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The Binge Eating Prevention Plan

Anorexia Nervosa: More Than Just a Psychological Disorder?

Underlying genetic influences and a potential metabolic link offer hope.

Posted June 21, 2022

 Reviewed by Michelle Quirk



KEY POINTS

- Recent research implies that low BMI and compulsive exercise may be related to both psychological and metabolic dysregulation.

Genome-wide association research may lead to more effective treatments and a more compassionate perspective.



By Gid Marston, Ed.D.

People always ask, 'Is it possible to recover from this illness?' And yes, it is possible to recover from this illness at any age, but it still remains part of your health legacy. And if you are biologically prone to like that state of negative energy balance that can still represent a risk state for you....So we strongly encourage people to always be mindful that negative energy balance is really a potential trap for relapse for them.

—Cynthia Bulik, Ph.D.

Anorexia Nervosa and Our Modern Society

Hospitalizations for adolescents with eating disorders rose more than 25 percent since March of 2020, based on records from 80 hospitals. And The National Eating Disorders Association experienced a 58 percent increase in call, text, and chat volume during the year leading up to October 2021. These numbers are just part of the growing crisis in mental health, especially for adolescents who make up 95 percent of

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Anorexia nervosa is a prevalent eating disorder in which individuals fear weight gain and, as a result, tend to heavily restrict their food intake. As with other eating disorders, anorexia nervosa usually has a negative impact on a person's physical, mental, and social well-being. Rather concerning, this particular eating disorder has a high fatality rate among psychiatric conditions, especially for males, and current treatments don't always work.

In a recent article that appeared in the *Journal of Eating Disorders*, Gaudiani et al. (2022) even proposed a set of clini-

Because some of the underlying factors contributing to the onset and maintenance of anorexia nervosa aren't yet fully understood.

It is important to note that although a major indicator of anorexia is a low body mass index (BMI) score, you cannot tell whether someone has an eating disorder by simply looking at them.

A Deep Dive Into the Genes Related to Anorexia

Previous studies investigating the underlying causes of anorexia suggest a large genetic component. For example, twin studies have demonstrated that up to 60 percent of anorexia development can be explained by genetics. The study discussed herein aimed to dive even deeper into these findings.

Researchers undertook a genome-wide association study (GWAS for short), which aimed to reveal the genetic variations (alleles) that are common and unique in individuals with anorexia nervosa. The study was rather large, including nearly 17,000 patients with anorexia nervosa and approxi-

In examining the genetic makeup of these participants, eight locations (loci) on their chromosomes were identified. These correlated with an anorexia nervosa diagnosis. Upon further examination, the researchers were able to narrow it down to four loci with the single genes *CADM1*, *MGMT*, *FOXP1*, and *PTBP2*.

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Influence of Genetic Variations on Characteristics of Anorexia Nervosa

tested against the physical and mental presentation of anorexia nervosa, these genes were found to influence four important anorexia-related traits: psychiatry/personality, physical activity, anthropometry (related to the proportions of the human body), and metabolic traits. Here is what the research unveiled:

Some of the examined anorexia nervosa–correlated genes are also prevalent in other psychiatric disorders, including obsessive-compulsive disorder (OCD), depression, anxiety disorders, and schizophrenia.

The Genetic Influence on Physical Activity and the Symptom of Excessive Exercise

Possibly most interesting of all is the significant genetic influence on anthropometric and metabolic traits. Researchers found negative genetic correlations with fat mass, fat-free mass, BMI, obesity, type-2 diabetes, levels of insulin when fasting, insulin resistance, and leptin (a hormone that regulates fat storage). These genes also influence high-density lipoprotein (HDL) levels. (HDL transports cholesterol to the liver.) These findings signify that there may be a strong metabolic origin for the development of anorexia.

underlying anorexia and BMI. They found that the genetic variations associated with anorexia may increase the risk of having a low BMI and that genetic variations associated with low BMI may increase the risk of developing anorexia.

The expression of anorexia-associated genes is widespread in most of the brain, with the highest concentration in medium spiny and pyramidal neurons in the hippocampus. Why does this matter? Because these cells are extensively related to feeding behaviors, in particular the motivation to eat and the rewarding characteristics of eating.

What Does This All Mean?

Primarily, this study should prompt health care professionals and the rest of society to change the way they consider anorexia nervosa. For instance, low BMI is commonly considered a consequence of the psychiatric nature of anorexia. However, individuals often struggle to gain and maintain a healthy weight while simultaneously struggling to recover psychologically. This study implies that if we consider BMI and other aspects of anorexia as related to both psychologi-

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In short, these results offer us a bounty of helpful information that can reduce shaming and blaming those with anorexia nervosa, for whom eating enough and weight gain is particularly difficult and aversive. To expand successful treatment and to offer a more compassionate perspective to those with anorexia nervosa, it's helpful to understand the fundamental psychiatric and metabolic underpinnings of this serious illness.

I believe that one of the fundamental reasons that we feel stressed in recovery is because we forget

and true.

—Tabitha Farrar

While anorexia nervosa and these findings remain complex, this research offers new pathways for help and another thread of hope for recovery.

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