

# Doping in Aesthetic Sports: A Body-Focused Perspective

Seppanen, Sophie.

**Abstract**—An aesthetic sport is one which is differentially focused on physical appearance during performance, often invoking a specific emphasis on the thinness of athletes' bodies (Sundgot-Borgen, 1994). Research on the use of performance-enhancing drugs (PEDs) (i.e., doping) in the context of aesthetic sports is currently lacking. This paper proposes that the unique focus placed on physical appearance lends itself to the differential manifestation of doping behaviours in these sports. Given that research on doping in non-aesthetic athletes is much more prevalent than in aesthetic athletes, this paper synthesizes the former with research on body-related psychopathology (e.g., disordered eating) in aesthetic athletes. Due to the conflation between performance and appearance (i.e., thinness) in aesthetic sports, it is proposed that doping is inherently linked to the desire to “improve” physical appearance during performance. This may lead aesthetic athletes to utilize weight loss drugs to a greater degree than other athletic populations. The current paper calls for further research on the interaction between body-related psychopathology and doping in aesthetic athletes to better protect this population from the potential consequences of both phenomena.

**Keywords**— *Doping, Aesthetic, Sports, Performance-enhancing Drugs, Appearance-enhancing Drugs, Body Image*

## I. DOPING IN AESTHETIC SPORTS: A BODY-FOCUSED PERSPECTIVE

Doping, i.e., the illicit use of performance-enhancing drugs (PEDs) in sport, has received an immense amount of media and research attention. Considerably less attention has been devoted to the ways in which athletes' motivations to dope may differ as a function of sport type. Understanding of doping motivations is particularly limited within the domain of aesthetic sports, i.e., sports that are subjectively judged based on athletes' ability to convey artistry and technical skill using their bodies (e.g., figure skating, gymnastics, diving; Kong, 2022). Aesthetic sports tend to value thinness, often leading young athletes to perceive a need to be thin in order to perform well (Francisco et al., 2012; Sundgot-Borgen, 1994; Voelker & Reel, 2015). Because of this conflation between performance and appearance (i.e., thinness), young aesthetic athletes' doping decisions are likely to be driven in part by a desire to be thinner. The current paper draws upon known cases of aesthetic doping, many of which involve classes of drugs often used for weight loss (e.g., diuretics and stimulants; Aguilar-Navarro et al., 2020); research on body-related psychopathology (e.g., disordered eating, weight preoccupation, etc.) in aesthetic athletes; research on doping in nonaesthetic athletes; and the limited research on aesthetic doping itself to propose that aesthetic doping is often

motivated by the cultural conflation between thinness and athletic success.

### A. Defining Aesthetic Sport

Prior to exploring the relationship between aesthetic doping and drive for thinness, it is important to define aesthetic sport as it pertains to this paper. To distinguish aesthetic sport as its own category, one may contrast it with non-aesthetic sport. Holt (2020) illustrates the difference between the two by noting that while it may be desirable in some instances, “aesthetic appeal” is not required in “purposive” (i.e., non-aesthetic) sport. Holt uses hockey as an example: scoring multiple goals, no matter what they look like, will always outweigh scoring a single goal, even if it is aesthetically appealing. Conversely, in aesthetic sports, aesthetics are the means by which elements are judged. A good example of this can be seen in the judging criteria for a camel variation spin in figure skating, wherein the grade of execution (GOE) score is negative if the position is “poor/awkward” or “[un-aesthetic]” (International Skating Union, 2024, p. 6). These criteria are subjective and focused on physical appearance, which unavoidably invokes criticism of the arrangement of an athlete's body when gauging athletic performance.

Sports commonly included under the *aesthetic* umbrella include figure skating, gymnastics, and diving (Kong, 2022). The current paper will also consider competitive and professional dance as aesthetic sports, given the importance of dancers' bodies to their craft; the high level of fitness required to be a competitive or professional dancer; and the perceived pressure, particularly within ballet environments, for dancers to be thin (Francisco et al., 2012). Despite the common view within dance communities that doping may not enhance performance to the same extent as it would for a non-aesthetic competitor (e.g., a runner), the World DanceSport Federation (2012) has regulations in place to prevent doping in dance competitions. While there is no antidoping policy in professional ballet, recreational drug use is common (Schwab, 2017). Sekulic et al. (2010) proposed doping as a potential concern in these environments, with dancers stating willingness to dope even if their health would be negatively impacted. Because of these findings, the current paper will include examples from dance and ballet when discussing aesthetic sport and aesthetic doping at large.

### B. The Role of Gender

The current paper will focus primarily on the doping experiences of girls and young women in aesthetic sports. This is done because despite the relatively small body of literature, most findings point towards differential effects for girls and women. The particularly strong emphasis on thinness in aesthetic sport environments tends to facilitate girls' desire to uphold the thin ideal (Francisco et al., 2012), which girls may be more vulnerable to because of a pre-

existing and gendered drive for thinness (e.g., Magallares, 2016). Male aesthetic athletes tend to demonstrate reduced risk for body dissatisfaction compared to female aesthetic athletes (Zaccagni & Gualdi-Russo, 2023). In Voelker and Reel (2019), male figure skaters reported believing their female peers experienced stronger weight pressure within the sport. Female athletes in general have been found to cite weight loss as a reason for doping more frequently than male athletes, who tend to cite performance enhancement (Peters et al., 2005). These findings inform the current paper's decision to focus primarily on girls and women in the context of aesthetic doping, as the implicated issues appear to impact this population more frequently and severely.

