

# Addressing **OVERWEIGHT SEVERITY** in Children and Adolescents



Policy Leadership for Active Youth (PLAY) Policy Brief

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## Georgia's Overweight Youth Becoming Heavier

**I**ncreasing childhood overweight prevalence rates have led to heightened public concern and numerous state and national prevention initiatives. One aspect of the overweight problem that has been overlooked is the fact that overweight youth are more overweight than in the past. In other words, more of our children are overweight than ever before, and those that are, are heavier. This combination of an increase in the proportion of overweight plus an increase in the severity of overweight will result in more chronic disease, a diminished quality of life and escalating health care costs. The following is a discussion of the prevalence and health consequences of overweight severity in Georgia's children and adolescents.

## Childhood Overweight Prevalence Higher than National Figures

To many, the term "malnutrition" inspires thoughts of starving children and "under" nutrition. Most people fail to realize that the US is experiencing malnutrition in epidemic proportions: in the form of "over" nutrition: overweight and obesity.<sup>1</sup> During the period 1971-1974, 5% of children and adolescents in the US, ages 2 to 19

years, were considered overweight.<sup>8</sup> The most recent national survey for this age group determined that overweight prevalence had increased to 17%.<sup>2</sup> Two studies recently conducted in Georgia found that childhood overweight prevalence rates were higher in Georgia than in the US overall. The Georgia Childhood Overweight Prevalence Survey (GCOPS)<sup>3</sup> reported that 20% of Georgia's 4th, 8th and 11th grade students were overweight, while a study conducted by Georgia's Department of Human Resources (DHR)<sup>4</sup> reported an overweight rate of 24% for third grade students. Moreover,

each study identified non-Hispanic black female students and those living in rural areas to be at greatest risk. A shortcoming of most overweight prevalence studies is that severity of overweight is not reported. This is an important limitation because overweight severity may rise over time while overweight prevalence estimates do not change. Because metabolic diseases are increasing in children and adolescents and are related to the severity of overweight,<sup>5-7</sup> it is imperative to monitor and reduce overweight severity.

Figure 1:

## OVERWEIGHT TERMS:

- **Body Mass Index (BMI)** — An index of height and weight used to screen for overweight;  $BMI = \text{weight (kg)}/\text{height (m)}^2$
- **Overweight** — When a child's BMI is at or above the 95th percentile; this means that the child has a BMI higher than 95% of the children of the same age and sex.
- **Overweight Threshold** — The BMI at the 95th percentile
- **Extent of Overweight (EOW)<sup>8</sup>** — A measure of the degree or severity of overweight; EOW is reported in BMI units and is defined as the number of BMI units that exceed the overweight threshold.

## Understanding “Overweight Severity” or the “Extent of Overweight”

The Extent of Overweight (EOW) has been proposed as one measure to assess overweight severity.<sup>8</sup> It is determined using the child’s body mass index (BMI) and his/her overweight threshold (*Figure 1*). The overweight threshold is equal to the BMI at the 95th percentile. EOW is reported in BMI units and is defined as the number of BMI units that exceed the overweight threshold. Only when a child’s BMI exceeds their overweight threshold does their EOW have a value greater than 0. For example, the overweight threshold for 12 year-old girls is a BMI of 25; therefore, a 12-year old with a BMI of 28 will have an EOW equal to 3 because her BMI exceeds her overweight threshold of 25 by 3 BMI units. Any BMI value equal to or less than 25 will result in an EOW of 0 (*illustrated in Figure 2*).

The advantage of reporting EOW in addition to overweight prevalence is captured in the following example. Suppose that Jennifer, a 12 year-old



female, participated in an overweight prevalence survey two years in a row. The first year her BMI was 28 and her EOW was 3 (based on an overweight threshold of BMI = 25). The following year her BMI increased to 35 and her EOW increased to 10. Consequently, Jennifer’s increasing BMI and her increasing overweight severity would go undetected because her classification as “overweight” did not change although her EOW increased significantly.

