

Nutrition for the over 40's.

David Cameron-Smith

Chair In Nutrition

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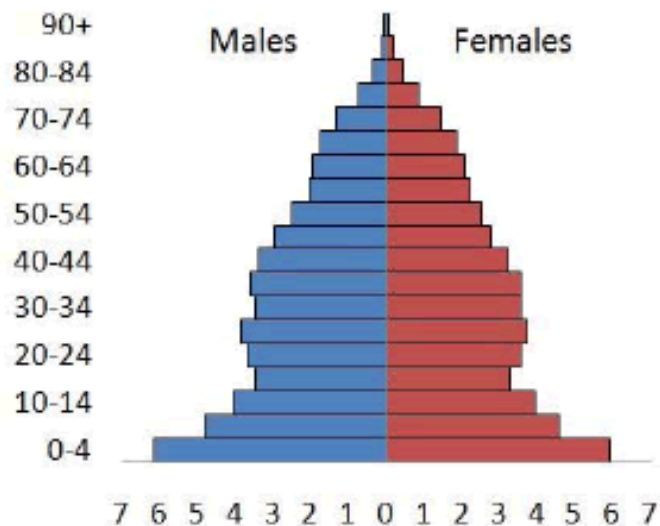


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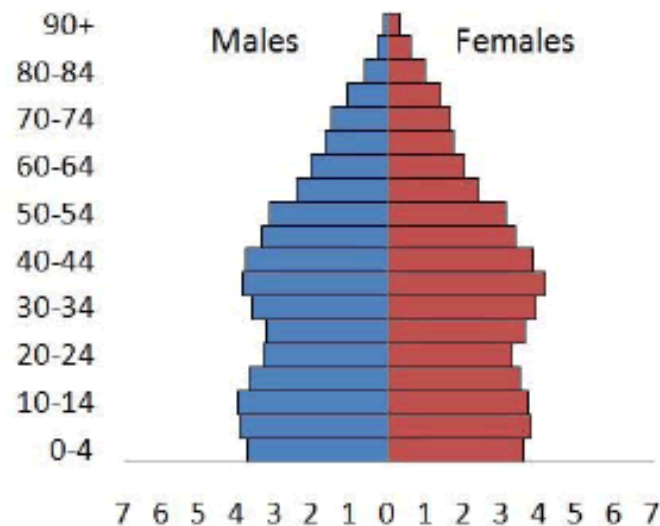
Te Whare Wānanga o Tāmaki Makaurau

- **Nutrition for the Over 40's.**
- Dramatic changes in human physiology take place as the body transitions from net gain in tissue mass to one of relative stability prior to decline and senescence. It is the period of stability from the 40's on where CVD, diabetes and nutritionally-related cancer risks become evident. This presentation will cover the latest evidence linking diet and chronic disease risk, before considering how changing digestion, metabolism and physiology influences the biological impact of nutrients. Special attention will be given to sport-nutrition in the over 40's. WARNING – Excessive images of middle-aged men in lycra disturb some viewers.

