



Department of Health and Human Services

National Institutes of Health

National Heart, Lung, and Blood Institute

WOMEN'S HEALTH INITIATIVE

Empowering Your Health: Lifestyle Strategies to Prevent Type 2 Diabetes

April 17, 2024

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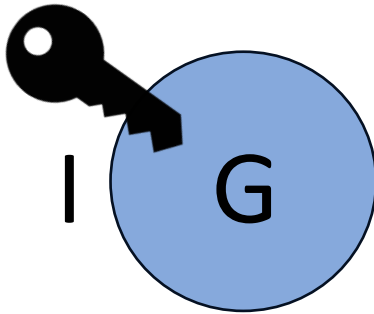


Diabetes in brief

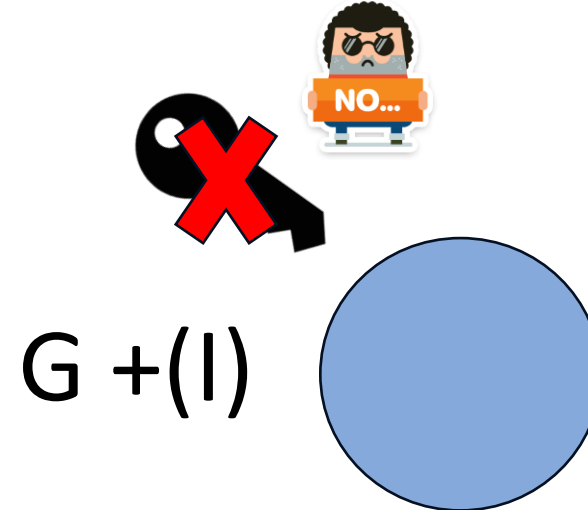
A disease of how the body manages glucose

The key players:

- **Glucose**, our body's main energy
- **Insulin**, the key, a hormone secreted by the pancreas
- **Cell**, where the action takes place



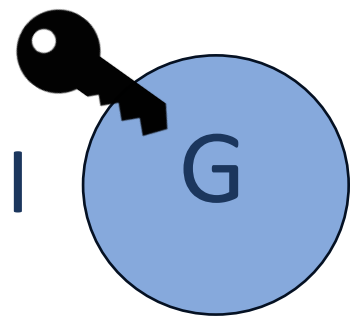


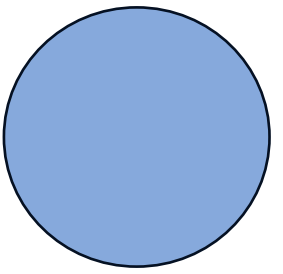
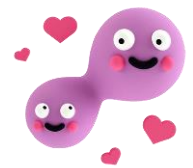
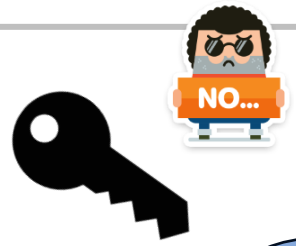
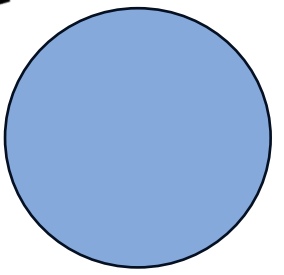

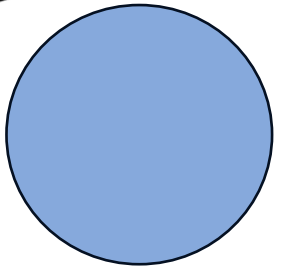
No Diabetes



Diabetes



Type of diabetes

<p data-bbox="879 342 1235 656"></p> <p data-bbox="445 635 828 699">No diabetes</p>	<p data-bbox="1426 299 1834 385">No Insulin </p> <p data-bbox="1426 449 1847 542">GGGGGGG </p> <p data-bbox="2012 364 2293 635"></p> <p data-bbox="1439 621 1949 699">Type 1 diabetes</p>
<p data-bbox="254 806 445 971"></p> <p data-bbox="458 949 777 1028"> </p> <p data-bbox="407 1078 828 1163">GGGGGGG</p> <p data-bbox="764 735 1057 978"></p> <p data-bbox="942 963 1223 1235"></p> <p data-bbox="331 1242 993 1313">Gestational diabetes</p>	<p data-bbox="1528 935 1847 1013"> </p> <p data-bbox="1477 1085 1898 1178">GGGGGGG</p> <p data-bbox="1834 749 2127 992"></p> <p data-bbox="2012 978 2293 1249"></p> <p data-bbox="1465 1235 1974 1320">Type 2 diabetes</p>

