

Human Hardware: How Prosthetic Legs Become Everyday Body Parts

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For UCSD Culture and Society Workshop, April 5, 2011

Abstract

The findings presented here suggest that, in the current moment, attitudes toward bodily normativity are more subtle and complex than straightforward stigmatization of difference. While lower limb prosthetic technology has improved greatly over the past thirty years, it by no means offers perfect replicas to replace lost legs. Yet, many of the amputees interviewed here were not particularly interested in hiding the fact that they had an artificial body part. Though they did judge their prostheses to present problems relative to healthy organic legs, comparisons to damaged organic legs or no leg were more relevant to their experiences. But even compared to healthy “normal” legs, prosthetic legs sometimes afforded their wearers unique and valued social opportunities. The distinctions respondents drew between their prosthetic legs and the alternatives were varied and individual, but all made sense. The logic of these judgments demonstrates how they draw upon widely held cultural attitudes toward bodies and body parts that go beyond a simple stigmatization of difference.

Introduction

What do Americans expect from their own bodies and other human bodies they encounter? How have these expectations changed in the recent past? These are the broad questions I explore in this dissertation by examining when and how the presence of an artificial limb either meets or disrupts these expectations. Such situations and my respondent’s reactions to them hold clues to widely and deeply held ideas about what bodies and body parts should be and do. These expectations are not only about function or aesthetics; they are also about the morally permissible degree of augmentation and intermingling of bodies and technologies. They play a role in the culture that surrounds health and illness, in discrimination against aging people and people with disabilities, and in the definition of a life worth living.

In this chapter, I focus on the comparisons interviewees drew between their artificial legs and other kinds of legs: healthy organic legs, damaged organic legs, and residual limbs without

prostheses. While modern prostheses work well, they do not succeed in replacing organic limbs by perfectly replicating human body parts. The comparisons made by respondents indicate specific features of legs that are most important in our society and a permissible range of bodily difference. When prosthetic legs go unnoticed or bring positive attention, they have met social expectations and are judged within the range of acceptable human variation. When they cause problems or draw negative attention, they have breached a norm. Thus, by looking at these instances, I trace the complexity of social expectations for legs and for technologies affixed to bodies.

The analysis goes beyond the concept of stigma that tends to focus on illegitimacy and the opinion of others. Rather than eliminating any and all differences between organic and artificial legs, prosthetic design has been somewhat successful in restoring select functions and has achieved a limited set of aesthetic styles. Even when they do not visually blend in, they can be overlooked. Despite imperfections and discomfort, prosthetics can be incorporated into the body of an amputee in a limited sense. Thus, the legitimacy of an artificial limb cannot easily be judged on the degree to which they replicate organic limbs. Instead, legitimacy and illegitimacy are products of social interactions among people and between people and objects.

Background

This study is based on the insight that technology reflects and perpetuates assumptions about the desires, priorities, and social identities of the people who both use and make them (Bijker, Hughes, & Pinch; Cowan; Oudshoorn & Pinch). The assumptions embedded in assistive technologies like prosthetic limbs are particularly important because they not only reflect the

needs of those who use them, but more general ideas about what the body ought to be and how disability may disrupt what is considered “the good life.”

Science and Technology Studies (STS) scholarship offers useful insights for theorizing the body in society and in relation to cultural definitions of disability. In order to describe the role of the physical world in the making of science, scholars have had to make room for the material dimension of science in their accounts of socially constructed knowledge. For example, a review of new approaches to the biological body in medical sociology discussed Actor Network Theory (ANT) as a promising new avenue for thinking about the body (Williams, 2006). ANT proposes that objects be regarded as actors with the same potential as human actors to influence a situation (Latour, 1987, 1996). Of course, ANT is but one approach to including the cultural and the natural in studies of science and technology. For instance, much of Donna Haraway’s work focuses on the possibilities of traversing once-sacred boundaries between nature and culture (Donna Jeanne Haraway; Haraway), body and machine (Donna J Haraway), human and animal (Haraway). Others have productively employed ideas in STS to explore medical approaches to the body and disease (Mol, 2002; Oudshoorn, 2003; Thompson, 2005).

These approaches in STS resemble the insights of interactionist sociology. Just as sociologists have observed that a person’s identity is formed through social interactions (Goffman, 1969, West & Zimmerman, 1987), objects, and perhaps bodies, come to be defined in a similar process. In the examples I present here, prosthetic legs do not simply boost the legitimacy of those who wear them; they themselves take on attributes of legitimacy or illegitimacy in the course of interactions involving the wearer and others.

