

Bodybuilders as Cyborgs:  
Considering the Actor-Network-Theory Parallels

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*For my Grandfather, Leo Bissonnette.  
I miss you terribly.*

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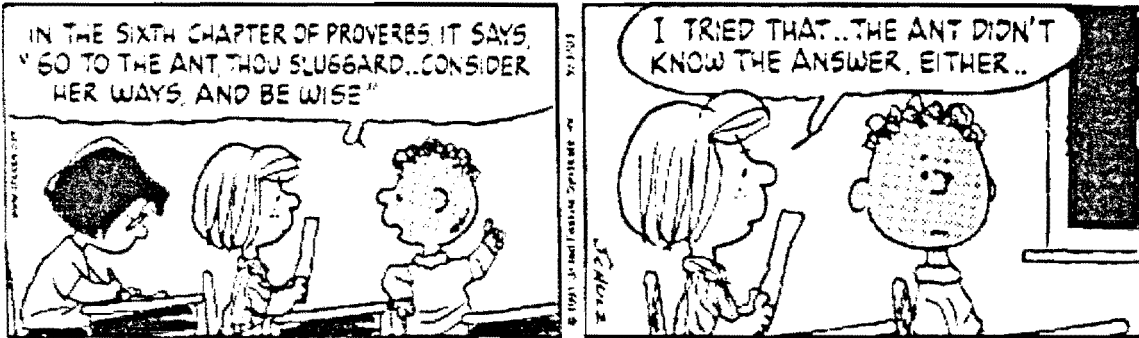
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*Eat. Sleep. Train. Repeat.*



*Figure 1: Borrowed from Bruno Latour's Reassembling the Social.*

## **Introduction**

I have always been fascinated by the sport of bodybuilding. As an outside observer, I was gripped by the devotion the athletes dedicate to their bodies. My passion for bodybuilding kept mounting and, in January 2004, I began to submerge myself into this culture. I started training beyond anything I had ever done in the past. I became aware of the physical and mental changes that came with every additional workout. These transformations were addictive. As my body changed, I noticed that my attitude was also undergoing a transformation. Not only had my energy levels increased, my focus intensified and my mood stabilized. The feeling of control over my body and mind was infatuating.

After a year and a half of this new lifestyle, I was presented with a unique opportunity that would impact my life. My longtime childhood friend was diagnosed with Premature Ovarian Failure (POF) which meant she was infertile. My friend and her husband were eager to start a family and, after evaluating their options, approached me to help in their quest to have children. They asked if I would be willing to act as an egg donor. I agreed. In the summer of 2005, I underwent fertility treatment in order to become an egg-donor. Doctors told me that the process required daily hormone injections and frequent visits to the clinic for ultrasounds to watch as the ovaries grew full of eggs. Any heavy lifting or strenuous activity was prohibited by the doctors as my ovaries were in a fragile state during this process. In making this choice, I inevitably put my training aside. My body had been infused full of oestrogens in an attempt to promote accelerated egg growth. As a bodybuilder, I had worked exceptionally hard to limit my body's oestrogen levels and, in allowing this infusion, I was effectively shedding much of the work I had put into my physique. I had worked for seventeen months to shape my body and habituate a high-energy lifestyle, and I had now inherited a sedentary existence.

After the successful extraction of my eggs, I was forced to deal with another physical challenge. Prior to becoming an egg-donor, I underwent multiple tests to confirm that I was a sound candidate for the procedure. During this process, doctors discovered malignant cells. Fortunately, I could still go ahead with the procedure without compromising the process or the health of the embryos. However, after healing from the egg extractions, I had to immediately begin treatments to remove these malignant cells. Although I was still undergoing treatments and routine extractions of malignant cells, I was eager to return to the active lifestyle I had temporarily put on hold.

Although I wanted to re-immersify myself into the training and bodybuilding lifestyle, I realised that this goal could not be accomplished with the same approach I had used in 2004. The amassing of incidents had changed me both physical and mentally. In addition to coping with the physical stresses on my body, I also had to contend with the anxiety related to the multiple miscarriages my friend subsequently endured. The couple is persevering despite the precariousness of their situation. The following year brought additional anguish. In a short period of time, a close friend was hospitalised suffering from extreme mental anguish and several of my family members endured terribly poor health, some of whom succumbed to their illnesses that same year. The compounding of these events had a noticeable impact on me, which inevitably led to depression, another obstacle to brave. After multiple attempts and failures at regaining training momentum, it became apparent that I needed a new strategy that took these changes into account. These obstacles would transform the way in which I would have to achieve my goal as a bodybuilder.

I felt that it was important to document this strategy, for myself and others. As a student in the Communication and Culture masters program, I had watched for an opportunity to

research and write a paper on bodybuilding, but had yet to find a framework in which the subculture could properly be studied. While studying the diffusion of technology in The Diffusion of Technology course, I was introduced to Actor-Network-Theory (ANT) and John Law's work on the social study of technology where he broaches the concept of cyborgs. Using this concept, I began to contemplate the notion of piecing together human and non-human elements to create a network. I coupled this concept with my interest in bodybuilding which led me to consider the parallels of ANT and bodybuilders as cyborgs.

Exploring these parallels, I quickly realised there existed a gap in academic literature. This presented an opportunity for undertaking serious academic research on this topic, as well as providing a new approach to training. Drawing on my experience as a novice bodybuilder and my understanding of the related literature, I wanted to test ANT as a possible framework for understanding how the elements in a network of a bodybuilder might come together and stay together successfully.

Most academic work on female bodybuilding derives from cultural, medical, psychological, athletic, feminist or sociological studies. Researchers seldom broach the diffusion of technology within bodybuilding, especially within the context of ANT, a theory that links technological and non-technological elements to create a network. I will focus on the diffusion of technology within the culture of female bodybuilding to explore the notion that female bodybuilders may be understood as cyborgs. Donna Haraway defines a cyborg as an organism that mixes organic and mechanical parts. Generally, cyborgs aim to enhance the abilities of an organism with technology. I intend to connect the practice of female bodybuilding to the principles of ANT to examine the concept of today's female bodybuilders as cyborgs.

As a registered female athlete with the Ontario Physiques Association (OPA), I have first hand knowledge of bodybuilding at the non-competitive level. I have attended various figure, fitness and bodybuilding competitions and continue to participate in an ongoing dialogue with competing female bodybuilders. I believe that my first hand knowledge and experience allows me, as a member of this community, to provide a unique and in-depth analysis of the culture of female bodybuilding more profoundly than those outside of it.

Adopting the role of participant-observer, I will explore the connection between the female bodybuilder as a cyborg and ANT. I will present my study as a micro-ethnography with autoethnography elements framed as a kind of case-study that incorporates both primary and secondary research. In conjunction with relevant academic literature, my analysis will be informed by my ongoing journal and an analysis of popular bodybuilding literature. I hope to understand how my own decision-making process as well as that of other female bodybuilders is subsequently enculturated into a cyborg's mindset.

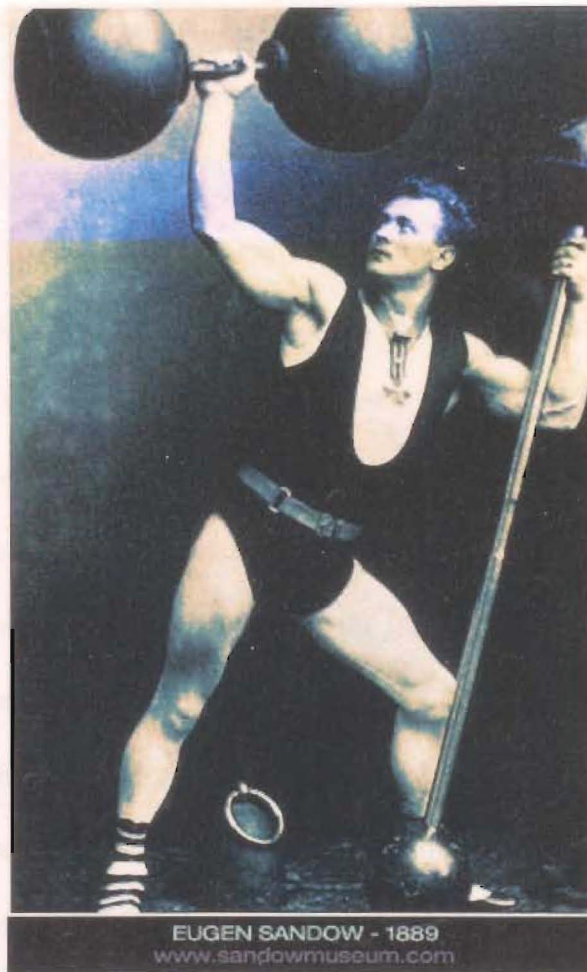
This study does not consider the ethics of building a body to unnatural proportions. I will not debate whether the choices made by a female bodybuilder are right or wrong. All persons shape their bodies in some way, through the food they decide to eat, the cigarettes they smoke, the tattoo or piercing they acquire or the hair colour they select for this season. I will focus only on the ways we may regard a female bodybuilder as a cyborg and show how ANT may help us better understand this phenomenon. It is, however, important to first understand the history and culture of bodybuilding.



## **The History and Culture of Bodybuilding**

One of the consequences of the accelerated Western industrialization in the nineteenth century was the decline of manual labour, which inevitably led to health reform movements and the rise of organized sports providing relief for an increasingly sedentary population. The birth of sports was a product of changing social systems and the emergence of urban life. This period (1800-1890 and 1890-1950) would be known as the “Rise of Ascendancy of Organized Sport” (Rader 356).

Interest in building bodies soon captured the attention of masses. By 1830, gymnasiums had emerged on college campuses such as Harvard and Yale (Lewis 223). By the late nineteenth century “strongmen” captivated audiences by performing various acts of physical skill. However, audiences were more interested in the physiques and musculature presented rather than the actual acts of strength that were demonstrated (Wiegers 149). Individuals such as Eugene Sandow (1867-1925) became known as strongmen and are often credited as being the first modern bodybuilders.



*Figure 2: Eugene Sandow (1867-1925), born Friederich Wilhelm Mueller on April 2, 1867. This photograph of Sandow is taken by the London Stereoscopic Company in 1889. Here he lifts a large dumbbell. It is to be noted that dumbbells such as these were often hollow, though still extremely heavy, were lighter than they appeared.*

*The "dumbbell" on the floor is shaped like a "bell". The "dumbbells" that strongmen original lifted were actual small church bells with the clapper removed. Thus the name "dumb" (or mute) bell was adopted for all one-handed iron weights.*

Sandow coupled his fame as one of the first identifiable physique stars and his entrepreneurship skills to endorse fitness products and publish magazines. Still today, Sandow is recognised as the originator of the sport. Bodybuilding's most sought-after prize is the Sandow

trophy, bestowed upon the winner of the annual Mr. Olympia contest to the top professional bodybuilder.

