

Talking About Sex

Biology and the Social

BY SANDRA KIRBY AND JUDITH HUEBNER

Dans cet article, le sexe des athlètes en compétition pose un sérieux problème critiqué par les deux auteures qui sont des scientifiques et qui questionnent le manque de rigueur scientifique et les méthodes non-appropriées utilisées par les juges. Il existe des examens de cas d'anomalies sexuelles où la discrimination est flagrante. Les auteures exigent que des efforts soient intensifiés afin d'éliminer ces mesures discriminatoires dans les vérifications du sexe des femmes athlètes.

It is shocking that the practice of "gender verification" is still used in international sport to determine if women athletes are women. Only women are tested, presumably so that sport organizers can catch any male athletes who attempt to register in women's events, and thereby get an easy win! Since most people think that sex comes in only two varieties, female and male, gender verification may appear to be a non-issue. Just as international sport uses science to test for "sex" and to justify the need for testing, female athletes are being tested for something men "might" do.

Thousands of female athletes have undergone such testing, some have failed the test and been sent home from international competition unsure of the implications of learning that they are not female. Imagine if you learned, at this point in your life, that you weren't the sex you thought you were? As feminist scientists involved in Women's Studies and in our respective disciplines of Sociology and Biology, we find the gender verification issue to be an excellent example of how the frivolous and erroneous use of science can subju-

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gate women, in this case sports-women.

Historical context

One of the domains where girls and women have made the greatest strides in the twentieth century is the field of sport. "Sport is, by and large, a wonderful experience for those who participate. Some claim it is one of the most significant and positive experiences of their lives" (Kirby, Greaves and Hankivsky 104). It also provides a social context in which desirable social values can be reinforced; values such as winning, equity and justice, usefulness, game enjoyment, sportsmanship [sic], contract maintenance, and respect for the game. Since the early 1900s, female athletes have competed in ever increasing numbers on the international stage presented by summer and winter Olympic Games, Pan American Games, All-African Games, Commonwealth Games and

various World Championship events. Although it has taken some time for the North American public to accept females as serious athletes, at the end of this millennium, it is safe to say that these athletes have earned respect for their professionalism in training and representation of their sports as much as for their outstanding performances.

What is not well known is that since 1966, female athletes, and only female athletes, who compete at the international level must have their "gender verified" before they are permitted to step onto the playing fields or dive into the swimming pools. What does "gender verifying" an athlete mean and how did such a practice develop?

In the 1930s, there were "anecdotal reports of individuals who competed as females and who were subsequently identified as men" (International Relations 1). Among these were a woman who was a gold medalist in 1932 and was discovered to have testes after her death in 1980; a 1938 world record holder in high jump who was barred from competition when it was discovered that she had both female and male genitalia; and a 1934 world record holder in the women's 800 metres who later underwent a sex change operation and became a man. These cases suggest that two of the three individuals had some sort of sex ambiguity; that is, they lived and thought of themselves as female. There is no evidence that they sought in any way to exploit their sexual status in sport. The third involves someone we would now call a female to male transsexual (FMTS). Even after surgery, this person would be allowed to compete

Interpretations of Sex in Sport

in women's events.

In the 1940s and 1950s, athletes experienced much greater public exposure through the media coverage of sporting events. As women trained and competed successfully in an ever increasing array of sports, the public began to see these women as serious athletes. Some athletes like Sonja Henie, Barbara Ann Scott, Babe Didrickson and Marilyn Bell became famous personalities as their prizes for excellence included trophies, financial reward and fame. Nations show-cased successful male and female athletes with their political regimes to improve their international status (International Relations).

In the 1960s, Eastern Bloc athletes became very successful in women's track and field events. There was some suspicion amongst competing nations that these athletes might not really be women, but rather, "unnatural" women or men passing as women. With more at stake for athletes and for nations, the International Amateur Athletic Federation (IAAF) introduced "sex testing" at the European Championships in 1966.¹ Pressure from Western bloc countries and the media was successful in pressuring other international sport organizers to create a sex testing procedure in time for the 1966 Commonwealth Games and the 1967 Pan American Games. By the end of 1967, virtually all female entrants in international sport competition were tested to ensure they were female.²

The variety of sex tests

These initial tests at international competitions were simple observa-

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tions of anatomical sex which consisted of "pulling out an athlete's track pants to check to see that the genitalia were appropriate for a woman" (Lay 1999)³ or a "nude parade" in front of medical doctors. For example, female athletes at the 1967 Pan American Games in Winnipeg had an "on site" inspection and, if results were unclear, then a manual exam of the genitalia or a gynecological examination was used (Skirstad 1999).