This approach raises the possibility of treating the body as a participant in social interaction that is more like an object and not necessarily synonymous with the individual. This

would solve some of the problems raised in disability studies. Debates in that field have raged around the question of how best to theorize the place of the body in the social construction of disability. Though it may at first appear impossible to deny the body's role in disability, some scholars have argued that disability is in fact entirely social, independent of physical differences (Hughes & Paterson; Thomas). However, others in disability studies have found this extremely unsatisfying and call for further theorization of the relationship between social categories of disability and physical impairment (Linton, 1998; Siebers, 2006; Thomas, 2007). This too has attracted criticism, as the dichotomy between disability and impairment works to reify that familiar and pesky distinction between culture and nature that has inspired so much thought among feminists, science studies scholars, and post-modern theorists.

By following an STS approach to objects, physical bodies can be described as playing a role in the social construction of disability without dictating the meaning of disability. This is because a body does not speak an indisputable truth about the limits of an individual's ability. Rather, like all other actors, it imposes specific but negotiable constraints on the situations in which disability is constructed. Thus, such an approach helps to sidestep the essentialism that so worries social constructionists, but leaves room to account for the tangible demands of bodies that must be accommodated.

Methods

To explore this question of legitimacy, I examine twenty semi-structured interviews with individuals who lost legs in adult life. The interviews focus on the process of learning to use their first prosthetic leg. To ensure that respondents remembered this, I interviewed recent amputees who began using artificial limbs no less than one year but no more than six years prior to the

interview. Each interview lasted between one and two hours and was recorded, transcribed, and analyzed. Each respondent has been assigned an alias to maintain anonymity.

The twenty interviews are with a diverse set of recent amputees. I spoke to fourteen men and six women. Thirteen respondents described themselves as white and the remaining seven described themselves as African American, Native American, Mexican American, Filipino, or mixed. Nine respondents lost legs after traumatic accidents, nearly all involving automobiles. Within the group with traumatic amputations, ages ranged from 23 to 71 years, with an average age of 42.7 years. Eleven respondents lost limbs due to illness including diabetes, cancer, and meningitis. Within this group, ages ranged from 23 to 75 years, with an average age of 50.9 years. In comparison to the current population of amputees in the U.S., respondents under the age of 65 are overrepresented (80% compared to 58%). Ethnic minorities and women are only slightly underrepresented (35% of respondents were non-white compared to 42% of the larger population; 30% of respondents were women compared to 35%) (Ziegler-Graham, MacKenzie, Ephraim, Trivison, & Brookmeyer, 2008).

I focus on individuals with lower limb amputations for three main reasons. First, approximately 94% of people with major amputations (excluding fingers and toes) have lost lower extremities (Ziegler-Graham, et al., 2008). Second, artificial legs are generally more effective in augmenting lost function than artificial hands and arms and thus are more likely to be used. Finally, the issues faced by people who have lost hands are quite different from those faced by people who have lost legs and therefore precludes meaningful comparison, especially with a sample size as small as this.

I limit my discussion to civilian amputees. Though wounded soldiers returning from Iraq and Afghanistan command much media attention and federal resources, they are a comparatively

small group. While there are an estimated 2 million amputees living in the U.S., only 1,033 of them lost limbs while serving in the current conflicts (Fischer, 2010)¹. In addition, soldiers wounded in Iraq and Afghanistan have access to a unique community and culture of recovery within military hospitals that sets their experience apart from civilians who lose legs (Messinger, 2009, 2010; Weisskopf, 2006).

Findings

Implicitly or explicitly, respondents spontaneously compared artificial legs with healthy organic “normal” legs, with organic legs that were damaged, and with no leg at all. But the conclusion of these comparisons was by no means unanimous or predictable. Indeed, many respondents related ways in which the artificial leg might be better than a “normal” leg. The logic of these comparisons – especially the surprising ones – reflects the subtleties of the cultural expectations that surround legs and their social role.

Comparing Artificial to Organic Legs

The contrast between artificial legs and healthy organic legs most often underscored the ways that this much heralded technology still falls short of the biological limb it seeks to replace. Pain and irritation, the necessity for additional planning and time for certain activities, and issues of appearance and dress came up again and again. However, many respondents also expressed pride in their prostheses and described times when their artificial limbs eased social interactions and allowed them valuable experiences.

