

# Women: Get Inspired, Get Healthy

Welcome!

 RUSH UNIVERSITY  
MEDICAL CENTER

IT'S HOW MEDICINE

SHOULD BE

# **You Go Girl**

## **The Health Benefits of Physical Activity in Women**

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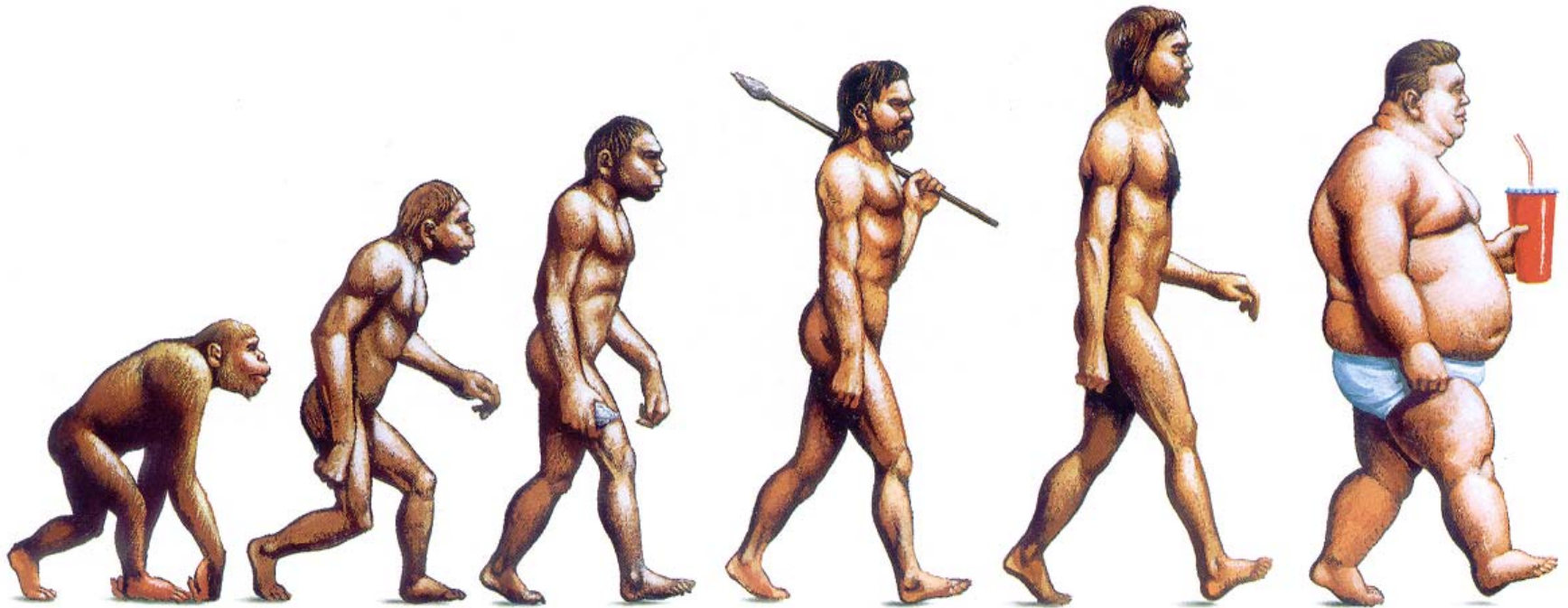
IT'S HOW MEDICINE  
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# Overview

- Participants will be aware of the obesity epidemic
- Participants will understand how physical activity is measured
- Participants will understand the link between exercise and health across the lifespan (menopause) and related to medical conditions (DM, CAD, Breast Cancer)
- Participants will know the dose of PA necessary to have these health benefits

- Research funding from
  - National Institutes of Health (NIH)
  - Research Retirement Foundation
  - Pfizer Foundation

# The shape of things to come



Cover page of *The Economist*, December 13-19<sup>th</sup>, 2003.



