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Exploring Public Support for the Inclusion of Transsexual-Identified Athletes

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ABSTRACT

The issue of transsexual inclusion in athletics has received increased attention in the literature and in popular culture. In this paper, we undertake an exploratory examination of public perceptions of this issue. Using a large sample of college students, we explore attitudinal differences between men and women with respect to transsexual inclusion in athletics. Despite having a greater stake in women's athletics, women are more likely to support transsexual inclusion than are men. We also find that both men and women are more likely to support inclusion when transsexual athletes do not have significant athletic experience prior to sex reassignment. Additionally, we find substantial support for transsexual inclusion in recreational athletics.

Keywords: Transgender, Athletic competition, Transsexual, Public Perception

INTRODUCTION

Recently, the participation of transsexual individuals in athletics has received increased attention (Gooren & Bunck, 2004; Ljungqvist & Genel, 2005; Pilgrim, Martin & Binder, 2003, Reeser, 2005). Coverage of this topic has not been limited solely to the academic literature. Popular culture has also addressed the topic. A recent episode of the television show, Primetime Live (Primetime Live Trapped, 2005) focused on male-to-female (MTF) transsexual, Mianne Bagger's, experiences in women's amateur and professional golf. Additionally, the viewer was provided with surprising comments from the world's most famous transsexual athlete (Ljungqvist & Genel, 2005), retired tennis professional, Dr. Renee Richards. During that segment, Dr. Richards indicated that she felt that her battle to play women's professional tennis in the 1970's "was wrong." In hindsight, she felt that it was "too much for me to ask" (Primetime Live Trapped, 2005). Her view was based upon the premise that "…a genuine physical advantage could remain after transgender surgery" (Primetime Live Trapped, 2005).

If we consider the issue of physical advantage, in many ways Renee Richards may be correct. Men are on average, physically larger, stronger, and faster than women, thereby conferring a potentially unfair competitive advantage in certain sports. Consequently, athletic competition between the sexes has generally been judged as unfair (Pilgrim, Martin, & Binder, 2003; Reeser, 2005). The debate over transsexual identified athletes has centered on this notion of unfair competition in women's athletics.

The issue of transsexualism and sport is both non-trivial and complex, touching on numerous facets of public policy, medical science, individual rights, and business. The controversy is shaped by the complex interplay of homo/trans-phobia, religious and cultural morés, and the institution of athletic competition. Moreover, there is endemic confusion over the

issues of sex, gender, and sexuality and how to apply them in such a scenario (Pryzgoda & Chrisler, 2000; Witten, 2004). Socially constructed gender norms and stereotypes around male/female athletic competition affect perceptions of the issue (Kirby & Huebner, 2002). Additionally, public policy and the legal framework for transsexualism in the United States is best described as "thin, heterogeneous and ad hoc" (Dasti, 2002). Because of the complexity and controversy surrounding these issues, it is difficult to create "fair" and widely accepted policies (Kidd & Donnelly, 2000).

In their canonical article on the subject of transsexualism in athletics, Pilgrim, Martin & Binder (2003) identified four key issues to address regarding transsexualism in sports:

- Whether or not the athlete is a male-to-female or female-to-male transsexual
- Whether or not the sport is a traditionally "male" or "female" sport
- What the are the physical characteristics of the individual transsexual athlete
- Whether or not there is likely to be a real or perceived competitive advantage on the field of play

Implicit in the last item is the public's perception of fairness. This paper addresses this unstudied aspect of transsexual participation in athletics. The topic is examined via survey data obtained from college students at a public university in the United States. In the next section, we briefly review the literature on transsexualism in athletics. We follow that with a discussion of the survey results.