Since Sandow's era, the popularity of building muscle and physique sculpting has continued to increase, and so have his business methods. Another name which is tantamount to success within the world of bodybuilding is Joe Weider. The Weider name has become synonymous with bodybuilding and the commercial industry of the sport. One of Weider's most worldly acclaimed protégés is Arnold Schwarzenegger, the bodybuilder who single-handedly brought the sport into mainstream American culture in the late 1960s.

In Canada in 1946, Ben and Joe Weider started the International Federation of Bodybuilders (IFBB). By then, the World Bodybuilding Guild (WBBG), as well as the Amateur Athletic Union (AAU), which was the first amateur bodybuilding organization had been established in the 1930s and the dominant amateur bodybuilding organization (Lowe 56). It was not until the mid-1960s that the IFBB became a contender with the AAU. IFBB was the first to offer prize money to the winners of its male bodybuilding contests, bringing bodybuilding to a professional level. On September 18, 1965, the first of these contests was launched and Larry Scott was named Mr. Olympia. The Weiders soon unveiled the first official journal of the IFBB: Muscle Builder: The Magazine of Champions. It was also one of the first publications to focus solely on the sport of bodybuilding.

### **The Emergence of Female Bodybuilding**

Female bodybuilding also developed as a result of strongwomen acts and physique competitions. An eminent weightlifting icon of the turn of the century is Abbye "Pudgy" Stockton.

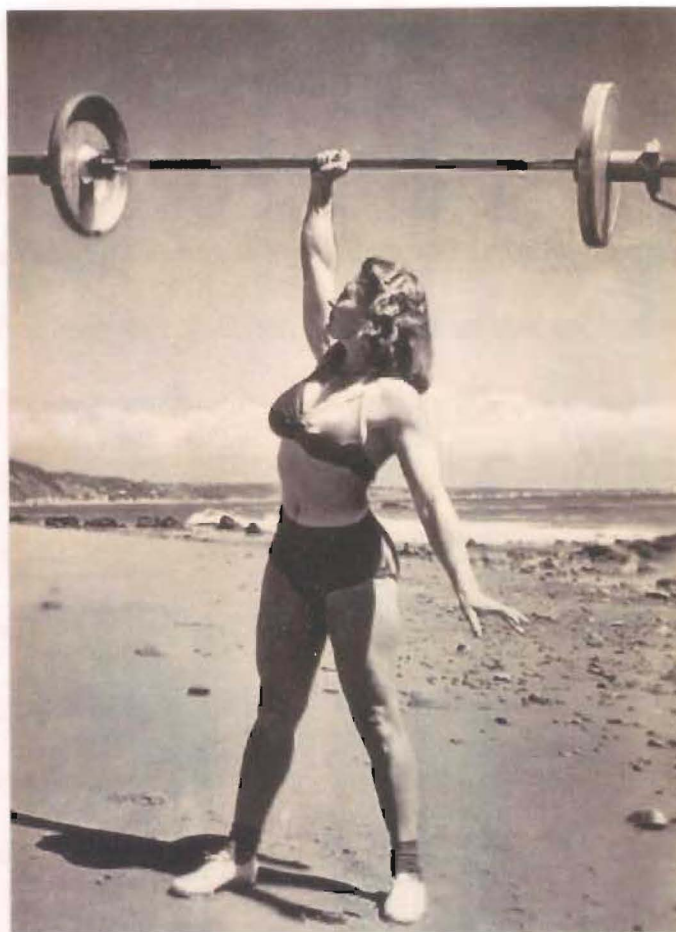


Figure 3: Abbye Pudgy Stockton taken by: Todd-McLean. Physical Culture Collection, University of Texas, *The New York Times*, Dec 28, 2006.

The Weiders were not, however the first to offer prize money in female bodybuilding. In 1977, the first official contest marked the emergence of organized female bodybuilding. Here, Gina LaSpina, the champion, is considered the first recognised winner of a women's bodybuilding contest. It was not until 1978 that the first IFBB-endorsed contest for women took place, awarding prize money to the top finishers. This contest is considered to be the precursor for what is known today as the Ms. Olympia competitions. Throughout the late 1970s and early 1980s, many short-lived associations were formed to help organize women interested in competing in bodybuilding. Among them, Doris Barrilleaux founded the Superior Physique

Association (SPA) in 1978. It was the first women's bodybuilding organization run for women by women. SPA was the first organization to develop a newsletter, the SPA News, dedicated exclusively to female bodybuilding.

Capitalizing on the rising interest in the women's sport, the following spring, the IFBB formed the IFBB Women's Committee. In 1981, IFBB then created the National Physique Committee (NPC). The IFBB recognizes only one amateur physique federation per country and in Canada; the IFBB affiliate is the Canadian Bodybuilding Federation (CBBF). This is the only Canadian organization that qualifies competitors for competition at the three annual IFBB World Championships, and the only one that awards competitors an IFBB Pro Card.

In order to compete at the national level, female bodybuilders must win locally, regionally and provincially. The overall winner of the championship and the three weight class winners (light, middle and heavyweight) of the national championship are then eligible for the IFBB professional status – the ultimate achievement. “Even in the early 70s straight through to the 90s, women like Rachel McLish, Carla Dunlap-Kaan, and Cory Everson graced the stage to showcase symmetry, muscle and strength. They were bodybuilders, and they were after the ultimate title – Ms. Olympia” (Stevenson 115).

Much debate transpired surrounding the requirements concerning female bodybuilding. Wally Boyko, the man who created fitness competing, recalls: “I had become pretty disillusioned with the whole hard-core bodybuilding scene, especially women's bodybuilding. The steroid abuse was becoming rampant and obviously not a healthy approach to life” (Stevenson 116). In 1984, the Ms. National Fitness contest was created under the Fitness Trade Association governing body with guidelines that some argued displayed “a more balanced and feminine physique” (Stevenson 115).

Almost ten years later, in 1995, the IFBB joined the fitness contest craze. Mia Finnegan was the first winner of the newly created Ms. Fitness Olympia. Those submerged in the subculture of bodybuilding wondered if the rise in popularity of fitness competitions would eradicate women's bodybuilding permanently. For Canadians, the most notable transfer from muscle to fitness was for Sharon Bruneau.

In 2003, a similar situation occurred threatening the popularity of the fitness contests as competitors decided to move to figure competitions. Figure competitions had been lingering in the amateur shows until that time (Kennedy 108). Renown fitness competitors such as Monica Brant made the switch explaining that the figure competitions would allow for a more competitive edge for competitors such as herself who did not have the dance and gymnastic background needed for the routine portion of the fitness competitions. The addition of this third and newest division, was now the fastest growing and most popular. Just as the former two divisions, the competitors established themselves as elite athletes, making for the sport to become unforgiving as the years progress.

Female bodybuilding has vastly evolved since its inception. As an athlete, it can be overwhelming trying to decide which contest to compete in, and which organisation to join. In Canada, the CBBF had a full monopoly on the sport until ten years ago when the FAME organization (Fitness Athletes Models Entertainment) was established (Goodlad 164). Since its inception, this Canadian-based organization has eclipsed its forerunner on many levels. FAME proudly promotes WNSO-sanctioned events. The World Natural Sports Organization (WNSO) is an official sanctioning body for competitions providing drug screening measures. FAME athletes have the freedom to compete in other organizations without sanctions. As a registered athlete with the CBBF, sanctions can be issued against you or even run the risk of being



suspended if you compete in contests held outside of the CBBF. The WNSO has both amateur and professional divisions. Competitions for both divisions are often held at the same events allowing for a close-knit community and for amateur exposure to professionals.

In this chapter, I have explored the macro-level historical and political aspects of the sport. However, to advocate that bodybuilding culminates in the physique contest would be to reduce the subculture only to those who compete. The sport includes both competitive bodybuilders and non-competitive bodybuilders. As I will articulate throughout this work, most bodybuilding occurs off the stage and even outside of the weight room.



## **Literature Review**

In this chapter, I offer a review of the important texts and ideas that have contributed to my research. I have divided the review of literature into three categories. Since I use ANT as my theoretical framework for this paper, the first category presents the theory and discusses how it has been previously applied in academic research. The second reviews bodybuilding literature, with a specific focus on female bodybuilding. The third section highlights the notion of cyborgs and technologisation.

### **Actor-Network-Theory**

Most network theories tend to focus exclusively on either human or non-human actors. Actor-Network-Theory (ANT) is distinguishable in that it explores how human and non-human elements come and stay together. This unique constructivist approach to social theory was developed predominantly by John Law, a sociologist and Michel Callon and Bruno Latour, two scholars of Science and Technology Studies (STS). Initially, Law, Callon and Latour used ANT to map the process of innovation by tracking political, ethical, social, economical, technical and scientific factors. In the 1990s, others saw cross-disciplinary applicability for ANT, and it soon became a more widely used tool for analysis in a different range of fields, including Donna Haraway's feminist technoscience.

In ANT, the components of a network, referred to as actors, are treated alike regardless of whether they are human or non-human. A human actor is a person that exists within the subject's network, such as a bodybuilder's dietician. A non-human actor consists of material entities (eg. barbells and food) and semiotic forms (concepts and ideas). This assumption of equality between humans and non-humans is referred to as the "principle of generalized symmetry." Once the actors are aligned and enrolled, a network is created. A successful Actor-Network can resist the

infringement of external actors. An external actor could be anything affecting the network's stability. A few examples consist of a cold or flu, or even a piece of chocolate cake when considering the female bodybuilder as a network.

I intend to use ANT as a theoretical framework for examining female bodybuilders as cyborgs because successful female bodybuilders incorporate human and non-human actors within their given networks.

