Fast Break

Publication for team medical personnel

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WELCOME to FAST BREAK!

Welcome to Fast Break, the official quarterly news bulletin of the FIBA Medical Commission. Our goal is to introduce our FIBA sport medicine and sport science community to newsworthy research topics and develop a community of practice among physicians and clinicians involved with basketball at every level of play across the globe.

We hope this publication will foster friendly communication and discussion within the basketball world. We welcome and encourage your questions, comments, suggestions, and contribution to this publication.

MESSAGE FROM THE FIBA MEDICAL COMMISSION

The issue of gender eligibility has been a hot topic for all levels of sport. The key guiding principles, as documented by the IOC Guidelines, are inclusion, fairness, and safety. The push for greater integration of transgender has come about from the shift in community attitudes. Generally, there is a greater acknowledgement of gender issues and inclusion. Every sport will approach this issue differently due to nature of their sporting competition, the physiological demands and safety considerations. National level sport will need to address this issue based on local anti-discrimination laws and not primarily guided by International Federations approach to this issue.

One aspect to be thought through, in the case of trans-woman cases, will be the protection of women's sport as a whole. If the inclusion of transgender athlete compromises the fairness or safety of a competition then, as a sport's highest priority, the women's competition should be protected. Therein lies the rub. How do you interpret this when there are so many variables and unknowns in each case? Our experience in monitoring fairness and safety in these situations is extremely limited.

There is a lot of work to be done and we have only started in a very long journey!

Dr Peter Harcourt

Chair, FIBA Medical Commission

MESSAGE FROM THE EDITOR

There is potentially no more contentious issue in sport than the challenges that surround protecting and promoting the human rights of transgender athletes, as well as fair and equitable competition. The question of whether athletes should be allowed to compete according to their gender identity and the physiological effects of biology has prompted intense medical, legal and ethical debate. The International Olympic Committee had delayed publishing transgender guidelines due to very conflicting opinions that surely was influenced by the inconsistency in the evidence-based medical publications on this topic. While a framework has been outlined by the IOC, each international federation will need to determine the rules specific to their sport and event. This will be a daunting task for FIBA.

To help promote your consideration of this highly charged and divisive topic, this edition of Fast Break will highlight a selection of publications that considers the medical, legal and ethical factors of the transgender issues in sport.

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IN THIS ISSUE

SELECTED PUBLICATIONS OF INTEREST

IOC framework on fairness, inclusion and non-discrimination on the basis of gender identity and sex variations.
https://stillmed.olympics.com/media/Documents/Beyond-the-Games/Human-Rights/IOC-Framework-Fairness-Inclusion-Non-discrimination-2021.pdf

Harper, J. Race times for transgender athletes.

Journal of Sporting Cultures and Identities 6 (1): 1-9, 2015.
https://doi:10.18848/2381-6678/CGP/v06i01/54079

In recent years organizations such as the International Olympic Committee have created regulations to allow those athletes who have undergone gender reassignment to compete in their chosen gender. Despite these rules, there is still a widespread belief that those athletes who have transitioned from male to female (MTF) have an inherent advantage over female competitors. Until this point, there has not been any published data, based on performances of MTF athletes, to either support or refute this belief. There are two main stumbling blocks to creating such a study: the first is to determine an appropriate metric to examine; the second is to find participants for the study. This study analyzed race times for eight MTF runners who have competed in distance races in both genders, using a mathematical model called age grading. Collectively, the age graded scores for these eight runners were essentially the same in both genders.

Jones, B.A., Arcelus, J., Bouman, W.P. et al. Sport and Transgender People: A Systematic Review of the Literature Relating to Sport Participation and Competitive Sport Policies.

Sports Med 47, 701–716 (2017). Journal of Sports Medicine. 55(1):30-37, 2021 Jan.
https://doi.org/10.1007/s40279-016-0621-y

Whether transgender people should be able to compete in sport in accordance with their gender identity is a widely contested question within the literature and among sport organisations, fellow competitors, and spectators. Owing to concerns surrounding transgender people (especially transgender female individuals) having an athletic advantage, several sport organisations place restrictions on transgender competitors (e.g. must have undergone gender-confirming surgery). In addition, some transgender people who engage in sport, both competitively and for leisure, report discrimination and victimisation.
OBJECTIVE: To the authors' knowledge, there has been no systematic review of the literature pertaining to sport participation or competitive sport policies in transgender people. Therefore, this review aimed to address this gap in the literature.
METHOD: Eight research articles and 31 sport policies were reviewed.
RESULTS: In relation to sport-related physical activity, this review found the lack of inclusive and comfortable environments to be the primary barrier to participation for transgender people. This review also found transgender people had a mostly negative experience in competitive sports because of the restrictions the sport's policy placed on them. The majority of transgender competitive sport policies that were reviewed were not evidence based. Conclusion: Currently, there is no direct or consistent research suggesting transgender female individuals (or male individuals) have an athletic advantage at any stage of their transition (e.g. cross-sex hormones,

gender-confirming surgery) and, therefore, competitive sport policies that place restrictions on transgender people need to be considered and potentially revised.