HISTORICAL OVERVIEW OF TRANSSEXUALITY IN ATHLETICS

Men and women are separated in most sports, in order to ensure fair competition (Pilgrim, Martin & Binder, 2003). Between 1968 and 1998 female Olympic athletes were subjected to various forms of sex verification (Elsas *et al.*, 2000; Dickinson *et al.,* 2002; Reeser,

2005). This policy was implemented because some communist countries were suspected of using female imposters to gain advantage in women's athletics. There was also the confirmed case of a male participating as a female athlete during the 1936 Olympics (Dickinson *et al*., 2002; Kirby & Huebner, 2002; Reeser, 2005). However, mandatory sex verification policies were abandoned by the International Olympic Committee (IOC) because of the substantial harm inflicted on female athletes with less common genetic variations (Dickenson *et al*., 2002; Kirby & Huebner, 2002; Pilgrim, Martin & Binder, 2003; Reeser, 2005). These variations may cause female athletes to fail sex verification tests, despite the fact that they have no competitive advantage (Dickinson *et al.*, 2002). Currently, tests are performed only if there is a question as to the sex of the participant (Pilgrim, Martin & Binder, 2003).

The policy of sex segregation among athletes raises fundamental questions when it comes to transsexual individuals. Society has not come to terms with the categorization of a transsexual-identified (or an intersex-identified) person's sex (Gentile, 1993; Fausto-Sterling, 2000; Haas, 2004). Classification schema can utilize chromosomal, hormonal, gonadal, internal morphological sex (determined at 3 months gestation), secondary sexual characteristics, sexual identity, or assigned sex (Greenberg, 1999). Combinations of the above could be used or none of the above (Greenberg, 1999; Albright, 2002; Witten *et al.*, 2003;; Morgan, 2004).

In general, the most contentious issue arises when a male-to-female transsexual person desires to compete in a women's event (Reeser, 2005). There are concerns that male-to-female transsexuals have possible biologically based competitive advantages that are not eliminated as a result of treatment. Areas of interest include differences in muscle mass, height, and the circulatory system's ability to transport oxygen. Gooren and Bunck (2004) found that the physical advantages some MTF individuals might enjoy are significantly diminished if not

entirely eliminated as a result of the hormonal and surgical management of transsexualism. After one year of treatment, male-to-female transsexuals have substantially increased overlap with genetic females with respect to muscle mass and blood hemoglobin levels (Gooren & Bunck, 2004). Height does not change as a result of hormonal or surgical management. Interestingly, several authors (Sharpe, 1997; Pilgrim, Martin, & Binder, 2003) note that the focus on competitive advantages between men and women does not address biologically based competitive advantages that exist between members of the same sex.

Female-to-male transsexual athletes (FTM) have received less attention in the literature. There is little concern that FTM individuals have an "unfair" advantage when competing in men's athletics (Pilgrim, Martin & Binder, 2003; Reeser, 2005). However, female-to-male athletes may suffer from equity concerns given that policies on transsexualism in athletics are generally focused on preventing unfair competition in women's athletics (Reeser, 2005). They also face sanctions because testosterone (a central component of treatment) is a banned substance in athletics (Pilgrim, Martin & Binder, 2003; Reeser, 2005).

In addition to medical factors, the rights and desires of transsexual athletes to compete are factors that require examination. The following quote from Canadian cyclist Michelle Dumaresq (transsexual-identified) illustrates her honest desire to compete:

> "I just have always felt that I am a woman since I could think for myself. In that I also could not understand that it would be a big deal for me to race against other women, I just thought that I should be able to race if other women get to race. What I didn't expect was to do so well, I have always done well at sports but when I started to win I was quite pleasantly surprised." *Correspondence with Jami Taylor*

In 2004, the International Olympic Committee (IOC) entered into the debate over transsexualism in athletics. They promulgated new rules that attempted to create a "fair and

equitable standard" (Ljungqvist & Genel, 2005) regarding the participation of transsexual-identified individuals in its athletic competitions. The IOC (2004) stated that:

1. The group confirms the previous recommendation that any "individuals undergoing sex reassignment of male to female *before* puberty should be regarded as girls and women" (female). This applies as well for female to male reassignment, who should be regarded as boys and men (male).

2. The group recommends that individuals undergoing sex reassignment from male to female *after* puberty (and the converse) be eligible for participation in female or male competitions, respectively, under the following conditions:

    - Surgical anatomical changes have been completed, including external genitalia changes and gonadectomy

    - Legal recognition of their assigned sex has been conferred by the appropriate official authorities

    - Hormonal therapy appropriate for the assigned sex has been administered in a verifiable manner and for a sufficient length of time to minimize gender-related advantages in sport competitions.