A distressing trend among female aesthetic athletes who are caught doping is that many are very young when it happens. Romanian gymnast Andreea Răducan was 16 years old at the 2000 Sydney Olympics when she tested positive for pseudoephedrine, a stimulant (Roberts, 2000). She was stripped of her gold medal despite having no knowledge of consuming the substance, as it had been given to her by the Romanian team doctor under the guise of medication (Zaccardi, 2015). A similar incident occurred with Russian gymnasts Alina Kabaeva and Irina Tchachina three years later. At the 2001 World Rhythmic Gymnastics Championships, both athletes were under 20 years old and were stripped of their medals due to positive furosemide (diuretic) tests (Gymmedia, 2003). Like Răducan, Kabaeva and Tchachina believed they were taking medication, which ended up containing a banned substance (Olympics, n.d.). What these instances demonstrate is a clear and disturbing trend wherein girls are stripped of their bodily autonomy and subsequently punished for decisions made by the adults around them.

The issue of bodily autonomy is made greyer when considering doping cases wherein athlete ignorance is not provable. The most notable recent instance of this is Russian singles figure skater Kamila Valieva, who was 15 years old at the 2022 Beijing Olympics when a previous positive test for trimetazidine (a cardiac metabolic modulator) came to light (Oxley, 2022). She was cleared to skate the free program segment of the women's figure skating event but delivered an uncharacteristically mistake-ridden performance and landed in fourth place overall. She was berated by her coach, Eteri Tutberidze, upon returning to the boards, and she began to cry after her final score was announced (Bansinath, 2022). She has proposed multiple explanations for the presence of trimetazidine in her system, none of which implicated her or her coaching staff (BBC, 2024). None of these were proven and she has been banned from figure skating for four years from the date of her positive test (Ingle, 2024); been stripped of all competitive titles won after the date of her positive test; and lost her official status as the first female skater to land a quadruple jump on Olympic ice (BBC, 2024). It is perhaps easy to write her off as a "bad" athlete, a liar, a coerced child, or any such title. However, when one looks closer at the context surrounding her, it becomes evident that Valieva is not the first young athlete under Eteri Tutberidze's supervision whose body has given up on her.

At Beijing 2022, Tutberidze's two other skaters, 17-year-olds Anna Shcherbakova and Alexandra Trusova, placed first

and second respectively. The latter broke into tears upon receiving a silver medal and stated she never wanted to skate again (Tétrault-Farber & Zemaryalai, 2022). Journalist investigation into Tutberidze following the public humiliation of two of her very young athletes revealed a host of claims of premature retirement, disordered eating, and chronic injury (Bansinath, 2022). Her skaters have been touted to exist on "all-powder diets" (Barnecllo, 2022), to breathe in smelling salts before performing to prevent fainting from exertion (Wang, 2022), and to rinse their mouths out with water rather than swallow it during competition to prevent bloating (Meyers, 2019). It is impossible to consider the Valieva case in a vacuum because she comes from a training environment that has historically created single cycle champions who are discarded after their time has expired (Bansinath, 2022). Whether she doped knowingly or unknowingly, she is a testament to the countless girls in elite aesthetic sport who feel unbridled horror at the looming realization that their bodies will one day be unable to perform the same way. She embodies the young female athlete who is willing to do anything to avoid failure. This paper seeks to approach the fear that may propel girls and women towards doping with empathy and without stigmatizing their decisions.

## II. LITERATURE REVIEW

While doping in general is a well-developed research area, the literature on aesthetic sports specifically is very sparse. The only known study providing any insight into the prevalence of doping in aesthetic sports is Aguilar-Navarro et al.'s (2020) study on the prevalence of PEDs across various sports, where gymnastics ranked among the highest in diuretic and stimulant use. Both drug classes are often used with the goal of losing weight. Diuretics, i.e., water pills, speed up the removal of water from the body (Cadwallader et al., 2010), and stimulants increase the speed of metabolism (Chester, 2011). Aesthetic doping cases implicating these substances include but are not limited to Vietnamese artistic gymnast Đỗ Thị Ngân Thương (CBC, 2008), Uzbek gymnast Luiza Galiulina (BBC, 2012), Belarusian artistic gymnast Nadzeya Vysotskaya (RDS, 2006), and Russian ice dancer Anastasia Shakun (Rowbottom, 2019).

The overrepresentation of diuretics and stimulants makes sense when one considers the strong association between the decision to dope and the desire to enhance athletic performance (Morente-Sánchez & Zabala, 2013), combined with the cultural belief in aesthetic sports that thin bodies are more successful (Kong, 2022). It is suggested that girls and young women in aesthetic sports are perceiving doping as a method of performance enhancement *through* weight loss. This conclusion has not been investigated but is indirectly supported by Rousselet et al.'s (2017) finding that those athletes who demonstrated concurrent doping and disordered eating behaviours tended to come from sports emphasizing leanness and low weight, i.e., aesthetic sports. Given the lack of clear research in this area, the current literature review will synthesize general sport doping research with studies describing body-related psychopathology (e.g., disordered eating) in aesthetic sport populations. It is argued that aesthetic doping stems from the aesthetic athlete's relationship to their body and its ability to perform.

