As I understand my assignment, I am to react to Mariah from the perspective of the chapter** I wrote in Sharon's book on woman and sport. That means that I will be talking at the faster-than-Evelyn-Wood rate of 20 seconds per page. If you want any of this later at a slower rate you can refer to my chapter or ask me to recap using a Southern accent.

I have labeled the bridge between Mariah's work and my work as "possible precursors to one-on-one violence" (see Figure 1). Here I have listed three interrelated precursors – physical, philosophical, and psychological. As a biomechanist I will talk mostly about the physical with a few comments about the philosophical. I don't know enough about the psychological to even bluff – so I won't try.

Possible Precursors to One-on-One Violence

By way of prologue to the physical dimension, I’d like us to review the Grayson and Stein study that I mentioned at last year’s conference: The authors’ basic premise was that movement pattern and assault potential were likely to be connected. They obtained samples of movement by videotaping a random assortment of urban pedestrians. As for assault potential, a group of incarcerated criminals developed an ease-of-assault scale that ranged from "easy mark" at one extreme to "could be trouble – stay away" at the other extreme. Then another group of incarcerated criminals used the scale to rate each videotaped pedestrian

![Figure 1. Possible precursors to violence](image-url)
on ease of assault. In addition, Labananalysts noted qualities of movement in the pedestrians. As you might expect, the potential "victims" had restricted movement and poor coordination. I'd also like to call attention to the "could be trouble – stay away" category: These criminals were acknowledging that they would not pounce on people whom they perceived to be near or beyond their own level of prowess.

Turning to philosophy, I would like to discuss epistemology – dualism in particular. As you know, dualists tend to frame issues in black and white and then impose hierarchy. I bring this up because I believe that certain dualisms (see Figure 2) with their supposed hierarchies and their cozy conjunctions may be fundamental to the violence issue. That is, many dualistic males would give higher value to male compared to female, big compared to small, strong compared to weak, good compared to bad, and dominant compared to submissive. And there is a propensity in our culture to link these separate dualisms by equating male with big with strong with good with dominant, and female with small with weak with bad with submissive. (This is where it would be nice to know more psychology because I suspect that many violent men have internalized this linkage and believe that they, as men, are meant to be dominant and are somehow entitled to act this out.)

**Figure 2. Common dualisms with link to sports highlighted**

<table>
<thead>
<tr>
<th>male</th>
<th>big</th>
<th>strong</th>
<th>good</th>
<th>dominant</th>
</tr>
</thead>
<tbody>
<tr>
<td>female</td>
<td>small</td>
<td>weak</td>
<td>bad</td>
<td>submissive</td>
</tr>
</tbody>
</table>

Now most of us would acknowledge that male and female are a legitimate dualism and that the average male is roughly 10% taller and 20% heavier than the average female. But size is not a dualism, and, as we move further to the right, the categories become less and less dualistic for many of us. And once one acknowledges varying shades of gray, it is much harder to believe in one’s inherent superiority and entitlement. What might happen if we could educate violent men to separate this sequence of dualisms and to become less dualistic? How might we accomplish this?

The answer is not contemporary, competitive sports. First, the incessant emphasis on winners and losers tends to strengthen a dualistic worldview as does segregation by sex. And second, the central sequence of dualisms in Figure 2 is reinforced and connected to sexual dualism through sport. That is, we are taught that to be big is to be good, or aphoristically, "bigger is better." This is possible because the pathway between bigger and better goes through stronger (or faster) –
which is rewarded in sport. With the prevalence of elite male sport in the media, it is too easy for most people to notice that the typical male competitor is bigger and then assume that that means stronger/faster and thus better. For the dualist it is not difficult to extrapolate from better at sport to better period. Once that happens, it’s not a great leap to dominant and thence to violent.

As an alternative to the previous point of view, I would like to use a different epistemology – one that considers context and relative measurement – to reexamine the issue of bigger is better. The case is easier to illustrate with faster rather than stronger, so here goes with a distance running example: The typical competitive distance runner – as drawn with K-Mart School of Art techniques (see Figure 3) – takes a step length that is equal in distance to height. In other words, a five-foot tall person would take steps that are five feet long. By taking the typical 3 steps/second, that means this runner covers 3 heights (or 15 feet) per second. Let’s call this runner Lilliputia.

![Figure 3. Lilliputia the distance runner.](image)

If step rate is 3 steps/sec, then speed is 3 heights/sec.

Now let's look at her companion Brobdingnagia (see Figure 4) who also runs 3 heights/second. I would say that Brobdingnagia is bigger than Lilli, but I would not say that she is better given that both have exactly the same relative speed.
Let’s continue with this heights/second method of comparison and look at
some more concrete examples: At the time of her world record Flo Jo stood
5’6.5” and ran the 100 meters in 10.49 seconds; this is a rate of 5.64
heights/second. Carl Lewis, at 6’2” and 9.92 seconds for the 100 meters, ran at
5.36 heights/second. If you do the math, you will see that the world’s fastest
woman is 5.3% faster than the world’s fastest man! So here, bigger is definitely
not better. Well, maybe it's the legs, or maybe it’s the sprinting. OK, let's look at
record holders in distance swimming – a sport that emphasizes the arms and
endurance. Janet Evans swam the 1500 m freestyle at .949 heights/second and
Vladimir Salnikov swam it in .926 heights/second. That makes Janet 2.5% faster.
Again, bigger is not better.

That's the good news. What if we use the same method to look at fiftieth
percentile fitness scores for 6- to14-year-old children in endurance running (see
Figure 5)? At age 6 girls are 3% slower than boys, but every year after the boys
get 1.5% faster and the girls get 1.5% slower. Let's note, also, that this systematic

If step rate is 3 steps/sec, then speed is 3 heights/sec.

Figure 4. Brobdingdagia the distance runner.

Brobdingnagia

step length = height

Figure 4. Brobdingdagia the distance runner.
decline in performance is occurring before puberty. Thus, our culture and its institutions – such as schools – appear to be "educating" girls to retard their performance. The only females who are holding their own are the 6-year-olds and the world champions – the young and the relentless.

Figure 5. Divergence between average girls and boys in relative running speed from ages 8 to 14.

As long as most girls and women are not reaching their physical potential (and acontextual comparisons obscure the achievements of those who do), it is easy to perpetuate the string of dualisms in Figure 2. If girls and women were educated to reach their physical potential, it would be harder for many people to remain dualistic in this regard, and one-on-one violence might be reduced. If, nevertheless, some men remained obdurately dualistic, they might still be less violent because the women in their lives might now be strong enough to rate a "could be trouble – stay away."

So, the centerpiece and sound bite is: Bigger does not have to be better.