Hilton, E.N., Lundberg, T.R. Transgender Women in the Female Category of Sport: Perspectives on Testosterone Suppression and Performance Advantage.

Sports Med 51, 199–214 (2021).
https://doi.org/10.1007/s40279-020-01389-3

Males enjoy physical performance advantages over females within competitive sport. The sex-based segregation into male and female sporting categories does not account for transgender persons who experience incongruence between their biological sex and their experienced gender identity. Accordingly, the International Olympic Committee (IOC) determined criteria by which a transgender woman may be eligible to compete in the female category, requiring total serum testosterone levels to be suppressed below 10 nmol/L for at least 12 months prior to and during competition. Whether this regulation removes the male performance advantage has not been scrutinized. Here, we review how differences in biological characteristics between biological males and females affect sporting performance and assess whether evidence exists to support the assumption that testosterone suppression in transgender women removes the male performance advantage and thus delivers fair and safe competition. We report that the performance gap between males and females becomes significant at puberty and often amounts to 10–50% depending on sport. The performance gap is more pronounced in sporting activities relying on muscle mass and explosive strength, particularly in the upper body. Longitudinal studies examining the effects of testosterone suppression on muscle mass and strength in transgender women consistently show very modest changes, where the loss of lean body mass, muscle area and strength typically amounts to approximately 5% after 12 months of treatment. Thus, the muscular advantage enjoyed by transgender women is only minimally reduced when testosterone is suppressed. Sports organizations should consider this evidence when reassessing current policies regarding participation of transgender women in the female category of sport.

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.

Harper J, O'Donnell E, Sorouri Khorashad B, et al.

British Journal of Sports Medicine 2021; 55:865-872.

OBJECTIVES: We systemically reviewed the literature to assess how long-term testosterone suppressing gender-affirming hormone therapy influenced lean body mass (LBM), muscular area, muscular strength and haemoglobin (Hgb)/haematocrit (HCT). DESIGN: Systematic review.
DATA SOURCES: Four databases (BioMed Central, PubMed, Scopus and Web of Science) were searched in April 2020 for papers from 1999 to 2020.
ELIGIBILITY CRITERIA FOR SELECTING STUDIES: Eligible studies were those that measured at least one of the variables of interest, included transwomen and were written in English. RESULTS: Twenty-four studies were identified and reviewed. Transwomen experienced significant decreases in all parameters measured, with different time courses noted. After 4 months of hormone therapy, transwomen have Hgb/HCT levels equivalent to those of cisgender

women. After 12 months of hormone therapy, significant decreases in measures of strength, LBM and muscle area are observed. The effects of longer duration therapy (36 months) in eliciting further decrements in these measures are unclear due to paucity of data. Notwithstanding, values for strength, LBM and muscle area in transwomen remain above those of cisgender women, even after 36 months of hormone therapy. CONCULUSION: In transwomen, hormone therapy rapidly reduces Hgb to levels seen in cisgender women. In contrast, hormone therapy decreases strength, LBM and muscle area, yet values remain above that observed in cisgender women, even after 36 months. These findings suggest that strength may be well preserved in transwomen during the first 3 years of hormone therapy.

Beyond Physiology: Embodied Experience, Embodied Advantage, and the Inclusion of Transgender Athletes in Competitive Sport.

Torres, CR. Frias Lopez, FJ, Martinez Patino MJ.