    - In the opinion of the group, eligibility should begin no sooner than two years after gonadectomy.

3. It is understood that a confidential case-by-case evaluation will occur.

4. In the event that the gender of a competing athlete is questioned, the medical delegate (or equivalent) of the relevant sporting body shall have the authority to take all appropriate measures for the determination of the gender of a competitor.

Several sport governing boards and athletic foundations have adopted similar regulations. Among them are USA Rugby (USA Rugby, 2004), the United States Golf Association (Ljungqvist & Genel, 2005), and the Women's Sport Foundation (2005). However, other organizations, such as the LPGA (Pilgrim, Martin, & Binder, 2003) and the Federation Internationale de Volleyball (FIVB) continue to ban transsexuals from competition (Reeser,

2005). Other major organizations, such as the NCAA remain silent on the issue of transsexual inclusion.

The IOC's new rules received much public attention and garnered a mixed reaction. Reeser (2005) described the new rules a "bold step." He also described the situation as having "inadequate physiological performance related data to allow an unambiguous position to emerge" (Reeser, 2005). New York Times columnist Selena Roberts (2004) condemned the IOC decision. However, New York Times writer, David Tuller (2004) authored a far more supportive piece. Surprisingly, the reaction within the transgender community was also mixed. Several transgender activists criticized the new policy because "it did not go far enough" (Marech, 2004).

Broader public opinion on transsexual inclusion in athletics has not been well-studied. In attempting to assess public opinion on the matter, we conducted a pilot study at North Carolina State University (Raleigh, NC). We posited that this study would provide insight into the factors that affect public opinion on transsexual inclusion in athletic competition.

Survey Protocol

A 158 question survey instrument was developed by the first author and Dr. Traciel Reid of North Carolina State University (NCSU). The instrument included basic demographic questions. Also, the survey assessed attitudes towards gay, lesbian, bisexual and transgender-identified individuals and related issues. Additionally, respondents were asked whether or not they supported the IOC's decision to allow transsexual inclusion in athletics. Students that participated in intramural, varsity, or club sports were asked whether or not they would favor a policy that allowed a transsexual to compete in their particular sport. In addition to these questions, a number of scenarios (seven) concerning transsexual-identified athletes were

included. Each of the scenarios presented slightly different information. This was done in an attempt to determine if attitudes about transsexualism and sport were dependent upon the situation. In the seven scenarios, each of the male-to-female transsexuals was 22 years old. Except when trying to study the effect of physical size on opinion, all of the transsexual athletes were 5'11" and 160 pounds. The height and weight figures were selected because each falls within two standard deviations from the mean for genetic females, age 20-29. The mean height for women of this age group is 64.1 inches and the mean weight is 156.5 pounds (Ogden *et al*., 2004). The mean height for men of the same age range is 69.6 inches and the mean weight is 183.4 pounds (Ogden *et al*., 2004). Information concerning the transsexuals' race or ethnicity was not presented as this was not felt to be a critical issue of study. Where appropriate, responses were assessed on a five point Likert scale (yes, probably, unsure, probably not, no) with an option for no opinion. Table [1] summarizes the scenarios as presented to the survey participants:

(Table [1] approximately here)

Appendix [1] provides the verbatim text presented to the respondents.

The instrument was administered to students participating in NCSU's political science research pool during the fall and spring semesters of 2004. In order to fulfill requirements for Political Science 201, Introduction to American Government students have a choice between completing a research paper or participating in various university approved research projects. According to research pool director, Dr. William Boettcher, approximately 85% of PS 201 students choose to participate in the research studies (email correspondence with Jami Taylor, 11/17/05). Students enrolled in the subject pool must obtain four participation credits. Typically, there are between 6 and 10 possible participation opportunities in any given semester. Therefore, not all students in the survey pool participate in each study. This survey was administered via the Internet. Website access was restricted to NCSU students by requiring individuals to enter their university assigned computer login and password.

