

STEVEN J. KARAGEANES, DO, FAOASM

---

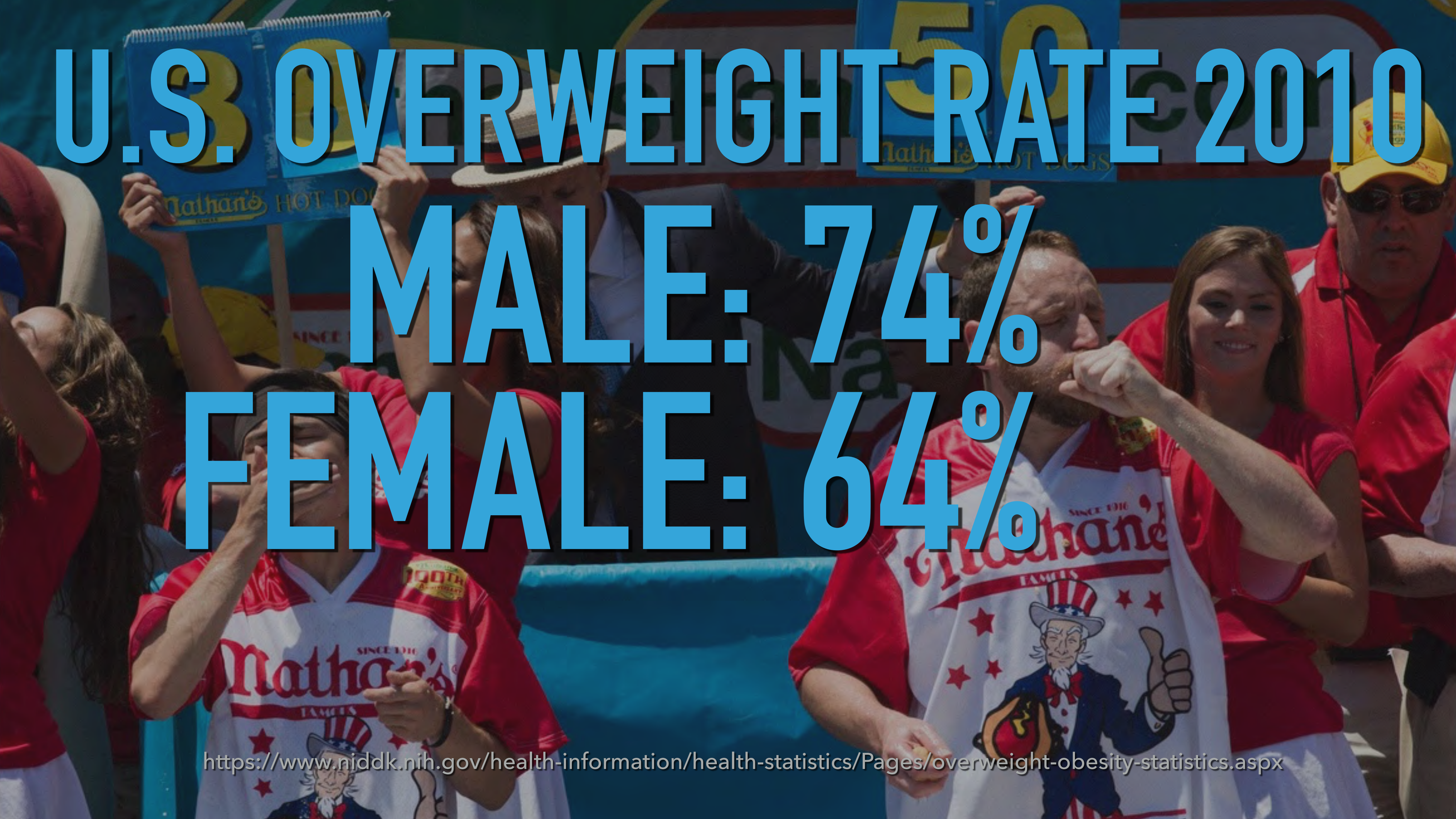
# DIET AND FITNESS INDUSTRY

# U.S. OBESITY RATE

1950: 12%

1980: 15%

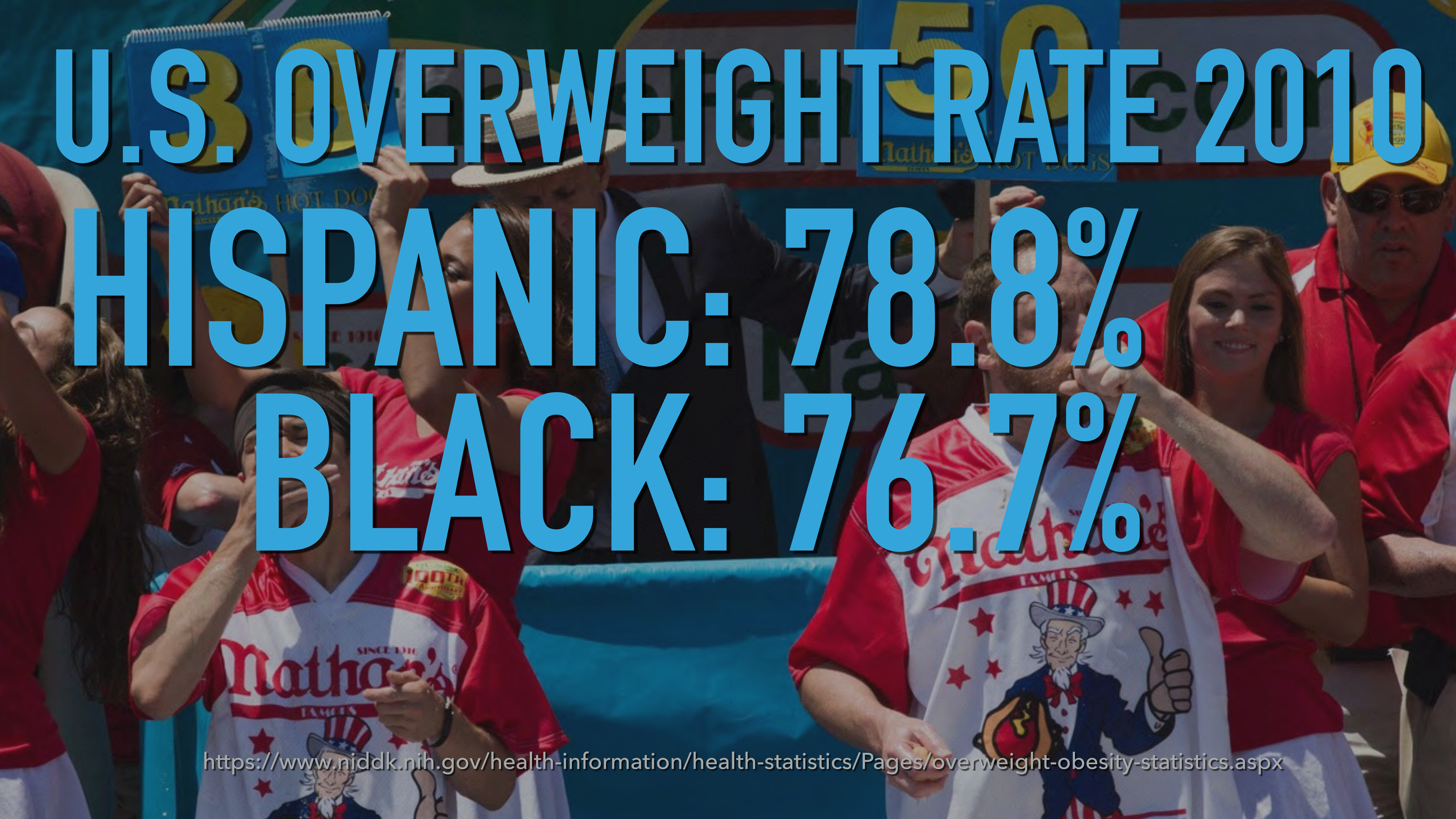
2000: 35%



# U.S. OVERWEIGHT RATE 2010

MALE: 74%

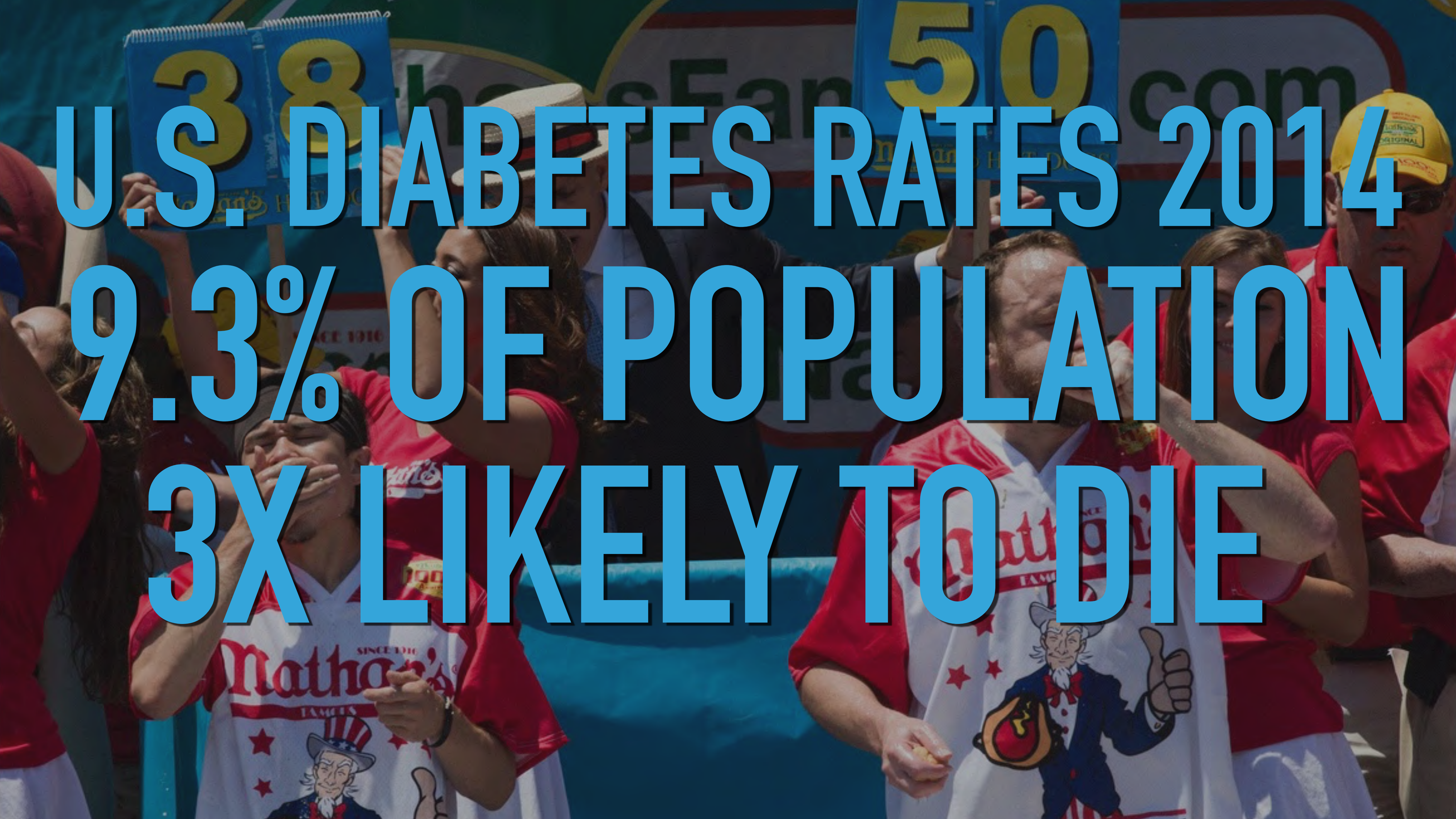
FEMALE: 64%



# U.S. OVERWEIGHT RATE 2010

HISPANIC: 78.8%

BLACK: 76.7%



U.S. DIABETES RATES 2014

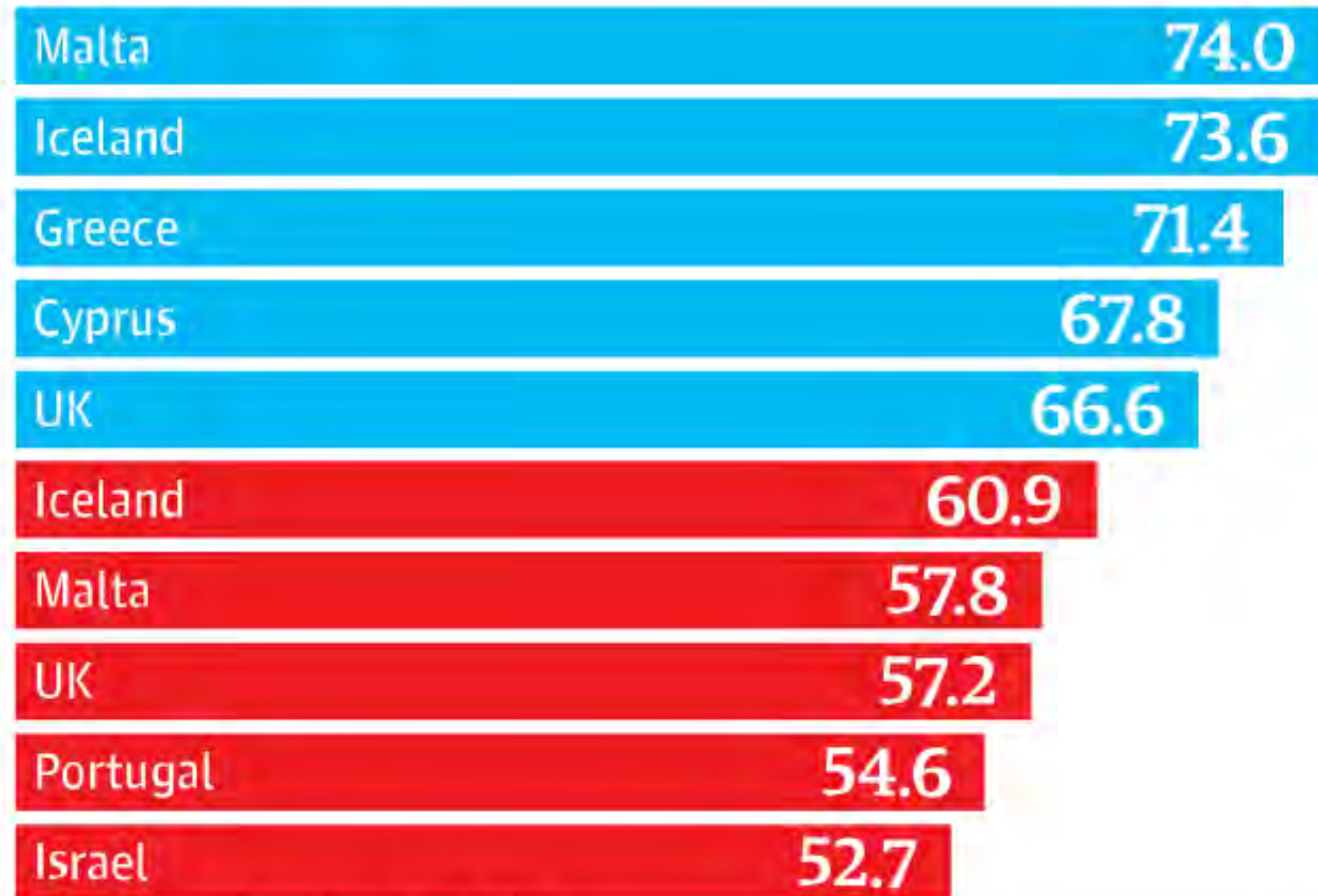
9.3% OF POPULATION

3X LIKELY TO DIE

# Top five obese countries

Overweight and obese men and women, aged 20+, %

● Men ● Women



SOURCE: THE LANCET REPORT

## Classification

## BMI

Underweight	< 18.5
Normal weight	18.5 - 24.9
Overweight	25.0 - 29.9
Obese: Class I	30.0 - 34.9
Obese: Class II	35.0 - 39.9
Obese: Class III	40.0+

## Diabetes Public Health Resource

### National Surveillance

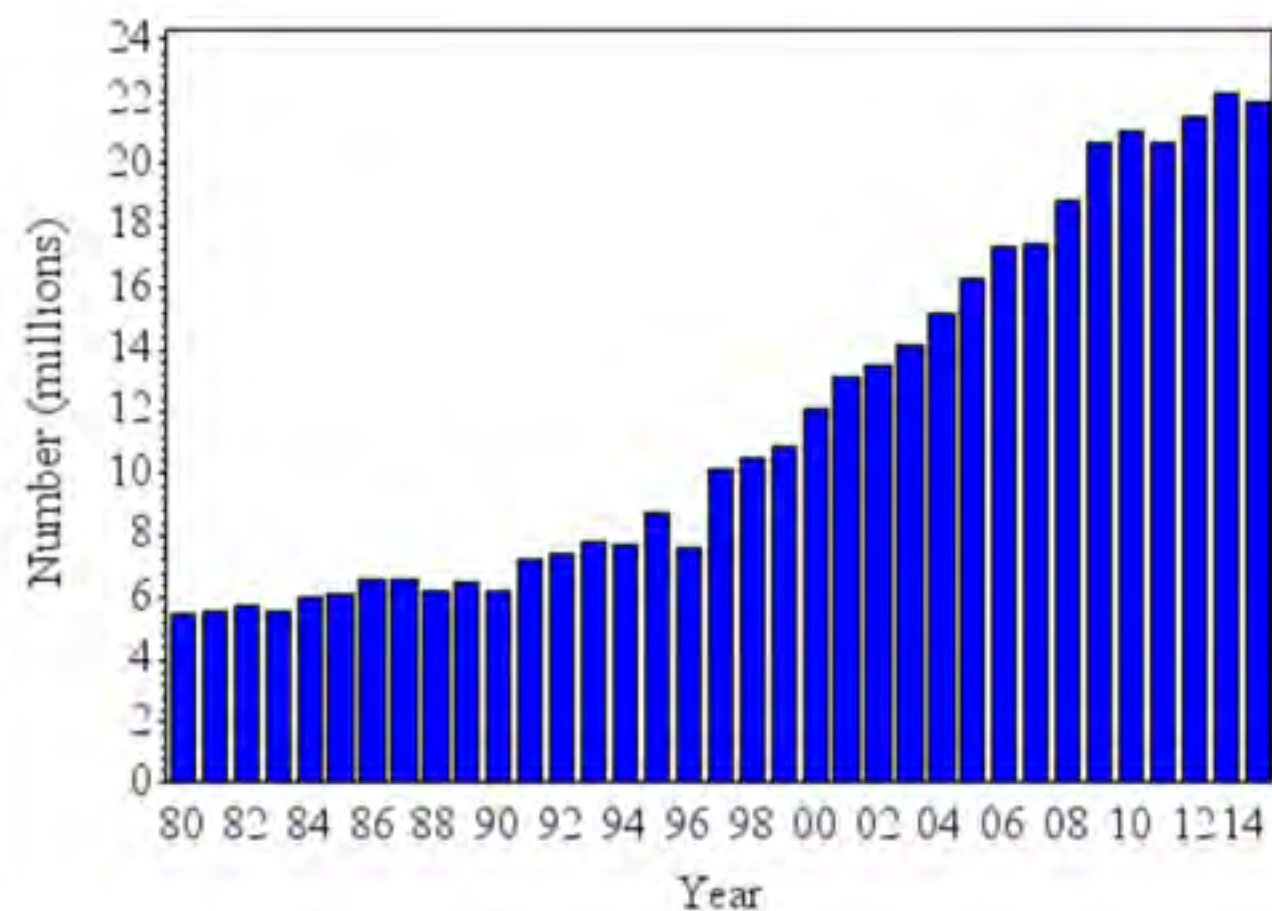
- Diagnosed Diabetes
- Number of Persons**
- Number of Adults
- Crude and Age-Adjusted Rate
- Crude and Age-Adjusted Rate of Adults
- Rate by Age
- Rate by Education
- Rate by Sex
- Rate by Race
- Rate by Race and Sex
- Rate by Age, Race, and Sex
- Rate by Hispanic Origin
- Rate by Hispanic Origin and Sex
- Methods and Limitations
- Prevalence and Age at Diagnosis
- Prevalence of Diabetes
- Prevalence of Diabetes
- Diabetes Complications
- Hospitalization
- Emergency Department Visits
- Preventive Care Practices

[National Surveillance](#) > [Diagnosed Diabetes](#)



### Number (in Millions) of Civilian, Non-Institutionalized Persons with Diagnosed Diabetes, United States, 1980-2014

Diabetes is becoming more common in the United States. From 1980 through 2014, the number of Americans with diagnosed diabetes has increased fourfold (from 5.5 million to 22.0 million).



