

## Texas Obesity Research Center

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### Insulin Resistance and Obesity in Mexican Youth

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#### ABSTRACT

**Background:** Although research shows that prevalence rates of insulin resistance (IR) is increasing in children, little is known about the impact of obesity in IR in Mexican youth. **Purpose:** This study investigated the association between overweight, obesity, and insulin resistance in Mexican adolescents. **Methods:** Data were collected from 448 adolescents aged 12 to 18 years from a random sample of a high school student population in Durango, Mexico. After fasting overnight, blood samples were obtained from participants. Glucose, insulin, lipid profile, leptin, insulin growth factor, growth hormone, cortisol, TNF-alpha, and C-reactive protein were determined in serum. Body Mass Index (BMI) was calculated using CDC parameters. Fat mass was determined using a bioelectrical impedance analyzer. THE HOMA index was used to calculate IR and a Keskin diagnosis value of 3.1 was considered. Statistical analyses were conducted. **Results:** The mean age of the sample was 15.44 years and a majority was female (61.4%). Prevalence of overweight and obesity was 31.9%. The BMI mean was slightly higher in females (65.5) than in males (61.1) ( $p > 0.05$ ). Females had a greater mean of body fat percentage (31.9) than males (20.2) ( $p < 0.05$ ). Prevalence of resistance to insulin by HOMA-IR was 14.4% with no statistically significant gender differences. The IR mean was higher in adolescents with greater BMI ( $\geq 85$ th percentile) than those with low and normal BMI ( $< 85$ th percentile) ( $p < 0.05$ ). Adolescents with high IR levels ( $\geq 3.1$ ) had higher mean values of corporal fat (37.69%) and BMI (89.76) than those with lower IR levels ( $< 3.1$ ) and lower corporal fat and BMI values (26.4% and 61.67, respectively). **Conclusions:** The significant association found between obesity and insulin resistance in Mexican adolescents suggests a greater risk for the development of degenerative disease in this young population during adulthood. Public health programs among Mexican adolescents are essential to prevent obesity and IR related consequences.

KEY WORDS: Adolescents, Obesity, Insulin-resistance, Mexico