### *A. Aesthetic Athletes as a Vulnerable Population*

In a review of various studies on the use of appearance- and performance-enhancing drugs (APEDs), Hildebrandt et al. (2011) proposed several shared features among those APED users who demonstrated increased psychopathology and health risk associated with their APED use. This study was not specific to athletes but rather clinically significant APED use by any population. Improved sport outcomes were discussed as a possible motivating factor for APED use alongside non-sport outcomes such as improved job performance. The study intended to argue for APED use as a differential individual clinical diagnosis, but it proposed a theoretical perspective that can be used to enhance our understanding of APED use among other populations as well. Three features were identified as indicative of increased psychopathology and health risk among APED users: polypharmacy, significant body image disturbance, and a preoccupation with diet and/or exercise. This section will use Hildebrandt et al.'s (2011) theoretical perspective to argue that aesthetic athletes experience heightened risk factors for and negative outcomes associated with APED use.

### *B. Polypharmacy*

Hildebrandt et al. (2011) defined polypharmacy as the simultaneous use of multiple substances to either change physical appearance or enhance likelihood of personal achievement (e.g., improved sport outcomes). The authors found associations between polypharmacy and increased APED use, psychiatric and physical side effects of APED use, and intent to continue APED use. No research has investigated the phenomenon of polypharmacy in aesthetic athletes, but there has been at least one documented instance of a female aesthetic athlete testing positive for multiple substances at once: Kazakh rhythmic gymnast Sabina Ashirbayeva, who had three separate diuretics in her system at the time of her positive test (International Gymnastics Federation, 2018). In terms of research done on general female athletic populations, Nagata et al. (2021) found that female athletes' use of ergogenic supplements was positively associated with diuretic use. Thus, while the Ashirbayeva case suggests that polypharmacy is happening in elite aesthetic sports, insufficient research exists to draw any conclusions pertaining to polypharmacy in this population.

### *C. Significant Body Image Disturbance*

The second feature identified by Hildebrandt et al. (2011, Abstract, p. 1) was "significant body image disturbance" defined as a preoccupation with physical appearance; including placing immense importance on appearance, tracking appearance changes, feeling distressed by appearance changes, and consistently evaluating appearance. Sufficient research has investigated body image disturbance in female aesthetic athletes. Disturbances tend to appear at an early age, as evidenced by Davison et al.'s (2002) finding that girls involved in aesthetic sports at ages five and seven years demonstrated higher weight concerns than girls who were not involved in aesthetic sports at one or both ages. Further, teenage female aesthetic athletes have been found to demonstrate higher Anorexia Readiness Syndrome (ARS) scores than non-aesthetic female athletes of the same age and gender, thus implicating a sub-clinical level of body image

disturbance unique to this population (Ziółkowska et al., 2022).

It has been suggested that aesthetic sport environments themselves are facilitating body image issues, as evidenced by the findings that ballet dancers' body image concerns increased the more time they spent in ballet environments (Dotti et al., 2002), and that strong identification with being a ballet dancer was associated with lowered body image (Langdon & Petracca, 2010). These findings are further supported by statements from ballet dancers regarding their training environments. At 108 pounds, Cherylyn Lee (2021) was told she would look better if she just weighed less. Kathryn Morgan witnessed another dancer being advised to try cocaine to keep her weight down (McGuire, 2020). Similar stories have been told in figure skating and gymnastics. American figure skater Gracie Gold (2019) attested to the word "fat" being thrown around frequently to describe young skaters' bodies, and American gymnast Katelyn Ohashi described coaches who frequently made negative comments about her body (Mazziotta, 2019). Countless girls and women involved in these sports have come forward to describe their environments as degrading to their own body image, as well as that of other athletes around them (e.g., Doorey, 2016; Hite, 2018; Ho, 2022; Kong, 2022; Martin, 2020; McCarvel, 2023). Aesthetic sport environments appear to be at best ignorant of the possible impact of critiquing athletes' bodies, and at worst actively complicit in the degradation of the mental health of girls and women.

### *D. Preoccupation with Diet and/or Exercise*

Finally, aesthetic athletes appear especially vulnerable to Hildebrandt et al.'s (2011) third feature: preoccupation with diet and/or exercise. Significant research has established this as a major issue across aesthetic sports, beginning early in athletes' lives. Among high school students, disordered eating was more prevalent within those who were aesthetic athletes than those who participated in other sports (Thein-Nissenbaum et al., 2011). Importantly, female aesthetic athletes appear to be vulnerable to disordered eating even if they do not demonstrate body dissatisfaction. Ziegler et al. (1998) found that junior figure skaters (ages 12 to 22) dieted despite being satisfied with their bodies. In line with this, gymnasts (ages 13 to 20) have been shown to diet more than non-gymnasts of the same age without demonstrating higher body dissatisfaction (de Bruin et al., 2007). Stanford gymnast Addie Stonecipher recalled dieting and watching her weight as early as grade five because she believed losing weight would make her a better gymnast (Fishburne, 2020). This combination of drive for thinness alongside body satisfaction has been attributed to a "thin is going to win" belief system, wherein gymnasts' drive for thinness is rooted in a desire to enhance athletic performance rather than uphold a societal thin ideal, as is often seen in non-athletic female populations (de Bruin et al., 2007; Smolak et al., 2000).

