Nos. 24-38, 24-43

In The Supreme Court of the United States

BRADLEY LITTLE, GOVERNOR OF IDAHO, ET AL.,
Petitioners,
v.
LINDSAY HECOX, ET AL.,
Respondents.

WEST VIRGINIA, ET AL.,
Petitioners,
v.
B.P.J., BY HER NEXT FRIEND AND MOTHER, HEATHER JACKSON,
Respondent.

On Writs of Certiorari to the United States Courts of Appeals for the Ninth and Fourth Circuits

BRIEF OF *AMICUS CURIAE* INFORMATION SOCIETY PROJECT AT YALE LAW SCHOOL IN SUPPORT OF RESPONDENTS

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INTEREST OF AMICUS CURIAE[1]

Amicus is the Information Society Project ("ISP") at Yale Law School,[2] an intellectual center exploring the implications of new technologies for law and society. The ISP focuses on a wide range of issues including the intersections between the regulation and dissemination of information, health policy, and privacy concerns. Many of the scholars associated with the ISP have special expertise in First, Fourth, and Fourteenth Amendment jurisprudence, including the impact of this jurisprudence on sex discrimination claims. These scholars share an interest in ensuring the Court is presented with accurate information and is not misled by unsupported claims about transgender girls' and women's athletic participation.

SUMMARY OF ARGUMENT

Petitioners and *Amici* for Petitioners ("*amici*") argue that Idaho and West Virginia's categorical bans on the participation of transgender girls and women in girls' and women's sports teams ("transgender sports bans") solve a significant equity issue in women's sports. See Hecox J.A.55–56; B.P.J. J.A.442–43. Their briefs are replete with claims about transgender girls' and women's participation in athletics that are unsupported by the evidence they offer. Petitioners and *amici* purport to demonstrate that transgender competitors (1) compete in significant

[1] No counsel for a party authored this brief in whole or in part, nor did any person or entity, other than *Amicus Curiae* or its counsel, make a monetary contribution to the preparation or submission of this brief.

[2] The Information Society Project does not represent the institutional views of Yale Law School, if any.

numbers and competitively displace cisgender competitors, (2) have an obvious and consistent biological advantage over cisgender competitors, and (3) present unique physical and psychological dangers to cisgender competitors. A review of the data and anecdotes presented by Petitioners and *amici* makes clear these arguments are built on a foundation of sand.

First, although Petitioners and *amici* insist that transgender students compete in women's sports in droves, the best estimates suggest *no more than a tenth of a percent* of athletes are transgender. And claims that transgender athletes are rampantly displacing cisgender women at the medal podium are simply false.

Second, *amici*'s assertions about transgender girls' and women's biological advantage over cisgender girls and women are not supported by the research they cite.

Third, none of the evidence offered by *amici* suggest that transgender athletes pose any unique physical or psychological threat to their cisgender counterparts. *Amici* ignore available data and instead rely on a handful of stories that fail to support their arguments.

Ultimately, Petitioners' and *amici*'s reliance on unsupported claims, misapplied data, and manipulated anecdotes demonstrates there is little support for the claim that transgender sports bans "protect women's sports."

ARGUMENT

I. Petitioners and *amici* overestimate transgender participation in sports and misstate the impact on competitive success and opportunity for cisgender athletes.

Petitioners and *amici* have manufactured a crisis in women's sports, arguing that an onslaught of transgender athletes displaces cisgender athletes and consequently reduces cisgender competitive success. Not so. First, transgender athletes make up just a fraction of a percent of athletes at any level of sport. Second, the impact of inclusion on competitive success for cisgender athletes is vastly exaggerated.

A. Petitioners and *amici* grossly overestimate the number of transgender athletes.

Amici seem to suggest that transgender athletes compete in women's sports in increasingly large numbers. See, *e.g.*, W. Va. Pet. Br. at 6 ("[M]ales identifying as female have increasingly competed in women's sports—and won."); Six High School Athletes Br. at 2 ("Biological males playing girls' sports is impacting thousands of female student-athletes all over the United States."); Emma Hilton Br. at 5. In reality, very few transgender athletes compete on girls' and women's sport teams.

At the collegiate level, there were *fewer than ten transgender athletes* participating in National Collegiate Athletic Association (NCAA) sports as of December 2024. Brooke Migdon, *NCAA president says there are 'less than 10' transgender athletes in college sports*, The Hill (Dec. 18, 2024), perma.cc/C9FD-9C2S. There are 554,298 total NCAA athletes, meaning that transgender athletes represent at maximum just

0.002% of collegiate athletes. Greg Johnson, *A record number of NCAA student-athletes participated in 2024-25*, NCAA (Sep. 15, 2025), perma.cc/BRJ8-ZVL4.

At the high school level, there is no exact documented number of transgender athletes, but available data suggest the number is also a fraction of a percentage point. Only a minute percentage of high school students are openly transgender. The Center for Disease Control reports that just 3.3% of high school students considered themselves to be trans. Nicolas A. Suarez et al., *Disparities in School Connectedness, Unstable Housing, Experiences of Violence, Mental Health, and Suicidal Thoughts and Behaviors Among Transgender and Cisgender High School Students — Youth Risk Behavior Survey, United States, 2023*, 73 Morbidity & Mortality Wkly. Rep. 50, 53 (2024). Moreover, experts estimate fewer than 1 in 1000 (or 0.1% of) American adolescents have received any gender-affirming care. Landon D. Hughes et al., *Gender-Affirming Medications Among Transgender Adolescents in the US, 2018-2022*, 179 JAMA Pediatrics 342, 342–44 (2025); see also Carla K. Johnson, *Fewer than 0.1 percent of U.S. adolescents receive gender-affirming medications, report finds*, PBS (Jan. 6, 2025), perma.cc/T858-FTPA.