Throughout my paper, Actor-Network-Theory is written in a variety of ways (eg. Actor-Network Theory, actornetworktheory, etc.). For the purposes of this paper, I will use "Actor-Network-Theory". However, when referring to a specific part of a book or an article, I spell it the way the author spells it. There has been much controversy about how to write out ANT as well as whether ANT is even an appropriate name for this framework. For example, Bruno Latour scrutinizes the hyphen's presence and its meaning. The differentiation is evident throughout my literature review not only with the different spellings from author to author, but also with their own inner struggles with their previous personal delineations. Vocabulary is a running theme when researching ANT. Thus, I will reference and dissect words such as association, translation, alliance, and obligatory passage point. Many other articles also provided insight into the possible uses of ANT; however, I determined that the following articles contributed most to this work. Law (1999:1) explores the tension central to the notion of an 'actor' – 'network'. He, along with his counterparts, argues that the notion of ANT has lost its complexity because it has been too easily deconstructed and applied as a theory. Law explains: "My desire – and what I take to be the purpose of this volume – is to escape the multinational monster, 'actor-network theory', not because it is 'wrong', but because labelling doesn't help" (2). He argues that entities took their form and acquired their attributes as a result of their relation to other entities. ANT tried to

answer the questions: How were the networks assembled? How did they stay together? How did they achieve stable associations? These questions are the same asked when examining a female bodybuilder as cyborg. Next, he recounts, was the implementation of vocabulary associated with ANT such as ‘enrolment,’ ‘traduction’ and ‘translation.’ Law argues that ANT’s density has been reduced because “we have lost the capacity to apprehend complexity” (8). Law continues: “The desire for quick moves and quick solutions, the desire to know clearly what we are talking about, the desire to point and name, to turn what we now call ANT into a ‘theory,’ all of these things have done harm as well as good” (8).

The diasporic nature of ANT allowed it to become simplified. Law encourages dialogue about complexity, and more precisely, how to appreciate and practice complexity while broadening ANT. All things considered, Law identifies potential shortcomings of using ANT, and if nothing else, he makes the analyst aware of these shortcomings.

Latour’s essay “On Recalling ANT” also deals with the difficulties of terminology and meaning. He explains a network originally referred to a series of transformations, translations, trasductions. He suggests that some of the misunderstandings stem from the fact that the term “network” in ANT was not borrowed from American network theory, but was drawn from the concept of “rhizome” in the work of Deleuze and Gaultari. “Network” now means “transport without deformation, an instantaneous, unmediated access to every piece of information” – mainly because of the Internet (15). He states that we should use Mike Lynch’s suggestion and call ANT “actant-rhizome ontology” (19).

Latour’s most interesting argument claims that ANT is a method and not a theory. Latour later explains that we, as social scientists, are the ones who lack the knowledge of what actors do, how they do it, and why. He argues that the actors understand why they are “unwittingly

manipulated by forces exterior to themselves,” (19) and researchers should not use ANT to interpret what actors do. This is why I believe the auto-ethnographic method of analysis for this paper is appropriate. It allows me to trace the actors in a useful way and to better understand how and why their associations form and stay intact, despite the fact that Latour says he wishes to recall the theory to rid it of some of the common-sense divisions implied in talking about “actors,” “networks” and “theories.”

In agreement with Latour, Callon (1999) distances ANT from the arena of theories, arguing that ANT often fails to offer a satisfactory theory of the actor. Callon points out that an absence of a theory combined with the role attributed to non-humans in the description of action, represents one of the strengths of ANT. Callon wants to show how “ANT can explain actors’ competencies, without however denying its basic hypotheses and, in particular, without calling into question the refusal to give an a priori definition of the actor or the role of non-humans in action” (182). Callon explains actors’ competencies by using ANT to analyse the market, an institution that mixes humans and non-humans (182). ANT was developed to analyse situations where it is difficult to separate humans and non-humans, and situations where the actors have variable forms and competencies. Callon admits that when he began his paper, he was not only ready to “recall ANT, but possibly to change the model and then launch a new range” (194). However, Callon concludes that ANT is suitable for analysing the market, which is, he stipulates, the most demanding of tests. And since it passed this test, ANT is not a theory. He concludes that the “T” in ANT is too much.

Latour provides Reassembling the Social as an introduction to Actor-Network-Theory. His timing is ironic considering the notion of ANT has existed for almost thirty years and even Latour himself recalled it, as mentioned in Actor Network Theory and After.

Latour recognizes that he changed his mind about his earlier recall, explaining that although more fitting names for this social theory may exist, the presence of the hyphen strengthens the idea of ANT as a method rather than a theory. This notion is also evident in the presentation of the book as a manual rather than a “discourse on method,” (17) or as Latour describes it, a travel guide offering “suggestions rather than imposing itself on the reader” (17). I prefer to use his book as a reference rather than a guide, since some of his “suggestions” are convoluted; whereas Neil McBride’s article, “Actor-Network Theory and the Adoption of Mobile Communications” provides concrete examples and a clear explanation of the ANT framework. Some readers may regard my preference for McBride as my way to simplify a complex concept, however, in refutation, some of the ANT veterans are unnecessarily doing the opposite.

Latour begins with an explanation of the two main ways scholars use the term “social” and how the advances in science and technology have changed the meaning. The first usage describes social as “a movement during a process of assembling,” (1) which Latour accepts as the proper definition. The second definition describes social as a “specific type of ingredient that is supposed to differ from other materials” (1). Latour seeks to redefine the notion of social by going back to the original meaning and making the word connect with “tools better adjusted to the task” (2). In addition to suggesting that we revise the meaning of ‘social,’ he offers an alternative definition for ‘sociology.’

Latour uses two approaches to sociology. The first approach is the standard subfield of social theory known as sociology of the social, and the other is a more radical subfamily, which Latour calls “critical sociology” (9). ANT corresponds to the standard definition of sociology, and Latour’s sociology of associations corresponds with critical sociology.

Latour organizes the book into three parts: deployment, stabilization, and composition. The first part shows how to “deploy controversies so as to gauge the number of new participants in any future assemblage” (249). The second part explains how “we have to be able to follow how the actors themselves stabilize those uncertainties by building formats, standards and metrologies” (249). Latour concludes by providing evidence about why the task of assembling the collective is worth pursuing.

Fundamentally, Latour rationalizes that sociology is best defined as the “discipline where participants explicitly engage in the reassembling of the collective” (247). That is, observers detect the social through movements that are either suspended or resumed from one association to the next. A suspended social movement is called a ‘society,’ which is held together by enrolled participants called “social actors” (247). If the movement toward “collection is resumed, it traces the social as associations through many non-social entities,” (247) which might also later become participants. The tracking could also culminate in a “shared definition of a common world,” (247) or as Latour calls it, a collective. However, if there are no measures causing the social to be “common,” it could fail to be assembled altogether.

Latour says: “Whatever a scholar does when she writes an account, she is already part of this activity” (258). This quote neatly summarizes the idea that sociologists of the social do more than simply discover what a society comprises, but they also actively engage in “multiplying the connections among actors” (257) and offering new “ways to be grouped together” (257) on their quest to learn “how the groups are made, what are their boundaries and functions, and how best to maintain them” (258). It is important for me to remain conscious of these notions during my research and writing. As this auto-ethnography developed, I had to be mindful of how my actions impact my surroundings. These questions also have some bearing on the bodybuilding

subculture. When first discovering this subculture, the female athlete raises similar questions when beginning her journey to become the ultimate cyborg female bodybuilder.

Furthermore, Latour explains that it is difficult to identify where ANT stands politically because “the definition of what it is for a social science to have political relevance has also to be modified” (253). ANT currently has two opposing views. The first viewpoint extends its politics everywhere and the second viewpoint states that ANT is indifferent to inequalities. And, Latour explains, like everything else, a new definition for politics is needed.

Latour includes an interlude that involves a conversation between a professor and an LSE student who finds ANT puzzling and politically irrelevant (See Appendix A). According to Latour, it would be unreasonable to resist “treating humans like objects” (255) within the ANT framework since it aids in the understanding of the central questions. The same rings true when systematically examining the cyborg female bodybuilder.

The following passage encapsulates the subtleties of the different words Latour uses to demystify ANT: “you have ‘to follow the actors themselves’, that is try to catch up with their often wild innovations in order to learn from them what the collective existence has become in their hands, which methods they have elaborated to make it fit together, which accounts could best define the new associations that they have been forced to establish” (12).

Essentially, Latour offers an overarching account of ANT vindicating the use of ANT as a framework not only for my particular work, but as a general social theory.

McBride (2003) pragmatically uses Actor-Network Theory to discuss the “process by which mobile communication technologies are adopted within different countries and seeks to explain the phenomenon using concepts drawn from ANT” (II). McBride calls attention to the heterogeneous associations between actors, which comprise both human and non-human actors



in ANT and with technology adoption. He establishes the steps taken in order to achieve a successful network, and more specifically, the factors affecting the adoption of mobile communications technology, by suggesting possible ways of using ANT. To do so, McBride defines a network as a set of diverse associations of social, technical and physical actors involving a series of “transformations, transductions and translations such that change occurs” (268). He cites that actors within this network are entities that function as mediators between other human and non-human entities: “There is no differentiation between the human and material or the social and the natural” (7). I will use ANT pragmatically similar to the way McBride has done so, in order to explain the female bodybuilder as a cyborg using the ANT model.

McBride believes that to establish a new technology actors must align the actors’ interests. Since interests can range widely, the process of translation must occur to help align the various interests. Once the actors align their interests, the group of actors then becomes a recognized or an established network. For the network to expand, the actors enrol other actors into the network and then align the interests of the new actors to the interests of the network. Actors controlling the network seek to reach a critical mass becoming irreversible. With mobile communications technology, the goal is for it to develop into an essential part of the physical and social landscape, and in turn, to become black boxed. When the network achieves a certain level of acceptance, and becomes embedded in daily social activity, the contents and operation no longer needs consideration.

McBride then goes on to mention that a black box can still be susceptible to scrutiny and might only be stable within a particular time and space despite reaching this stage of irreversibility. He explains networks can disintegrate at an early stage. For instance, if the actors

are not receptive to the translation and do not become enrolled, the network does not successfully materialize. Latour's concept of the obligatory point of passage explains that actors must cross a common threshold before they can align.

Throughout his article, McBride denotes the use of ANT in describing the phenomenon of technology adoption; however, he identifies the "risk of oversimplifying complex phenomena, and trying to make the technology processes fit into simplified explanations" (5). McBride emphasizes the value of ANT as a tool that makes us cognisant of the fact that "the spread of mobile communication networks is not merely a technical exercise in establishing physical infrastructure, but a social exercise in understanding the dynamics of the technology and the intimate relationship between the technology, the geographical environment and the social environment" (13).

Overall, McBride uses ANT as a "set of concepts or ideas which provide a sensitising tool for interpreting" (3). This, as we will later see, will help navigate my research and my description of female bodybuilders as cyborgs.

Law (2000) strives to understand the interdisciplinary nature of the sociological study of technology and its erratic nature. In his attempt to answer his own questions on what to "make of technologies and the social in such a mobile and fluid world?"(2). Law declares that there is "no single answer, but instead, there are partial answers" (2).