Pain

¹ This number excludes those who have lost fingers or toes only.

For many respondents, their prostheses were irritating or downright painful. Skin problems were common, including blisters, pimples, and irritation in hair follicles. Some described the pressure their prosthesis put on exposed nerves or tender scars left over from surgery. Managing these problems often dominates a recent amputee's time and attention for months and sometimes years. Nearly all respondents described a period of adjustment when they struggled with some amount of discomfort. For example, Donald, age 71, described his recent struggle to get comfortable and return to his lifelong hobby of running.

They keep saying you've gotta get used to these things, but there's a point where, no matter how much pain and suffering you go through, you're not going to get used to this thing ... My stump is maybe still shrinking some. They said it could take as long as three years for this thing to finally stabilize, and I guess the more active you are, the more fluctuation you have in the stump. So during the day it's getting bigger and smaller depending on what I'm doing. Some people have even said your diet can affect how the stump is going to be, depending on what you ate last night...

Donald focuses on the difficulties of maintaining a good fit between a rigid socket and a residual limb that naturally fluctuates in volume over the course of the day or with changes in body weight. Respondents often spoke about being more conscious of gaining or losing even small amounts of weight because such changes could make their prosthesis uncomfortable or even unwearable.

Long after the initial fitting, any change to a prosthesis or the body is followed by a period of adjustment. Regardless of experience, the process of finding the right fit can be quite prolonged. William, age 58, described the frustrating consequences of one such process.

My wife and I went for our anniversary to Buenos Aires, and I had told [my prosthetist], this socket's gotta be right cause we've got to walk around in this town. And [he] was trying, but we couldn't get that socket right, and so I went in and told him, "You've gotta put the old socket back on, because this other one's going to rip my leg up." So he puts the old socket on, and I get to Buenos Aires, but I'm bottoming out in this socket. I could remember, my wife would be half a block ahead of me, and she's be looking up at me, like hurry up and the pain was

overwhelming, and it was really hard. We had been wrestling with the fit on that new socket for months, like at least two and a half months.

He and his wife were accustomed to a remarkably active life that his prosthesis could not immediately restore. William's struggle to keep up with her underscores the social implications of pain and the ways that legs and the mobility they provide make a difference to social interactions.

Ease

Even those who had great success with their prostheses had to work to learn and adapt to them. Some respondents downplayed the burden of learning to walk on a prosthesis with an even and "natural" gait, but the work and discomfort involved was nevertheless apparent. After seeing Mark (age 43) walk across the room, I asked him about the amount of concentration it took for him to walk. He told me, "It is second nature." But he then went on,

The balance things, you work those out, balancing or equalizing on your hips, you figure that stuff out, but really if I was walking [a mile] and I was halfway there, the main part's gone, it already hurts so much it just goes numb. Like if you had a pair of shoes that were ... too small, cause you can't take them off, so eventually it just gets numb, the pain just becomes overwhelming, and luckily your brain somehow shuts it off. When I get halfway [there], I may pull off and find blood, but I'm in a rhythm and I'm not thinking about it. Coming back [to the table] like that, I wanted to walk good so I have to consciously think about it, stepping the same way, and [it's] very complicated ... swing phase, heel strike, all this little parts of walking, and so ... in trying to do it, yeah, it still takes a lot of thought to make it right.

Those who had achieved a level of comfort and proficiency with their prostheses still routinely ran into situations where the limb required extra attention. Certain activities, such as swimming, surfing, hiking, or camping, required advanced planning and sometimes special assistance. This could sometimes be a barrier to such activities. Keith, age 29, explains,

But doing sports for me it's all ... I've gotta think a little more before I jump into stuff, like snowboarding, I want to do it but if I go ... I can't just go up with my friends, they're going to leave me in the dust, and I've got issues. I've gotta make

sure my stuff's with me, if I stop, I've gotta make adjustments, things break, I've got to have people around me, but those guys have to be able to stay with me to keep up, so I prefer to go with people that either are amputees or my prosthetist or my family or like one close friend who knows he'll stick with me... You've gotta plan for everything ... I get my cousin who calls me and says, "You wanna go for a bike ride?" I would love to, except it's not that easy for me to ride a bike. My feet don't stay on the pedals if I don't have [the right equipment]. Everything's an issue. Surfing, I've gotta hop up and down the beach, in and out of the water.