## National Geographic (2004)

# Lifestyle Management: Another Budget to Keep an Eye On

- Weight gained when calories consumed exceed calories burned
- Weight is lost when calories burned exceed calories consumed

*You can ↑ your  
calories burned  
by ↑ physical  
activity*

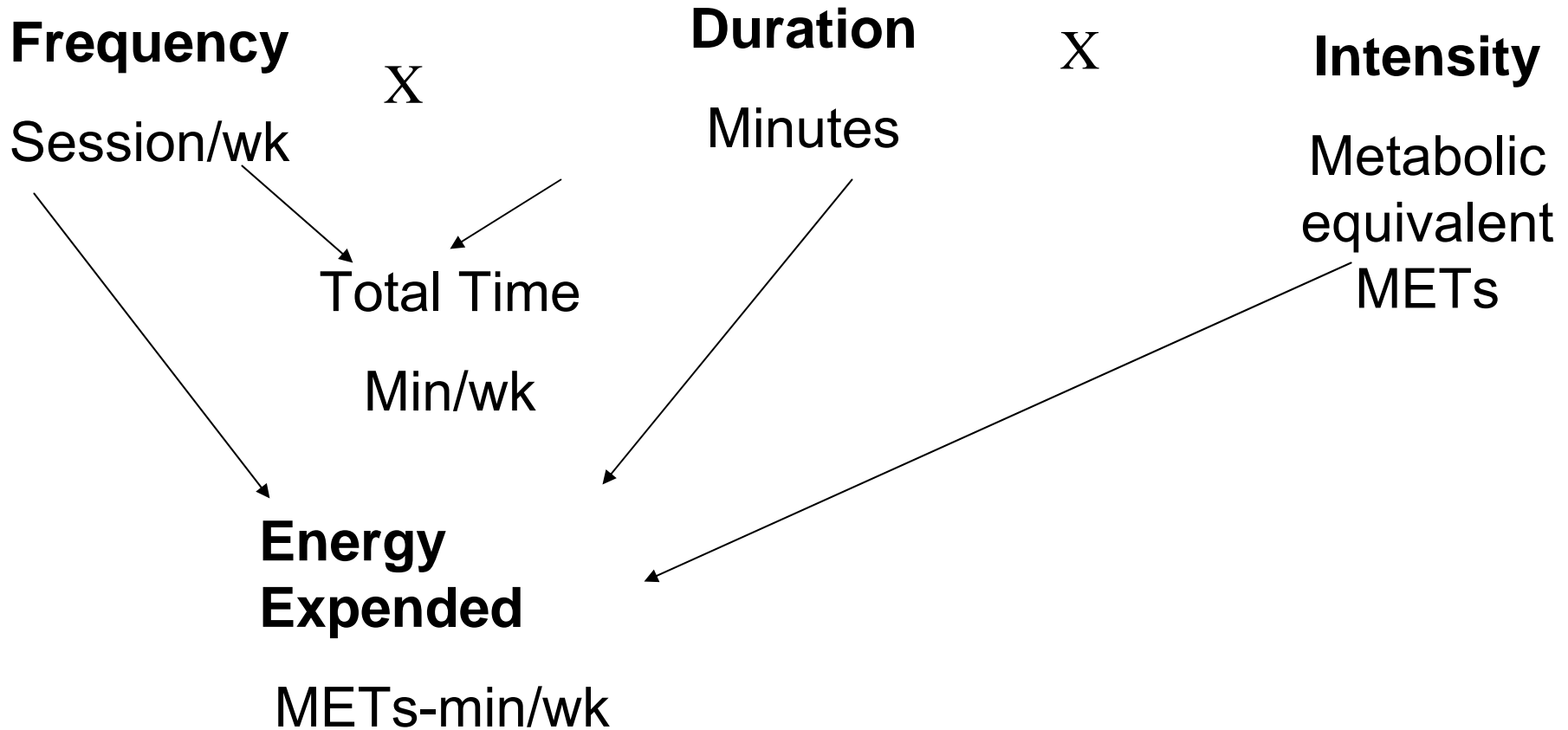


- For calculation need to know how much time you are doing the activity
  - Frequency
    - Times per week on activity
  - Duration
    - Minutes of time spent on activity

- For calculation need to know how much energy is burned with the type of activity or exercise you are participating
  - **Metabolic Equivalents or METs**
  - Energy expended at rest = 1 MET
  - Brisk walking = 3.3 METs
- METs take into account how intense the activity is or how hard you are working

