



# Native Cultural Adaptation and Awareness to Type 2 Diabetes in the Post-Quarantine Era

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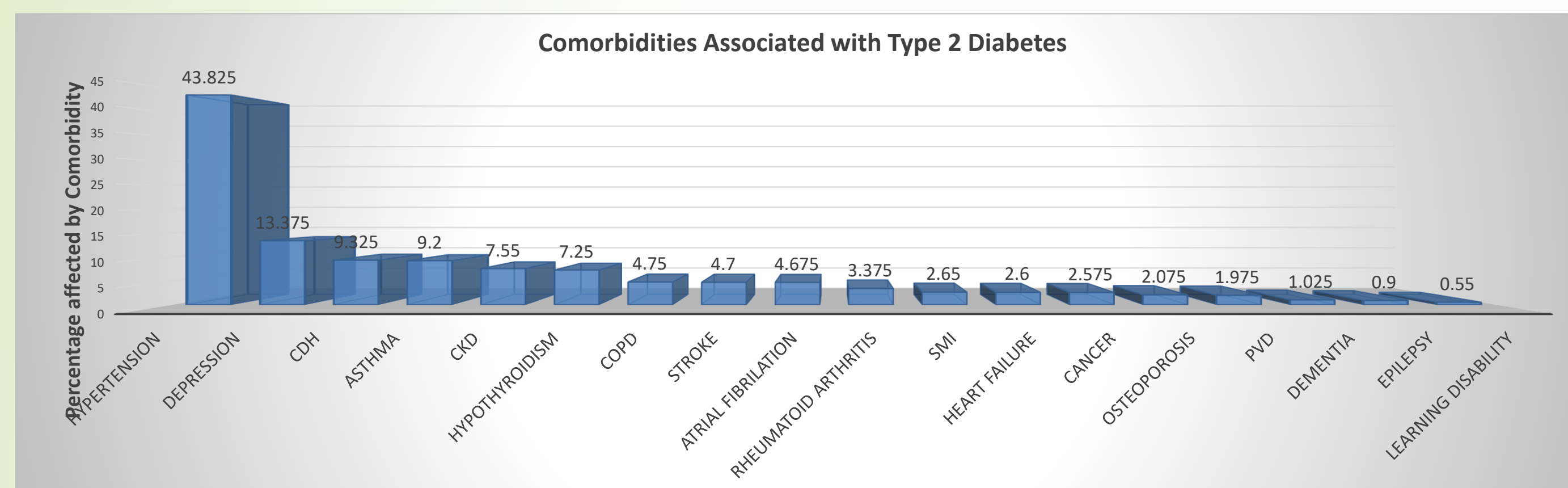
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## Why is Type 2 Diabetes a Problem?