Diabetes in context

By the Numbers:

- 12% of US population has diabetes
- 19% of women 65 or older diagnosed with diabetes
- 40% of adults in the US at high risk of developing diabetes (prediabetes)

Why Diabetes Matters:

- Money, health, family, friends, social life
- Type 2 diabetes can be prevented or delayed, and managed for health
 - Lifestyle (diet, activity, sleep...) and screening
- **The Company We Keep**
 - Justice Sonia Sotomayor of the Supreme Court, Mary Tyler Moore, Tom Hanks, Patti LaBelle, Billie Jean King



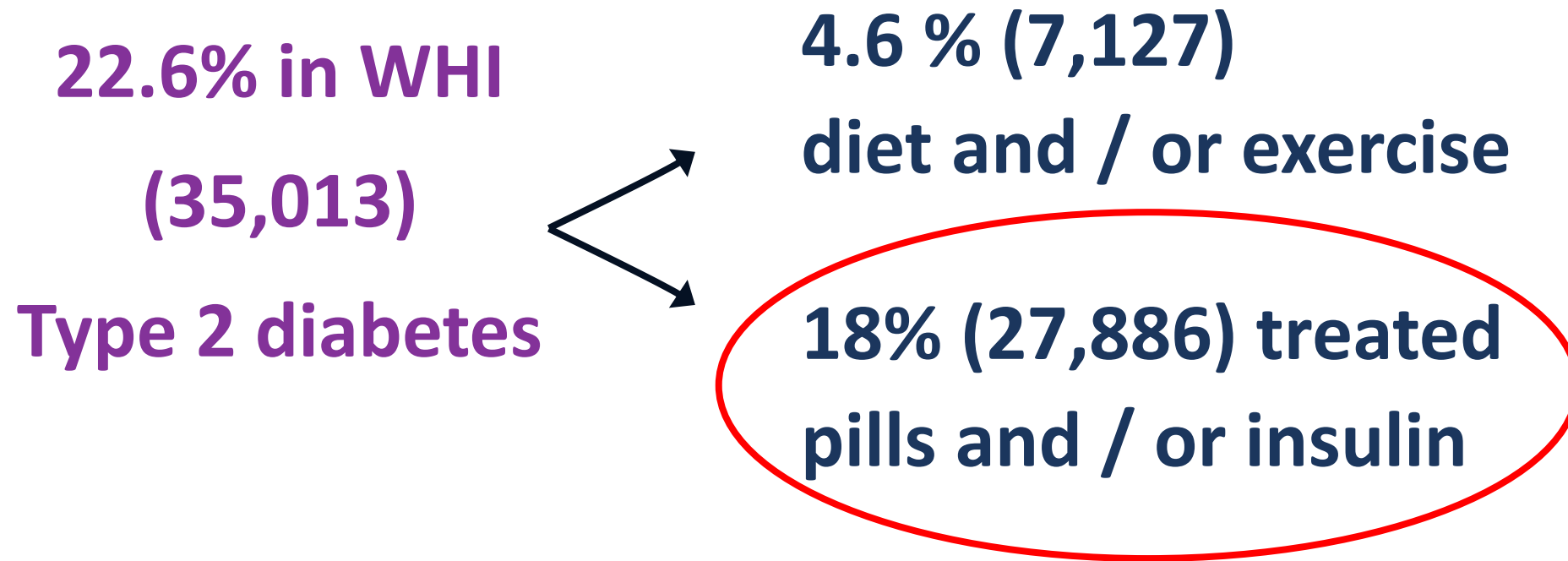
Diabetes in WHI

30 years
of diabetes information
in WHI

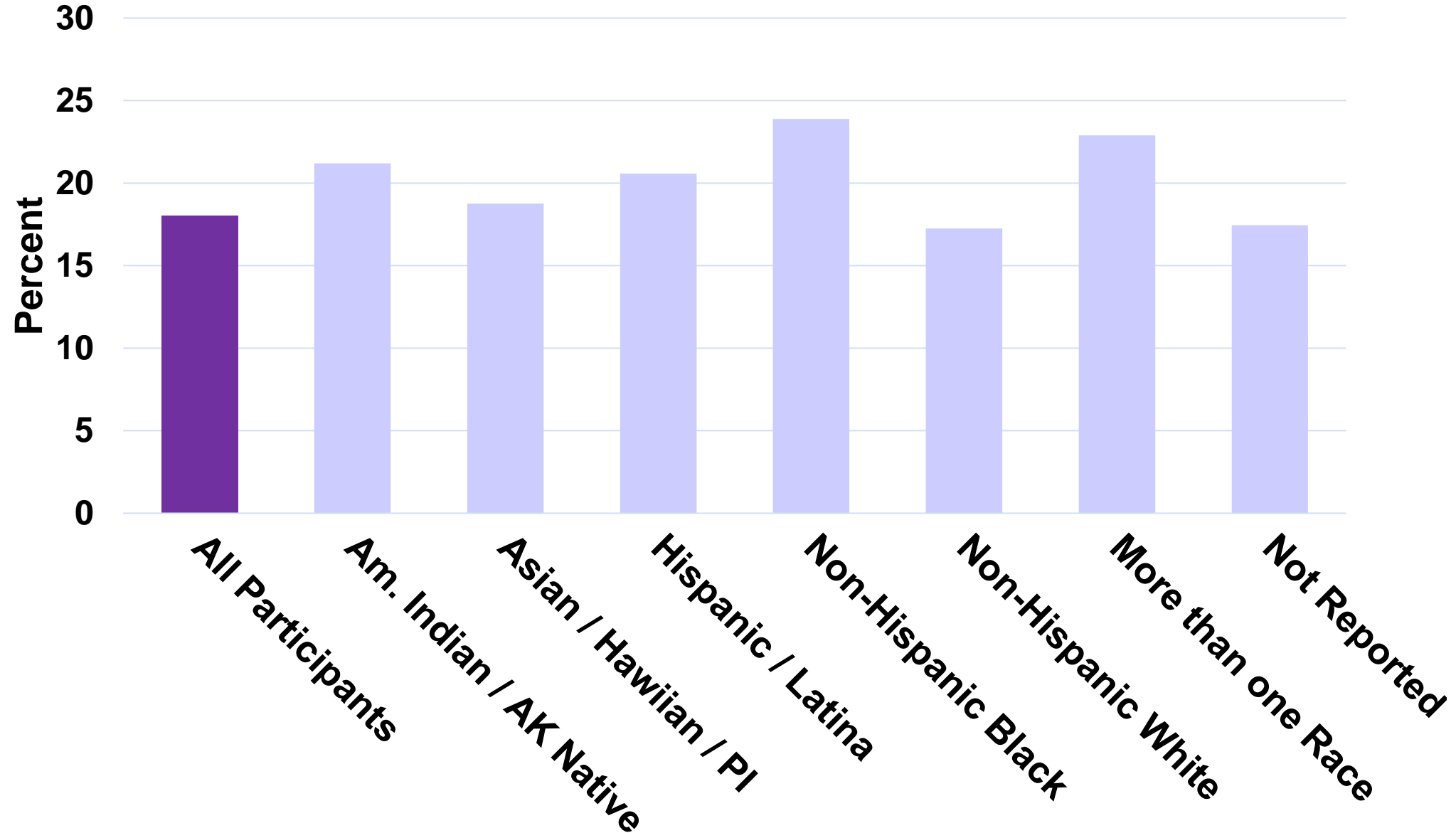
Thank you!



