# **Protect your Children: The Commonality of Eating Disorders in Dancers**

# Emma Maria Bryant

# Longwood University

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# Dr. Mary Tackett

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**Abstract**

The feeding center of the brain is found in the hypothalamus which is divided into two sections. The hormone dopamine is released in the hypothalamus when signaling hunger. With the high pressures of the dance world, many negative outcomes are present. Different threats, like sexual abuse and grooming, have also been found to be common in the dance world. With these threats and pressures to succeed, negative outcomes are inevitable. A correlation between dance and eating disorders has been found because of this immense pressure. As a result, dancers may experience emotional detachment issues because of an unhealthy relationship with their weight.

*Keywords: Perfectionism, Anorexia, Feeding, Dance, and Hypothalamus*

**Protect your Children: The Commonality of Eating Disorders in Dancers**

Dance is a very grueling and draining artform and sport. It is mostly a mind game that is played with a dancer that results in an immense drive to succeed. This drive can become very toxic if dancers begin to become obsessive over perfection. Perfectionism is a very common theme amongst dancers of any age resulting in a lack of self-esteem in many skills. This may cause other mental health issues that may influence their cognitive, physical, and emotional development. With this in mind, is there a correlation between eating disorders and perfectionism with dancers?

**Background**

An eating disorder is a psychological disorder that is characterized by atypical feeding habits as well as restrictive eating. These include anorexia nervosa, bulimia, and binge eating disorders. Eating disorders stem from the hypothalamus of the brain where dopamine is either released or inhibited from being released. The Hypothalamus also has a direct relation to perfectionism as well. Perfectionism is very common in dancers because there is a universal strive to succeed in this artform. Unfortunately, this strive for perfection can become obsessive and toxic resulting in unrealistic standards of oneself. In the dance world, there is definitely a drive to be thin. This pressure can often lead to unhealthy eating habits that can be fatal.

**Research Question**

This research focuses on finding if there is a direct correlation between dance and eating disorders and if this disorder affects cognitive and emotional development later in a person’s life.

**Research Criteria**

When conducting research, the main focus was on eating disorders in high school and college age dancers. The location of where the dancers was not country specific. The focus was in many different locations because the pain a dancer endures daily is the same around the world so, it was only right to research dancers from around the world. Some key phrases that were used to find the scholarly articles were “Dance AND ‘Eating Disorders’”, “Perfectionism AND Dance”, “’Feeding Center’ AND Brain”, and “’Eating Disorders’ AND ‘Feeding Center’”.

**Literature Review**

Eating disorders fall under the category of psychological disorder. According to the article *Anorexia nervosa, perfectionism, and dopamine d4 receptor* written by Rachel Bachner-Melman, eating disorders are the result of not only brain chemistry and genetics, but environmental factors as well (Bachner-Melman et al,, 2007). They found a correlation in their research between perfectionism and eating disorders in the women that they studied. The goal of their research was to find why this was the case.

The researchers began by stating what information they already knew about the feeding center of the brain and how it affects a person’s feeding. They explain that dopamine is the primary hormone that is seen in the feeding center of the brain (Bachner-Melman et al., 2007). The researchers also mention the DRD4 gene that is linked between not only feeding, but perfectionism as well.

The researchers conducted their findings by recruiting high achieving college students to be screened for anorexia nervosa (AN). They used their findings and correlated it with the Self‐Oriented Perfectionism Scale to find a correlation between the DRD4 gene and anorexia nervosa. (Bachner-Melman et al., 2007). Bachner-Melman says:

Since perfectionism is a personality feature that underlies AN, we examined association in the AN group between the DRD4 gene and scores on the Self-Oriented Perfectionism Scale, towards understanding by which pathways sequence variants in this gene may be translated into pathological eating behavior (Bachner-Melman et al., 2007 n.p).