By 1968, the test had changed to the Barr Body Test. For this test, all Olympic female athletes at Grenoble (Winter Games) and Mexico (Summer Games) appeared at a scheduled time to be "gender verified" and somatotyped. Testers took a scraping from inside of each athlete's mouth and then verified whether Barr bodies were present. If they were, the athlete was verified female (XX) and received a "femininity card" with a registration number. Approximately 1/500-600 athletes tested are

declared ineligible not because they were male but because their tests showed the presence of chromosomal or genetic anomalies. There are no reports of male athletes being detected (International Relations, 1991:4). The uncertainty of the Barr Body Test is 20 per cent (Skirstad 1999) and there are recorded instances of false negatives (females designated as males) and false positives (males who pass as females). Like all female athletes who participated in the 1976 Olympic Games in Montreal, one of the authors of this article is a "card-carrying" female. To compete in subsequent competitions, the card would be produced or the author would be required to redo the test. With a 20 per cent chance of inaccuracy, athletes soon learned to carry their cards.⁴

In 1992, the Polymerase Chain Reaction (PCR) was introduced at Albertville, site of the Winter Olympic Games. Although the new test was reported to be more accurate, geneticists from Norway, France and Spain wanted nothing to do with it (Skirstad 1999). Now, there is some pressure in Olympic circles to use the PCR in combination with a gynecological examination to ensure women athletes are women. In all cases, although female athletes were given a choice about whether or not to be tested, if they chose not to be verified as female, they were barred from competition.

Biologically speaking

Since the 1960s, the science of biology generally has defined sex in terms of anatomy, chromosomes and genes, and physiology.



Photo: Marlene Hielema

Anatomical sex is defined, most basically, by the presence (male) or absence (female) of a phallus or penis. Other anatomical features that contribute to decisions about an individual's sex include the presence of testes and scrotal sacs in males and the presence of a vagina, uterus and ovaries in females. In addition, overall body shape, fat distribution and enlarged breasts are anatomical features that differ between the two sexes.

Chromosomal sex is determined by the sperm at conception. The normal male karyotypes (chromosomal pattern) consists of 46 chromosomes including two sex chromosomes, one X and one Y. The normal female karyotype consists of 46 chromosomes including two sex chromosomes, both of which are X chromosomes. Anomalies in sex chromosome number are among the most common genetic abnormalities. In cases where the sex chromosome

number differs from two, the presence of a Y chromosome determines maleness regardless of the number of X chromosomes present. Viability, however, depends on the presence of at least one X chromosome.

Physiological sex is a reflection of an individual's genetics interacting with its pre- and post-natal environment and is determined by how the body functions. Physiological sex is primarily dependent on the relative amounts of male and female sex hormones present at various developmental stages including fetal, adolescent, and adult. Thus, high levels of androgens (testosterone and its derivatives) produced on a continuous basis usually result in male physiology while high levels of estrogen produced on a cyclic basis usually result in female physiology.

Anatomical sex is usually determined by simple observation and/or examination of an individual. Chromosomal sex can most reliably be

determined by microscopically examining chromosomes of actively dividing cells, a method called karyotyping. The Barr Body Test is a more rapid but less reliable technique that involves microscopic examination of cells for the presence of a Barr Body, a structure in the nucleus of the cell which contains an inactivated X chromosome. Barr Bodies are found in individuals with karyotypes having more than one X chromosome (e.g., XY-normal male and XO-Turners female have no Barr Bodies, XX-normal female and XXY-Klinefelters male have one Barr Body).

Testing for sex, one's maleness or femaleness, is not as simple as it sounds. The accuracy and reliability of sex testing is highly dependent upon the test used and the efforts made to avoid contamination of samples and the criteria used to determine sex. What follows are some examples of problems from a biological perspective.