Importantly, transgender students participate in sports at lower rates than their cisgender counterparts. Studies show that transgender students are significantly less likely to participate in sports than their cisgender peers because of bullying and prejudice. *LGBTQ Youth Sports Participation*, The Trevor Project, 1 (June 2020), perma.cc/FJM3-M5KA. About 52% of high school students are student athletes. *Participation in High School Sports Tops Eight Million for First Time in 2023-24*, Nat'l Fed'n of State High

Sch. Ass'ns (Sep. 10, 2024), perma.cc/G8YV-XEQK; *Back-to-school statistics*, Nat'l Ctr. for Educ. Stat. (2025), perma.cc/67K3-FT3H. In contrast, just 12% of transgender girls and 14% of transgender boys report participating in sports: an approximately 40-point difference from all high school students. Ashland Johnson et al., *Play to Win: Improving the Lives of LGBTQ Youth in Sports*, Hum. Rts. Campaign, 10 (2018), perma.cc/23M3-65T7.

Lastly, the miniscule number of transgender athletes is corroborated by available state-level data. A comprehensive state survey found legislative sponsors of transgender sports bans "in almost every case" cannot identify a single transgender high school athlete in their state. David Crary & Lindsay Whitehurst, *Lawmakers Can't Cite Local Examples of Trans Girls in Sports*, AP News (Mar. 3, 2021), perma.cc/MV89-US3R.

In California, where there are 821,586 high school athletes, *Sports Participation at an All-Time High*, Cal. Interscholastic Fed'n (Aug. 4, 2025), perma.cc/Y5D7-52GQ, the number of K-12 transgender athletes of either gender competing is in the single-digits. Juliet Macur et al., *Trump Threat Over Trans Athlete Puts Spotlight on California Track Meet*, N.Y. Times (May 30, 2025), perma.cc/EU47-JC2K. Assuming 9 transgender students participate, 0.001% of all California student athletes are transgender. In Kentucky, where transgender athletes were banned from competing, there had been just one reported transgender athlete before the ban. Moriah Balingit, *Kentucky's lone transgender athlete can't play on the team she helped start*, Wash. Post (Aug. 25, 2022), perma.cc/G7AE-C7PB. That is just 1 transgender athlete out of a total of 109,816 Kentucky

high school athletes at the time, or 0.0009% of total athletes. *2022-2023 KHSAA Participation Report*, Ky. High Sch. Athletic Ass'n (2023), perma.cc/FJY2-NGG4.

In West Virginia, the record reflects that the transgender sports ban there prohibited just *one* transgender middle schooler from participating in track. See B.P.J. Resp. Br. at 1. In Idaho, at the time of the ban's passage, the Executive Director of the Idaho High School Activities Association testified that "no transgender athlete had ever competed in Idaho" under the previous transgender inclusive policy. Hecox Pet. App. 86a, 172a.

Far from replacing cisgender athletes, this data suggests that transgender athletes at the high school level (between 0.0009% and 0.001%) are as rare (or even rarer) than at the collegiate level (0.002%).

B. Transgender athletes' participation in sports seldom results in the loss of opportunity or competitive success for cisgender athletes.

Petitioners and *amici* repeatedly claim that transgender athletes negatively impact cisgender athletes' participation and success in sports. See, *e.g.*, Idaho Pet. Br. at 3 ("With increasing frequency, female athletes have been sidelined from their own teams, championship competitions, and winners' podiums."); Indep. Council on Women's Sports Br. at 11 ("Female attrition due to men participating on women's sports teams is regrettably on the rise."); Six High Sch. Athletes Br. at 2; Women's Declaration Int'l Br. at 9; Pres. of Ariz. Senate Br. at 25. There is no systematic evidence to suggest this is the case.

First, the assumption that any increase in transgender participation in sports would depress cisgender girls and women's participation is incorrect. In fact, in states where transgender student participation in sports has been protected, there has been an overall increase in participation in women's sports. Shoshana K. Goldberg, *Fair Play: The Importance of Sports Participation for Transgender Youth*, Ctr. for Am. Progress, 14–18 (Feb. 9, 2021), perma.cc/ZL6G-YQR9. Because transgender athletes typically represent single digit numbers of athletes in each state, see *supra* Section I.A., the increase in girls' participation cannot be attributed only to increased transgender participation.

For example, Connecticut has protected transgender sports participation since 2013. See *Soule by Soule* v. *Conn. Ass'n of Sch., Inc.*, 57 F.4th 43, 48 (2d Cir. 2022), *vacated en banc*, 90 F.4th 34 (2d Cir. 2023) Between 2011 and 2019, Connecticut saw a 2.3% *increase* in girls' sports participation. Goldberg, *supra*, at 16. Furthermore, despite *amici*'s repeated claims about track and field as a sport where cisgender women are uniquely disadvantaged by transgender participation, see, *e.g.*, Indep. Council on Women's Sports Br. at 11, there was specifically an increase in Connecticut girls' participation in track and field after transgender participation was permitted. Goldberg, *supra*, at 16.

In California, which has maintained transgender inclusive sports policies since 2014, there was a 14% increase in girls' sports participation between 2014 and 2020. *Id.* at 15; see also Gavin Yamey & Mandy Giles, *Letting Transgender Kids Play Sports Can Benefit All Kids*, TIME Mag. (June 20, 2025), perma.cc/4FNP-XBRF.

Taken together, this data belies any claims that cisgender girls and women are leaving sports due to transgender girls' and women's participation. In fact, some studies have found that transgender sports bans can decrease student participation in sports across the board because such bans can divert already scant resources and create a hostile environment for cisgender girls and women who do not conform to traditional gender stereotypes. See Goldberg, *supra*, at 14–18. Despite *amici*'s suggestion otherwise, the negligible number of transgender students participating in sports at the high school and collegiate level do not threaten cisgender athlete's participation. Rather, inclusive sports participation policies are associated with increases in overall participation, including for cisgender girls and women.

Second, Petitioners and *amici* wrongly assert that transgender participation in sports harms the competitive success of cisgender athletes. See, *e.g.*, Idaho Pet. Br. at 3 ("With increasing frequency, female athletes have been sidelined from their own teams, championship competitions, and winners' podiums."). While a small number of transgender athletes has had competitive success at various levels, Petitioners and *amici* exaggerate transgender athletes' successes by improperly relying on crowd-sourced data and cherrypicked anecdotes.