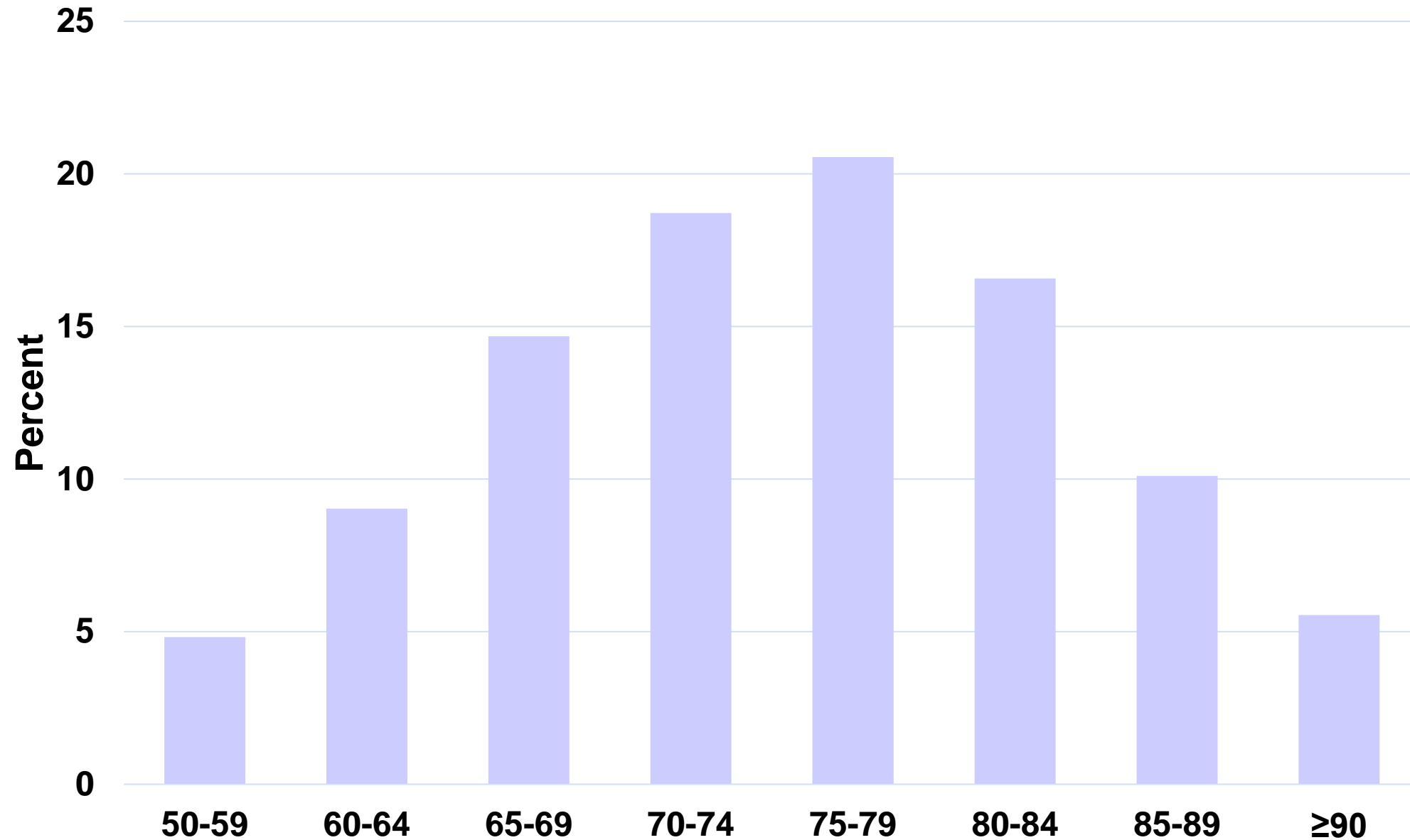
Diabetes incidence since WHI started



Incident Treated Diabetes by Race and Ethnicity



Incident Treated Diabetes by Age at Self-Report





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Looking at dietary patterns and risk of type 2 diabetes