- A simpler way to know how you are working is to **rate your perceived exertion** with a goal of working at a ‘moderate’ intensity or level of effort
- You can also use the **talk test**: Are you able to talk in short phrases during the activity
- You can measure your pulse and work in a target range given to you

# Physical Activity Calculation



Energy expended at rest = 1 MET

Brisk walking = 3.3 METs

- Goal for 2008 Physical Activity Guidelines from US Dept H&HS
- <http://www.health.gov/paguidelines/guidelines/default.aspx#toc>

# 2008 Physical Activity Guidelines

- Regular physical activity reduces the risk of many adverse health outcomes.
- Some physical activity is better than none.
- For most health outcomes, additional benefits occur as the amount of physical activity increases through higher intensity, greater frequency, and/or longer duration.
- Most health benefits occur with at least 150 minutes (2 hours and 30 minutes) a week of moderate intensity physical activity, such as brisk walking. Additional benefits occur with more physical activity.

# 2008 Physical Activity Guidelines

- Both aerobic (endurance) and muscle-strengthening (resistance) physical activity are beneficial.
- Health benefits occur for children and adolescents, young and middle-aged adults, older adults, and those in every studied racial and ethnic group.
- The health benefits of physical activity occur for people with disabilities.
- The benefits of physical activity far outweigh the possibility of adverse outcomes.

# 2008 Physical Activity Guidelines

- For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity.
- Aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week, but can be done in one bout.

# Populations at risk for weight gain:

- **Girls and adolescent females**
- **Pregnancy – excessive weight gain**
- **Post partum – excessive weight retention**
- ***Menopause***



# What is Menopause?

- Defined retrospectively ( $\geq 12$  months since last menstrual period)
  - cessation of ovulation due to loss of ovarian follicles
  - decreased estrogen, increased FSH, loss of hormonal cyclicity
- Normal, universal developmental process
  - not just a moment in time, not an illness
- Process occurs within a social context and has cultural meaning

## The Seven Dwarves of Menopause



Itchy, Bitchy, Sweaty, Sleepy, Bloating, Forgetful & Psycho

# SWAN: Study Aims

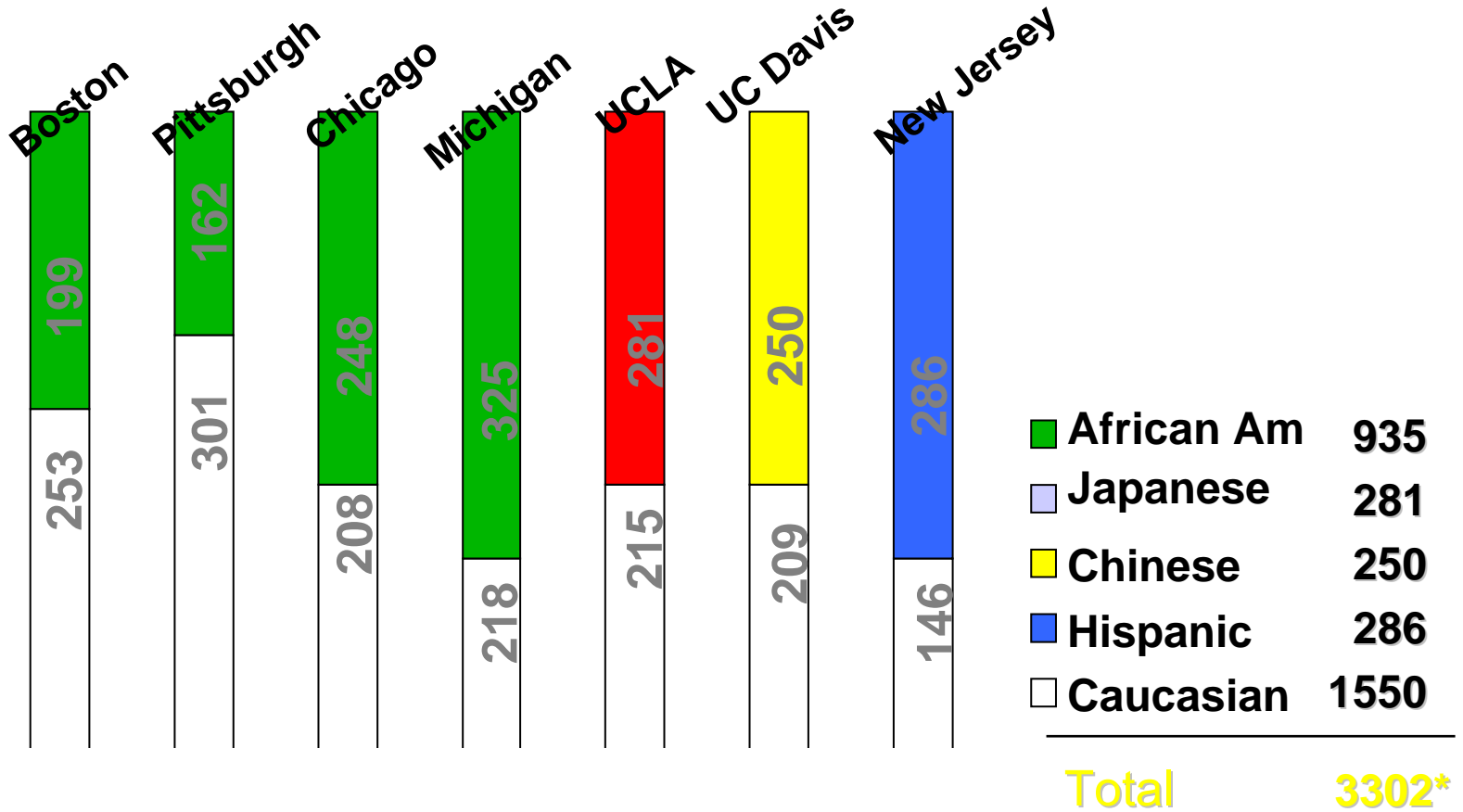
## Study of **W**omen **A**cross the **N**ation