Law begins his discussion on systems and networks, the most relevant piece of information for my work. He explains there is an "erosion of that which is fixed,"... "the distinction between the human and the non-human." Law's example stems from his work on military technologies. When considering the design and construction of weapons system, for example "in which all of the different parts interact together to produce something that cannot be

reduced to the behaviour of its component parts,” (3) he explains that to build a weapons system, designers must do more than simply fasten weapons to a plane, they must consider the overall aircraft (including its occupants) as a system. This is the claim I make when I deconstruct and trace the entities that shape the cyborg female bodybuilder. Each fragment must be equally and intentionally calculated for the network (in my case, the cyborg female bodybuilder) to be indispensable. It was during his work on military technologies that Law realised the notion of “heterogeneous engineering” (3) is widely used in other disciplines and “not a particularly original” (3) idea specific to the sociology of technology.

The next question Law poses is how to react to the “dissolution of fixed categories?” (3) More specifically, how do we react to the dissolution of the distinction between humans and non-humans. This issue, Law implies, can be widely debated; however, two key views within social analysis of technology deserve consideration: the social construction of reality; and actor-network theory. Where the social construction of reality, the approach called the social construction of technology (SCOT), distinguishes between people (society) and artefacts (objects), and actor-network theory (ANT) entities are entirely defined in relation to other elements in the system. This is especially important to note since with cyborg female bodybuilders the actors are also defined in relation to each other as well as with relation to non-human actors, which I will explore further.

To take a progressive stance on the dissolution of human as a foundational category and instead to view it as relational, Law explains that we must “explore the empirical and theoretical implications” (4). Once explored, his next step is to consider how best to “erode those essential distinctions,” (4) more specifically for (actor) networks, by asking what is wrong and what is right about “network understandings of the world” (4).

According to Law, we are right to use networks as a way of “talking about and exploring radical relationality” (4). He explains that there are many things wrong with networks; however, he narrows the field to three: networks as hegemonic, collusion and performativity, and finally, when combined, functional networks. This is where we, as network analysts, contribute by “adding strength to a functional version of relationality” (6).

Law also tries to show that the metaphysics of radical relationality has often been linked to a form of functionalism; however, a commitment to radical relationality does not necessarily suggest there is a commitment to functionalism. He does suggest however, alternatives to a commitment to functionalism. The alternative, he suggests, is a “post-human world,” (9) which stems from Donna Haraway’s notion of a cyborg-like split vision that embraces “mobilities and displacements” (9).

Law’s article delves into many important topics that are relevant to my work. One notion suggests that all unfixed entities are defined in relation to other entities in the network, a point I will frequently reference when describing the female bodybuilder as a cyborg.

In his explanation of collusion and performativity, Law raises the argument that “no description is ever innocent” (6) since the task of describing can easily transform into a performative task. Since I have set out to describe my experience in the bodybuilding subculture, it is imperative that I consider the idea that my descriptions could not only collude my personal experience, but perhaps the culture I am studying.

Law (2003b) works to answer several questions related to the mechanics of power. Law argues that all networks should be analysed equally regardless of the power one network might have over another. This, he explains, is a core assumption of actor-network theory. And, if there are larger, more stable networks, we should study more carefully how these are established.

Law explores the metaphor of heterogeneous network and ethical and moral implications of a heterogeneous network. Next, he tackles the notion of network consolidation, and more specifically, how the actors in a specific network work together to appear as a whole. In the third section, Law commands that the character of network ordering is “better seen as a verb – a somewhat uncertain process of overcoming resistance – rather than as the fait accompli of a noun” (2). Lastly, Law discusses network ordering and how patterning generates certain effects such a hierarchy and power.

Each of these four points, in their own way, provides depth to notions that I will broach in my work. The first discusses knowledge and how the different pieces “from the social, the technical, the conceptual and the textual” (2) come together. Law explains that researchers must consider the material world, that “almost all of our interactions with other people are mediated through objects of one kind or another” (3). Actor-network theory is not reductionist in nature and assumes that both people and objects can “determine the character of social change or stability” (3). This is a significant contention in relation to my work. To ensure my work does not become reductive, I must include not only the female bodybuilders, her equipment, and other material goods in my study, but I must also examine how all of these actors work in relation to each other to shape the fitness industry, and the subculture as a whole.

Law states that actor-network theory is “analytically radical in part because it treads on a set of ethical, epistemological and ontological toes,” (3) mostly because ANT ignores deviations between people and objects. He explains that we need to “distinguish between ethics and sociology” (4) and “to say that there is no fundamental difference between people and objects is an analytical stance, not an ethical position” (4). The female bodybuilder as a cyborg and her subculture are also laced with comparable questions of ethical behaviour where researchers must

embrace a similar analytical stance as that of ANT when studying them from the actor-network theory perspectives.

Law uses “simplification” (5) as the reason why the appearance of unity and the disappearance of network exist. He offers a healthy person as one example. Until the person becomes ill, all of the parts go unnoticed. Once something malfunctions, the system is exposed as a complex network. I touch on this topic when I discuss Actor-Network Theory’s notion of the “Black Box”, or, in bodybuilding terms, a “total package”.

According to Law, social structure is not a noun, but a verb. Since “translation,” as in ANT and as in punctualisation, is a verb, meaning transformation (process or an effect), no network is ever autonomous. Which is also true when considering the cyborg female bodybuilder. This network is always mobilized and never fixed as is its social network.

In conclusion, Law explains how the actor-network approach asks us to treat different actors as “interactional effects rather than primitive causes,” (7) and further declares: “the actor network approach is thus a theory of agency, a theory of knowledge, and a theory of machines” (7).

In short, the authors define, defend, criticize and develop the theory, terminology and application of ANT. The myriad points of view are sometimes puzzling, which seems to be the intention of most of the central contributors. As a testament to its usefulness, ANT offers an effective conceptual framework for studying topics such as mine.

### **Bodybuilding Literature**

Female bodybuilding literature can be found in a variety of genres such as popular literature, trade publications as well as some scholarly documents about the subculture.

However, I have narrowed the scope of my literature review to focus mostly on academic works, though non-academic publications are used to inform my discussion. Academic research on bodybuilding is limited and the majority is devoted exclusively to male bodybuilding. Female bodybuilding is discussed by some authors, but research on the female bodybuilder as cyborg is almost non-existent. Throughout my research I found that most of the work done on the subject derives from either cultural, medical, psychological, athletic, feminist or sociological studies.

Alan M. Klein (1993) situates female bodybuilders in the large world of male bodybuilders. His academic study of the subculture as a participant enables me to better understand the power of the researcher as a participant-observer. Leslie Haywood (1998) shows us an insider's account of what it is like to be a female bodybuilder. Bob Paris (1997) depicts drugs and corruption in the sport through journal entries he made when he revisited the world of elite bodybuilding. Finally, Maria R. Lowe (1998) offers a historical account of female bodybuilding.

Klein (1993) presents an ethnographic case-study of elite male bodybuilders to help fill a void in sport sociology and sport anthropology. This social and psychological study of bodybuilding subculture is simultaneously a study of masculinity. He explains the "women's movement has provided us with a model of self-examination in which paradigms have been developed" and which scholars now use to frame men's studies (15). Klein traces the history of bodybuilding back to the rise of capitalism and industrialism, where with these revolutions came sedentary life-styles. When the men felt the effects of this new routine on their bodies they pursued alternate hobbies to keep active. As mentioned earlier, this initiated the rise of leisure. Weight-lifting, for some, became more than just a hobby; it became a means for dealing with certain issues. Klein explains that even today many factors underlie why men choose



bodybuilding: “In time, one senses that behind the imposing façade lurks a timidity, an insecurity at least as large as the posturing. In fairly short order it becomes apparent that the formidable bodies are responses to a shaky psyche, that the powerful arms and chests are a bodybuilder’s way of working out a range of personal issue”(3). Klein explores the notion of bodybuilding as a mask to hide underlying insecurities throughout his book. Some of the analytical chapters describe the discrepancy between the strong image the bodybuilder projects and the contradicting weak behaviour. Klein’s “Hustler” complex is one example of this. Some bodybuilders turn to hustling to supplement their income, but some are steered by the psychological underpinnings: “As a psychological construct, narcissism works in contradictory fashion (in this case, to both intensify and bolster a flagging sense of self), but more important, it is a psychological condition that affects ego development, emotional development, and interpersonal relations” (203). In addition, Klein explores the political and economic keystones of competitive bodybuilding. He focuses on the moguls who dominate the sport and those who try to earn a living within the sport.

Though Klein’s ethnography primarily focuses on men, he also includes some information on women in bodybuilding that sheds light on my exploration of this subculture (159-193). He explains that “the similarities among them [male & female bodybuilders] can be seen in the commitment that they bring to their training and competition. In common with male bodybuilders, these women are incredibly hard-working at their sport, but compared to the men, they are better educated and more open about their doubts and trepidations” (173). Klein stipulates that women, rather than using bodybuilding as a way to suppress their insecurities and deal with issues from their past, they tend to use bodybuilding as a way to strengthen their self-confidence.

Klein also offers a brief history of the emergence of females in elite bodybuilding during the 1970s. He chronicles the controversy surrounding the muscularity of women by way of including mini-biographies. These biographies explore these women's lives and the issues that most affect them as female bodybuilders. His explanation for a lack of literature on female bodybuilding is the following: "Historically, bodybuilding is a study of men, not only because men constitute the vast majority of bodybuilders or because they control every power niche in the sport, but because muscles (and the building of them) are a standard that men feel compelled to strive for, rationalize, repudiate, or otherwise dismiss. Women simply do not have to deal with muscles in so compulsory a manner" (6). I will apply Klein's ideas of narcissism to female bodybuilders and use some of his research to support my notion of female bodybuilders as cyborgs. I will also use the historical account he provides as groundwork for examination of the subculture.

Leslie Heywood (1998) examines the subculture of female bodybuilding and helps her readers understand the difficulty this sport, along with its athletes, have fitting into the contemporary political and cultural environment. As a female bodybuilder of eighteen years, she provides an insight into the history of female bodybuilding and the current cultural issues that surround it. Like Klein, she provides important historical facts about the sport and its origins, and acknowledges that scholars usually neglect bodybuilding literature. She quotes Marcia Ian as having written: "there is [no] significant audience for female bodybuilding... a minority within a minority" (qtd. in Ian 6).

Heywood makes a relevant contribution to a significant void. By asking why women chose bodybuilding, and why now, she pieces together some of the central cultural reasons for the emergence of female bodybuilding. One suggestion is that female bodybuilding became part

of a self-medicating cure that helped the bodies which were hurt by violence. Women use bodybuilding as a way to deal with the pain by building a strong defence against the hurt. Though both Klein and Heywood strategize that women can use bodybuilding to deal with issues of violence; females seem to use it as a way to strengthen their confidence rather than using it to mask insecurities.