Dr. Andrea Glenn, MSc, RD, PhD

Registered Dietitian and Postdoctoral Research Fellow





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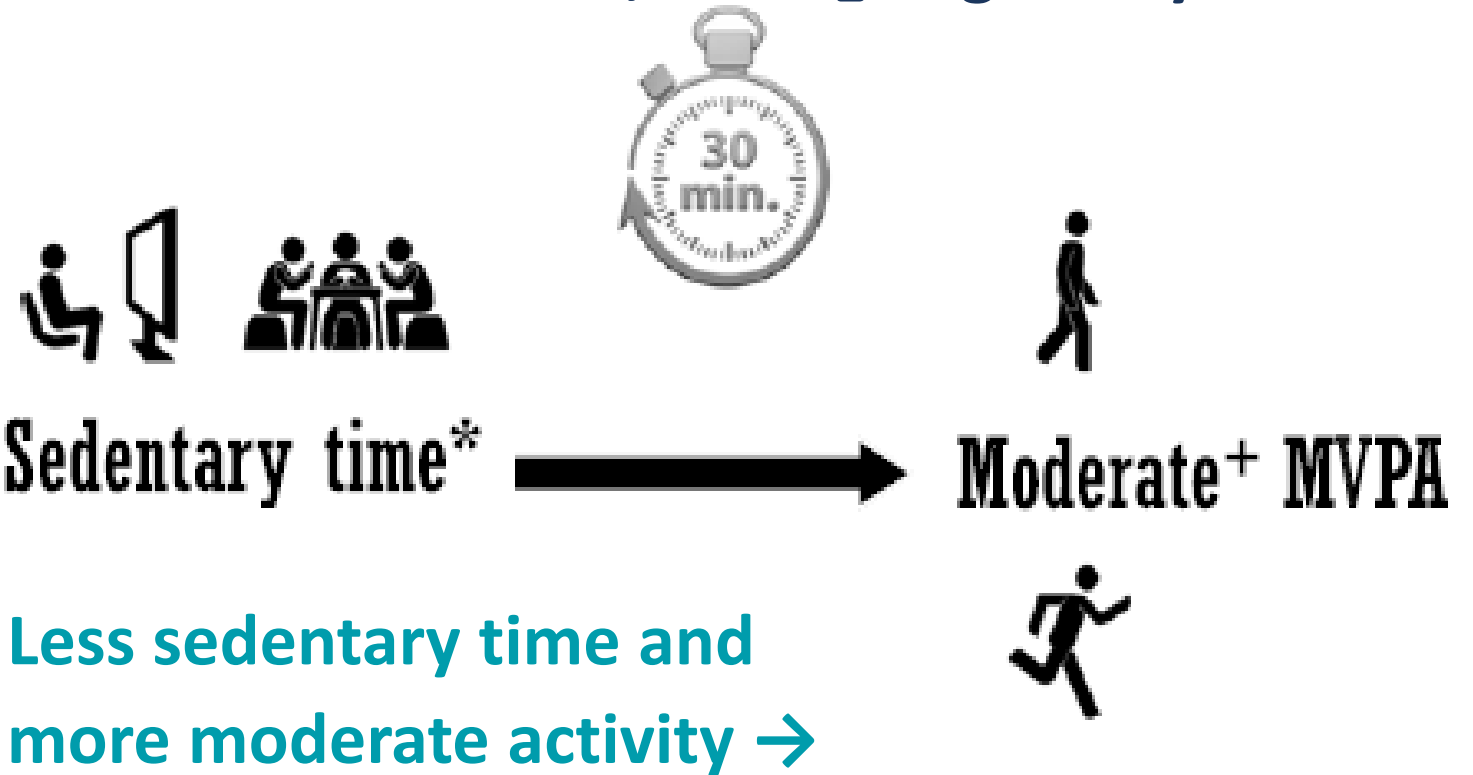
Steps, Sitting, Sleep, and Social Associations with Risk of Type 2 Diabetes

Dr. Lesley Tinker, RD, PhD



Sedentary time

OPACH: 4,838 participants without diabetes, average age: 80 years



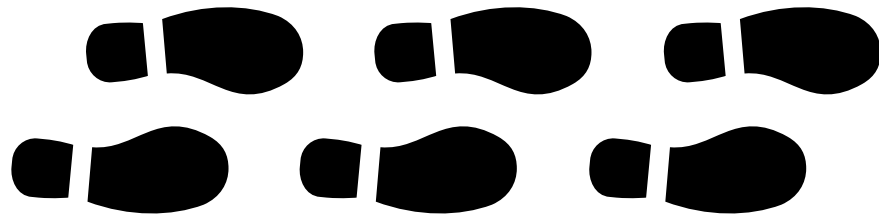
Less sedentary time and
more moderate activity →