Sample Design Issues and Statistical Analysis

The sample frame for this project was the political science research pool. Each student participating in the pool was notified of the study. Information about the research topic was not provided in order to reduce selection bias. The research pool contained 1,112 students. The total number of survey respondents was n = 684 (response rate = 61.5%). A small number of respondents did not fully complete the survey. These responses were not utilized in the analysis. Basic demographic analysis of the excluded group shows no statistically different distributions with respect to age, race, and sex ($p < 0.05$). The total number of surveys with no missing data was n = 646 (adjusted response rate 58.1%). Despite the high response rate, the respondent selection method did not meet probability sample requirements (O'Sullivan & Rassel, 1999). However, some authors (Garson, 2006) state that statistical inference is warranted if the sample seems representative of the larger population.

A comparison of survey respondents to NCSU's undergraduate population was conducted to assess the representativeness of the sample. This sample represents 3.3% of all undergraduate students at NCSU. Table 2 demonstrates that the demographic background of the respondents is reasonably reflective of the undergraduate population. White students are slightly more represented in the study (84.19% > 80.74%). African-American, Asian, and Hispanic students are slightly under represented. Analysis by birth sex shows that the sample is within 1.5% of that found in the undergraduate population. Given that this sample is reasonably representative of NCSU undergraduates, and in deference to social science conventions (Garson, 2006) tests of statistical significance are presented where warranted.

The data was analyzed using SPSS 12.0/13.0 for Windows (SPSS Inc, Chicago, IL). Analysis was controlled for sex. This was done because the ratio of men to women at NCSU, and in this study, is unusually weighted towards men.

Responses to opinion questions were collapsed from a five point Likert scale with no opinion option into three values (favor, unsure/no opinion, oppose). This was done to facilitate reporting. Utilization of the three point scale did not significantly affect the findings. Chi square (χ^2) was selected as the appropriate statistical test given the nominal nature of the variables (O'Sullivan & Rassel, 1999). In cases where statistical hypothesis testing is used, hypotheses were accepted if $p < 0.05$.

Table [2] provides a comparison of NCSU and study respondent demographics.

(TABLE [2] approximately here)

RESULTS

Survey Responses to the IOC Scenario

Students were asked whether or not they supported the IOC ruling that allows post-operative transsexuals to compete as members of their "new" sex. Overall, 51.5% of the respondents were against the IOC ruling. 22.8% of the respondents were not sure or had no opinion, and 25.7% held favorable views. However, when adjusted for birth sex of the respondent, females were more likely to support the ruling than were men (33.5% > 19.6%, χ^2=26.301, df = 2, p < .001). Conversely, men were more unsupportive. The respondent results are presented in Table [3].

(Table [3] approximately here)

From these results, we may conclude that the overall statistics were biased towards non-acceptance of transsexual participation. This occurred because men outnumber women in the sample (362 > 284). Female respondents were generally more supportive of transsexual individuals competing in their "new" sex. This more accommodating attitude may be partially attributed to greater acceptance of transsexualism by females. When asked if transsexuals should be accepted by society, women answered more favorably than did men (60.2% > 45.4%, χ^2 = 23.862, df = 2, p < .001). This finding supports previous research on sex specific attitudes towards transgender issues (Lake, *et al*., 2002).

Response to Transsexual Scenarios: The Impact of Prior Competitive Experience

Scenario 2a presented essentially the same issue as the generic IOC question, should a MTF individual compete in women's athletics at the Olympic level. This scenario discussed Tina, a post-operative male-to-female transsexual (5'11", 160 lbs, 22-years old, 2 years post-

operative) and her desire to try out for the women's Olympic ice hockey team. In response to the question, "Should Tina be allowed to try out for the women's national team," female respondents were decidedly more positive (41.2%) than were male respondents (20.7%). Males were significantly more negative than were female respondents (62.7% > 36.6%, $\chi^2 = 46.224$, $df = 2$, $p < .001$). Female survey respondents were more receptive to the participation of a transsexual in this scenario than when presented the generic IOC policy (41.2% > 33.5%, $\chi^2 = 172.780$, $df = 4$, $p < .001$). In contrast to the previous scenario, a plurality of women supported inclusion.