Heywood also claims the pioneers of the female bodybuilding culture were raised on the promises that they too could dream all of the same dreams as their male counterparts. They were led to believe that they could accomplish anything the men could – even build mass and muscle. However, criticism of large female bodybuilders has been ongoing for almost as long as the sport has surfaced. Much controversy has developed over what the ideal size and criteria is for judging female bodybuilders despite the “promises” of equality. In the early eighties, women were not well developed, nor did they have large muscular mass. However, as female bodybuilding evolved, so did the size of the women in the sport. These women and their sizes were often referred to as “masculine.” In light of these debates, Heywood discusses the cultural representation of muscular women within the wider context of popular culture. In Chapter 5 she looks at “monstrous” and “monstrosity”, both words often used to describe the bodybuilding subculture. She references the movie Mary Reilly the Jekyll/Hyde story to suggest how the monstrosity of female masculinity might be re-conceptualized as a response to abuse.

Large female bodybuilders also receive criticism from the political arena, a sphere that might otherwise be more accepting and understanding. Here, female bodybuilders are sexualized, unlike male bodybuilders who are judged by their muscularity. With this, Heywood conveys the role of photography, more specifically pornography, in constructing how we see and interpret these athletes. Within the political context, contemporary constructions of masculinity are

portrayed through large muscles. To prevent these women from becoming perceived as too masculine, they must revert to having the audience see them as feminine – or sexual.



Figure 4: Cover of the February 2007 *IRONMAN* magazine and the cover of the April 2007 *Oxygen* magazine.

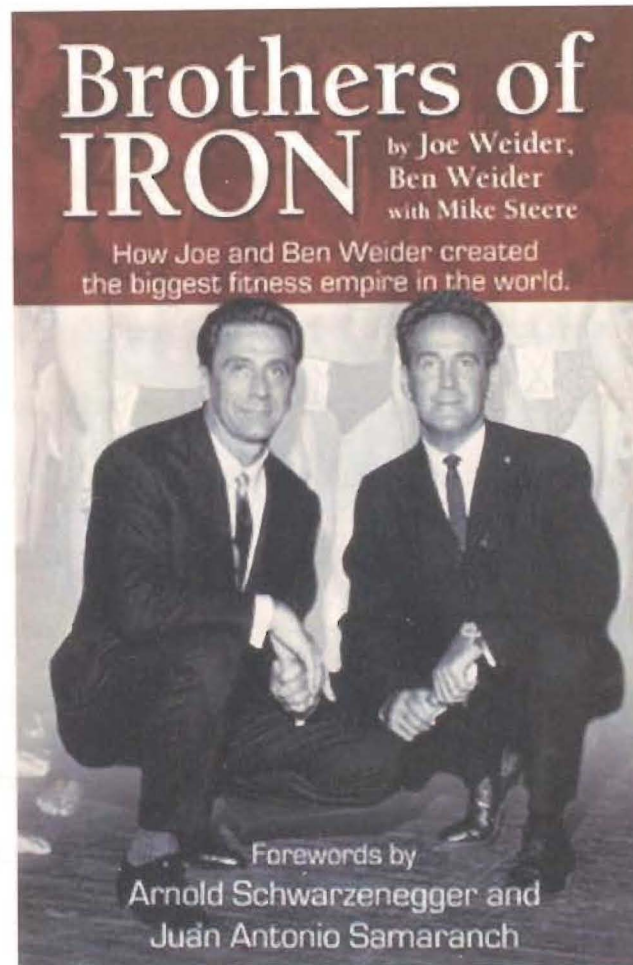
Heywood also develops a connection between female bodybuilders and the rock star by way of Georges Bataille's concept of sovereignty. Since contemporary popular music provides the illusion of sovereignty, and sovereignty, according to Bataille, is traditionally associated with masculinity, then popular music subsequently connects to masculinity. Heywood uses this concept and refers back to the promise that women could accomplish the same as the men. Even if those dreams were that of rock stardom. I will use some of the concepts and ideas brought forth by Heywood; however, I will incorporate them into ANT, relating them as actors working together in the network of the female bodybuilder as a Cyborg.

A former Mr. America and Mr. Universe, Bob Paris (1997) uses his experience and journal entries to tell an interesting memoir of his journey in professional bodybuilding. He tells how he discovered bodybuilding, dreamed to become the best, rose to the top and encountered obstacles once he became a professional. Throughout, Paris illustrates his challenges in returning to the sport and trying to find the flame that once ignited his passion. He explains his worry about drug use in the sport and contemplates using drugs to become a competitor again. He recounts his personal experiences with dangerous growth drugs, the deadly effects they've had on his friends and how these drugs among others are accepted in the sport (82). These are not Paris' first encounters with drugs and the personal ethical debate that he faced. As a teenager, Paris admits to drinking excessively, doing drugs, and neglecting school. This behaviour seems to be a reaction to his insecurities and the way his father treated him while growing-up. This reinforces Alan M. Klein's concept of how men join this sport to get away or to deal with their issues (64).

One turning point for Paris occurs when he wakes up after a failed-attempt at suicide (66). He confronts job loss and homelessness, all in the pursuit of his dream to become an elite bodybuilder. Determination is a trait often seen in bodybuilders and this resonates in my concept of female bodybuilders as cyborgs. In his early days, Paris stopped at nothing to win a bodybuilding competition or even to have the opportunity to train at an elite gym; even if this meant working unrewarding jobs, living in his car or using steroids to enhance his muscles. My premise suggests that the steroids simply played the role as an actor in the network that encompasses Bob Paris as a bodybuilder. However, the challenges he faces as he returns to training, supports the notion that re-immersing oneself into the bodybuilding subculture can be complicated.



Paris' historical provides readers with an insider's look at the politics of professional bodybuilding. Paris speaks his mind about the behind-the-scenes activity and driving forces of this business. He even tells stories about his personal struggles with the Weider brothers, regardless of the fact that undermining these moguls can halt a career.



*Figure 5: Joe and Ben Weider on the cover of their 2006 book, Brothers of Iron.*

Homosexuality can also hurt a man's position in the sport. In a sport that often mocks and associates homosexuality with weakness (or a lack of muscles), Paris demonstrates his philosophy of honesty and non-conformity. He refused to be photographed in ways that insinuated sexual relations with women and was vocal about establishing a union for bodybuilders. He was defying the rules of the discipline and could have been easily thrown out

of the sport. Though he was loyal to the Weiders in the past, specifically Joe, they eventually found him "... just too difficult – too neurotic" (270).

Bob Paris only broaches the subject of female bodybuilding briefly (144); however, he does substantiate my concept of bodybuilders as cyborgs through the notion of ANT on various occasions: "Even more than my muscles, I used my mind to lift the weight. I'd see myself separate from the thing actually moving the load up and down, but intertwined as well" (12). I will use this, along with other information he provides, as evidence for my concept.

Lowe (1998) provides an incredibly detailed description of her observations of the 12th annual Ms. Olympia contest, or as she refers to it, the "Superbowl of female bodybuilding" (1). Her work is methodically researched and her data on the history of weight resistance training is meticulous. What makes this book relevant for me is that fact that the author focuses solely on female bodybuilders and the issues pertaining to them specifically. Though Lowe is not a bodybuilder, she is able to bring to life the micro-level experiences of bodybuilding through her interviews. The interviews reflect not only the views of the competitors, but also judges, officials and sponsors. This provides a picture of the subculture through the eyes of those involved in the many levels of female bodybuilding and enables me to further trace and understand those identified as actors.

Like many before her, Lowe contests the notion that gender is not biologically determined, holding that it is socially constructed. In its early days, female bodybuilding contestants were softer and more slender than contestants from the late 1980s, when women became massively muscular and concerned with size, much like male bodybuilders. Not everyone agreed with the changes in female bodybuilding and argued that size and "too much" muscle was masculine. Lowe portrays the social gatekeepers as pushing the sport back to a more

“feminine” look for their competitors by flexing their “muscle” to ensure the most muscular competitors did not win the competitions. Lowe explains how the sport, already riddled with tensions and contradictions between strength and muscularity, is complicated further by inferred normative expectations of “femininity”. The “negotiation” or “construction” of femininity is done through hair extensions, acrylic nails, make-up, spray-on tans or even breast implants. These added elements, I argue, are all actors in the network to create a female cyborg bodybuilder. These women are working towards a “total package,” or more specifically, a “profitable physique.” The pressure of conforming into obtaining and maintaining this image is simply in order to be marketable. Promoters and advertisers want a certain image, and if a female bodybuilder wants to make money with her sport, she must adhere to the image these people choose to market. Looking at the history of the sport and its evolution, Lowe questions the future of female bodybuilding and what might become of it. This is a question similar to the one I pose at the conclusion of my study.

### **Cyborgs and Technologisation**

The third major component of my paper relates to cyborgs and technologisation. What is truly important for this study is how female bodybuilders perceive their own bodies and how they go about transforming for competitions. Naomi Wolf’s 1991 work The Beauty Myth, describes women as “tenants of our bodies” (291). Her use of the word “tenant” implies the mind is separate from the body, which is the way many female bodybuilders perceive their bodies. This concept can be linked back to Kathryn Pauly Morgan, who in turn cites Michel Foucault’s notion of docile bodies and the disciplinary power to regard a body as open to intervention, improvement and transformation. Morgan’s interests lie in the technologisation of



the female body in Western culture, noting that the medical model treats the body as a machine. By insinuating that the female bodybuilder considers her body a machine, the notion of bodybuilders as cyborgs is further confirmed by Donna Haraway's definition in "A Cyborg Manifesto" as "a cybernetic organism, a hybrid of machine and organism" (150). I will extend Haraway's concept to female bodybuilders as cyborgs incorporating Bruno Latour and Michael Callon's definition of ANT as a theoretical framework to explore hybrid entities containing both human and non-human elements, and to analyze situations where separation of these elements is nearly impossible.

Haraway (1991) traces the gendered roots of science in culture, more specifically the creation of "systems which embrace organic and technological components," or cyborgs. Cyborgs, Haraway explains, are hybrid creatures, composed of organism and machine suitable to the late twentieth century. Simians, Cyborgs, and Women focuses on three components. The first component argues that the cyborg is made of organic creatures that constitute information systems. The machine fragments of the cyborg act as communications systems. This is another leading example of her notion corresponding neatly into the framework of ANT as I will explain in the next section. The third piece focuses on cyborg embodiment: "the fate of various feminist concepts of gender, reappropriations of metaphors of vision for feminist ethical and epistemological systems of 'difference' in a postmodern world" (2).

