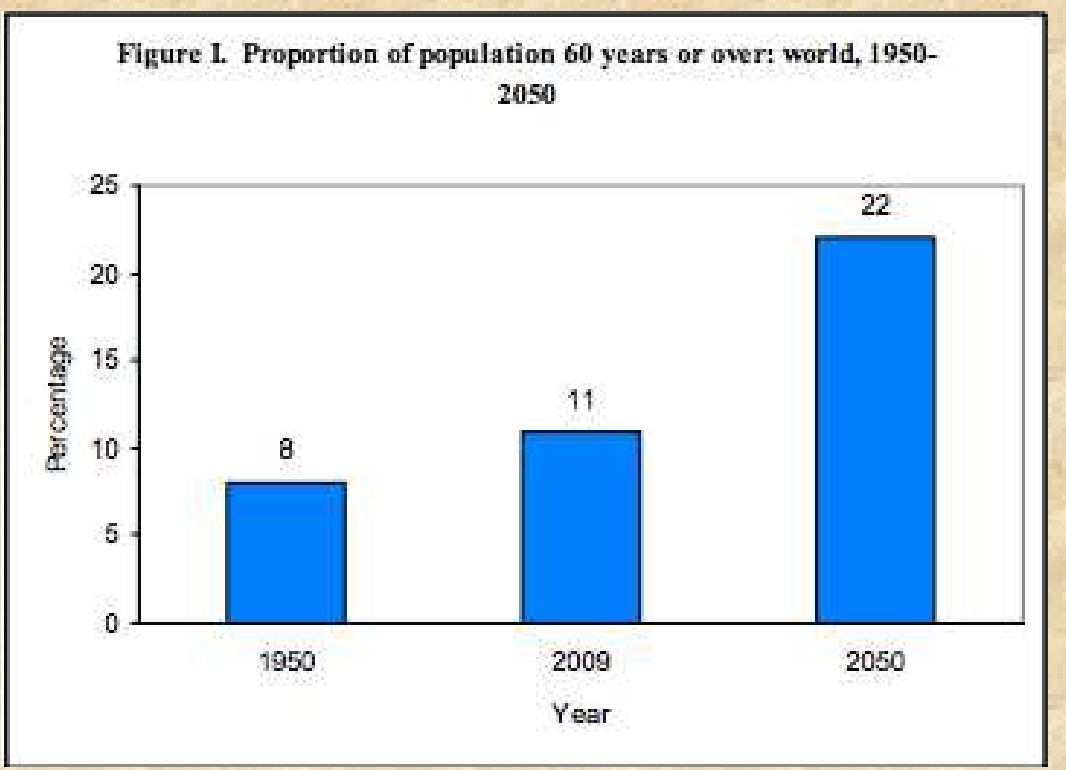

Source: United Nations, 2009

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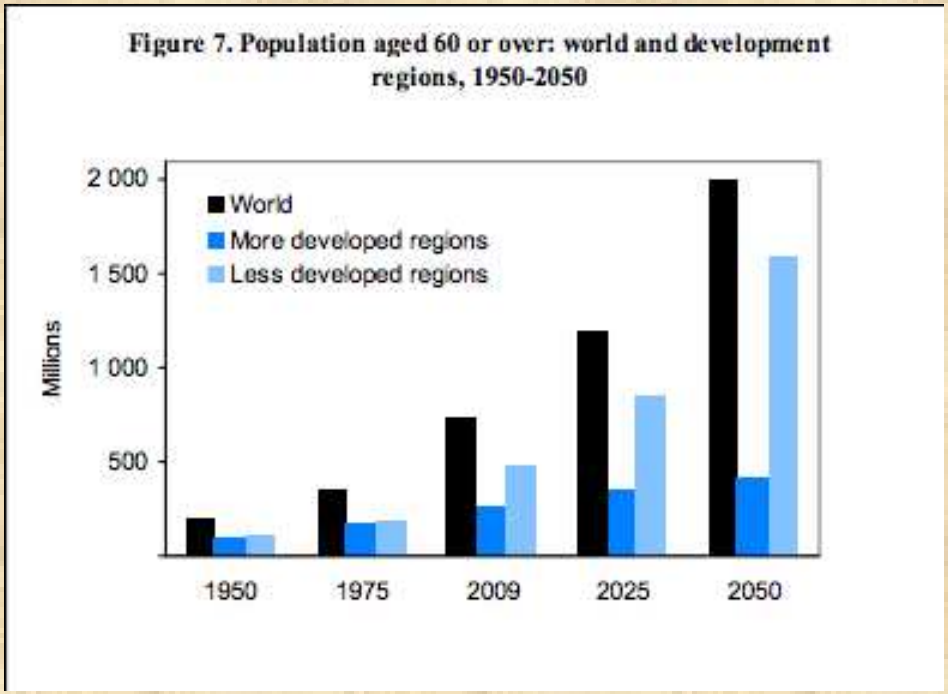

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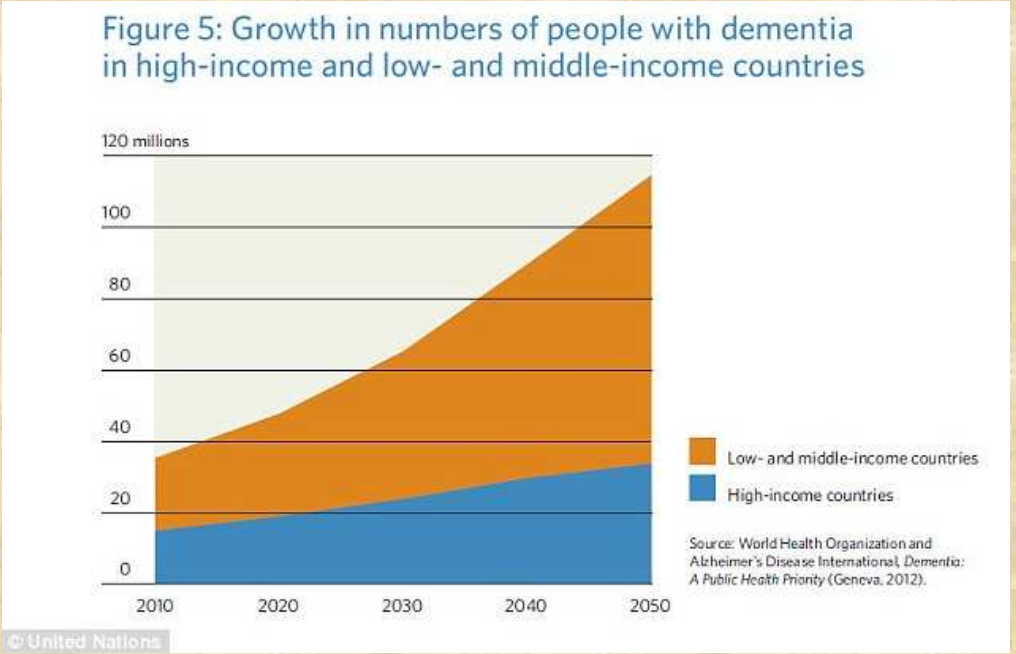