The researchers found a very large correlation between the DRD4 gene, perfectionism, and eating disorders so they concluded that those with the DRD4 gene are more susceptible to developing mental health issues and eating disorders. The article outlines that having the DRD4 gene does not automatically entail mental illness, but it may put a person at a higher risk of developing one.

Similarly, the article *Hypothalamic feeding mechanisms and amphetamine anorexia* written by Sherwood Cole (1973),also discusses the feeding center in the brain and how it can correlate directly with anorexia nervosa however, this article focuses on different aspects of the feeding center. First, it discusses the role the hypothalamus plays in brain activity. The main function of the hypothalamus is to control the autonomic nervous system, as well as regulate hormones throughout the body (Cole, 1973). The hypothalamus also houses the feeding center of the brain. Next, the hypothalamus is divided into two different sections, the ventromedial and lateral regions. The author, Sherwood Cole says: “These regions have been referred to as the “satiety center" and "feeding center" of the hypothalamus, respectively” (Cole, 1973, p. 13) reiterating the idea that the feeding center is located in the hypothalamus.

Cole (1973), was able to find the connection between the ventromedial and lateral regions of the brain as different feeding centers by experimenting on rats. First, they sent electrical stimulation to the ventromedial region of the hypothalamus. They found that this shock inhibited the brain to “adjust food intake to the energy needs of the body” (Cole, 1973, p. 14) meaning that the ventromedial or satiety region is the food intake center. Next, they used the same methods on the lateral region of the hypothalamus. It was discovered that the test subject ended up starving to death because the subjects felt no impulses to eat (Cole, 1973).

At the end of the researcher’s study, they concluded that feeding is not just a biological component, the environment plays a large role as well. The article *Anorexia nervosa, perfectionism, and dopamine d4 receptor* similarly came up with the same conclusion confirming the hypothesis that feeding and restriction of feeding is both an environmental factor and a genetic one.

On the other hand, the article, *Prevalence of eating disorders amongst dancers: A systemic review and meta‐analysis* written by Jon Arcelus, Gemma Witcomb, and Alex Mitchell( 2014)*,* wanted to study to see if there was a correlation between female dancers and anorexia nervosa. The writers believe that there is naturally a correlation between models and athletes, so they decided to apply the findings in this study to see if the same applied to, specifically, dancers (Arcelus et al., 2014).

They conducted their research by screening dancers and non-dancers to conclude for two outcomes. The first outcome is to see how many dancers are diagnosed with anorexia nervosa at the time that the study was conducted. The second outcome is to find the average severity of the diagnosed eating disorders and compare those results with the results from the non-dancers (Arcelus et al., 2014).

The researchers in this study discovered that 16.4% of the female dancers were found to have an eating disorder or have struggled with one in the past. The researchers found that “general dancers had more than twice the risk of developing an eating disorder and more than three times the risk of developing AN (Anorexia Nervosa) and EDNOS (Eating disorder) than non-dancers” (Arcelus et al., 2014, p. 8). Arcelus has a rationale as to why this was found to be true. He says that dancers learn how to normalize pain and that there is a similar mindset to stay thin. If a dancer gives into pain, he/she may feel inferior. Similarly, if a dancer does not always fit the stereotypical dancer body type, he/she may feel inferior by not trying to fit this standard (Arcelus et al., 2014). Arcelus also attributes the high risk of developing eating disorders in dancers to critical commentary and low-self-esteem. This study is very adamant that eating disorders in dancers are the cause of the surrounding high stress environment compared to the other studies that believe that there is a biological component as well.

Similarly, the article *Two-phase survey of eating disorders in gifted dance and non-dance high-school students in Taiwan* by Meg Mei-Chih Tseng (2007), also studied high achieving students but focused on dancers. The researchers hypothesized that “other than the common correlates of ED, overweight might make subjects in a dance class have a tendency to develop EDs under the sociocultural pressure to be thin” (Tseng et al., 2007, p. 1086). They asked their dancers as well as their non-dancer control group to complete the Eating Attitudes Test and the Bulimic Investigatory Test Edinburgh to conduct their research (Tseng et al., 2007). Because this study was conducted in Taiwan, the researchers had to take into account that eating disorders are rare in Asian countries.