Photo: Marlene Hielema

First, are the anatomical problems. Occasionally females are born with clitoral enlargement making the clitoris resemble a penis. Likewise, unusual birth defects (some temporary like penis-at-twelve syndrome) or surgical damage to the penis can make the penis of a boy resemble the clitoris. Gynecomastia (the presence of enlarged breasts in males) is a common characteristic of obesity in men as well as a number of genetic and hormonal problems.

Second, are the chromosomal problems. Accuracy of Barr Body tests depends on the expertise of the technician. In addition, a number of sex chromosomal and genetic conditions can result in Barr Body results at odds with other indicators. A normal male (XY) has a penis present and no Barr Bodies; a Turners female (XO) has no penis and no Barr bodies. On the other hand, a normal female (XX) has no penis and has one Barr Body, while a Klinefelters male

(XXY) has a penis and has one Barr Body. Thus on the basis of the Barr Body test, a Turners female would not be verified and would be unable to participate in women's competition while a Klinefelters male would be verified female and would be permitted to compete. Likewise, women with androgen insensitivity (testicular feminization) syndrome appear and act female. In fact, these individuals often display "ideal" female figures. They have always been treated as females, behave like females, and consider themselves female; however their karyotype is XY and they have no Barr Bodies and would be disqualified from competition in women's events on that basis.

Third, are the issues related to phenotypic sex, the sex one appears to be. There are XY females (e.g. androgen insensitive) who live as females but have a male chromosomal pattern. Some may have lived their whole lives in this manner. Others

may be male-to-female transsexuals. Although no "sex change" test is used in sport, the Canadian Association of Sports Medicine agrees that males who have undergone a sex change to females should be eligible to compete as international athletes (CASM), athletes like tennis player Renee Richards (formerly, Richard Saskind) have been denied access to women's sporting events.

The rarity of anatomical, chromosomal and phenotypal problems suggests that the size of the problem pales in comparison to the enormity of the solution chosen by the IOC. The original intent of sex testing was to screen for athletes in women's events thought to have an unfair advantage over others, yet still untested is the issue of whether females who are genetically different from the typical XX female have any strength, speed or power advantage over other females. Also troubling is that testing for sex does not actually

detect those athletes who might gain unfair advantage through the use of performance-enhancing drugs.

Sex and gender

The dominant sex and gender schema (Devor) includes the categories sex, gender and sexuality and gender role behaviour. While sex is generally considered to reflect one's biological characteristics, the anatomical, genetic and chromosomal, and physiological make-up of an individual, gender refers to one's identity as a male or a female, one's masculinity, femininity or androgyny if you will. It is usual, though not always the case, that if one's sex is female, the gender identity is in agreement and that individual will present herself as female to the social world around her. If one is biologically female and presents as gendered-male in the social world, this is variously called gender-blending, cross-dressing and transvestism. One's sexuality also comes in a variety of forms, the most common being heterosexuality, homosexuality, bisexuality and asexuality. Everyone has a sexual identity though the identity may change during one's lifetime and one may choose whether or not to express that identity.

Sport is a gendered social world that is bifurcated along the gender lines. There is an internal logic to sport, a logic with several strands. One strand is that sport prepares boys to be men. There are masculine sports such as football and ice hockey where boys can be boys becoming men—and single sex competition

ensures that “girls don't challenge boys.” The second strand is that sport for males has been called sexuality suppressed by militarism (McKay). Sport idealizes things heterosexual and is homophobic to a great degree (Griffen). Some male athletes put on public displays of sexual prowess,

