

## Sport, Science and Gender: Towards A Feminist Perspective of Sport Science

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### Introduction

A number of philosophy of sport articles have suggested that the application of scientific principles by sport scientists has led to “the pursuit of excellence” being defined in terms of the athlete achieving “the perfect performance.”<sup>1</sup> Philosophical, historical and sociological critiques of science and technology have suggested that this emphasis on the “performance principle” has encouraged the concept of athletes being viewed as machines and not as humans, as it has tended to ignore the will, thought, and soul of the athletes.<sup>1</sup> Although the historical and sociological critiques have centered around feminist critiques of science and technology, it appears that within the philosophy of sport literature a feminist critique of science has been missing from this discussion.

Since the 1970’s feminist criticisms of science have evolved from the question of “What is to be done about the situation of women in science” to “Is it possible to use for emancipatory ends sciences that are apparently so intimately involved in Western, bourgeois, and masculine projects?”<sup>2</sup> According to Harding, the radical feminist position suggests that the “epistemologies, metaphysics, ethics, and politics of the dominant forms of science are androcentric and mutually supportive.”<sup>3</sup> Harding outlines the radical feminist position by stating that despite the deeply ingrained Western cultural belief in science’s intrinsic progressiveness, science today serves primarily regressive tendencies; and that the social structure of science, many of its applications and technologies, its modes of defining research problems and designing experiments, its ways of constructing and conferring meanings are not only sexist but racist, classist, and culturally coercive.<sup>4</sup>

Thus, many feminist critiques of science have raised important questions about the body of knowledge that has arisen through the scientific process and the social policies which have been implemented due to this knowledge. Feminist empiricism has argued that the sexism and androcentrism of science can be corrected by “stricter adherence to the methodological norms of scientific inquiry.”<sup>5</sup> Feminist standpoint theory has argued “that men’s dominating position in social life results in partial and perverse understandings, whereas women’s subjugated position provides the possibility of a more complete and less perverse understanding.”<sup>6</sup> Postmodern feminism has tended to challenge the basic assumptions of feminist empiricism and standpoint theory and encouraged “a profound skepticism regarding universal (or universalizing) claims about existence, nature and powers of reason, progress, science, language and the ‘subject/self’.”<sup>7</sup> Hence, many feminists have challenged much of what is valued in modern Western culture by analyzing how, “gender symbolism, the social division of labour by gender, and the construction of individual gender identity have affected the history and philosophy of science.”<sup>8</sup> With all of this continuing discussion it is important to note that there still remains a great deal of debate with regard to the most appropriate way to deal with these issues and in particular how they relate to sport science.

How do these critiques of science affect sport science? According to Messner and Sabo

Sport, then, is conceptualized as a cultural terrain in which meanings are always subject to contest and redefinition. In essence, dominant classes place structural and ideological constraints around people’s thoughts and actions, but these constraints do not fully determine the outcome—people retain the ability to act as historical agents, thinking critically and acting transformatively.<sup>9</sup>

Coakley maintains, that sport like science and gender are dynamic social constructions and are the “creations of people interacting with one another.”<sup>10</sup> Hoberman discusses the incredible accomplishment

of modern sport as a “form of culture,” and the “inner logic” that comprises its “driving force,” which Hoberman equates with the Olympic motto ‘citius, fortius, altius.’”<sup>11</sup> As Schneider argues

(Modern sport) is an expression of the dynamic character of Western civilization which, through science and technology, has given shape to world civilization as we know it. The fundamental law of this civilization is the performance principle, which is linked in turn to the idea of virtually endless progress. The charisma of sport grows directly out of its promise of limitless performance, and here is where the trouble begins.”<sup>12</sup>

Hence, it has been argued that the pursuit of excellence in sports becomes synonymous with the “performance principle” which has become linked to the ideology of “endless progress” that is characteristic of Western, industrialized civilizations’ focus on science and technology. According to Meier, the pursuit of excellence in sport, as it manifests itself in contemporary Western society

entails the demonstration of very high degrees of proficiency, surpassing ability, and preeminence in the performance of sporting skills in comparison to the capacities and achievements of others- demands at the very least, intense effort, concentrated dedication, and sacrifice in the preoccupied search for increasingly productive modes and techniques to mobilize totally the athlete to attain maximum output and performance. Enormous ideological and material resources are consumed in the frantic drive for physical excellence, the hunt for new records, and the “manufacturing of champions.” ... (Sport Scientists) work diligently to objectify the athlete’s body to produce performance machines subordinated to the goal of ultimate efficiency. Thus,

in preparation for athletic endeavour, the body is drilled, trimmed, strengthened, quickened, and otherwise manipulated to improve its fitness and functioning and is often handled as an instrument or utensil to be appropriately directed and mastered.<sup>13</sup>

Of special interest, with regard to these arguments are the possible implications for human behaviour and in particular, athletes’ behaviour if the emphasis in sport science continues to be on athletes achieving “the perfect performance.” If sport continues to follow the scientific principles in order to obtain knowledge and improve performance, will this affect the athletes ability to achieve humanness? Will it be possible for athletes to retain critical thinking skills in order to act as liberated individuals? How will this scientific/masculine emphasis affect what we value in sport, women’s participation in sport, and the moral development of athletes?