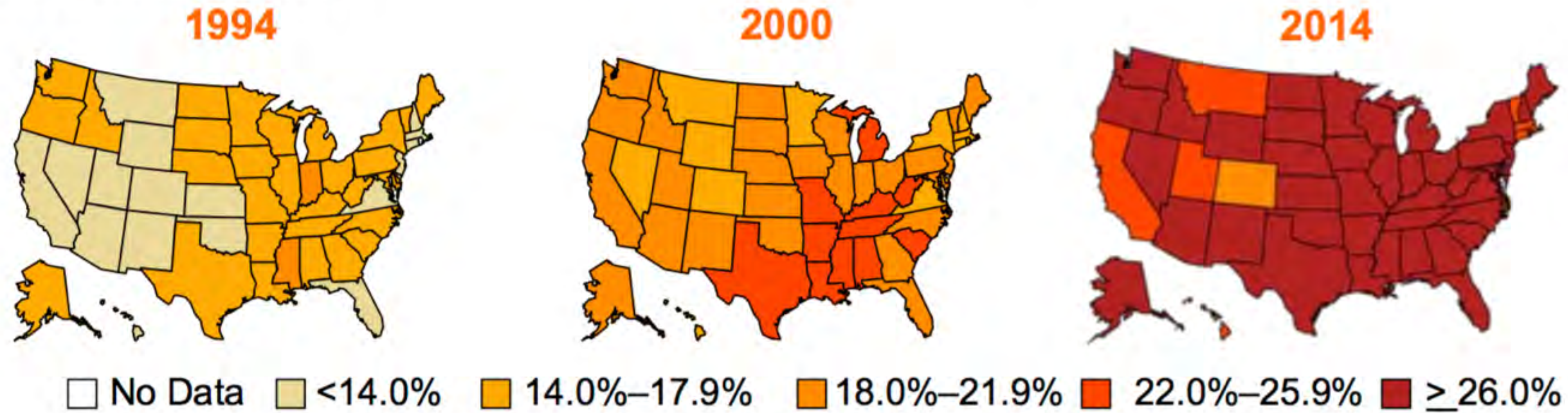
Year	Number (in Millions)	Standard Error (in Millions)
1980	5.5	0.2
1981	5.6	0.2

DIABETES RATES

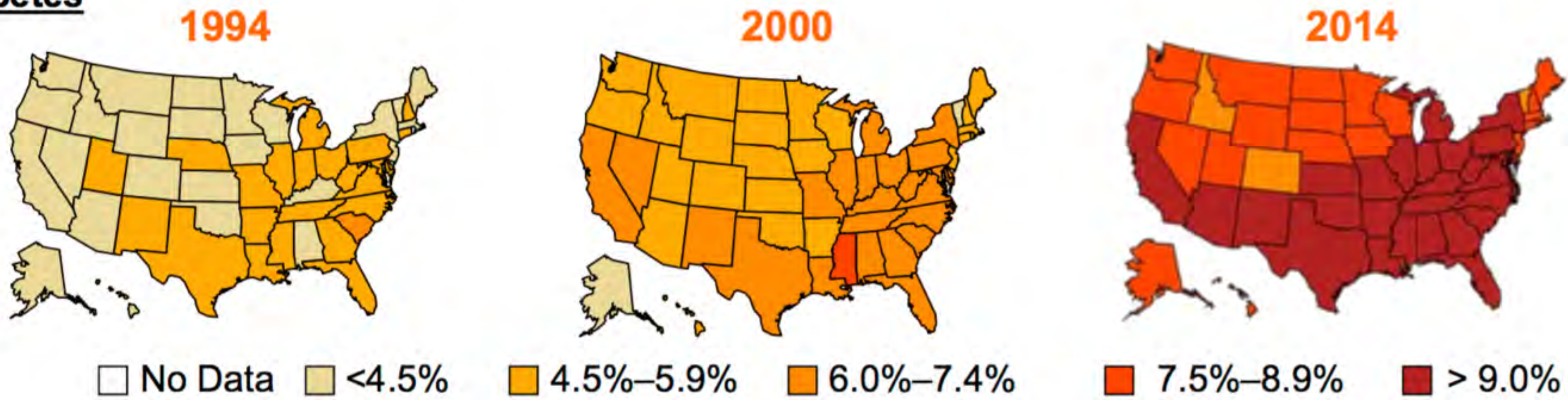
9.3% OF U.S.

# Age-Adjusted Prevalence of Obesity and Diagnosed Diabetes Among US Adults

## Obesity (BMI $\geq 30$ kg/m<sup>2</sup>)



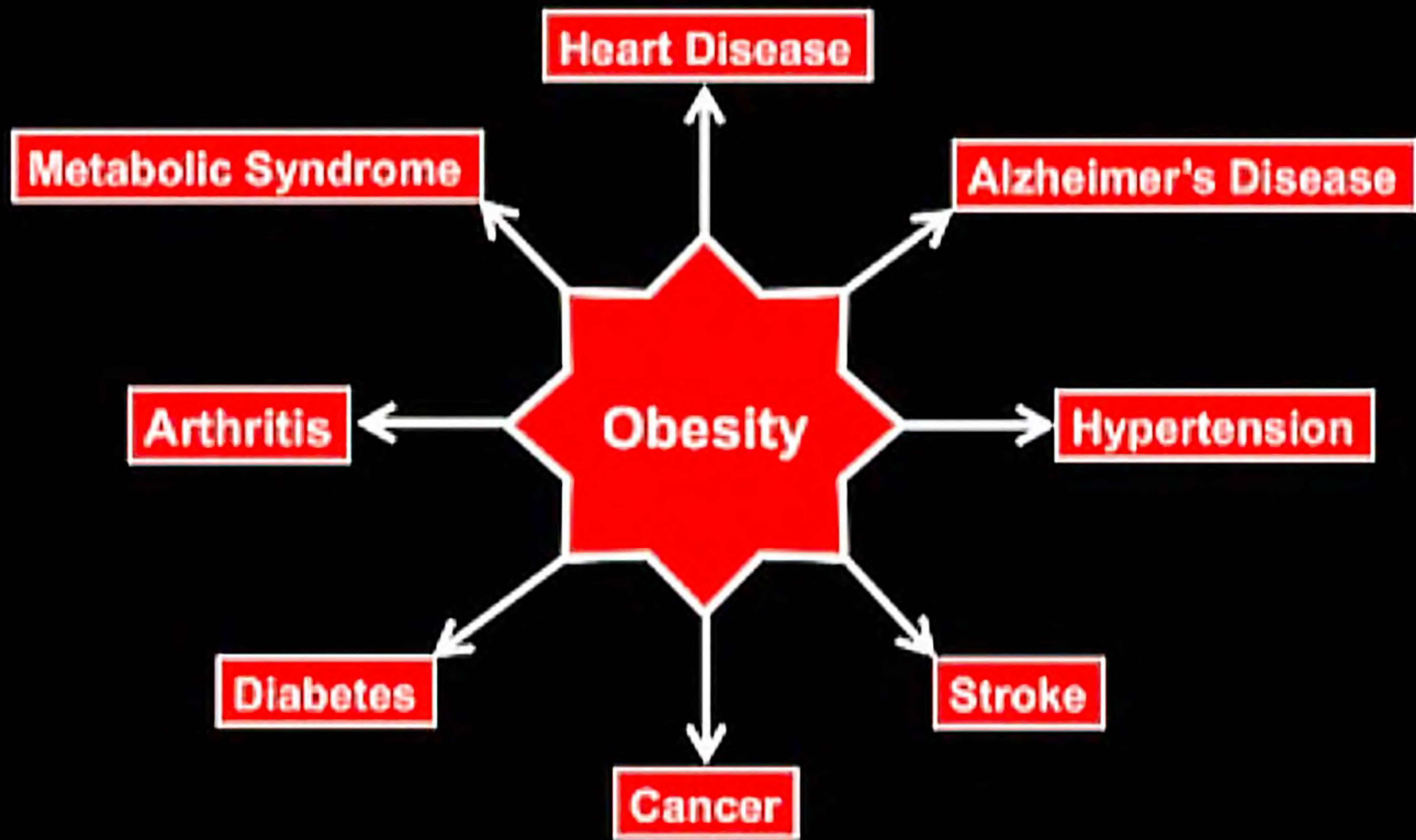
## Diabetes



CDC's Division of Diabetes Translation. United States Diabetes Surveillance System available at <http://www.cdc.gov/diabetes/data>







# CASES OF TYPE II DIABETES AMONG TEENS

A photograph of three children playing on a beach. A girl in a pink shirt is crouching in the foreground, digging in the sand with a blue bucket. Two boys, one in a green shirt and one in a blue shirt, are standing behind her, also playing with sand and buckets. The background shows a sandy beach with some vegetation and a body of water.

2010: 57,638

1980: 0

**FAT AND CHOLESTEROL**

**SUGAR**

AS PART OF THE  
**GROWING LOCAL CONFERENCE 2014**  
THE WINNIPEG FOUNDATION AND FOOD MATTERS MANITOBA PRESENT

Winner of the Pulitzer Prize

**MICHAEL  
MOSS**

**SALT**

**SUGAR**

**FAT**

How  
the Food  
Giants  
Hooked  
Us

JOIN PULITZER PRIZE-WINNING JOURNALIST MICHAEL MOSS  
AUTHOR OF SALT SUGAR FAT: HOW THE FOOD GIANTS HOOKED US

Thursday, February 27, 2014 | 7:30 pm

Masonic Centre (Fully accessible) | 420 Corydon Ave at Confusion Corner  
Limited parking, carpooling encouraged. Easy access from Rapid Transit.  
Tickets \$30 or \$15 for Growing Local attendees. Limited tickets available.

[wpgfdn.org/michaelmoos](http://wpgfdn.org/michaelmoos) for tickets & information



The  
**Big Fat  
Surprise**

NYT Bestselling author Nina Teicholz  
explains why butter, meat and cheese  
belong in a healthy diet.



The Cause of  
Obesity and  
Diabetes

Science writer Gary Taubes on  
the resistance against low carb.



## Sugar, salt, fat: How the food industry got us hooked on an ‘unholy trinity’

[Tralee Pearce](#)

The Globe and Mail

Published Sunday, Feb. 24, 2013 4:00PM EST

Last updated Friday, Mar. 01, 2013 10:48AM EST

Most of us like to pretend we give the junk food aisles of the grocery store a wide berth. But put us in front of a gooey bowl of Kraft dinner or open a bag of Frito-Lays, and some kind of Pavlovian impulse takes over. We can’t resist. In a chilling new exposé of the science and marketing behind the biggest North American food brands, the Pulitzer-Prize-winning author Michael Moss unveils exactly how products are engineered to have just the right levels of sugar, salt and fat to be downright addictive.

Moss is quick to admit he’s no food saint. While he was working on *Salt Sugar Fat: How the Food Giants Hooked Us*, he frequently indulged in his favourite: the mighty potato chip. “I know enough to limit myself, but just listening to these scientists talk about their formulations caused me to drool,” he says. What he learned was that, thanks to what he calls the “unholy trinity” of salt, fat and, yes, sugar, researchers have found that chips are the single biggest contributor to weight gain over time, more than any other food.

Moss looks at how chips and their processed cohort came to be complicit in North America’s battles with obesity, diabetes and heart disease – by tapping into cravings we didn’t know we had. We spoke to him from his desk at The New York Times.

### **Are we hardwired to love sugar, salt, fat?**

Sugar is the most craveable. We have 10,000 taste buds and they’re all wired for the sweet taste and it goes directly, fast, into your brain. Kids are born liking sweet tastes. Fat is in some ways even more powerful. It has twice the calories as sugar and it’s in all kinds of forms and it’s deceptive to the brain. We’re not born liking salt. We develop a taste for it at about age six months. There have been recent studies that show that the food industry is hugely responsible for affecting our cravings for salt.

### **I’ve heard Canadians like it salty.**

The food giants want to hit the “bliss point” – the amount of salt, sugar or fat that is just the right amount to send you over the moon. And when they hit it, the products fly off the shelves. They know that people

## The sugar conspiracy

In 1972, a British scientist sounded the alarm that sugar – and not fat – was the greatest danger to our health. But his findings were ridiculed and his reputation ruined. How did the world’s top nutrition scientists get it so wrong for so long?

by

Thursday 7 April 2016 01.00 EDT

165k Shares

| 2,270 Comments

**D**obert Lustig is a paediatric endocrinologist at the University of California who specialises in the treatment of childhood obesity. A 90-minute talk he gave in 2009, titled *Sugar: The Bitter Truth*, has now been viewed more than six million

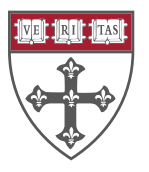
**The New York Times Magazine**

Magazine

## Is Sugar Toxic?

By GARY TAUBES APRIL 13, 2011

On May 26, 2009, Robert Lustig gave a lecture called “Sugar: The Bitter Truth,” which was posted on YouTube the following July. Since then, it has been viewed well over 800,000 times, gaining new viewers at a rate of about 50,000 per month, fairly remarkable numbers for a 90-minute discussion of the nuances of fructose biochemistry and human physiology.



## News

# Public health takes aim at sugar and salt

[[Fall 2009](#)]

The war on obesity and other lifestyle ills has opened a new battlefield: the fight against [sugar](#) and [salt](#).

It may be a fight for our lives.

In the last few years, evidence has mounted that too much of these appealing ingredients—often invisibly insinuated into beverages, processed foods, and restaurant fare—harm health.

Research at the Harvard School of Public Health and elsewhere, for example, has tied sugary drinks to an epidemic of [obesity](#) in the United States. The average 12-ounce can of soda contains 10 teaspoons of sugar, and the average teenage boy consumes nearly three cans of sugary drinks a day. Is it any wonder that about two-thirds of Americans are overweight or obese?

### Magazine

## The Extraordinary Science of Addictive Junk Food

By MICHAEL MOSS FEB. 20, 2013

On the evening of April 8, 1999, a long line of Town Cars and taxis pulled up to the Minneapolis headquarters of Pillsbury and discharged 11 men who controlled America’s largest food companies. Nestlé was in attendance, as were Kraft and Nabisco, General Mills and Procter & Gamble, Coca-Cola and Mars. Rivals any other day, the C.E.O.’s and company presidents had come together for a rare, private meeting. On the agenda was one item: the emerging obesity epidemic and how to deal with it. While the atmosphere was cordial, the men assembled were hardly friends. Their stature was defined by their skill in fighting one another for what they called “stomach share” — the amount of digestive space that any one company’s brand can grab from the competition.

James Behnke, a 55-year-old executive at Pillsbury, greeted the men as they arrived. He was anxious but also hopeful about the plan that he and a few other food-company executives had devised to engage the C.E.O.’s on America’s growing weight problem. “We were very concerned, and rightfully so, that obesity was becoming a major issue,” Behnke recalled. “People were starting to talk about sugar taxes, and there was a lot of pressure on food companies.” Getting the company chiefs in the same room to talk about anything, much less a sensitive issue like this, was a tricky business, so Behnke and his fellow organizers had scripted the meeting carefully, honing the message to its barest essentials. “C.E.O.’s in the food industry are typically not technical guys, and they’re uncomfortable going to meetings where technical people talk in technical terms about technical

## 2014 U.S. NIH STUDY

- ▶ Low-carb diet better than low-fat diets to achieve weight loss and control type 2 diabetes
- ▶ 50 other studies with the same conclusion
- ▶ 2015 US Dietary Guidelines DOES NOT REFER TO THESE STUDIES

OBESITY AND DIABETES EPIDEMIC

---

**HOW DID WE GET HERE?**





1797-1878

---

**WILLIAM BANTING**



1862

---

**5'5", 202 LBS**

## BANTING DIET PRESCRIBED BY DR. WILLIAM HARVEY

- ▶ **Breakfast (9 am)**
  - ▶ 6 oz of beef, mutton, kidneys, broiled fish, bacon or cold meat (except pork or veal)
  - ▶ 9 oz of tea or coffee (no milk or sugar)
  - ▶ 1 oz of dry toast or a small biscuit
- ▶ **Lunch (2 pm)**
  - ▶ 5-6 oz of any fish except salmon, herring, or eel; or any meat but veal and pork
  - ▶ Any veggie except potatoes, carrots, beetroot, or parsnips
  - ▶ Fruit out of any pudding, not sweetened
  - ▶ Any kind of poultry or game
  - ▶ 1 oz dry toast



## BANTING DIET PRESCRIBED BY DR. WILLIAM HARVEY

- ▶ Tea (6 pm)
  - ▶ 2-3 oz of cooked fruit
  - ▶ A rusk or two
  - ▶ Tea without milk or sugar
- ▶ Supper (9 pm)
  - ▶ 3-4 oz of meat or fish, similar to lunch
  - ▶ A nightcap if needed: a tumbler of grog (gin, whisky, or brandy without sugar) OR a glass or two of sherry or claret



LETTER  
ON CORPULENCE,

Addressed to the Public

By WILLIAM BANTING.

THIRD EDITION.

LONDON:  
PUBLISHED BY HARRISON, 59, PALL MALL,  
Bookseller to the Queen and H.R.H. the Prince of Wales.

1864.

1864

---

LETTER ON  
CORPULENCE



**SACCHARINE MATTER IS  
THE GREAT MOVING  
CAUSE OF FATTY  
CORPULENCE**

**William Banting**



**8/26/1862 = 202 LBS**

**9/12/1863 = 156 LBS**

**TOTAL LOSS = 46 LBS**

**total copies of LOC sold: 63,000**

# HOW NATURE CURES

COMPRISING

A NEW SYSTEM OF HYGIENE;

ALSO

## THE NATURAL FOOD OF MAN

A STATEMENT OF THE PRINCIPAL ARGUMENTS AGAINST THE  
USE OF BREAD, CEREALS, PULSES, POTATOES, AND  
ALL OTHER STARCH FOODS.

BY

EMMET DENSMORE, M. D.

"There is no wealth but life—life, including all its power of love, joy, and admiration. That country is the richest which nourishes the greatest number of noble and happy human beings; that man is richest who, *having perfected the functions of his own life to the utmost*, has also the widest helpful influence."