In Scenario 2b, respondents were told that Tina that played collegiate ice hockey as a male, prior to sex reassignment surgery. They reacted quite differently to her participation. The percentage of females that supported Tina's participation dropped by nearly 20% (22.1% < 41.2%, $\chi^2 = 151.137$, $df = 4$, $p < .001$). Correspondingly, the percentage of negative responses increased by 12.5% (49.1% from 36.6%). Men were overwhelmingly against transsexual participation when presented with the new data (70.8% > 62.7%, $\chi^2 = 257.399$, $df = 4$, $p < .001$). It appears that while transsexual participation might be deemed acceptable to some degree, the inclusion of past sports experience as a male alters the balance. While the respondents were not specifically asked about "fairness," we infer from the change in responses that the addition of significant prior sports experience as a male (in the sport in question) might be viewed as an unfair advantage for male-to-female transsexual athletes.

Prior competition as a male was presented in other scenarios. In scenario 7, Michelle, a male-to-female transsexual (physically identical to Tina) wanted to play in the Women's National Basketball Association (WNBA). The description stated that she was an all-state high school basketball player as a male. Michelle garnered a 32.9% favorable rate from women. Her support was less than Tina received in scenario 2a (32.9% < 41.2%, $\chi^2 = 220.812$, $df = 4$, $p <$

.001). Men were again unsupportive (66.2%). Additionally, she had less support from men than did Tina (17.2% < 20.7%, $\chi^2 = 357.933$, $df = 4$, $p < .001$) Again, previous high level competition as a male may have influenced the respondent's perceptions. The difference may also be influenced by different sports (basketball and ice hockey) and different levels of competition (professional and Olympic).

Respondents were given another scenario where the transsexual individual in question had no competitive background as a male. Jennifer, a 5'11", 160 lb., male-to-female transsexual wanted to play college basketball. She received far more support from women than did former all-state basketball player Michelle (45.4% > 32.9%, $\chi^2 = 155.275$, $df = 4$, $p < .001$). Men were also more supportive (21.8% > 17.2%, $\chi^2 = 323.269$, $df = 4$, $p < .001$) in this scenario. It should be noted that Michelle was attempting to play professional basketball as opposed to college basketball. However, this is not likely an important factor due to mitigating circumstances surrounding the survey location, North Carolina State University. NCSU has an unusually strong tradition of support for its collegiate sports. In terms of fan support, it was ranked 16th among the more than 300 NCAA Division 1 schools in men's basketball attendance (NCAA, 2004). North Carolina State University's women's basketball team ranked a respectable 56th (NCAA, 2004b). It seems that Michelle's significant competitive experience increases the likelihood of a negative reaction when compared to Jennifer.

Interestingly, Jennifer received more support than did Tina from scenario 2a (45.4 > 41.2%, $\chi^2 = 238.788$, $df = 4$, $p < .001$). Neither scenario mentions prior competitive experience. It is possible that responses are reflective of greater public interest in basketball relative to ice hockey. For example, a National Hockey League club, the Carolina Hurricanes is located near the campus. Average attendance for the Hurricanes was 12,195 during the 2003-2004 season

(Barnett, 2005). Over the same period, average attendance for NCSU's men's basketball team was 14,576 (NCAA, 2004). The two organizations share the same building, RBC Center. It is also possible that the respondents felt Olympic competition was more important than college basketball. Thus, transsexual participation was not as accepted.