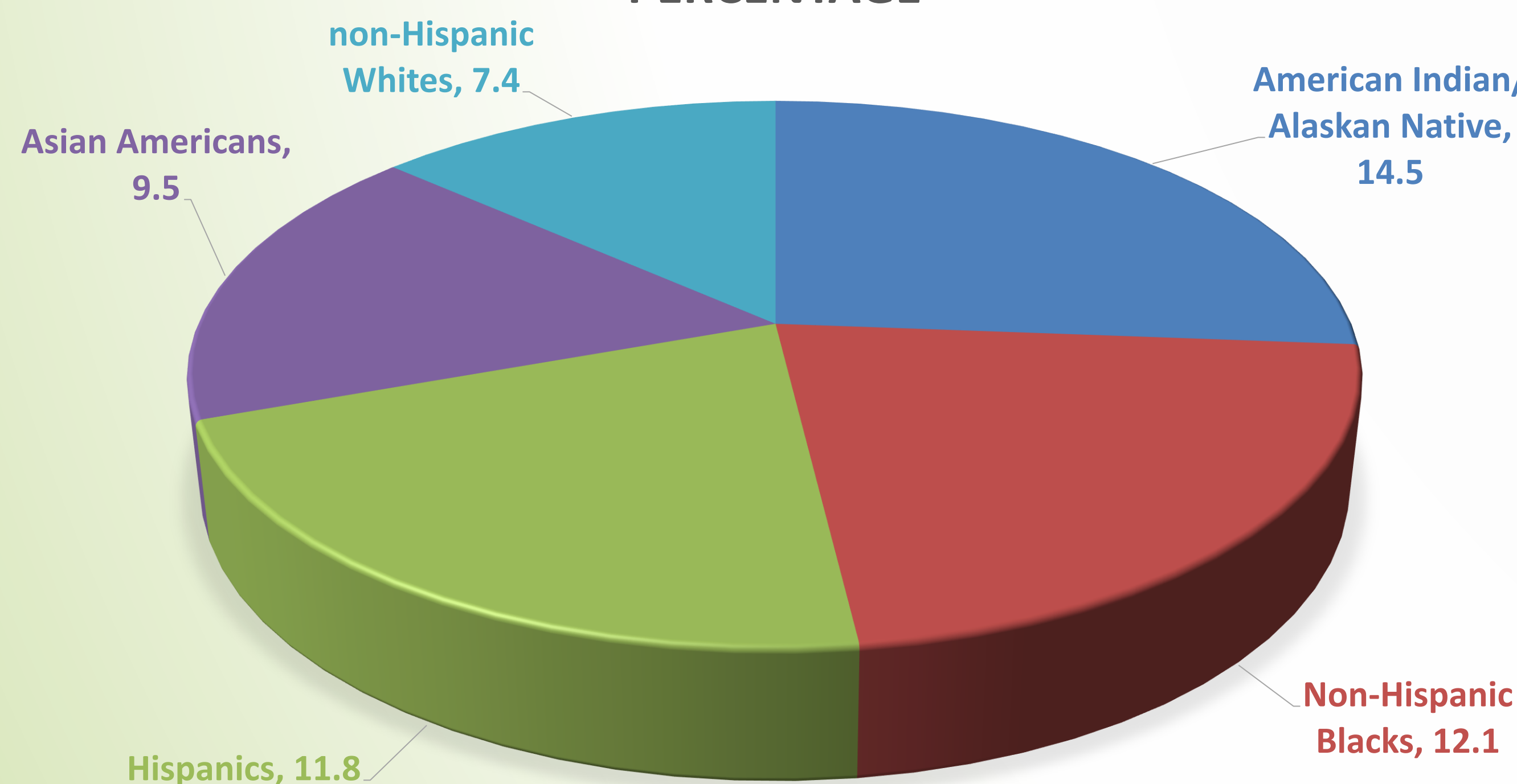
Type 2 Diabetes (T2D) is one of the most prevalent diseases in the United States, with millions of people affected every year (ADA, 2019). T2D is when your body does not react correctly to the hormone insulin, which leads to insulin desensitization. Insulin aids in the transport of glucose into the cell via the GLUT-4 receptor on the cell surface. With an absence of insulin, the body enters a state of hyperglycemia, or high blood sugar. Prolonged exposure to hyperglycemia can lead to a variety of comorbidities, such as hypertension, asthma, and depression. There are preventative measures to take against the development of T2D, such as being careful with your diet and exercising normally. Since COVID-19 enforced a sedentary lifestyle on the world, there has been an uptick in the development of T2D (Munekawa, 2021). Specifically, COVID-19 has increased stress levels and decreased exercise levels, which are both contributing factors of T2D.



**Fig 1:** Data adapted from “The comorbidity burden of type 2 diabetes mellitus: patterns, clusters and predictions from a large English primary care cohort” study (Nowakowasa, 2019).