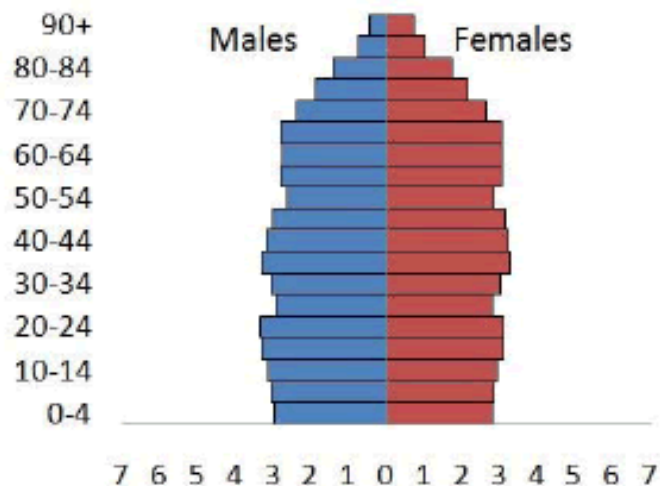
1950



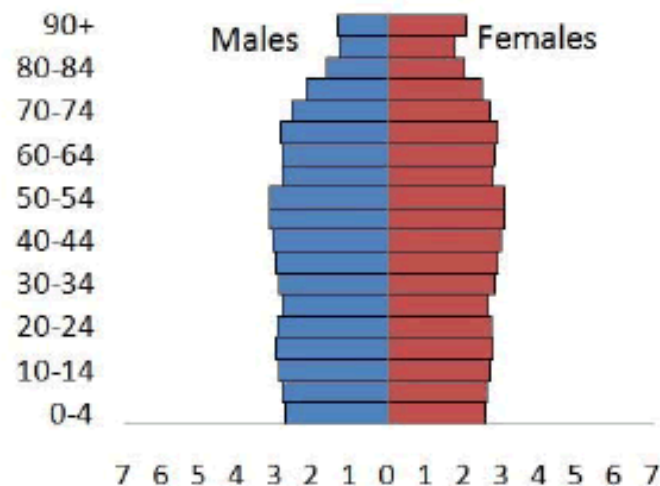
2000



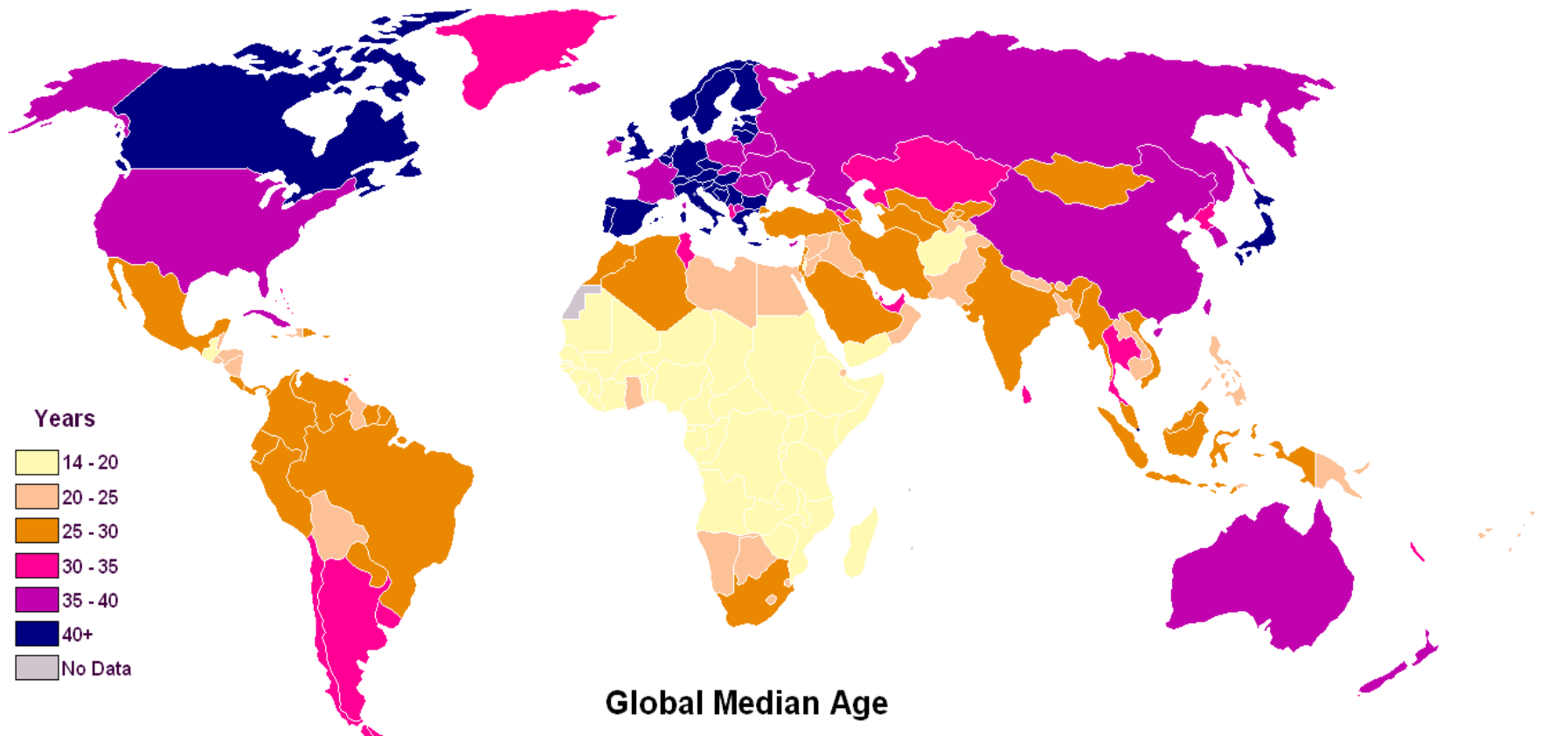
2030



2060



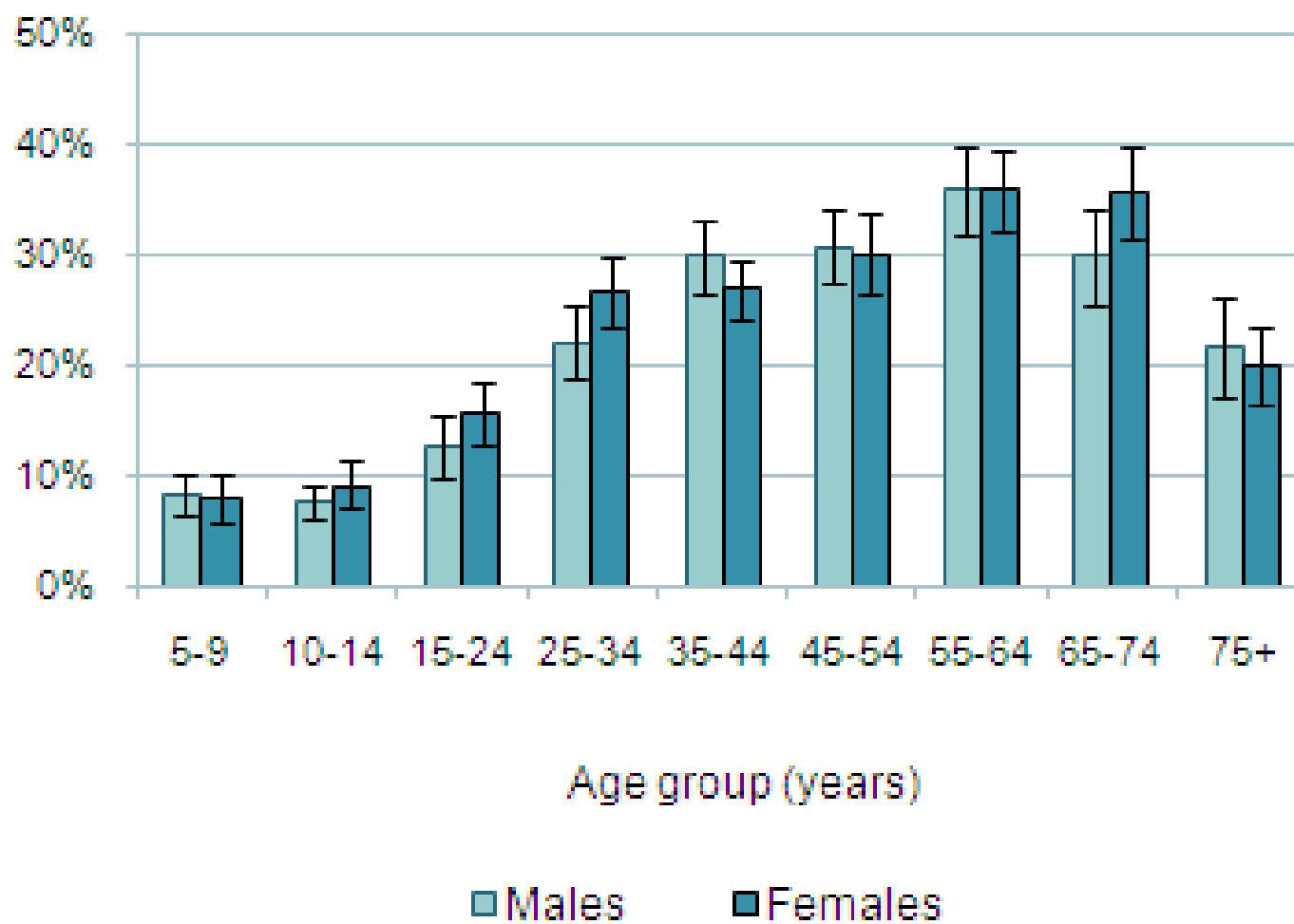
Global Ageing



Source: CIA World Factbook 2009



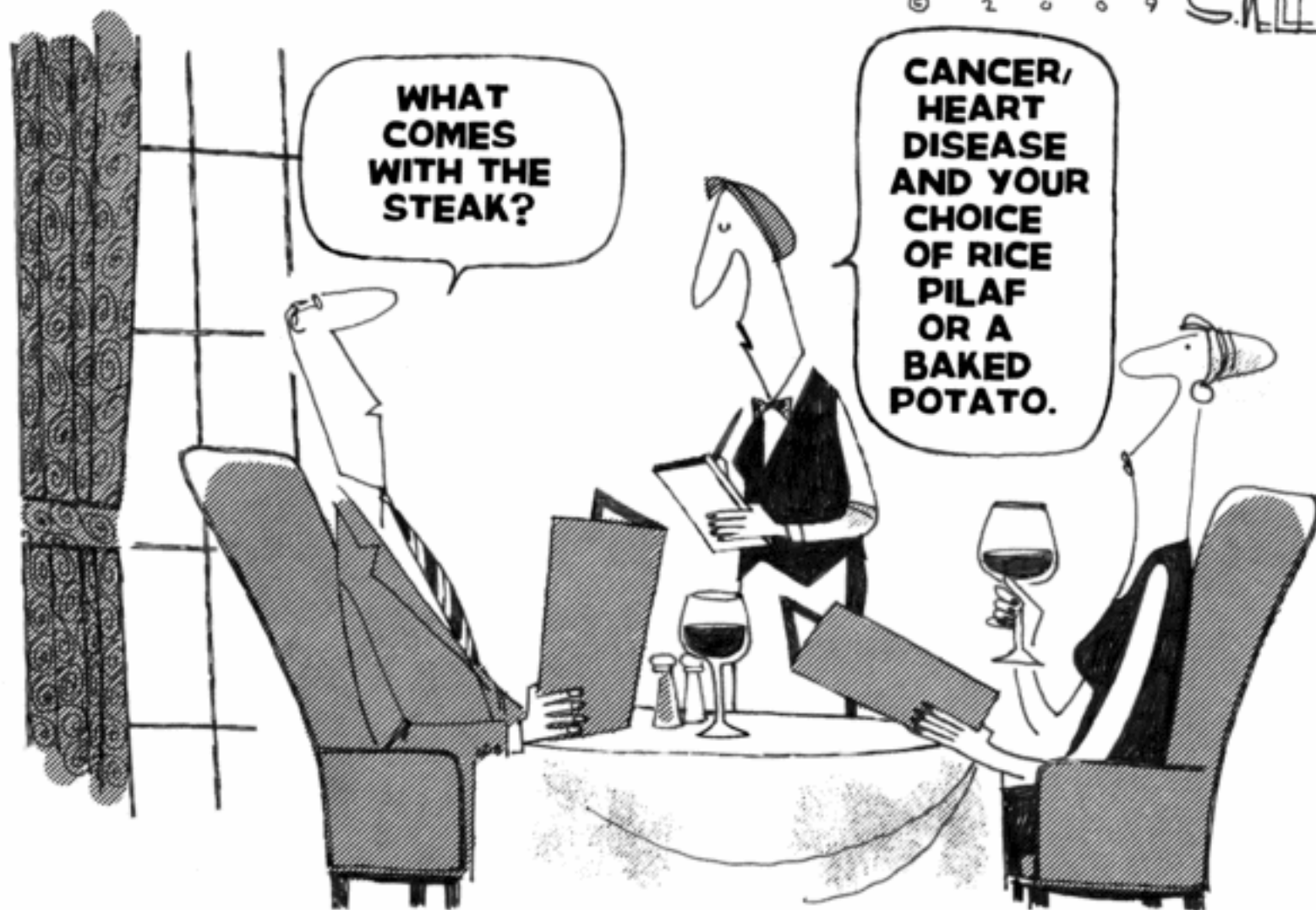
TProportion of age group that is obese



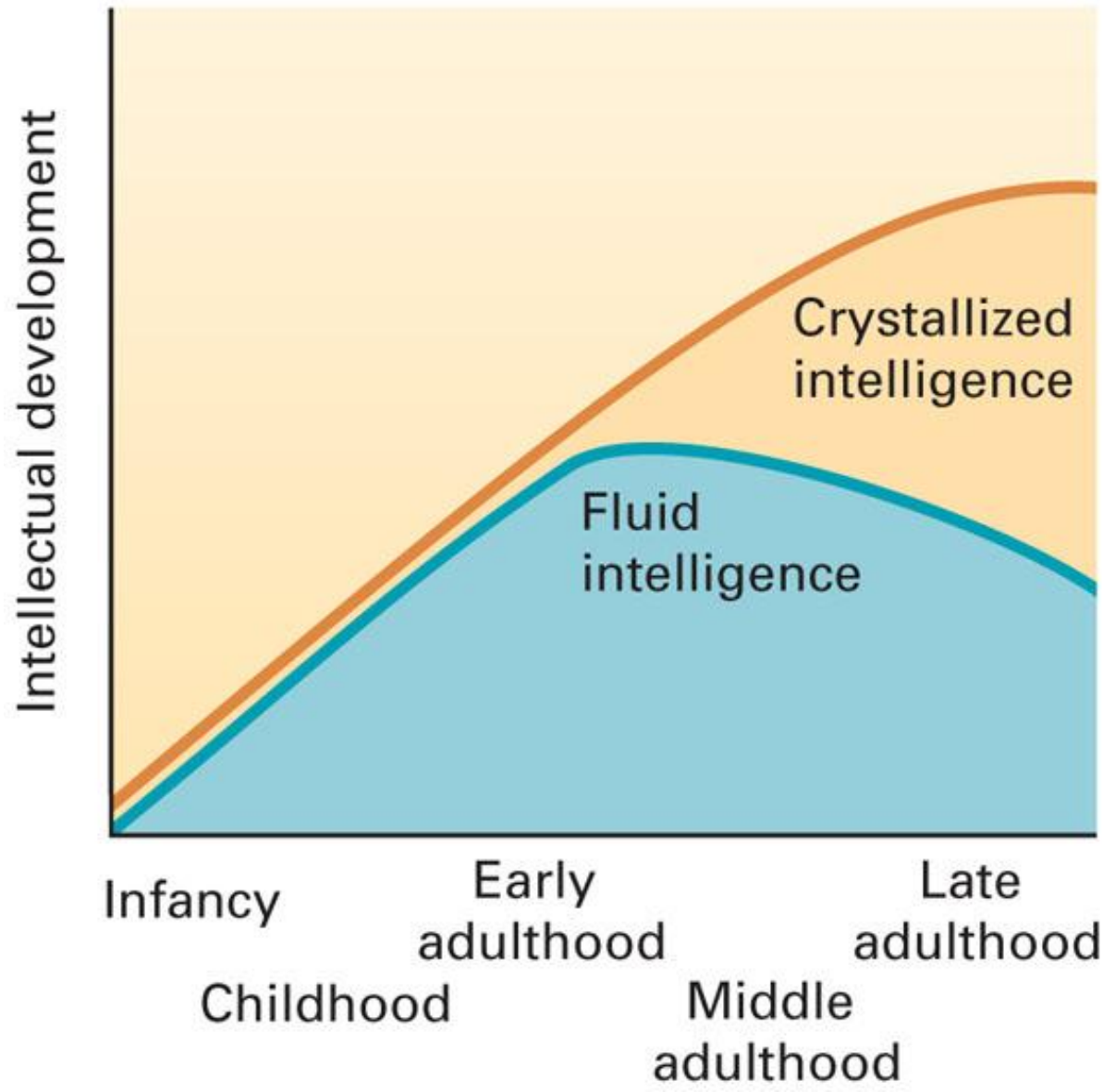