Former ballet dancer Fumi Somehara has attested to the glorification of "having a little bit of an eating disorder" in ballet cultures (O'Flaherty, 2021). The issue is, of course, that "a little bit" is often not where it ends. A multitude of female aesthetic athletes have experienced disordered eating that has significantly impacted their physical or mental

health, including American figure skater Gracie Gold (2024), Russian figure skater Yulia Lipnitskaya (AP News, 2017), American ballet dancers Jenifer Ringer (Treleaven, 2018) and Dawn Smith-Theodore (2018), Australian diver Anabelle Smith (Shalala, 2024), British diver Andrea Spendolini-Sirieix (2023), and American ice dancer Kaitlin Hawayek (Ho, 2022). The deaths of American gymnast Christy Henrich (Ryan, 2018/1995, pp. 104-105) and American ballet dancer Heidi Guenther (Baker, 1999) have both been attributed to eating disorders. Given the overwhelming number of personal accounts from aesthetic athletes describing their experiences of disordered eating, as well as the research finding that aesthetic athletes demonstrate a unique tendency towards disordered eating without body dissatisfaction, it can be concluded that this population meets Hildebrandt et al.'s (2011) third feature in a unique and unsettling manner.

To conclude, it can be proposed that the female aesthetic athletic population meets two out of three of Hildebrandt et al.'s (2011) defining features of APED users with increased psychopathology and health risk. Insufficient research exists to draw conclusions about polypharmacy in female aesthetic athletes. The existing research on body image disturbance and preoccupation with diet and/or exercise suggests that both these features may manifest differentially within female aesthetic athletes, potentially as a result of their aesthetic sport involvement. While further research is required to solidify this conclusion, it can be suggested that female aesthetic athletes are at uniquely heightened risk for psychopathology and health issues associated with APED use.

### III. IMPLICATIONS AND FUTURE DIRECTIONS

#### A. Limitations and Future Directions

The primary obstacle facing our understanding of doping in female aesthetic athletes is the simple lack of research. Very few studies have explicitly investigated aesthetic athletic populations' perceptions of, intent to engage in, or attitudes towards doping. Sekulic et al. (2010) is the only known study to have investigated ballet dancers' views of doping, and Rousselet et al. (2017) is the only known study to have noted that conjunct doping and disordered eating is most prevalent in leanness, i.e., aesthetic, sports. This paper calls for researchers to investigate the prevalence and manifestation of doping behaviours in aesthetic populations. Qualitative work on female aesthetic athletes' attitudes towards doping, specifically weight loss drugs and their interaction with sport performance, would be invaluable in filling the research gap.

In a broader sense, doping research across sports is greatly hindered by a failure to acknowledge that specific sport populations have differing cultures and value systems, which will impact how doping is perceived and engaged in. For instance, aesthetic populations are generally recognized as at higher risk for body image struggles given the need to look a certain way during performance (e.g., Dotti et al., 2002; Francisco et al., 2012), which this paper has proposed as the main motivating factor behind aesthetic doping. It is important going forward that doping is acknowledged as a cultural phenomenon and that its manifestation differs depending on which sport culture is being considered.

Researchers should refrain from drawing global conclusions about doping when they have investigated a single athletic population. Doping ought to be understood as complex, multifaceted, and largely cultural in its manifestation.

Not every aesthetic sport is the same, and this is likely to be reflected in differences in doping motivations across various aesthetic sports. It is unlikely that a gymnast's motivation to dope will follow the exact developmental path as that of a ballet dancer. There may be similarities, but there will inevitably be modality-specific variability that ought to be considered. This same logic also applies to non-aesthetic sports, in that a hockey player may dope for different reasons than a sprinter. While the current paper has largely relied upon the aesthetic vs. non-aesthetic dimension, it is important as the area develops that we are able to draw clear distinctions between sports in both dimensions. As the research stands currently, however, the immediate goal is to cultivate further understanding about differences in doping at the broad aesthetic vs. non-aesthetic level.

#### B. Future Directions

This paper has proposed that the conflation between physical appearance and performance is in part responsible for aesthetic athletes' motivation to dope. While research tends to find that aesthetic athletes' weight preoccupation stems from a desire to improve their performance (e.g., de Bruin et al., 2007), there is little understanding of how girls and young women may be affected on a psychological level by the performance-appearance conflation. Alongside preoccupations with diet, exercise, and weight, it may also affect risk for depression, anxiety, and other forms of psychological distress. Research on the broader impacts is encouraged.

With regards to the role of body image and disordered eating in aesthetic doping, it is worth noting that many aesthetic sport organizations have begun taking steps to improve body image in their athletes. Many have started employing sports psychologists, including USA Gymnastics' Karen Cogan (n.d.) and U.S. Figure Skating's Dr. Caroline Silby (Farrell, 2024). Skate Canada (n.d.) has released a document entitled *Body Positive Guidelines* to directly address the prevalence of body image disturbance and disordered eating in its athletes. Within the world of professional ballet, dancers have begun sharing their stories and calling for changes in how bodies are viewed and discussed in the industry (e.g., McGuire, 2020). These are strong steps in the direction of transparency surrounding body image issues, which may facilitate further transparency regarding how these issues inform the decision to dope.