15% lower risk diabetes



Steps

OPACH: 4,838 participants without diabetes, average age: 80 years



More steps

**2,000 steps per day increase,
12% lower risk of diabetes**

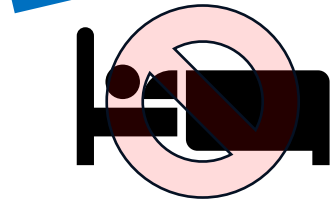
**Lower risk
diabetes**



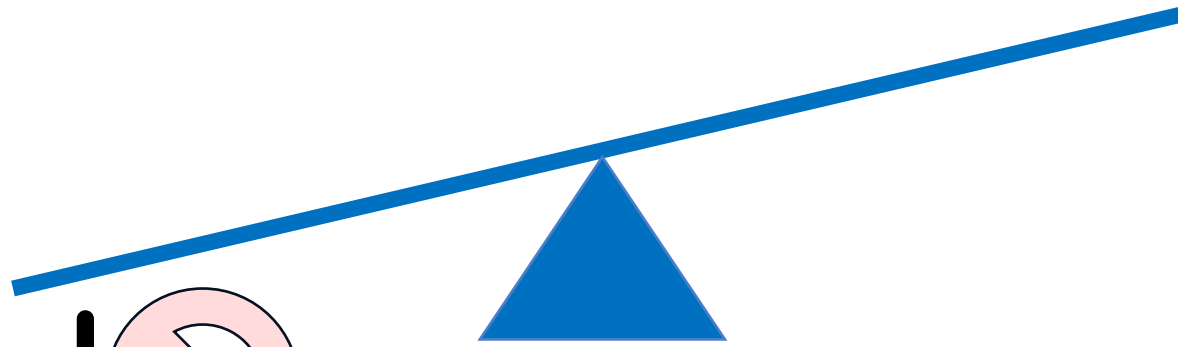
Sleep

- Substudy among WHI Veterans (n=3,707)
- Lower sleep quality (insomnia or sleep disordered breathing) was higher in Veterans than non-Veterans

Lower sleep
quality
Veterans or
non-Veterans



Higher risk of
diabetes and
heart disease



Social, mental, cognitive considerations

Area of interest	May Reduce Risk	May Increase Risk
Higher social support	✓	



Social, mental, cognitive considerations

Area of interest	May Reduce Risk	May Increase Risk
Higher social support	✓	
Lower optimism, depressive symptoms		✓



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Stressful life events with diabetes		✓ heart disease



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Area of interest	May Reduce Risk	May Increase Risk
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Stressful life events with diabetes		✓ heart disease
Persons with diabetes		✓ cognitive decline



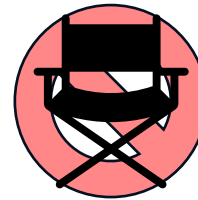
Social, mental, cognitive considerations

Area of interest	May Reduce Risk	May Increase Risk
Higher social support	✓	
Lower optimism, depressive symptoms		✓
Stressful life events with diabetes		✓ heart disease
Persons with diabetes		✓ cognitive decline
Caregiving, in general	✓ mortality	



Summarizing

- ❖ Eat as healthy as possible
- ❖ Be as active as possible
- ❖ Sit less and move more
(move more while sitting)
- ❖ Sleep as well as possible
- ❖ Choose the positives
- ❖ Be as social as possible