## Overweight Severity in Georgia Over Twice the National Average

EOW for US children and adolescents from the National Health and Nutrition Examination Surveys was 0.6 in 1971-‘74<sup>8</sup> and increased to 2.0 in 2000. Alarmingly, students in GCOPS exceeded their overweight threshold by an average of 4.3 BMI units, over twice the national EOW (*Figure 3*). The EOW was highest in GCOPS students residing in rural areas and in non-Hispanic blacks.<sup>3</sup>

## Health Implications of Severe Overweight

Overweight children are at increased risk for fractures and for musculoskeletal discomfort and pain, both of which may worsen with increasing severity of overweight.<sup>9</sup> Overweight children are less likely to participate in physical activity, further increasing health risks.<sup>9</sup> Additionally, severe overweight is associated with an increased prevalence of the metabolic syndrome, which is defined by the presence of three or more of the following: high

Figure 2:

## BMI CLASSIFICATIONS, PERCENTILES AND EXTENT OF OVERWEIGHT FOR 12-YEAR OLD FEMALE

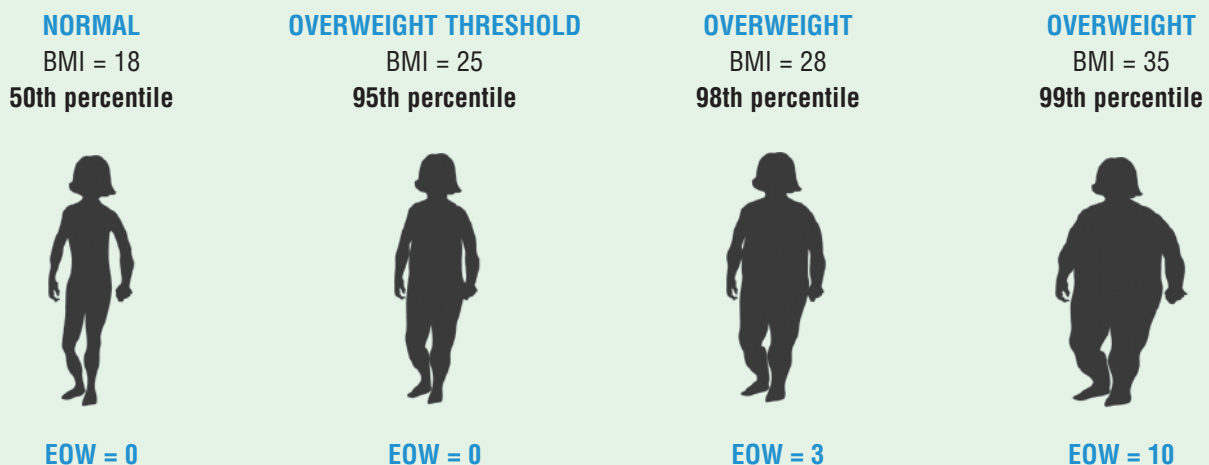
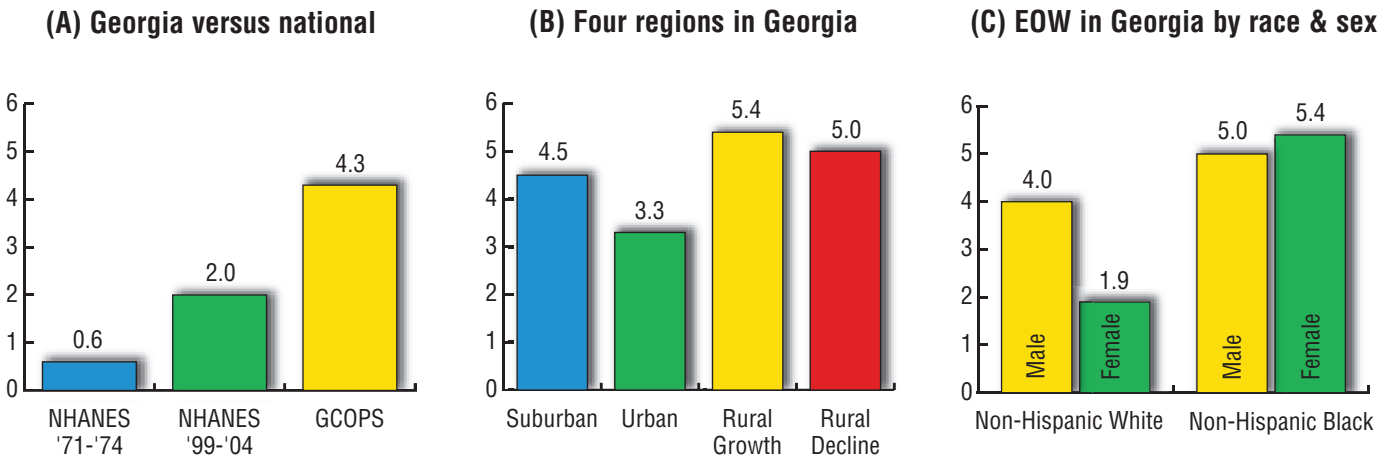