Importantly, the current paper's focus on the impact of body image on doping is not meant to insinuate this is the only factor that ought to be studied. Given the vast number of influences on the motivation to dope, there is room for immense methodological diversity in the field going forward. Factors that have been suggested in previous literature include team vs. individual sports, wherein team sports coaches' emphasis on a mastery climate (i.e., focusing on improving over winning) have been proposed to facilitate a lower likelihood of team sport athletes doping (Allen et al., 2015). Other suggestions include sport peers, satisfaction in life and sport contexts, and opportunities beyond sport

(Lentillon-Kaestner & Carstairs, 2010). Each of these factors is important and ought to be investigated further so as to better understand the differential manifestation of doping across sports.

#### IV. CONCLUSION

This paper has proposed a theoretical understanding of doping in aesthetic sports as largely impacted by the cultural equation of thinness with enhanced performance. This is differentially experienced by female aesthetic athletes, who tend to begin aesthetic sport involvement at a young age and are inclined to adopt their sport's cultural beliefs about the body and performance (e.g., Zaccagni & Gualdi-Russo, 2023). These athletes are proposed to gravitate towards weight loss drugs because of this. Using Hildebrandt et al.'s (2011) three factors contributing to enhanced risk and psychopathology among APED users, it was concluded that aesthetic athletes meet two of three criteria. While there is insufficient research to state whether polypharmacy is a concern in this population, it is clear that aesthetic athletes are differentially vulnerable to significant body image disturbance and a preoccupation with diet or exercise. This makes the population uniquely at risk for complications associated with APED use. Thus, it is proposed that aesthetic doping is a highly cultural phenomenon which impacts girls and young women due to their pre-existing vulnerability to issues with body image.

Following the revelation of Kamila Valieva's positive doping test at Beijing 2022, the International Skating Union (ISU) raised the minimum age for senior competition from 15 to 17, with the goal of protecting girls from "burnout, disordered eating, and long-term consequences of injury" (p. 2). They did not mention doping beyond stating that the Valieva case did not incite them to change the age limit (International Skating Union, 2022). The goal of this paper has been to further our understanding of how doping may interact with the perception of the body in aesthetic sport. If doping continues to be viewed as a distinct entity from disordered eating and related issues, as it seems to be in the aforementioned ISU statement, then the sport culture enabling these problems will continue to persist. This has already been seen in Eteri Tutberidze's training regimes, as she continues to teach quadruple jumps to girls as young as 12 years old (FS Gossips, 2024). Even with Kamila Valieva's exit, it is still Russian girls who are pushing the sport forward. It is hoped that Valieva's experience is remembered and that she will one day be free to tell her story in her own words. For now, she remains a testament to a sport that seems intent on evolving even if it must wound and shatter the lives and bodies of the girls who love it.

#### REFERENCES

- Aguilar-Navarro, M., Salinero, J., Muñoz-Guerra, J., Plata, M. D. M., & Del Coso, J. (2020). Sport-specific use of doping substances: Analysis of World Anti-Doping Agency doping control tests between 2014 and 2017. *Substance Use & Misuse*, 55(8), 1361-1369. <https://doi.org/10.1080/10826084.2020.1741640>
- Allen, J., Taylor, J., Dimeo, P., Dixon, S., & Robinson, L. (2015). Predicting elite Scottish athletes' attitudes towards doping: Examining the contribution of achievement goals and motivational climate. *Journal of Sports Sciences*, 33(9), 899-906. <https://doi.org/10.1080/02640414.2014.976588>
- AP News. (2017, September 12). *Olympic skating champion Lipnitskaya opens up about anorexia*. <https://apnews.com/olympic-skating-champion-lipnitskaya-opens-up-about-anorexia-395db10682a04d2cac073ae37569d3fc>
- Baker, K. (1999, April 4). *Heidi Guenther's short, tragic life – and death*. SF Gate. <https://www.sfgate.com/magazine/article/Heidi-Guenther-s-short-tragic-life-and-death-3490764.php>
- Bansinath, B. (2022, February 23). *Have the abuses of women's figure skating been hiding in plain sight?* The Cut. <https://www.thecut.com/2022/02/eteri-tutberidze-figure-skatings-abuses-in-plain-sight.html>
- Barnecllo, M. (2022, February 21). *How Eteri Tutberidze's skaters are repeatedly failed by those around them*. UCSD Guardian. <https://ucsdguardian.org/2022/02/21/how-eteri-tutberidzes-skaters-are-repeatedly-failed-by-those-around-them/>
- BBC. (2012, August 1). *Olympics 2012 drugs: Gymnast expelled over failed test*. <https://www.bbc.com/sport/olympics/19038114>
- BBC. (2024, February 7). *Kamila Valieva claimed contaminated strawberry dessert behind positive test*. <https://www.bbc.com/sport/winter-sports/68234345>
- Cadwallader, A., de la Torre, X., Tieri, A., & Botré, F. (2010). The abuse of diuretics as performance-enhancing drugs and masking agents in sport doping: Pharmacology, toxicology and analysis. *British Journal of Pharmacology*, 161(1), 1-16. <https://doi.org/10.1111/j.1476-5381.2010.00789.x>
- CBC. (2008, August 14). *2 more athletes fail doping tests*. <https://www.cbc.ca/sports/2.720/2-more-athletes-fail-doping-tests-1.762187>
- Chester, N. (2011). Over-the-counter stimulants and herbal preparations. In D. R. Mottram (Ed.), *Drugs in Sport* (pp. 294-316). Routledge/Taylor & Francis Group.
- Cogan, K. (n.d.). *Body image in gymnastics: Keeping it healthy*. USA Gymnastics. [https://static.usagym.org/PDFs/About USA Gymnastics/wellness/bodyimage.pdf](https://static.usagym.org/PDFs/About%20USA%20Gymnastics/wellness/bodyimage.pdf)
- Davison, K. K., Earnest, M. B., & Birch, L. L. (2002). Participation in aesthetic sports and girls' weight concerns at ages 5 and 7 years. *International Journal of Eating Disorders*, 31(3), 312-317. <https://doi.org/10.1002/eat.10043>
- de Bruin, A. P., Oudejans, R. R. D., & Bakker, F. C. (2007). Dieting and body image in aesthetic sports: A comparison of Dutch female gymnasts and non-aesthetic sport participants. *Psychology of Sport and Exercise*, 8(4), 507-520. <https://doi.org/10.1016/j.psychsport.2006.10.002>
- Doorey, J. (2016, July 17). *Don't let the gold medal fool you: Even Olympic athletes struggle with body image*. CBC. <https://www.cbc.ca/sports/longform/entry/olympic-athletes-struggle-with-body-image>
- Dotti, A., Fioravanti, M., Balotta, M., Tozzi, F., Cannella, C., & Lazzari, R. (2002). Eating behavior of ballet dancers. *Eating and Weight Disorders*, 7(1), 60-67. <https://doi.org/10.1007/BF03354431>
- Fishburne, M. (2020, July 16). *'A tough balance': Body image as a gymnast*. Stanford Daily. <https://stanforddaily.com/2020/07/16/sports-body-image/>
- Francisco, R., Narciso, I., & Alarcão, M. (2012). Specific predictors of disordered eating among elite and non-elite gymnasts and ballet dancers. *International Journal of Sport Psychology*, 43(6), 479-502.
- FS Gossips. (2024, March 6). *"It wasn't difficult to learn the quadruple lutz; I learned it on the second day I started jumping it." 12-year-old student of Eteri Tutberidze told about learning quads*. <https://fs-gossips.com/it-wasnt-difficult-to-learn-the-quadruple-lutz-i-learned-it-on-the-second-day-i-started-jumping-it-12-year-old-student-of-eteri-tutberidze-told-about-learning-quads/>

