

# Child Obesity in South Korea and Possible Solutions

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**Abstract.** Despite the vast studies done on the subject of obesity and its possible solutions, a practical solution has yet to be implemented in society. Most people in modern society believe that the issue of obesity is limited to the responsibilities of individuals, and therefore, these people assert that the society has no obligation to fight the problem as a whole. As a result of this wrong and harmful perception, the child obesity rate in South Korea has been skyrocketing over the past few years. Compared with 10% of children obese in 2007, the child obesity rate has reached approximately 15% as of 2010. This study will provide a holistic approach in order to combat the problem of child obesity specifically in South Korea. By analyzing the specific causes for child obesity, this study goes beyond simple generalizations. In addition to original methods tested on a few subjects, this study will illustrate prior physical exercise programs that researchers endorsed to be successful. This study is a vital part of the growing global trend in the fight against child obesity, and will certainly contribute to future research in similar fields.

**Keywords:** Obesity, Childhood Obesity, Hereditary, Apnea, Diabetes Mellitus Type 2, Physical Exercise

## 1. Introduction

Because of convenient lifestyles directly caused by rapid industrialization, many people have been able to live comfortably. However, due to these changes, many people have been eating more unhealthy food while exercising less, thus, leading to a sharp decrease in average energy consumption. As a result, obesity rates are increasing all over the world, and the problem has exacerbated to a degree that child obesity rate is skyrocketing. Recently, studies have shown that over 10% of the world's children are obese or overweight. Specifically in South Korea, 15.4% of the male high school student population is overweight, and 13.1% of the female high school student population is overweight, which indicates a gradual increase over the last few years (Ministry of Education Science and Technology, 2009)

The main reason that many people are concerned about child obesity is that approximately 80% of obese children remain overweight throughout the rest of their lives (Park Hye Soon, 1998). Therefore, it is crucial that obese children recognize the gravity and implications of obesity and try to lose weight. Furthermore, excessive body weight is associated with various diseases, particularly cardiovascular diseases, diabetes mellitus type 2, obstructive sleep apnea, various types of cancer, and osteoarthritis (Must et al., 1992). Thus, obesity reduces life expectancy and increases the probability of an early death. In 2006, Choi Tae In and others researched about the relationship between child obesity and diseases. According to Choi's findings, 8 out of 10 obese children (76.5%) have a condition called hyperlipidemia, which causes an abnormally elevated level of lipids in the blood. Also, obese children were found to be thirteen times more vulnerable to diseases than healthy children.

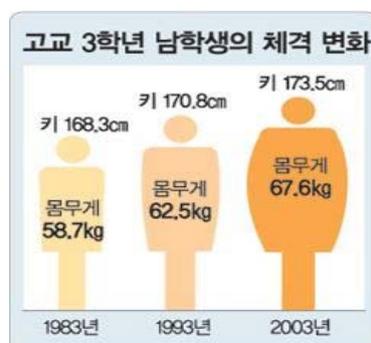


Fig 1: Changes of Body Structure in South Korean Male High School Senior Students Over the Past Two Decades

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According to many findings and research, regular exercise is the key to the problem of obesity (Watts et al., 2004; Humphries et al., 2002). Regular exercise leads to a healthy cardiovascular system, high self-esteem, and strong stamina. More importantly, regular exercise for children can be the stepping stone for healthy habits they need to adhere to when they grow up. Opportunities of exercise during adolescence can lead to a healthy life in adulthood.

This research paper will deal with specific ways that can work to tackle the problem and implications of child obesity. Specifically, this research paper will first analyze the causes of child obesity, then, observe physical activities that influence obese children, and finally propose effective measures to decrease the child obesity rate.

## **2. Specific Causes of Obesity**

There are two main causes for child obesity: hereditary and environmental. The main factors that compose the environmental cause for obesity are lack of physical exercise and overconsumption of calories (Muecke, 1992). Today, children are eating unhealthy junk food, watching too much television, using the computer too much, and not exercising enough. All these factors are contributing greatly to the high child obesity rate.

### **2.1. Hereditary Factor**

Genetics is known to have a significant amount of influence on a person's body structure. Hereditary features such as heavy muscle and bone structure lead to an overall increase in body weight. Obese children usually have obese parents. According to statistics, if both the father and mother are obese, approximately 75% of their children are obese, if only one parent is obese, approximately 50% of the children are obese, and if both parents are not obese, less than 9% of the children are obese. Thus, if a mother is obese, the probability of her child being obese is two times higher than that of a healthy mother. One major cause of this phenomenon is that obese parents are less likely to respond to their child's weight control problems. According to a study done by Strauss and Knight, the degree of obesity of children aged from 0 to 8 and the degree of obesity of their mothers were found to be proportional to a certain degree, indicating validity in the argument about hereditary factors.

### **2.2. Environmental Factor**

Because of economic prosperity, many families have taken up lifestyles that enjoy eating in restaurants, where food is sometimes cooked with unhealthy oils. Other than unhealthy eating habits, lack of exercise is also a major factor in causing obesity.

#### **2.2.1 Unhealthy Eating Habits**

In a study done on the relationship between obesity and eating habits (Xavier and Sunyer, 1991), it is stated that irregular eating habits, overeating, too much carbohydrates, and too much junk food are all vital factors of obesity.