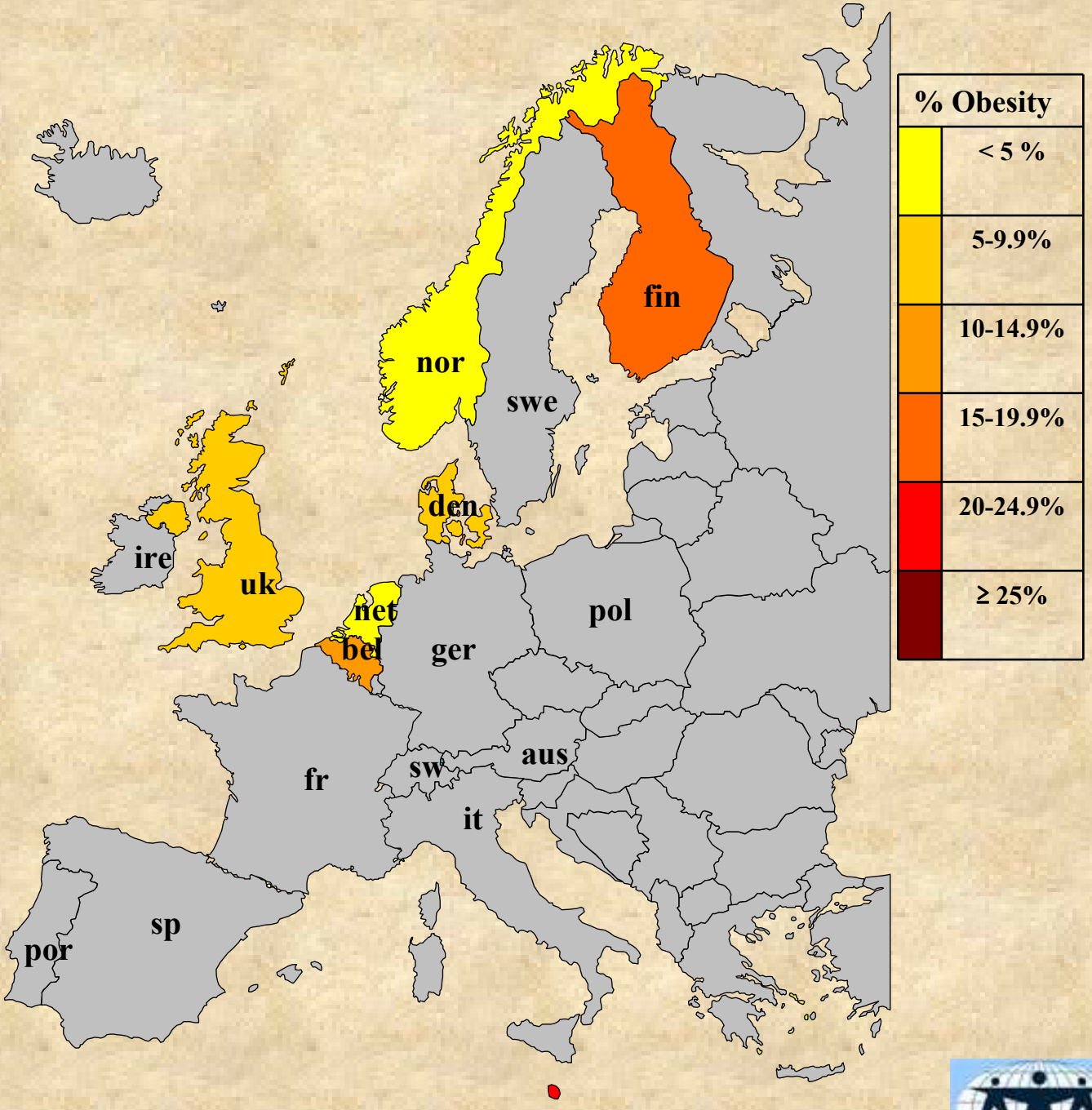
Source: World Health Organization, 2012

The Nightmare

EU Trends in Obesity 1980-2005

Males

Males
1980-1984



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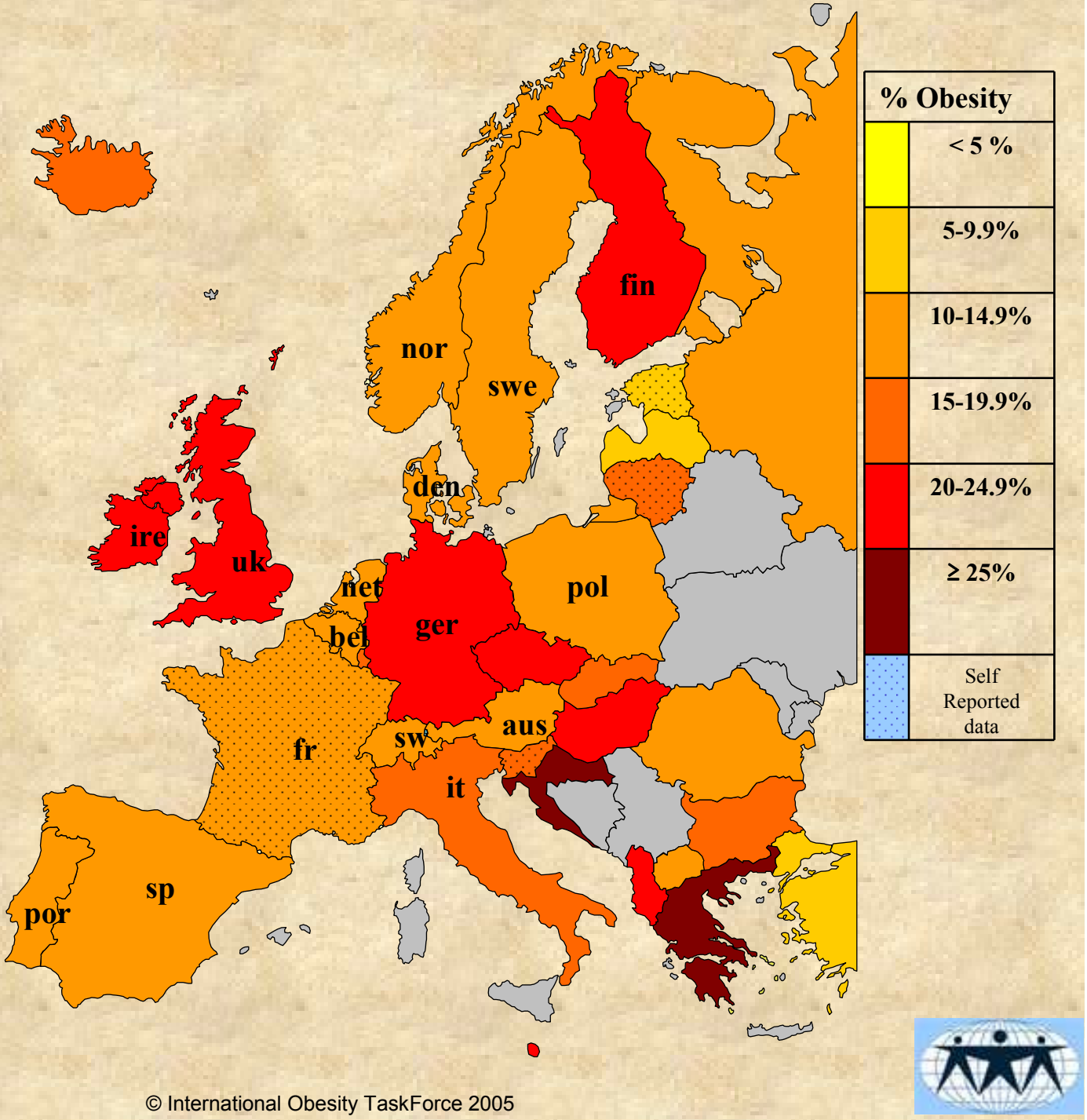
Males
2000-2005