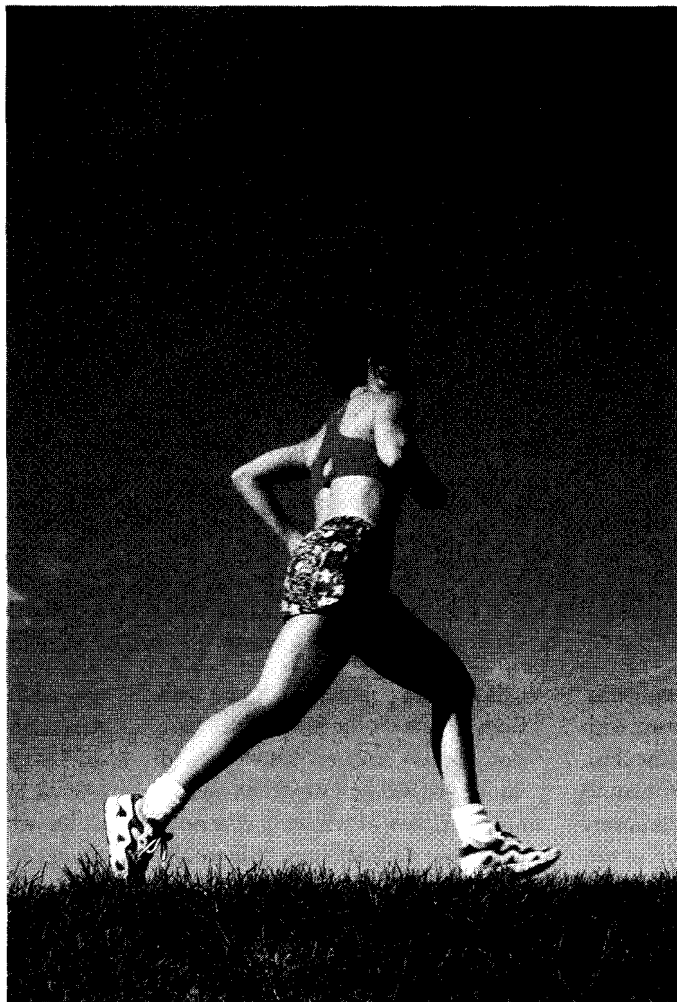


Photo: Marlene Hielema

establishing competitions for sexual titles. These competitions, including the practice of hazing or initiation, include heterosexual and sometimes hyper-heterosexual behaviours and expressions of attitudes. Female athletes appear to be stereotyped as either “the girl next door” or a lesbian. Despite the fact of women's century long competition in sport, excellent female athletes are still called tomboys, amazons and dykes, the inference being that if females are good athletes then they cannot be

real women. The third strand in the internal logic of sport is that it is a site for the reinforcement of the sexual division of labour (Thompson). Within this, female athletes put on the public performance of being feminine girls and women in sports such as rhythmic gymnastics and synchronized swimming. So too, women do lots of the invisible work of sport (e.g., driving children to practice, sitting on volunteer boards, fund-raising, creating policy, lobbying for the end of discriminations in sport) and proportionately less of the high profile work in sport (e.g., as members of the IOC or of the International Federations representing sport). These three strands ensure the continuance of male stream sport where women can take on supportive junior-partnership roles. Given the male texture of the sport context, the sport world remains largely unable to accept the athletic potential among its many female participants, choosing instead to question their sex, gender and sexuality. When girls and women do well in sport they cross some invisible

threshold where their performances and their sex, gender, and sexuality are scrutinized. The “she throws like a boy” syndrome emerges. And, if she throws like a boy, it is not a huge leap to ask “is she a boy?” If she looks very strong and muscular and acts in an athletic manner, is she not feminine but masculine instead, not female but male?

Problems with sex testing

There are numerous issues with both

the fact that gender verification exists in sport and with the tests themselves. First is the issue of bad science. A number of problems exist with the actual tests used, among them scientific inaccuracy and lack of validity. While the PCR test is more scientifically accurate than the Barr Body Test, both identify chromosomal patterns, not sex.

The Barr Body Test is scientifically weak. The scientific community does not support these tests, calling them inaccurate and unreliable. The results are unpredictable, with a reported error of .20 (International Relations), unacceptably high compared to an error rate of between .01 and .05 that is normally tolerated in natural and social sciences. This means that the probability of “false-positive” (male designated female) or a false-negative (female designated male) are 4 to 20 times higher than normally acceptable. In addition, the test is not reliably repeatable and does not always consistently determine the chromosomal pattern of an individual athlete from one testing to the next.

This unreliability can be seen in the experience of a Spanish hurdler, Maria Patino. She passed the Barr Body Test in 1983 at the World Championships in Helsinki but failed a subsequent test in 1985 at the World Student Games. Irregularities in her results meant that she was barred from competition. As an athlete, one of the things we learned just prior to testing was that if anyone failed they were to fake an injury and return home (Kirby). She was later asked to “fake a career-ending injury.” Patino described the experience: “What happened to me was like being raped. I’m sure it’s the same sense of incredible shame and violation. The only difference is that, in my case, the whole world was watching” (cited in Carlson). After a series of public protests and appeals, though no appeals were officially allowed, she passed again in 1988 (International Relations).