Feminist object-relations theorists have suggested that there are other “ways of knowing” based upon the “feminine principles” of caring, feelings, and subjectivity which they feel are important for achieving humanness and for individuals to make meaning out of their lives.<sup>14</sup> From this perspective, it appears that a feminist critique of sport science is necessary to assess if sport scientists, who in their utilization of scientific principles for the perfect performance, could be making it difficult for athletes to maintain or even achieve humanness. This research paper will begin by outlining some of the current feminist critiques which illuminate some of the androcentric biases found in science. Furthermore, the implications for sport science and athletes will also be assessed.

### Feminist Critiques of Science

Representations of the world, like the world itself, is the work of men; they describe it from their own point of view, which they then confuse with the absolute truth.<sup>15</sup>

Fox Keller utilizes this quote from Simone de Beauvoir’s, *The Second Sex*, to reveal the sentiment of some feminist writers who have been actively

questioning the dominant concepts within science, such as, objectivity, rationality, and value-neutrality. Feminists such as Fox Keller have specifically asked the question, “How much of science is bound up with the idea of masculinity, and what would it mean for science if it were otherwise.”<sup>16</sup> It is important to note that for a great deal of feminist research on gender and science this particular line of questioning does not mean understanding “women in science” or how women are excluded from science but more an attempt to assess how science is gendered. This concern arises from the feminist recognition that both women and men are made and not born and that this concept is also true of science. Feminist theory recognizes that both science and gender are socially constructed categories. Hence, feminist theorists suggest that it is important to understand how the making of men and women has affected the making of science.<sup>17</sup> It is further suggested, here, that the making of sport science affects the making of athletes which in turn affects the making of women and men or humans.

According to Fox Keller

Science is the name we give to a set of practices and a body of knowledge delineated by a community, not simply defined by the exigencies of logical proof and experimental verification. Similarly, masculine and feminine are categories defined by culture, not by biological necessity. Women, men and science are created, together, out of a complex dynamic of interwoven cognitive, emotional, and social forces.<sup>18</sup>

Fox Keller goes on to argue that from a feminist perspective the most important problem to address within the natural sciences (and as I will argue, to be addressed within the sport sciences) “is the deeply rooted popular mythology that casts objectivity, reason, and mind as male and subjectivity, feeling and nature as female.”<sup>19</sup> This division between emotional and intellectual labour, has tended to assign women the task of being responsible for and safeguarding the emotional,

particular and personal. On the other hand, science has been viewed as impersonal, rational, and general, and therefore, reserved as the most appropriate place for men.<sup>20</sup>

According to Fox Keller, it is this division between “masculine” and “feminine” which has tended to encourage the exclusion of women from science and which has also affected the perspective from which science has been criticized. Fox Keller argues that it is this division that is accountable for two significant omissions in most of the social studies of science. Fox Keller argues that the social studies of science have omitted the noticeable point that “science has been produced by a subset of the human race” and has also “ignored the influence of those forces... that are at work in the individual human psyche.”<sup>21</sup> The social study of science, while rejecting the concept of “scientific neutrality”, has endeavoured to base its analysis in terms maintaining the divisions between “public and private, impersonal and personal, and masculine and feminine.”<sup>22</sup> However, a feminist perspective of science reveals the importance of recognizing that it is these very divisions which are “central to the basic structure of science and society.”<sup>23</sup> As Fox Keller summarizes a feminist perspective of science

leads us to ask how ideologies of gender and science inform each other in their mutual construction, how that construction functions in our social arrangements, and how it affects men and women, science and nature.”