THE TIMES · PICAYUNE

© 2 0 0 9

S. KELLY



Intelligence and Ageing



People

APRIL 4, 2008



**VALERIE
BERTINELLI**
LOST 50 LBS.

BIKINI BODY AT 48!

How she got into
the best shape
of her life. 'I can't
believe I did it!'



**THE BACHELOR'S
JASON & MOLLY**
Will It Last?



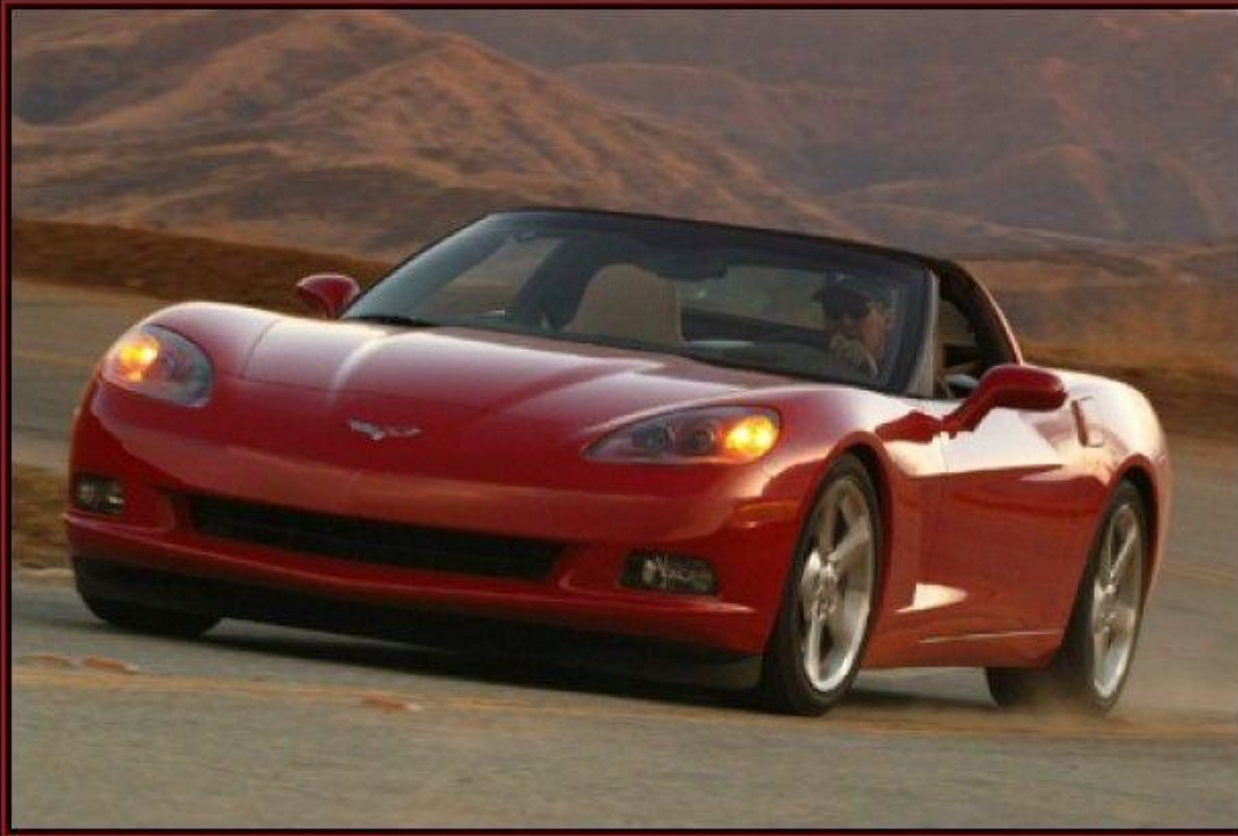
**NATASHA
RICHARDSON**
A Family Farewell