1. Petitioners and *amici*'s primary source of quantitative data to prove the alleged competitive displacement of ciswomen athletes is the crowd-sourced, nonverified website She Won. See, *e.g.*, W. Va. Pet. Br. at 6 (citing a report using She Won for its underlying data); Idaho Pet. Br. at 6 (same); Indep. Women's L. Ctr. Br. at 8–9 (citing a website using She Won's data). She Won has a litany of problems. (1) By its own

admission, She Won publishes data based on public submissions and does minimal to no fact-checking of said submissions, making the base source of its data suspect at best. See She Won, shewon.org. (2) Its calculation algorithm artificially inflates the number of medals "lost" to a transgender athlete by up to triple the number of medals lost in a single competition. *Ibid*. For example, a first-place finish for a transgender athlete is counted as three medals lost since the second, third, and fourth place finishers "missed out" on medals. *Ibid.* (3) Puzzlingly, the database includes several activities that are not sports, like poker or billiards, or that have no gender differences in their competitive performances, like dance. *Ibid.* (4) The database also includes non-competitive sporting events, such as "fun runs" or intramurals, as well as explicitly co-ed events in which gender differences are irrelevant. *Ibid*. (5) Lastly, the numbers are inflated because the database includes non-U.S. data. *Ibid*. In all, the vast majority of the underlying data relied upon by *amici* to indicate loss of competitive success do not pass statistical muster.

2. *Amici* have cherrypicked anecdotes to construct a qualitative fiction and many of these stories do not hold up to scrutiny.

In the stories relied upon by *amici*, see, *e.g.*, W. Va. Pet. Br. at 7 (referring to Connecticut high school track and field); Ind. Women's L. Ctr. Br. at 11–13 (same), cisgender competitors who lost to transgender athletes in specific instances still enjoyed competitive success, receiving scholarships and medals in their sports, *Soule*, 57 F.4th at 51 ("[O]n numerous occasions, [Connecticut] Plaintiffs were indeed 'champions,' finishing first in various events, even sometimes when competing against [transgender athletes].").

Individual instances of transgender athletes winning or placing in events do not prove that cisgender competitors are not enjoying competitive successes in their own right.

In perhaps the most famous example relied upon by *amici*, see, *e.g.*, Advancing Am. Freedom Br. at 11–12, athlete Riley Gaines claims to have lost a trophy to a transgender swimmer, Lia Thomas. Alaa Elassar & Chelsea Bailey, *Riley Gaines has been one of Lia Thomas' most vocal critics. She just scored two major wins in her anti-trans efforts*, CNN (July 4, 2025), perma.cc/F5B9-QA46. Gaines and Thomas tied for fifth place. *Ibid.* Thomas's participation did not alter any outcomes for Gaines. Four cisgender women finished ahead of Thomas and Gaines. *Ibid*. Gaines claimed to have been given a sixth-place trophy instead of a fifth place one, but it was a temporary measure before her fifth-place trophy was mailed to her. *Ibid*. Had Thomas not participated, Gaines would still have finished in fifth place.

In other cited instances, see, *e.g.*, 31 Olympians Br. at 19–20, individual athletes forfeited matches because they suspected their opponent was transgender, thereby losing by forfeit, not because a transgender athlete bested them. *USA Fencing disqualifies female fencer for refusing to fight trans opponent*, Reuters (Apr. 3, 2025), perma.cc/JZH6-MT4D.

The narrative that transgender athletes are displacing cisgender girls and women in sports does not hold water. Transgender athletes are an extreme minority in women's sports whose participation does not alter cisgender women's participation or competitive outcomes in sports in any meaningful way.

II. *Amici*'s proffered evidence does not support their claims about transgender athletes' biological advantages.

Amici's claim that transgender girls and women have a substantial and consistent biological advantage in sports has four critical flaws. First, *amici* provide scant evidence for their contentions, and what data they do provide is immaterial because it does not compare transgender and cisgender athletes. Second, *amici* misrepresent data to contend pre-pubescent performance differences across sexes indicate innate biological differences. Third, even if it were true that some transgender athletes possess certain biological advantages, *amici* fail to recognize that these alleged *biological* advantages do not automatically confer a *competitive* advantage. Lastly, *amici* ignore the reality that advantageous biological differences are pervasive and expected among cisgender athletes.

A. *Amici*'s claims about biological advantage are uncorroborated or based on inapplicable data.

Several of *amici*'s briefs make claims about biological advantage that are unsupported, and indeed often contradicted, by scientific evidence. These claims are couched in scientific terminology to create the veneer of objectivity but often fail to include a citation to any supporting authority. See, *e.g.*, Ctr. for Am. Liberty Br. at 19 (claiming with no citations "[States' advanced objectives] are grounded in biological reality [and] supported by empirical data"); Pennsylvania Sch. Bd. Dirs. Br. at 14 (stating with no support that those "who have started male puberty have a biological advantage over women, even if testosterone is later inhibited"); Concerned Women for Am. Br. at 29

(asserting with no source that transgender women "possess inherently different athletic capabilities").

When *amici* do provide citations, they frequently rely on studies that are irrelevant to the question at hand because they use incorrect comparators. *Amici* primarily cite three literature reviews.[3] These sources either compare (1) biological differences between cisgender men and women or (2) biological differences between non-athlete transgender and cisgender women. For all three publications, either the authors themselves or other experts in the field have drawn attention to these limitations,[4] but *amici* ignore them

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[3] The three reviews are: Emma N. Hilton and Tommy R. Lundberg, *Transgender Women in the Female Category of Sport: Perspectives on Testosterone Suppression and Performance Advantage*, 51 Sports Med. 199 (2021) (cited in nine briefs); Sandra K. Hunter et al., *The Biological Basis of Sex Differences in Athletic Performance: Consensus Statement for the American College of Sports Medicine*, 8 Transnat'l J. Am. Coll. Sports Med. 2328 (2023) (cited in seven briefs); and Michael J. Joyner et al., *Evidence on Sex Differences in Sports Performance*, 138 J. Applied Physiology 274 (2025) (cited in six briefs).