Feminist analysis began by rejecting the dichotomy between private and public by demonstrating how the private affects the public and the public affects the personal. Feminism was instrumental in revealing “the personal as political and the political as personal.”<sup>25</sup> Feminist critiques of science have assumed a reversal of the “unity of science” thesis central to the Vienna Circle<sup>26</sup> and have argued that the purpose of the discourse of value-neutrality, objectivity and social impartiality is for social control. For example, Harding notes that threats to the existing gender order such as affirmative action legislation are often followed by new scientific definitions of women’s inferiority and deviance.<sup>27</sup>

Science's way to legitimate sexism, classism, racism and imperialism has been to develop I.Q. tests; behaviourism, fetal research and sociobiology.<sup>28</sup> Harding raises the question: "Can you say science is value-free when you focus on the way the selection and definition of scientific problems totally escape sciences methodological controls?"<sup>29</sup> According to Fox Keller, feminism contributed to the more traditional studies of science by encouraging

the use of expertise that has traditionally belonged to women, not simply as a women's perspective but as a critical instrument for examining the roots of those dichotomies that isolate this perspective and deny its legitimacy. It seeks to enlarge our understanding of the history, philosophy, and sociology of science through the inclusion not only of women and their actual experiences but of those domains of human experience that have been relegated to women: namely the personal, emotional and sexual.<sup>30</sup>

Harding points out that significant contributions have been made by the five feminist critiques of science but that each has also raised interesting problems. The first, the equity studies, have recorded the absence of women from science but have not questioned if women should want to become "just like men in science."<sup>31</sup> This critique has also been prevalent within the research on sport. Liberal feminism has largely been concerned with the desire to encourage equal opportunity for women within sport. This emphasis has tended to center around the notions of

easier access and better, (sport) facilities, improved funding and rewards, equal rights with men under the law, top quality coaching on par with men, and an equal voice with men in decision making. Their demands are supported with empirical evidence - the fact that, for example, approximately twice as many men as women play sport in the UK and men participate in

a greater number of activities and with greater frequency than women.<sup>32</sup>

More radical critiques of sport have questioned whether or not some women and/or men should want to participate in sports that are usually associated with masculine characteristics such as "strength, competitiveness, aggression" or if the feminine characteristics such as "cooperativeness, grace and tenderness" should become celebrated in the sporting experience.<sup>33</sup>

The second feminist critique has concentrated on studying the uses and abuses of biology, social sciences and their technologies, and has exposed ways in which science has been used to encourage sexist, racist, homophobic and classist social projects. However, this trend still assumes that there is a "value-free pure scientific research which can be distinguished from its social uses and that there are proper uses of science."<sup>34</sup> For example, this critique suggests that reproductive technologies tend to move the control of reproduction out of the hands of women and into the hands of the dominant group, which for the most part, is largely men. This trend suggests that the reproductive technologies that are invented are themselves value-neutral with problems arising when the control of these technologies are placed into the hands of men and not women. This critique is particularly important in connection with sport science. The increasingly more specialized and rationalized training practices have to a large degree removed the control of the process from the athletes to the "experts" (physiologists, psychologists, nutritionists, physiotherapists etc.). As Schneider maintains

A great many accepted training practices already 'dehumanize' the athlete, systematically removing the individual's control over such basic needs as how much is eaten, how much time is spent, and what is thought. The price of success in the current competitive environment is total dedication, the relinquishing of all other aspects of one's life, and total

subjection to the dictates of a battery of coaches, physiologists, physicians, psychologists, dieticians etc .<sup>35</sup>

Sport has also been used to make the sociological and psychological differences between males and females appear “natural” by emphasizing what appears to be major physiological differences to thereby justify the exclusion of women from participation in many sporting events. If sports and science are gendered social relations which value the “masculine/scientific principles” then perhaps a devaluing of the “feminine principles” may discourage women from participating. It is also possible that the social policies which are implemented from this masculine/scientific research may encourage sport to reproduce classist, racist, sexist and homophobic ideologies which make it difficult for athletes to achieve humanness.

The third feminist critique concerns the question regarding the possibility for pure science to exist at all. This argument suggests that “the selection and definition of problems always bear the social fingerprints of the dominant groups in a culture” and that “the design and interpretation of research again and again has always proceeded in masculine-biased ways.”<sup>36</sup> This critique has implications for sport as well as it suggests that what is researched in sport is male-biased. For example, what is considered more important to study - hockey or synchronized swimming?

