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# Obesity Among Persons with Spina Bifida

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Individuals with Spina Bifida, specifically those with myelomeningocele (MMC), have a higher risk for obesity as compared to their peers<sup>1</sup>.

## How does obesity develop?

All energy intake comes from food that is eaten (measured in calories) and then used by the body to meet its needs. Obesity is affected by multiple factors, such as genetics, hormones, food intake and activity. Obesity results when a person's intake of calories exceeds his or her energy needs for bodily functions (metabolism, physical activity, the thermal effect of food, and growth). Similarly, weight loss results when the body uses more calories than are taken in through eating. On average, most (about 60%) of our energy is used for basic metabolism (which is controlled in part by inheritance). Physical activity uses about 25%, the thermal effect of food about 10%, and growth about 5%. Our bodies do a good job of balancing short-term excesses in both energy intake and use. Continued excessive intake, however, will lead to storage of energy in the form of fat which causes weight gain; and continued insufficient intake will force the body to use stored energy (fat and other tissue like muscle) for the calories it needs to function resulting in weight loss.

## How is obesity determined?

Obesity can be determined in a number of ways. Body Mass Index (BMI) is a number calculated from a person's weight and height. BMI can provide a generally reliable indicator for most people or to monitor trends in weight status. The categories that may lead to health problems are overweight and obese. Adults with a BMI over 25 are classified as overweight; and adults with a BMI over 30 are classified as obese. BMI is different for children and adults. A child's height and weight are used in a calculation that provides a percentage. Children whose weight for height exceeds the 95th percentiles are of concern. BMI is not a direct measure of body fat percentage- it is calculated from an individual's height and weight which includes both muscle and fat.

It may be difficult to get an accurate measure of height in a person with Spina Bifida, so alternative methods of measuring height (e.g., recumbent length, arm span) have been used as substitutes. Beyond BMI, there are various methods to measure body composition (fat, bones, muscle), but these methods are often not feasible or cost-effective to do in a clinical setting. Another method is to use calipers to measure skin-folds and plot the results against standardized charts.

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<sup>1</sup> [Weight Status of Children Participating in the National Spina Bifida Patient Registry](#)

Michele Polfuss, PhD, RN, APNP-AC/PC; Tiebin Liu, MSPH; Kathryn Smith, RN, MN, MS, DrPH; Pamela S. Murphy, MD; Elisabeth Ward, RN, MPH; Judy Thibadeau, RN, MN; Nienke P. Dosa, MD, MPH; Yinding Wang, MSPH, PhD; Kathleen J. Sawin, PhD, CPNP-PC, FAAN



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The National Center for Health Statistics / Centers for Disease Control (NCHS/CDC) has several growth charts and calculators that may be helpful<sup>2</sup>. Children whose weight for height exceeds the 95th percentile are overweight, and those who fall between the 85th and 95th percentiles are of concern.

## **What are the health concerns for people who are obese?**

Individuals with obesity are at risk for: hypertension, dyslipidemia (high LDL cholesterol, low HDL cholesterol, or high levels of triglycerides), type 2 diabetes, coronary artery disease, stroke, gallbladder disease, osteoarthritis, sleep apnea, respiratory problems, some cancers (endometrial, breast, and colon), fatty liver disease, and psychological problems.

Psychological problems are of special concern for individuals with obesity, as they may be at risk for stigma by others and could develop poor self-esteem, greater risk for isolation from peers, and depression. In some families, food is used to try to compensate for the child's disabilities.

Very young children who have Spina Bifida usually grow at about the same rate as their peers that don't have Spina Bifida and are quite physically active. Habits that start in childhood become ingrained and can support excess weight as the child ages. Additionally, obesity that starts in childhood, often continues or increases into adulthood.

## **Special concerns for individuals who have Spina Bifida**

Obesity causes greater health problems for people who have Spina Bifida. Obesity further limits mobility and the ability to manage activities of daily living. This leads to a spiraling problem of decreased energy use and weight gain, making it harder to keep up in social and work situations. Obesity puts more pressure on skin, thereby increasing the already high risk of skin breakdown, particularly in areas that hold moisture.

Activities of daily living, particularly independence in dressing, continence management and hygiene, may be negatively affected by difficulties in moving a large, heavy body as well as decreased ability to reach private areas of the body. Furthermore, feelings of self-worth may be very low in people with obesity; and that can negatively affect social and emotional functioning.