## Why are Native Populations at Risk?

### MOST AFFECTED ETHNICITIES BY T2D BY PERCENTAGE



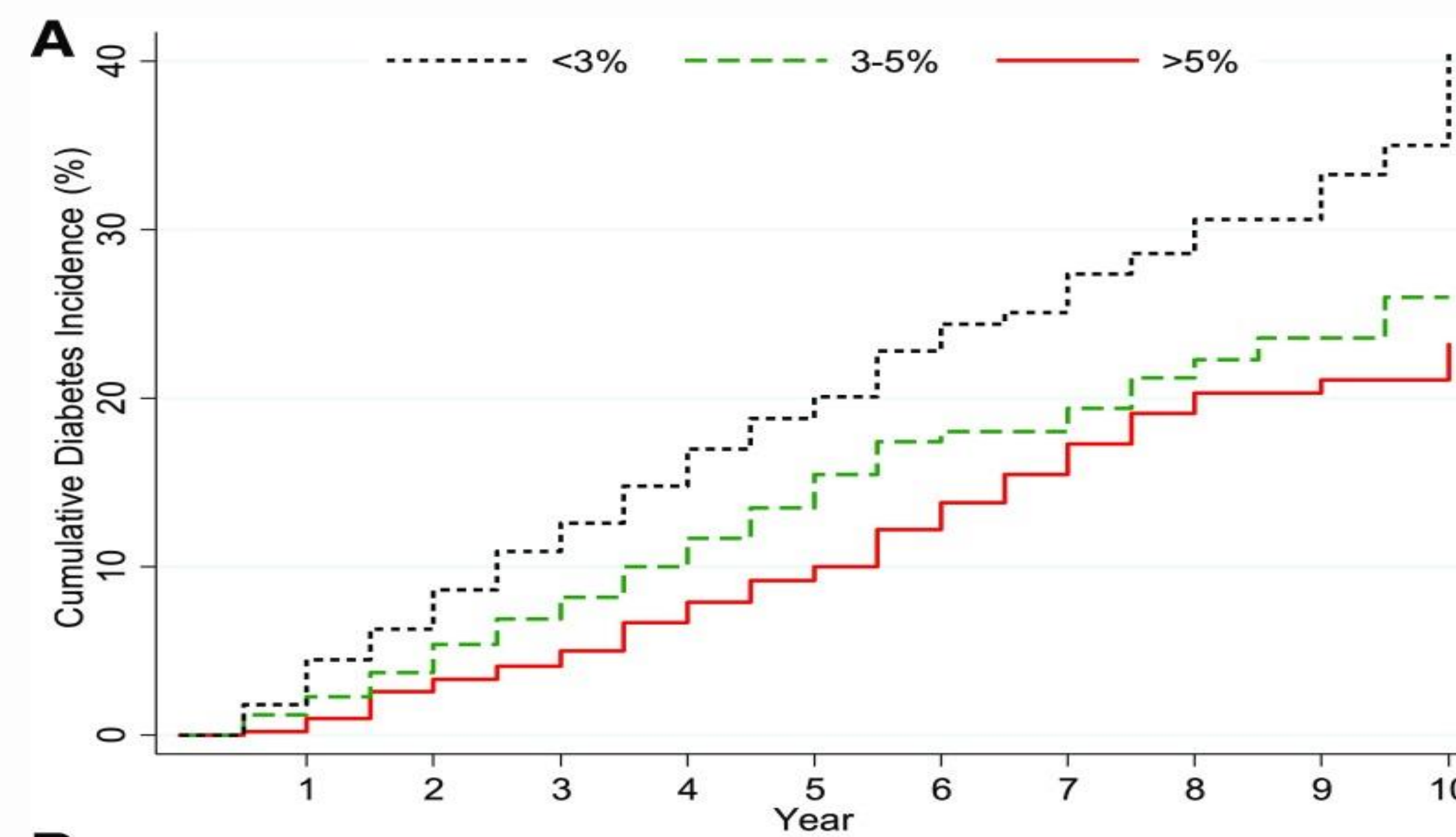
**Fig. 2:** Data collected from the American Diabetes Association’s 2019 Survey. While the numbers do not add up to 100%, these are the top five groups that are the most susceptible to developing Type 2 Diabetes.

As seen above, Native populations have the highest risk of developing T2D. This comes from lifestyle choices, behaviors, and genetics. Interestingly, the TCF7L2 gene has been associated with T2D development, and it has a higher prevalence in Native populations (Caro-Gomez, 2018).