The fourth feminist critique of science focuses upon the related techniques of literary criticism, historical interpretation, and psychoanalysis, which have been used to “read science as a text in order to reveal the social meanings...of the purportedly value-neutral claims and practices in science.”<sup>37</sup> Finally, the fifth critique within feminist epistemological inquiries has raised the concern that “our beliefs are grounded in social experiences, and of what kind of experience should ground the beliefs we honour as knowledge.”<sup>38</sup> This trend within feminist epistemology implies a relationship

between knowing and being, between epistemology and metaphysics, that is an alternative to the dominant

epistemologies developed to justify science’s modes of knowledge seeking and ways of being in the world.<sup>39</sup>

Harding’s 1986 study The Science Question in Feminism concentrates on the conflicts that arise between these epistemologies. According to Harding “scientific and masculinity are mutually reinforcing constructs.”<sup>40</sup> The cultural stereotype of science as “tough, rigorous, rational, impersonal, competitive, and unemotional” is intertwined with the stereotyped notions of “western masculinity.”<sup>41</sup> For this reason, women’s history can not just be added because

traditional history’s conceptual schemes do not permit women’s natures or activities, or relations between genders more generally, to be understood as social or, therefore historically significant. In particular, the periodization schemes of social and intellectual history (of which the history of science is a part) make invisible both women’s activities and the effect these activities have on the men’s history...<sup>42</sup>

Harding goes on to argue that the feminist challenges which revolve around the equity issues have been the least threatening to science. However, Harding maintains that in order for women to achieve the possibility of equal opportunity in science it “would require a radical reduction in: (1) gender stereotyping, (2) the division of labour by gender, and (3) the defensive fragility of masculine identity.”<sup>43</sup> Harding argues that the more threatening issue to science “is the contention that masculine bias is evident in both: (1) the definition of what counts as a scientific problem, and (2) in the concepts, theories, methods and interpretations of research.”<sup>44</sup> Drawing from Millman and Kanter’s 1970 analyses Harding goes on to outline five androcentric “problematic assumptions that have directed sociological research.”<sup>45</sup>

First, Harding argues that important areas of social inquiry have been overlooked due to the “use of certain conventional field defining models.”<sup>46</sup> For example, there has been a tendency toward focusing

on Weberian rationality in social studies and for the most part the role of emotion within social life is largely ignored. In other words, how people feel about things is not considered as important as how people think about things. Little research is directed towards how feelings and emotions influence people's actions and beliefs. As Harding states:

In neither case is awareness of feeling or emotion seen as significant in the reasons for or causes of people's actions and beliefs, or as an element of social structure, and yet such consciousness of feelings appears to be an obvious and important element in our own and other's beliefs and behaviours . . . Are not men and women often motivated to adopt beliefs and behaviours, to support policies and institutions, by an awareness of their own feelings of love, affinity, anger, or repugnance?<sup>47</sup>

Secondly, sociology has tended to concentrate on "public, official, visible, and/or dramatic role players and definitions of the situation; yet unofficial, supportive, less dramatic, private, and invisible spheres of social life and organization may be just as important."<sup>48</sup>

Thirdly, sociology has tended to assume a "single society with respect to men and women, in which generalizations can be made about all participants, yet men and women may actually inhabit different worlds and this difference is not taken into account."<sup>49</sup>

The fourth point suggests that "in many fields of study, sex is not taken into account as a factor in behaviour, yet sex may be among the most important explanatory variables."<sup>50</sup> Harding elaborates that from her theoretical perspective it is gender differences not sex differences that is the issue to be concerned with. As Harding states

it is not that biological differences between the sexes have primarily determined the course of history; rather, she (Kelly-Gadol) is elaborating

Simone de Beauvoir's claim that "woman is made, not born." Social constructions of sexuality and gender have been responsible for assigning women and men to different roles in life. Thus men, too, are "made, not born," and they are distinctively men in the gender-specific sense - not accurately presented as representative of "humanity". Kelly-Gadol argues that history has been shaped not only by distinctively masculine needs and desires but also by the socially constructed activities of women.<sup>51</sup>

The fifth argument suggests that "the preference for certain methodologies (frequently quantitative) and research situations (such as having male social scientists studying worlds involving women) may systematically prevent the elicitation of certain kinds of information, yet this undiscovered information may be the most important for explaining the phenomena being studied."<sup>52</sup> As some feminist criticisms have suggested "the preference for dealing with variables rather than persons may be associated with an unpleasantly exaggerated masculine style of control and manipulation."<sup>53</sup> In other words, the researcher's gender may affect the completeness of the results in a number of ways, as men may not have the opportunity to participate in some "women-centered aspects of social life."<sup>54</sup>

Harding goes on to explain the four ways in which the social relations of science are integrated with the social relations of the larger world. First, the social hierarchy within science maintains the absolute social status of the society. The division of labour within science is similar to the division of labour within the larger society. Class analysis alone can not explain why so many high status jobs are held by men and why so many low status positions are held by women both within science and the larger society. According to Harding, until unions of scientific workers concentrate on breaking down the class, race and gender stratification found within the scientific workplace science will continue to preserve the social status of the larger society.<sup>55</sup>