- Gold, G. (2019, March 5). *Olympian Gracie Gold on body image, mental health and figure skating*. Today. <https://www.today.com/series/love-your-body/olympian-gracie-gold-body-image-mental-health-figure-skating-t149806>
- Gold, G. (2024, February 6). *Gracie Gold doesn't want to be your golden girl*. ELLE. <https://www.elle.com/culture/celebrities/a46618062/gracie-gold-figure-skating-book/>
- Gymmedia. (2003, March 24). *The FIG / Tchachina case: The matter is closed*. <https://www.gymmedia.com/rhythmic-gymnastics/FIG-Tchachina-case-matter-closed>
- Hildebrandt, T., Lai, J. K., Langenbucher, J. W., Schneider, M., Yehuda, R., & Pfaff, D. W. (2011). The diagnostic dilemma of pathological appearance and performance enhancing drug use. *Drug and Alcohol Dependence*, *114*(1), 1-11. <https://doi.org/10.1016/j.drugalcdep.2010.09.018>
- Hite, E. (2018, February 12). *What happens when your figure skating career ends?* Medium. <https://medium.com/stanford-magazine/olympian-rachael-flatt-on-life-after-figure-skating-athlete-mental-health-and-body-image-4925ab34ae45>
- Ho, S. (2022, February 20). *Figure skating's eating-disorder problem is bigger than doping, skaters say*. Huffington Post. [https://www.huffpost.com/entry/figure-skating-eating-disorders-body-image-winter-olympics\\_n\\_6212196ce4b0f2c343f599cc](https://www.huffpost.com/entry/figure-skating-eating-disorders-body-image-winter-olympics_n_6212196ce4b0f2c343f599cc)
- Holt, J. (2020). *Kinetic beauty: The philosophical aesthetics of sport*. Routledge.
- Ingle, S. (2024, January 29). *Russian skater Kamila Valieva's titles stripped after four-year ban for doping*. The Guardian. <https://www.theguardian.com/sport/2024/jan/29/russia-figure-skater-kamila-valieva-four-year-doping-ban-beijing-winter-olympics?ref=upstract.com>
- International Gymnastics Federation. (2018, August 13). *Sabina Ashirbayeva receives two-year ban for anti-doping rule violations*. <https://www.gymnastics.sport/site/news/displaynews.php?idNews=2175>
- International Skating Union. (2022). *FAQ – Age Limit*. <https://current.isu.org/media-centre/press-releases/2022-4/29706-isu-faq-age-limit/file>
- International Skating Union. (2024, July 30). *Handbook for referees and judges – single and pair skating*. <https://current.isu.org/figure-skating/rules/sandp-handbooks-faq/34048-handbook-for-referees-and-judges-2024-25/file>
- Kong, S. L. (2022, February 2). *“Fat doesn't fly”: Inside the culture of body shaming in figure skating*. Best Health Magazine. <https://www.besthealthmag.ca/article/figure-skating-olympics-body-image-sports/>
- Langdon, S. W., & Petracca, G. (2010). Tiny dancer: Body image and dancer identity in female modern dancers. *Body Image*, *7*(4), 360-363. <https://doi.org/10.1016/j.bodyim.2010.06.005>
- Lee, C. J. (2021, March 2). *Pursuit of the perfect ballet body*. The Ballet Herald. <https://www.balletterald.com/ballet-body-image/>
- Lentillon-Kaestner, V., & Carstairs, C. (2010). Doping use among young elite cyclists: A qualitative psychosociological approach. *Scandinavian Journal of Medicine & Science in Sports*, *20*(2), 336-345. <https://doi.org/10.1111/j.1600-0838.2009.00885.x>
- Magallares, A. (2016). Drive for thinness and pursuit of muscularity: The role of gender ideologies. *Universitas Psychologica*, *15*(2), 353-360. <https://doi.org/10.11144/Javeriana.upsy15-2.dtpm>
- Martin, K. (2020, September 21). *What being a “fat” figure skater taught me about being confident in my own skin*. Popsugar. <https://www.popsugar.co.uk/fitness/what-being-fat-figure-skater-taught-me-about-body-image-47809809>