Sport Ethics and Philosophy, 16(1): 33-49, 2020.
https://doi.org/10.1080/17511321.2020.1856915

In this article, we scrutinize views that justify exclusionary policies regarding transgender athletes based primarily on physiological criteria. We introduce and examine some elements that deserve more in-depth investigation in the discussion on how to assess the inclusion of transgender athletes in competitive sport, namely lived body and embodied experience. These phenomenological notions have played, especially since the publication of Iris Marion Young's essay 'Throwing like a girl: A phenomenology of feminine body comportment, motility, and spatiality,' a key role in the philosophical literature on the inclusion of women in sport. However, they have not yet been fully incorporated into the debate on transgender athletes. Subsequently, we explore interrelated aspects of transgender athletes' embodied experience that must be taken into account when assessing issues related to their participation in competitive sport, for they might confer some transgender athletes an embodied advantage or, possibly, disadvantage when compared to their cisgender counterparts. We contend that analyses of the inclusion or exclusion of transgender athletes must go beyond their current reliance on physiological criteria and incorporate the phenomenological notion of embodied advantage.

Public Attitudes about Transgender Participation in Sports: The Roles of Gender, Gender Identity Conformity, and Sports Fandom.

Flores, A.R., Haider-Markel, D.P., Lewis, D.C. et al.

Sex Roles 83, 382–398 (2020).
https://doi.org/10.1007/s11199-019-01114-z

We examine the roles of gender, gender attitudes, and interest in sports on public attitudes about transgender people's participation in athletics. Using a representative survey of 1020 adults in the United States from 2015 and after controlling for a variety of demographic, political, and attitudinal factors, we find that women, consistent with their gender identity, are more supportive than men of transgender athletes participating in sports. In addition, we find that individuals who hold traditional gender role beliefs and those who have greater gender identity conformity with their gender are less likely to support transgender athletes' participation. The effects of gender identity conformity and beliefs in traditional gender roles are also conditioned by respondents' gender. Sports fans are more likely to oppose transgender athletes' participation, and female

sports fans have views that resemble those of male sports fans. Finally, respondents who have contact with transgender people and those with stronger egalitarian attitudes are more favorable toward transgender participation whereas those espousing high moral traditionalism are more opposed. Our findings highlight areas of support and resistance to transgender athletes, and our work might be helpful to policymakers, as well as advocates, who promote inclusion.

Making Sense of Debate Over Transgender Athletes in Olympic Sport

Pielke, R., Greey, A.D. and Lenskyj, H.J. (Ed.)

Justice for Trans Athletes (Emerald Studies in Sport and Gender), Emerald Publishing Limited, Bingley, pp. 31-43.
https://doi.org/10.1108/978-1-80262-985-920221003

In recent years debate has intensified over the inclusion of transgender athletes in athletic competition at all levels and across sports. Debate has emphasized trade-offs between safety, fairness and inclusion. In some settings the issue moves from sport governance to political debate and even legislation. On social media, discussion is vigorous and sometimes vitriolic. The intensity of the debate and politics can make it difficult to make sense of the regulatory and policy issues at stake. This chapter focuses on Olympic sport and argues that transgender athletes represent the latest battleground over inclusion in sport, which has in the past focused variously on female, black and disabled athletes. The long arc of history in sport and in the societies that sport is a part of has generally trended towards ever-greater inclusivity, though not without overcoming significant opposition and while recognizing that full inclusion of all people in sport is far from being realized. In the context of these broad societal trends, I make a case against the exclusion of transgender women athletes from elite women's sport and for their inclusion. Experience in law, policy, regulation and science in other contexts where fairness and inclusion are in conflict provide guidance. Ultimately, I argue for a pragmatic approach to inclusion consistent with consensus science and reflective of broadly shared values in sport and society Under such an approach, sport can demonstrate to the rest of society how to successfully grapple with a challenging issue, rather than serving as a political battleground.

Sport Is for Everyone: A Legal Roadmap for Transgender Participation in Sport.

Buzuvis E, Litwin S, Zola WK.

Journal of Legal Aspects of Sport, 2021, 31, 212 – 252.
https:/doi.org/10.18060/25601

Sport is a vehicle for social change and should be leveraged as such in 2021 and beyond to address matters of equality. In recent years, the public has paid greater attention to transgender athletes participating in sport at all levels--high school collegiate, professional, and Olympic-despite the fact that transgender athletes have been competing in sports for decades. Backlash has arisen in general but also more specifically in response to several recent Supreme Court cases that have both solidified and extended rights of lesbian, gay, bisexual, transgender, and other gender and sexual minorities.? In turn, state laws that seek to limit the rights of transgender students to participate in sports have been drafted around the country. To be sure, these laws are often built on erroneous data, a misunderstanding of facts, and ignorance, but their existence continues to fuel the public debate on whether transgender athletes should be allowed to participate

Factors influencing acceptance of transgender athletes.

Tanimoto C, Miwa K.