If the energy saved is more than energy used, stored body fat increases. In recent years, due to economic prosperity, families have been purchasing food with high calories. Moreover, many people have become accustomed to fast food or junk food. It is said that obese children eat a lot of junk food such as canned ham, packed sausage, ramen, and other fast food. Moreover, they have irregular eating patterns, eating at times when unnecessary.

Irregular eating patterns and skipping breakfast is also closely linked with obesity. Eating a large amount of food at one time rather than splitting the portions leads to a higher chance of becoming overweight. Therefore, in order to prevent obesity, eating regularly (three times a day) is recommended. Many people make the mistake of skipping a few meals and eating quite a lot at once. Also, eating fast also contributes to obesity with a certain degree (Moon Kyung Rae, 2004). Overall, in order to prevent obesity at a young age, a healthy eating habit needs to be promoted, including regular eating patterns, and proper eating manners.

#### **2.2.2 Lack of Physical Exercise**

A lack of physical exercise has many implications. Not only does energy consumption decrease, but complications in metabolism occur, causing a transformation of stored energy to body fat. Overconsumption of calories and lack of exercise are two main causes of obesity. However, in the case of children, lack of physical exercise is the leading factor in causing obesity. Rather than walking, many children today use the bus or take the car to travel. Moreover, the environment that many children live in does not promote physical education, only suggesting overly competitive academic activities. According to Wilson (1969), 80-86% of obese adults were obese when they were young. Moreover, these adults were found to enjoy sitting inside and watching the television rather than going outdoors to exercise. Also, television hours are proportional to the degree of obesity. The more a child watches the television, the more he or she is likely to become obese. More television directly leads to less exercise, which in turn leads to an increase in insulin inside the body. This results in a chain reaction that ultimately increases the amount of body fat.

### **3. Benefits of Physical Activity**

Being physically active is not only important, but it is a fundamental part of staying healthy and fit. Therefore, it is obvious and undoubted that physical activity should be the core of solving child obesity. According to various researches done by different research groups, international health priorities can all be addressed with sufficient and adequate physical exercise. Surprisingly, physical exercise does more than just help individuals stay healthy. Physical activity provides a range of social, environmental, and economic benefits and therefore has an important role in the wellbeing of all individuals, including obese children.

#### **3.1. Physical Health Benefits**

Physical health benefits of participation in physical exercise include:

- Reduction in risk of heart disease by as much as half;
- Better recovery from a heart attack and reduced risk of having a second heart attack;
- Reduced risk of stroke, a rupture of a blood vessel in the brain resulting in loss of consciousness;
- Reduced risk of having high blood pressure and high cholesterol;
- Prevention and treatment of non-insulin dependent diabetes;
- Reduced risk of developing and dying from some cancers, such as colon and breast cancer;
- Prevention of obesity and weight issues;
- Decreased body fat;
- Increased lean muscle, muscle strength, and bone density;
- Reduced risk of chronic disease and death;
- Stronger immune system;
- Increased energy; and
- Improvement in sleep.

The fact that physical activity helps prevent weight issues, decreases body fat, and increases lean muscle leads to the conclusion that physical activity definitely plays a fundamental role in tackling child obesity.

#### **3.2. Physical Health Benefits for Children**

Physical exercise also has specific benefits for children. These benefits include:

- Improved fitness, strength, flexibility, and coordination;
- Improved general health and assistance in weight management;
- Development of a wide range of motor abilities;
- Healthy growth and development of the cardio respiratory system as well as the bones and muscles of children; and
- Establishment of healthy behaviours that young people will continue throughout their lives, such as better eating habits and regular exercising habits.

These specific benefits help address the narrow perspective of this study's topic, which is focused on child obesity. Therefore, benefits that physical activity brings definitely outweigh the possible harms that can arise from physical exercise. Moreover, it clearly shows that physical exercise is the key to solving obesity problems in the status quo.

## 4. Practical Solutions

The Korean Society for the Study of Obesity recommends specific exercise for each category of obesity:

- 150% of Standard Weight: jogging lightly, treadmill, walking up and down stairs, roller skating, badminton, swimming, dancing, table tennis
- 150-200% of Standard Weight: swimming, using the biking machine, aerobic stretching, walking lightly
- Over 200% of Standard Weight: stretching while sitting, aerobic exercises, special help from expert regarding specific exercise such as but not limited to:
  - Aerobic exercise: jogging, swimming, hiking (helpful for burning fat)
  - Muscular exercise: sit-ups, push-ups, weight lifting. (reducing fat by increasing muscle ratio)
  - Stretching exercise: reduces risk of injuries while exercising, and collaborates with other types of exercise

Possible Plan for Obese Children

Monday- stretching (increases flexibility and body balance)

Tuesday- soccer, throwing and catching a ball (increases stamina and dexterity)

Wednesday- jump rope, jumping on a bed, balloon volleyball (increases agility)

Thursday- biking, roller skating (reducing fat through aerobic exercise)

Friday- pull-ups, push-ups, sit-ups (increasing muscle strength through anaerobic exercise)

## 5. Conclusion

This journal discussed the specific causes for child obesity in South Korea, and then proposed possible solutions for the problem of the status quo. Research tells us that regular exercise decreases the probability of getting diseases directly linked with obesity. In conclusion, regular exercise leads to not only decrease in body weight, but it also leads to a decrease in harmful factors that arise due to obesity. Moreover, a decrease in overall obesity will definitely contribute to a healthy society.

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