- Provide a natural history of the menopausal transition
- Describe the biological, psychosocial and cultural factors that impact the menopause experience and changes in health status during the transition
- Distinguish the roles of aging vs change in hormonal status in development of chronic diseases

- Multi-site, longitudinal observational cohort
- Community-based, racially/ethnically diverse sample
- Cross-sectional survey (n=16,065)
  - ages 40-55
  - varying menopausal status
- Prospective cohort study (n=3,302)
  - annual clinical exams
  - follow-up with monthly calendars



# SWAN Cohort Composition



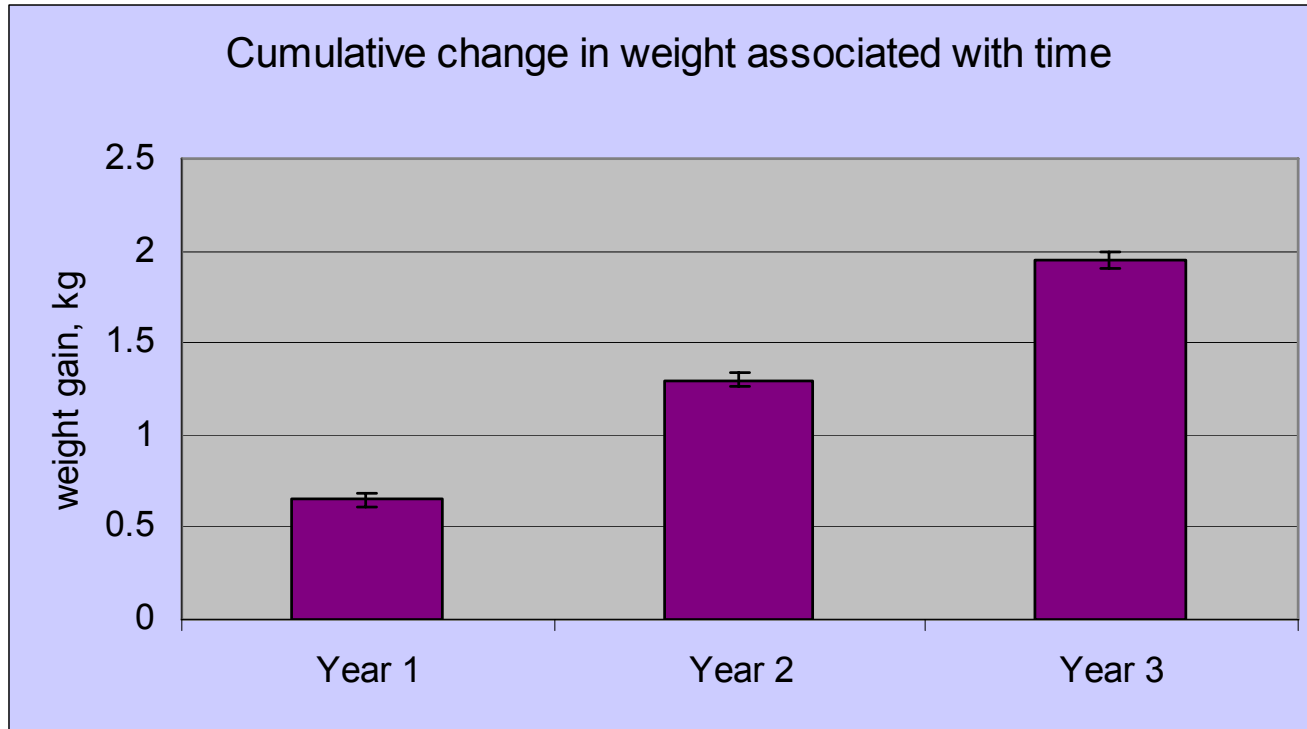
\*3279 provided blood sample at baseline