While Keith is active and able to do a large range of athletic activities, his prosthesis requires him to plan more carefully and take more time than other men his age.

Appearance

While many respondents felt strongly about the appearance of their prostheses, these opinions were not overwhelmingly negative. Four out of the six women and only two of the fourteen men elected to wear cosmetic covers. Most of the respondents who chose not to cover their prostheses reported or implied that they simply did not care about how it looked, but three enjoyed the appearance, calling it "cool," "shiny," or "futuristic." Not everyone is impressed with the high-tech look of modern prostheses. When I interviewed Carol she was waiting for her final prosthesis to be fitted before adding a cosmetic covering. When I asked her about how it looked, she told me, "Well, right now it doesn't look so good 'cause the metal is hanging out."

More important than the way the device itself looked, was the way the limb looked under or interacted with clothing. Both men and women reported dissatisfaction with the way that pants hung over exposed prostheses. Before receiving her final covered prosthesis, Lisa chose to wear long skirts rather than pants. When I asked her why she had been insecure about wearing pants, she told me,

Because of the collapse. The pants would not fill out because there was just the bar, and I didn't like how it looked. I wasn't ready for that. I still don't think I would wear pants if it was just a bar ... I think you'd call more attention if you're wearing pants and you see that it's collapsed, that's more tension, more of an eye catcher.

This concern with “the collapse” is a major reason that Lisa elects to cover her prosthesis. Slacks do not hang properly over an exposed prosthesis and will often bunch up or even get tangled in the device. Men also encountered this problem, especially those whose occupations regularly required formal dress.

Formal footwear also presented a problem for many of my respondents. Even the small heel on men’s dress shoes can throw off the alignment of an artificial leg. Since most prostheses are aligned to be worn with casual shoes for everyday use, switching into dress shoes with any heel at all could be a hassle. Peter explains,

You can’t wear shoes with heels, ‘cause your prosthetic foot is calibrated for whatever shoe you wear. So if your foot is calibrated to be in flat sneakers, and then you go to a heel for a girl, it’s not going to work. You’re not going to be able to walk; you’re going to be falling. The alignment of your knee is not going to be set up to deal with it. So you have to go and get it adjusted for that, so you can imagine how ... so for me, that means I cannot wear certain dress shoes or if I do, I have to get them tailored. Some have like three-quarter inch heels for guys, and that will make it extremely difficult for you to walk.

Allen travels for business and is able to adjust his artificial foot for his dress shoes, but, as he explains, “It’s hard, [a] pain in the butt.” He continues,

Unless you have two feet that you carry with you when you travel, ‘cause you have to swap out, like that’s one of the pains, and you go back to the hotel room, and you need to ... you’ve been in your suit all day, and you want to put on tennis shoes. I just don’t go up and take off my clothes and put on my shorts and run out. I’ve got to put my leg on, put the liner on, you know, you have to spray alcohol on it to get your leg to seat, there’s all kinds of things, and of course you have to be able to go there and do all that in a timely manner too to catch up with everybody else, or you’re just sitting in your room, so it’s a pain.

Allen’s experience illustrates the extra burden that formal dress codes can inadvertently place on individuals with non-standard bodies. This is just one example of how expectations about bodies come to have tangible and hidden consequences.

Respondents often judged the appearance of prosthetic legs in relation to the rest of their body. Those who had unilateral amputations complained about artificial limbs that appeared much larger than their sound side. For example, Carol described her difficulties with her first prosthesis,

They finally got to the final prosthetic and he said, you'll get used to it, dear. And I wanted to punch him in the face. The foot was the wrong size; I wear a 7 shoe; he made it a 7 ½, I was going to a black tie affair shortly after that, and I had to buy two pairs of shoes, 7 and 7 ½, and I was livid. It was huge. My one good feature was my legs. My attending said, "I think you need Lasix for that foot he gave you."

Lisa had similar frustrations with the size of an early prosthesis:

I just did not like the way it looked at all ... the first ones were too big because my stump was still shrinking, so my thigh was like a barrel compared to my other side.

Karla, age 25, was not shy about baring her prosthesis, but she nevertheless had an opinion about how it looked. This is obvious in her comments about the first temporary prosthetic she was given shortly after losing her leg. "It looked like something from 1925," she told me. "It was big, bulky, had a strap ... it was just really gross." This comment makes it clear that the size of her prosthesis is important to her, even if she is not bothered by the artificial look of it.