—RUSKIN.



London:

SONNENSCHN & CO.  
PATERNOSTER SQUARE.

New York:

STILLMAN & CO.  
1398 BROADWAY.

B

1892

EMMET DENSMORE, MD



# HOW NATURE CURES

COMPRISING

A NEW SYSTEM OF HYGIENE;

ALSO

THE NATURAL FOOD OF MAN

A STATEMENT OF THE PRINCIPAL ARGUMENTS AGAINST THE  
USE OF BREAD, CEREALS, PULSES, POTATOES, AND  
ALL OTHER STARCH FOODS.

BY

EMMET DENSMORE, M. D.

"There is no wealth but life—life, including all its power of love, joy, and admiration. That country is the richest which nourishes the greatest number of noble and happy human beings; that man is richest who, *having perfected the functions of his own life to the utmost*, has also the widest helpful influence."

—RUSKIN.



London:  
SONNENSCHN & CO.  
PATERNOSTER SQUARE.

New York:  
STILLMAN & CO.  
1398 BROADWAY.

B

**“OUR PATIENTS' INFIRMITIES  
WERE CAUSED BY STARCH  
(USUALLY BREAD AND POTATOES),  
AND THE REMOVAL OF THE CAUSE  
OVERCAME THE DISEASE”**

**Emmet Densmore, MD**

# The evolution of BMI values of US adults: 1882-1986

John Komlos, Marek Brabec

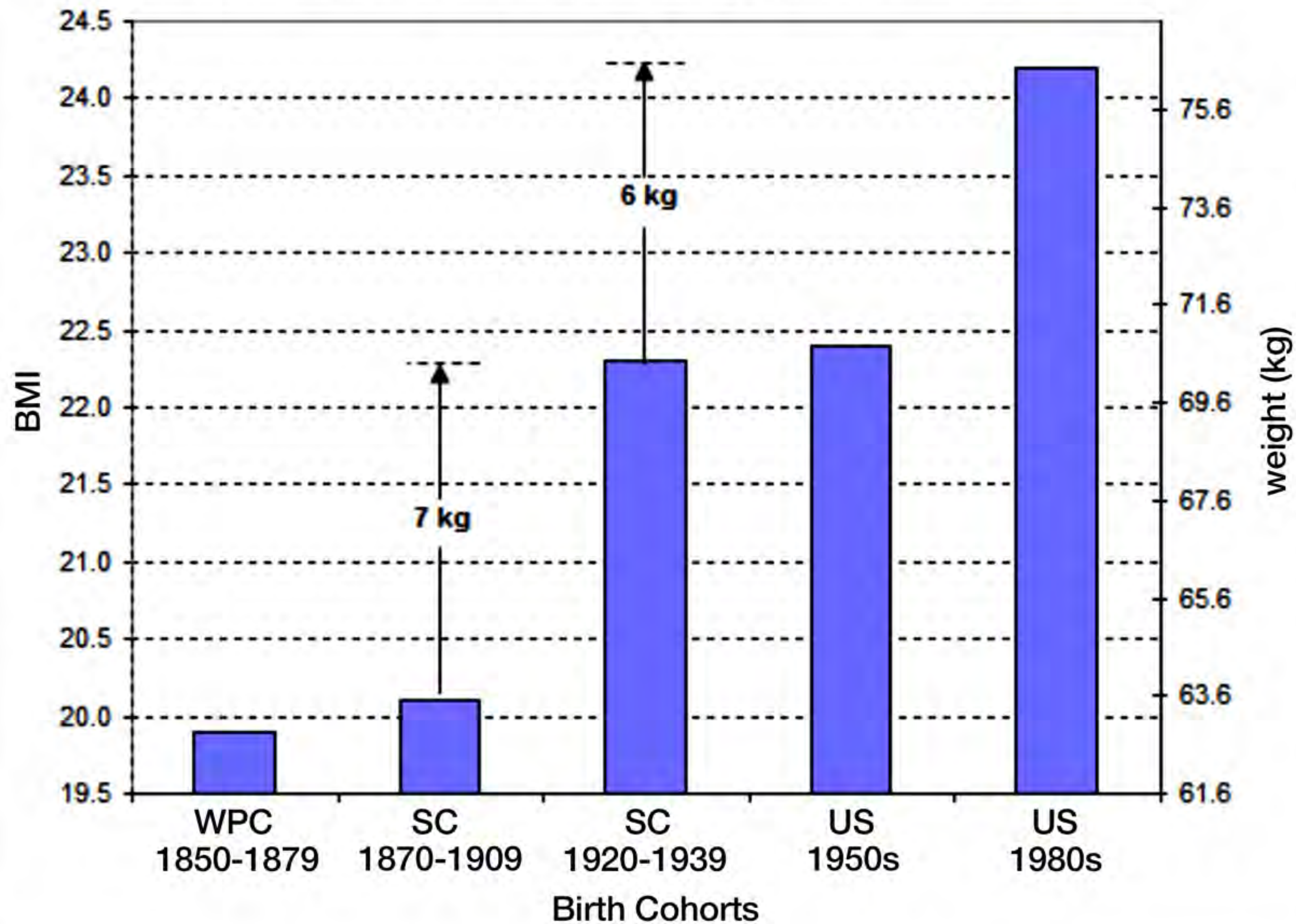
31 August 2010

*More than one billion adults across the globe are overweight, and at least 300 million are clinically obese. This column argues that the obesity epidemic in the US has been creeping up throughout the twentieth century, much earlier than the official account acknowledges. Current US standards thereby mislead many overweight and obese youth into believing that their weight is normal when it is not.*

---

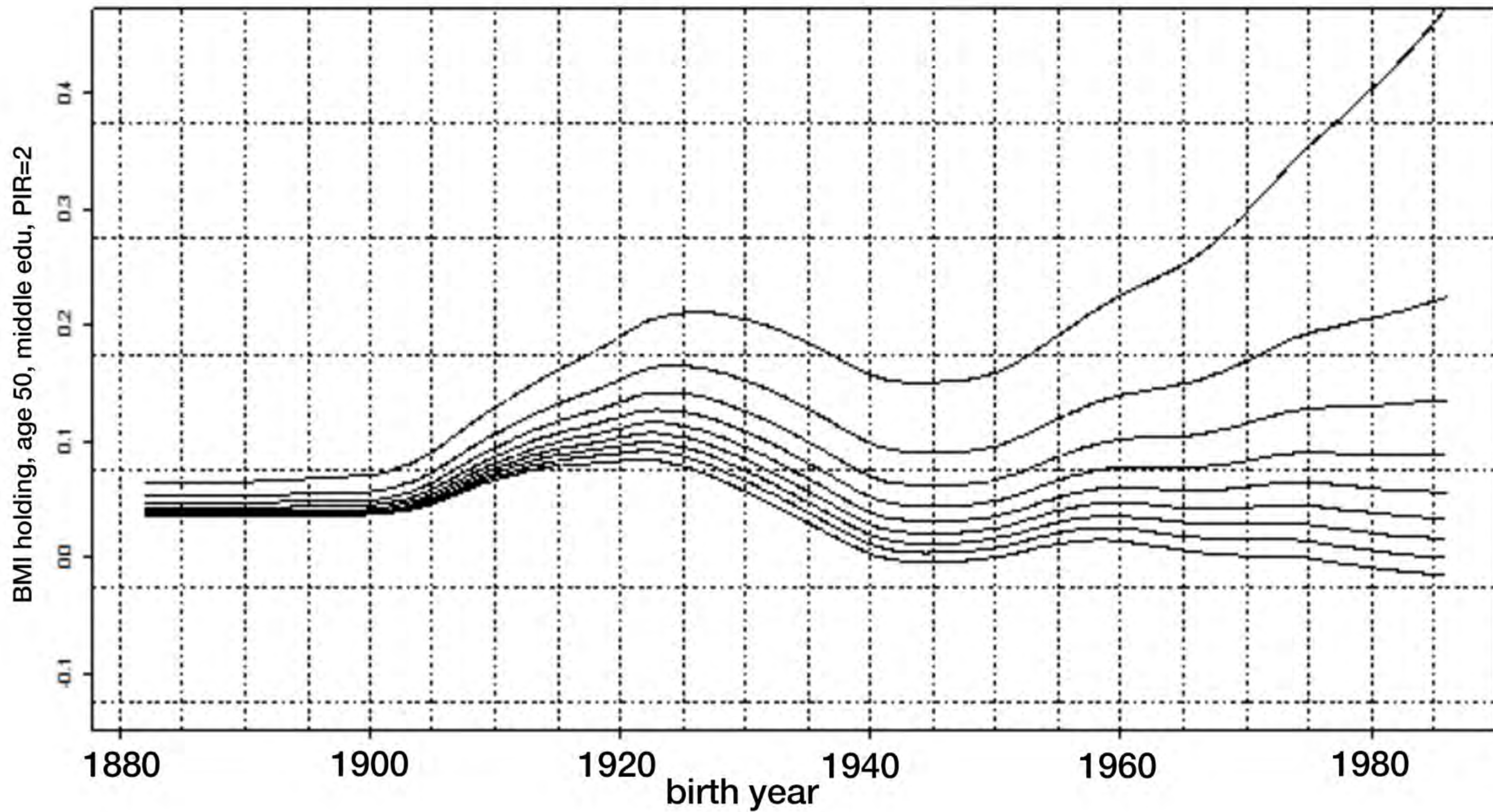
# OBESITY EPIDEMIC STARTED WHEN?

**Figure 1. BMI values and weight of 18-year-old American men**



Note: data pertains to whites. WPC=West Point Cadets; SC=students attending The Citadel in Charleston, SC; US=national sample. The weights pertain to a man who is 70 inches (177.8 cm) tall.

# white males, percentile





1921



1940



1952

1955

---

**EISENHOWER SUFFERS  
HEART ATTACK**



**WAITED 12 HOURS BEFORE TREATMENT**

**RELEASED HEALTH RECORDS TO PUBLIC**

**TOOK OWNERSHIP OF HEALTH**



**DIET**

**LOW CHOLESTEROL**

**LOW FAT**





**1 CVA**

**14 CARDIAC ARRESTS**

**7 MIs**

**DIED 1969 AT AGE 78**



**“SNYDER MISTOOK A CORONARY THROMBOSIS FOR A GASTROINTESTINAL PROBLEM, WAITED FOR 10 HOURS BEFORE HE RECOGNIZED HIS MISTAKE AND CALLED FOR HELP, AND CONDUCTED AN UNREMITTING COVER-UP OF HIS ERROR FOR THE REST OF HIS LIFE.”**