- Biochemical markers of ovarian aging
- Symptoms
- Psychosocial factors/**SF-36**
- Bone Density
- ***Body Composition***
- Cardiovascular Risk Factors
- Epi and demographic factors
- ***Physical Activity***



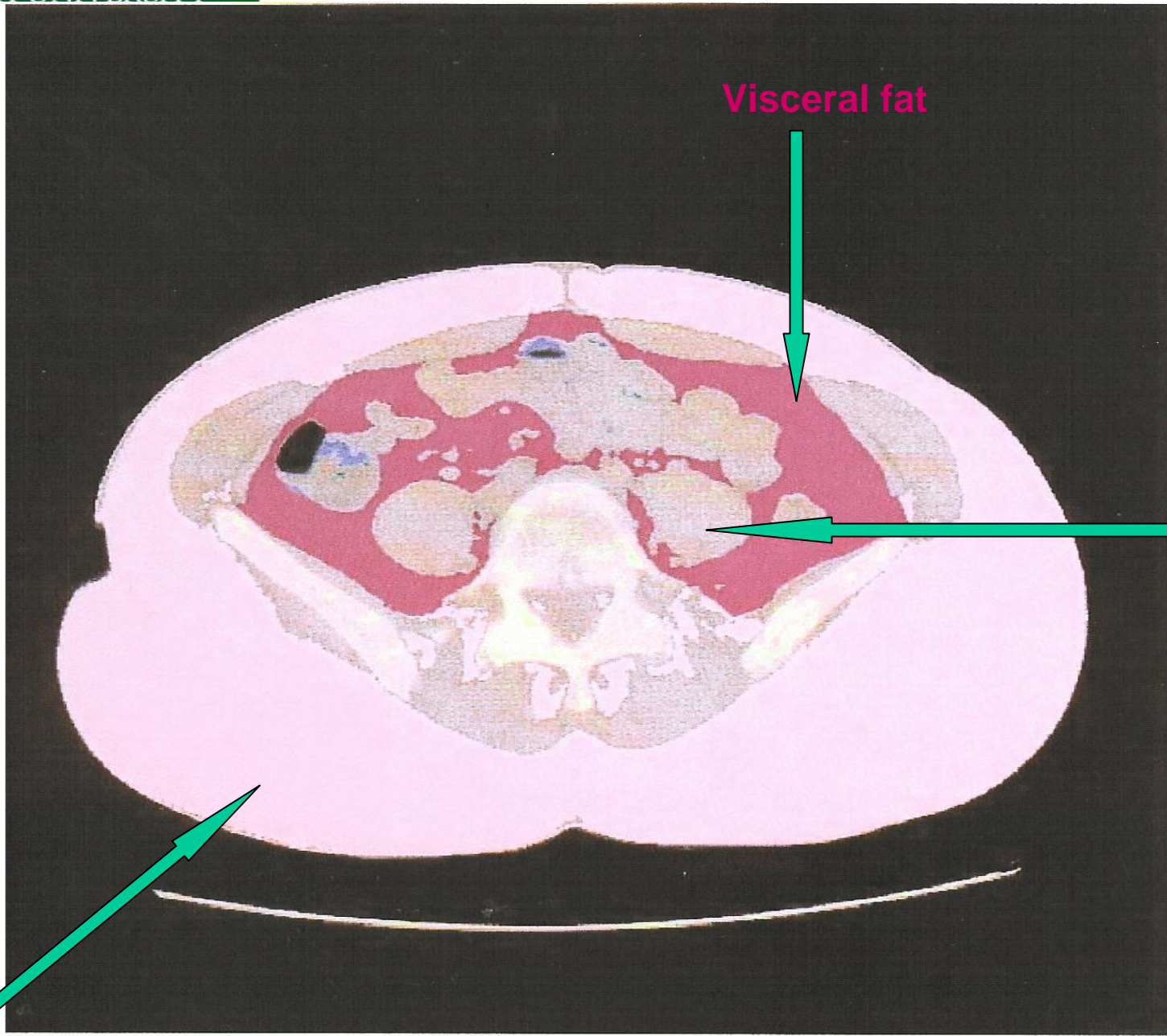
Answer: YES

- Weight gain
  - Related to aging and hormonal status
- Body composition changes
  - evidence is mixed
- Visceral fat deposition
  - generally associated with menopausal status and years since menopause, independently of age



\*all models included baseline age, race/ethnicity, site, follow-up time, and repeated measures of menopausal status, physical activity, perceived health, health status, and smoking status