- Mazziotta, J. (2019, Mary 24). *Gymnast Katelyn Ohashi used therapy to deal with body shaming: 'It's a form of abuse'*. People. <https://people.com/health/gymnast-katelyn-ohashi-body-shaming-therapy/>
- McCarvel, N. (2023, October 31). *Amber Glenn's mental health long-game: 'You have no idea what someone else is going through'*. Olympics. <https://olympics.com/en/news/amber-glenn-mental-health-long-game-no-idea-what-someone-else-going-through-figure-skating>
- McGuire, K. (2020, March 12). *Kathryn Morgan opens up about body image in ballet*. Dance Magazine. <https://www.dancemagazine.com/body-image-in-ballet/#gsc.tab=0>
- Meyers, D. (2019, February 8). *Alina Zagitova says she didn't drink water during the 2018 Olympics*. Deadspin. <https://deadspin.com/alina-zagitova-says-she-didnt-drink-water-during-the-20-1832459869/>
- Morente-Sánchez, J., & Zabala, M. (2013). Doping in sport: A review of elite athletes' attitudes, beliefs, and knowledge. *Sports Medicine*, *43*(6), 395-411. <https://doi.org/10.1007/s40279-013-0037-x>
- Nagata, J. M., Peebles, R., Hill, K. B., Gorrell, S., & Carlson, J. L. (2021). Associations between ergogenic supplement use and eating behaviors among university students. *Eating Disorders: The Journal of Treatment & Prevention*, *29*(6), 599-615. <https://doi.org/10.1080/10640266.2020.1712637>
- O'Flaherty, A. (2021, December 1). *Dancers call for body image overhaul to protect next generation from eating disorders*. ABC. <https://www.abc.net.au/news/2021-12-02/dancers-call-for-body-image-overhaul-for-industry-change/100644978>
- Olympics. (n.d.). *Alina Kabaeva*. <https://olympics.com/en/athletes/alina-kabaeva>
- Oxley, S. (2022, February 11). *Winter Olympics: Kamila Valieva test puts Russia & doping in spotlight again*. BBC. <https://www.bbc.com/sport/winter-olympics/60343513>
- Peters, R. J., Adams, L. F., Barnes, J. B., Hines, L. A., Jones, D. E., Krebs, K. M. A., & Kelder, S. H. (2005). Beliefs and social norms about ephedra onset and perceived addiction among college male and female athletes. *Substance Use & Misuse*, *40*(1), 125-235. <https://doi.org/10.1081/JA-200030517>
- RDS. (2006, September 20). *A gymnast tested positive Une gymnaste contrôlée positive*. <https://www.rds.ca/amateurs/une-gymnaste-controllee-positive-1.290784>
- Roberts, S. (2000, September 26). *Sydney 2000: Drug testing; gymnast tests positive and loses gold*. The New York Times. <https://www.nytimes.com/2000/09/26/sports/sydney-2000-drug-testing-gymnast-tests-positive-and-loses-gold.html>
- Rousselet, M., Guérineau, B., Paruit, M. C., Guinot, M., Lise, S., Destrube, B., Ruffio-Thery, S., Dominguez, N., Brisseau-Gimenez, S., Dubois, V., Mora, C., Trolonge, S., Lambert, S., Grall-Bronnec, M., & Prétagnet, S. (2017). Disordered eating in French high-level athletes: Association with type of sport, doping behavior, and psychological features. *Eating and Weight Disorders*, *22*(1), 61-68. <https://doi.org/10.1007/s40519-016-0342-0>
- Rowbottom, M. (2019, April 9). *Russian skater Shakun earns one-year doping ban after “mistakenly taking prohibited substance for eye complaint.”* Inside the Games. <https://www.insidethegames.biz/articles/1077787/russian-skater-shakun-earns-one-year-doping-ban-after-mistakenly-taking-prohibited-substance-for-eye-complaint>
- Ryan, J. (2018). *Little girls in pretty boxes: The making and breaking of elite gymnasts and figure skaters*. Grand Central Publishing. (Original work published 1995).