Another “failure” is the testing of

Ewa Klobukowska of Poland, a 1964 medallist who passed the “nude parade” in 1966 but failed the Barr Body Test in 1967 at the European Cup. Upon further examination, cell irregularities were detected, with some cells being XX and others XXY, a genetic condition known as mosaicism. Aware of her condition, she

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had undergone various treatments including female sex hormones. Her name was taken out of the record books and she did not compete again (Skirstad 1999). Skirstad points out the irony of Klobukowska’s testing because with the irregular results of the Barr Body Test, Klobukowska might have passed the test in Mexico in 1968.

What does passing the sex test mean for individual athletes? A passing grade could mean a number of things: an athlete could, for example, be female or be “a true hermaphrodite,”⁵ with a rare condition where she physically appears to be male but is chromosomally female, or be a female with chromosomal irregularities (XO), or be a female-appearing male. With a “femininity card,” the successful female can only really be sure that her karyotype is not XY.

Second, even if the test were scientifically accurate, is such testing desirable? The origin of the testing was spurious, linked more to the “cold-

war mentality” in sport than perhaps, the effort to make sport better. There is no evidence to suggest that the issue of men masquerading as women to compete as females in international competition is relevant (CASM). With the protocols for drug-testing (urine voided by athlete in presence of drug-testing official), clothing worn by athletes, rigours of athletic training and competition, and media interest in successful athletes, it is highly unlikely that male athletes would be able to successfully pass as female athletes for any length of time. Sex tests detect chromosomal anomalies which have not been shown to give any performance advantage. For example, at the Barcelona Olympic Games in 1992, 2406 women were tested, eleven were positive for presence of a Y chromosome, five were found to have the SRY-gene and four did not pass the subsequent gynecological examination (Serrat Herreros cited in Skirstad 1999). There may be medical reasons for knowing if athletes are XY females, but it remains unclear about why the International Olympic Committee is interested. If a level playing field for all athletes was the goal, the IOC would have to demonstrate performance advantages of chromosomal anomalies and institute limitations on all factors for achieving athletic success. One such test might involve placing restrictions on chromosomal variations acceptable for males.

Third, the test is undesirable for a number of other reasons, among them the enormous toll it takes on athletes who do not pass the test. Imagine a young 14-year-old gymnast or figure skater going abroad for her first international competition, being tested by persons unknown to her and being told that she has “failed the test.” The test results are not public so the young athlete may be told to feign injury and return home to an expectant family and support group who now must help her through the trauma created by finding out she is not a “true female.” She

will also be forbidden to compete in a sport to which she has already dedicated perhaps five to ten years. Skirstad (1999) found in her study of Olympic athletes in Lillehammer that most were unprepared for sex testing. Canadian and American athletes were better informed than athletes from other nations, but generally, these athletes were unaware of the implications of such testing. Also, in all scientific endeavours, the principle of informed consent is fundamental to research. However, female athletes have what we call the "choice of one" in taking the test. They are not informed about all possible outcomes and risks, have no choice but to take the test, and have none of the supports around them should they fail the test. This is science done badly.

Fourth, there has been, to our knowledge, no research which demonstrates that individual athletes extract sport benefit from chromosomal anomalies. What benefit accrues to sport in general for excluding these women from competition?

Fifth, why are only women athletes tested and only at the international level? At the Olympics, where it is presumed that men have the performance advantage over women, the IOC has considered it unnecessary to sex test men. Even so, even when all athletes in women's events were required to demonstrate their ability to pass the sex test, some did not. To our knowledge, Princess Ann was among those female equestrian athletes not tested in 1976 because they were competing in Bromont, outside the city of Montreal where the Games were hosted. Yet, Susan Nattrass, the well-known Canadian trap-shooter, was tested at the same Games, despite the fact that shooting competitions were events open to both women and men.