**Clarence G. Lasby, author  
“Eisenhower’s Heart Attack”**



APPOINTED IKE'S DOC

---

**PAUL DUDLEY WHITE**



**FOUNDER OF AMERICAN  
HEART ASSOCIATION**

**ESTABLISHED NATIONAL  
INSTITUTE OF HEALTH**

**WOLF-PARKINSON-  
WHITE SYNDROME**



1955

---

**PRESS CONFERENCE  
TO THE PUBLIC**



**STOP SMOKING**

**CUT DOWN ON FAT  
AND CHOLESTEROL**

**ANCEL KEYS**

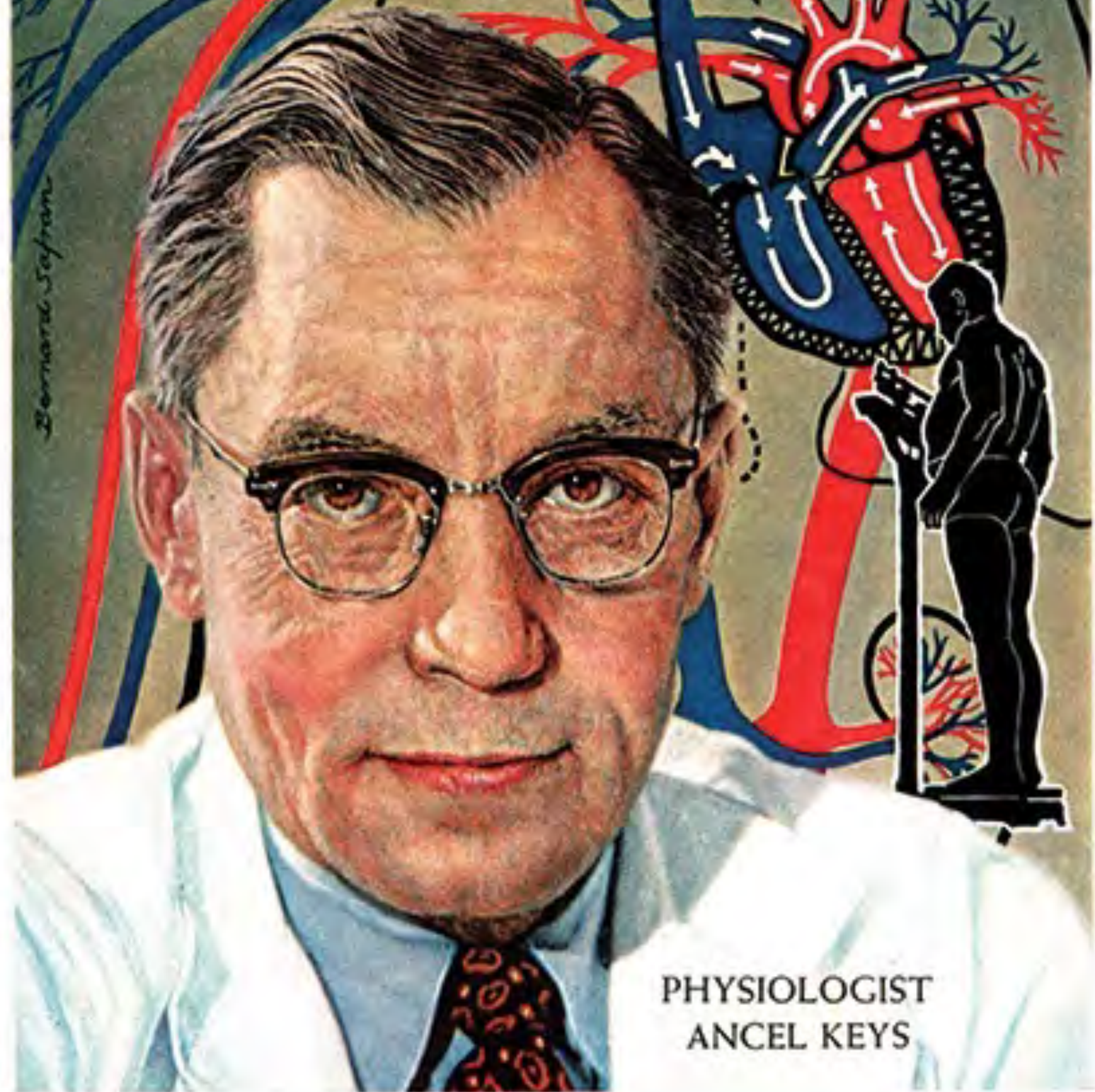
TWENTY-FIVE CENTS

JANUARY 13, 1961

*Diet & Health*

# TIME

THE WEEKLY NEWSMAGAZINE



PHYSIOLOGIST  
ANCEL KEYS

\$7.00 A YEAR

ISSN: 0020-7179

VOL. LXXVII NO. 3

# FAT-DIET HYPOTHESIS

1970

---

**SEVEN COUNTRIES  
STUDY PUBLISHED**



RELATIONSHIP OF FACTORS

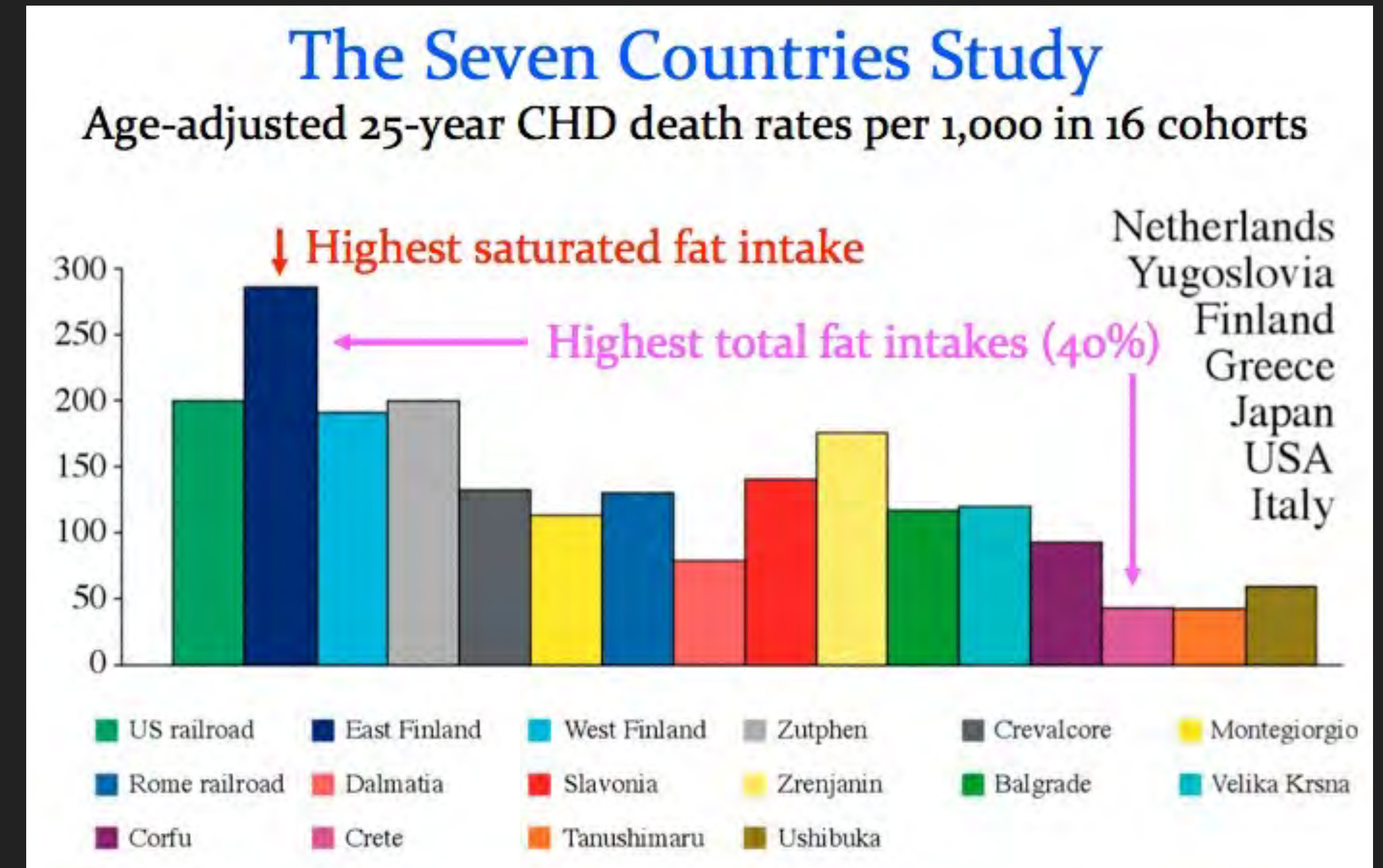
---

**LIFESTYLE, DIET, CORONARY  
ARTERY DISEASE AND STROKE**



## CROSS-SECTIONAL ANALYSIS

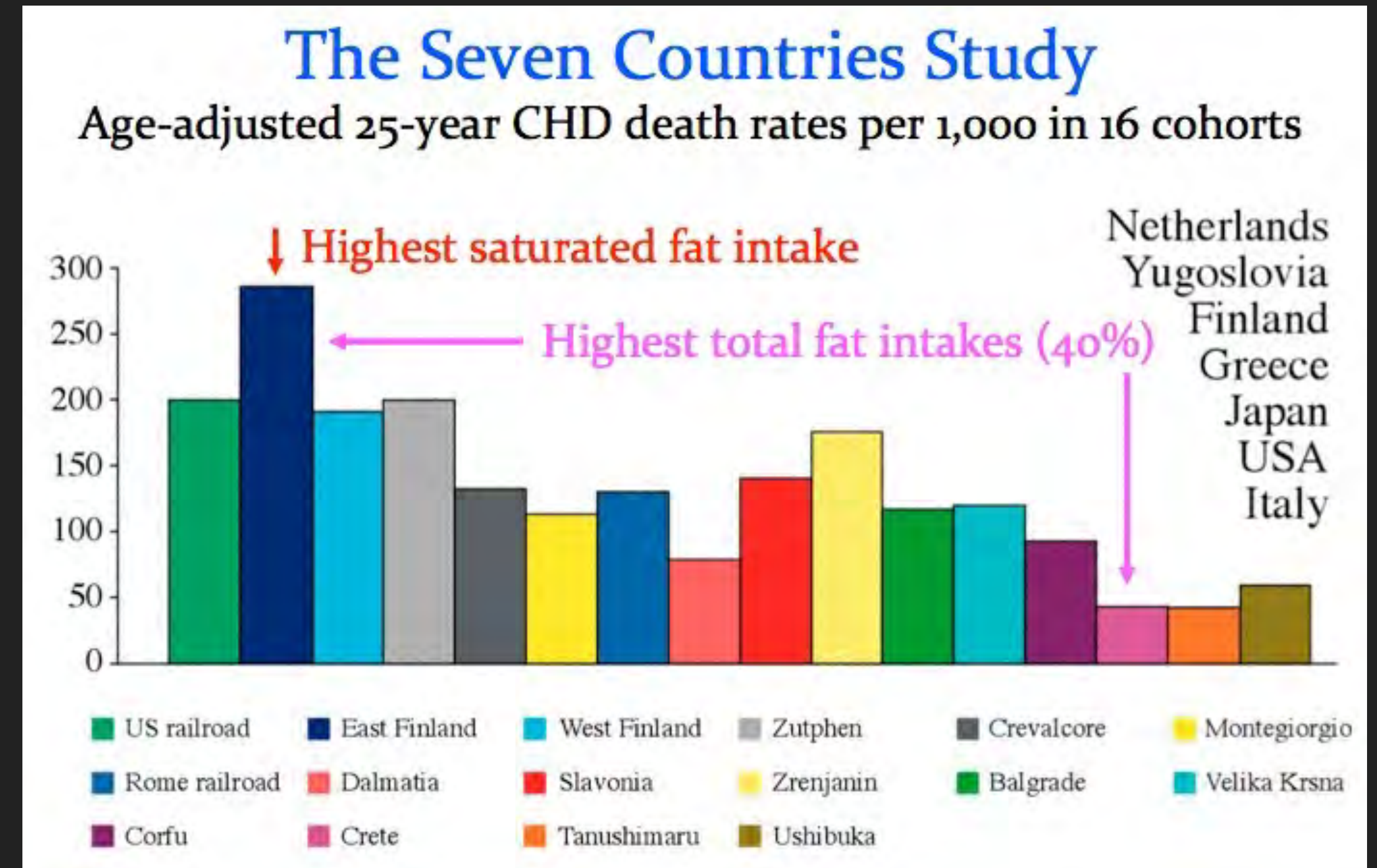
- ▶ Chronic disease takes decades to develop
- ▶ Too many dietary and lifestyle factors entangled in data to isolate specific risks
- ▶ Found correlations not causes
- ▶ Controlled trial needed
- ▶ Cannot exclude that heart disease could be caused by something else



# 1979

- ▶ Cross-sectional design studies CANNOT show causal relationship between diet and serum cholesterol

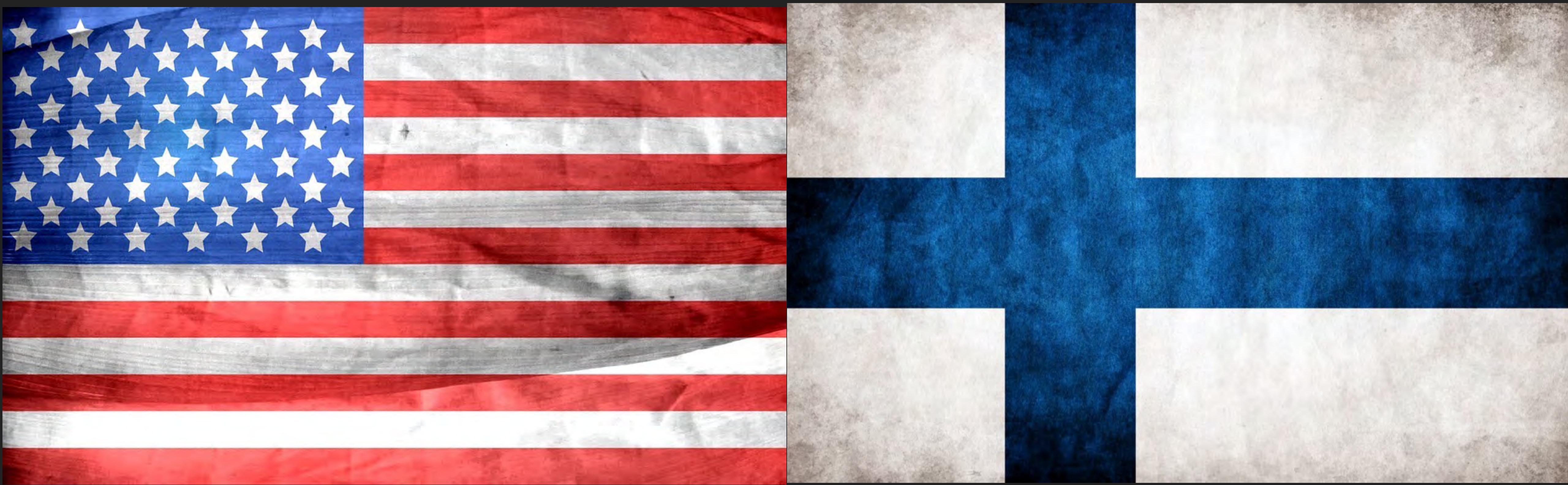
Jacobs DR Jr, Anderson JT, Blackburn H. Diet and serum cholesterol: do zero correlations negate the relationship? *Am J Epidemiol.* 1979 Jul;110(1):77-87.



PROBLEM WITH KEYS' SEVEN COUNTRIES STUDY



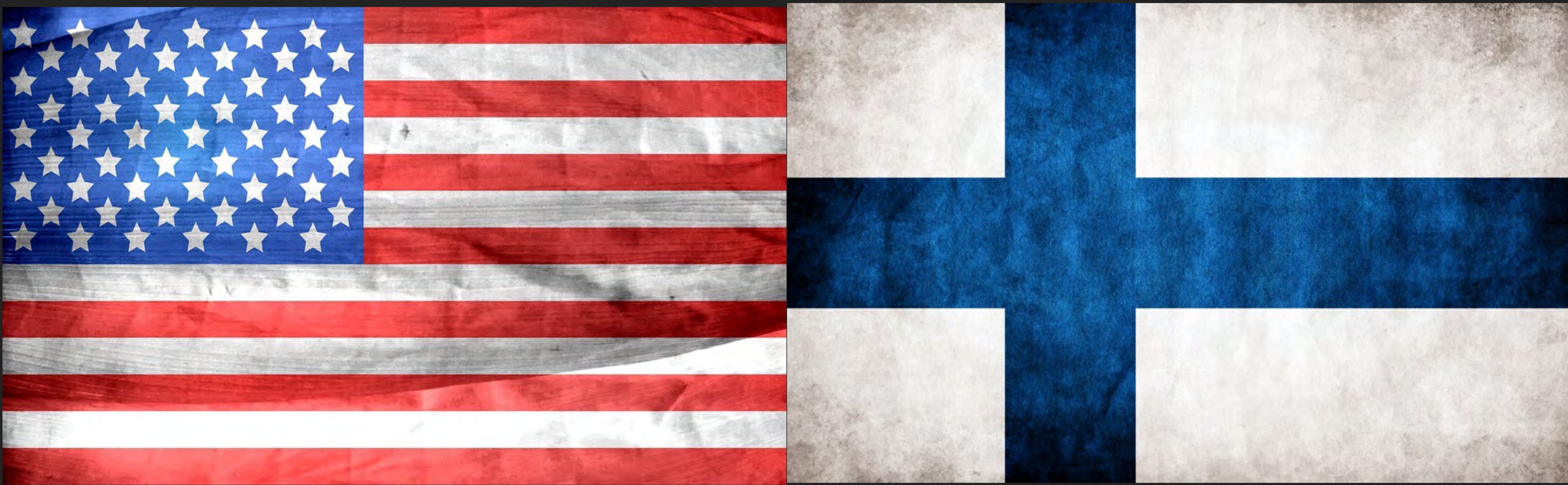
**FINLAND**



**1970s**

**U.S. CHD rates highest in world**

**Finland diet highest amount of saturated fat in world**



**1970s**

**Finland diet: huge amounts of sodium (2 tsp/day)  
Eastern Finland highest rate of fatal CHD in world**

# **SALT AND PROCESSED FOOD MANUFACTURER LEGISLATION**

**By 2007**

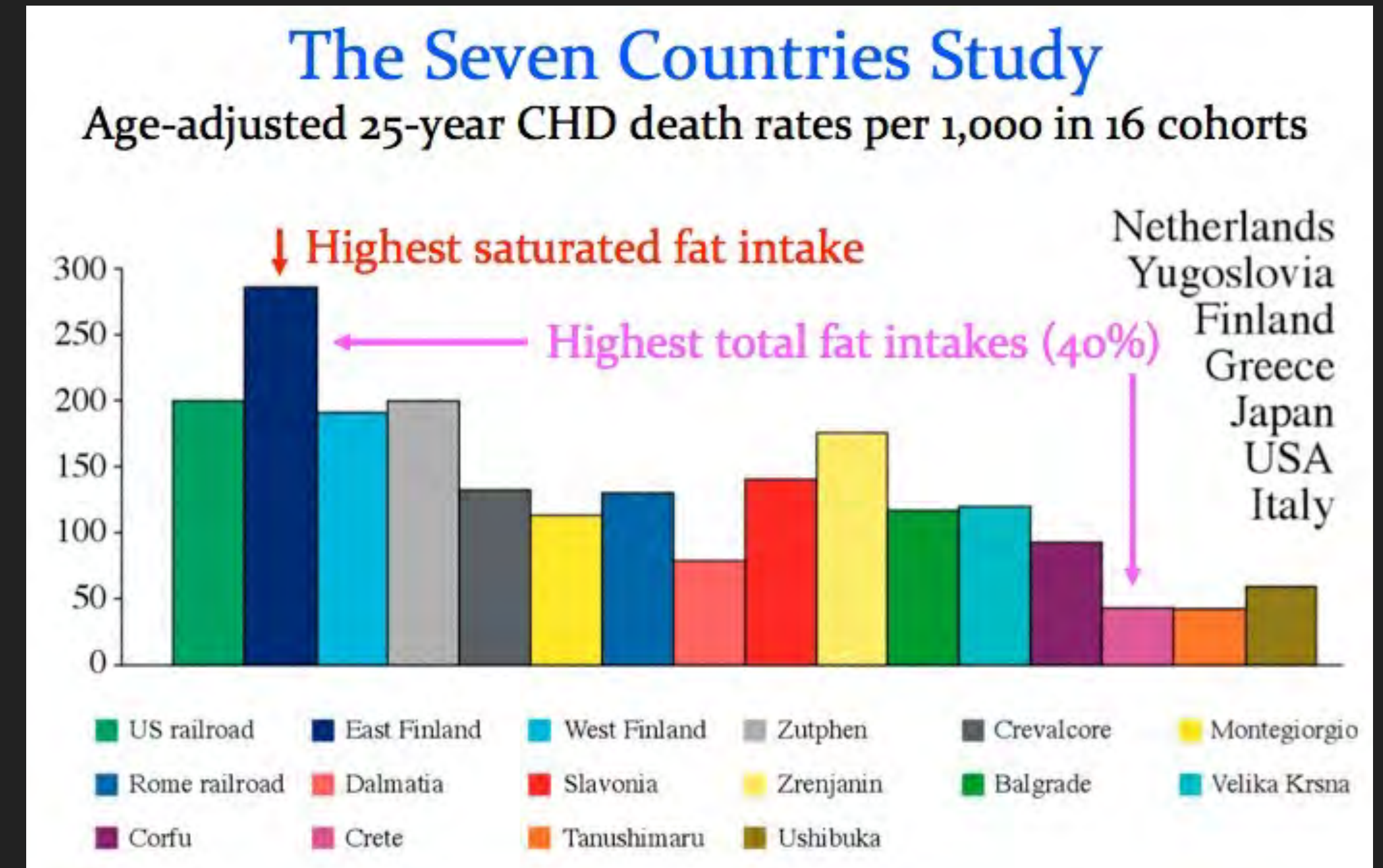
**Finland diet: salt intake down by a third**

**75–80% decline in death from stroke and heart disease**



## FAILURE TO ACCEPT OTHER DATA

- ▶ In 30 years after, study after study failed to conclusively bear out association between saturated fat diets and heart disease
- ▶ Too many dietary and lifestyle factors entangled in data to isolate specific risks
- ▶ Found correlations not causes
- ▶ Controlled trial needed
- ▶ Cannot exclude that heart disease could be caused by something else—>sugar





**“IF ONLY A SMALL FRACTION OF WHAT WE KNOW ABOUT THE EFFECTS OF SUGAR WERE TO BE REVEALED IN RELATION TO ANY OTHER MATERIAL USED AS A FOOD ADDITIVE, THAT MATERIAL WOULD PROMPTLY BE BANNED.”**

**John Yudkin, MD “Pure, White, and Deadly”, 1972**

**“A MOUNTAIN OF NONSENSE”**

**Ancel Keys, referring to Yudkin’s published work**

**“YUDKIN AND HIS COMMERCIAL BACKERS ARE NOT  
DETERRED BY THE FACTS. THEY CONTINUE TO SING  
THE SAME DISCREDITED TUNE.”**

**Ancel Keys, referring to Yudkin’s published work**

the **two-way**

AMERICA

# 50 Years Ago, Sugar Industry Quietly Paid Scientists To Point Blame At Fat

September 13, 2016 · 9:59 AM ET

CAMILA DOMONOSKE



the **two-way**

AMERICA

## 50 Years Ago, Sugar Industry Quietly Paid Scientists To Point Blame At Fat

September 13, 2016 · 9:59 AM ET

CAMILA DOMONOSKE



A newly discovered cache of internal documents reveals that the sugar industry downplayed the risks of sugar in the 1960s.

Luis Ascui/Getty Images

In the 1960s, the sugar industry funded research that downplayed the risks of sugar and highlighted the hazards of fat, according to a newly published article in *JAMA Internal Medicine*.

The article draws on internal documents to show that an industry group called the



The **NEW ENGLAND**  
**JOURNAL** of **MEDICINE**

1965

**SUGAR RESEARCH FOUNDATION  
STARTS PROJECT TO PROTECT  
MARKET SHARE**

# Sugar Industry and Coronary Heart Disease Research

## A Historical Analysis of Internal Industry Documents

Cristin E. Kearns, DDS, MBA; Laura A. Schmidt, PhD, MSW, MPH; Stanton A. Glantz, PhD

Early warning signals of the coronary heart disease (CHD) risk of sugar (sucrose) emerged in the 1950s. We examined Sugar Research Foundation (SRF) internal documents, historical reports, and statements relevant to early debates about the dietary causes of CHD and assembled findings chronologically into a narrative case study. The SRF sponsored its first CHD research project in 1965, a literature review published in the *New England Journal of Medicine*, which singled out fat and cholesterol as the dietary causes of CHD and downplayed evidence that sucrose consumption was also a risk factor. The SRF set the review's objective, contributed articles for inclusion, and received drafts. The SRF's funding and role was not disclosed. Together with other recent analyses of sugar industry documents, our findings suggest the industry sponsored a research program in the 1960s and 1970s that successfully cast doubt about the hazards of sucrose while promoting fat as the dietary culprit in CHD. Policymaking committees should consider giving less weight to food industry-funded studies and include mechanistic and animal studies as well as studies appraising the effect of added sugars on multiple CHD biomarkers and disease development.

JAMA Intern Med. doi:10.1001/jamainternmed.2016.5394  
Published online September 12, 2016.

- [← Invited Commentary](#)
- [+ Author Audio Interview](#)
- [+ Supplemental content](#)

**Author Affiliations:** Author affiliations are listed at the end of this article.

**Corresponding Author:** Stanton A. Glantz, PhD, UCSF Center for Tobacco Control Research and Education, 530 Parnassus Ave, Ste 366, San Francisco, CA 94143-1390 (glantz@medicine.ucsf.edu).

In the 1950s, disproportionately high rates of coronary heart disease (CHD) mortality in American men led to studies of the role of dietary factors, including cholesterol, phytosterols, excessive calories, amino acids, fats, carbohydrates, vitamins, and minerals in influencing CHD risk.<sup>1</sup> By the 1960s, 2 prominent physiologists were championing divergent causal hypotheses of CHD<sup>2,3</sup>: John Yudkin identified added sugars as the primary agent, while Ancel Keys identified total fat, saturated fat, and dietary cholesterol. However, by the 1980s, few scientists believed that added sugars played a significant role in CHD, and the first *1980 Dietary Guidelines for Americans*<sup>4</sup> focused on reducing total fat, saturated fat, and dietary cholesterol for CHD prevention.

Although the contribution of dietary sugars to CHD is still debated, what is clear is that the sugar industry, led by the Sugar Association, the sucrose industry's Washington, DC-based trade association,<sup>5</sup> steadfastly denies that there is a relationship between added sugar consumption and CVD risk.<sup>6,7</sup> This Special Communication uses internal sugar industry documents to describe how the industry sought to influence the scientific debate over the dietary causes of CHD in the 1950s and 1960s, a debate still reverberating in 2016.

### Methods

The Sugar Association evolved from the Sugar Research Foundation (SRF), founded in 1943.<sup>8</sup> We located correspondence between the SRF and Roger Adams, a professor who served on the SRF's scientific advisory board (SAB) between 1959 and 1971, in the

We located correspondence between the SRF and D. Mark Hegsted, professor of nutrition at the Harvard School of Public Health and codirector of the SRF's first CHD research project from 1965 to 1966,<sup>10</sup> in the Harvard Medical Library<sup>11</sup> (27 documents totaling 31 pages).

We collected additional SRF materials through a WorldCat search including annual reports, symposium proceedings, and internal reviews of research. We reviewed historical reports and statements contextualizing scientific debates in the 1950s and 1960s on dietary factors causally related to CHD published by the National Academy of Sciences–National Research Council (NAS-NRC), US Public Health Service, the American Heart Association (AHA), and American Medical Association (AMA). Findings were assembled chronologically into a narrative case study.