[4] Hilton and Lundberg's and Hunter et al.'s self-critiques are later discussed, *infra*. In response to Joyner et al., *supra*, researchers who had their studies referenced in this review submitted letters to the journal objecting to how their research was portrayed as well as the review's methodology. See Ke Hu et al., *Rethinking the Evidence Base: A Critical Analysis of Joyner et al. on Sex Differences in Sports Performance*, 139 J. Applied Physiology 98 (2025); Matthew S. Tenan & Sophia Nimphius, *A Perspective or Review Based Entirely on Low-quality Evidence is Simply an Opinion*, 139 J. Applied Physiology 101 (2025). Critics describe how Joyner et al. oversimplified the underlying studies, heavily relied on theories with inconclusive evidence, and overall used selective and decontextualized representations of data and theoretical mechanisms "yet to be empirically validated in the relevant populations." Hu et al., *supra*, at 99. Put bluntly, "[I]t

entirely. As acknowledged by some of the authors themselves, data presented through these oft-cited studies are irrelevant or at best insufficient to assess whether transgender female athletes possess an inherent biological athletic advantage over cisgender female athletes. Rather, the appropriate comparison groups to answer this question are transgender female athletes and cisgender female athletes.

1. *Misapplying data from cisgender men instead of transgender women*

When *amici* do cite data, they rely on studies comparing the biological and athletic qualities of cisgender women and cisgender men. For example, the Hunter et al., *supra*, review, cited in seven briefs, primarily relies on studies of cisgender men and women. *Id*. at 2332–33. Data from cisgender men "is a poor proxy" to explain transgender women's physical ability and performance because (1) hormone therapy causes significant physical changes that differentiate transgender women from cisgender men, and (2) stigma, discrimination, and other social conditions that have impacts on performance are not adequately accounted for by using studies of cisgender men. See Joanna Harper, *Transgender Athletes and International Sports Policy*, 85 L. & Contemp. Probs. 151, 160 (2022). By relying on data from cisgender men, *amici* misrepresent what, if any, athletic differences exist for transgender and cisgender women.

First, hormone therapy, a common component of gender-affirming care, changes athletic ability. See D. J. Oberlin, *Sex Differences and Athletic Performance.*

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does a disservice to all scientists to give arbitrary decisions a façade of scientific evidence where none exist[.]" Tenan & Nimphius, *supra*, at 102.

Where Do Trans Individuals Fit into Sports and Athletics Based on Current Research?, Frontiers Sports & Active Living, Oct. 2023, at 5. Emerging research suggests that hormone therapy has a statistically significant impact on transgender women's athletic performance. See Canadian Centre for Ethics in Sport, *Transgender Women Athletes and Elite Sport: A Scientific Review*, 5 (2022), perma.cc/Z24H-F6PJ ("The limited available evidence examining the effect of testosterone suppression as it directly affects trans women's athletic performance showed no athletic advantage [compared to cisgender women] exists after one year of testosterone suppression."); Joanna Harper et al., *How Does Hormone Transition in Transgender Women Change Body Composition, Muscle Strength and Haemoglobin? Systematic Review with a Focus on the Implications for Sport Participation*, 55 Brit. J. Sports Med. 865, 869–71 (2021) (finding transgender women's Hgb/HCT levels, indicators for endurance performance, are equivalent to cisgender women's levels within four months of treatment and transgender women's strength significantly decreases after 12 months).

Second, irrespective of the effects of hormone therapy, data for cisgender men is not generalizable to transgender women because research indicates there are psychological differentiators between transgender women and cisgender men that shape transgender women's athletic performance. As they face immense stigma and hostility, transgender people suffer from certain mental health conditions at significantly higher rates than the general population. See André Hajek et al., *Prevalence and Determinants of Depressive and Anxiety Symptoms Among Transgender People: Results of a Survey*, 11 Healthcare 705, 705–06,

713 (2023) (finding "remarkably high" prevalence rates of probable depression and anxiety among transgender people and identifying social marginalized, stigma, and discrimination as factors); Alex Siu Wing Chan et al., *Societal Discrimination and Mental Health among Transgender Athletes: A Systematic Review and Meta-analysis*, BMC Psych., Jan. 2024, at 5, 11 (discussing discrimination and prejudice experienced by transgender athletes and resulting mental health issues). Experts warn: poorer mental health "should not be underestimated as a component of athletic performance." Ines Eisele, *Fact Check: Do trans women have unfair athletic advantage?*, DW (Mar. 20, 2025), perma.cc/2U22-4TNV. Studies of cisgender men do not account for the myriad differences in transgender women's lived experiences that shape their athletic abilities.

2. *Overreliance on non-athletes' data*

Amici also err by relying on data from non-athletes. See Harper, *Transgender Athletes*, *supra*, at 158 (highlighting limited applicability of studies of non-athletes' to athletes and noting that studies focused on transgender athletes suggest different outcomes). Here, by their experts' own admissions, *amici* again rely on the wrong comparator. For example, the most cited study by *amici*, found in nine briefs, is the review by Hilton and Lundberg, *supra*. In their review, Hilton and Lundberg acknowledge that a key limitation of their findings is that the underlying studies pertaining to transgender women focus on populations of "healthy adults with regular or even low physical activity levels, and not highly trained athletes." *Id.* at 209. Additionally, in Hunter et al., *supra*, cited in seven briefs, the authors note that because many studies assessing the effects of gender-affirming

hormone therapy center around "nonathletic transgender individuals," "key questions remain about the effects of [gender-affirming hormone therapy] on athlete populations[.]" *Id*. at 2345.

Research demonstrates that athletes' biological metrics are impacted by years of training, making non-athlete data inapplicable. See Khadiza Akter et al., *Physical Fitness Differences between Athletes and Non-Athletes at the University Level: A Gender-Based Analysis*, 3 Sports Sci. & Health Advances 421, 425 (2025) (finding across genders that university athletes have greater flexibility, balance, and lower-body power compared to non-athlete counterparts); see also Peter H. Sönksen et al., *Why Do Endocrine Profiles in Elite Athletes Differ Between Sports?*, Clinical Diabetes & Endocrinology, Feb. 2018, at 8 (finding "clear body composition and hormone concentration differences between athletes of different sporting disciplines of both sexes"). To make accurate claims about the relative abilities of cisgender and transgender female athletes requires data on athletes, not the general population.