**HARRISON
& CALISTA**
Engaged!

Jerry & Estella Hayes, each 63

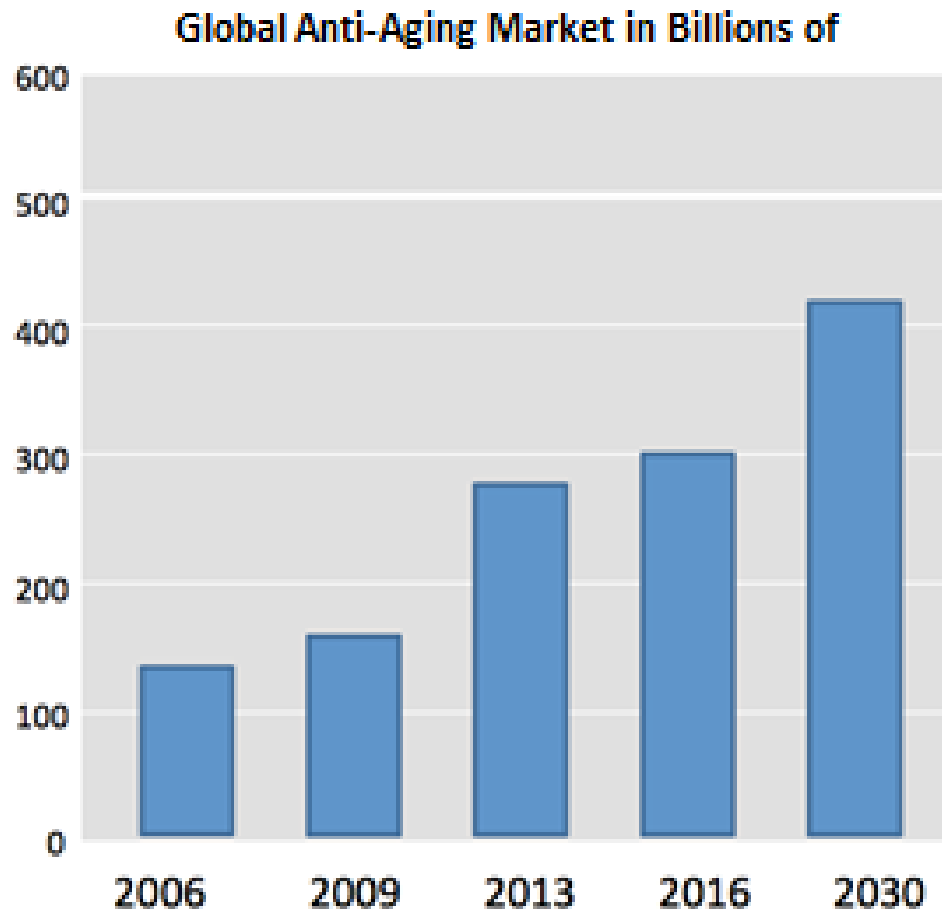




MID-LIFE CRISIS

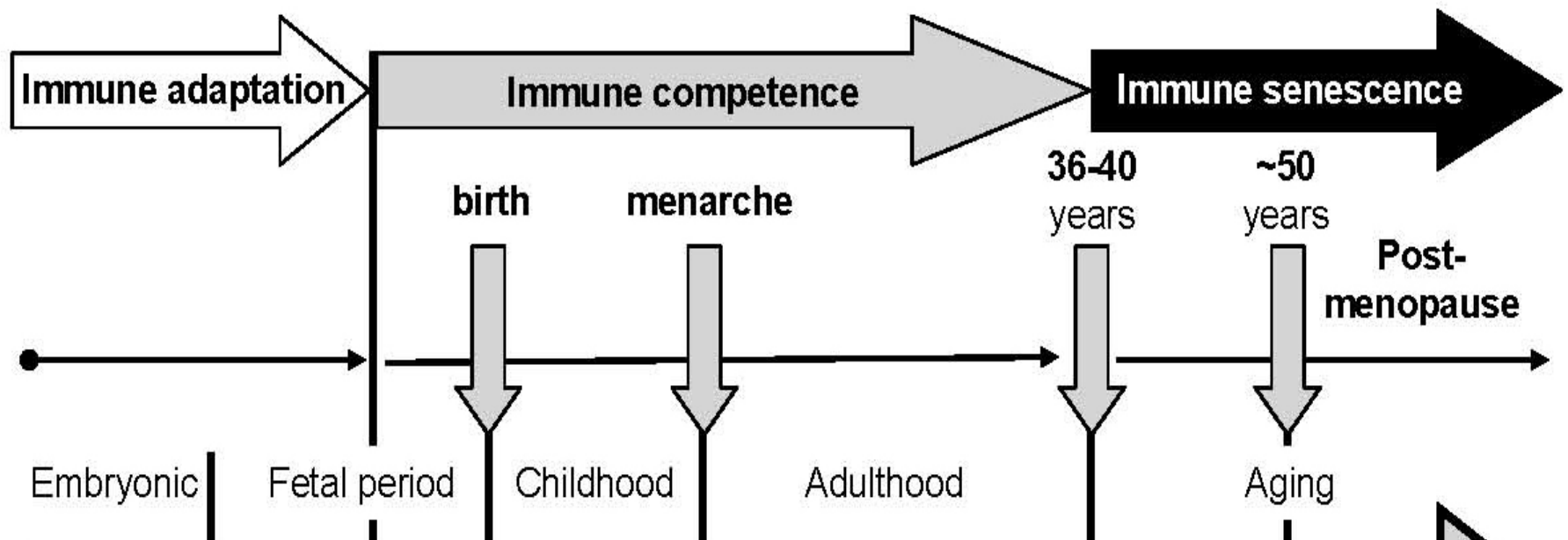
Because hot young ladies love fast cars and liver spots!

