



## Obesity in WAGR Syndrome

Obesity (defined as an excessively high amount of body fat in relation to lean body mass) has become an epidemic in the United States and in many other countries. In both children and adults, obesity increases the risk of diabetes and many other serious health problems.

Individuals with WAGR syndrome are at risk for obesity. There are probably a variety of reasons for this, including poor diet and low activity/exercise levels. However, it appears that there may be other factors contributing to the risk of obesity in some individuals with WAGR syndrome, especially those with “early-onset overweight,” (being overweight at a very young age).

One factor under study involves a protein called “brain-derived neurotrophic factor,” or BDNF. BDNF is found in a wide range of tissues and cell types in the body. It is especially important in the brain, but has effects in many other areas as well. It is thought that one of the effects of BDNF may be to help regulate appetite and eating.

Some people with WAGR syndrome have a genetic deletion which includes the gene for BDNF, and thus may have low levels of BDNF in their bloodstream. Research investigators are currently trying to determine whether these low levels of BDNF may contribute to early-onset overweight and obesity in WAGR syndrome. In time, this research may lead to effective treatment for these problems.

You can learn more about this research in the file: “Research – NIH Announcement.”

Reference Articles on Obesity and WAGR syndrome:

WAGR(O?) syndrome and congenital ptosis caused by an unbalanced  $t(11;15)(p13;p11.2)$ dn demonstrating a 7 megabase deletion by FISH. Lennon

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Clinical, cytogenetic and molecular characterization of a patient with combined succinic semialdehyde dehydrogenase deficiency and incomplete WAGR syndrome with obesity.

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Genetic and hereditary aspects of childhood obesity. Farooqi IS. Best Pract Res Clin Endocrinol Metab. 2005 Sep;19(3):359-74. Review.

Combination of WAGR and Potocki-Shaffer contiguous deletion syndromes in a patient with an 11p11.2-p14 deletion. Bremond-Gignac D, Crolla JA, Copin H, Guichet A, Bonneau D, Taine L, Lacombe D, Baumann C, Benzacken B, Verloes A. Eur J Hum Genet. 2005 Apr;13(4):409-13.

Morbid obesity and hyperphagia in the WAGR syndrome. Amor DJ. Clin Dysmorphol. 2002 Jan;11(1):73-4.

Third case of WAGR syndrome with severe obesity and constitutional deletion of chromosome (11)(p12p14). Gul D, Ogur G, Tunca Y, Ozcan O. Am J Med Genet. 2002 Jan 1;107(1):70-1.

Obesity and WAGR syndrome. Tiberio G, Digilio MC, Giannotti A. Clin Dysmorphol. 2000 Jan;9(1):63-4.

Obesity: a new feature of WAGR (del 11p) syndrome. Marlin S, Couet D, Lacombe D, Cessans C, Bonneau D. Clin Dysmorphol. 1994 Jul;3(3):255-7.