

# At What Age is Aggressive Intervention Recommended to Prevent Obesity In American Indian/Alaska Native Children?

Madeline Sanchez, MD, Naomi J Young, MD, Francine Gachupin, PhD

## Introduction

- In 2010, there are 2.9 million American Indian/Alaska Natives (AI/AN) belonging to 564 federally recognized tribes<sup>1</sup>.
- 32% of the AI/AN population is <18 years old<sup>1</sup>.
- In 2009, 31.2% of AI/AN four-year olds are currently obese compared to 15% white children<sup>2</sup>.
- AI/AN Childhood obesity is disproportionally affected and there is limited data of AI/AN adolescent obesity.
- Since 1991, Department of Family and Community Medicine has sponsored a 1 week summer Youth Wellness Camp prevention of obesity through diet interventions and physical activity for American Indian youth.

## Hypothesis

- We hypothesize that at the age of middle school entrance, American Indian obesity increases significantly.

## Methods

- We analyzed data from the Youth Wellness Camp for the years 2003, 2006 and 2009.
- We calculated BMI and took average BMI of: (1) male vs female, (2) BMI based on 5 different age groups, and, (3) identified Diabetes Type 2 diagnosis.
- Repeat camper's demographics were excluded in repeat years.

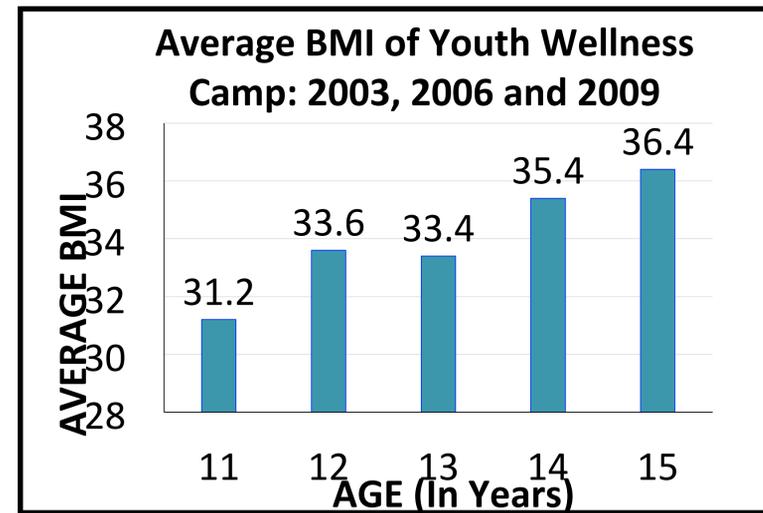
## Participant Data

PARTICIPANTS	2003	2006	2009
Total (n)	32	27	27
No. of Tribes (n)	7	3	6
Male (n)	13	13	15
Female (n)	19	13	12
Diabetes Type 2 (n)	7	7	5

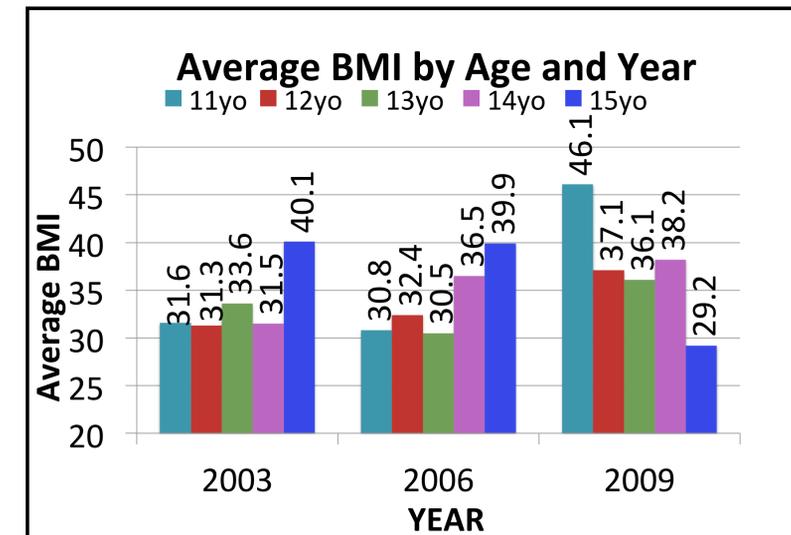
TABLE 1: American Indian Youth Medical Wellness Camp Data: 2003, 2006, 2009