Many of the respondents who chose not to wear a cosmetic cover seemed to share this attitude. As mentioned before, many of these respondents reported disinterest in the appearance of their artificial legs. But this should not be interpreted to mean that aesthetics are not at all a concern. Rather, the obvious artificialness of a prosthesis is not the most important factor in appearance. Keith makes this clear in the following comment.

I realized that I don't need to cover it up. People are going to ask, why are you walking so funny? It's just there, it is what it is. I'm not trying to hide it. I definitely look in the mirror sometimes and go wow, I forget how weird it looks to have the skinny little robot leg next to my other one ... if it was thicker, because I have a big calf, and I think just the size proportion difference looks

funny. But I like it, I like showing it off. I think people, it's better to see the technology and have it work than have a cosmetic covering and people look at you, going, something doesn't look right. I know some people worry about it, but you're never going to fool anybody.

Though he does not wear a cosmetic cover, he notices how the leg disrupts the visual symmetry of his body. Even as he describes his preference for showing off his prosthesis, Keith also suggests that this may be a trade off given that, in his opinion, there is no adequate way to hide the fact of his artificial leg. But his comment reflects his comfort with the fact of his artificial leg. He is not interested in minimizing the visibility of his prosthesis, opting instead to wear it proudly.

If not Better, Just as Good

Despite the problems with pain and appearance and the extra work of using a prosthesis, many respondents described circumstances when their artificial legs were just as good and sometimes even better than organic legs. Many respondents told me about acquaintances being surprised to learn that they were amputees. When I asked Karla if anyone had ever been surprised to find that she had an artificial leg, she told me,

All the time. Because I walk so well. If I'm at the airport and I walk through the thing that beeps, and I say I have a prosthetic, I get that look ... it's illegal [for them to make me take my leg off] ... I don't take off my shoes. They have to check me anyway 'cause it beeps but when I tell people, they want to know what it's about. They say, "Oh, but you walk so well and also you're cheery and happy," and that's that stereotype - you're not supposed to be this way.

Shirley, a 69 year-old double amputee had similar experiences that made her feel that her prostheses looked real enough.

I told [the prosthetist] I go to church, usually this is what I do. So that's why I got [a cosmetic leg]. I think it looks real. People don't know unless they know. Sometimes they think I'm in the wheelchair for other reasons, but they don't know.

Debbie even had her right to disabled parking challenged.

I had a cop come up and ask me for my proof of disability to park in the handicapped, so I took my leg off and handed it to him. He said, "I'm sorry, I need to see the paperwork that goes with it." I said, "Are you kidding me?" He goes, "Somebody called to complain." Somebody called to complain because I didn't look disabled enough.

The surprise of others in these stories indicates that the artificial legs are just as good as artificial legs, at least in the ways that are most socially relevant under the circumstances. They are fully accepted by others as legitimate and ordinary until they cause a disruption.

A number of respondents described positive social interactions made possible by their artificial leg. Many respondents told me they were proud of their prosthesis and liked to show it off. Some even decorate them as Debbie describes in the following story.

I walked into the DMV. I had on a red skirt and I had a leg sock for the socket – they're called sleeves – [the one I am wearing now] happens to be my Hawaii one because it's got flamingos on it. I had one that was neon that had hot pink butterflies and bright purple butterflies. It was bright ... And I walk in cause I have to take care of some stuff, and bless this old man, at the top of his lungs, "Oh my God, look at that leg!!" A had a big old grin, hiked up the skirt a little higher, and I go, "I know! Ain't that something!!" Turned around and I walk away.

As this quote illustrates, she is not afraid to call attention to her artificial leg, nor is she shy when strangers notice it. The pride respondents described seemed to be related to the fact that many people they meet get excited and curious about the technology. Michael explains,

I'm not the type that wants to cover it with cosmetics, not like I like the attention, but when people look at it, they're curious. And people actually approach me and ask me, "How do you walk on these?" I like to tell them my story. It's nothing, so it's cool.

Some respondents described their prostheses as a useful icebreaker when meeting new people. Vincent, age 41, looks like he could be a bouncer. He has an imposing build, many tattoos, and prefers to wear black. When I asked him if he thought his prosthesis made him more approachable, he replied,

Yeah oh yeah ... You would never have talked to me, not unless you like rough guys and you were drunk ... see now I know what you're doing. You're doing a report on prosthetics, you would have saw me and said I need to talk to that guy. But if I was wearing pants, you would never in your life talk to me. You know it and I know it. And I'm not being mean, it's just that's just the way my life has been.