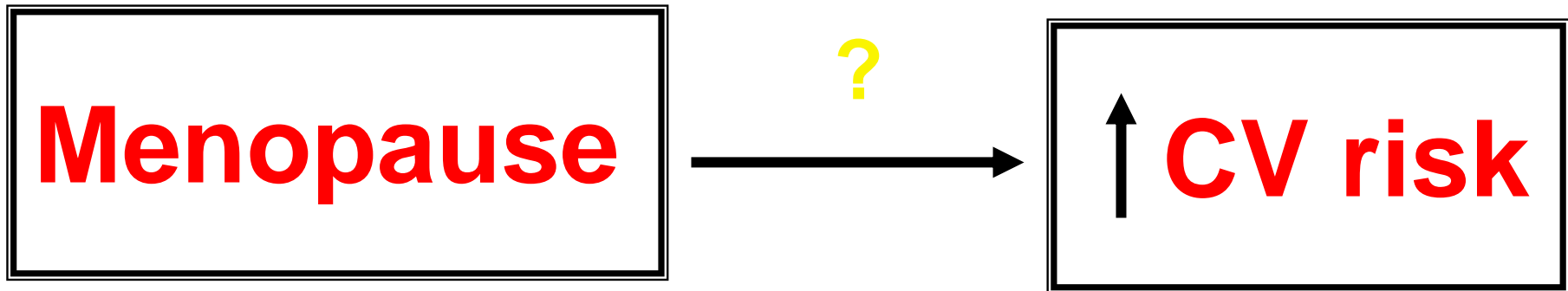




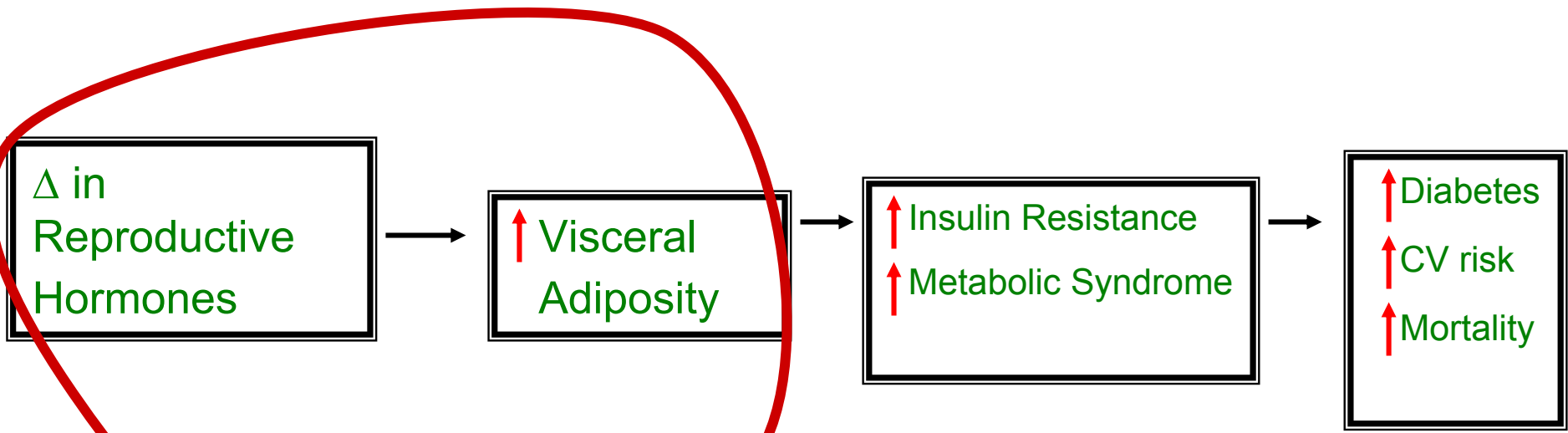
Visceral fat

Internal  
Organs

Subcutaneous fat



Menopause Linked to ↑ risk of Diabetes and CV Disease



Site specific study at  
Chicago site only

	African American	Caucasian
Visceral Fat	104.6	107.3 (ns)
Subcutaneous Fat	453.5	360.4***

\*\*\* p<0.001

# Physical Activity & Visceral Fat in a Biracial Sample at Midlife

## PURPOSE:

To determine whether self-reported physical activity (PA), including household and exercise activities, is associated with visceral fat in community dwelling white and black women in midlife

# Physical Activity & Visceral Fat in a Biracial Sample at Midlife

## RESULTS:

In black and white women, each 1-point higher total physical activity score was associated with a 5.3 cm<sup>2</sup> lower amount of visceral fat

SWAN Fat Patterning data shows 5% ↑ VF per year across menopausal transition

Spending 150 minutes per week in moderate intensity activity can combat the menopause related increase in visceral fat

# Physical Activity Rx: 150min/wk of moderate intensity activity



- Multiple studies show the benefits to quality of life, longevity and reduced recurrence rates with moderate intensity physical activity