In scenario 3, Angie (physically identical to the previous transsexuals) desired to participate in track and field at her college. The scenario stated that she had participated in track and field as a male athlete while in high school. No information was given regarding the quality of her high school athletic performance. In this scenario, 44.5% of women supported her participation whereas 30.7% were opposed. 55.8% of men were against her involvement while 25% favored it. Despite prior competitive involvement at the same level, Angie received more support than did Michelle (44. 5% > 32.9%, $\chi^2 = 186.913$, $df = 4$, $p < .001$) or Tina in scenario 2b (44.6% >15.1%, $\chi^2 = 121.673$, $df = 4$, $p < .001$). Her support was similar to that of athletes without prior experience Jennifer (44.5% < 45.4%, $\chi^2 = 159.452$, $df = 4$, $p < .001$) and Tina (44.6% > 41.2%, $\chi^2 = 229.281$, $df = 4$, $p < .001$). These results do not support the conclusion that previous competition as a male is always viewed as unfair. It is possible that mitigating factors such as level of male competitive experience, quality of previous performances, and the particular sport may influence public perceptions of transsexual inclusion.

The scenarios presented thus far demonstrate that previous competition as a male, prior to transitioning, increases the likelihood of a negative response to the transsexual athlete's desire to participate in women's athletics. The strongest negative reaction came from participation at the college level (prior professional competition was not included in the study). Prior competition at the high school level as a male may also provoke a negative reaction. Excellence in high school athletic performance drew a stronger negative reaction than did mere participation. It seems that

beyond the high school level, prior competition as a male is increasingly viewed as unfair. However, it is possible that some of the response differences might be caused by other factors. The three individuals with competitive experience played different sports (ice hockey, basketball, and track). Respondents could have reacted to the sports they deem important. For instance, track and field might not be seen as salient. Therefore, respondents might have shown greater willingness to allow contra-gender participation in track. Additionally, survey respondents might have keyed on the level of competition.

In addressing the level of competition, one can compare the generic IOC ruling with the scenario about recreational level competition. In scenario 6, Kristin, a 5'11", 160lb post-operative male-to-female transsexual wished to run in a local marathon as a female. The scenario explicitly stated that her participation was for fun. Women overwhelmingly supported her participation with 62.8% responding favorably. This compares to 33.5% for the IOC ruling ($\chi^2 = 87.127$, $df = 4$, $p < .001$). Women with negative opinions were reduced to 20.9% compared with the IOC ruling's 40.5%. Interestingly, this scenario is the only one where a majority of men failed to materialize in opposition. Only 46.8% of men were opposed to Kristin's participation and 34.7% of men were supportive. In the IOC question, 19.6% of men held favorable views and 60.2% were opposed ($\chi^2 = 165.367$, $df = 4$, $p < .001$).

Addressing Size Differences

The scenarios also looked at support based on the physical size of the male-to-female transsexual involved. This aspect was studied because of the inherent size differences (on average) between the sexes. These skeletal differences cannot be addressed via sex reassignment surgery. In scenario 4a, Christine a male-to-female transsexual of substantial size, 6'3" 220 lbs desired to play rugby. 35.9% of women supported her. Christine's participation was favored by

20.2% of men (χ^2 = 71.933 *df* = 2, *p* < .001). Christine received less support from female respondents than did any other transsexual without prior competitive experience (35.9% < 41.2% < 45.4%). When compared to other scenarios, Christine drew the largest unsure/no opinion response from females (34.2%). In order to discount the possibility that individuals reacted rugby's inherent physicality as opposed to her size, Christine switched to tennis (scenario 4b). Support for participation increased by modest amounts in both women (41.1% > 35.9%, χ^2 = 256.766, *df* = 4, *p* < .001) and men (24.2% > 20.2%, χ^2 = 410.298, *df* = 4, *p* < .001). Based on these results, participant size seems to have a significant affect on the respondent's perceptions. Women seem increasingly unsure about transsexual inclusion when there are large size differences. Physically large male-to-female transsexuals desiring to participate in athletics might find a slightly better reception in non-contact sports such as tennis.

What do athletes think?

The survey instrument asked participants about their athletic participation. Students were questioned with respect to collegiate varsity, intramural, and club sports participation. When addressing the IOC ruling, female athletes favored participation by transsexuals at lower rate than non-athletic females (29.6% < 34.9%, χ^2 = 1.7, *df* = 2, *p* = .428). However, these findings are not significant. 63.6% of male athletes opposed the IOC ruling (compared to male non-athletes, 56.2%). Again, this finding is not significant (χ^2 = 2.753, *df* = 2, *p* = .252). Athletes and non-athletes do not have significantly different views on transsexual inclusion.