## How can Type 2 Diabetes be Prevented?

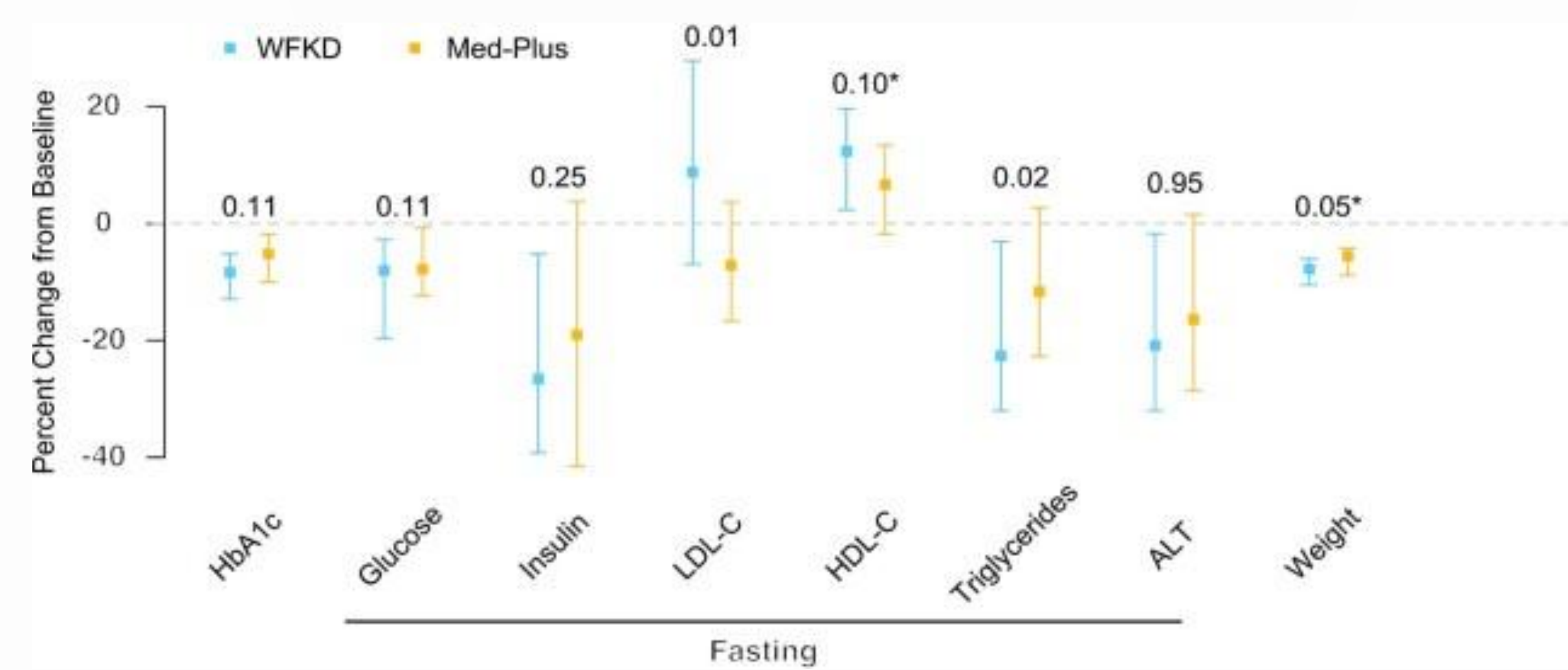
There are three main ways to prevent T2D development!

### Exercise:



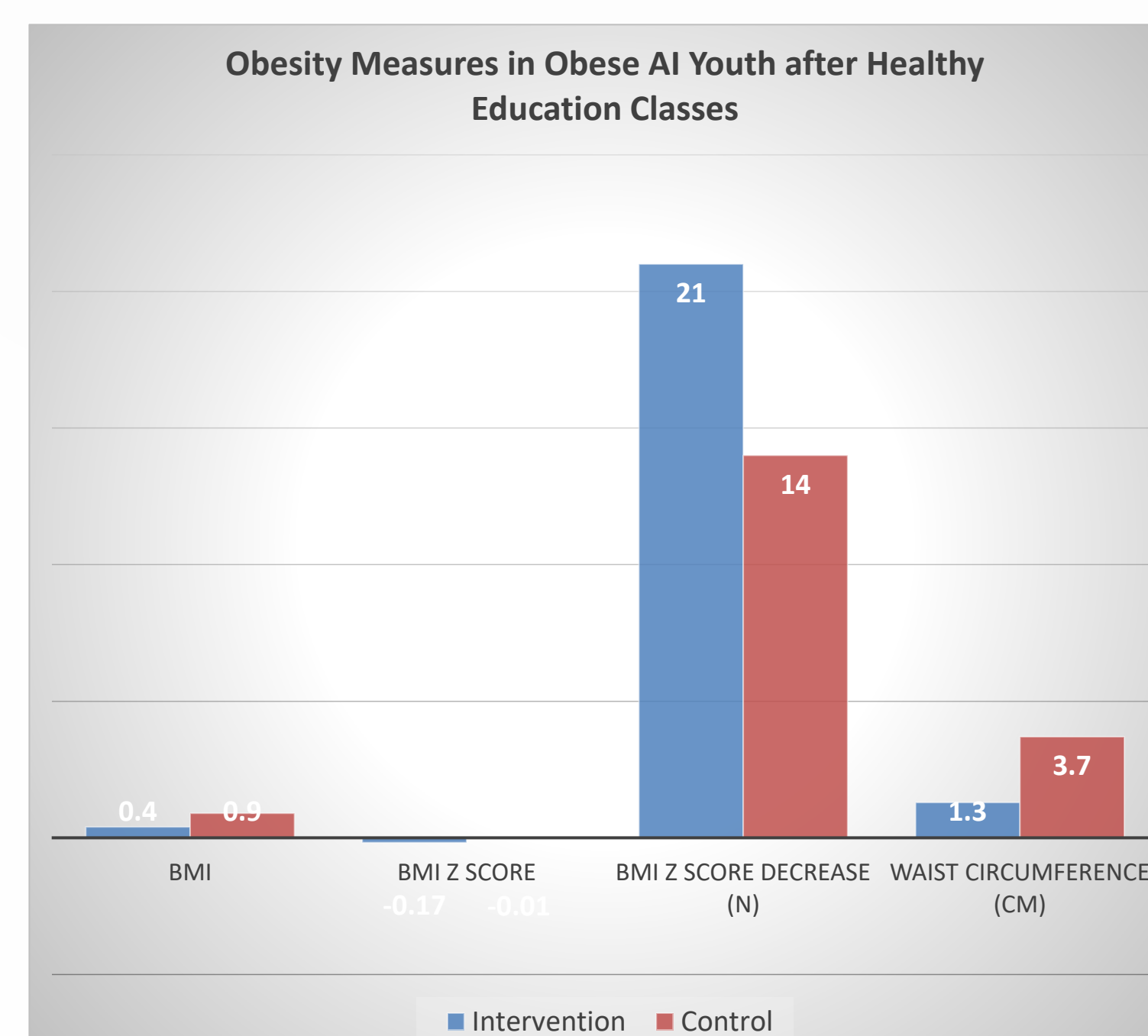
**Fig. 3:** Data acquired from “The Special Diabetes Prevention Program” study (Jiang, 2018). Illuminates a connection between body fat percentage loss by exercise and development of T2D in AI prediabetic populations.