When I asked Peter if his amputation had changed the way he meets women, he told me,

You know, that was one of the biggest things that I was concerned about after I lost my leg. What is someone going to think of me? It turns out to be a really good conversation piece. I have not had anyone ever be disgusted or turned off when they find out I'm an amputee. So has it affected it negatively? No... I don't know how it is for other guys, but in some ways, I think it almost works more for me as an advantage than a disadvantage.

Vincent and Peter have found that while their prostheses do make a difference in social interactions, rather than repelling people, they make it easier to start a conversation.

The experience of increased approachability is clearly gendered. While both men and women spoke of being proud of their prostheses and about others being surprised or curious, the women I spoke to described being much more cautious about revealing their amputation to men and expressed ambivalence about their potential response. For example, I asked Marie, age 23, why she worries about revealing her amputation to perspective boyfriends.

People want to baby me ... I can just tell by the way they treat me. They just treat me a little bit differently. Like they treat me like I can't do everything on my own.

Apparently, the vulnerability suggested by an amputation renders men more approachable, but makes women seem needy or helpless.

Comparing Artificial Legs to Damaged Organic Legs

Whether they lost their legs following trauma or illness, sixteen of twenty respondents dealt with a gravely ill body part. The exceptions to this were three respondents who were unconscious after the accidents that made amputation necessary and one who had planned to lose

only a toe. Seven respondents spent months or even years hoping to salvage their ill or damaged limb, while getting around with wheelchairs, crutches, or other mobility aides. For these respondents, the amputation and subsequent prosthesis fitting were a great relief. Keith described his ordeal and the eventual decision to amputate.

And then I spent two years in and out of the hospital, and had sixteen open-knee surgeries total, had about fifteen staph infections, two knee replacements, and I was given a choice to have either the amputation or an antibiotic spacer in my leg, which was a straight bar that will never bend instead of the knee. So I made the decision – it wasn't a hard decision – I made it right then and there and said cut it off.

After years of struggling to save his leg, the prospect of living with a rigid and straight knee made amputation an obvious choice. Compared to this alternative, a prosthesis would allow him to participate in sports, dress more easily, and sit on an airplane. For others who suffered critical infections, the calculus was even simpler; amputate the leg or die with it. Most respondents preferred their prosthesis to a damaged leg. They reported greater independence, especially in relation to wheelchairs or crutches and less pain.

In addition to these clear benefits of artificial legs over damaged organic legs, some respondents also expressed more comfort around strangers and acquaintances when they could make it known that their impairment was an amputation rather than another sort of injury. For example, Peter acknowledged his strategic shorts-wearing as he was learning to walk on his prosthesis.

I guess one of the signs that I knew I was more comfortable with my prosthetic is when I was going to wear pants, and it wasn't just because I didn't want people to see my prosthetic, it was more ... if they saw that I had a bad limp, I wanted them to know why. So once I was wearing pants, it was like okay I'm comfortable with being able to walk that I just don't care.

This suggests that a prosthesis is a more acceptable reason to limp than having an injured leg. Debbie tried to heal her leg and foot for over a decade before agreeing to an

amputation. Her comparison between her injured leg and her prosthesis also suggests the illegitimacy of injured body parts.

It's kind of ironic. When I had my leg, I spent a lot of effort hiding it, hiding my injury, hiding the way I walked, hiding the lift on the shoe, hiding my [orthotic] as the years went along, and I needed more stuff. I hid it – I wore pants all the time. Now I could care less. I wear shorts or a skirt, and if you don't like it, you can look the other way.

This attitude implies that an artificial limb is sometimes more socially acceptable and less stigmatized than a damaged organic leg.

However, Lisa seemed to have the opposite attitude. When she returned to school after her surgery, she preferred to let people think her limp and crutch were due to knee surgery.

My first year coming back to school ... I had one crutch. I used it the whole year, though, and it was kind of embarrassing because everybody would ask what's going on, what happened? I had a close group of friends that I made my freshman year that I still talked to my sophomore year, like a handful too. They're the only ones I told what was going on. Everybody asked, saw me, like, "Hey, where have you been, blah blah." It was embarrassing, like I took a year off, had surgery. And at first I told everybody it was knee surgery because I tore my ACL or MCL or something, because they knew I was athletic and that I played soccer, so it was just easier for me to go in that direction.