Neurological impairments that lead to mobility problems make it harder for individuals who have Spina Bifida to be physically active. Due to the requirements of school and work; and due to the increasing difficulty of moving a larger body that has a mobility impairment, school age children who have Spina Bifida typically become less active as they grow older. Small children grow rapidly, so they require a large number of calories for growth. Older children and adults have slower growth, and on average will not become as tall as their peers who do not have Spina Bifida. This means that people with Spina Bifida have fewer nutritional requirements for growth. People with Spina Bifida have less lean body mass than their peers, and even when other factors like physical activity are equal, have a lower basic metabolic rate (fat cells have slower metabolic rates than other cells like muscle cells).

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<sup>2</sup> <http://www.cdc.gov/nccdphp/dnpa/obesity/index.htm>



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With increasing weight, pressure is placed on areas of the buttocks, legs and back that may promote skin breakdown. Data collected by the SBA and CDC suggest that about 20 percent of adult patients develop wound problems annually, most on areas exposed to pressure or shearing. Obesity significantly increases the risk, severity, and time to resolve pressure-related wounds. It can also complicate treatments, like surgical flaps to cover wounds.

## **Preventing obesity – a family affair**

Prevention of obesity is the only sure method of promoting optimal nutritional health. Preventing obesity for individuals who have Spina Bifida is a family affair that must begin early in a child's life and continue indefinitely. Fortunately, if healthy eating and exercise habits begin early, they can become part of a very enjoyable lifestyle, rather than one that is perceived as a life of deprivation.

Most eating behaviors and food likes and dislikes are learned in the context of home and family. Thus, by modeling and teaching healthful eating habits, family members have a chance to improve the child's health. This may be difficult, especially for families where eating patterns and genetic factors have led to obesity being commonplace. When a child has Spina Bifida and family members are somewhat frustrated by their inability to correct their child's underlying disabilities, making this contribution to health and well-being can be very challenging.

## **What are some strategies for success?**

The most helpful strategy for preventing obesity is to help the child view food as a necessity for growth and activity rather than as a reward for managing the difficulties of daily living. The goal is to condition the child to perceive food not as an emotional, but rather a physical, necessity.

Children can learn about good nutrition as they help plan family meals and shop for ingredients. It is important to prioritize the purchase of nutritionally sound, healthy food. Most food servings should come from fruits, vegetables, bread and cereals, fewer from dairy products and meats, and only a small amount from fats, processed sugars and other carbohydrates. Food should be eaten at regular times during meals that are pleasant and that take enough time for individuals to eat slowly and realize when their hunger has been satisfied.

It is important to monitor portion sizes. Our portions have become larger or "super-sized," and therefore we may eat more at a sitting. Treats and snacks should be limited to times when a little extra energy is really needed and should be both nutritionally sound and enjoyable. Food and visual reminders of food should be removed from the environment and other cues for increasing enjoyment of life, such as posters about exercise or hobbies, should be substituted. Entertainment should rarely center on food or meals. Children should receive only non-food rewards for positive behaviors. Children need to learn to distinguish between boredom and hunger; and to enjoy foods other than those with high fat or high sugar content. Studies reveal that if such foods are strictly limited from our diets, we lose our taste for them and crave them less and less.

Help children who have Spina Bifida enjoy exercise. Physical activity has two benefits; it burns calories and decreases hunger by building muscle mass. Most physical activities that other children enjoy can be adapted for children who have mobility impairments. Horseback riding, tennis, swimming, and wheelchair sports, like



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basketball and track, are life-long activities that most children love and families can enjoy together. Community organizations such as the YMCA should be encouraged to create such opportunities for individuals who have physical disabilities. Small children can be even more active as they learn to complete some helpful tasks around the house. Such activities not only burn calories, but also help children feel good about themselves as capable people who can help others. Watching television or sitting in front of a screen are activities that demand few calories, and should be limited.

## **I'm obese. How do I lose weight?**

Once people with Spina Bifida become obese, it is even harder for them to lose weight than it is for others. It is not impossible, however! If an individual is motivated to lose weight and limits caloric intake while also increasing exercise, weight can be reduced. The assistance of a nutrition consultant may help in such cases. Weight reduction strategies should be started one by one, so the individual and family can become used to new patterns of living. Trying to do too much at once is often overwhelming and self-defeating. Talk with your medical provider!

Any weight reduction contributes to good health and should be celebrated (but not with food)! Losing weight should be done in small measures, so may take a long time. The benefits of healthy eating and sufficient exercise for individuals who have Spina Bifida are numerous and important, and last throughout life. Perhaps no other single intervention will make such a positive contribution to long-term good health and quality of life.

## **Additional resources**

- My Plate – U.S. Department of Agriculture: <https://www.myplate.gov/>
- National Center on Health, Physical Activity and Disability: [www.nchpad.org/](http://www.nchpad.org/)

*This information does not constitute medical advice for any individual. As specific cases may vary from the general information presented here, SBA advises readers to consult a qualified medical or other professional on an individual basis.*