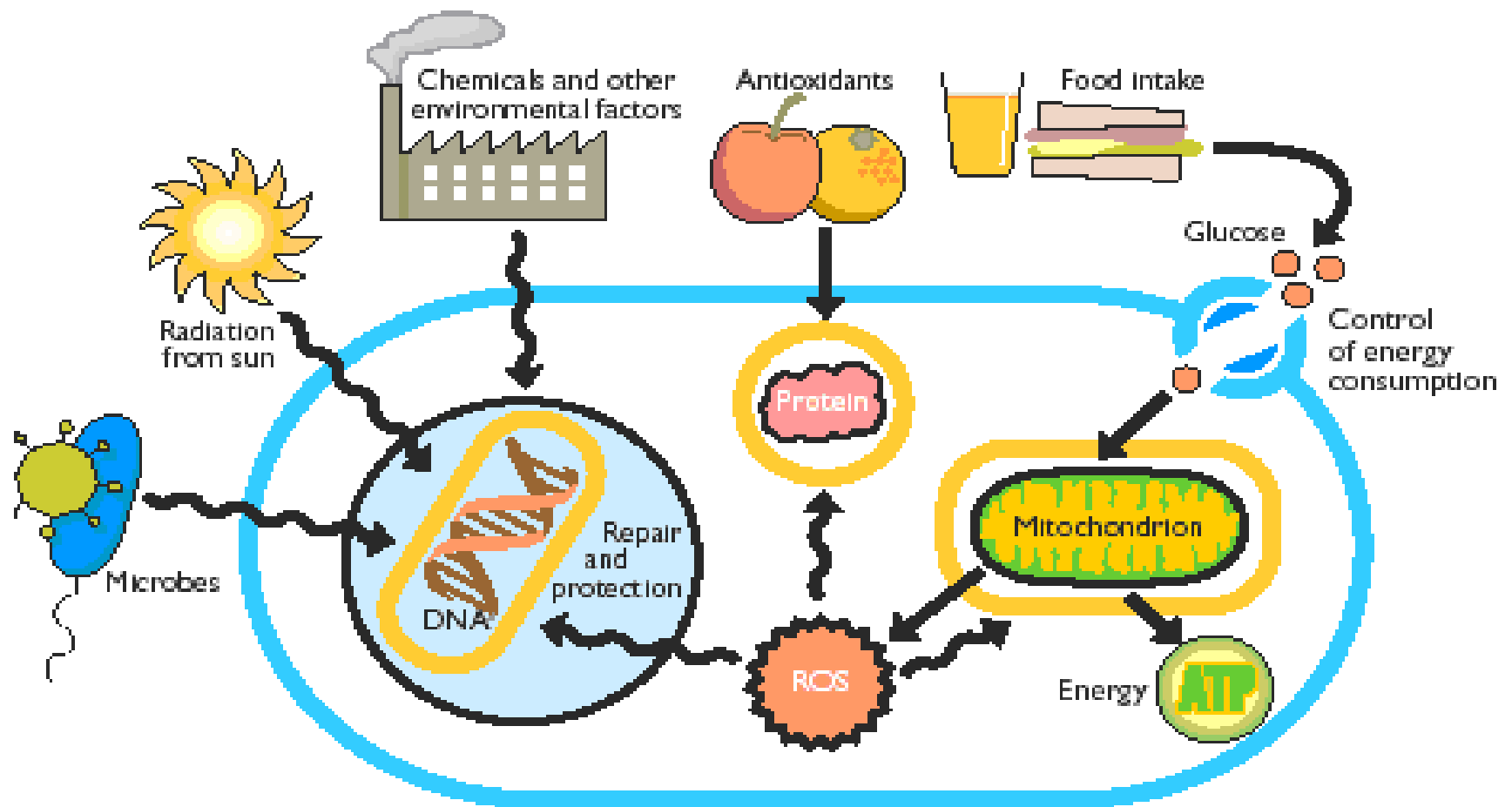
THE OBSESSION TO STAY YOUNG



Source: BCC Research 2009 & Global Industry Analyst

Your Ageing Immune System





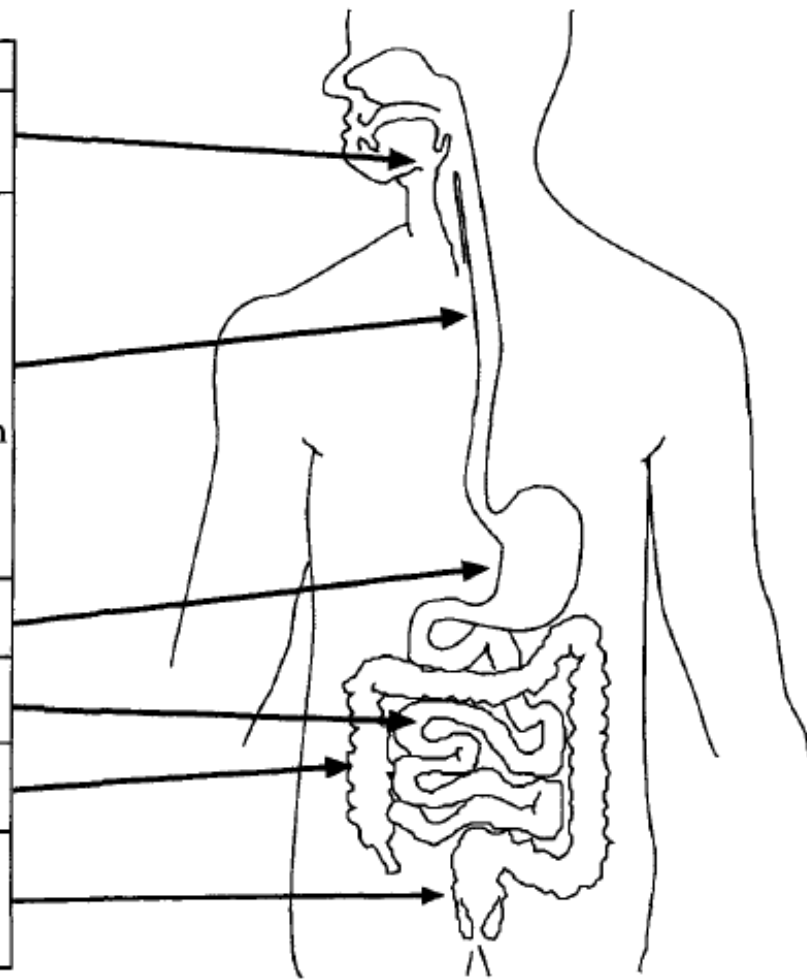




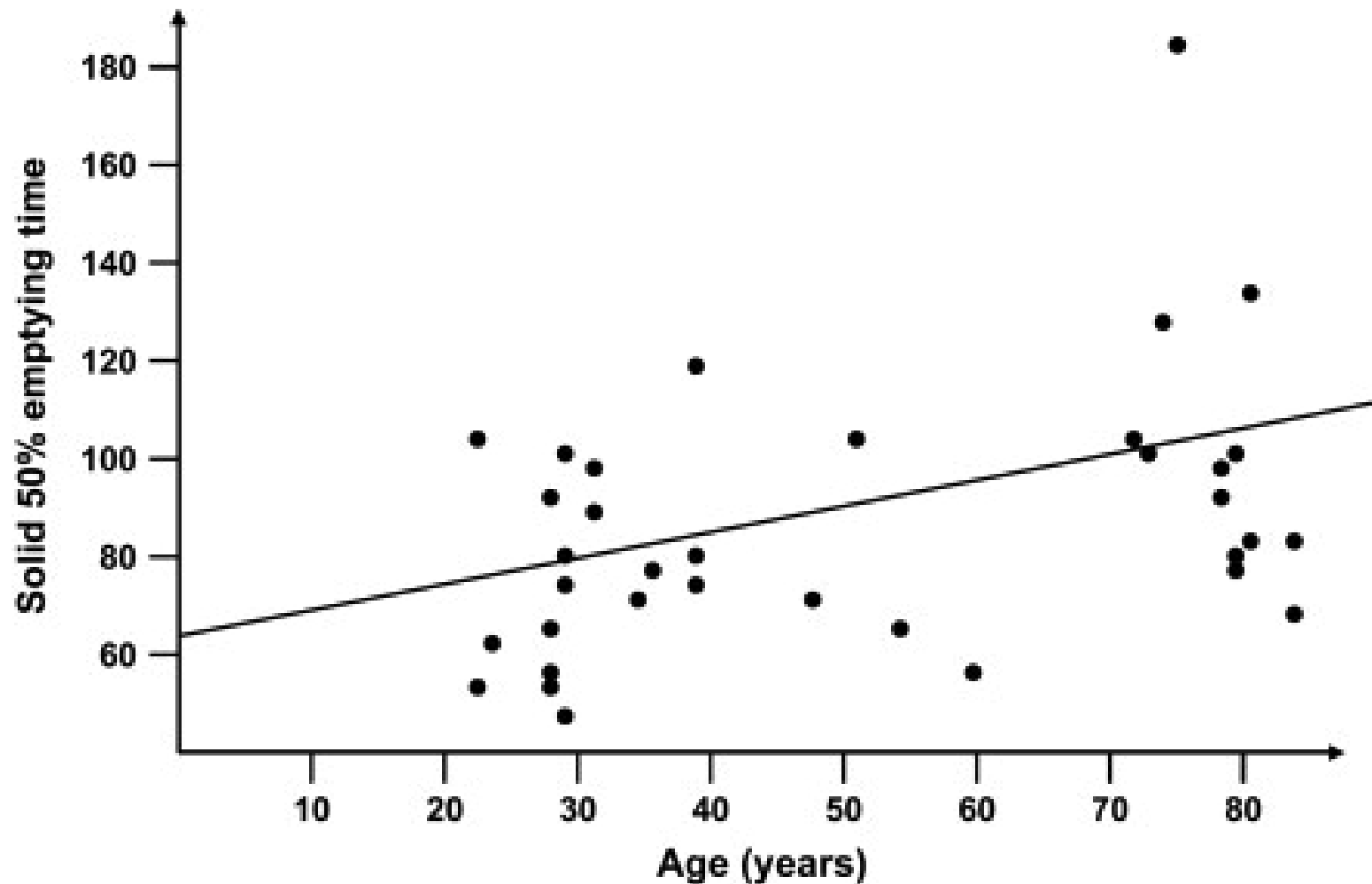


Ageing & The Digestive Tract

Location	Age-Related Physiologic Changes
Oropharynx	Xerostomia Altered protective reflexes
Esophagus	Reduced resting UES pressures Reduced LES relaxation Upward LES displacement into chest Delayed esophageal emptying with "tertiary" contractions Decreased contraction velocity & duration Reduced myenteric ganglion cells Increased amplitude of distal contractions Thickening of smooth muscle layer
Stomach	? Delayed emptying of liquids & solids
Small Intestine	? Decreased small bowel transit
Colon	No significant primary changes
Ano-Rectum	Reduced rectal compliance Impaired rectal sensation Decreased sphincter pressures