The second way in which scientific work has integrated the work of the larger society has been through the increasing trend to “separate the conception and execution of that labour, and to accumulate the conceptions and the knowledge of the execution in the minds and hands of managers.”<sup>56</sup> The adaptation of “Taylorism”<sup>57</sup> that is common to the industrialized workplace, into the physical and social scientific enterprises has contributed to the shifting of the “production of scientific knowledge from craft to industrial models, and in accumulating the knowledge of how to conduct research in the hands of the managers.”<sup>58</sup>

Herman outlines this increasing trend toward Taylorism and the “influence of mechanism on physical education and sport”<sup>59</sup> when he states that, according to the behaviourists, curriculum theory and philosophy of physical education have erroneously concerned themselves with systems that encourage aims and objectives. Behaviourists argue that these objectives have stressed “goals such as fitness, total fitness, skill, knowledge and character development.”<sup>60</sup> According to behaviourists, this emphasis on terms such as “attitudes, beliefs, ideals, insights, values, appreciations, and understandings” are “highly general concepts if not mere hypothetical constructs which cannot be observed directly.”<sup>61</sup> These mentalistic concepts are not measurable and therefore can neither be “substantiated nor denied.”<sup>62</sup> Herman goes on to state that during this “age of accountability” physical educators will be forced to become “responsible” which merely suggests that “the public, which generally supports education, will require results in proportion to the resources put into it.”<sup>63</sup> In other words, according to Herman

What the public will consistently demand is that the educational system be productive, and those systems which are most productive will likely become widely used, while those that are unable to demonstrate their productivity will fall by the wayside.<sup>64</sup>

Physical educators will be compelled to state “their aims and objectives in terms of measurable behavioural outcomes”<sup>65</sup> because physical education

will stand “to benefit a great deal if it is to measure up against its criterion of productivity.”<sup>66</sup>

Herman states that numerous psychologies which utilize value terms and mentalistic concepts are considered failures because they are unable to provide a means of accountability. Operant psychology believes it is more accountable because it is built on the “evolution of a scientific process rather than opinion and postulation” and therefore, it is thought to be able to “contribute to physical education and sport a set of empirical laws validated through experimentation and thereby enabling it to achieve specific objectives.”<sup>67</sup>

Herman suggests that a behaviouristic program of physical education and sport would be concerned with the following:

Since psychology is that branch of science which is concerned with the behaviour of organisms it will attempt to understand the causal processes which contribute to a change in behaviour. Its goal is to analyze, understand, predict and control behaviour. Human behaviour is delimited to what people do, such as playing tennis, solving problems ...etc. These behaviours can be seen or heard, and as such provide the basis for objective scientific analysis, whereas other behaviours such as thinking, understanding are only accessible to the person who does the behaving; but these behaviours can not be measured and therefore do not exist. All value terms of this sort used in physical education and sport are meaningless.<sup>68</sup>

Herman states that “functional empiricism or operant conditioning (i.e. stimulus, response and reinforcement)” to physical education and sport are “observable and measurable” and would enable coaches and teachers to measure their achievements in a way that traditional theories of learning have neglected to do.

It has been suggested by researchers in philosophy of sport that this trend has resulted in athletes being viewed as machines.<sup>69</sup> According to Schneider

Often the analogy of a machine is used to demonstrate and/or assess the technological aspect of high performance sport realm. This creates tension between the athlete's unquantifiable will and the view of the athlete as a lab specimen measured in quantitative terms.<sup>70</sup>

Hoberman states that this "temptation to treat the human body like a machine comes into conflict with our most basic ideas of what a human being should be."<sup>71</sup> Hoberman also maintains that this view to try to progressively transform the body in the same way that science and technology are transformed results in a tension in trying to assess the concept of "human limits." Hoberman maintains that this temptation to surpass these limits has become overwhelming, disconcerting and questionable. For example, Hoberman states

The danger that specific body-types will be developed for specific sport disciplines is no longer a matter of science fiction; for this reason we can already see on the horizon the danger that specific athletic types will be bred by means of more or less concealed chemical or even genetic manipulations.<sup>72</sup>

But what does this approach do to the athlete? Does this not reduce the athlete to a mere body to become more efficient and more productive, a form of Taylorism applied to humans? What about the athlete's will, thoughts, motives, soul, and emotions? Are these subjective feelings not important for the understanding of why or how the athlete performs? If not, is it possible for athletes who are reduced to bodies and treated as objects to achieve humanness?