### Results

#### SRF's Interest in Promoting a Low-Fat Diet to Prevent CHD

Sugar Research Foundation president Henry Hass's 1954 speech, "What's New in Sugar Research,"<sup>12</sup> to the American Society of Sugar Beet Technologists identified a strategic opportunity for the sugar industry: increase sugar's market share by getting Americans to eat a lower-fat diet: "Leading nutritionists are pointing out the chemical connection between [American's] high-fat diet and the formation of cholesterol which partly plugs our arteries and capillaries, restricts the flow of blood, and causes high blood pressure and heart trouble... if you put [the middle-aged man] on a low-fat diet, it takes just five days for the blood cholesterol to get down to where it should



The NEW ENGLAND  
JOURNAL of MEDICINE

# 1967

# SHIFT BLAME FOR CHD TO FAT AND CHOLESTEROL

# Sugar Industry and Coronary Heart Disease Research

## A Historical Analysis of Internal Industry Documents

Cristin E. Kearns, DDS, MBA; Laura A. Schmidt, PhD, MSW, MPH; Stanton A. Glantz, PhD

Early warning signals of the coronary heart disease (CHD) risk of sugar (sucrose) emerged in the 1950s. We examined Sugar Research Foundation (SRF) internal documents, historical reports, and statements relevant to early debates about the dietary causes of CHD and assembled findings chronologically into a narrative case study. The SRF sponsored its first CHD research project in 1965, a literature review published in the *New England Journal of Medicine*, which singled out fat and cholesterol as the dietary causes of CHD and downplayed evidence that sucrose consumption was also a risk factor. The SRF set the review's objective, contributed articles for inclusion, and received drafts. The SRF's funding and role was not disclosed. Together with other recent analyses of sugar industry documents, our findings suggest the industry sponsored a research program in the 1960s and 1970s that successfully cast doubt about the hazards of sucrose while promoting fat as the dietary culprit in CHD. Policymaking committees should consider giving less weight to food industry-funded studies and include mechanistic and animal studies as well as studies appraising the effect of added sugars on multiple CHD biomarkers and disease development.

JAMA Intern Med. doi:10.1001/jamainternmed.2016.5394  
Published online September 12, 2016.

- [← Invited Commentary](#)
- [+ Author Audio Interview](#)
- [+ Supplemental content](#)

**Author Affiliations:** Author affiliations are listed at the end of this article.

**Corresponding Author:** Stanton A. Glantz, PhD, UCSF Center for Tobacco Control Research and Education, 530 Parnassus Ave, Ste 366, San Francisco, CA 94143-1390 (glantz@medicine.ucsf.edu).

In the 1950s, disproportionately high rates of coronary heart disease (CHD) mortality in American men led to studies of the role of dietary factors, including cholesterol, phytosterols, excessive calories, amino acids, fats, carbohydrates, vitamins, and minerals in influencing CHD risk.<sup>1</sup> By the 1960s, 2 prominent physiologists were championing divergent causal hypotheses of CHD<sup>2,3</sup>: John Yudkin identified added sugars as the primary agent, while Ancel Keys identified total fat, saturated fat, and dietary cholesterol. However, by the 1980s, few scientists believed that added sugars played a significant role in CHD, and the first *1980 Dietary Guidelines for Americans*<sup>4</sup> focused on reducing total fat, saturated fat, and dietary cholesterol for CHD prevention.

Although the contribution of dietary sugars to CHD is still debated, what is clear is that the sugar industry, led by the Sugar Association, the sucrose industry's Washington, DC-based trade association,<sup>5</sup> steadfastly denies that there is a relationship between added sugar consumption and CVD risk.<sup>6,7</sup> This Special Communication uses internal sugar industry documents to describe how the industry sought to influence the scientific debate over the dietary causes of CHD in the 1950s and 1960s, a debate still reverberating in 2016.

### Methods

The Sugar Association evolved from the Sugar Research Foundation (SRF), founded in 1943.<sup>8</sup> We located correspondence between the SRF and Roger Adams, a professor who served on the SRF's scientific advisory board (SAB) between 1959 and 1971, in the

We located correspondence between the SRF and D. Mark Hegsted, professor of nutrition at the Harvard School of Public Health and codirector of the SRF's first CHD research project from 1965 to 1966,<sup>10</sup> in the Harvard Medical Library<sup>11</sup> (27 documents totaling 31 pages).

We collected additional SRF materials through a WorldCat search including annual reports, symposium proceedings, and internal reviews of research. We reviewed historical reports and statements contextualizing scientific debates in the 1950s and 1960s on dietary factors causally related to CHD published by the National Academy of Sciences–National Research Council (NAS-NRC), US Public Health Service, the American Heart Association (AHA), and American Medical Association (AMA). Findings were assembled chronologically into a narrative case study.

### Results

#### SRF's Interest in Promoting a Low-Fat Diet to Prevent CHD

Sugar Research Foundation president Henry Hass's 1954 speech, "What's New in Sugar Research,"<sup>12</sup> to the American Society of Sugar Beet Technologists identified a strategic opportunity for the sugar industry: increase sugar's market share by getting Americans to eat a lower-fat diet: "Leading nutritionists are pointing out the chemical connection between [American's] high-fat diet and the formation of cholesterol which partly plugs our arteries and capillaries, restricts the flow of blood, and causes high blood pressure and heart trouble... if you put [the middle-aged man] on a low-fat diet, it takes just five days for the blood cholesterol to get down to where it should



The NEW ENGLAND  
JOURNAL of MEDICINE

1967

ONLY USE SERUM CHOLESTEROL  
AS A CHD MARKER



# Sugar Industry and Coronary Heart Disease Research

## A Historical Analysis of Internal Industry Documents

Cristin E. Kearns, DDS, MBA; Laura A. Schmidt, PhD, MSW, MPH; Stanton A. Glantz, PhD

Early warning signals of the coronary heart disease (CHD) risk of sugar (sucrose) emerged in the 1950s. We examined Sugar Research Foundation (SRF) internal documents, historical reports, and statements relevant to early debates about the dietary causes of CHD and assembled findings chronologically into a narrative case study. The SRF sponsored its first CHD research project in 1965, a literature review published in the *New England Journal of Medicine*, which singled out fat and cholesterol as the dietary causes of CHD and downplayed evidence that sucrose consumption was also a risk factor. The SRF set the review's objective, contributed articles for inclusion, and received drafts. The SRF's funding and role was not disclosed. Together with other recent analyses of sugar industry documents, our findings suggest the industry sponsored a research program in the 1960s and 1970s that successfully cast doubt about the hazards of sucrose while promoting fat as the dietary culprit in CHD. Policymaking committees should consider giving less weight to food industry-funded studies and include mechanistic and animal studies as well as studies appraising the effect of added sugars on multiple CHD biomarkers and disease development.

JAMA Intern Med. doi:10.1001/jamainternmed.2016.5394  
Published online September 12, 2016.

- [← Invited Commentary](#)
- [+ Author Audio Interview](#)
- [+ Supplemental content](#)

**Author Affiliations:** Author affiliations are listed at the end of this article.

**Corresponding Author:** Stanton A. Glantz, PhD, UCSF Center for Tobacco Control Research and Education, 530 Parnassus Ave, Ste 366, San Francisco, CA 94143-1390 (glantz@medicine.ucsf.edu).

In the 1950s, disproportionately high rates of coronary heart disease (CHD) mortality in American men led to studies of the role of dietary factors, including cholesterol, phytosterols, excessive calories, amino acids, fats, carbohydrates, vitamins, and minerals in influencing CHD risk.<sup>1</sup> By the 1960s, 2 prominent physiologists were championing divergent causal hypotheses of CHD<sup>2,3</sup>: John Yudkin identified added sugars as the primary agent, while Ancel Keys identified total fat, saturated fat, and dietary cholesterol. However, by the 1980s, few scientists believed that added sugars played a significant role in CHD, and the first 1980 *Dietary Guidelines for Americans*<sup>4</sup> focused on reducing total fat, saturated fat, and dietary cholesterol for CHD prevention.

Although the contribution of dietary sugars to CHD is still debated, what is clear is that the sugar industry, led by the Sugar Association, the sucrose industry's Washington, DC-based trade association,<sup>5</sup> steadfastly denies that there is a relationship between added sugar consumption and CVD risk.<sup>6,7</sup> This Special Communication uses internal sugar industry documents to describe how the industry sought to influence the scientific debate over the dietary causes of CHD in the 1950s and 1960s, a debate still reverberating in 2016.

### Methods

The Sugar Association evolved from the Sugar Research Foundation (SRF), founded in 1943.<sup>8</sup> We located correspondence between the SRF and Roger Adams, a professor who served on the SRF's scientific advisory board (SAB) between 1959 and 1971, in the

We located correspondence between the SRF and D. Mark Hegsted, professor of nutrition at the Harvard School of Public Health and codirector of the SRF's first CHD research project from 1965 to 1966,<sup>10</sup> in the Harvard Medical Library<sup>11</sup> (27 documents totaling 31 pages).

We collected additional SRF materials through a WorldCat search including annual reports, symposium proceedings, and internal reviews of research. We reviewed historical reports and statements contextualizing scientific debates in the 1950s and 1960s on dietary factors causally related to CHD published by the National Academy of Sciences–National Research Council (NAS-NRC), US Public Health Service, the American Heart Association (AHA), and American Medical Association (AMA). Findings were assembled chronologically into a narrative case study.

### Results

#### SRF's Interest in Promoting a Low-Fat Diet to Prevent CHD

Sugar Research Foundation president Henry Hass's 1954 speech, "What's New in Sugar Research,"<sup>12</sup> to the American Society of Sugar Beet Technologists identified a strategic opportunity for the sugar industry: increase sugar's market share by getting Americans to eat a lower-fat diet: "Leading nutritionists are pointing out the chemical connection between [American's] high-fat diet and the formation of cholesterol which partly plugs our arteries and capillaries, restricts the flow of blood, and causes high blood pressure and heart trouble... if you put [the middle-aged man] on a low-fat diet, it takes just five days for the blood cholesterol to get down to where it should



# The NEW ENGLAND JOURNAL of MEDICINE

SRF PAID \$600,000 TO "TEACH THAT SUGAR IS WHAT KEEPS EVERY HUMAN BEING ALIVE"



**“THE QUESTION TO BE ASKED, THEREFORE, IS NOT WHY SHOULD WE CHANGE OUR DIET, BUT WHY NOT?”**

**Sen. George McGovern**



# DIETARY GOALS FOR THE UNITED STATES

SECOND EDITION



DECEMBER 1977

PREPARED BY THE STAFF OF THE  
SELECT COMMITTEE ON NUTRITION  
AND HUMAN NEEDS.  
UNITED STATES SENATE

1. FEWER CALORIES
2. LESS FAT
3. LESS SATURATED FAT
4. LESS CHOLESTEROL



# DIETARY GOALS FOR THE UNITED STATES

SECOND EDITION



DECEMBER 1977

PREPARED BY THE STAFF OF THE  
SELECT COMMITTEE ON NUTRITION  
AND HUMAN NEEDS.  
UNITED STATES SENATE

5. MORE POLY-SAT FAT
6. LESS SUGAR
7. LESS SALT
8. MORE FIBER
9. MORE STARCHY FOODS



DIETARY GOALS FOR THE UNITED STATES

SECOND EDITION



DECEMBER 1977

PREPARED BY THE STAFF OF THE  
SELECT COMMITTEE ON NUTRITION  
AND HUMAN NEEDS.  
UNITED STATES SENATE

**DECREASE MEAT CONSUMPTION  
ONLY TAKE IN AS MUCH ENERGY AS IS  
EXPENDED**

**EAT LESS CHOLESTEROL (BUTTER, EGGS)  
SUB LOW-FAT AND NON-FAT MILK**

**“THE MEAT, MILK, AND EGG PRODUCERS  
WERE VERY UPSET.”**

**D.M. Heisted, Ph.D.**

**“WE RECOMMEND THAT THE DIETARY GOALS... BE WITHDRAWN... (THE COMMITTEE) SHOULD HAVE THE INVOLVEMENT AND ENDORSEMENT BY THE PROFESSIONAL COMMUNITY AND THE FOOD INDUSTRY.”**

**National Dairy Council, 1977**

**“THE FRIGHTENING DEVELOPMENT... IS THAT THE ADVOCATES OF A MODIFIED, LOW-CHOLESTEROL DIET NOW HAVE THE CREDIBILITY AND THE PRESTIGE OF THE U.S. SENATE AS AN ENDORSER...”**

**United Egg Producers, July 26, 1977**



**“WE FEEL THAT THERE IS DEFINITELY NO NEED FOR A DIETARY GOAL THAT CALLS FOR THE REDUCTION OF SALT CONSUMPTION.”**

**William Dickinson, president, The Salt Institute, 1977**

**“DEGENERATIVE DISEASE INEVITABLY ACCOMPANY OLD AGE. INDEED, HEALTH CARE EXPENDITURES INCREASE IF THE LIFESPAN IS PROLONGED.”**

**William Dickinson, president, The Salt Institute, 1977**

**“... ‘THE REPORT’ IS UNFORTUNATE AND ILL-ADVISED... PEOPLE LIKE SWEET THINGS, APPARENTLY THE MCGOVERN COMMITTEE BELIEVES THAT PEOPLE SHOULD BE DEPRIVED OF WHAT THEY LIKE.”**

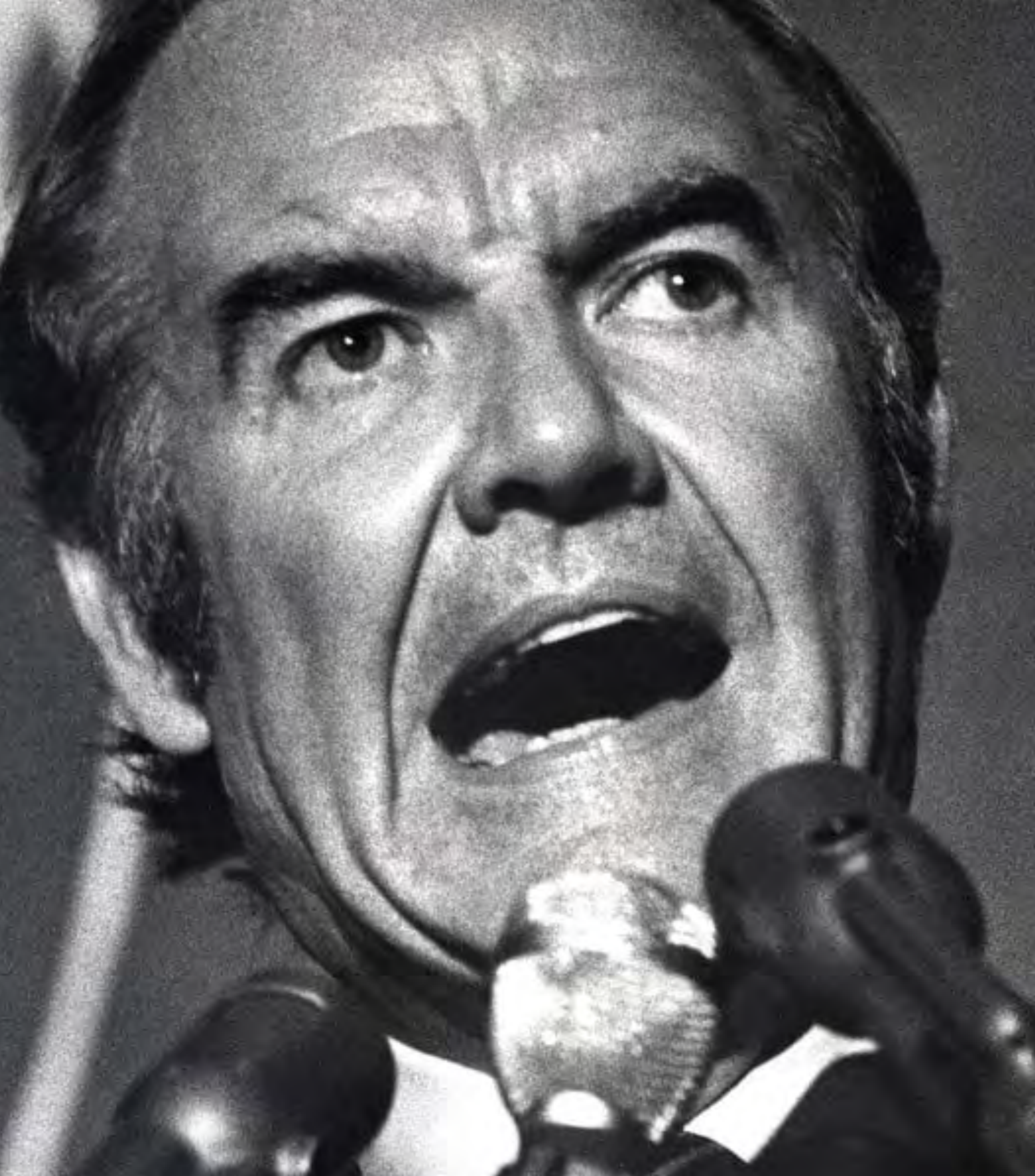
**International Sugar Research Foundation, 1977**

**“MEAT IS NEVER MENTIONED IN A POSITIVE WAY...THE ONLY MENTION OF MEAT ARE THOSE ASSOCIATING MEAT CONSUMPTION WITH VARIOUS DEGENERATIVE DISEASES.”**

**Wray Finney, President, American National Cattlemen's Assc, 1977**

**“ENTIRE SECTORS OF THE FOOD INDUSTRY—MEAT, DAIRY, EGG, SUGAR AND OTHERS—MAY BE SO SEVERELY DAMAGED THAT . . . PRODUCTION RECOVERY MAY BE OUT OF REACH.”**

**Wray Finney, President, American National Cattlemen’s Assc, 1977**



**ISSUED 2ND WATERED DOWN  
EDITION WALKING BACK GOALS  
COMMITTEE ELIMINATED  
FUNCTIONS TURNED OVER TO  
AGRICULTURE COMMITTEE**

**CONGRESSIONAL RECORD — SENATE**

**[From the New York Times, Feb. 2, 1977]**

**FEEDING, AND HEEDING, THE POOR**

**OF THE**

**The Agriculture Committee looks after the  
producers of food, not the consumers**

**NINETY-FIFTH CONGRESS**

**ending the chickens off to live with the  
foxes**



A photograph of a field of tall, thin grasses and weeds. In the background, a barbed wire fence is visible against a clear, bright blue sky. The text 'EARLY 80'S' is overlaid in large, bold, yellow letters with a black outline at the top of the image.

**EARLY 80'S**

**HIGH-FRUCTOSE CORN SYRUP**





# Consider all three types of sugar.

Saccharum officinarum, Beta vulgaris and Zea mays.

Over the past several years, Zea mays has been gaining ground. Today, corn sugars represent 25 percent of the market.

Tomorrow, most experts think corn sugars will have an even greater share of the sweetener market. The reasons?

**Better economy:** Over the long-haul, even when sweetener prices are as low as they are now, corn has proved to be the least expensive.

**Better reliability:** Corn is a 100 percent domestic crop, not dependent on foreign sources.

**Better variety:** Available in a wide variety of sugar combinations ranging from pure dextrose to fructose-rich syrup. Hence, you can pick the right cost/value combination for your particular application.