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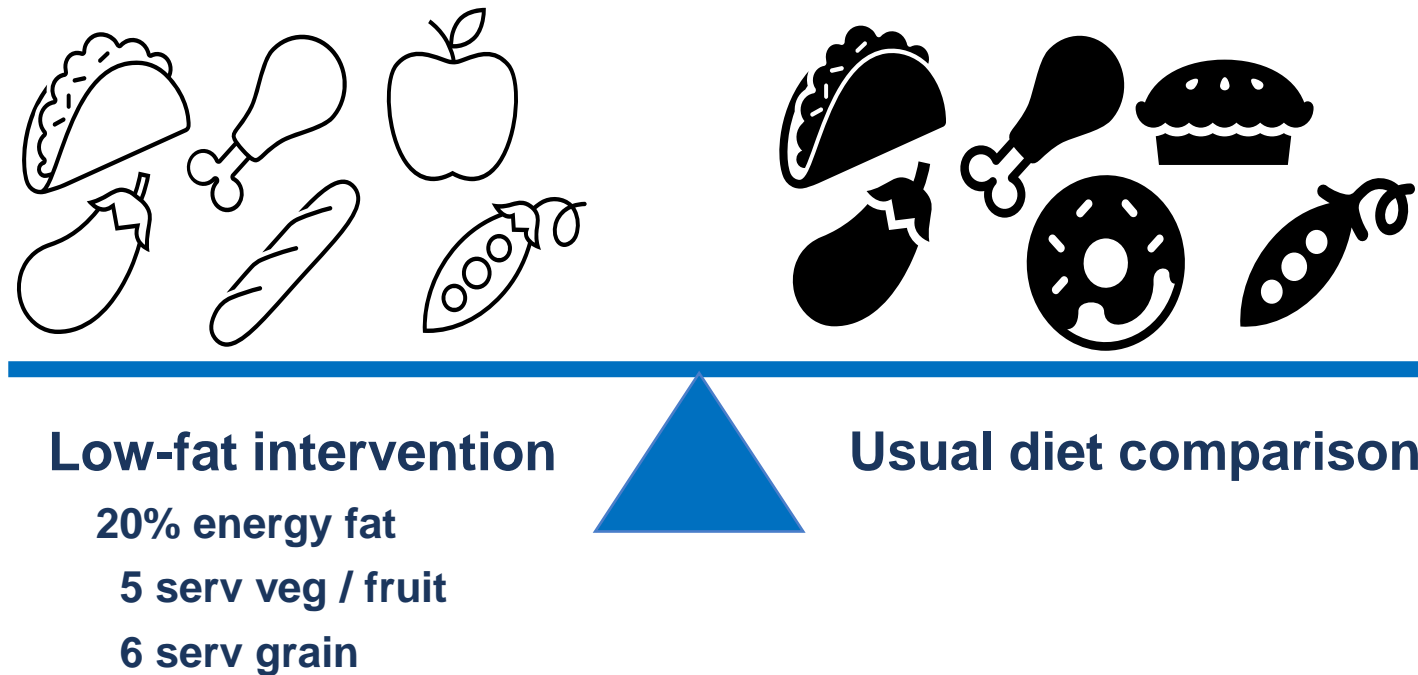
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Thank you!

Questions?



The Dietary Modification Trial



- ❖ Risk of diabetes did not increase or decrease
- ❖ No evidence of problem with higher carbohydrate

❖ Taking a later look:

- Insulin started later among intervention than in comparison.
- Fewer eating occasions (1-3 compared to 4) may reduce risk of diabetes.

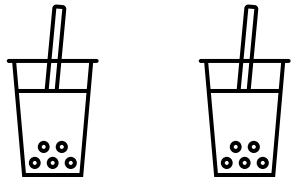


Sugars, beverages, artificial sweeteners?



Sugar-sweetened beverages

43% higher risk of diabetes than water



Artificially sweetened beverages

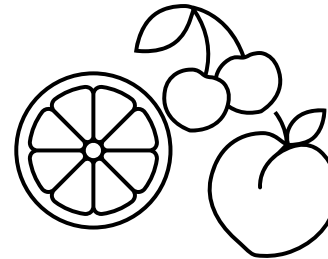
21% higher risk of diabetes than water, among obese women