Haraway's "The Cyborg Manifesto" corroborates my argument that female bodybuilders as cyborgs can be studied through ANT. The essay was originally written to find political direction in the 1980s in the face of the hybrids she believes "we" had become. Haraway views the cyborg as a creature in a post-gender world. However, her work contributes to socialist-feminist culture and theory, and takes a postmodernist, non-naturalist approach and situates itself

in the utopian tradition of imagining a world without gender. She explains that late twentieth-century machines have made the differences between natural and artificial and mind and body thoroughly ambiguous. In all, her cyborg myth is about “transgressed boundaries, potent fusions, and dangerous possibilities which progressive people might explore as one part of needed political work,” (155) which ties to the notion of ANT through the idea of translation and enrolment. One can also argue that there is no need to specify the word “female” when discussing a bodybuilder if the notion of cyborg is used as a comparison. If we truly live in an age when cyborgs are post-gendered, the male/female dichotomy of the bodybuilding world would no longer exist.

Later, Haraway explains that any object or person can be “reasonably thought of in terms of disassembly and reassembly” (163) and explains that any “system breakdown is a function of stress.” (165) This, again, is another topic I will broach throughout my analysis. I will discuss the effects of stress on the network (female bodybuilder) and how it affects the total package. As mentioned previously, Haraway presents these pieces as part of communication and information systems; both of which support the notion of ANT and the description of a certain system (in this case, a female bodybuilder) and its actors. Since acquiring these associations for my hypothesis from her material, I ask a similar question: “Why should our bodies end at the skin” (179) when technology has allowed us to go beyond and society expects us to? I will broach this question of extension of self through technology throughout my paper through the framework of ANT and the discussion of the actors in the female bodybuilder as a cyborg network.

Though these scholars wrote at a time that now seem ancient, some as early as the late 1970s, especially compared to today’s technologies and capabilities, the idea of the cyborg remains relevant and continues to evolve.

Ilmari Leppihalme (2001) discusses the conflict of conservative aesthetics which demands femininity and the aesthetics of hardcore bodybuilding that transgresses gender boundaries. She examines the dichotomy in Charles Gaines and George Butler's film Pumping Iron II: The Women (1985). The film focuses on the participants' preparation for a 1983 women's bodybuilding competition in Las Vegas. It presents two opposing competitors. Bev Francis, a former power lifter, projects a powerful and muscular body unprecedented in women's bodybuilding. Rachel McLish puts forth a "natural femininity" with more feminine signifiers and less mass.



*Figure 6: Pictured are bodybuilders Bev Francis, Carla Dunlap, and Rachel McLish. From The Hardcore Bodybuilder's Source Book by Robert Kennedy and Vivian Mason (New York: Sterling, 1984, 161).*

As female muscles confuse traditional gender definitions, Leppihalme asserts that, female bodybuilders are often forced to overemphasize their femininity. The antibodybuilding movement made it clear that women should not transgress the limits of the normative female

physique. Therefore, to submit to these “norms” women use feminine signifiers to project a “natural femininity”. She called attention to how this constructed image of natural femininity can be seen as an overt attempt to domesticate and eroticize female bodybuilders for the object of heterosexual gaze. Since it is unavoidable to add these extra feminine elements to be marketable and to win competitions, these female bodybuilders are obliged to seek out and add (align) these “actor” to complete their package and conform to the IFBB’s conventions of “femininity.” Leppihalme discusses the relationship of women’s bodybuilding to the utopias of the cyborg aesthetics. As a guide of cyborgs in the female bodybuilding subculture, but also as juxtaposition into ANT, Leppihalme provides descriptions with visual support: “The film’s gym episodes depict a body technology, a kind of erotic union of steel, light, mirrors and muscles” (134). In following Anne Balsamo and Donna Haraway’s theories, Leppihalme explains that the hybrid, or cyborg, discourse tries to manipulate bodily processes. Since Leppihalme presents a topic closely related to the one I present in my paper, she supports the idea that this subject matter is worthy of further investigation.

Krista Scott-Dixon (1998) asserts that bodybuilding is a scientific and technological practice. She argues that the bodybuilder envisions “her body as a site” (1) to be strictly controlled through various chemical and mechanical technologies, but also as an assembly of isolated parts distinguished from the whole. These discrete parts can each be isolated and manipulated. Her hypothesis is that the bodybuilder is a cyborg. The notion that individual body parts, or as I would argue, actors, can each be dealt with separately with the intention of forming a network that works to one common goal confirms the idea that ANT is an ideal framework, as we will see later, for examining cyborgs. Although her research presents a parallel exchange of ideas as my paper, Scott-Dixon’s work lacks a framework to study and support her hypothesis.

Scott-Dixon identifies the conflicts within bodybuilding between healthy athletics and bodily destruction through three topics. She examines some of the practices that female bodybuilders (or cyborgs) engage to create the ultimate body. The first section deals with dieting and fat loss. Bodybuilders, unlike most people, diet to acutely showcase their musculature. According to Scott-Dixon, the American Bodybuilding Association also emphasizes the notion of cyborg by enforcing “Separation and Definition,” (3) which constitutes the “clear border line between adjoining muscles” (3). Bodybuilders research biochemical reactions and use this knowledge to metabolically manipulate the body. This supports the notion of technology and science’s role in the success of a female bodybuilder as a cyborg as well as being framed within ANT.

Like Haraway, Scott-Dixon touches on the notion of blurred gender identity. Since estrogen hormones are linked to fat storage, which in turn links to fertility and menstruation, severe fat depletion can alter or cease the reproduction capabilities of a woman. These are some of the reasons why I mentioned earlier that the oestrogen injections I was taking thoroughly went against my natural desires as a bodybuilder. The creation of a cyborg bodybuilder has contradicted the “notions of what is natural for women” (3).

The second topic of discussion is the technological intervention of the breast implant, and the third, Anabolic-Androgenic Steroids. Both, I argue, are actors in the bodybuilder’s network. Scott-Dixon discusses the side effects these can have on a bodybuilder and how these produce bodies which transgress gender boundaries. I will use this argument to disclose the possible agents, and further break down a network for analysis.

Scott-Dixon’s point of view matches my own view as a non-competitive bodybuilder who engages in many of the technological practices of the subculture. She brings forth issues

such as the development of technology to manipulate the body as challenging the definitions of “natural” and gender transgression, and she also cites references that will substantiate my investigation. She concludes by explaining that the provocation of these bodies “inspire technological developments for further biological change,” (6) perhaps to finally develop the genetic tweaking needed to attain the perfect symmetry while preventing the rejection of cybernetic implants – the total package.

Originally written as stand-alone essays, Anne Balsamo (1996) examines the representations of the gendered body in American culture during the 1980s and into the early 1990s. She describes how cultural perceptions of that day solidified the image of body and technology as “machines assume[ing] organic functions and the body [as] materially redesigned through the application of newly developed technologies” (3). She alludes to other works that hypothesize that the body is a social, cultural and a historical production. I use this same hypothesis to trace actors and their alignments. The term ‘alignment’ is a term associated with ANT, which I will later explore.

Balsamo also illustrates how certain technologies are ideologically shaped by gender interests that reinforce traditional gendered relationships of power and authority. By focusing on the intertextual connections between cultural narratives and scientific/technological discourse, she sheds light on the cultural work of science and technology while contributing to feminist cultural studies.

Balsamo presents gender-identity as an underlying organizational framework for discourses of technology. She uses the framework to interpret the body as a cultural text. She also focuses on the ways nature and culture are mutually determining systems of understanding. This context helps lead into Balsamo’s notion of a cyborg. Cyborgs, according to Balsamo, are

an ellipsis term for “cybernetic organism,” which are usually portrayed as human-machine combinations. She argues that cyborgs are hybrid entities “that are neither wholly technological nor completely organic,” (11) a notion that is the premise of ANT.

Although all of her essays deal with the role of the body in feminist cultural studies of science and technology, only two are applicable to my theory. When discussing cosmetic surgery in chapter three, Balsamo briefly discusses how visualization technologies bring into focus isolated body parts and pieces while surgical procedures carve into the flesh to isolate, manipulate and refashion body parts. This bodes well with the notion of ANT and its actors working individually to create a network. Each piece can be examined individually, but when looked at as a whole, a network is clear.

The second chapter is more relevant to my paper. It links female bodybuilding and the notion of cyborgs: “The female bodybuilder is a machine dream of cyborgs identity, the female form that works to recreate the female form, using the science of weights, resistance, and kinesthetic labour” (12). In this chapter, Balsamo draws on three spheres of feminist body work. The first investigates the ideological construction of the female body throughout the history of women’s sports. The second is a semiotic analysis of media representation of these female athletes. Finally, the third is a cultural interpretation of the film Pumping Iron II: The Women, which encapsulates the notion of technologically reconstructed female bodies. During her analysis of the film, Balsamo highlights the symbolic reproduction of dominant ideals of femininity within the subculture and stresses how atypical constructions of the female body are staged.



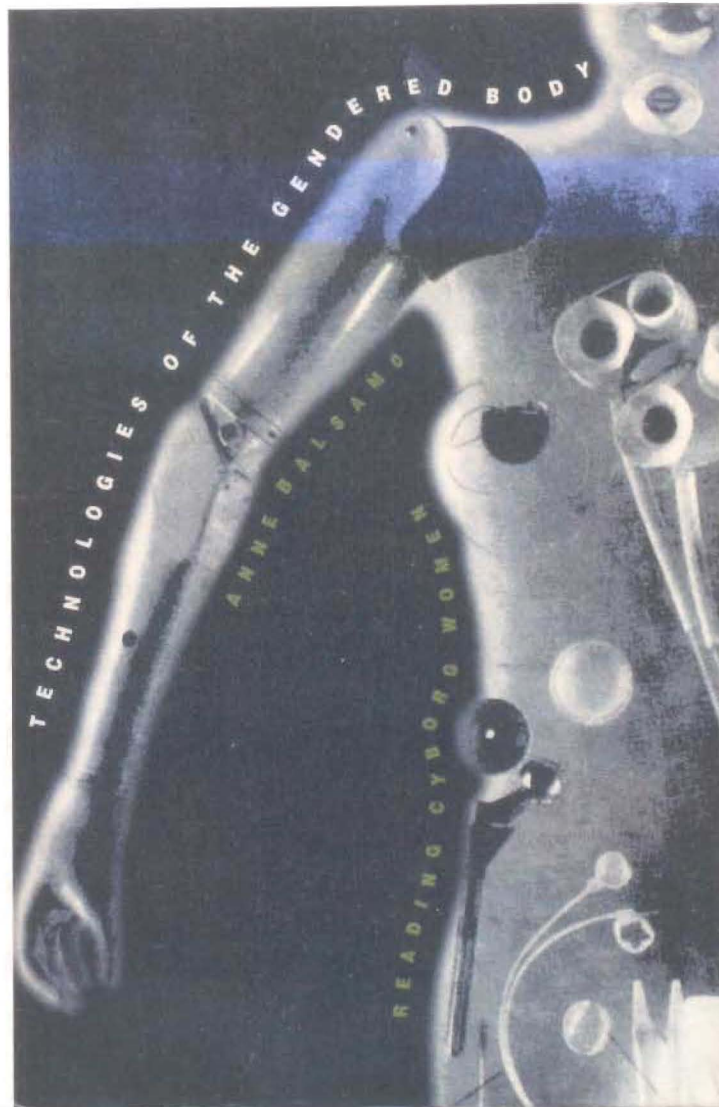


Figure 7: Cover of Anne Balsamo's book: *Technologies of the Gendered Body: Reading Cyborg Women*.