Sport Management Review, 24(3): 452-474, 2021.
https://doi.org/10.1080/14413523.2021.1880771

This study examined factors influencing acceptance of transgender athletes in sport events. Quantitative data were gathered from 373 Japanese university student-athletes. We investigated contributions of two types of predictors. One is the context in which trans athletes are placed; the other involves survey respondents' psychological constructs that may influence their reaction to the issue. The results show that trans men were more accepted than trans women, trans athletes with hormone treatment were considered more acceptable, and trans athletes were more accepted in unofficial sporting events for children and adults than in official national and international events. The results also revealed that for respondents with weaker athletic identity, higher degrees of belief in a just world were positively associated with attitudes of acceptance. Whereas stronger athletic identity was positively associated with acceptance for men, it was negatively associated with acceptance for women. Considering the different nuances surrounding transgender issues in Japan, our study will add cultural diversity to research literature that has mainly focused on the contexts of North America and Western Europe.

LET'S CHAT ABOUT…

Let us know what is on your mind, what you want to chat about in the next issue of the Fast Break. Email mwesner@ualberta.ca.

Elyse Jobin (MScPT) is a former national team basketball player. She developed PRO ATHLETE, an app that contains injury prevention focused warm-ups, prehab and performance programs for 'grass-roots' basketball athletes and coaches. The goal is to provide resources to coaches and athletes to reduce injury rates and improve performance. Her recommendations are grounded in the research from the SHRed Injuries Basketball (https://www.jospt.org/doi/full/10.2519/jospt.2022.10959) program that was associated with a 36% lower rate of ankle and knee injuries. Neuromuscular training warm-ups are recommended as the minimal standard of practice for injury prevention in youth basketball. The app's content is based on research and transfers that to the reality on-court for coaches and athletes. If you want to know more about the app, you can find more information at https://proathlete.ca/en/.

FROM THE HISTORY BOOKS

(Source: Wikipedia)

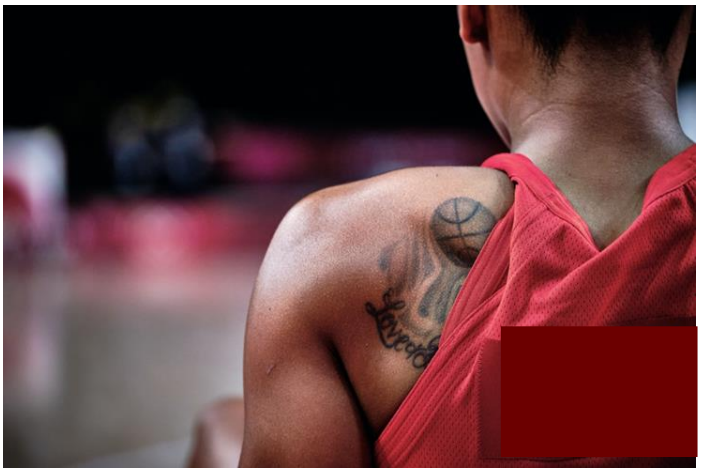
The internet is not consistent with who originated the dunk shot.

Joe Fortenberry was dunking the ball in 1936, but Robert Kurland is often credited with performing the first dunk shot in 1944. This involves jumping above the rim and pushing the ball into the hoop. Cardte Hicks was the first female to slam dunk in a professional game in 1978.

It wasn't until 1972 when the announcer calling a Lakers game referred to the move as a 'slam dunk' that the term acquired its common conception that has become a crowd-pleaser in basketball.

SHARE YOUR PHOTOS

Please send us your funny, interesting, or remarkable basketball pictures that we can share with the medical and sport science basketball community.



THE STUDENT'S CORNER

This space is intended for sport science and medical students, residents, and fellows to contribute to our knowledge and conversation.

Please encourage your students to contribute to the Fast Break on a topic of their choosing related to basketball injury, rehabilitation, or sport science. The work published here is reviewed and approved for submission by the student's preceptor.

Jones Fractures in Basketball

Valeria Lozada Miranda MD, Physical Medicine and Rehabilitation Resident, VA Caribbean Healthcare System, San Juan Puerto Rico

What is a Jones fracture?

The Jones fracture is a 5th metatarsal fracture due to a cross breaking strain directed anteriorly to the metatarsal base caused by body pressure on an inverted foot with a raised heel[3,5]. It mostly occurs when you put a sudden force on the outside of your foot with the heel lifted (toes are pointed) and the foot bend inwards (when changing direction while the heel is off the ground)[8]

Why is it call Jones fracture?