For example, *amici* frequently cite a study of non-athletes that found differences in relative hand grip strength for transgender women compared to cisgender women. See Miranda Scharff et al., *Change in Grip Strength in Trans People and Its Association with Lean Body Mass and Bone Density*, 8 Endocrine Connections 1020, 1026–27 (2019). However, in a study of athletes, the more relevant comparator, there was *no differences* in relative hand grip strength when comparing cisgender and transgender women. Blair Hamilton et al., *Strength, Power and Aerobic Capacity of Transgender Athletes: A Cross-sectional Study*, 58 Brit. J. Sports Med. 586, 589 (2024); see also Hilton &

Lundberg, *supra*, at 207 (discussing the limitations of using grip strength as a proxy of strength for athletes).

Amici also argue that transgender women have an advantage over cisgender women because of bigger lung size. See, *e.g.*, Interested Sports Physiologists Br. at 14; Sport Scientists Br. at 3; Six High School Athletes Br. at 9. However, when comparing transgender and cisgender women, the Hamilton study found no statistically significant difference in absolute VO_2 max: the measure of oxygen consumption during exercise and a known objective measure of fitness.[5] Hamilton, *supra*, at 595.

Hamilton's finding that transgender and cisgender women athletes exhibited no difference in relative handgrip strength or absolute VO_2 undermines *amici*'s reliance on grip strength and lung size data in non-athletes as purported evidence of transgender women's athletic advantage over cisgender women. *Ibid.*

B. *Amici*'s evidence concerning innate athletic advantage among pre-pubescent children of different genders is insufficient.

Petitioners and many *amici* assert that pre-puberty differences between cisgender boys and girls confer innate athletic advantages to all people assigned the male sex at birth, even before the influence of hormones. See, *e.g.*, W. Va. Pet. Br. at 35; Interested Sports Physiologists Br. at 15–21; Doctors of Sports Med. Br. at 6–7; Liberty Couns. Br. at 12–13, 20–21.

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[5] Lindsay Warner, *VO2 max: What is it and how can you improve it?*, Harvard Health Publ'g (July 8, 2024), perma.cc/G8N7-8HKC.

However, the studies they cite in support of this claim often show negligible differences and fail to disentangle the social versus biological factors that impact advantage.

The pre-puberty differences *amici* highlight are often negligible. See Espen Tønnessen et al., *Performance Development in Adolescent Track and Field Athletes According to Age, Sex and Sport Discipline*, 10 PLoS ONE, 1, 2 (2015). For example, *amici* cite to Brown et al.'s study of swimming performance, see Interested Sports Physiologists Br. at 20 n.58, which found pre-puberty males swim just 1.16% to 2.63% faster in select events with no difference in other events. Gregory A. Brown et al., *Sex Based Differences in Swimming Performance in 10-Years-Old-and-Under Athletes in Short Course National Competition*, Eur. J. Sport Sci., Jan. 2025, at 8–9. Petitioners and *amici* also cite to Atkinson et al.'s research, see, *e.g.*, W. Va. Pet. Br. at 35; Interested Sports Physiologists Br. at 20 n.58; Doctors of Sports Med. Br. at 7, which found only a 5% performance difference across sexes pre-puberty in track and field. Mira A. Atkinson et al., *Sex Differences in Track and Field Elite Youth*, 56 Med. & Sci. Sports & Exercise 1390, 1396 (2024).

Even if some pre-pubescent differences exist, *amici*'s proffered evidence does not disentangle to what extent differences are societally created as opposed to biological. Children are conditioned by gender norms and expectations at a young age. See Women's Sports Foundation, *Chasing Equity*, 33 (Jan. 2020), perma.cc/ZN9H-NCZX (describing gender stereotypes about female athletes being "less capable of and less interested in participating in" sports as a barrier to sport participation).

Social forces may discourage cisgender girls from playing sports early on, leaving them with less opportunities to develop strength, speed, and other athletic skills. See Lotte Kofoed Jørgensen et al., *Gender Differences in Competitiveness: Friends Matter*, J. Behav. & Experimental Econ., Nov. 2022, at 2, 8 (finding boys more willing to compete than girls); Iiris Kolunsarka et al., *The Associations Between Organized Sport Participation and Physical Fitness and Weight Status Development During Adolescence*, 27 J. Sci. & Med. Sport 863, 867 (finding that adolescents who did not participate in organized sports had lower levels of cardiorespiratory and muscular fitness). Additionally, differences in resources dedicated to women's sports can also limit cisgender girls' athletic development and deepen disparities. Women's Sports Foundation, *Do You Know the Factors Influencing Girls' Participation in Sports?*, perma.cc/J7YW-6HGW (describing lack of access, inferior facilities, and less funding compared to boys as reasons why girls drop out of sport participation).

Therefore, to the extent studies identify minor advantages, some as small as 1.16%, for pre-pubescent boys on select fitness assessments, these are not necessarily indicators of innate biological difference. *Amici* and their sources fail to situate their findings in light of society's gender norms and other ways in which women and girls' sports are devalued.

C. Potential biological differences between transgender and cisgender women do not necessarily correlate with competitive advantage.

In addition to mischaracterizing transgender women's biological differences, *amici* overstate

transgender women's competitive advantage. It is simply not true that "the physical advantage men [and transgender women] enjoy is relevant in every athletic competition." Advancing Am. Freedom Br. at 13. Petitioners' *amici* err in assessing competitive advantage by (1) cherry-picking metrics that are flawed indicators for athletic advantage; (2) ignoring the multifactorial nature of sport performance; and (3) overlooking cisgender women's innate athletic advantages.

First, *amici*'s approach is flawed because cherry-picking select fitness metrics in which transgender women outperform cisgender women does not accurately indicate overall competitive advantage. Assuming *arguendo* that transgender women have certain biological advantages over cisgender women, the biological metrics cited by *amici* do not confer an advantage in every sport. For example, *amici*'s briefs frequently point to grip strength as an example of transgender women's competitive advantage over cisgender women. See, *e.g.*, Doctors of Sports Med. Br. at 12–13; Sports Scientists Br. at 4; Interested Sports Physiologists Br. at 16–17; Am. Coll. of Pediatricians Br. at 6–7. As discussed *supra* II.A.2, there is reason to doubt that transgender female *athletes* have an advantage here. Regardless, grip strength, even if a proxy for upper body strength, has little to no bearing on competitive success in many sports, including soccer and track.