As a project that began as a dissertation in 1988, Balsamo's work on technology is slightly outdated; however, it provides a good foundation for the concepts still relevant to contemporary culture studies today. It is also a great springboard for my study.



## **Methodology**

The aim of qualitative research is to gain a thorough understanding of human behaviour and the reasons that govern such behaviour. Ethnographic research takes this one step further by also explaining the context of the behaviour. Geertz (1973) uses the term “thick description” to explain the notion of understanding the context of the behaviour. He believes that the context is a useful and meaningful means for researchers to gain an understanding of behaviour within a culture, especially when the researcher exists outside of it. Based on fieldwork, autoethnography is an emergent ethnographic writing practice which uses the personalized accounts of a researcher to broaden that researcher’s understanding of a particular culture. It is a genre of writing and research which connects the personal to the cultural by allowing the researcher to become the primary participant (Reed-Danahay). Autoethnography refers to “cultural-level studies by anthropologists of their ‘own people’ in which the researcher is a full insider; ...it is an autobiographical genre of writing and research that displays multiple layers of consciousness, connecting the personal to the cultural” (Ellis & Bochner 739).

I have chosen an autoethnographic approach for this paper because it has the potential to enrich my research experience and analysis of data, as I am able to use my first-hand experience within the field to provide an account of its inner workings. I will be a participant-as-observer in order to gain a deeper understanding of the bodybuilding culture. It must also be noted that qualitative research in sport and physical activity is a relatively new development and may not be as well advanced as in other disciplines (Sparkes). Although there is some debate as to the validity of autoethnography as a mainstream approach, I believe it is a natural fit when exploring the bodybuilding subculture as bodybuilders are inherently self-reflective when keeping detailed training and eating journals to help monitor their progression. The only valid way of

understanding the intricacies of the bodybuilding subculture is by participating and going through the physical motions. Being situated in the culture allows for a reflexive account of my own experiences and also critically accounting the culture.

This paper documents my journey as a non-competitive female bodybuilder with the intention of systematically exploring, within the framework of ANT, the ways in which this experience incorporated elements fusing the human and the cyborgian. As an avid novice female bodybuilder, I am a member of the subculture being studied. This, in itself, lends itself to an autoethnographic approach.

Autoethnography seemed to be the optimal choice for my research because it allows me to link my personal experiences to social and academic discourses through a sociological self-exploration. I was able to explore the physical and psychological dimensions of a female bodybuilder as a cyborg and relay those experiences to the reader by allowing them to relive events with the author. Autoethnography has the potential to engage its readers, change some of the perceptions about the subculture and open up conversation. I believe it has the ability to do so more than other approaches because of the natural human reactions to personal stories.

“Reed-Danahay explained that autoethnographers may vary in their emphasis on *graphy* (i.e., the research process), *ethnos* (i.e., culture), or *auto* (i.e., self). Whatever the specific focus, authors use their own experiences in a culture reflexively to look more deeply at self-other interactions” (Holt 2).

Because of the self-reflective nature of this research and the physical intricacies that occur during this type of study, the data collection process is intensified. Topics that might not have otherwise been broached throughout more conventional research may surface allowing for a more profound understanding of the female bodybuilder’s journey as a cyborg: “What

distinguishes autoethnography from ethnography is self-awareness about and reporting of one's own experiences and introspections as a primary data source" (Patton 86). When I began this research, I had a general idea of what it would encompass. However, there are questions I would not have thought to ask and, therefore, entire pockets of information I would have overlooked making my research flawed. The transition from field notes and journals to the analysis and interpretation of research texts were beneficial in that this helped me, as the researcher, to make sense of my experiences. It drew attention to problems I had originally overlooked within the subculture and might not have detected had I been using a different approach.

Due to the scepticism surrounding autoethnography as a legitimate approach, it is essential that I outline some of the key factors that validate my research. As with any case study, it is important to define the boundaries of the study by establishing the facets of time, location, project type and point of view (Duncan 8). The study must also provide its readers with a more profound understanding of the subculture and act as a guide, highlighting particular aspects of the subculture that might otherwise go unnoticed (Eisner). An autoethnographer must also demonstrate deeper levels of reflection and analysis by connecting their theories to broader themes. This can be accomplished by providing supporting scholarly accounts. Additional validation can stem from the data collection techniques. A thorough investigation will produce multiple sources of evidence that supports the credibility of the research.

### **Challenges**

Nirenberg asserts that "fieldwork itself hinges on the knowledge of the subculture's language, communication patterns, and social artefacts through which the culture is expressed" (15). For those who, prior to their study, had already been exposed to the subculture they are studying, basic knowledge of appropriate behaviour has the potential to be overlooked. For

example, someone who is accustomed to gym-culture will know that a regimented member will be resting between sets. Before beginning your work on a piece of equipment it is vital that the situation be assessed. If someone is using the equipment you are looking to use, the proper way to go about approaching the situation is to either ask how many sets are left in the member's workout and wait, or ask to "work-in". This is basic gym etiquette. However, someone who is unfamiliar with the culture might be oblivious. "Much of this is intuitive, and that is a function of being familiar with the subculture of gyms" (Klein 47). As a member of the subculture prior to this study, there is the threat of taking these routine communication strategies for granted and ignoring subtle but important assumptions. The solution is to be aware of these possibilities and overcome them through constant self-monitoring.

I had originally assumed that putting autoethnography into practice would be a simple methodology. However, I quickly began to understand the challenges associated with personal reflection and being a 'researcher as subject'. Throughout my research, I confronted personal challenges, both physical and mental which play an important role in the data collection and analysis of this paper. Analysing and writing about these experiences has put me in a vulnerable position, knowing that this personal information would be left open to comment and criticism once released into the public domain. This struggle in itself is an example of the importance of the use of the autoethnographic method for this type of research. It has allowed me to factor in the psychological aspect of the female bodybuilder as part of her cyborg-network, a topic I might have otherwise neglected.

Because of my discovery and infiltration into the bodybuilding subculture and the abrupt shift out of it, I believe the choice of autoethnography, as a methodology, is a good one to investigate and analyze my journey back into it. My situation will allow for an exclusive insider

portrayal of this lifestyle choice and the challenges that accompany a bodybuilder as a cyborg. Not only will this methodology allow for the precise development of this paper, but it will also fill a void in academic literature on female bodybuilding. The disadvantage to having been exposed to female bodybuilding prior to the research for this particular paper is that I might have overlooked or omitted what I have come to consider common knowledge. A researcher who is newly exposed to the female bodybuilding subculture might be more aware of behaviour that is only familiar to those within. Fortunately, my participation and exposure to the bodybuilding world has been somewhat limited to these past five years allowing for the newness of the sport to resonate nevertheless.

### **Data Collection**

A variety of conventional ethnographic methods were employed and triangulated to better examine the bodybuilding subculture from within it. My field notes and journals entries are a central element in my data analysis. They contain important data such as my observations in the field (gyms), the interactions being made, the challenges being presented, the preparations and routines outside of the gym and, most importantly, the nature of myself as a subject. It is essential to account for my interactions, as it will help explain the inescapable interference I bring as a researcher.

The collection of data pertaining to this research has been gathered in stages. All scholarly sources, such as those referenced in the literature review, were collected during my course of study as a registered student in the Communication and Culture program and more specifically in preparation for this paper. The background research, knowledge and journal entries compiled stem from a more complex process of data gathering. In addition to the concrete journal entries consciously collected for this purpose, I have extracted information from journals

which had been collected outside of the frame of this paper, accumulated since 2004 when I began as a participant in the subculture of bodybuilding. As most athletes in this sport have a tendency of doing, I kept a daily diary of the food I was eating, the training schedules I was keeping, meetings I had with trainers and dieticians along with the progress I was making. Though I only refer to this older data collection informally through participant observation, it still holds significance as it contributed a great deal to my understanding of the subculture as a whole and made it possible for the more expansive data collection for this paper. It has also given me perspective on the importance of time. Being immersed in female bodybuilding since 2004 has allowed for a sense of familiarity of the subculture. If I had not been exposed to female bodybuilding during this short period of time, and had only began to experience it during the research for this paper, I might have missed some important key information that only becomes apparent with the knowledge over time. The background knowledge accumulated over the past four years has added valuable understanding when interpreting my data.

The formal portion of the data collection is evidently more comprehensive as I was, at the time of the entries, aware of being the subject of the research and the self-observing process. The journal entries have provided dual purposes. Not only was I able to record observations as they occurred, but also examine myself retrospectively during the data analysis process.

The core of my data collection was accumulated over a six-week period in which I scheduled specifically to bodybuild for the purpose of this study. Over that time I collected what Margot Duncan calls “reflections-in-action” which consist of handwritten journal entries (6). On average these journal entries consisted of an average of three to four entries a day, five to six days a week. Each training day, which occurred 6 days a week, accounted for a documented morning and evening training session. In these entries I have indicated the planned workout and

the progress made. I also kept a daily dietary journal recording food, liquid, supplement, vitamin and medication intake. Throughout the dietary and training journals, I often made quick notes of challenges and observations I experienced during these sessions. Later, in a separate journal entry, I revisited these notes and compiled more detailed journal summaries and interpretation of the observations. On average, each training session filled a page in my A5 notebook (See Appendix B). At the time of the writing I entitled the pages with the name of the activity, the date performed, the bodily emphasis, the location and the time of day. An example of a page title from a training day would be: Day 3 – legs [hamstrings & calves] - name of gym, time of day. Training normally occurred in the morning before work and in the early evening after work. The dietary journals were kept on an ongoing basis throughout each day. The journal summaries were compiled twice weekly: mid-week and end-of-week or over the weekend.

In addition to the notebook I filled during this six-week period, I also drew upon the information in three other older notebooks I had kept during my earlier days of training. Although these journal entries were not written for research purposes, they still provided a retrospective account of the training I had once accomplished. Revisiting this information enabled me to identify certain reoccurring themes. In particular, I began to recognize the extent to which the psychological component of training plays an important role in being a cyborg.