Figure 3:

## EXTENT OF OVERWEIGHT IN GCOPS



blood lipids, low levels of “good” (HDL) cholesterol, high blood sugar, obesity in the waist region, or high blood pressure. These conditions are highly correlated to risk for chronic disease.<sup>6,7</sup> Although school-aged children experience metabolic diseases far less frequently than adults, symptoms in children are becoming more widespread.<sup>10,11</sup> A group of researchers from the Medical College of Georgia reported that 41% of overweight children 7 to 18 years of age in a rural Georgia community were at risk for the metabolic syndrome.<sup>11</sup> Similarly, the prevalence of the metabolic syndrome was estimated to be 39% in children 4 to 20 years of age from the northeastern US classified as moderately overweight and 50% for those children classified as severely overweight.<sup>10</sup> While symptoms of the metabolic syndrome were not assessed in GCOPS, based on the numbers of moderately and severely overweight students we could expect approximately 150 GCOPS participants (4.8%) to exhibit metabolic syndrome. If we apply this figure (4.8%) to recent Georgia census data for youth, 6 to 19 years of age,<sup>12</sup> an estimated 82,000 children and adolescents in Georgia may currently meet the criteria for having the metabolic syndrome.

### What is the Impact of Severe Overweight on Georgia?

Today in Georgia, childhood overweight prevalence rates are four times higher than US rates in 1971 and the EOW value of 4.3 for Georgia students is over 7 times higher than the 1971 national EOW.<sup>3</sup> Children and adolescents who are moderately to severely overweight are more likely to become obese adults.<sup>6,16-18</sup> Medical expenditures for overweight and obese adults have been found to be 14.5% and 37% higher, respectively, than for normal weight adults.<sup>13,14</sup> In 2003, Georgia’s economic burden resulting from obesity and associated disease was approximately 2.1 billion dollars.<sup>15</sup> These figures draw attention to the importance of preventing children from becoming obese adults. Furthermore, this information, combined with the estimated 82,000 children that may meet the criteria for the metabolic syndrome, forecasts an unhealthy and expensive future for Georgia and its’ citizens.

### RECOMMENDATIONS

*Severe overweight is associated with more physical and metabolic problems, a diminished quality of life<sup>19</sup> and increased health-care costs. Preventive measures need to be taken immediately to reduce the overall prevalence and severity of overweight. A statewide BMI surveillance system needs to be initiated to track youth over time and assist in identifying the most successful intervention strategies. Once successful interventions are identified, leadership and funding support through public and private commitments are needed to ensure the long-term application and success of these programs.*

*Additional PLAY policy briefs with recommendations for addressing the problem of childhood overweight are available at <http://publichealth.gsu.edu/Play/Index.html>*

- Addressing Overweight: The Role of Physical Activity in Schools*
- Addressing Overweight: Interventions Tailored to the Rural South*
- Addressing Overweight: The Role of Physical Activity – Findings from a Strategic Planning Summit*



*The severity of overweight among children in Georgia is over two times higher than the current national average and over 7 times higher than the 1971 national average.*

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**References:** *References for this brief are available on-line at <http://publichealth.gsu.edu/Play/Index.html>*



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