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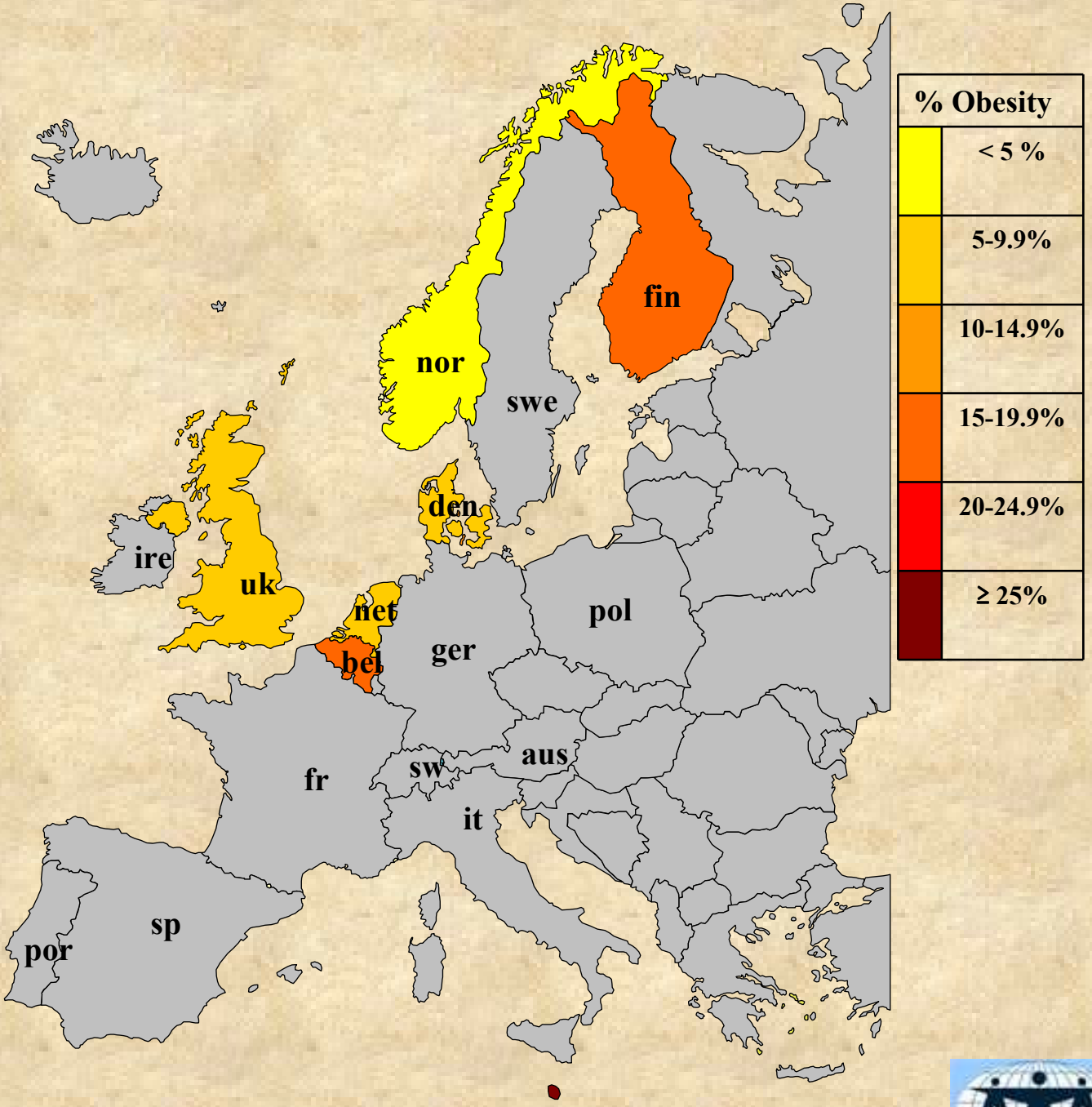
EU Trends in Obesity 1980-2005

Females

Females
1980-1984



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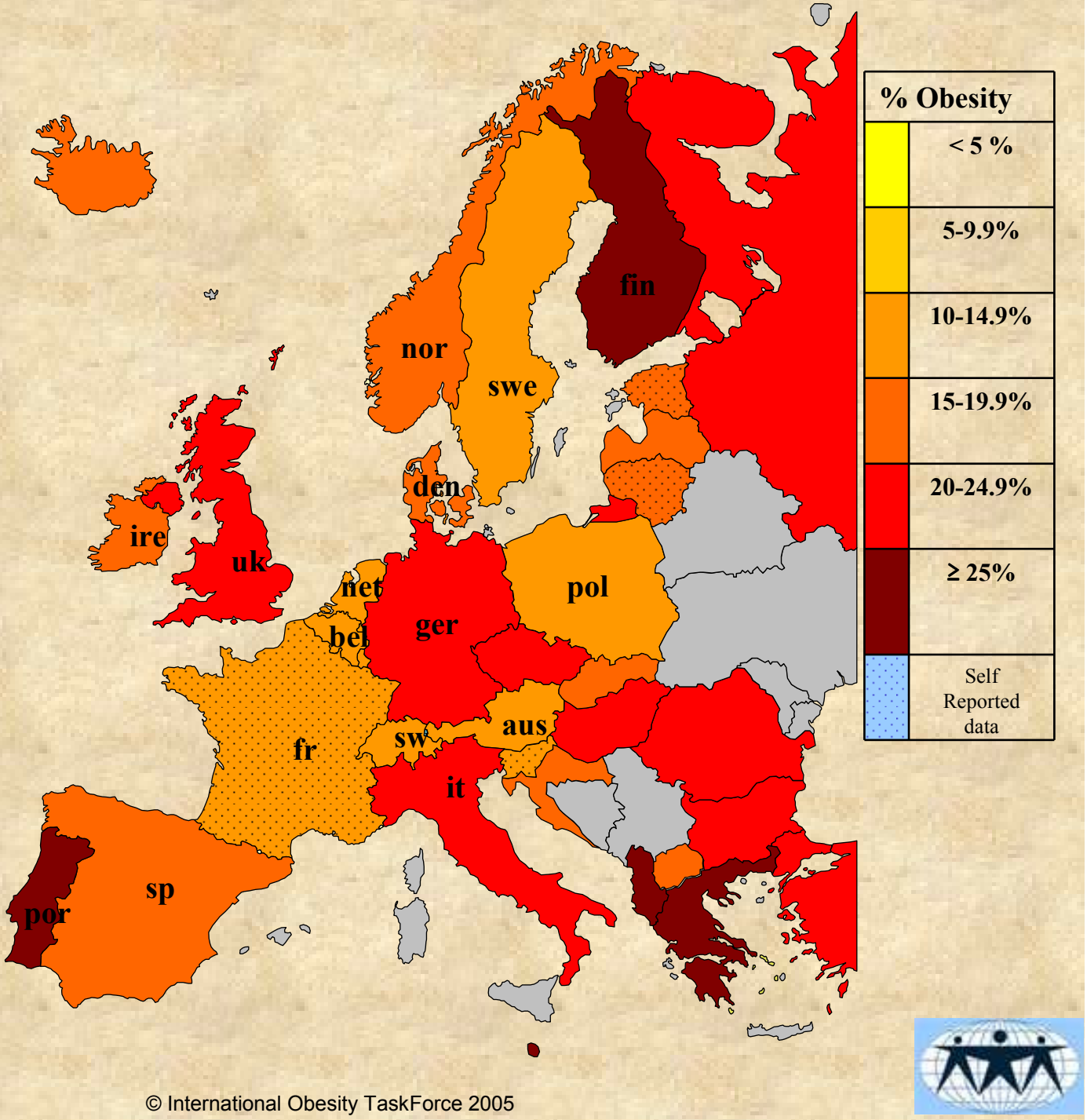
Females 2000-2005