Second, for sports where grip strength and upper body strength are relevant, athletic performance is still multifactorial. Athos Trecroci et al., *Editorial: Factors Affecting Performance and Recovery in Team Sports: A Multidimensional Perspective*, Frontiers Physiology, Mar. 2022, at 1–3. A meta-analysis across

sports found that psychological factors were of "critical importance" in sport performance. Mert Ayranci & Mehmet Kemal Aydin, *The Complex Interplay Between Psychological Factors and Sports Performance: A Systematic Review and Meta-analysis*, PLoS ONE, Aug. 2025, at 15. *Amici* present no evidence that transgender athletes maintain an advantage over cisgender athletes on any psychological metrics.

Third, *amici* fail to acknowledge how certain biological differences may work against transgender women in sports. For instance, following hormone therapy, transgender women have a lower relative jump height and peak power compared to cisgender women. Hamilton et al., *supra*, at 595. In fact, "after going through hormone therapy, trans[gender] women * * * mov[e] their bodies with reduced aerobic capacity, reduced muscle mass." Eisele, *supra*. Evidence also suggests that cisgender women have an advantage in post-exercise recovery time. Miguel Gomes et al., *Sex differences in Muscle Fatigue Following Isokinetic Muscle Contractions*, Sci. Reps., Apr. 2021, at 10.

Additionally, certain attributes that may seem like an advantage for transgender women in one sport can be a disadvantage in another. For instance, a higher proportion of body fat is more commonly associated with cisgender women and may be advantageous in endurance races and cold swims. Christine Ro, *The sports where women outperform men*, BBC (Aug. 1, 2024), perma.cc/6B87-Y33B.

D. Biological advantages are pervasive and expected among cisgender athletes.

Amici's arguments about biological advantages are misleading because they overlook the widely

embraced biological heterogeneity that exists among cisgender athletes. Many successful cisgender athletes excel, in part because they possess a biological advantage over their competitors. For cisgender athletes who dominate elite sports, their biological advantages are accepted and celebrated, not a basis for disqualification.

Former Olympian swimmer Michael Phelps, for example, has what has been described as "the perfect body for swimming." Colleen De Bellefonds, *Why Michael Phelps Has the Perfect Body for Swimming*, Biography (May 14, 2020), perma.cc/9YBF-YBQQ. His biological advantages include double-jointed ankles and elbows, paired with large hands that "act like paddles," and lower lactic acid production compared to other athletes allowing him to recover quicker. *Ibid.* Phelps's athletic achievements and his atypical biological characteristics are celebrated, not derided. See, *e.g.*, Adam Hadhazy, *What Makes Michael Phelps So Good?*, Sci. Am. (Aug. 18, 2008), perma.cc/HK82-NT6C.

Phelps is not a unique case. Other athletes who have been noted for their advantageous biological traits include:

- The most-decorated-Olympian-gymnast-of-all-time, Simone Biles, whose height is one factor that helps her complete "never-done-before skills": "Biles could have the perfect body for high-difficulty skills in her sport. With her small stature, she is able to do more in the same amount of time as others who might be taller or with a lower strength-to-weight ratio." D'Arcy Maine & Amy Van Deusen, *How*

does Simone Biles do what seems impossible?, ESPN (Oct. 13, 2019), perma.cc/2KAQ-C5QB.

- Six-time NBA All-Star, Kawhi Leonard, whose large hands, which are 19% wider than the average NBA Draft prospect, provide an edge for effective defense and are celebrated with his nickname, "The Klaw." Scott Cacciola, *A High-Five Long and Wide*, N.Y. Times (May 18, 2014), perma.cc/VQK9-2U6A; Ryan Patrick Jones, *The physical traits that make pro basketball players great*, CBC News (May 15, 2019), perma.cc/NBB6-ED7J.
- World Archery Champion, Brady Ellison whose 20/10 eyesight "means that he can see at 20 feet what mere mortals can only make out at half the distance." *Why You're Not an Olympian: Athletes Built for their Sports*, ABC News (Aug. 2, 2012), perma.cc/NB7L-J2GH.

Meaningful biological advantages are not reserved for world champions. Statistically, "[i]t is expected that about 2.3% of a normally distributed population is likely to fall above two standard deviations from a population mean" and such "exceptional individuals may be those who are gifted and excel at some sport." Oberlin, *supra*, at 5. Although the 2.3% prediction of exceptionality far outsizes estimates of transgender participation in sports, see *supra* Section I.A, "[t]here is no concern for restricting individuals who are exceptionally large or small, those who are genetically gifted, or those with differing hormone concentrations or muscle mass" Oberlin, *supra*, at 8–9.

While biological advantages are pervasive among athletes, it is important to remember these traits do

not guarantee athletic success in isolation. Despite Phelps's advantageous traits, "[e]lite coaches have argued that perhaps more important than his build, Phelps perfected his swimming technique." De Bellefonds, *supra*. Similarly, for the other highlighted champions, commentators believe technique, training, mental strength, decision-making, and other factors outside of biological advantages contributed to their success. See Jones, *supra* ("[P]hysical characteristics are just one aspect of what makes these players great."); Maine & Van Deusen, *supra*; ABC News, *supra*.

III. *Amici*'s claims that transgender participation risks physical and psychological harms to cisgender athletes are unsupported.

Amici overstate and, at times, invent harms to cisgender women and girls. First, *amici* misrepresent the facts in their cherrypicked stories of injuries. Some of these stories do not even involve transgender athletes. Second, there is no evidence to support *amici*'s contention that transgender athletes increase the risk of sexual harassment and violence to cisgender athletes. Lastly, *amici*'s claims that transgender athletes' participation in sports causes amorphous psychological harms fall flat; empirical evidence shows that cisgender women want their transgender teammates to participate in sports.

A. Transgender athletes' participation does not increase the risk of physical harm to cisgender women.

Amici's argument that transgender participation leads to increased risk of injury for cisgender athletes cannot withstand scrutiny. Because this argument lacks empirical support, *amici* rely only on anecdotes

of in-game injuries to support their spurious argument that transgender girls increase the risk of injury to cisgender girls. But the stories *amici* point to do not support their claim. The alleged injuries are routine, non-existent, or caused by cisgender men.