DISCUSSION

The results of this study point to several tentative conclusions about transsexual participation in athletics. First, the individuals participating in this study were not particularly accepting of the IOC's ruling on transsexuals in athletics. Second, women appear to be more accepting of transsexual inclusion than men. In every scenario, this finding held. This is true

even for female athletes, those with the biggest stake (except for transsexual individuals) in the controversy surrounding transsexualism in athletics. Depending on the frame of reference, this can be either surprising or expected. Previous research has demonstrated that women are generally more supportive of transgender individuals than are men (Lake, *et al*, 2002). Therefore, it is not surprising that this study upheld those findings. However, the controversy surrounding transsexualism in athletics stems from fears about unfair competition for women. This study demonstrates that men have more reservations than do those women with a direct interest in the issue.

This study had other interesting findings. Previous high level competition as a male increases the likelihood of negative reactions. Perhaps this is what Renee Richards was attempting to address in her comments about Tiger Woods, sex changes and the LPGA. Additionally, it seems that the proposed level of competition is a factor. Respondents were relatively supportive of transsexuals participating in recreational athletics. This is good news for transsexual athletes. Ljungvist and Genel (2005) state that transsexual athletes will be more likely to compete in these arenas.

The International Olympic Committee's foray into this policy area was commendable. However, in drafting regulations on the status of transsexual individuals in athletics, officials should acknowledge that a one size fits all approach in this realm is significantly problematic. Public opinion and competitive integrity should be balanced with the basic rights, competitive desires, and aspirations of transsexual athletes. In an effort to better balance these sometimes competing interests, regulations should likely address previous athletic participation as a member of the "old" sex. Perhaps transsexuals with significant prior athletic experience should not be allowed to compete in their "new" sex (at least in the same or closely related sport). Based on

our research, this caveat would contribute to public acceptance of transsexual participation in athletics.

Simultaneously, we feel that the public needs to be educated as to the actual *vs*. the perceived advantages of transsexual athletes, particularly for those male-to-female athletes who desire to compete in various levels of athletic competition. Some of the perceived advantages exist in genetic females. For example, Marfans Syndrome females will have anatomic bone lengths that are comparable to many males (Reeser, 2005). Thus, when it comes to sporting events such as golf, they could be perceived as having the same advantage as natal males. Similarly, congenital adrenal hyperplasia (CAH) causes an over-supply of testosterone in women and produces extreme muscularity. The IOC serves as a positive role model for athletic programs at all levels of organization, setting positive standards for transgender/intersex athletic competition in K-12 as well as collegiate and professional levels, not just Olympic levels. Thus, we encourage all sporting organizations to educate, not just the participants, but the spectators as to the principles of universality and equity in athletic competition.

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Table [1]: Summary of Trans-Identified Scenarios

Scenario	Name	Height	Weight	Surgery	Competition Level as Male	Level of Comp as Female	Sport	Physical Contact
1	Jennifer	5'11"	160	yes	None	College	Basketball	Yes
2a	Tina a	5'11"	160	yes	None	Olympic	Ice Hockey	Yes
2b	Tina b	5'11"	160	yes	College	Olympic	Ice Hockey	Yes
3	Angie	5'11"	160	yes	High School	College	Track and Field	No
3a	Christine a	6'3"	220	yes	None	Recreational	Rugby	Yes
3b	Christine b	6'3"	220	yes	None	College	Tennis	No
6	Kristin	5'11"	160	yes	None	Recreational	Track and Field	No
7	Michelle	5'11"	160	yes	High School, all state	Professional	Basketball	Yes

Table [2]: Sample-Total Undergraduate Comparison

	Total	White	Black	Nat Am	Asian	Hispanic
NCSU Demographics	19,950	16,107	2,054	146	1,019	469
		80.74%	10.30%	0.73%	5.11%	2.35%
Study Demographics	658	554	52	9	17	8
		84.19%	7.90%	1.37%	2.58%	1.22%