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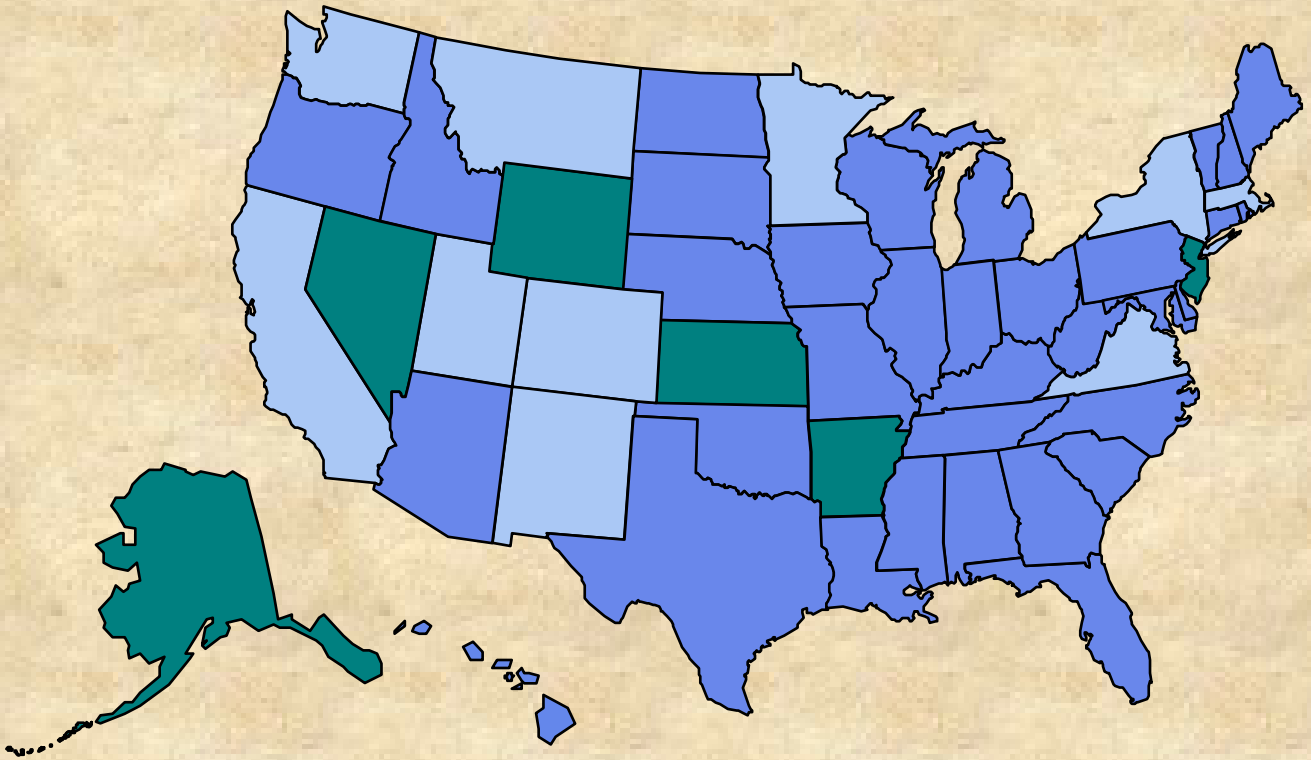
Obesity Trends Among U.S. Adults