The researchers results showed that though there was a statistical correlation between dancers and different eating disorders, they found that parental income and education also played a large role in eating disorders in the non-dancers as well. The article says “lower parental education, higher body shape concern, and lower family support remained significantly associated with an increased risk for EDs in the non-dance students. Overweight, more psychological symptoms, and weight reduction practices of close relatives were associated with EDs only for the dance students, whereas lower parental education was associated with EDs only for the non-dance students” (Tseng et al., 2007 pg. 1091) meaning that eating disorders can be formed in any high stress situation and not just in the high pressure dance world.

The researchers concluded that eating disorders are more prevalent in dancers because of the reasons that individuals develop eating disorders. Generally, the reason for these mental illnesses is because of the high pressure to be thin and have a certain body type. There is a large pressure in the dance community because of the stereotype to be thin resulting in a dancer’s drive to be thin.

Likewise, the article *Perfectionism and learning experiences in dance class as risk factors for eating disorders in dancers* written by Kylie J. Penniment & Sarah J. Egan also supports the hypothesis that there is a correlation between dancers and eating disorder symptoms (Penniment & Egan, 2012). The goal of their research was to find the reason for this and to hopefully find a way to minimize the correlation between dancers and eating disorders. The article says, “If they apply high levels of perfectionism to dance and body shape, then the combination of sociocultural pressures for thinness inherent in the dance profession combined with expectations of high performance produce the ideal social climate for development of ED” (Penniment & Egan, 2012 pg. 13) stating that it is because of a dancer’s environment. This statement reiterates the common correlation found in each of the studies.

The researchers conducted their study by sampling and screening five-hundred college aged dancers for an eating disorder and found that there was a relationship. They found that in a dance classroom setting, many dance teachers promoted thinness and weight loss resulting in restrictive eating in dancers (Penniment & Egan, 2012). They also found that perfection striven dancers are most likely to adopt eating disorders because it can be weight driven. The researchers found a large relationship between the perfectionism and the eating disorder test scores showing that there is some correlation.

It was concluded that the dance studio is not the reason for the correlation. It is the environment and atmosphere of the dance studio that is found to be the problem. The pressure that comes with the dance setting can be very stressful at times. Dancers should be protected from these stresses.

Like the *Perfectionism and learning experiences in dance class as risk factors for eating disorders in dancers,* the researchers, Maria Papaefstathiou, Daniel Rhind, Celia Brackenridge (2013). in the article *Child protection in ballet: Experiences and views of teachers, administrators and ballet students* seek to find the dangers that can come with the dance world. The article worries that because physical activity helps a young child develop physically and socially, they fear that a high stress environment could stunt this development (Papaefstathiou, Rhind, & Brackenridge, 2013). The purpose of this study is to see if there is more child protection needed to protect young children from abuse in sports more specifically, dance.

The article highlights that eating disorders are very common among female dancers. They do not believe it is directly a strict dance teacher’s fault if a student develops anorexia, but it has been found that dance teachers do not know how to act if they notice symptoms of restrictive or binge eating.The researchers also attribute a high rate of abuse in the dance world because of the “power imbalance” (Papaefstathiou et al,, 2013, p. 129) between a teacher and their students. There are many cases where a dance teacher asks the student to do something inappropriate, but the child does it anyway because they feel they cannot disobey an authority figure.

The results of this article’s study were mostly negative. They found that over half of the participants that were screened claimed they have endured pain because of body image expectations in the dance classroom (Papaefstathiou et al., 2013). The article then distinguished between healthy and negative practices of ballet that should be observed by different dance instructors to promote safe practices and mental health. They put an emphasis on being aware of child protection issues in sports and recognizing signs of it. It is important to protect the minds of young children and protect them from people who may have a negative effect on their physical and cognitive growth.