**Better acceptance:** Consumer research shows individual corn-derived sweeteners are preferred on food labels.

For more information on how your products can benefit from corn-based sweeteners, write Corn Products, a Unit of CPC International Inc., International Plaza, Englewood Cliffs, New Jersey 07632.

Or call 800-631-1666, toll-free. (In New Jersey, 201-569-2881.)

Saccharum officinarum

Beta vulgaris

Zea mays





# TIME

**SUPER TUESDAY**  
The Democrats  
Brace for a  
Marathon

## CHOLESTEROL

And Now the Bad News...





**“PEOPLE SAY, ‘THEY’VE GOT TOO MUCH SUGAR, THEY’VE GOT TOO MUCH SALT,’ WELL, THAT’S WHAT THE CONSUMER WANTS, AND WE’RE NOT PUTTING A GUN TO THEIR HEAD TO EAT IT.”**

**Geoffrey Bible, former CEO of Philip Morris**

## LUNCHABLES (1989)-OSCAR MEYER

- ▶ Designed for mothers in a rush (focus groups)
- ▶ Gave control of lunch to kids
- ▶ Elements
  - ▶ Processed cheese (Kraft)
  - ▶ Crackers (lasts longer than bread)
  - ▶ Bologna and sliced ham (Oscar Meyer)
- ▶ 1st year revenue: \$218 million



**WHEN IN DOUBT, ADD**



**NEW!**

**CINNAMON ROLL DIPPER**

- CINNAMON ROLLS
- FROSTING
- RAISINS

**Lunchables Breakfast**

LUNCH COMBINATIONS

Fun to Eat No Need to Heat

ENLARGED TO SHOW DETAIL SERVING SUGGESTION

CINNAMON ROLLS, RAISINS, FROSTING

PER PACKAGE

300 CALORIES	2.5g SAT FAT 13% DV	240mg SODIUM 10% DV	31g SUGARS
--------------	---------------------	---------------------	------------

KEEP REFRIGERATED DO NOT FREEZE

NET WT 3.15 OZ (89g)

**CHECK OUT KABOBULATOR**

EXCELLENT SOURCE OF VITAMIN C  
KEEP REFRIGERATED - DO NOT FREEZE

**PIZZA KABOBLES™**

- Sliced Pepperoni - made with pork, chicken and beef
- KRAFT American - pasteurized prepared cheese product
- Pretzel Sticks
- HERSHEY'S Chocolate Bar
- KOOL-AID Jammer Tropical Punch

**Lunchables ka-bob-bles**

build it your own way!

**NEW!**

PER PACKAGE

340 CALORIES	8g SAT FAT 16% DV	590mg SODIUM 12% DV	27g SUGARS
--------------	-------------------	---------------------	------------

NET WT 2.0 OZ (56g) & 6.0 FL OZ (177ml)

PEPPERONI MADE WITH PORK, CHICKEN AND BEEF - DNA, BHT & CITRIC ACID ADDED TO HELP PROTECT FLAVOR. PASTEURIZED PREPARED AMERICAN CHEESE PRODUCT, PRETZEL STICKS, HERSHEY'S MILK CHOCOLATE BAR, KOOL-AID JAMMERS - TROPICAL PUNCH ARTIFICIALLY FLAVORED DRINK

**ENTER GET MIXED UP DOWN UNDER. YOU COULD WIN A TRIP TO AUSTRALIA**

MANY WILL ENTER, ONLY ONE WILL WIN A GRAND PRIZE.

SEE BACK AND SIDE FOR DETAILS! NO PURCHASE NECESSARY

**Lunchables**

LUNCH COMBINATIONS

**MINI HOT DOGS**

- Mini Hot Dogs - MADE WITH CHICKEN, PORK & BEEF
- Mini Hot Dog Buns
- Ketchup with STARCH ADDED
- Mustard
- CAPRI SUN® ROARIN' WATERS Drink
- HERSHEY'S Bar

PER PACKAGE

330 CALORIES	6g SAT FAT 12% DV	400mg SODIUM 8% DV	19g SUGARS
--------------	-------------------	--------------------	------------

NET WT 3.3 OZ (93g) & 6.0 FL OZ (177ml)

KEEP REFRIGERATED DO NOT FREEZE

FULLY COOKED MINI HOT DOGS MADE WITH CHICKEN, PORK AND BEEF. MINI HOT DOG BUNS, KETCHUP WITH STARCH ADDED, MUSTARD, CAPRI SUN® ROARIN' WATERS WILD CHERRY FLAVORED WATER BEVERAGE WITH OTHER NATURAL FLAVOR, HERSHEY'S MILK CHOCOLATE BAR

**FREE VIDEOS AND GAMES! KABOBULATOR AT LUNCHABLES.COM**

**NACHOS CHEESE DIP & SALSA**

- KRAFT Nacho Cheese
- Tortilla Chips
- Salsa

**Lunchables**

LUNCH COMBINATIONS

EXCELLENT SOURCE OF CALCIUM

ENLARGED TO SHOW DETAIL

NACHO CHEESE DIP, WHOLE GRAIN TORTILLA CHIPS, SALSA

PER PACKAGE

360 CALORIES	3.5g SAT FAT 7% DV	850mg SODIUM 20% DV	4g SUGARS
--------------	--------------------	---------------------	-----------

NET WT 4.4 OZ (124g)





# OVER 60 VARIETIES



# OVER \$1 BILLION/YR



**“OUR LIMBIC BRAINS LOVE SUGAR, FAT, SALT. . . . SO FORMULATE PRODUCTS TO DELIVER THESE. PERHAPS ADD LOW-COST INGREDIENTS TO BOOST PROFIT MARGINS. THEN ‘SUPERSIZE’ TO SELL MORE. . . . AND ADVERTISE/PROMOTE TO LOCK IN ‘HEAVY USERS.’”**

**Bob Drane, creator of Lunchables**



**(SALT + FAT 2 / SATISFYING  
CRUNCH) X PLEASING MOUTH FEEL**

**= FOOD DESIGNED TO ADDICT**

# METHODS TO GET CONSUMERS TO EAT SNACK FOODS

- ▶ Bliss Point
- ▶ Vanishing Caloric Density
- ▶ Mouth Feel
- ▶ Line Extension
- ▶ Relentless Marketing
- ▶ Outreach





---

**BLISS POINT**



## SENSORY-SPECIFIC SATIETY

- ▶ Declining satisfaction generated by consuming a specific flavor or food
- ▶ Consequent renewal in appetite resulting from the exposure to a new flavor or food
- ▶ Lateral hypothalamic-base response
- ▶ Occurs within 2 minutes of consumption
- ▶ First found in a 1984 monkey study
- ▶ Buffet: calorie consumption up 44%



## SENSORY-SPECIFIC SATIETY

- ▶ CHALLENGE:
  - ▶ Make food that stimulates the taste buds BUT has no one specific overriding flavor

**KEEP THE CONSUMER CONSUMING!**



61 SUBTLY DISTINCT  
FORMULAS

3904 TASTINGS IN 5 CITIES

135-PAGE REPORT

---

**BLISS POINT!**





REDUCED DR PEPPER  
FLAVOR SYRUP FROM 2 ML  
TO 1.69 ML

ADDED CHERRY AND  
VANILLA FLAVORS

---

**BLISS POINT**



---

**VANISHING CALORIC  
DENSITY**



---

**MOUTH FEEL**



---

**RELENTLESS  
MARKETING**



# LINE EXTENSION

# OUTREACH

- ▶ Welch's Food: grape juice may boost brain function
- ▶ Quaker Oats: "hot oatmeal breakfast keeps you full for longer"
- ▶ Coca-Cola: \$132.8 million toward scientific research and partnerships 2010 and 2015
- ▶ Academy of Family Physicians to the American Academy of Pediatrics





**DIET AND EXERCISE, RIGHT?**

 WeightWatchers®

*Slim·Fast!*

 *jenny*  
C R A I G

Nutrisystem 







**Fat Crushers**

**Get Your  
Perfect Body**

**Let Us Help You**





**1997: FEDERAL TRADE COMMISSION MEETING**

**Commercial Weight Loss Products and Programs  
What Consumers Stand To Gain and Lose**



**1997: FEDERAL TRADE COMMISSION MEETING**

**A Public Conference on the Information Consumers Need to  
Evaluate Weight Loss Products and Programs**



**“...SO MANY TREATMENTS,  
HAILED INITIALLY AS  
BREAKTHROUGHS, ARE FOUND  
EVENTUALLY TO RESULT IN  
SIGNIFICANT HEALTH RISKS.”**

**1997 FTC CONFERENCE**



**“IN SPITE OF THE WIDESPREAD PROMOTION AND MARKETING OF THOUSANDS OF TREATMENTS, DEVICES, THERAPIES, PROGRAMS AND PRODUCTS THAT PURPORT TO INDUCE WEIGHT LOSS AND PREVENT REGAIN, THE MOST REMARKABLE ASPECT OF MOST OF THEM IS THEIR FAILURE RATE.”**

**1997 FTC CONFERENCE**

**BLAME**





---

# FITNESS INDUSTRY



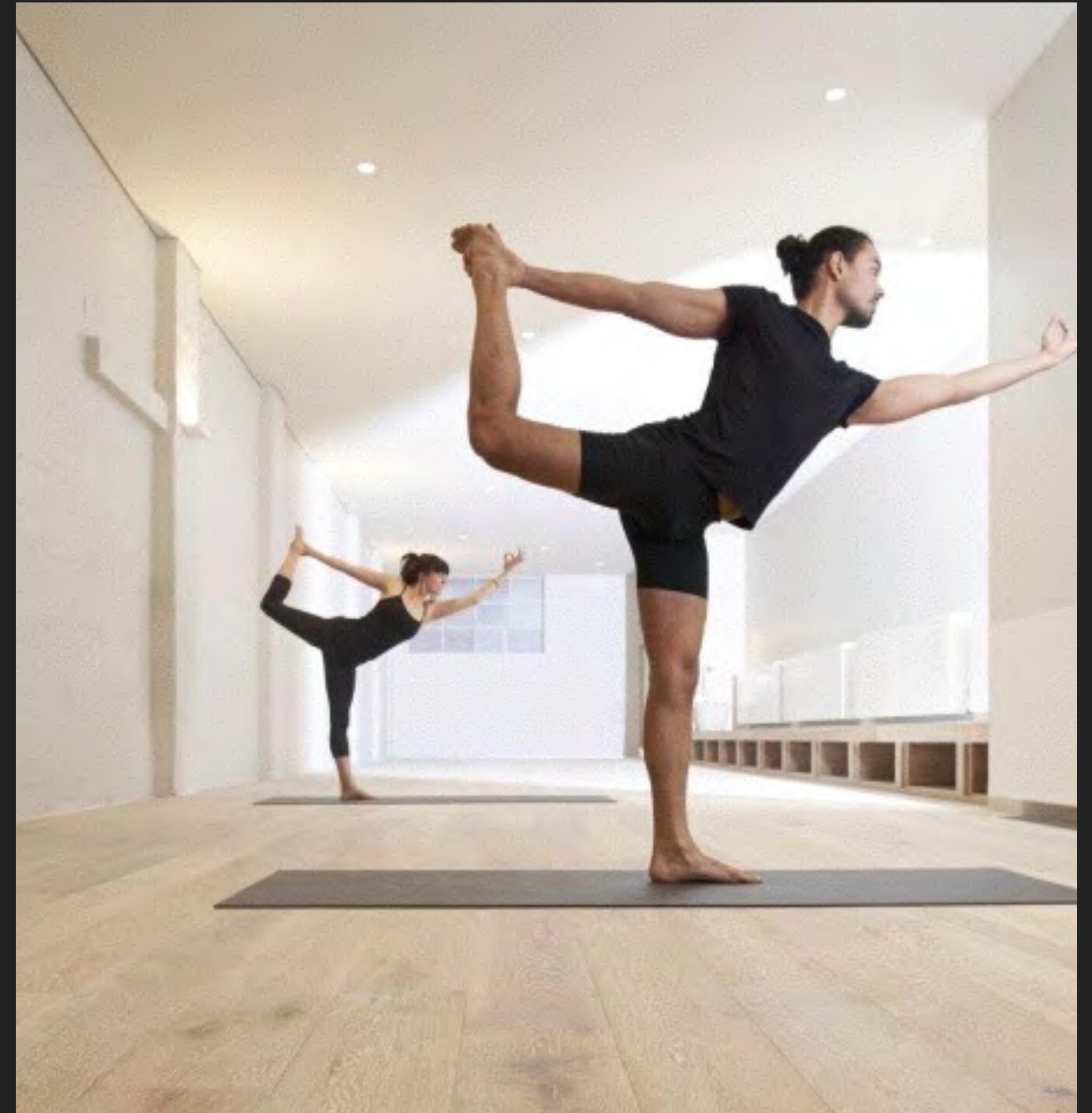
## BARRIERS TO FITNESS (WELLNESS)

- ▶ Cost
- ▶ Health and safety
- ▶ Body image
- ▶ Social media
- ▶ Fads
- ▶ Message



## COSTS

- ▶ Cross-fit: \$125/month
- ▶ Yoga studio: \$20/class
- ▶ Soul Cycle: \$35/class
- ▶ Title Boxing: \$59/month with \$99 fee
- ▶ Equipment
- ▶ Travel



iamondback  
mate Triathlon



**GROOMING**  
Best Grooming Products to Pack in Your Carry-On



**ENTERTAINMENT**  
Why Is the Internet Surprised That Jimmy Fallon Pandered to Donald



**BEER**  
Cannabis-Infused Beer Approved for Sale

HEALTH & FITNESS

# Too Much Pain for CrossFit Gains?

By **Burt Helm**



Credit: Photograph by Chris McPherson

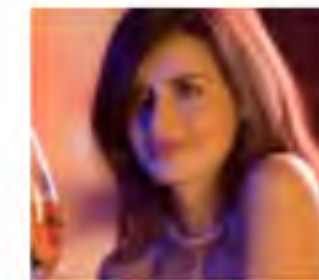
When Andy Petranek discovered **CrossFit** in 2004, it was love at first sight. The high-impact interval workout gave him the results he'd thought were lost to his younger days. And then there was CrossFit's extreme, take-no-prisoners ethos, which appealed to Petranek as a former Marine. In short order, he went from doing the workouts to competing in CrossFit events and opening his own CrossFit gym.

In 2009, at the age of 42, Petranek qualified for the international CrossFit

**AROUND THE WEB**



10 Red Flags That Kill Your Chances With Women  
[Mademan.com](#)



How to Flirt With A Girl At A Bar, According to Women  
[Thrillist.com](#)



4 Types of Women That Men Should Not Marry  
[About.com](#)

Powered By ZergN



TEXT

# HEALTH

- ▶ Cross-fit
- ▶ Yoga
- ▶ Soul Cycle
- ▶ Title Boxing

Magazine | FROM THE MAGAZINE

# How Yoga Can Wreck Your Body

By WILLIAM J. BROAD | JAN. 5, 2012



Members of the Broadway cast of "Godspell" do their flexible best. From left: Uzo Aduba (doing the wheel), George Salazar (extended-hand-to-big-toe pose) and Nick Blaemire (headstand).

Danielle Levitt for The New York Times

On a cold Saturday in early 2009, Glenn Black, a yoga teacher of nearly four decades, whose devoted clientele includes a number of celebrities and prominent gurus, was giving a master class at Sankalpah Yoga in Manhattan.

TEXT

## HEALTH

- ▶ Cross-fit
- ▶ Yoga
- ▶ Soul Cycle
- ▶ Title Boxing

**BEST BUY** EXPERT SE UNBEATA

Philips - hue LED White Ambiance Starter Kit

\$179.99

**PHILIPS**

Shop Now

**PRICE GUARANTEE**

©2016 Best Buy

# HEALTH

- ▶ Cross-fit
- ▶ Yoga
- ▶ Soul Cycle
- ▶ Title Boxing



## This Woman Says She Was Shamed Into Seriously Injuring Herself At SoulCycle

Carmen Farias says she was “catastrophically” hurt after she was shamed into spinning too fast for her physical ability.

posted on Jun. 6, 2016, at 11:10 a.m.



**Stephanie McNeal**  
BuzzFeed News Reporter



**A SoulCycle newbie is suing the company over claims she became “catastrophically injured” after she was unable to keep up during a class.**



## HEALTH

- ▶ Cross-fit
- ▶ Yoga
- ▶ Soul Cycle
- ▶ Title Boxing

American Academy  
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

FROM THE AMERICAN ACADEMY OF PEDIATRICS

Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

## Policy Statement—Boxing Participation by Children and Adolescents

AMERICAN ACADEMY OF PEDIATRICS, COUNCIL ON SPORTS MEDICINE AND FITNESS, CANADIAN PAEDIATRIC SOCIETY, HEALTHY ACTIVE LIVING AND SPORTS MEDICINE COMMITTEE

### KEY WORDS

boxing, youth, children and adolescents, head injuries, concussion

### ABBREVIATIONS

RTP—return to play  
CTE—chronic traumatic encephalopathy

This document is copyrighted and is property of the American Academy of Pediatrics and its Board of Directors. All authors have filed conflict of interest statements with the American Academy of Pediatrics. Any conflicts have been resolved through a process approved by the Board of Directors. The American Academy of Pediatrics has neither solicited nor accepted any commercial involvement in the development of the content of this publication.