1990

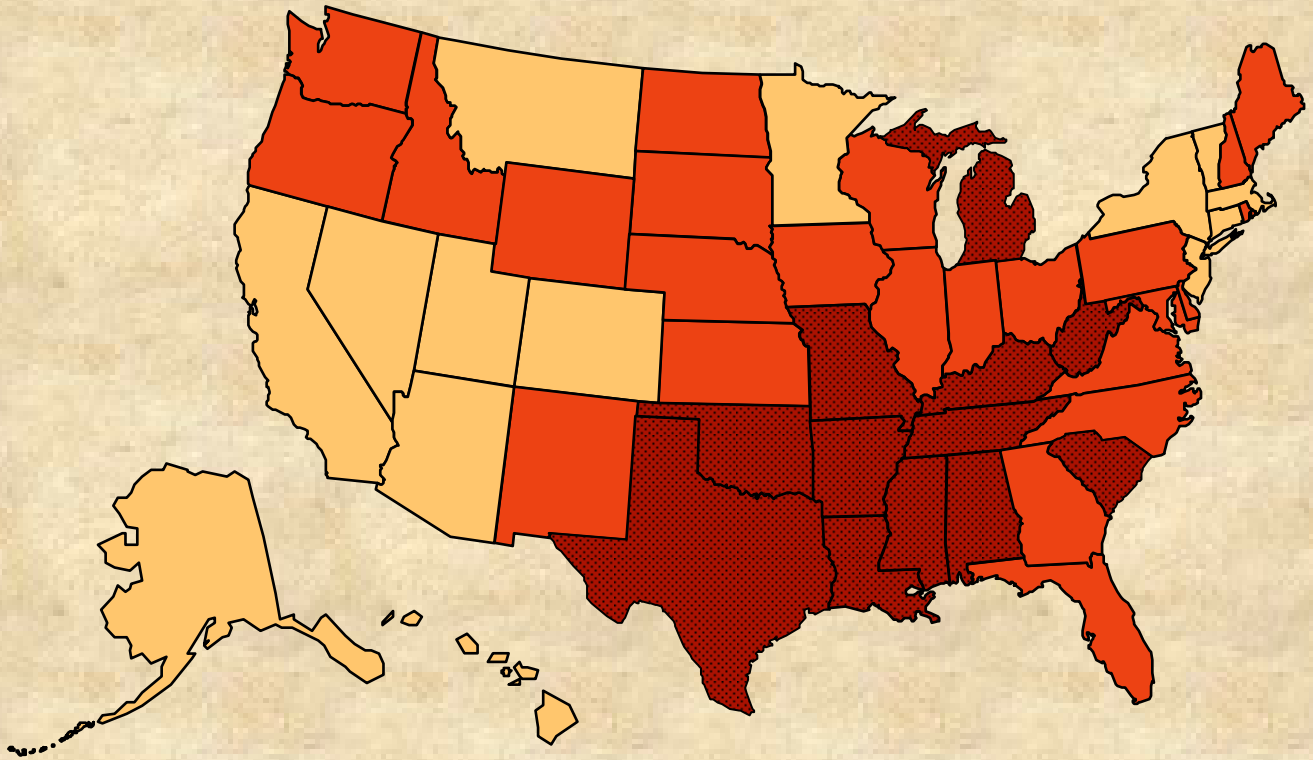


No Data | <10% | 10%–14% | 15%–19% | 20%–24% | ≥25%

Source: CDC

Obesity Trends Among U.S. Adults

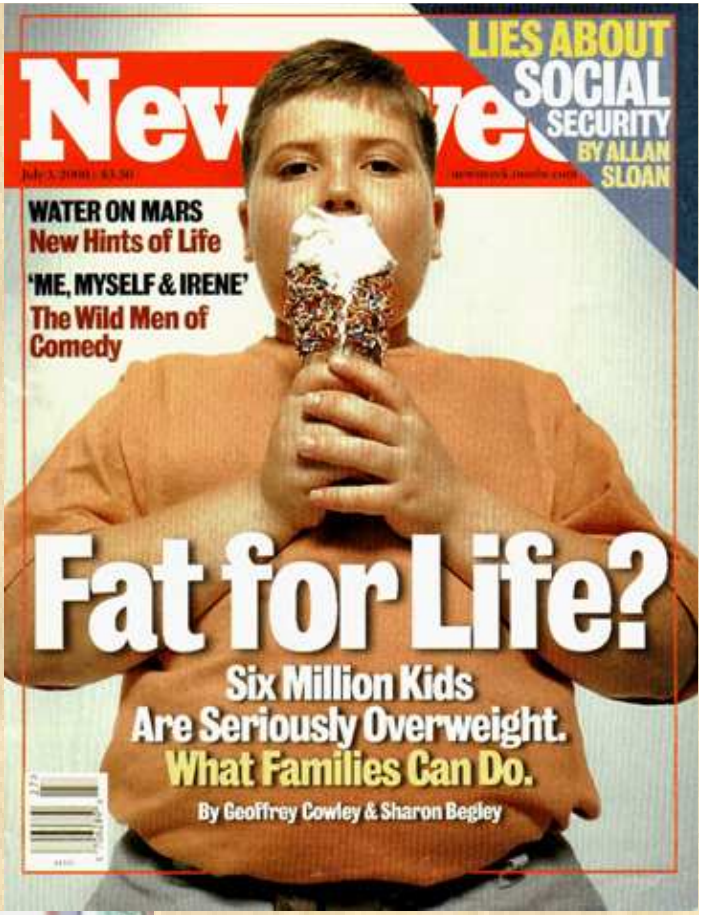
2010



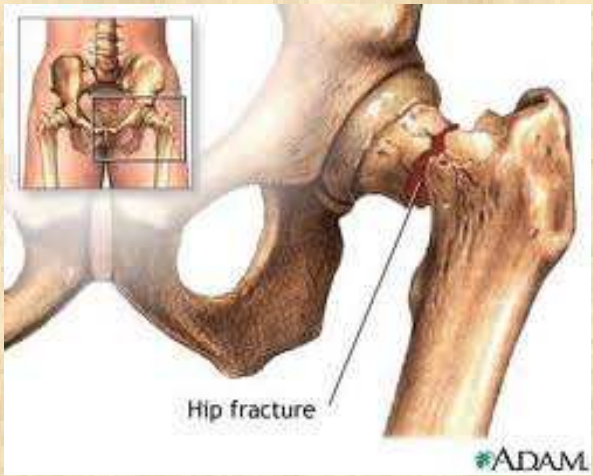
No Data | <10% | 10%–14% | 15%–19% | 20%–24% | 25%–29% | ≥30%