Gastric Function

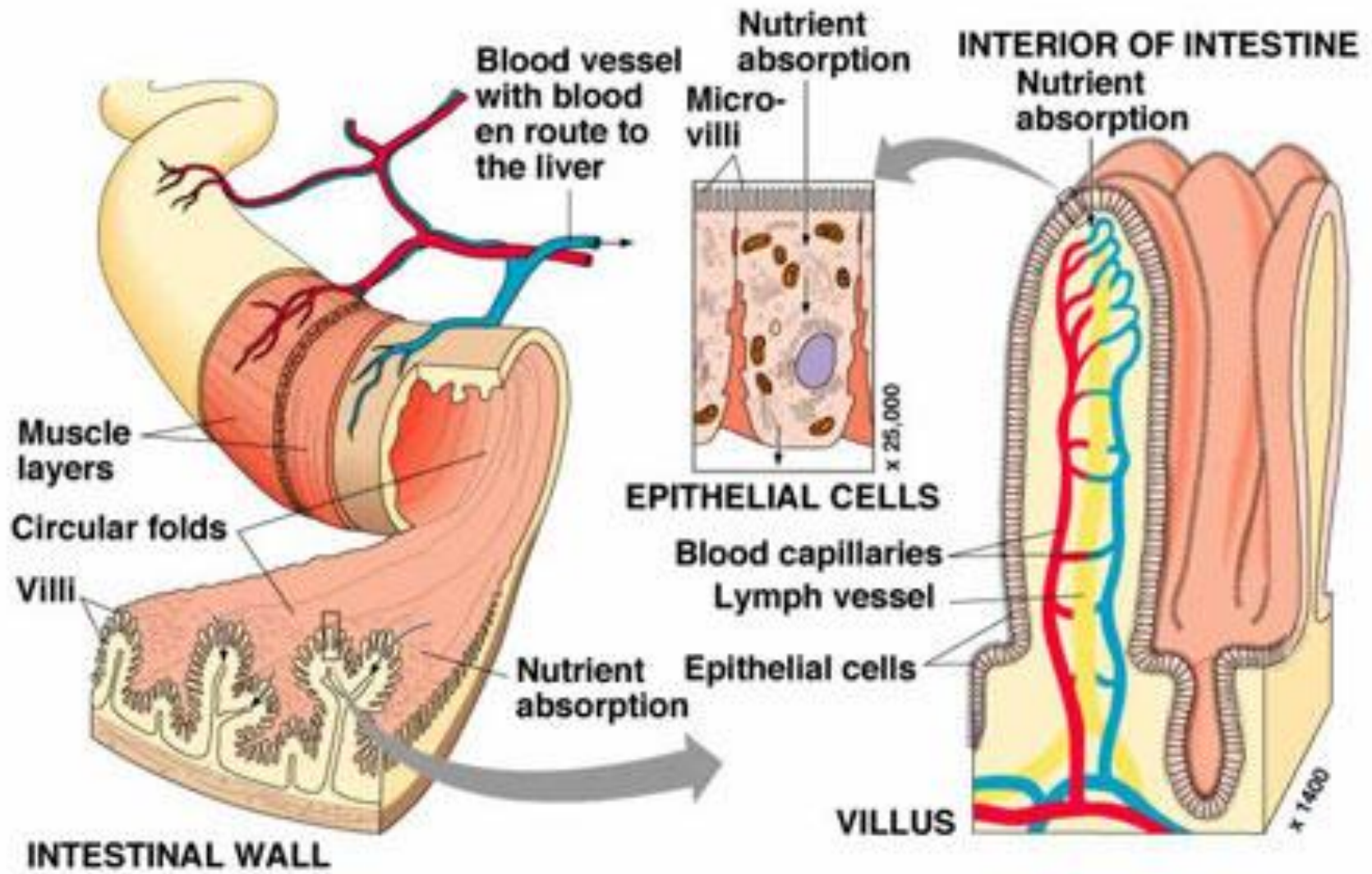


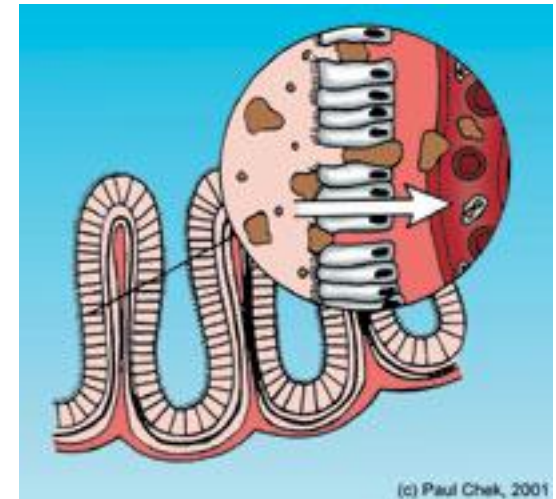
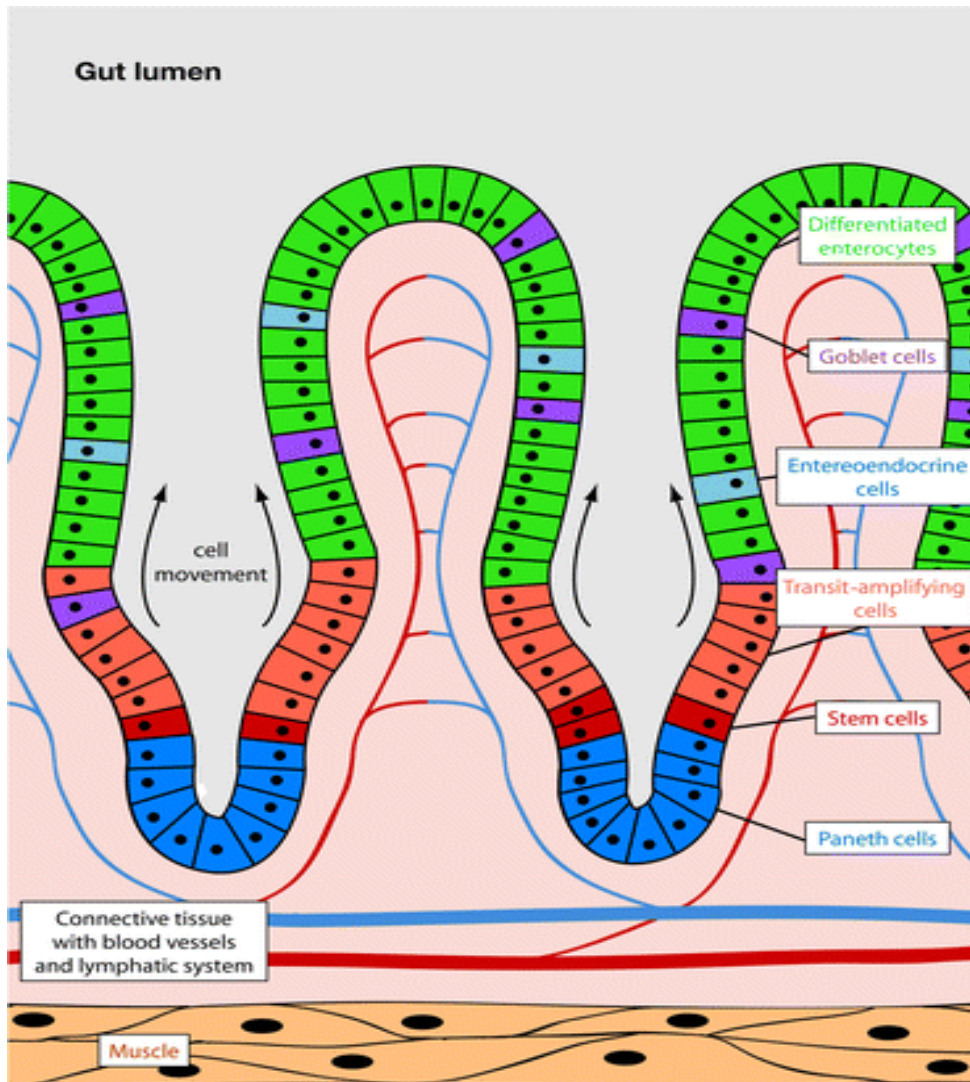
Adapted from Horowitz et al. 1984