According to Harding, the third important aspect of the integration of science with the larger social world revolves around the concept that

the conceptualizing of the social and natural world is part of the labour of "ruling," and modes of ruling and codes for understanding nature and the social life fit together and need each other.<sup>73</sup>

The ideology within the natural sciences of "nature as passive but threatening to human life legitimate aggressive and defensively justified manipulations of nature and social life,"<sup>74</sup> which ignores the political and moral issues of many problems. For example, certain groups, who are in good health, benefit from "defining the problem as finding a cure for cancer vs. those who would benefit from defining the problem as eliminating the causes of cancer."<sup>75</sup> Therefore, feminists have argued it should be moral and political, rather than scientific, discussion which should serve as the paradigm - although a problematic one - for rational discourse.<sup>76</sup>

The fourth aspect that Harding discusses with regard to this integration is that "in both the natural and social sciences, the objects of inquiry are the same objects that are manipulated through social policy."<sup>77</sup> Harding emphasizes that it is

not that results of scientific inquiry are misused or misapplied by politicians.... Rather, social policy agendas and the conceptualization of what is significant among scientific problems are so intertwined from the start that the values and agendas important to social policy pass-unobstructed by any methodological controls right through the scientific process to emerge intact in the results of research as implicit and explicit policy recommendations.<sup>78</sup>

In conclusion, Harding maintains that the social relations within science which influences science's picture of reality are integrated with the larger social relations of society which science supports. As Harding states

Individuals do not spring naked from the womb into the social relations of the laboratory table. Those social

relations are but extensions of the social relations of all the other tables of culture- in the kitchens, schoolrooms, locker rooms, and board rooms.<sup>79</sup>

In conclusion, feminist critiques of science have alerted us to the importance of understanding the gendered order and how these orders are affected by the social structure of science. Harding states that the purpose of feminism is to make clear that

1. all humans are gendered
2. masculinity is not the ideal for humans and it is as detrimental as femininity
3. gender is a fundamental category within which meaning and value are assigned to every thing and a way of organizing social relations
4. if we understand science as a social activity we could begin to understand ways it is structured by expression of gender .<sup>80</sup>

These points are also important for understanding sport and sport science. If we could understand sport and sport science as social activities we could begin to understand how they are also structured by expressions of gender and science. Harding makes it clear that there is a gap between the image of scientific inquiry and reality. As Harding states

The image tells us about a single individual, beholden to no social commitments but only to the search for truth, who creatively identifies and conceptualizes problems worthy of inquiry, invents methods of asking nature questions, and achieves clear and value-neutral results. The reality of industrialized scientific production requires a set of concepts that can capture the relations between different social divisions of labour and the inquiry they produce- between race, class and gendered divisions of labour and the form and content of scientific claims produced through this labour.<sup>81</sup>

It has been suggested by Harding that for this reason we should expect science to require only a few women to raise in men's minds the threat of feminization and challenge their gender identity. Yet, what about sport which has been for the most part predominately a male activity just as science has been? How will sport scientists' increasing emphasis on the "scientific" or "masculine" principles affect the direction of sport and what are the implications of this approach for the athletes?

### Conclusion

According to Schneider

the essence of elite level sporting competition and excellence is the drive to perfect one aspect - the physical, of what it is to be human.<sup>82</sup>

This paper has suggested that this limited focus encourages the development of "masculine" principles and ignores the "feminine" principles which are necessary for achieving humanness. Feminist critiques of science may help us to begin to find solutions by suggesting that the answers do not lie in the notion of scientific objective truths but in moral and political discussions. To understand gender in sport is not to understand, simply, women in sport or how women have been excluded from sport but to understand how sport, like science, is gendered. It is to recognize that sport, science and gender are social relations which are socially constructed and, therefore, change over time and place. It is to understand how the making of women and men affect the making of science and sport and how the making of sport and science affects the making of men and women.

Feminist critiques of science have suggested that important areas of social inquiry and knowing, such as the role of emotions, thoughts, and motives in social behaviour and situations have been overlooked in the quest for scientific objective reality. Some feminists have argued that individuals' subjective feelings and emotions influence their actions, beliefs, and "how they know."<sup>83</sup> Harding suggests that a feminist theory of knowledge would be distinct in the way its "concepts of the knower, the world to be known, and the process of coming to

know reflect the unification of manual, mental and emotional (hand, brain, and heart), activities characteristic of women's work."<sup>84</sup> Harding also suggests that the need for this type of "science" is

increasingly acute, for bringing caring labour and the knowledge that stems from participation in it to the analysis becomes critical for a transformative program equally within science and within society if we are to avoid the nuclear annihilation and deepening social misery increasingly possible otherwise.<sup>85</sup>

It is this "ethic of care" that encourages individuals to achieve humanness and should be important to moral decision making.