AVERAGE BMI	2003	2006	2009
Male	34	33.4	36.8
Female	31.2	30.9	35.8
11 yrs	31.6	30.8	46.1
12 yrs	31.3	32.4	37.1
13 yrs	33.6	30.5	26.1
14 yrs	31.5	36.5	38.2
15 yrs	40.1	39.9	29.2

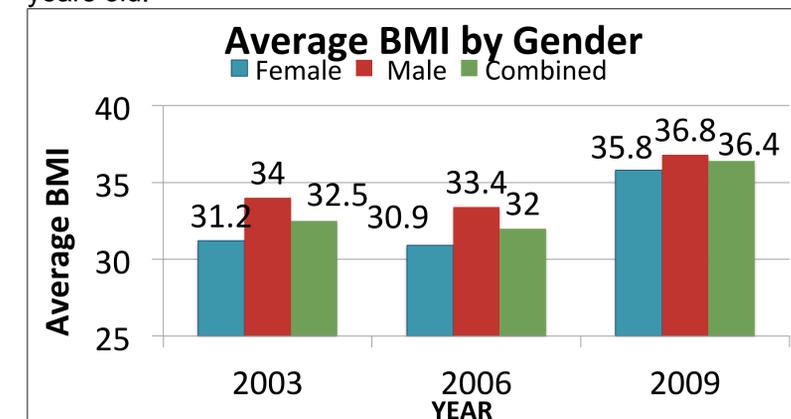
TABLE 2: American Indian Youth Medical Wellness Camp Data: 2003, 2006, 2009



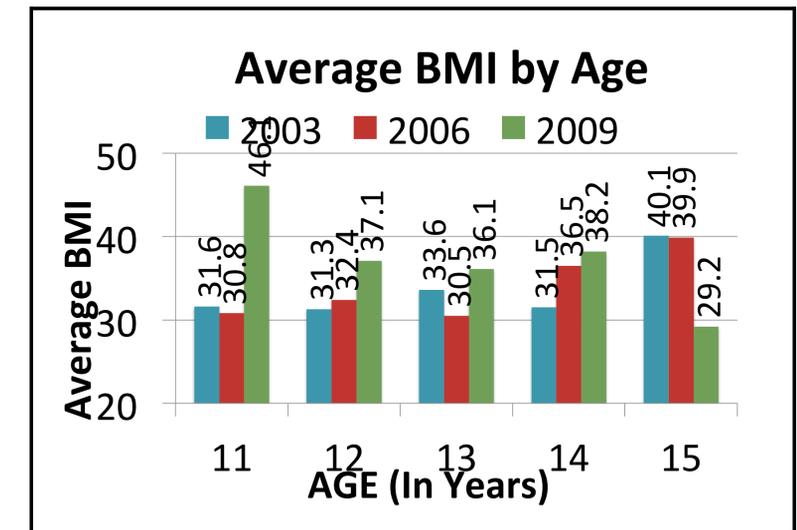
GRAPH 1: BMI increases in linear pattern from 31.2 to 36.4 between Ages 11 to 15.



GRAPH 2: Significant change in BMI between ages 14-15 years old.



GRAPH 3: Male and Female BMI greater in 2009 compared to 2003 and 2006. BMI of males greater than females.



GRAPH 4: Significant increase of BMI between ages 13 and 15 years old.

## Results

The Youth Wellness Camp population in 2003, 2006, 2009:

- The average male and female BMI trended up from 31.2 to 36.4 between ages 12 through 15.
- In 2009, the participation group had a higher BMI compared to 2003 and 2006 for ages 11-14 year old.
- BMI increased significantly between age 13-14.
- Diabetes Type 2 was present in 18.6-percent of all participants.

## Discussion

- The Youth Wellness Camp enrolled high risk American Indian adolescents whom likely had a higher BMI at baseline; thus results cannot be generalized to the general American Indian adolescent population.
- The BMI of 86 American Indian adolescents increased between ages 12 to 15 years old with significant weight gain at approximately age 13.

## References

- 1 <http://www.census.gov/prod/cen2010/briefs/c1020br-10.pdf>
- 2 Obesity Prevalence Among Low-Income Preschool-Aged Children –United States, 1998-2008, MMWR Weekly
- 3 American Indian Youth Medical Wellness Camp Data: 2003, 2006, 2009

## Acknowledgments

This project was mentored by Francine Guchapin, PhD., whose help is acknowledged with great appreciation.