Critically, empirical data from states with transgender inclusive sports policies demonstrate flat or decreasing injury rates. See Tom Schardin & Karissa L. Niehoff, *Survey shows concussion reduction in nine sports*, Twin Cities Pioneer Press (Nov. 21, 2021), perma.cc/V6MN-LAVW (discussing sixth year of decreasing concussion rates in Minnesota); *Sports-Related Concussions among Massachusetts Youth*, Injury Surveillance Program, Mass. Dep't Pub. Health (Sep. 2021), perma.cc/DD2J-PZEQ (demonstrating consistently-decreasing concussion rates in Massachusetts year-over-year); *Concussion Injury in Connecticut: A Fact Sheet – 2023 Update*, Conn. Dep't Pub. Health, Injury & Violence Surveillance Unit (Oct. 2024), perma.cc/9R6B-46QV (describing a 30% reduction in concussion rates in Connecticut children under 18 years of age since 2016).

To start, *amici*'s injury argument must be cabined. Many sports discussed throughout *amici*'s briefs, such as track and swimming, do not involve any contact, so the risk of injury due to competition with transgender athletes is nonexistent. In sports which do involve contact, either with the body or a ball, *amici* can only point to a handful of injuries. A closer look at each cherrypicked injury story reveals the truth: transgender girls and women are no more likely to cause injuries in sports than their cisgender teammates.

1. *Payton McNabb*

Several briefs discuss Payton McNabb, a cisgender high school volleyball player who gained widespread media attention for her high school sport injury. See, *e.g.*, Indep. Women's L. Ctr. Br. at 15; Liberty Couns. Br. at 29; Am.'s Future Br. at 11. McNabb was diagnosed with a concussion after a volleyball spiked by a transgender player in a game hit her in the face. Hank Lee, *Former NC high school athlete Payton McNabb to be special guest at Trump speech*, WCNC Charlotte (Mar. 5, 2025), perma.cc/H5DB-JAZC.

Experts agree that McNabb's injury was routine and could just have easily occurred while playing against a cisgender athlete. Coaches from local teams stressed that the transgender player competed on the team for four years without issue, and their cisgender players did not want to suddenly forfeit future games against the transgender athlete's team. Cherokee Cnty. Bd. of Educ., *Board Bullets*, 1 (Sep. 21, 2022), perma.cc/C5AY-9Z85. One local volleyball coach explained, not only had she "seen girls hit the ball harder than the one on the video [of Payton McNabb]," but "every time a student plays there is an inherent risk of injury." *Id.* at 2. As Team USA volleyball star Serena Gray explains, these sorts of accidents are part of the sport: "I get hit in the face in practice every single day—either blocking or playing back-row defense." Katie Barnes, *Inside San Jose State's polarizing volleyball season*, ESPN (Nov. 26, 2024), perma.cc/7MG2-TYQK. "This is normal." *Ibid.*

There is also evidence that McNabb's injuries may have been exaggerated. Despite claims that McNabb suffered permanent paralysis and life-long injuries

from the accident, The White House, *Interview with Payton McNabb*, Facebook (Mar. 5, 2025), tinyurl.com/yx8349ue, she continued to participate in high school sports shortly after the game, see Payton McNabb, *Three Steals vs Fannin County*, Hudl (Nov. 18, 2022), perma.cc/T7AQ-98GR (indicating McNabb played in a varsity basketball game just one month after the volleyball accident). McNabb also went on to participate in softball and basketball during her senior year of high school. See *Payton McNabb*, MaxPreps, https://perma.cc/U2B2-VN7L.

2. *Blaire Fleming*

Other briefs, see, *e.g.*, W. Va. Pet. Br. at 7; Indep. Women's L. Ctr. Br. at 15–16; Riley Gaines Br. at 19–20, discuss Blaire Fleming, a senior starter on the San Jose State University volleyball team. Jason Zengerle, *How the War Over Trans Athletes Tore a Volleyball Team Apart*, N.Y. Times Mag. (Apr. 20, 2025), perma.cc/B4AN-HBKN. After opposing teams learned they would be playing against a transgender player, they forfeited several matches against Fleming's team, claiming they feared they would suffer an injury. *Ibid.*

Despite her opponents' concerns, there are *no reports* of injuries caused by Fleming. The teammate who outed Fleming incorrectly claimed to local news that the height Fleming "can jump is so much higher" and that her "strength behind the ball is just so much more powerful." KTVU FOX 2 San Francisco, *San Jose State volleyball player on why she outed her transgender teammate*, YouTube (Nov. 23, 2024), perma.cc/Y2NS-V6NX. However, an ESPN investigation revealed Fleming is on-par with her cisgender peers. Barnes, *supra.* Her average spike speeds are

middle-of-the-pack. *Ibid.* Fleming is only one-inch taller than the average hitter in her conference and a full five inches shorter than the tallest player in her conference. *Ibid.*

As Logan Eggleston, American Volleyball Coaches Association National Player of the Year, remarked, "biological women are hitting the ball just as hard or * * * harder and jumping even higher * * * [Fleming] might be transgender, but that doesn't make her this superhuman athlete that's crushing other people." *Ibid.*

3. *Massachusetts Basketball Player*

Other briefs reference a transgender basketball player from Massachusetts, who was forced into the limelight after an opposing team forfeited a game in the spring of last year, allegedly due to injuries she caused. See, *e.g.*, Indep. Women's L. Ctr. Br. at 15; Concerned Women for Am. Br. at 29 n.9. To the contrary, the opposing coach forfeited because half of his roster was injured and playoffs were looming, not because of injuries allegedly caused by the transgender player. Abby Patkin, *Injuries involving trans basketball player at Mass. school spark controversy*, Boston.com (Mar. 4, 2024), perma.cc/6QUG-HT94. Four members of the team's twelve-person roster were benched for *pre-existing injuries* before tip-off. *Ibid.* A fifth player was injured during the game in a different accident which had nothing to do with the transgender player. *Ibid.* Just two players were allegedly injured in accidents involving the transgender player. *Ibid.* The injury that gained internet notoriety occurred after the cisgender player fell during a routine scuffle over a loose ball, an injury that just as easily could have occurred if her opponent was cisgender.

New York Post Sports, *Girls basketball player allegedly hurt in tussle with player who identifies as female*, YouTube (Feb. 20, 2024), perma.cc/FBL4-DMAU. After this game, the school continued to allow the student to play, and no other stories of injuries have surfaced.