The historical social construction of science, sexuality and gender has generally resulted in the assignment of men and women to different roles in social life. This has tended to encourage females to develop the "feminine" characteristics of comparative physical weakness, nurturing, empathy and compassion and generally assigned women to roles as "caretakers", responsible for the emotional well-being of individuals. Males have tended to develop the "masculine" characteristics of aggression, physical strength, and independence making them appear more appropriate for the "public" realms of science and sport. This makes it very difficult for individuals to achieve humanness as they are not encouraged to develop a wide range of human characteristics. According to Messner "Sport, among the most masculinizing of social institutions" has contributed to creating, maintaining and perpetuating these apparent differences while valuing the "masculine/scientific" principles and devaluing the "feminine" principles.<sup>86</sup>

Harding suggests that the

conjunction of science's role in the social construction of gender and sexuality with a masculine/dominant social order's role in legitimating scientific authority for the purpose of increased social power is the focus of

the most radical feminist challenges to science.<sup>87</sup>

The essence of Harding's sentiments with regard to science is also applicable to sport science. The issues of power, control and authority should become the major focus of the philosophical challenges to sport science. Sport is a dynamic process that can be altered and changed to perpetuate a more humanist approach if there was a recognition of the athlete as human with thoughts, feelings and wills with limits, and not just an object to be trained in order to break quantitative records. According to Hoberman

a clear and binding ethics of sport ...will be able to preserve its humanizing influence and contribute to human dignity only if, as it develops, it resists this pressure, if it recognizes its own inner laws, and if it sees and accepts these limits. For sport itself stands on a threshold. In the long run it will master this situation only if it recognizes it as an existential issue rooted in moral premises.<sup>88</sup>

Humanizing the athletic process would encourage the incorporation of "masculine" and "feminine" principles in all athletes and place an increased emphasis on the "ethic of care"<sup>89</sup> within sport. This type of feminist sport science would encourage athletes to achieve humanness by developing their bodies, minds and souls. Treating the athletes as humans and enabling them to have control of the process would encourage the athletes to be morally and ethically responsible and hence, accountable for their behaviour and actions. Sport as an arena for social change has the potential to increase the value of the "feminine" principles such as caring, feelings, thoughts etc. and to perhaps influence the larger social process of science to become more human. As Schneider so accurately states

Will treating athletes more like people make them better athletes? Not necessarily, but it may make all of us better people.<sup>90</sup>

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### Endnotes

1. See Herman (1975); Hoberman (1988); Schneider (1992).

2. Sandra Harding, The Science Question in Feminism. Ithaca: Cornell University, 1986, pp. 9.

3. *Ibid.*, pp. 9

4. *Ibid.*, pp. 9

5. *Ibid.*, pp. 23

6. *Ibid.*, pp. 26

7. *Ibid.*, pp. 27

8. *Ibid.*, pp. 9

9. Messner, Michael A. and Sabo, Donald F., editors, Sport, Men and the Gender Order: Critical Feminist Perspective. Champaign, Ill., Human Kinetics, 1990, pp. 8.

10. Coakley, Jay J. Sport in Society: Issues and Controversies. Boston: Mosby, 1994, pp. 40.

11. Hoberman, Daniel J. "Mechanism and the Athlete," Journal of the Philosophic Inquiry in Sport, II, 1975, p. 319.

12. Schneider, Angela. "Sport Heroes and Sport Science," Sports Medicine Council of Canada, Vol. IX, No. 4, 1992, p. 1-4.

13. Morgan, William J. and Meier, Klaus V., editors, Philosophic Inquiry in Sport, Champaign, Ill.: Human Kinetics Inc., 1988, pp. 193.

14. See Gilligan (1982) and Belenky, Clinchy, Goldberger and Tarule (1986).

15. Fox Keller, Evelyn. Reflections on Gender and Science. New Haven: Yale University Press, 1985, pp. 3.

16. *Ibid.*, pp. 3.

