The American obesity epidemic requires methods for identifying those at risk among minority populations, especially among Native American adolescents. Nutritional studies indicate the prevailing onset of Type 2 diabetes is related to American diets and educational policies. Our study focused on several nutritional and anthropometric measures which in combination are appropriate to assess obesity in Native American adolescent populations. Data was compared to standards drawn from Centers for Disease Control and Prevention (CDC), and the National Health and Nutrition Examination Surveys (NHANESIII). Our study population represents a cross-sectional, epidemiological population (N=183) of Native American students (ages 14-18) from diverse tribal backgrounds at an urban residential high school. Factors of time, gender, and diet proved significant correlates for increasing risk of obesity. Under the conditions of our study, the enormity of fat intake overwhelmingly suggests a need to shift diets and policies in our population. Assessment of health risk by anthropometric measures appears appropriate for predicting obesity and developing effective health interventions. (Received September 16, 2014)