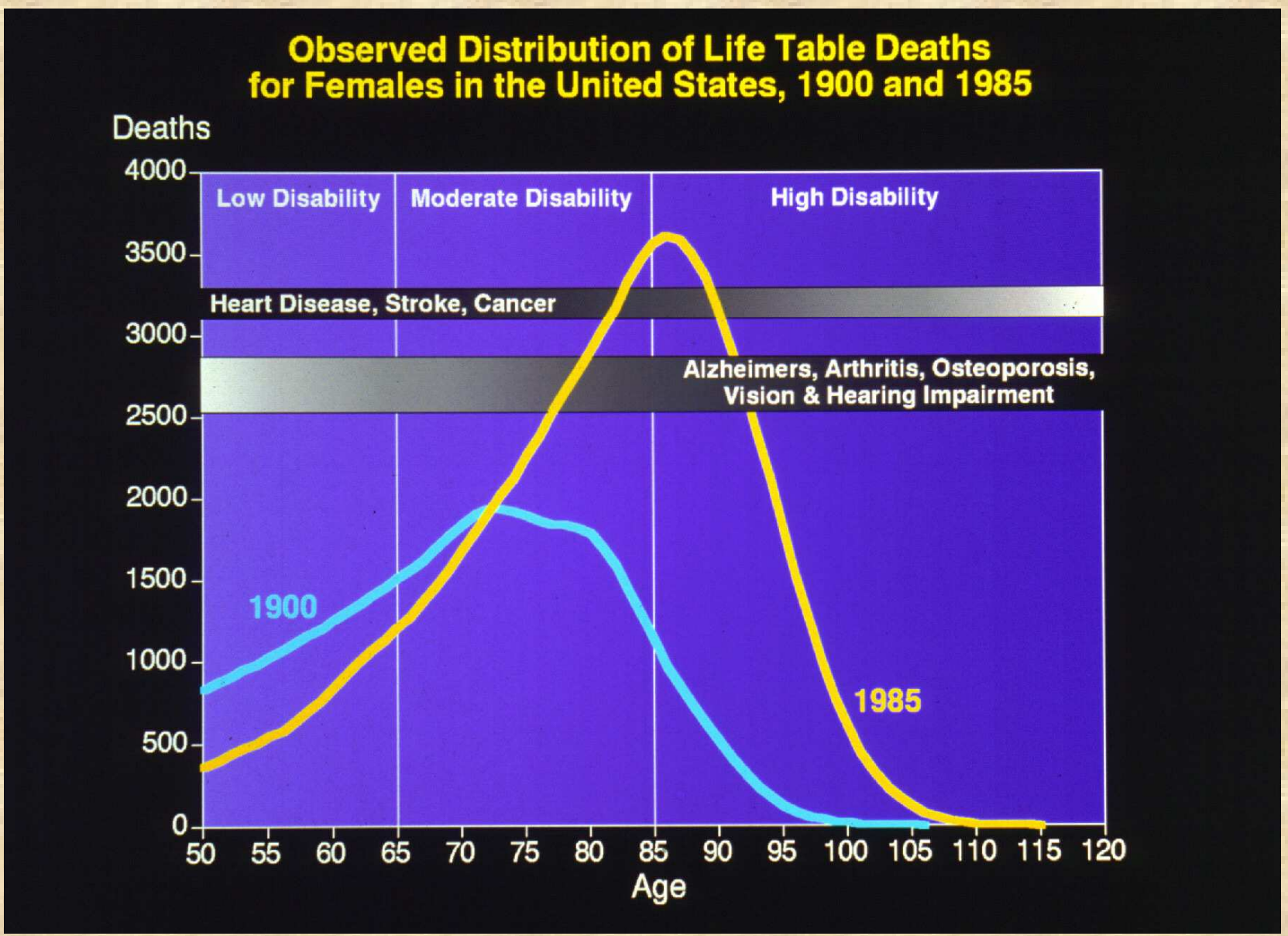
Source: CDC

OBESITY: A Weighty Issue for Children



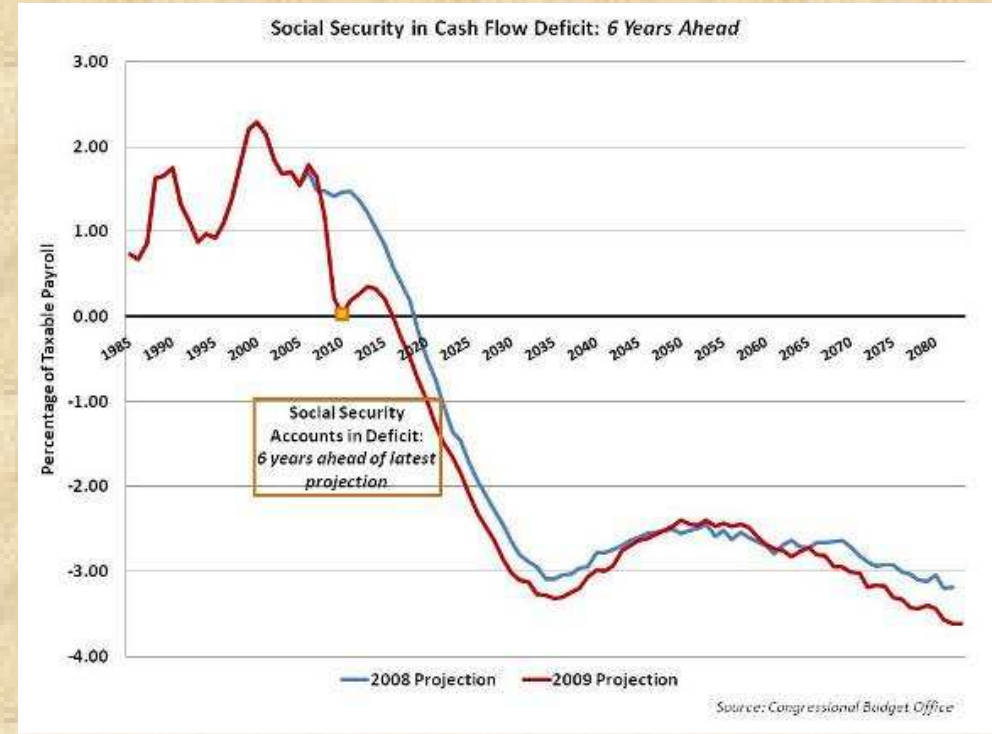
Reducing the risk of fatal diseases by treating them within silos may extend the period of old age.