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17. Ibid., pp. 4.
18. Ibid., pp. 4.
19. Ibid., pp. 6-7.
20. See Gilligan (1982); Berkley, Clinchy, Goldberger and Tarurle (1986); Harding (1986).
21. Fox Keller, Evelyn. Reflections on Gender and Science. New Haven: Yale University Press, 1985, pp. 7.
22. Ibid., pp. 7.
23. Ibid., pp. 8.
24. Ibid., pp. 8.
25. Ibid., pp. 9.
26. The Vienna Circle was a group of philosophers, mathematicians and scientists who joined in the late 1920's and began the school of logical positivism that advocated the idea that all true knowledge is scientific. Logical positivism is distinguished by its "insistence that science can only deal with observable entities known directly to experience. The positivist aims to construct general laws or theories which express relationships between phenomena. Observation and experiment will then show that the phenomena do or do not fit the theory...." In other words, human behaviour can be understood and studied in the same way as physics with "a marked preference for measurement and quantification, and a tendency towards social structural explanations as distinct from those which refer to human intentions and motives." (Please see the Dictionary of Sociology, 1984, p. 190.). Sport science has tended to model itself along the positivist idea that objectivity, value-neutrality and experimentation can explain why athletes participate in athletic events or how they can improve their performance with little regard for the athlete's feelings, desires, motives, etc.
27. Harding, Sandra. The Science Question in Feminism. Ithaca: Cornell University press, 1986, pp. 68.
28. Ibid., pp. 68.
29. Ibid., pp. 68.
30. Fox Keller, Evelyn. Reflections on Gender and Science. New Haven: Yale University Press, 1985, pp. 9.
31. Harding, Sandra. The Science Question in Feminism. Ithaca: Cornell University Press, 1986, pp. 21.
32. Hargreaves, Jennifer. "Gender on the Sport Agende," In Sport Sociology: Contemporary Theme. Edited by Yiannakis, Andrew, McIntyre, Thomas D.,

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- and Melnick, Merrill J. Iowa Kendall/Hunt Publishing, 1993, pp. 75.
33. Ibid., pp. 77.
  34. Harding, Sandra. The Science Question in Feminism. Ithaca: Cornell University press, 1986, pp. 21.
  35. Ibid., pp. 3
  36. Ibid., pp. 22.
  37. Ibid., pp. 23.
  38. Ibid., pp. 24,
  39. Ibid., pp. 24.
  40. Ibid., pp. 63.
  41. Ibid., pp. 63.
  42. Ibid., pp. 66.
  43. Ibid., pp. 82.
  44. Ibid., pp. 82.
  45. Ibid., pp. 85.
  46. Ibid., pp. 86.
  47. Ibid., pp. 86.
  48. Ibid., pp. 86.
  49. Ibid., pp. 89.
  50. Ibid., pp. 89-90.
  51. Ibid., pp. 89-90.
  52. Ibid., pp. 90.
  53. Ibid., pp. 90.
  54. Ibid., pp. 90
  55. See Hartman, Heide. "The Unhappy Marriage of Marxism and Feminism," in Women and Revolution. Edited by Lydia Sargent, Boston: South End Press, 1981.
  56. Ibid., pp. 75.
  57. According to Thompson (14: p. Xv), Taylorism is a "management control strategy named after F.W. Taylor. The first systematic theory and practice of management, its defining characteristic, has been the attempt to separate men from manual labour, subjecting both to exact measurement. Taylorism spawned a more general movement known as scientific management." See Thompson, Paul. The Nature of Work. London: Macmillan press Ltd., 1983.
  58. Harding, Sandra. The Science Question in Feminism. Ithaca: Cornell University press, 1986, pp. 76. Also see Braverman, Harry. Labour and Monopoly Capital. New York: Monthly Review Press, 1974 for a complete assessment of Taylorism or scientific management.

59. Herman, Daniel J. "Mechanism and the Athlete," Journal of the Philosophic Inquiry in Sport, II, 1975, pp. 104.
60. Ibid., pp. 104.
61. Ibid., pp. 104.
62. Ibid., pp. 105.
63. Ibid., pp. 105.
64. Ibid., pp. 105.
65. Ibid., pp. 105.
66. Ibid., pp. 105.
67. Ibid., pp. 105.
68. Ibid., pp. 105.
69. See Herman (1975), Hoberman (1988), Schneider (1992), and Morgan and Meier (1988).
70. Schneider, Angela. "Sport Heroes and Sport Science," Sports Medicine Council of Canada, Vol. IX, No. 4, 1992, p. 2.
71. Hoberman, John M. "Sport and the Technological Image of Man," in Philosophic Inquiry in Sport. Edited by Morgan, William J. And Meier, Klaus V. Champaign, Ill.: Human Kinetics Inc., 1988, p. 319.
72. Ibid., pp. 319.
73. Sandra. The Science Question in Feminism. Ithaca: Cornell University Press, 1986, pp. 76.
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76. Ibid., pp. 12.
77. Ibid., pp. 77.
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79. Ibid., pp. 73.
80. Ibid., pp. 57.
81. Ibid., pp. 79.
82. Schneider, Angela. "Sport Heroes and Sport Science," Sports Medicine Council of Canada, Vol. IX, No. 4, 1992, p. 3.
83. Harding, Sandra. The Science Question in Feminism. Ithaca: Cornell University Press, 1986, pp. 86.
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89. See Gilligan (1982).
90. Schneider, Angela. "Sport Heroes and Sport Science," Sports Medicine Council of Canada, Vol. IX, No. 4, 1992, p. 3.