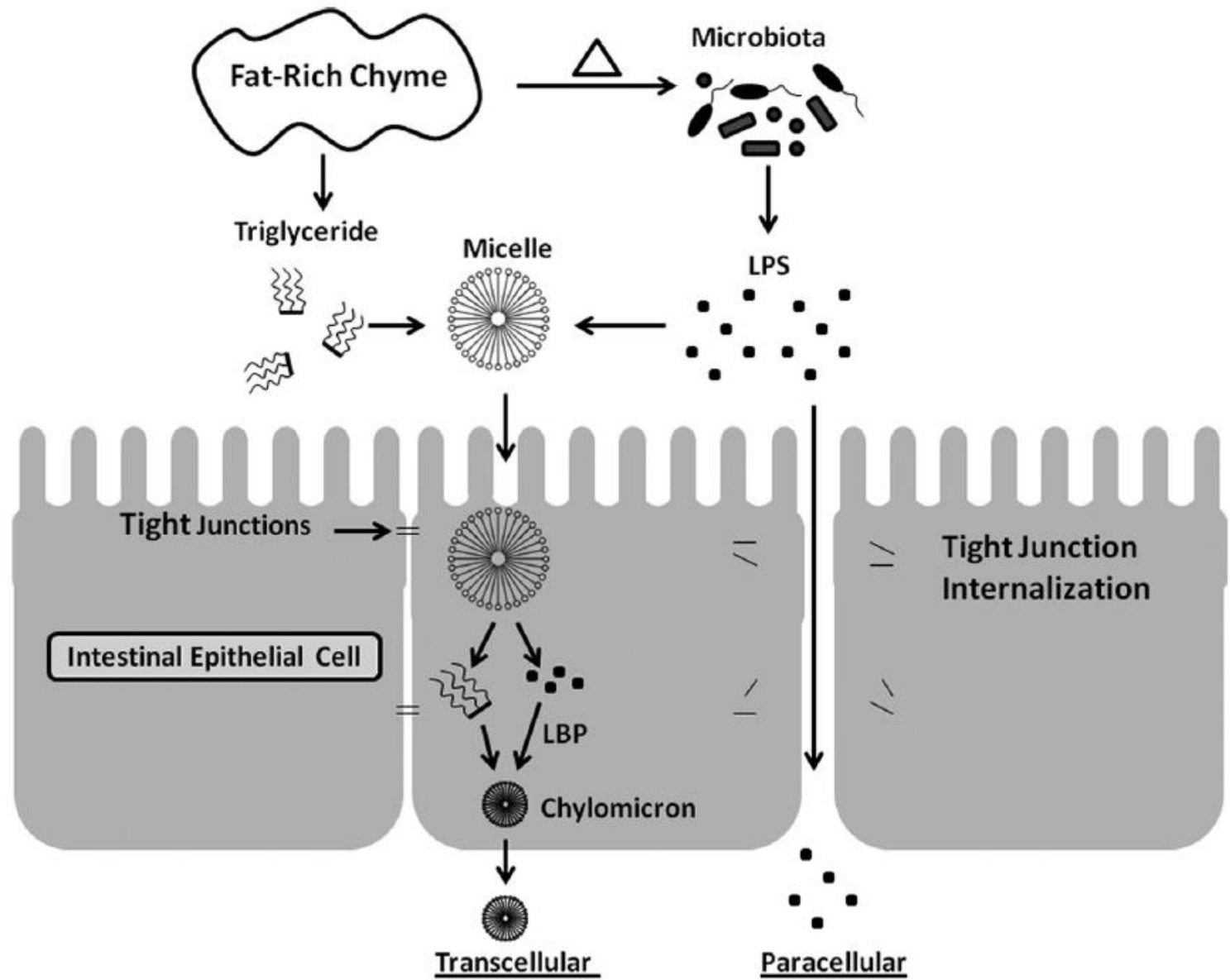


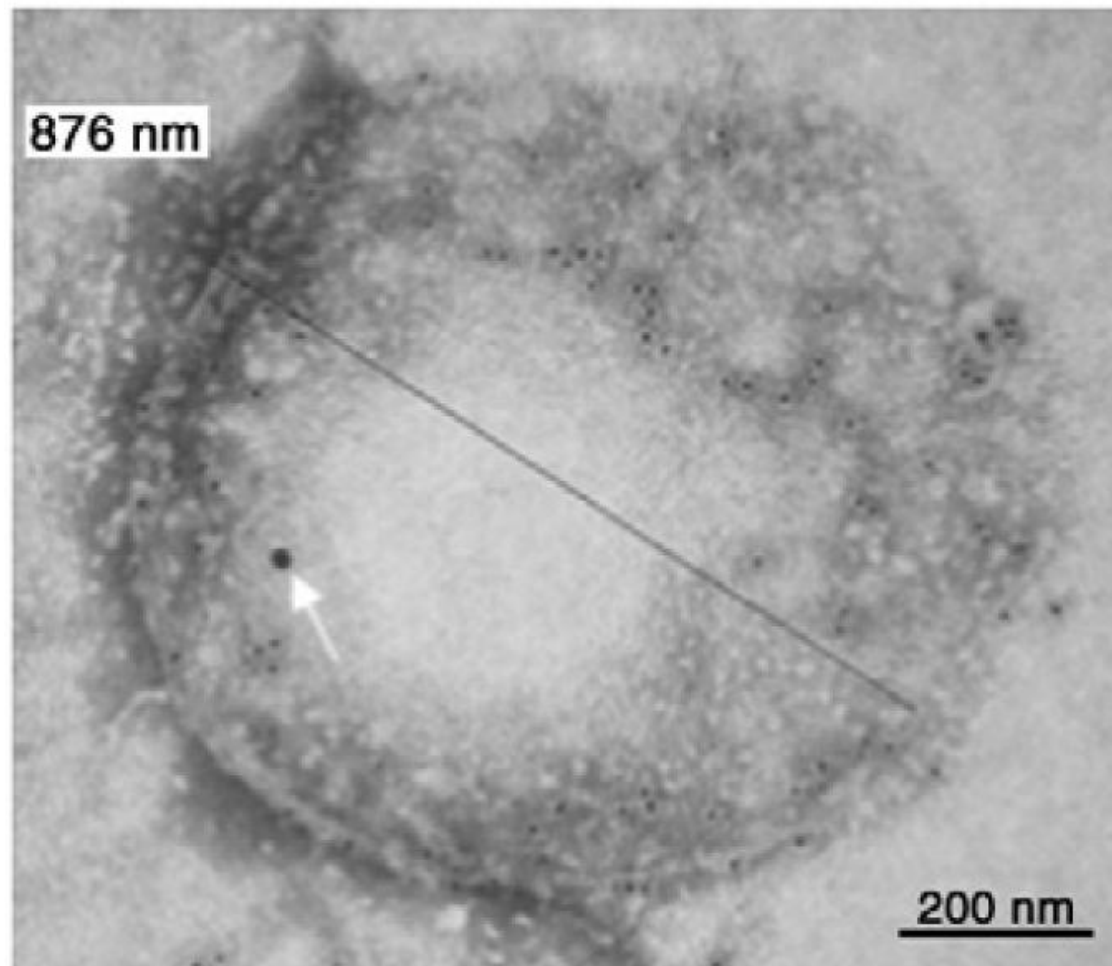
Gluten Free

- Sale of gluten-free products reached \$2.9 billion (US) in 2010.
- Only 15% of consumers intentionally bought a gluten-free product. More than half of those who bought such products didn't know they were gluten-free (Hartman, 2011).



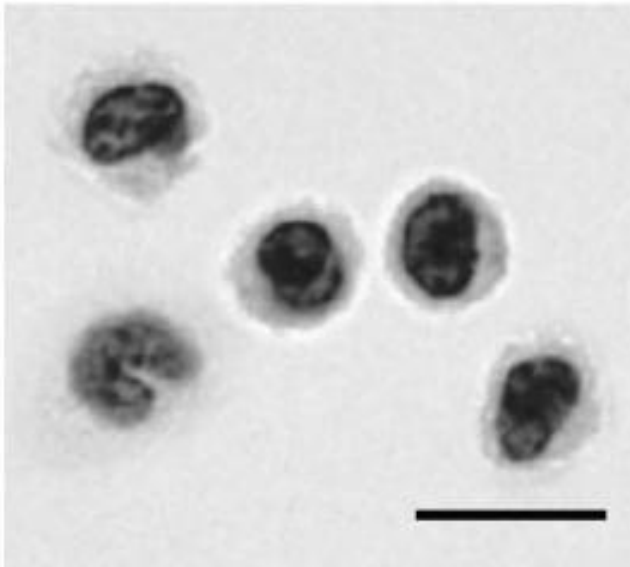






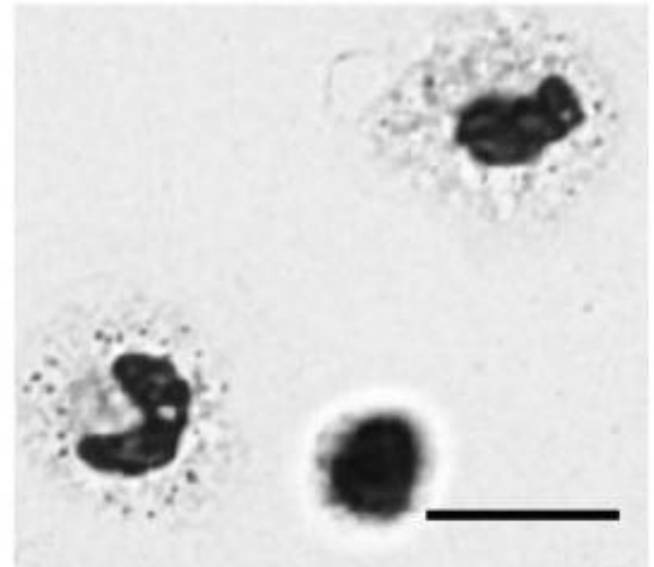
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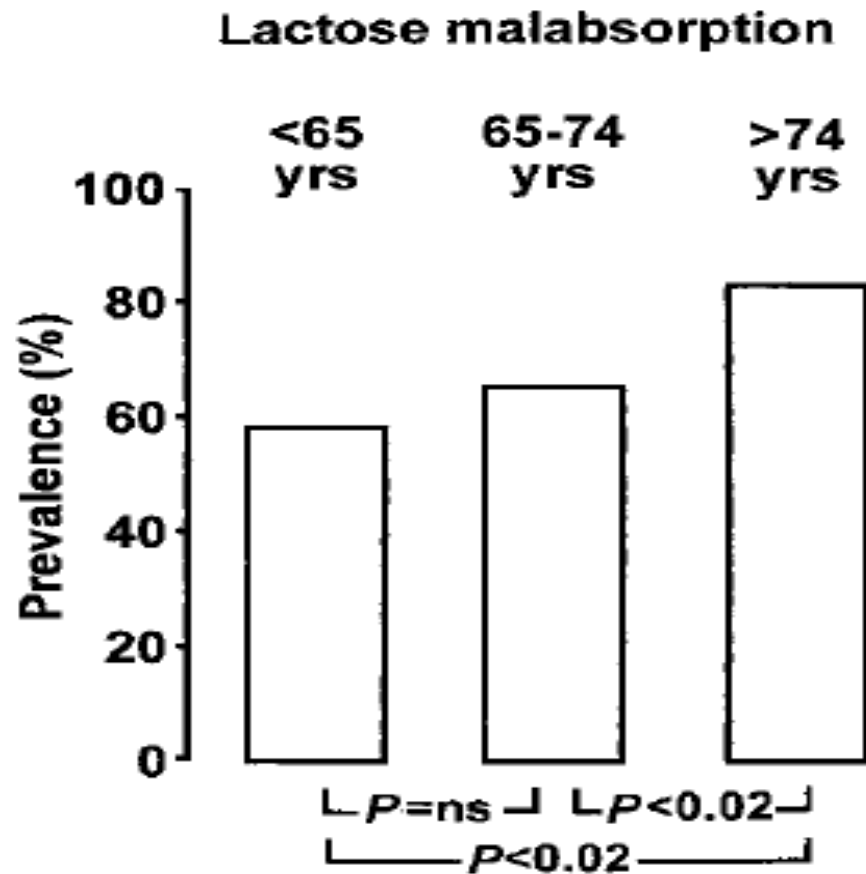
3.5 hr



2 Bacon& Egg McMuffins

Over 80%....that's 8 out of 10.

a



Di Stefano et al. Scand. J. Gastroenterol. 2001; 36; 1274-8.