The fracture is named after Dr. Robert Jones, an Orthopedic surgeon who described the injury in 1902 after sustaining an injury to his 5th metatarsal while dancing[3]. Prior to his report, it was thought that all metatarsal fractures occurred as a result of direct trauma, however, he confirmed that this injury could occur indirectly.

Can it occur while playing basketball?

In 1979, Zelko et al presented a series of patients with Jones fractures and described for the first time a strong association between basketball and this injury. [6] The usual mechanism of a sudden force on the outside of your foot with the heel lifted and the foot bend inwards can occur as part of the game, especially with the abrupt changes in direction that are common in the sport**.** [5,8]

What anatomy is involved?

The 5th metatarsal bone is divided into five parts: the tuberosity, base, metadiaphysis, diaphysis, neck, and head. Jones fracture involves a fracture in the proximal third of the fifth metatarsal, distal to the insertion of the fibularis (peroneus) brevis tendon, 1.5 cm from the tuberosity of the fifth metatarsal [1,3,7]. This is a watershed area between the proximal metaphyseal blood supply and the diaphyseal part of the bone supplied by the nutrient artery, which explains why there is a high risk of delayed union and even non-union of these fractures [5,3,8]

Who is affected by this condition?

Overall metatarsal injuries account for 45-70% of foot injuries with an increased percentage in athletes. Prior studies have determined an association between Jones' fracture and athletes, especially in Basketball players, due to the frequent jumping and sudden changes in direction.[1,2,5,9]. The majority of young patients affected by this condition are males, whereas older patients are more females [3,8]. Certain studies indicated non-customized medial arch orthosis used for athletes can contribute to fracture since it can increase ankle inversion [2]. Additional predisposing factors include prior history of a stress fracture, intense activity, osteopenia, and endocrinopathies, nutritional deficiencies and a history of menstrual cycle irregularity in females[3].

Why is it significant?

These fractures are devastating to athletes because they are slow to heal and have a high potential for delayed union, nonunion and refractures due to poor blood supply at injury location

[3,5,7] This can have an impact of players return to play time, return to baseline performance time and risk of re-injury during training.

How can we diagnose it?
Players usually present with sudden pain and localized swelling on lateral aspect of foot, exacerbated with ambulation and weight bearing. On examination, bruising can be present and tenderness over the area is almost always present. [8,3] Anteroposterior, lateral, and oblique radiographs can confirm the diagnosis, but around 70-77% of injuries can be missed on radiography during the early stages [3]. MRI, CT scan can also help with the diagnosis and to differentiate between an acute vs a stress fracture.

How should it be treated?
Initial conservative treatment includes RICE (rest, ice, compress, elevate) protocol combined with immobilization with cast or boot and no weightbearing for about 6-8 weeks. Usually on week 6-8 patient begins light activity and by week 8 sport specific training can begin with gradual progression and full return to play at approximately 10 weeks[5]. It has been proposed that full weightbearing and resistance band exercises can be started during weeks 2-6, as long as the athlete is pain free. Possible complications with conservative treatment include acute compartment syndrome and re-fracture.

Unfortunately, due to poor blood supply in the area, the rate of non-union with nonoperative treatment is high (up to 15 to 30%) in both acute and chronic cases [2.5,8] Possible surgical interventions include closed reduction, internal fixation, intermedullary (IM) screw fixation, low profile plating, and if severely displaced, even bone grafting[8.] IM fixation is the most commonly done to accelerate the athletes return to play and to avoid bony non-union risks or chronic injury. A recent study (*Khallil et al)* indicated that return to play with non-operative treatment was 71.6% while surgical patients' rate was a significantly higher 97-98% with less time for recovery needed. [7] Surgical intervention does reduce the incidence of non-union, but there is a risk of complications. Common surgical complications include hardware failure, irritation of the soft tissues, re-fracture, sural nerve injury, and chronic pain. [3] This is why it is recommended that surgical intervention be reserved for the athletic individual, since there is an advantage in terms of time to return to sporting activity [4]

What are long term outcomes?
Long term outcomes have been discussed by various studies with focus on Basketball players. A recent study demonstrated that return to previous level of competition was achieved by 85% of Basketball players after Jones fracture, without a change in player efficiency rating when pre- and post-injury performance was compared [1]. Surgical management of Jones fractures in athletes resulted higher rate of return to play, shorter time to RTP, higher rate of union, shorter time to union, and improved functional outcomes[7]. Due to the effect, it can have on a player's game, Jones Fracture must be high on differential when evaluating for 5th metatarsal fractures.

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