4. *Massachusetts Field Hockey Player*

Another *amicus* references a male field hockey player who injured a girl on the opposing team in a playoff field hockey match. Indep. Women's L. Ctr. Br. at 14–15. The athlete in question was a cisgender young man, not a transgender girl. Kristina Watrobski, *Field hockey captain rips state rule allowing boys on girls' teams after 'traumatic' injury to teammate*, KATU (Nov. 10, 2023), perma.cc/JEQ7-8YWZ. He was permitted to play on the women's team because the Massachusetts Interscholastic Athletic Association allows male student-athletes to "play on a girls' team if that sport is not offered in the school for the boy," and vice versa. *Ibid.* This anecdote is inapposite because it does not involve a transgender athlete but rather a cisgender boy playing on a co-ed team. See Section II.A.1, *supra.*

B. *Amici* conflate the risk of sexual violence posed by men with the risk of sexual violence posed by transgender women.

Amici spuriously argue that the risk of sexual harassment and violence against cisgender women warrants exclusion of transgender women from female sports. See, *e.g.*, Sex Matters Br. at 2; Pa. Sch. Bd. Dirs. Br. at 9–10; Reem Alsalem Br. at 8. As one *amicus* noted, "ninety-eight percent of sexual crimes are carried out by men." Sex Matters Br. at 2. *Amici* are correct: cisgender men carry out most sexual violence,

not transgender girls and women. Transgender sports bans do nothing to protect cisgender female athletes from the main perpetrators of sexual violence.

Amici provide *no* empirical support for their claim that transgender women present a risk of sexual violence. All available evidence shows that allowing transgender women and girls to use female sex-segregated spaces, like locker rooms and bathrooms, does not increase the risk of sexual harassment or violence to cisgender women. Brian S. Barnett et al., *The Transgender Bathroom Debate at the Intersection of Politics, Law, Ethics, and Science*, 46 J. Am. Acad. Psychiatry L. 232, 239 (2018) ("From a scientific and evidence-based perspective, there is no current evidence that granting transgender individuals access to gender-corresponding restrooms results in an increase in sexual offenses."); accord Jody L. Herman et al., *Safety and Privacy in Public Restrooms and Other Gendered Facilities*, Williams Inst., 3 (2025), perma.cc/9MWF-94ZV.

In reality, excluding transgender women and girls from women's and girls' teams can increase the risk of sexual violence. Transgender women are already more likely to be the victims of sexual assault and harassment than cisgender women. Andrew R. Flores et al., *Gender Identity Disparities in Criminal Victimization: National Crime Victimization Survey, 2017–2018*, 11 Am. J. Pub. Health 726, 727 (2021). Banning transgender women from women's spaces increases sexual violence against transgender people. One study found that transgender adolescent girls forced to use boy's restrooms and locker rooms were two-and-a-half times more likely to be sexually assaulted when compared to their peers who are allowed to use girls' spaces. Gabriel R. Murchison et al., *School Restroom*

and Locker Room Restrictions and Sexual Assault Risk Among Transgender Youth, 143 Pediatrics, June 2019, at 6–7.

Banning transgender women and girls from teams and locker rooms may also put cisgender women in harm's way. When transgender women are banned from women's spaces, cisgender women who do not conform with traditional gender stereotypes are accosted in bathrooms, insulted, and are told they must "prove [their] sex." German Lopez, *Women are getting harassed in bathrooms because of anti-transgender hysteria*, Vox (May 19, 2016), perma.cc/C2RW-ZFBF. In one case, a cisgender man "barged into a women's restroom at Baylor Medical Center" to "make sure [a cisgender woman] was going to the right place." Eric Nicholson, *Self-Appointed Bathroom Cop Catches Dallas Woman Using Women's Restroom*, Dallas Observer (Apr. 29, 2016), perma.cc/5YX5-VVZD. Banning transgender girls from girls' sports can lead to the same sort of harassment of cisgender athletes. See Kiara Alfonseca, *Utah official falsely suggests teen student is transgender, now faces calls to resign*, ABC News (Feb. 9, 2024), perma.cc/CUT8-CT7X (reporting on cisgender teen who was accused of being transgender by local lawmaker who saw her photo on a flyer for the high school basketball team).

C. The purported psychological harms do not reflect the experiences of cisgender girls participating in sports with transgender girls.

With scant evidence of physical harms, *amici* turn to amorphous and ill-defined psychological harms, but these arguments lack support as well. *Amici*'s claim that transgender girls' participation in girls' sports

reduces participation of cisgender girls, see, *e.g.*, Reem Alsalem Br. at 9; 31 Olympians Br. at 9–10, is simply false. See generally *supra* Section I.B.

At the beginning, *amici*'s claim of psychological harms collapses given that many transgender athletes—especially young athletes—are not recognizably trans. *Amici*'s psychological harm argument rests on the improper assumption that most cisgender-athletes perceive their transgender teammates as transgender. But many of the transgender athletes who made headlines in recent years had been participating in youth sports *as girls* for years, without issue. It is not until they are "outed" that issues arise. See, *e.g.*, Marissa Bagg, *Volleyball captain concerned for transgender teammate: 'She's not being treated like a human*,' NBC Miami (Nov. 29, 2023), tinyurl.com/mwfs7ujd (transgender teammate's participation on volleyball team had "never been controversial" until she was outed as transgender and "now, all of the sudden * * * it's a problem") (cleaned up); Cherokee Cnty. Bd. of Educ., *supra*, at 3 (transgender volleyball player participated on team for four years without issue, until she was publicly outed).

The record in this case is filled with examples of cisgender athletes speaking out in favor of transgender inclusive policies. See, *e.g.*, 176 Athletes in Women's Sports C.A. Br. As one high school volleyball captain made clear after her transgender teammate was removed from the team: "She was probably one of the favorites on the team that everyone loved * * * I love her so much. She deserves to be treated just like everybody else." Bagg, *supra*.

CONCLUSION

Protecting women's sports is important, but evidence offered by Petitioners and *amici* fails to demonstrate that transgender sports bans accomplish this goal.

For the foregoing reasons, the judgments of the Ninth and Fourth Circuit Courts of Appeals should be affirmed.

Respectfully submitted,

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