For Lisa, having a temporary sports-related injury was more acceptable than having lost her leg to bone cancer. This attitude could be related to her age and gender, or perhaps to the fact that she had not yet mastered walking without a crutch. Many professionals and amputees I have spoken to have expressed the opinion that it is easier to be proud of a prosthesis when it works well. If this is the case, these findings suggest that mechanical legs are more socially acceptable than disabled organic legs, as long as they afford mobility and independence.

Comparing Artificial Legs to No Legs

The alternative to prosthetic legs available to all respondents was to go with no leg at all. Some amputees choose not to use artificial limbs because they find them painful, unnecessarily exhausting, or of limited practical use. Among my respondents, three owned prostheses they did not wear at the time of the interview because they were painful or did not consistently fit. Two others wore prostheses, but relied on wheelchairs as their primary mobility aide. The remaining fifteen respondents reported wearing their prostheses nearly all waking hours and often preferred to keep them on or near even when relaxing at home. This range shows that while many prefer an artificial leg to no leg, this is not universally the case.

Even those who primarily relied on their prosthesis had some experience using a wheelchair or crutches without their prosthesis. Their comparisons between wearing an artificial limb and going without reveal some of the subtle ways that prostheses become legitimate legs. For example, William noticed a change in his overall behavior when he had to take a break from his prosthesis to heal from blisters on his residual limb.

When you go back on crutches, I remember the first time I did it I thought this is no big deal, I'd just go around on crutches – what's the difference? And I persisted in that thinking, and it was only after like three or four days did I realize that subconsciously – not consciously – I was retreating, that I was isolating, going to be in my office with my computer, I wasn't going out as much.

Allen expressed a common sentiment when he told me, “They look at you more without [the prosthesis] on, guarantee it.” When I asked him what the difference is, he referred to his own thought process before he became an amputee.

My thoughts when I was younger was like, what happened to that guy? I don't know what happened ... maybe they can't wear [a prosthesis]. Those are things you think of as a person, it's sad, I mean, that's how we think though, unfortunately, by yourself. You don't say that to somebody, but you'll say in your mind you know, “Oh he can't afford a leg?”

William's reluctance to go out and Allen's thoughts about how strangers might interpret the absence of a prosthesis both indicate a social stigma attached to amputation that is somehow alleviated by a prosthesis.

It is possible that these anxieties about being in public without a prosthesis has to do with impaired mobility. However, a conversation I had with Shirley suggests the importance of presentation. Shirley's left leg is amputated below the knee, while her right is amputated above the knee. She told me that she can get around her house more easily if she doesn't wear either of her prostheses. As she mentioned earlier, when she goes to church, she wears both. But when she goes out to the market or in the neighborhood, she typically wears only the prosthesis for her left leg. She explains,

When I go out, I don't wanna go out without any prosthetic, no leg. I don't wanna, I feel funny, because they ask questions with one, 'specially kids, "What happened to your leg?" You know they ask their mother, or either sometime they ask you, "Where's your other leg?" ... And most time they say, "Oh," or something, they say, "Oh mommy, she don't have a leg," or something like that. So I'm thinking if I go out with no leg, then they would really have something to say, so I make sure I have at least one leg on.

This comment seems to imply that as bad as it is to present oneself with one missing leg, to go out with two missing legs would be much worse. Shirley's reliance on her wheelchair means that the stigma she seeks to avoid has little to do with mobility and much more to do with dismemberment. Taken together, all these quotes suggest that the fact of dismemberment is not as socially important as is its presentation; the public has an easier time accepting artificial limbs than absent limbs.

Furthermore, that many respondents preferred to keep their legs on while lounging at home suggests that the importance of the prosthesis goes beyond what others might think.

Debbie described it as a form of modesty: “As long as I have my leg on, I don’t care what I’m wearing, I’m not naked.” David is simply more comfortable when he is wearing his prostheses.

I’m always in them, like if I’m at home, if I’m watching TV, studying, they’re always on, so I incorporated it. It seems like, you know, when you wear socks or slippers at the house, that’s how they feel.

Lisa prefers to keep her leg on because it allows her to be more independent around the house.

If I know I’m not going to do anything, I just want to rest, I will take it off. But if I have to do things around, I want to walk with it to be able to have my hands free for other stuff. ‘Cause if you have the crutches you can’t really carry anything, I’m more dependent, I don’t like that feeling.