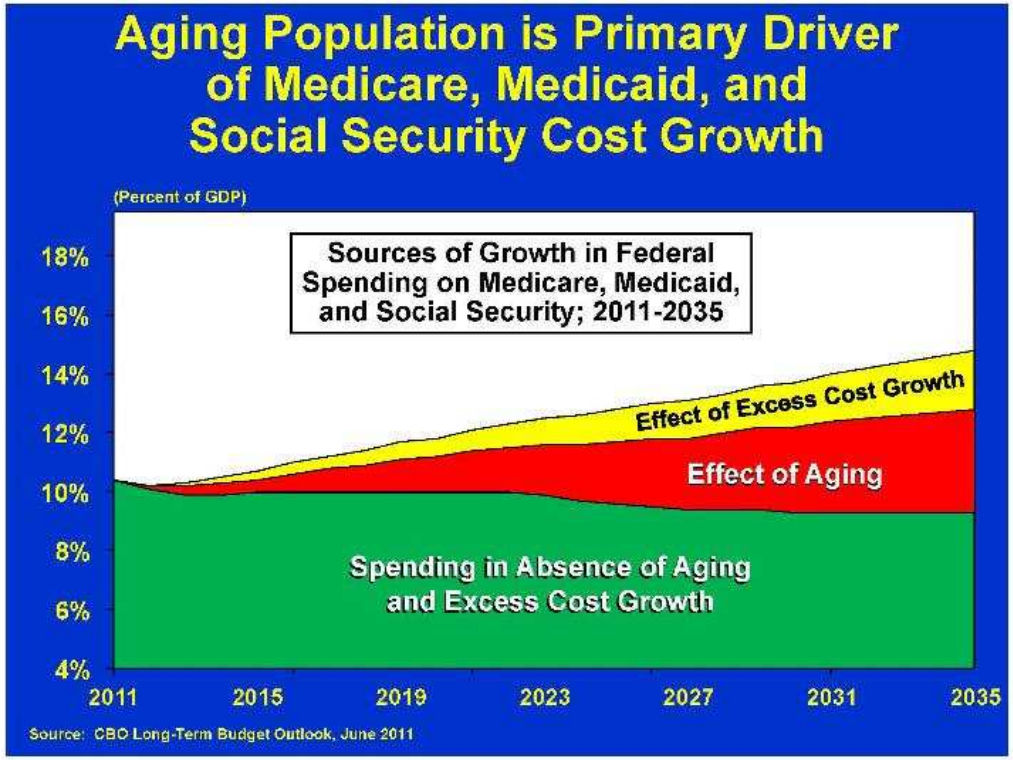


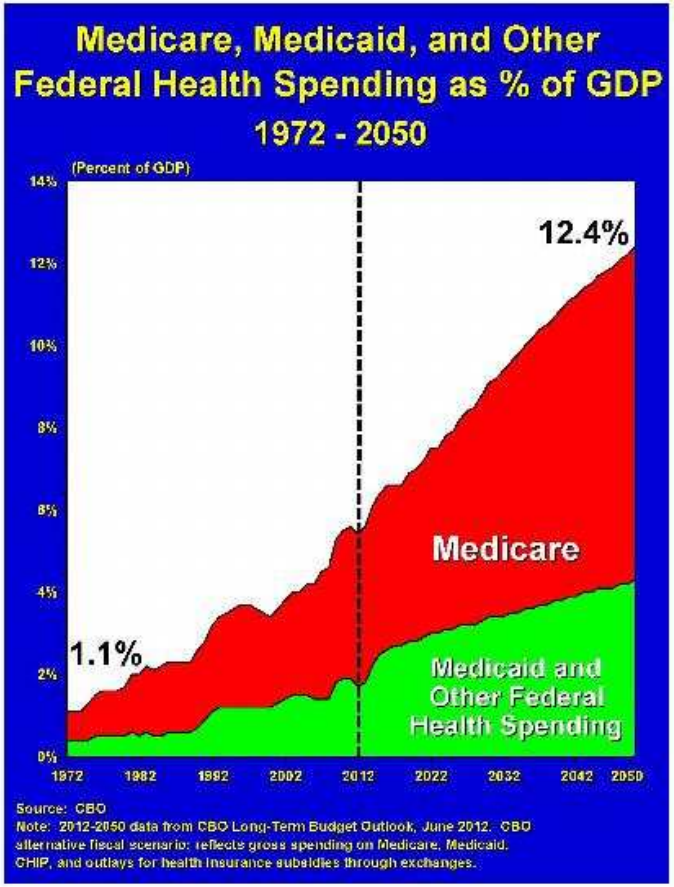

Observed Distribution of Life Table Deaths
for Females in the United States, 1900 and 1985
Deaths
4000
3500
3000
2500
2000
1500
1000
500
0
Low Disability
Moderate Disability
High Disability
Heart Disease, Stroke, Cancer
Alzheimers, Arthritis, Osteoporosis,
Vision & Hearing Impairment
1900
1985
50 55 60 65 70 75 80 85 90 95 100 105 110 115 120
Age

BOOMER BETRAYAL...
SORRY..YOU'LL HAVE TO MAKE OTHER ARRANGEMENTS..
SOCIAL SECURITY
REDUCED BENEFITS
www.caglecartoons.com
©2004 MONTE WOLVERTON

ALL RIGHT, MADOFF! WHERE DID YOU GET THE IDEA OF PAYING EARLY INVESTORS WITH MONEY FROM LATE INVESTORS?
FROM THE SOCIAL SECURITY SYSTEM
garyvarvel.com


Social Security in Cash Flow Deficit: 6 Years Ahead
Percentage of Taxable Payroll
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040 2045 2050 2055 2060 2065 2070 2075 2080
Social Security Accounts in Deficit: 6 years ahead of latest projection
2008 Projection
2009 Projection
Source: Congressional Budget Office


Aging Population is Primary Driver of Medicare, Medicaid, and Social Security Cost Growth
(Percent of GDP)
Sources of Growth in Federal Spending on Medicare, Medicaid, and Social Security; 2011-2035
Effect of Excess Cost Growth
Effect of Aging
Spending in Absence of Aging and Excess Cost Growth
18%
16%
14%
12%
10%
8%
6%
4%
2011
2015
2019
2023
2027
2031
2035
Source: CBO Long-Term Budget Outlook, June 2011


Medicare, Medicaid, and Other Federal Health Spending as % of GDP
1972 - 2050
(Percent of GDP)
12.4%
1.1%
Medicare
Medicaid and Other Federal Health Spending
14%
12%
10%
8%
6%
4%
2%
0%
1972
1982
1992
2002
2012
2022
2032
2042
2050
Source: CBO
Note: 2012-2050 data from CBO Long-Term Budget Outlook, June 2012. CBO alternative fiscal scenario: reflects gross spending on Medicare, Medicaid, CHIP, and outlays for health insurance subsidies through exchanges.

Transgenerational Epigenetic Inheritance

Life experiences in parents before they reproduce alter on-off switches that control DNA in sperm and eggs.

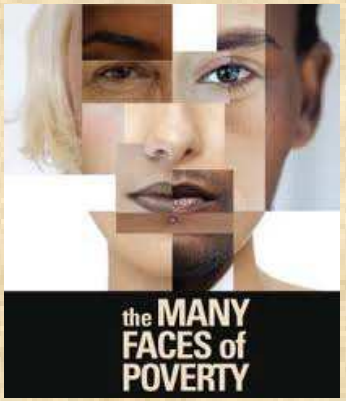
Daughters of fathers with high fat diets had a higher probability of developing insulin and glucose resistance as adults – even though the offspring never ate a high-fat diet.

Mothers living in an enriched environment produced offspring with better memories.

Source: Ng. et al., 2010. Chronic high-fat diet in fathers programs β-cell dysfunction in female rat offspring. Nature 467:963-966.

Life, The Most Precious of All Commodities, is Inequitably Distributed

The Extremes of Wealth, Education, Health and Poverty Are Increasing



The Dream

A Healthy Older Population is a Valuable Resource Worth Its Weight in Gold. We First Need to Recognize This, Then Figure Out a Way to Benefit From It.

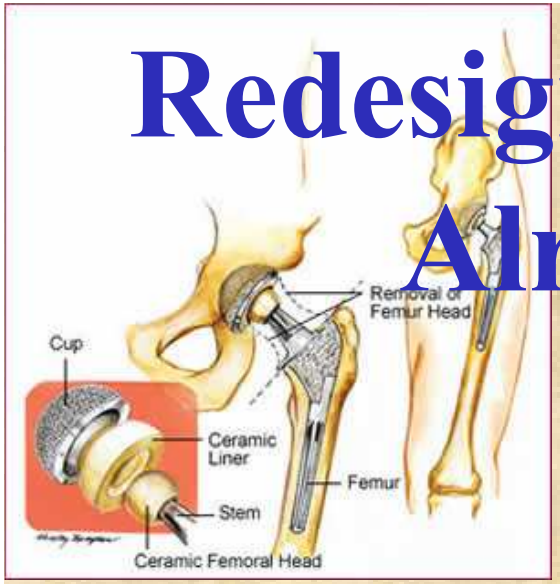
WORLD ECONOMIC FORUM

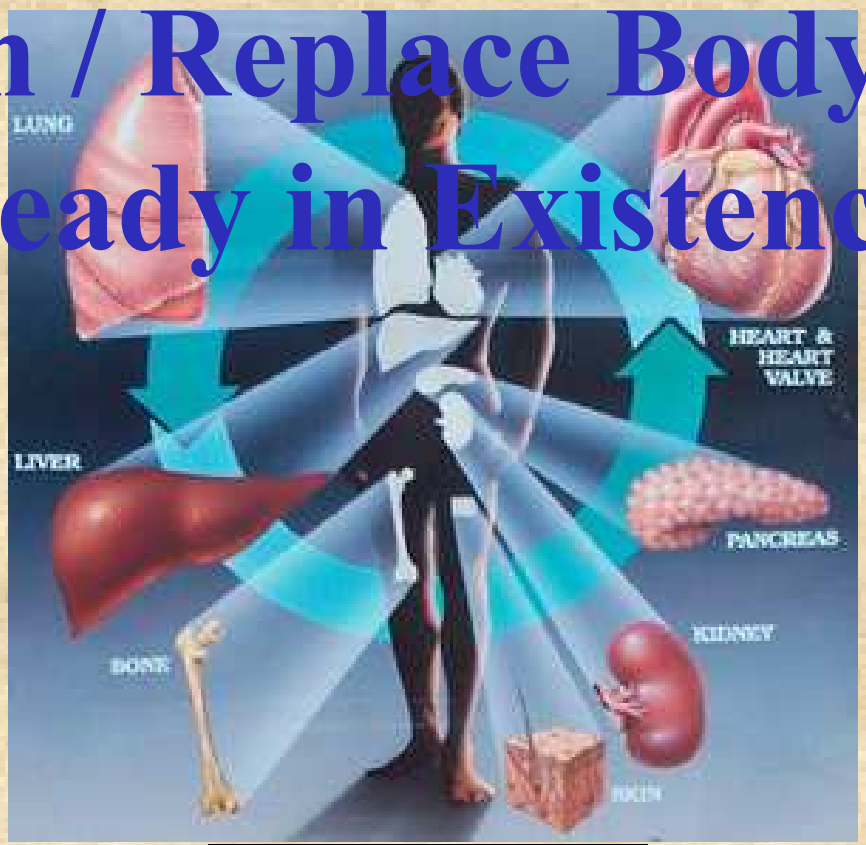
COMMITTED TO IMPROVING THE STATE OF THE WORLD