	Total	Female	Male
NCSU Demographics	19,950	8,474	11,476
		42.48%	57.52%
Study Demographics	658	288	370
		43.77%	56.23%

Source: NCSU: http://www2.acs.ncsu.edu/UPA/enrollmentdata/f04enrol/index.htm

Table [3] Survey Results by Question

Scenario	Variables	Percentage of Females Favoring Participation	Percentage of Females Against Participation	Percentage of Females Unsure/No Opinion	Percentage of Males Favoring Participation	Percentage of Males Against Participation	Percentage of Males Unsure/No Opinion
IOC Ruling	**Support for IOC ruling on transsexual inclusion at Olympics**	33.5	40.5	26.1	19.6	60.2	20.2
Jennifer	**College basketball/ No prior experience mentioned**	45.4	28.2	26.4	21.8	59.7	18.5
Tina a	**Olympic Ice Hockey/ No prior experience mentioned**	41.2	36.6	22.2	20.7	62.7	16.6
Tina b	**Olympic Ice Hockey/Past participation as a male at collegiate level**	22.1	49.1	28.8	11.1	70.8	18.1
Angie	**Collegiate track and field/ prior competition at the high school level**	44.5	30.7	24.7	25	55.8	19.2
Christine a	**Rugby/Relatively large transsexual**	35.9	29.9	34.2	20.2	63.4	16.3
Christine b	**Tennis/Relatively large transsexual**	41.1	29.1	29.8	24.2	56.7	19.2
Kristin	**Marathon/ amateur for fun**	62.8	20.9	16.3	34.7	46.8	18.5
Michelle	**Women's professional basketball player/ prior experience as a male at high school level-All State performer**	32.9	41.3	25.8	17.2	66.2	16.6

Appendix [1]

1) Scenario 1: Jennifer is a 22-year-old post-operative male to female transsexual. She completed sex reassignment surgery when she was 20 and looks very much like any other athletic woman. She never officially competed in athletics as a man before her sex change. However, she is an excellent athlete and a very good basketball player. Jennifer is 5'11" and weighs 160 lbs. She is interested in trying out for the women's basketball team at her college.
2) Scenario 2a: Tina is also a post-operative male to female transsexual. She is 22 years old and looks much like any other tall athletic woman. Tina had the surgery when she was 20. She is 5'11" and she weighs 160 lbs. She is interested in trying out for the women's national hockey team. This team is being selected for the Winter Olympics.
3) Scenario 2b: Suppose that before Tina's sex change, she competed as a male collegiate ice hockey player
4) Scenario 3: Angie is another post-operative male to female transsexual. She is 22 years old and looks much like any other tall athletic woman. Angie had the surgery when she was 20. She is 5'11" and she weighs 160 lbs. She is interested in trying out for the track team as a sprinter at her college. Angie ran track as a male while still in high school.
5) Scenario 4a: Christine is a 22-year-old post-operative male to female transsexual. She is 6'3" and weighs about 220 lbs. She had a sex change operation when she was 20. She is rather masculine looking and is bigger than most women. She wants to play on the local women's rugby team.
6) Scenario 4b: Now, suppose Christine wants to play varsity tennis at her college. Should she be allowed to play?
7) Scenario 5a: Mara is a 22-year-old transsexual. However, Mara has NOT had the sex change operation and thus still has male genitalia. Mara otherwise looks any other tall athletic woman. (S)he is 5'11" and 160 lbs. The college Mara attends requires students to compete in intramural athletics. Mara has selected basketball.
8) Scenario 5b: Now, suppose Mara wanted to play tennis. Should she be allowed to compete as a woman?
9) Scenario 6: Kristin is a 22-year-old post-operative male to female transsexual. She is 5'11", and 160 lbs. She looks like any other tall athletic woman. Kristin had the surgery when she was 20. Kristin wants to run in a local marathon for fun.
10) Scenario 7: Michelle is a post-operative male to female transsexual. She is 5'11", and 160 lbs. She looks like any other tall athletic woman. She is 22 years old and a very good basketball player (she was an all-state high school basketball player as a male). Michelle had the surgery when she was 20. She wants to try out for a WNBA team.