## abstract

FREE

Thousands of boys and girls younger than 19 years participate in boxing in North America. Although boxing provides benefits for participants, including exercise, self-discipline, and self-confidence, the sport of boxing encourages and rewards deliberate blows to the head and face. Participants in boxing are at risk of head, face, and neck injuries, including chronic and even fatal neurologic injuries. Concussions are one of the most common injuries that occur with boxing. Because of the risk of head and facial injuries, the American Academy of Pediatrics and the Canadian Paediatric Society oppose boxing as a sport for children and adolescents. These organizations recommend that physicians vigorously oppose boxing in youth and encourage patients to participate in alternative sports in which intentional head blows are not central to the sport. *Pediatrics* 2011; 128:617–623

### INTRODUCTION

Amateur or Olympic-style boxing is a collision sport that is won on the



# BODY IMAGE

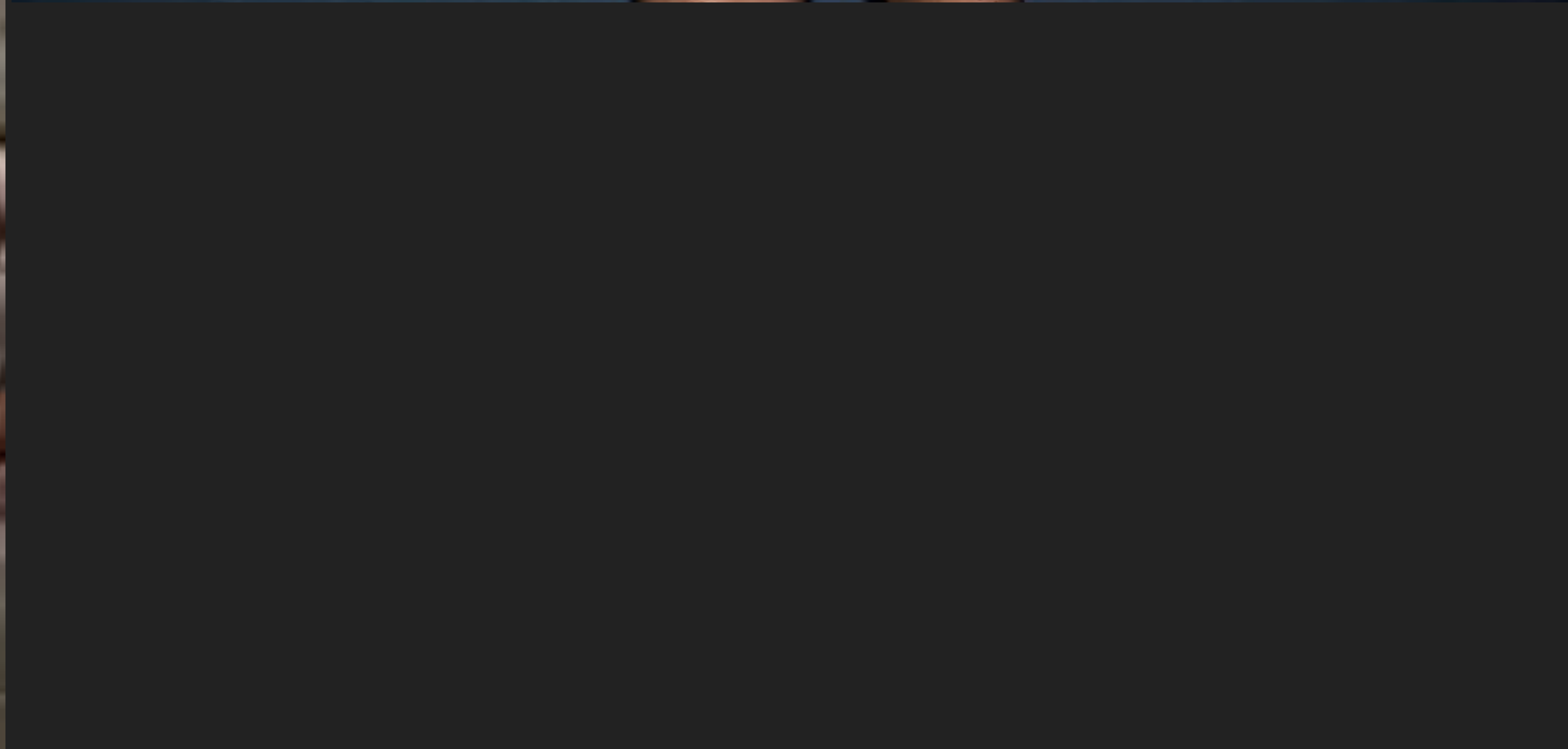














PHOTOMANIP BY:CRAZYTRAIN800







GB-PHOTODESIGN.DE













**FLEX APPEAL.** BY EQUINOX.

EQUINOX.COM

IT'S NOT FITNESS. IT'S LIFE.



**ENDURANCE.** BY EQUINOX.

EQUINOX.COM

IT'S NOT FITNESS. IT'S LIFE.



## SOCIAL MEDIA

- ▶ Facebook (Scrapbook)
- ▶ Pinterest
- ▶ Instagram





Search



Nice gaming setup - Top monitors for out of game research

Picked for you  
Guillermo Mata  
Computer ideas



Intense desktop setup

Picked for you  
Phil Smith  
Technology



Picked for you  
Ian Čikada  
Room



Custom PC desk / case combo ditches glass, metal for wood

Engadget  
Picked for you  
Esami Ruiz  
In



That Viking range!! Ohhh that Viking Wall Oven!! AND a...

Promoted by Pacific Sales



computer setup

Picked for you  
Cheryl Karr  
Home office

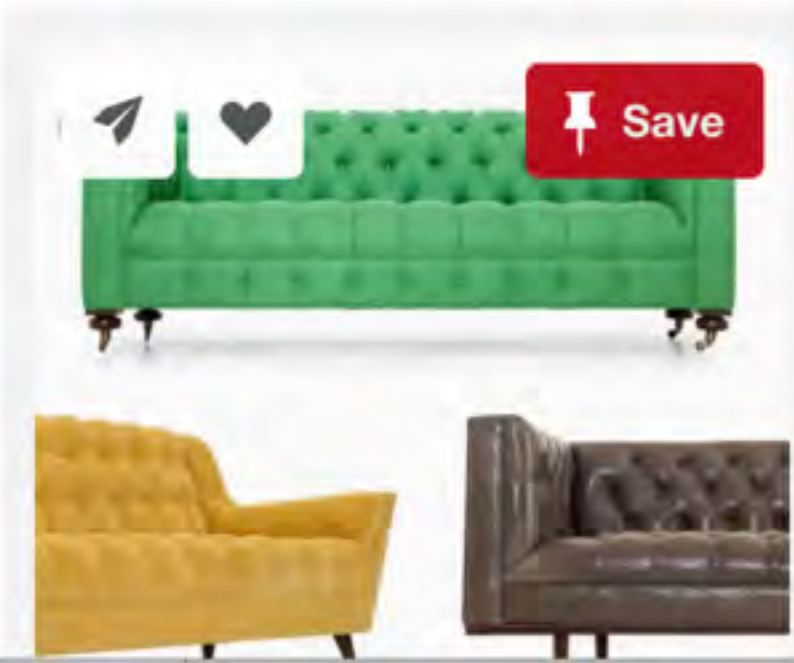


Desirable workstation. Love the look of Apple products on...

Picked for you  
Andri Trembyss  
Room



Bentwood Pendants



+  
?  
Privacy



fitness x male x

- Workouts
- Model
- Body
- To Get
- Motivation
- Photogra...
- Physique
- Celebrities
- Diet

All Pins Your Pins Buyable Pins People Boards



**Motivation - Best Fitness Motivation Site** 749

Throw Me To The Wolves And I will return leading the pack...

Gymaholic

Dave Kapka Quotable



**5 Tips to Help You Wake Up Early** 1.2k

If you hit the snooze button every morning, but you need to...

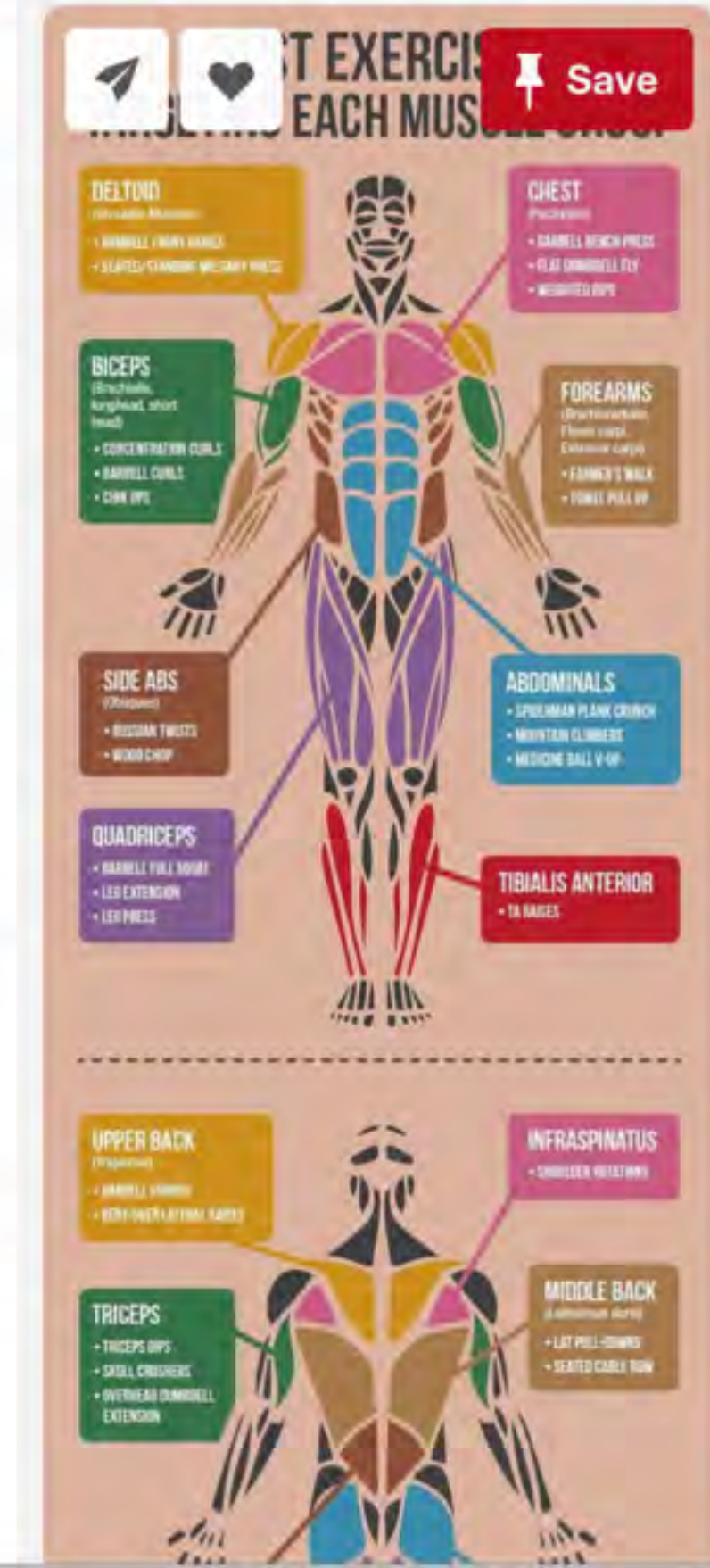
eBay

Promoted by eBay



**Shoulder Workout Training - Healthy Fitness Routine Arms...** 17.9k

Tyler Sundquist tysunpins



CHART

fitness x male x

### BODYBUILDING WORKOUT POSTERS

#### SHOULDER WORKOUT

SHOULDER WORKOUT

ALTERNATING DUMBBELL PRESS

SEATED MILITARY PRESS

SIDE LATERAL RAISE

BARBELL FRONT RAISE

ALTERNATING FRONT RAISE

MUSCLE COLOR CODE

abs quads glutes triceps biceps back chest

Various exercises using your own body weight.

Various exercises using your own body weight. Symphony Of Awesom... 3.6k

Beth Lawson Healthy

#### BACK WORKOUT

BACK WORKOUT

ONE-ARM DUMBBELL ROW

UPRIGHT ROW

SEATED ROW

LAT PULLDOWN (FRONT)

FRONT CHIN-UP

ONE-ARM ROW

BENT-OVER ROW

BACK EXTENSION

MUSCLE COLOR CODE

Fitness and Gym Motivation Designs 4k

Back Workout Professional Fitness Gym Wall Chart Poster... Fitbys

#### PRINTABLE WORKOUT Back & Abs Day

Hanging Leg Raise 4 sets

Barbell Deadlift 4 sets / 6 reps

Jackknife Sit-up / Crunch 4 sets / 20 reps

Dumbbell Incline Row 4 sets / 6 reps

#### BODY + BEASTLY

### Ectomorph Aesthetics: Visual Guide

#1: BULK UP TO A BMI OF 23-26.5

HAMSTRING GROUP

CALF

See more here 1.3k

YouTube

Alyssa Avila Butt back in shape



5 Powerful Tips to help you get ripped much faster 59

5 Powerful Tips to help you get ripped much faster!

MUSCLETRANSFORM

Leo About workout

#### 4. WORK YOUR ABS

SKIPPING

HIGH INTENSITY INTERVAL TRAINING

MIX IT UP

TRAIN ABS

6 Steps to Six Pack Success 64.4k

#infographic

6 Steps to Six Pack Success

visualistan.com

Visualistan Latest Infographics



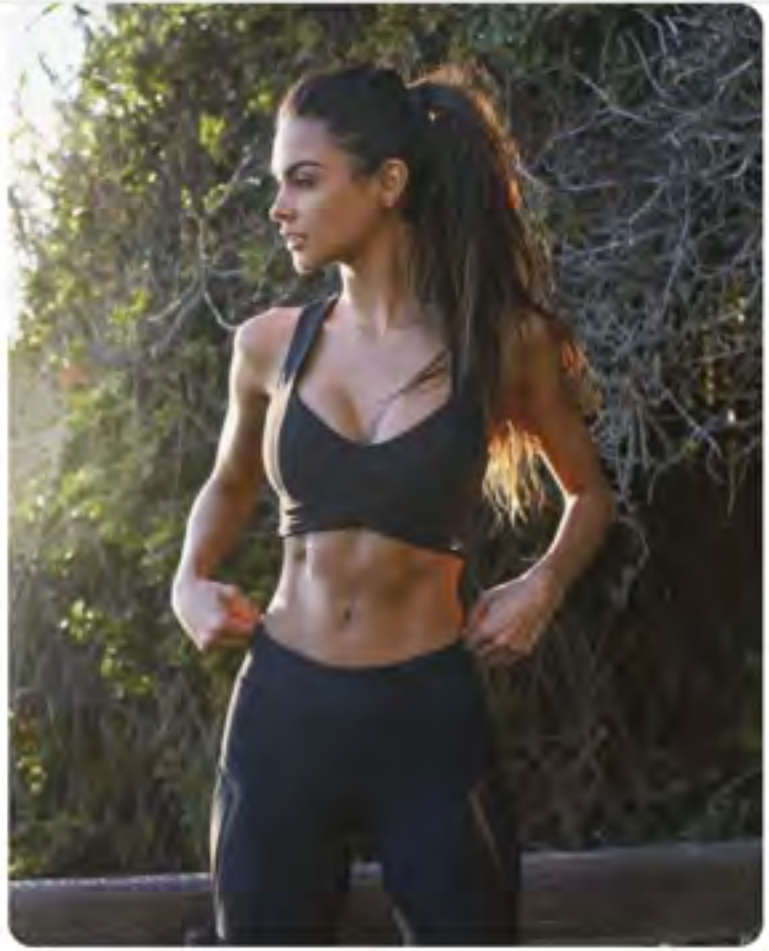
Positive Mind. Positive Vibes. Positive Life. , 15oz Coffee 791



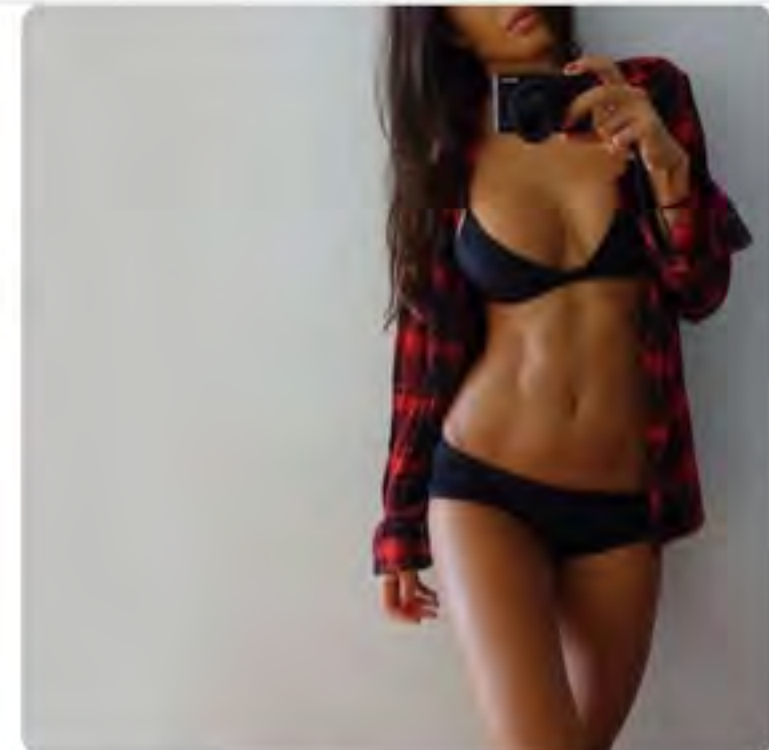
**Get Toned Thighs in Just One Month** 23.8k  
"Thigh Blasters: One Month to Toned Legs Target this trouble...  
goodhousekeeping.com  
HERBAVANA™ Fitness Motivation



**Being an athletic woman is hard, dating one is even harder.** 27  
Promoted by Viral Piranha



**How To Make Girls Want You More** 39  
Click Image For All The Secrets To Attract Women! Newport...  
Mens Hive  
Mens Hive Blog Sexy Girls



**Best Female Fitness Motivation Pictures** 1.5k  
Female fitness motivation is what keeps me going on. Why?...  
LifestyleMedium.com  
S Mitchell motivation



**You can look Younger and be Healthier with these little...** 21.8k  
Have you tried ten downs??? 10 jumping jacks, 10 jump...  
HubPages  
Katie Baggett Workout Inspirations







**Workout Motivation Tricks - How To Motivate Yourself**  
Tips To Lift Your Ass From The Couch And Get You To The Gym...  
Fit Girl's Diary  
Pez Chavarria  
Other Shit



@tyffiii...  
shopstyle.com  
tyffiii...  
Health & Fitness

transformation...  
harpersbazaar.com

Harper's Bazaar  
Health, Diet & Fitness



Lizzie bowers < 3  
~Fitspo~  
Megan Bajo  
goals



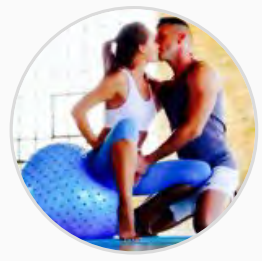
@Strong...  
Kimberly Salinas  
Funny Fitness



Weight lifting schedule for 12 weeks for building muscle for...  
Breath of Optimism  
Health / Fitness Moti...