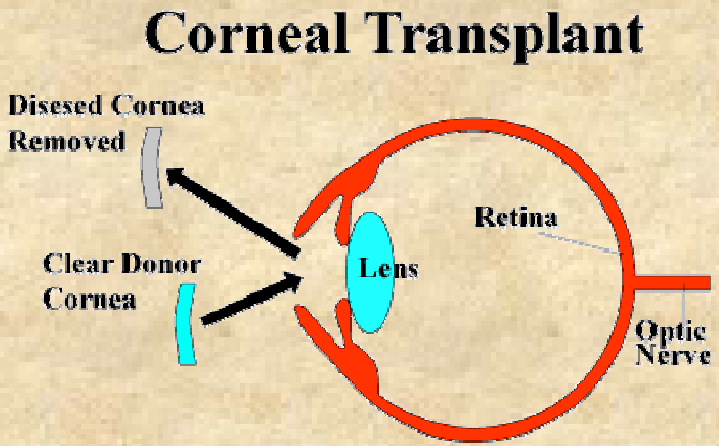
Global Agenda Council on Ageing Society

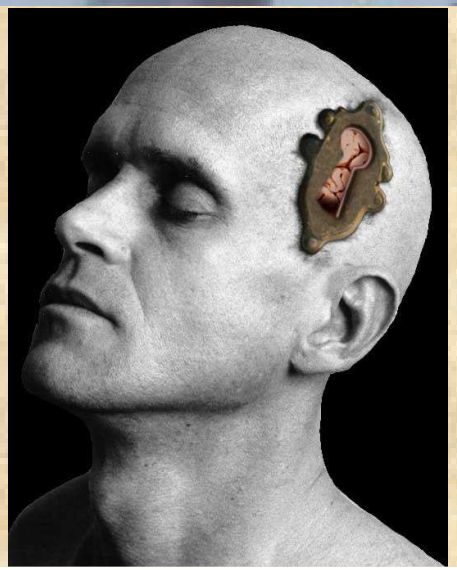
Global Population Ageing: Peril or Promise?

Redesign / Replace Body Parts Already in Existence





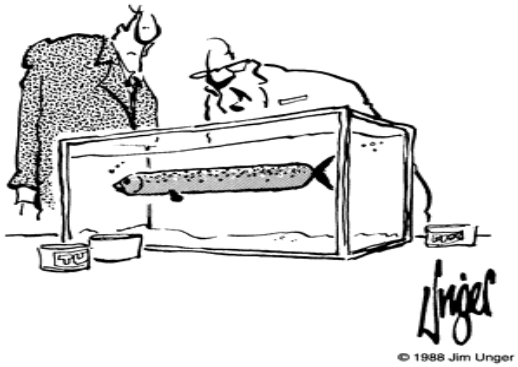




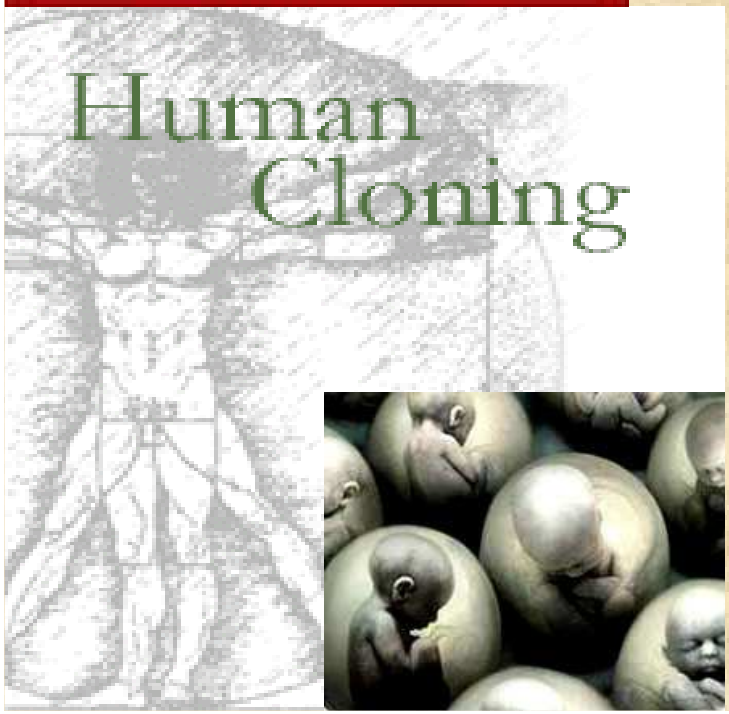
Modifying the Underlying Biology of Humans

Sex and trait selection

Germ line modification



"We've genetically engineered a tuna exactly the same diameter as our cans."



Therapeutic cloning

Genetic engineering to treat or eliminate diseases

TheScientist
$4.95 | VOL. 20 NO. 3 | MARCH 2006 | WWW.THE-SCIENTIST.COM
MAGAZINE OF THE LIFE SCIENCES

fight AGING

JAY OLSHANSKY & COLLEAGUES HAVE A PLAN

Daniel Perry
Richard A. Miller
Robert N. Butler

THE TOP 50 PLACES TO POSTDOC

A TOWN BOUNCES BACK AFTER BIG PHARMA LEAVES

MARC VIDAL CALLS FOR A $100 MILLION INTERACTOME PROJECT

A JOURNAL EDITOR SHOWS HOW HE AVOIDS IMAGE FRAUD

PLUS:
WHAT MEDICAL TOURISM MEANS FOR BIOTECHS

In pursuit of the LONGEVITY DIVIDEND

What should we be doing to prepare for the unprecedented aging of humanity?

S. JAY OLSHANSKY, DANIEL PERRY, RICHARD A. MILLER, ROBERT N. BUTLER

Imagine an intervention, such as a pill, that could significantly reduce your risk of cancer. Imagine an intervention that could reduce your risk of stroke, or dementia, or arthritis. Now, imagine an intervention that does all these things, and at the same time reduces your risk of everything else undesirable about growing older: including heart disease, diabetes, Alzheimer and Parkinson disease, hip fractures, osteoporosis, sensory impairments, and sexual dysfunction. Such a pill may sound like fantasy, but aging interventions already do this in animal models. And many scientists believe that such an intervention is a realistically achievable goal for people. People already place a high value on both quality and length of life, which is why children are immunized against infectious diseases. In the same spirit, we suggest that a concerted effort to slow aging begin immediately – because it will save and extend lives, improve health, and create wealth. ▸

video