Low micronutrient intake may accelerate the degenerative diseases of aging through allocation of scarce micronutrients by triage

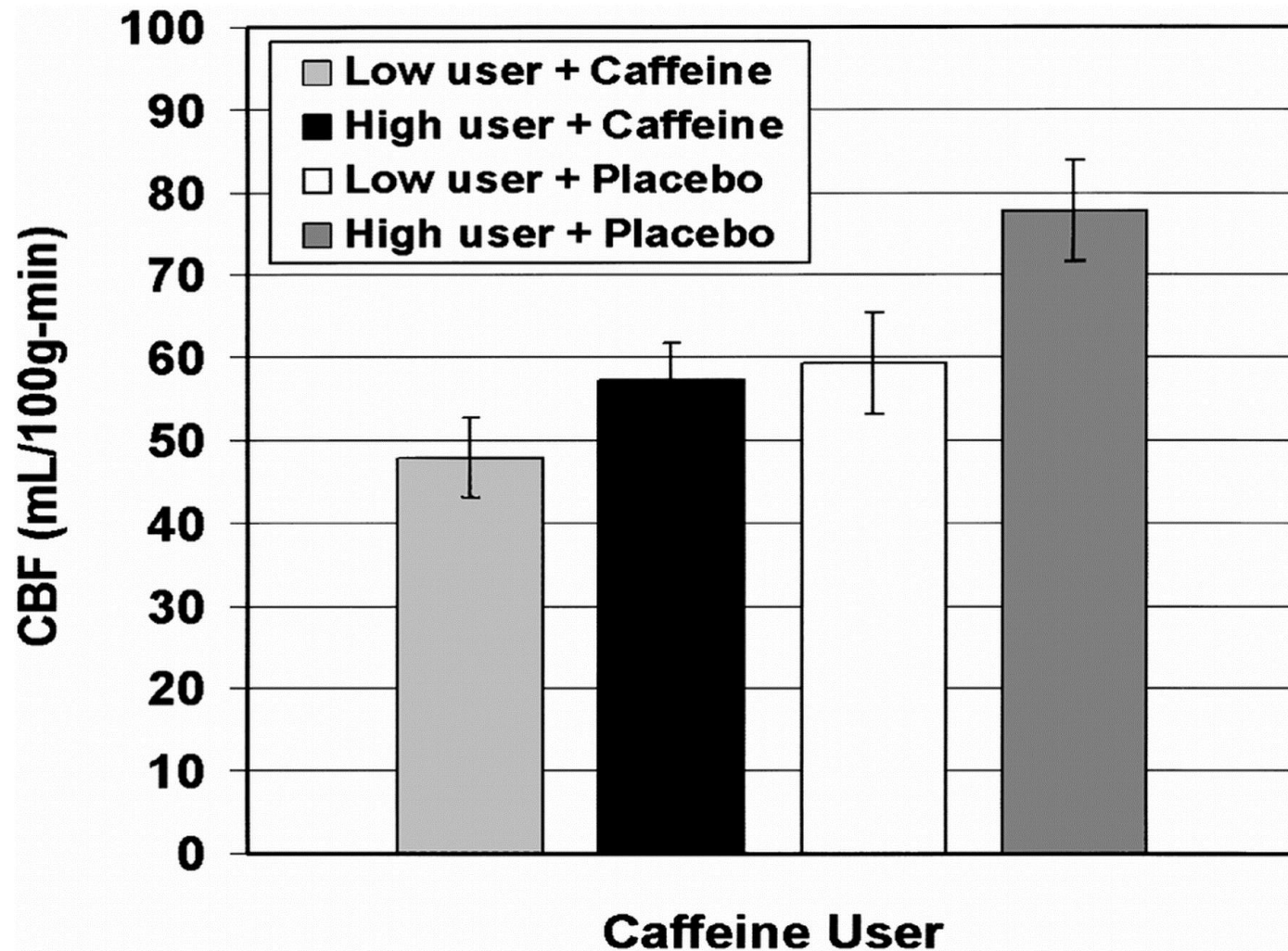
Bruce N. Ames*

Nutrition and Metabolism Center, Children's Hospital of Oakland Research Institute, 5700 Martin Luther King Jr. Way, Oakland, CA 94609

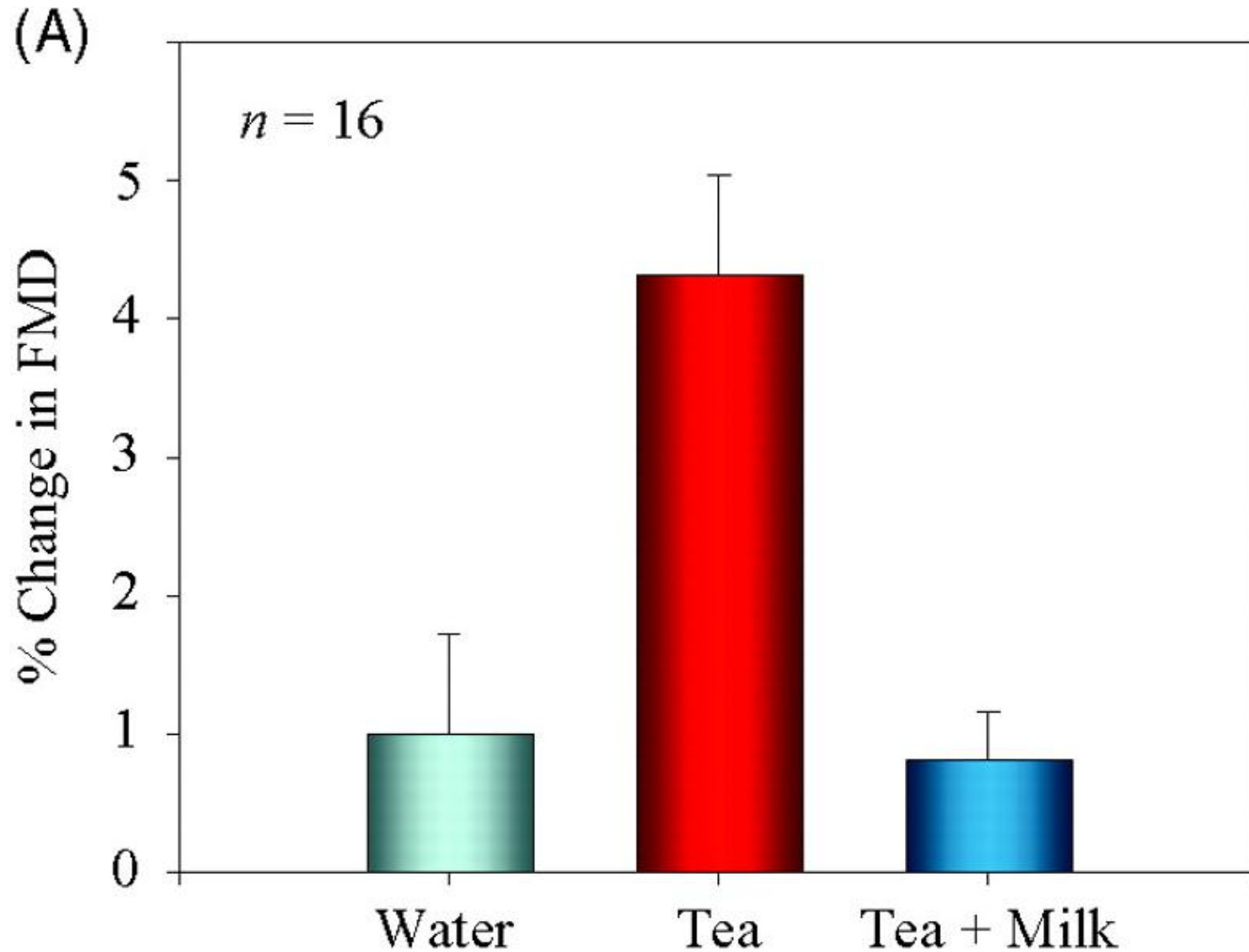
Contributed by Bruce N. Ames, October 6, 2006 (sent for review September 20, 2006)

Inadequate dietary intakes of vitamins and minerals are widespread, most likely due to excessive consumption of energy-rich, micro-nutrient-poor, refined food. Inadequate intakes may result in chronic metabolic disruption, including mitochondrial decay. Deficiencies in many micronutrients cause DNA damage, such as chromosome breaks, in cultured human cells or *in vivo*. Some of these defi-

Cerebral Blood Flow



Milky tea and blood flow





PROGRESSION OF SUCCESSFUL LONGEVITY EXPERIMENTS IN INCREASINGLY HIGHER LIFE FORMS USING RESVERATROL

2003	2004	2004	2006	2006	2007
					
Yeast Cells <i>Saccharomyces cerevisiae</i>	Fruit fly <i>Drosophila melanogaster</i>	Roundworm <i>Caenorhabditis elegans</i>	Killifish (vertebrate) <i>Nothobranchius furzeri</i>	Rodents Lab Mice	Humans <i>Red Wine Pills</i>
David Sinclair, colleagues, Harvard	S L Helfand, colleagues, Univ. Connecticut	David Sinclair, colleagues, Harvard	L Domenici, colleagues, Italy	David Sinclair, colleagues, Harvard	Longevinex
Nature 425:191-6, 2003.	Proc Natl Acad Sci 101:12980-5, 2004	Nature 430:686, 2004	Current Biology 16: 296-300, 2006	Nature 2006	Appalachian State 2007
Increased Lifespan 60%	Increased Lifespan 29%	Increased Lifespan 15%	Increased Lifespan 27-59%	Increased Lifespan 31%	Increased Lifespan ?

RED WINE MAKES THEM LIVE LONGER,
BUT THEY GET TO BE A REAL PAIN.

IT HAS
A TIMID NOSE
WITH THE
USUAL NOTES
OF OAK
AND VANILLA.

I CAN'T
BELIEVE
YOU'RE
DRINKING
MERLOT.