	<b>Adjusted odds ratio (9* – 14.9 MET- hr/wk)</b>	<b>95% confidence interval</b>
<b>Breast cancer mortality</b>	<b>0.50</b>	<b>0.31 – 0.82</b>
<b>Breast cancer recurrence</b>	<b>0.57</b>	<b>0.38 – 0.85</b>

**\*9 MET-hr/wk ≈ 3 to 5 hours of  
moderate walking per week**

**Holmes, JAMA 2005**

# Summary Based on Outcome

## For Breast Cancer Patients

Symptom/outcome	Recommendations
Pain	Unknown
Fatigue	15 to 45 minutes moderate intensity, 3 to 5 days per week (do not exceed 60 mins/session?)
Psychosocial distress	Uncertain
Endocrine symptoms	Unknown
Joint dysfunction	150 mins moderate intensity/wk?
Neuropathy/balance	Unknown
Cardiorespiratory fitness	150 mins moderate intensity/wk
Breast cancer recurrence/mortality	3 hours moderate intensity/wk
Weight management	7 hours moderate intensity/wk
Improved body composition	2 hours moderate intensity/wk
Health-related QoL	At least 30 mins, 3 x's/wk?

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# Acknowledgements

Dr. Lynda Powell and Rush department of PVM

## SWAN

- Supported by
  - The National Institute on Aging
  - The National Institute of Nursing Research
  - The NIH Office of Research on Women's Health
- We thank the SWAN staff and all the SWAN participants



# The End