The article *Emotional development in eating disorders: A qualitative metasynthesis* by Ziporah B Henderson, John RE Fox, Penny Trayner,and Anja Wittkowsk (2019), similarly worries about the emotional development in children and teens that develop eating disorders (Henderson, Fox, Trayner, & Wittkowski, 2019). The study wants to target how individuals with eating disorders can control their emotions in social situations, how they handle themselves in negative emotional environments, as well as if it will inhibit their ability to fully be emotionally present even if they are able to recover from the eating disorder.

Their research found that most individuals who experienced an eating disorder, experienced a negative emotional environment in their childhood. This results in their inability for emotional stability and emotional recovery (Henderson et al., 2019). A poor emotional environment in a child may lead to poor emotional development and stability when they reach adolescence. The researchers in this article then found that those with an eating disorder may have a hard time expressing their emotions: “Individuals with an ED described how in general they found it difficult to identify, describe, and tolerate their own emotions. They appeared to experience emotions, and particularly negative emotions, as overwhelming” (Henderson et al., 2019 p. 447). This feeling of negative emotions can continue for the rest of their life if left untreated.

The researchers lastly discovered that a person who has anorexia, often base their emotional stability off their “Anorexic voice” (Henderson et al., 2019 p. 449). An anorexic voice is described to feel comforting at first, but then later, forces an anorexic individual to distance themselves from their loved ones and peers. The Anorexic voice is very common amongst people who have eating disorders which ultimately result in emotional instability as well as the likelihood of losing meaningful relationships.

**Findings**

According to the research that has been found, it can be concluded that eating disorderscan have detrimental effects on a person’s health, and if left untreated, can result in serious health issues. Restrictive eating may result in cognitive and developmental delays that may affect a person for the rest of their life.

It was also found that the feeding center of the brain is altered when an eating disorder is present in an individual. Those born with the DRD4 gene are more likely to develop eating disorders because of the gene’s correlation with other mental health disorders. With the discovery of the hypothalamus being the feeding center of the brain, it became easier and easier to locate the reason for these feeding restrictive tendencies.

There is a very clear correlation between dancers and eating disorders. With the high stress dance environment mixed with the strive and pressure to be perfect, it was only a matter of time before this came to realization. Many dancers also have a fixation on thinness and a drive to be the ideal dancer. Of course, women are all made differently, and they all have different body types so it is not right to assume that all dancers must be thin. With this stigma in mind, many dancers feel the pressure to fit this stereotype resulting in unhealthy eating habits to reach that standard.

Eating disorders in dancers have been found to have a large effect on a person’s emotional wellbeing. For those with anorexia nervosa, it has been proven that it is hard for them to express what they are feeling. They also often feel overwhelmed by their emotions and have no healthy way to express or control them. Because of the high stress environment of the dance world and with a combined biological component, the development of an eating disorder can cause many problems with a person’s health and well-being.

**Gaps in Research**

A piece of research that this essay was unable to find was if there was a change in brain chemistry in individuals who had eating disorders and if this change affects other brain functions as well. This would include how it affects the day to day life of a dancer with an eating disorder. It was also never concluded if an eating disorder is solely developed because of the environment or if it is the result of genetics. The articles touch on either one or the other but never specifically specifies if it is caused by one or the other.

**Future research**

For future research, narrowing the search even further would help find an even more specific conclusion. If the research was focused on a specific style of dance, it may also help specify the specific kind of perfectionism in question. Researching a specific eating disorder, anorexia nervosa etc., in dancers may also help come to a more coherent conclusion. No two types of eating disorders are the same so researching them as if they are the same can lead to inconclusive results.

**Conclusion**

With the fast-paced environment of the dance world, it is extremely easy for dancers to become overwhelmed with the expectations that they have for themselves. Unfortunately, in many cases, this pressure can result in eating disorders because of the pressure to fit the stereotypical dancer body type. Young dancers should be protected from this pressure because it may result in stunted growth.

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