Tone-and-Tighten.com  
**INDOOR CARDIO WORKOUT**  
- 50 JUMPING JACKS  
- 50 CRUNCHES  
- 45 JUMPING JACKS  
- 45 SQUATS  
- 40 JUMPING JACKS  
- 40 JUMP LUNGES  
- 35 JUMPING JACKS  
- 35 PUSH UPS  
- 30 JUMPING JACKS  
- 30 BURPEES  
- 25 JUMPING JACKS  
- 25 CRUNCHES  
- 20 JUMPING JACKS  
- 20 SQUATS  
- 15 JUMPING JACKS  
- 15 JUMP LUNGES  
- 10 JUMPING JACKS





sexyballs

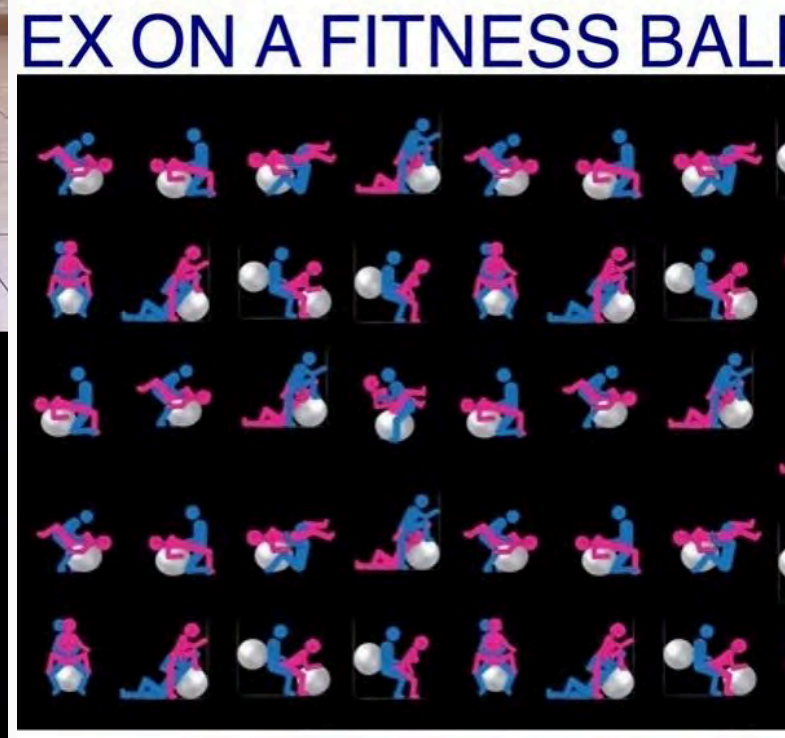
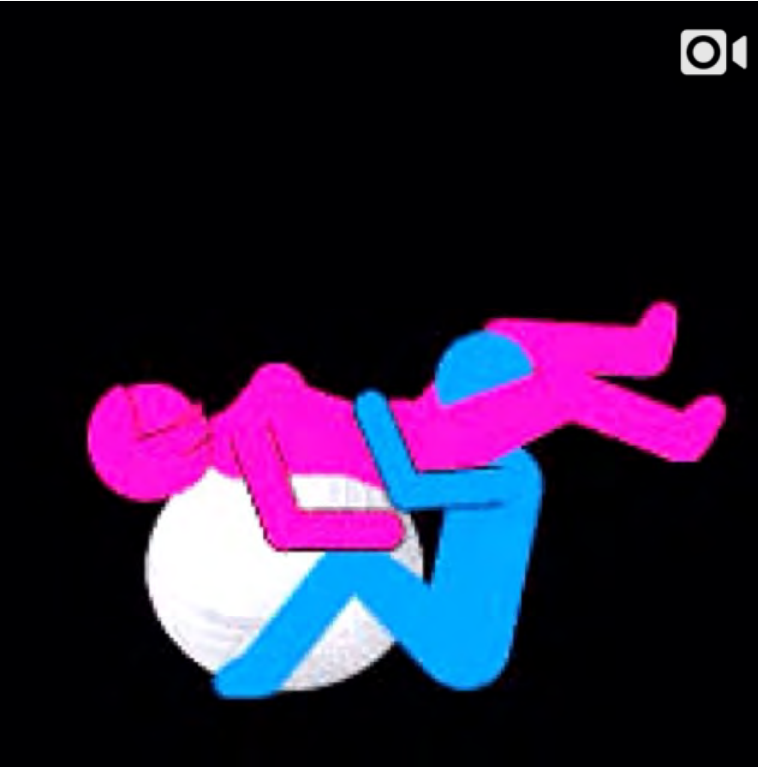
SEXY | FITNESS | SEX WORKOUT WORLD'S FIRST #KAMASUTRA #EBOOK ON A #FITNESSBALL. SOON ON #GOOGLEPLAY AND #IBOOK 100 store.kobobooks.com/en-us/ebook/sexyballs

Follow

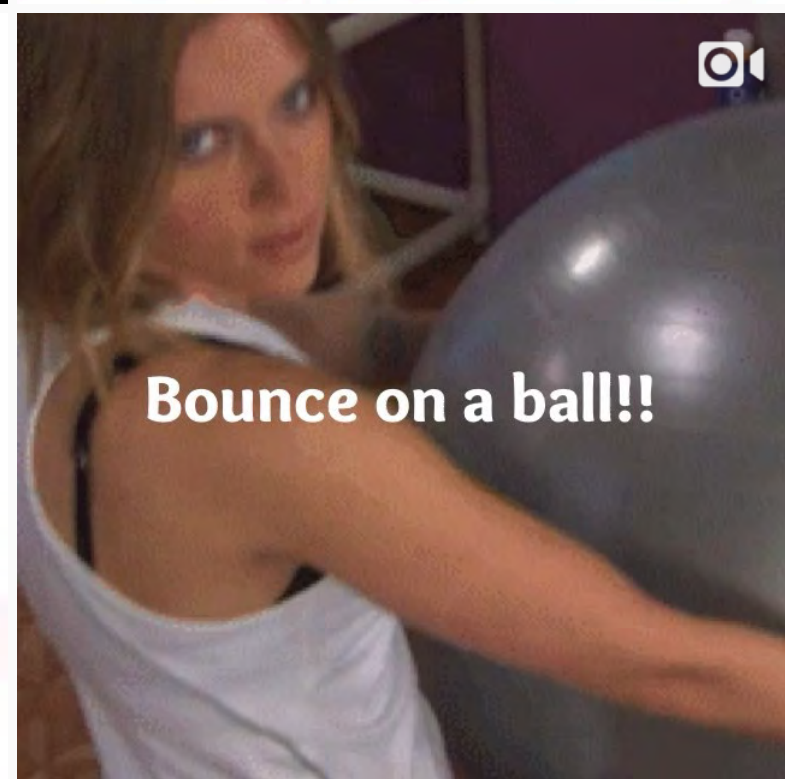
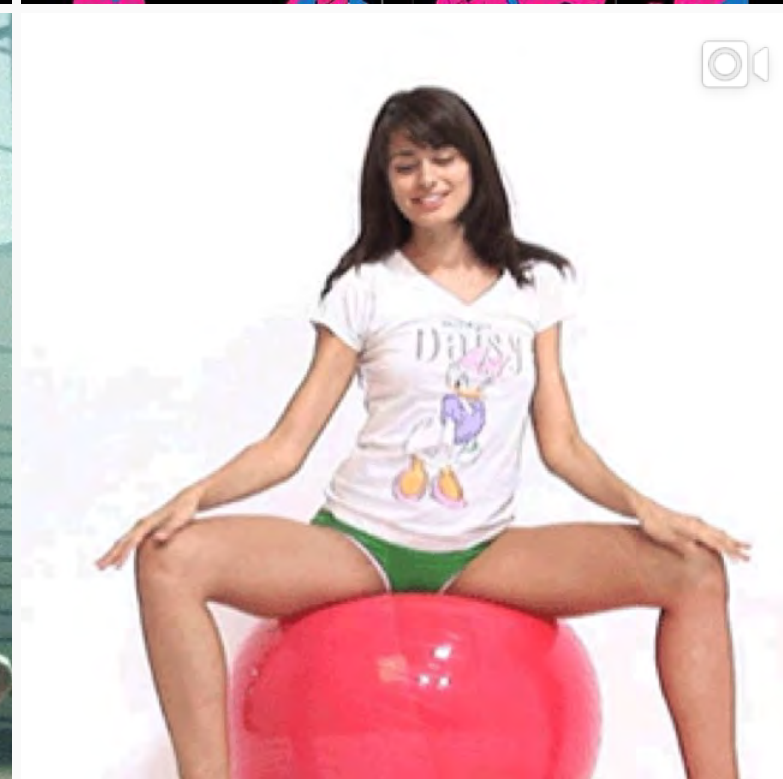
190 posts

793 followers

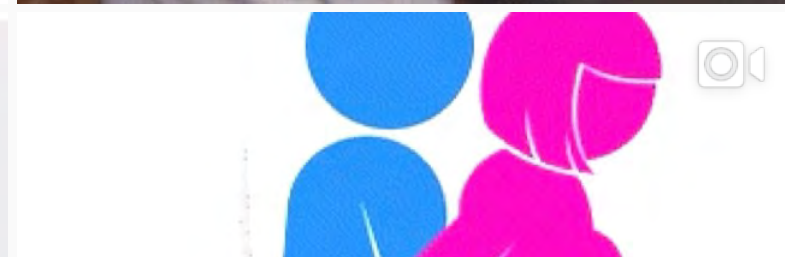
2,611 following



Sexercise Girls



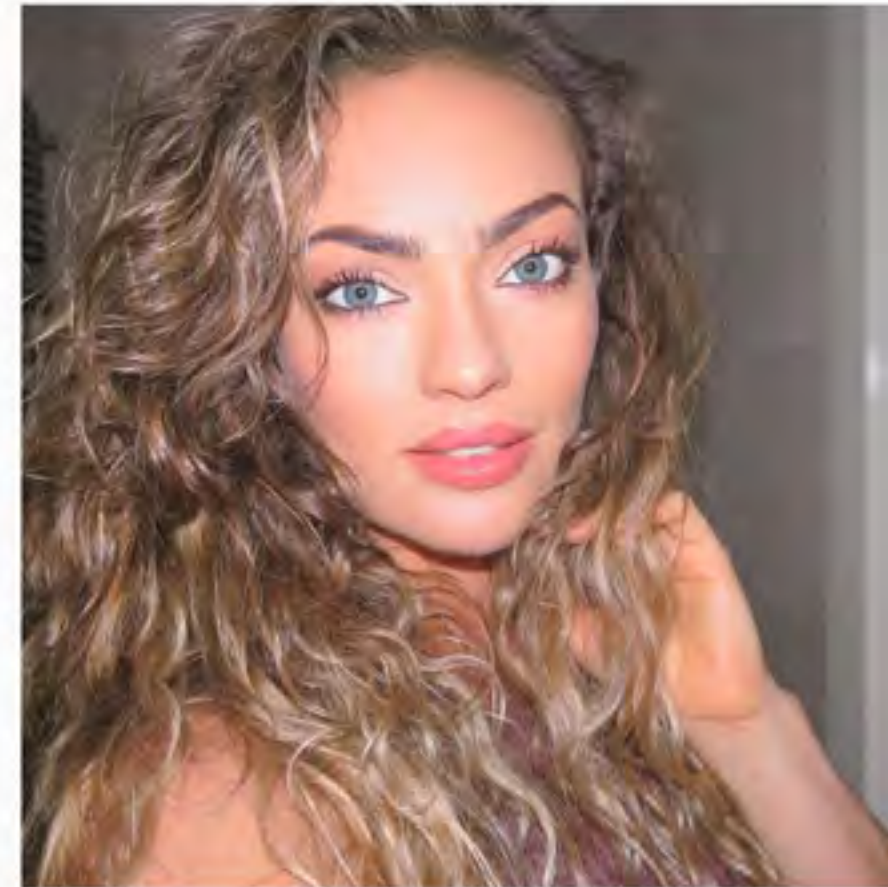
Bounce on a ball!!



emilyskyefit Follow

EMILY SKYE HEALTHY MIND & BODY media@emilyskye.com emilyskyefit FREE Workouts app! FIT PROGRAMS Vegan/Veg/Meat Gym/Home Workouts www.emilyskye.com/fit

2,469 posts 1.8m followers 2,798 following



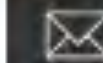
# 25 INSPIRING FITNESS GIRLS TO FOLLOW ON INSTAGRAM


All the motivation you need to get in shape — and stay there.



By Lauren Alexis Fisher Jun 6, 2016

102.4k



 The *only* filler proven to last up to 1 year in the lips with optimal treatment

See the natural-looking results for yourself

into and around the lips for lip augmentation in adults over 21.

JUVÉDERM® Ultra XC injectable gel is for injection into the mid-to-deep dermis for the correction of moderate to severe facial wrinkles and folds, such as nasolabial folds.



01 of 26

## NUDE YOGA GIRL

@nude\_yogagirl

This anonymous, sophisticated yogi challenges everything you know about fitness (and nudity) on Instagram. Follow her for a stunning new pose in black and white each day.

 The *only* filler proven to last up to 1 year in the lips with optimal treatment

See the natural-looking results for yourself

into and around the lips for lip augmentation in adults over 21.

JUVÉDERM® Ultra XC injectable gel is for injection into the mid-to-deep dermis for the correction of

# CROSSFIT

- ▶ 2005: 13 affiliates (boxes)
- ▶ 2012: 3400
- ▶ 2014: 9000
- ▶ World Crossfit Games



**DON'T  
STOP  
UNTIL  
YOU'RE  
PROUD**



---

**MESSAGE**

**OBSSESSED**  
IS A WORD THE  
LAZY USE TO  
DESCRIBE THE  
**DEDICATED**

---

**MESSAGE**

**CRAWLING IS  
ACCEPTABLE.  
PUKING IS  
ACCEPTABLE.  
TEARS ARE  
ACCEPTABLE.  
PAIN IS  
ACCEPTABLE.  
QUITTING IS  
UNACCEPTABLE.**



*fatkidgoespa.leo.tumblr.com*

**MESSAGE**



**Your body isn't telling you**

**"I can't do this."**

**"I need to stop."**

**"It hurts."**

**"It burns."**

**"I'm tired."**

**Your mind is.**

**Shut it up with more.**

**motivationintoahabit | tumblr**

---

**MESSAGE**





It's no longer about "skinny". It's about "healthy".



skinny is not sexy. health is.



[ STRONG IS THE NEW SEXY ]

MESSAGE

IRONMIND®

COURTESY OF DONNIE RHODES



SEPT. 12 / SEPT. 19, 2010

DOUBLE ISSUE

# The Exercise Cure

The surprising science of a life-changing workout

# TIME



INSIDE

# MESSAGE



MESSAGE

# The Game Changers **MEN'S FITNESS**

THE NEW MEASURE OF SUCCESS®

See Results in Just 8 Days!

## RIPPED RIGHT NOW!

- > HUGE CHEST
- > HARD ABS
- > STRONG LEGS

## 15-MINUTE FEASTS

HIGH-PROTEIN, LOW-FAT,  
ZERO-BELLY MEALS!

## MIND-BLOWING SEX

WHERE SHE WANTS YOU  
TO TOUCH HER-TONIGHT!

# 247

BEST NEW FITNESS, SEX,  
STYLE & GAMING SECRETS



THE MEN'S FITNESS GUY

## KEVIN HART

HIS 24/7 PLAN

## NUKE BELLY FAT!

MARK CUBAN'S  
UNCONVENTIONAL  
RULES OF SUCCESS

## 27 POWER FOODS

FOR A BULLET-  
PROOF BODY

A HOCKEY  
DYNASTY'S TOP  
TRAINING TIPS



October 2010 MensFitness.com

# MESSAGE



MESSAGE



---

MESSAGE

# EATING DISORDERS

A young girl with long blonde hair is sitting on a wooden floor, her back to the camera. She is covering her face with her hands, suggesting distress or shame. The lighting is dramatic, with strong highlights and deep shadows.

Smolak, L. (2011). Body image development in childhood. In T. Cash & L. Smolak (Eds.), *Body Image: A Handbook of Science, Practice, and Prevention* (2nd ed.). New York: Guilford.

---

**40-60% ELEMENTARY SCHOOL GIRLS (AGES 6-12) CONCERNED ABOUT WEIGHT**



# EATING DISORDERS



Smolak, L. (2011). Body image development in childhood. In T. Cash & L. Smolak (Eds.),  
Body Image: A Handbook of Science, Practice, and Prevention (2nd ed.). New York: Guilford.

---

# LASTS THROUGH LIFE

# EATING DISORDER

- ▶ Dieting
- ▶ Media-driven
- ▶ Distorted body image
- ▶ Weight-related teasing



# OBESITY

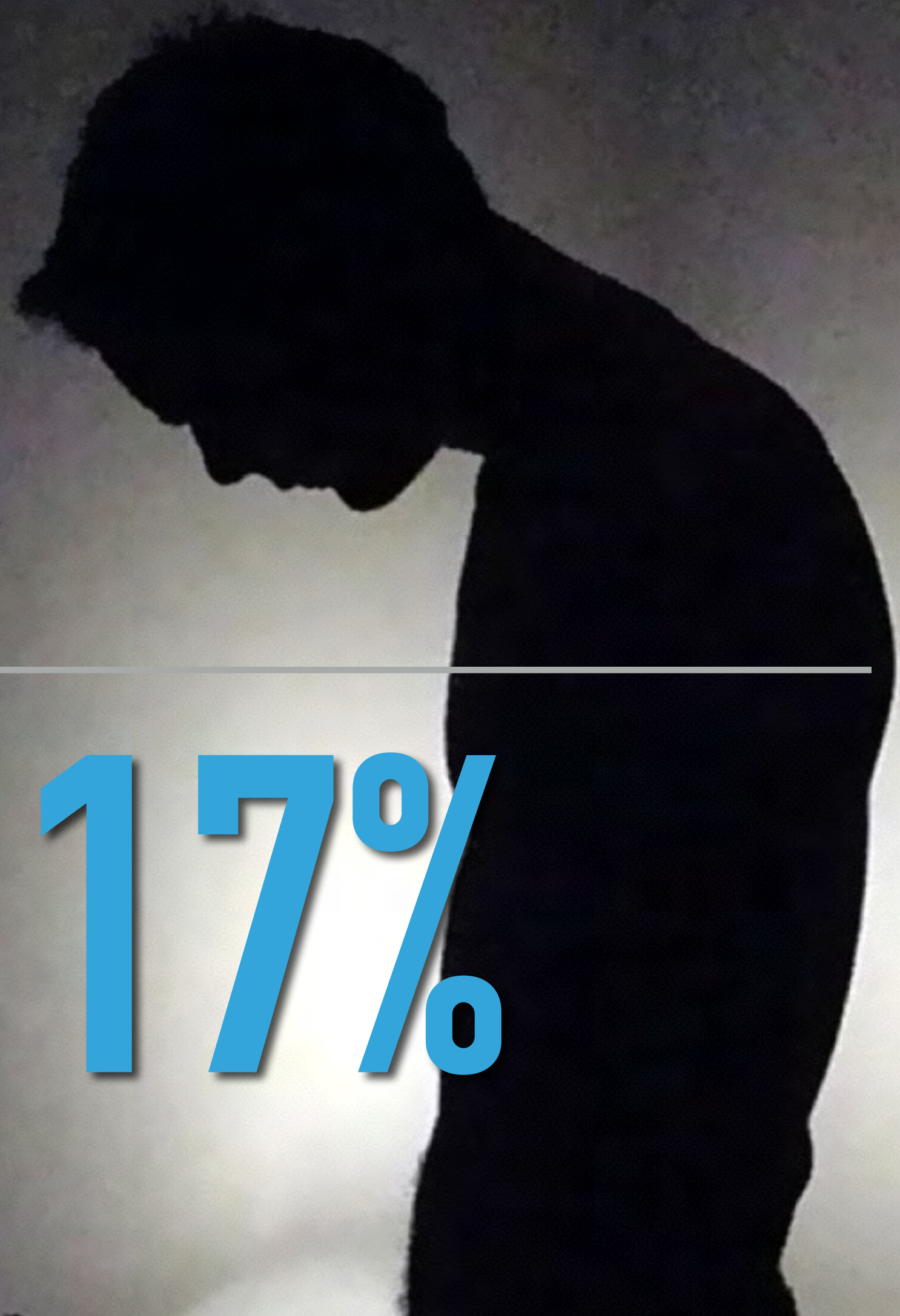


# DEPRESSION

ANXIETY AND DEPRESSION ASSC OF AMERICA 2014

---

LIFETIME RISK 17%



# DEPRESSION

NATIONAL INSTITUTE OF HEALTH 2014

---

11.4% ADOLESCENTS 12-17



# SUICIDE

CENTER FOR DISEASE CONTROL

---

1999, 10.4 PER 100,000  
2014, 13.0 PER 100,000 + 24%



# SUICIDE

CENTER FOR DISEASE CONTROL

---

# GIRLS 10-14 RATE TRIPILED



# ANXIETY



NATIONAL INSTITUTE OF HEALTH

---

**18.1% OF PEOPLE OVER 18**  
**AVERAGE AGE OF ONSET: 11**

# ANXIETY



ADAA STUDY (THE ECONOMIC BURDEN OF ANXIETY DISORDERS)

---

**\$42 BILLION**

**1/3RD OF NATIONAL MENTAL HEALTH COST**





---

**DO WE HAVE ANSWERS?**



---

# WELLNESS