Sixth, and somewhat rhetorically, we ask, are men passing as women and entering women's events? And, if they are doing so, are they winning? Despite all the worries, there is only one documented case of a man

masquerading as a woman and that was before sex testing began. In 1936, a German high jumper by the name of Dora (Hermann) Ratjen finished fourth in "her" event. When synchronized swimming becomes an Olympic sport for men, will all Olympic athletes entering men's events be sex tested to keep women out? The sheer infrequency of this suggests that international sport organizations are killing a fly with a sledgehammer. In so doing, they are positioning themselves as draconian organizations who are less concerned with providing fair and equitable sport competition for all than they pretend to be.

Seventh, why would the IOC take it upon itself to determine the sex of athletes? What benefit could international sport possibly accrue? If an athlete is recognized by her family, her peers, her doctor and her national sport association as female, she then competes as a female. This athlete should not be placed before a stranger, a "sex tester," doing a Barr Chromosomal Test or a gynaecological exam on her at the Olympic village.

Directions for the future

We take the position that gender verification is bad for women. The biological definitions for sex are complex, the methods used in international sport competition to verify gender are highly problematic from scientific, social and ethical perspectives. And, on the basis of our examination of the issue of gender verification in sport, we find that gender verification discriminates against women.

The critiques have indicated that while gender verification has been a well-documented and complex practise, the male-dominated sports world has, until recently, been relatively impervious to the critiques. It is only in the last seven years that some international sport federations, led by the International Amateur Athletic Federation, have refused to have

their athletes tested except if a complaint is made.⁶ Although routine gender verification tests were to be conducted at the 1999 Pan American Games in Winnipeg, Canada, this plan was abandoned within days of the beginning of the competition. Although the International Olympic Committee is now examining its policies, Arne Ljungqvist of the IOC Medical Commission has written that the IOC has "abolished genetic screening for gender of female entries into the Olympic Games" at least for the 2000 Sydney Olympic Games but has retained the right to investigate particular individuals (Ljungqvist). He also indicated that screening was also conducted routinely by five of the 35 international federations (Basketball, Judo, Skiing, Volleyball and Weight-lifting) but that some of these are said to be considering the abandonment of the testing.

With the IOC code currently undergoing revision, the elimination of gender verification is a possibility but not a certainty. An intensive international lobby has been underway for some time involving WomenSport International, academics and medical practitioners such as De la Chapelle, Ferguson-Smith and Ferris, Ljungqvist, Serrat and Herreros, and Skirstad (1996, 1999) and sport organizations such as the IAAF and CASM. The lobby has had a profound affect on how gender verification is viewed and, although there is some discussion about using genetic screening plus both physical and hormonal investigations, most sport organizations seem to be moving towards the elimination of sex testing. If the IOC commits itself to eliminating the sex testing, it is likely that virtually all international sport federations will follow suit.

We see that as long as sport maintains a policy of sex testing, it remains a bastion of male dominance marked by rather pervasive sexual politics and strong resistance to progressive change. For true equality to exist, fair and equal treatment of all

athletes is required. The whole of sport remains tainted as long as sex testing is being used anywhere in sport.

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¹Prior to 1966, there had been some suspicion that some highly successful Eastern European women, notably the Press sisters, Irina and Tamara, exhibited abnormal masculine characteristics and "might not be females."

²Female athletes in female-only events and in some open events (e.g. trap shooting) were tested while those in other open events, such as equestrian and sailing, were not.

³Marion Lay recalls that the examination was accompanied by numerous propositions from the personnel responsible for the testing. She also recalls that a number of male athletes and coaches took the opportunity to expose themselves to the "naked parade" (Personal communication, July, 1999).

⁴There is one case reported by Susan Auch of a junior athlete who was informed that her card expired at age 16 and that she would have to be retested.

⁵A true hermaphrodite has both testicular and ovarian tissue. 20 per cent are mosaic 46, XY; 46, XX; 70 per cent are 46, XX and 10 per cent are 46, XY. This individual may resemble women (more often) or men (less often) and will likely have am-

biguous genitalia.

⁶IAAF Rule 108: "The medical delegate shall also have the full authority to arrange for the determination of the gender of a competitor should he judge that desirable."

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JANINE PELTIER

Road Killings

In my dream
that opossum was
beat to death
with a hammer:
 your hands stank
 grotesque
splatters of blood
on short gray fur.

In my dream
that opossum was
beat to life
with a hammer:
 my hands salivated
 great
rivers of black
over short blue veins.

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