Finally, once Marie got used to her leg, she was reluctant to take it off. When I asked her why, she told me,

I’m just not as comfortable, like if I’m going to lay down and watch a movie, I don’t want to take it off. Just because it’s fragile. I don’t want anything to really run into it.

All these responses suggest that under the right circumstances, amputees can become attached to their prosthetic legs and incorporate them into their lives. Not only do artificial limbs afford greater independence and successfully lend legitimacy to bodies that are otherwise stigmatized, they serve as an important substitute for lost organic limbs even in times of private repose. Artificial legs achieve this not by perfectly mimicking organic legs, but by meeting a select set of expectations.

Analysis

Modern prosthetic legs have many shortcomings when considered in relation to healthy organic legs. They are apt to cause pain, they do not adjust well to changes in the body, and they require training and advanced planning to use. However, even in relation to “normal” organic legs, they can be just as good and sometimes afford some social benefits. Strangers take interest

in them and some users seem more approachable. In relation to damaged organic legs or the absence of a leg, the medical benefits are clear, but the social consequences less so. Some respondents wanted everyone to know that their walking was impaired by amputation, fearing other possible inferences, while another preferred to let people believe she had had routine surgery. Appearing in public without a prosthesis was uncomfortable, but even at home, many chose to keep their legs nearby.

Prosthetic legs are not only made legitimate when strangers accept them or fail to notice them. The legitimacy or illegitimacy of a prosthesis derives from the wearer's culturally informed expectations and her relationship, both physical and cognitive, to the device. The attachment many respondents described – feeling naked without it, most comfortable with it, or protective of it – are indications of how a prosthesis can come to be incorporated into the body of a user. They are made legitimate in the daily lives of those who wear them when they provide independence, allow new or sorely missed activities, or create a sense of wholeness. On the other hand, they become truly false legs in those moments when they cause self-consciousness, break down, or become too painful to wear. For those who owned a prosthesis that they could not wear, their artificial leg was no leg at all, just a bulky object that could wear the other shoe.

Goffman (1963, p. 128) suggested that everyone is in danger of being discredited for our inevitable deviations from a normal ideal, but the findings here suggest that current social legitimacy is more nuanced than that. If it were the case that prosthetic legs become illegitimate when they are revealed to be artificial, we would expect respondents to do all that they could to hide any indication of that artifice, and perhaps prefer a damaged but organic leg to a fake one. After all, bad organic legs are far more common than prostheses. Likewise, if a person loses legitimacy when revealed to be an amputee, hiding a prosthesis would be a major priority.

Instead, these findings suggest that the legitimacy of human legs does not rest on authenticity. Respondents made it clear that symmetry, proportion, and the ability to wear certain types of clothing were far more important than having a leg with a natural appearance. In spite of cultural anxieties over dismemberment, it is often judged better to have an artificial leg than one that is intact but injured or ill. Similarly, many chose artificial replacement over authentic absence. This indicates that it is not something essential to the device or the person that triggers stigma, but the failure of one or both to meet the expectations that ground a social interaction.

Conclusion

The comparisons presented here of artificial legs with healthy legs, damaged legs, and absent legs illuminate the social priority assigned to features such as symmetrical or natural appearance, ease or pain, and bodily wholeness. The findings suggest that the ability to pass as an authentic organic leg is not as important as less ambitious attributes such as proportionality or supporting a smooth even gait.

The notion of stigma usually implies that there is something essential about the person or condition that draws negative attention. But if this were the case, then any indication of that condition would be cause for anxiety, and threaten to delegitimize the person in question. Conditions of legitimacy of a body or of a technology can be thought of as the product of a process of social interaction not just between people, but between people and objects. This allows a better explanation for how and why bodies and technologies will achieve varying degrees of legitimacy depending on the social situation they are in.

My focus on legitimacy also allows me to examine the ways in which my respondents found their prostheses adequate or inadequate in ways that matter little to others, especially

strangers or acquaintances. The content of personal, but nonetheless cultural expectations for one's body informs how amputees regard their own artificial body parts. The experience of pain and discomfort, frustration with the logistics of wearing an artificial leg, or emotional attachment to the device all reflect aspects of how we relate to our own bodies that are not necessarily issues of stigma, but nevertheless matter quite a lot in bodily experience and are part of the burden of living with a disability.

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