### How to Live As An Immortal

Michael R. Rose

Ecology and Evolutionary Biology, University of California, Irvine

## Disclaimer: We are not physicians; we offer no medical treatments or cures

• The following talk concerns research on health and aging. It does not present alternative medical treatments or recommend that listeners refrain from consulting their physician(s). We recommend that everyone consult with their physician(s) before changing their diet, exercise regime, or activity level. We do not claim to provide advice concerning or pertaining to any type of alternative medicine or healing. Specifically, the following presentation does not supply any information that we predict, warrant, or expect will be useful in curing or treating any diagnosed disease, contagious or chronic. If in doubt, please consult your physician(s).

### This is the goal: A long, active, and unlimited life

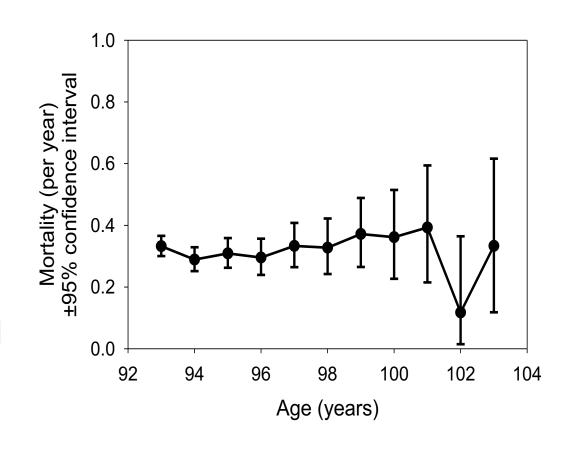


- Madame Jeanne Calment lived to 122, dying in 1997
- She sold paintbrushes to Vincent Van Gogh in hometown Arles, France
- Rode a bike most days till 100 & ate a kilo of chocolate a week

### How Did She do it? There is a late Cessation of Aging in Humans

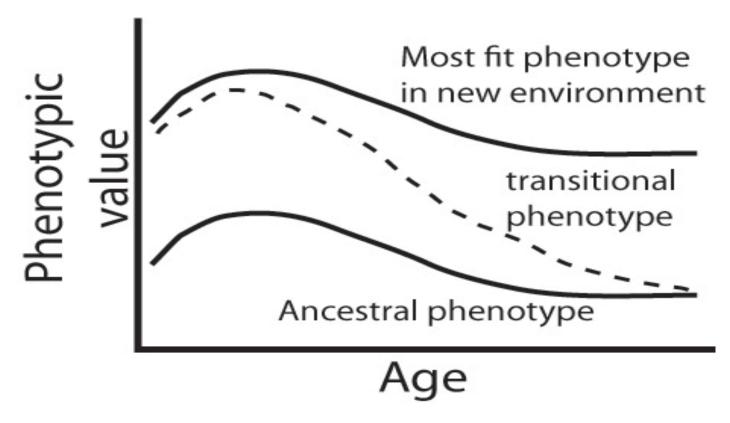
The data show the mortality rates of English women during the early 1900s.

Graph from "Does Aging Stop?" by Mueller, Rauser, and Rose, Oxford Univ. Press, 2011.

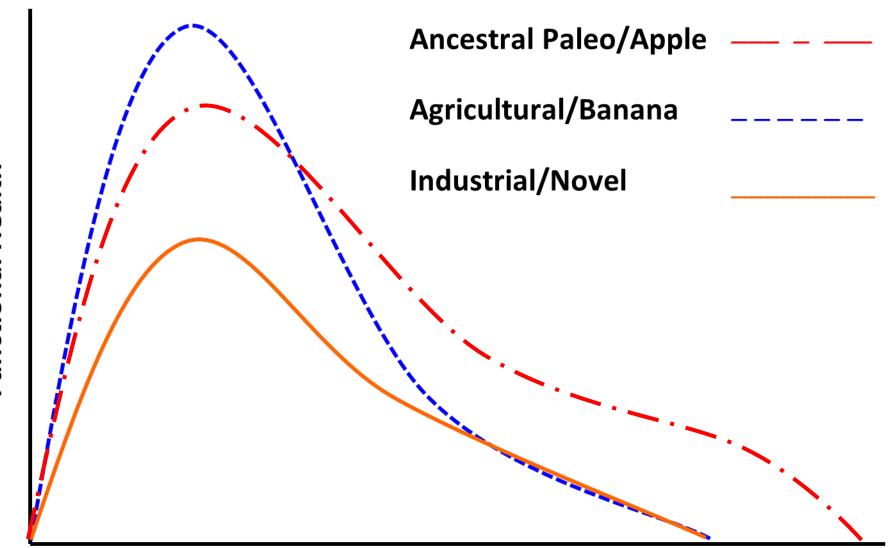


# HOW TO CONTROL HUMAN AGING WITHOUT GENETIC CHANGE

# In 2010 I finally had an idea as to how we might change human aging without genetic evolution



#### **Expected Patterns of Functional Health with Different Diets**



**Adult Age** 

### Some Advocate Paleolithic diets for people of all ages

- They claim that switching to huntergatherer diets which we are better adapted to, rather than grains and dairy products, may help with chronic diseases and underlying health
- Our advice is somewhat different, but close in spirit to the Paleo movement

#### How to Control Your Aging 1: Lifestyle

- A. No one should eat novel industrial foods or sit in chairs all the time; we are not adapted to this completely new lifestyle
- B. Adopt *hunter-gatherer diet and activity patterns after 30* years of age, earlier if ancestry is less Eurasian, to improve aging relative to the agricultural lifestyle.
- C. Find your emotional and intellectual tribe, and stay with them as long as they treat you well

#### How to Control Your Aging 2: Repair

- Stem cell and related technologies of tissue repair and replacement are developing rapidly
- If you are healthy enough, we are entering an era in which the opportunities for surgical repair and replacement of body parts will become excellent
- All the more reason to get onto a better trajectory of background aging

#### How to Control Your Aging 3: Drugs

- We are also entering an era when genomic and related technologies are giving us an ability to finally develop pharmaceuticals that take into account ALL effects, not just the intended effects
- This will enable us to take drugs to treat our problems that will NOT create many additional chronic medical problems
- This will make our aging still better

### Conclusion

- What are we talking about?
- Consider the case of contagious disease:
   it's now a relatively small factor in how and
   why most Western people die, though it
   DOES still happen some of the time
- The goal is to likewise make aging as small in our lives as contagious disease is: still there but not as devastating

### Thank you