2 or more 12-ounce servings per day



No increased risk

One 8-ounce serving orange juice per day compared to none



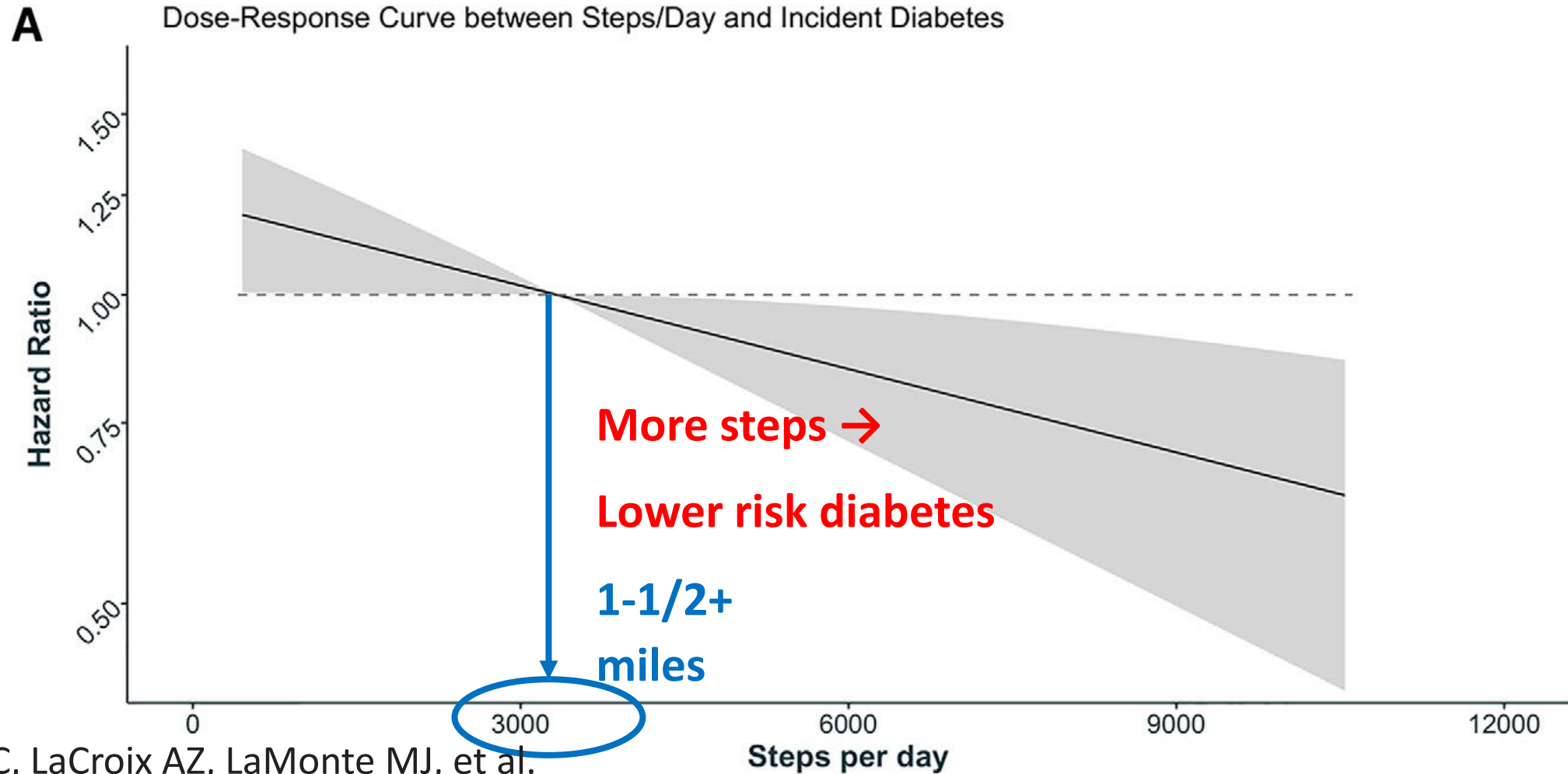
No increased risk

2.4 servings whole fruit per day compared to none or rarely



Steps per day

OPACH: 4,838 participants without diabetes, average age: 80 years



Garduno AC, LaCroix AZ, LaMonte MJ, et al.

Diabetes Care. 2022 Feb 1;45(2):339-347.





Thank You!

The WHI program is funded by the National Heart, Lung, and Blood Institute, National Institutes of Health, U.S. Department of Health and Human Services through contracts 75N92021D00001, 75N92021D00002, 75N92021D00003, 75N92021D00004, 75N92021D00005.