### Diet:



**Fig. 4:** Data collected from “The Interventional Keto-Med Randomized Crossover Trial” (Gardner, 2022). Two diets, the Mediterranean plus and the well-formulated ketogenic diet, were researched to see their ability to decrease risk factors for prediabetes and those with T2D.

### Education:



**Fig. 5:** Data extracted from the Tribal Turning Point Pilot Study (Sauder, 2018). 62 obese AI youth measured obesity levels after education classes compared to a control.

## How Native Communities are Addressing T2D

Programs and grants exist to prevent the development of T2D:

### GHWIC

- Good Health and Wellness in Indian Country. Grant funds Native programs in order to stop the spread of chronic diseases. Currently funds 27 federally recognized programs (CDC, 2020).

### TPWIC

- Tribal Practices and Wellness in Indian Country. This grant focuses on using Native cultural practices and medicine to aid in the prevention of chronic diseases. Currently funds 36 federally recognized tribes (CDC, 2023).

### Native Diabetes Wellness Program

- This program focuses on how to use education and media to promote diabetes wellness to tribal populations. They aim to revive traditional practices and diets while being mindful of T2D prevention (CDC, 2022).

### Special Diabetes Prevention Program

- Grant for Native medical programs that aids in the costs for diabetes treatment. Annually contributes \$150 million dollars towards Native diabetes prevention (IHS)

## Future Directions

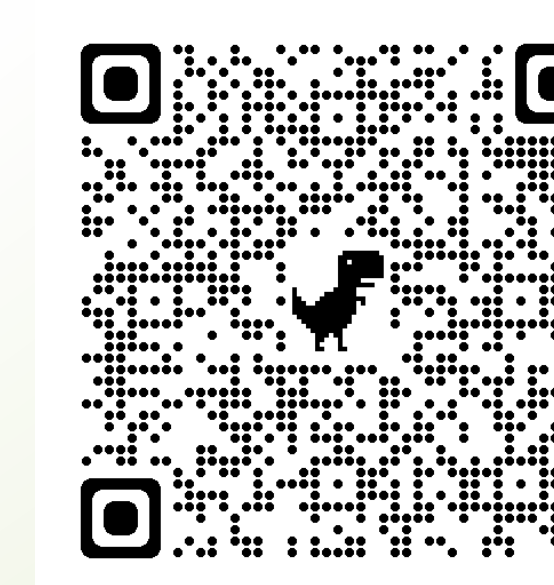
Future directions include:

1. Assessing healthy living programs in AI/AN communities
2. Evaluation of AI education and awareness of Type 1 Diabetes
3. Further research into cultural practices and Type 2 Diabetes

## Acknowledgements

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## References and Abstract



References



Abstract