- Schwab, K. (2017, December 10). *Why do dancers – usually so conscientious about their bodies – get drawn to drugs?* Dance Magazine. <https://www.dancemagazine.com/why-dancers-do-drugs/#gsc.tab=0>
- Sekulic, D., Peric, M., & Rodek, J. (2010). Substance use and misuse among professional ballet dancers. *Substance Use & Misuse*, 45(9), 1420-1430. <https://doi.org/10.3109/10826081003682198>
- Shalala, A. (2024, February 9). *'Everyone's judging what you look like': How diver Anabelle Smith dealt with body image pressures.* ABC. <https://www.abc.net.au/news/2024-02-10/body-image-diving-anabelle-smith/103259888>
- Skate Canada. (n.d.). *Body positive guidelines.* [https://skatecanada.ca/wp-content/uploads/2020/09/BodyPositiveGuidelines\\_EN\\_Dec2.pdf](https://skatecanada.ca/wp-content/uploads/2020/09/BodyPositiveGuidelines_EN_Dec2.pdf)
- Smith-Theodore, D. (2018, September 3). *The eating disorder trap: How dancers' perfectionism can make things dangerously worse.* Pointe Magazine. <https://pointemagazine.com/eating-disorders-ballet/#gsc.tab=0>
- Smolak, L., Murnen, S. K., & Ruble, A. E. (2000). Female athletes and eating problems: A meta-analysis. *International Journal of Eating Disorders*, 27(4), 371-380. [https://doi.org/10.1002/\(SICI\)1098-108X\(200005\)27:4<371::AID-EAT1>3.0.CO;2-Y](https://doi.org/10.1002/(SICI)1098-108X(200005)27:4<371::AID-EAT1>3.0.CO;2-Y)
- Spendolini-Sirieix, A. (2023, October 16). *Andrea Spendolini-Sirieix is breaking down the stigmas surrounding body image in sport.* Team Great Britain. <https://www.teamgb.com/article/andrea-spendolini-sirieix-is-breaking-down-the-stigmas-surrounding-body/6VqbKwNKud9pBdFQgOk43n>
- Sundgot-Borgen, J. (1994). Risk and trigger factors for the development of eating disorders in female elite athletes. *Medicine & Science in Sports & Exercise*, 26(4), 414-419. <https://doi.org/10.1249/00005768-199404000-00003>
- Tétrault-Farber, G., & Zemaryalai, P. (2022, February 17). *Figure skating-I hate this sport, says distraught Trusova after silver medal.* Reuters. <https://www.reuters.com/lifestyle/sports/figure-skating-i-hate-this-sport-says-distraught-trusova-after-silver-medal-2022-02-17/>
- Thein-Nissenbaum, J. M., Rauh, M. J., Carr, K. E., Loud, K. J., & McGuine, T. A. (2011). Associations between disordered eating, menstrual dysfunction, and musculoskeletal injury among high school athletes. *Journal of Orthopaedic & Sports Physical Therapy*. <https://doi.org/10.2519/jospt.2011.3312>
- Treleaven, S. (2018, September 13). *What it feels like to be a ballerina obsessed with being thin.* Chatelaine. <https://chatelaine.com/living/real-life-stories/what-it-feels-like-to-be-a-ballerina-with-an-eating-disorder/>
- Voelker, D. K., & Reel, J. J. (2015). An inductive thematic analysis of female competitive figure skaters' experiences of weight pressure in sport. *Journal of Clinical Sport Psychology*, 9(4), 297-316. <https://doi.org/10.1123/jcsp.2015-0012>
- Voelker, D. K., & Reel, J. J. (2019). "It's just a lot different being male than female in the sport": An exploration of the gendered culture around body pressures in competitive figure skating. *Women in Sport and Physical Activity Journal*. <https://doi.org/10.1123/wspaj.2018-0030>
- Wang, R. W. (2022). *The culture of child abuse that's poisoning figure skating.* Slate. <https://slate.com/culture/2022/02/kamila-valieva-coach-eterit-tutberidze-abuse-russia-doping.html>
- World DanceSport Federation. (2012, September 13). *Doping in DanceSport?* [https://www.worlddancesport.org/News/Doping\\_in\\_DanceSport-1001](https://www.worlddancesport.org/News/Doping_in_DanceSport-1001)
- Zaccagni, L., & Gualdi-Russo, E. (2023). The impact of sports involvement on body image perception and ideals: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*. <https://doi.org/10.3390/ijerph20065228>
- Zaccardi, N. (2015, June 25). *Andreea Raducan will not be reinstated as 2000 Olympic all-around champion after meeting with IOC president.* NBC Sports. <https://www.nbcsports.com/olympics/news/andreea-raducan-olympics-medal-stripped-gymnastics-sydney-2000-romania>
- Ziegler, P. J., Khoo, C. S., Sherr, B., Nelson, J. A., Larson, W. M., & Drewnowski, A. (1998). Body image and dieting behaviors among elite figure skaters. *International Journal of Eating Disorders*, 24(4), 421-427. [https://doi.org/10.1002/\(SICI\)1098-108X\(199812\)24:4%3C421::AID-EAT9%3E3.0.CO;2-H](https://doi.org/10.1002/(SICI)1098-108X(199812)24:4%3C421::AID-EAT9%3E3.0.CO;2-H)
- Ziółkowska, B., Ocalewski, J., & Dąbrowska, A. (2022). The associations between the anorexic readiness syndrome, familism, and body image among physically active girls. *Frontiers in Psychiatry*, 12. <https://doi.org/10.3389/fpsy.2021.765276>