The analysis of data collection during the research period is termed “knowing-in-action” (Schön). This process allows for the researcher to “apply understandings as they emerge, thereby changing the objects of experimentation” (Duncan 7). This process allowed me, as the researcher, to be constructive by having the ability to generate change within the research setting if needed and adjust the research accordingly. By having the opportunity to correct the path of research, the analysis becomes further validated.

Autoethnography places a great deal of value on the personal experience of the researcher. The core practice through which the researcher documents these experiences is through participant observation. Other popular methods of collecting data are through reflective writing, interviewing and gathering documents and artifacts. It is important for a researcher to keep field notes and document findings as this is what elevates the personal stories into scholarly and justifiable sources of evidence. The opinions of the researcher are supported by additional data that can then triangulate those analyses. The field notes I kept allowed me to log observations that I might have otherwise omitted. I was able to revisit my notes when I needed to reference a specific event or needed to resolve a question. It also provided a record of the daily progress and achievements accomplished as well as the set-backs. The ability to look back at the journals chronologically also provided the opportunity see the data in its entirety to get a sense of the big picture. Seeing the information as a whole made it easier to identify patterns and make correlation. In addition to the importance of the journals, I must also stress the value of other evidentiary documents that played a role in my data collection. I collected articles, diagrams, emails, memos, flyers, as well as loose notes, all of which were organized in a way that was easy to reference when needed. For example, I found an article about new supplement products while I was sitting in a waiting room at the doctor's office. I thought this article would be a good reference for my study and therefore I made notes about the information I wanted to research at a later time. I then filed the loose notes in my "supplements & vitamins" folder.

Once the reflective writing and formative analysis were complete, I did a summative analysis where the remaining of the data was categorized (Strauss & Corbin). This process endorsed further reflections which permitted me to begin forming pieces. These pieces then materialized into elements which eventually became the foundation of my narrative.



### **Data Analysis**

The structure of the main body of my work is outlined in a way that emulates ANT and the network building process. Throughout, I have inserted excerpts from my journal entries that corroborate the research on the female bodybuilder as a cyborg through the framework of ANT. For example, one of the key elements in ANT is an actor. In my narrative I will explain the significance of an actor and explain the role of an actor in relation to a female bodybuilder. If wrist-wraps are used by a female-bodybuilder, then these are considered actors in her network. These elements are not always as obvious as in this example. “The findings are not already there waiting for the researcher to record, they are shaped and crafted by the writer/researcher through a million selections about what to include and exclude, foreground and background, cite and not cite” (Kamler and Thomson, Email #2).

During the 6-week allotted period of data collection, I accumulated data at various points throughout each day including: during and after training, during research, in the planning of meals, after every meal, during and after discussion with my trainer and dietician, as well as other occasions when I found it necessary to describe a situation or challenge that had arisen which needed attention. It was mostly under these circumstances that I was able to reflect on the days’ activities and substantiate the findings. The journal entries had dual purposes, firstly as a bodybuilder’s diary, and secondly as an autoethnographer’s participant observations. Not only was this process time-consuming, but it also posed a challenge in the analysis process, as it was sometimes difficult to differentiate what was relevant for my training and which information could substantiate my paper. It is at times like these that it is important to master the art of self-reflection and ensure the information selection process is refined to include what is relevant to the study. For example, as a bodybuilder, it is important that I know Monday is a cardio day and

that Tuesday is a weights day. However, as a researcher, the days of the week are irrelevant for this study. For the purpose of the research, the only detail that counts is that training happens consecutively in some kind of sequence.

Some have researched female bodybuilding, others, such as Ronald Nirenberg have written autoethnographic journeys into competitive bodybuilding from a male perspective. Until now, the journey of a female bodybuilder as a cyborg has not been studied in the autoethnographic approach. The study is unique as it explores the female bodybuilder as a network composed of human and non-human entities. At the time of my research, there were few existing design theories in the field of female bodybuilding because of the marginal views of the subculture and the thought of it being too primitive to study academically.

In the beginning, it was clear that I would use a form of ethnography as I was examining the inner systems of a particular cultural group, in this case, female bodybuilders. “Culture is an account of particular social processes as practiced by particular people in particular settings” (Wolcott 253). Because of the distinguishing qualities of the female bodybuilding culture, ethnography appeared to be an appropriate method but did not provide enough latitude to address fully the study’s purpose, which was to examine the concept of today’s female bodybuilder as cyborgs by connecting to the principles of Actor-Network-Theory. I felt I needed to self-study rather than find participants mainly because of the complexity and strict training schedule a bodybuilder maintains. The fact that I understood the commitments involved, and had been an active bodybuilder in the past, I could accept that my training would be for the purpose of this study. It would have been challenging to find a participant who was prepared to commit to training at the time of this study, who had previously been exposed to the female bodybuilding

culture and understood the dynamics of academic work of this magnitude. Had I enrolled other participants, my research might have been comprised.

Had I used the traditional method of ethnography, I could not have included my experiences, reflections and insights, which were guaranteed to produce relevant data. I now understand this to have been integral to the study. Although the incidents I encountered throughout this journey do not necessarily reflect the exact struggles that all female bodybuilders would experience, it has allowed my personal experiences to become valid data.

As with all studies, there are limitations. The most evident limitation I was faced with was that the scope of my study was limited within the timeframe in which one has to write a Master's Major Research Paper. While researching, writing field-notes, and conducting a six-week self-investigative case study, I was also under the constraints of working full-time. Doing so, while simultaneously re-integrating into bodybuilding has provided useful insight into some of the challenges bodybuilders face on a daily basis. Though these findings have been incredibly beneficial, the results might have been richer given a longer case study and having had the opportunity to actually compete. This more extensive study could provide a representative sample of the different stages in which a bodybuilder must achieve in order to successfully compete, and what the demands are for succeeding at these levels.

## **As a Narrative: Becoming a Cyborg through ANT**

### **Understanding the Actor**

In order to fully understand the concept of ANT, the meaning of an ‘actor’ needs to be clarified. An actor can be defined as an entity which serves as an intermediary between other actors. An example of an actor in the case of a female bodybuilder would be a dumbbell, a supplement, a pair of shoes, a bicycle, or a muscle. Even more controversial is the phenomenon of surgical interventions commonly defined as aesthetic or cosmetic surgery. The practice has grown to include calf, bicep, tricep, pectoral and buttock implants. The most widespread implant amongst female bodybuilders is still however the breast implant. “The silicone expanses under Debbi Muggli’s massively muscled chest give the futuristic vision of the cyborg an ironic embodiment, even as the section on “shapely breasts” in one of Cory Everson’s recent books begins with a discussion of implants, as if shapeliness is not possible without them” (Heywood 36).

The reasons for acquiring implants vary depending on the body part the female bodybuilder is looking to enhance. Anyone who trains has a ‘stubborn muscle’ which seems unable to grow as quickly or as largely as the rest of the muscles. The calf is a notoriously hard muscle to develop, especially if your genetics provide you with high insertion (muscles nearer to the knee joint rather than the ankle). It is unheard of to build your calf to impressive proportions under these circumstances and very natural in the bodybuilding industry to turn to implants. Breast implants are obtained for a completely different reason. Fat in women represents between 20% and 26% of body weight, whereas in men it represents only 15% to 20%. Comparatively, some women have body-fat levels of only about 3-10% on the day of competition. Because childbearing requires a woman to nourish a fetus and baby, a woman’s body stocks energy in the

form of fat. The breast, which rests on the pectoralis major, is one of the primary fat deposit areas on the female body. When a female bodybuilder trains to competition level, her body fat percentage lowers significantly which diminishes the fat reserves and creates the illusion of small or no breasts: "In the late nineties, at least 80 percent of the top women bodybuilders in the U.S. have gotten breast implants" (Heywood 35). Aside from implants and other cosmetic alterations that require surgical intervention, there is also a high demand for less invasive aesthetic work such as orthodontics. The American Association of Orthodontists reported that its Canadian members treated 62,548 adults in 2004 (Honey).

#### JOURNAL ENTRY:

*All the references about body-fat levels in bodybuilding literature made me wonder what my levels were. At the Light Gym\*, they offered Bioelectric Impedance Analysis (BIA) test, which measures your body composition. This test works by passing a small electrical current through the body. Body fluids, mostly water, conduct the electrical current. Therefore the more fluids in the body, the easier it is for the current to pass. Since muscle is comprised of 70-75% of water, and fat tissue only contains 10-15%, the electrical current circuits through the body more efficiently when a person has lower body-fat levels.*

*I took three tests altogether. The first test was taken before my training began. The second test was done at the beginning of week 4 and the last test was taken at the end of week six. The results from week 1 to 4 reflected the advances I was making and the changes my body was undergoing. I was surprised, however by my results from week 4 to 6. I had expected a similar decrease in the percentage of my body fat. I had gone from 31.7% at the beginning of my training to 25% mid-way through. However, by week 6, I had only gone down by 0.6%. Many variables can affect the results such as a women's menstrual cycle, stress, and even time of day. In preparation for the test, they advise you to refrain from training for eight hours before the test as the results can be compromised due to dehydration if the subject does not replenish her water reserves fully. The tests of week 1 and week 4 were taken after work (some 9 hours after my morning training), whereas the test of week 6 was taken at noon during my lunch hour (only 4 hours after my training). I would like to hope that this was one of the contributing factors in the results.*

	Week 1	Week 4	Week 6
Weight	114 lbs	105 lbs	105 lbs
BMR (basal metabolic rate)	1225 calories	1358 calories	1261 calories
% of Body Fat	31.7%	25%	24.4%
Normal Range of Body Fat %	20 – 26%		
Weight of Body Fat (lbs)	36.2 lbs	26.2 lbs	25.6 lbs
% of Fat-Free Mass	68.3%	75.0%	75.6%
Weight of Fat-Free Mass (lbs)	77.8 lbs	28.8 lbs	29.4 lbs
% of Water	51.7 %	56.2 %	56.6 %
Normal Range for Water %	50 - 60%		

*Figure 8: Bioelectric Impedance Analysis Test Results.*

*Another shocking discovery during this particular part of my research was the fact that despite my already healthy lifestyle, in addition to the intense training and dieting, I was still within the normal range of body-fat percentage (in the case of week 1, even above). This was very disconcerting and further motivated me to understand the physics of my body. I quickly learnt that I am predominately an endomorph body type (of three types: ectomorph, mesomorph and endomorph), which naturally contains higher body fat and that easily gains weight. (Delavier 7)*

*When I scrutinize over these numbers and compare them, I feel removed from the hard work that went into achieving them and what they represent. I feel like I'm reading the latest issue of "Car & Driver" and salivating over the specs of the 620hp 2009 Corvette ZR1, with its supercharged LS9 6.3L V-8 engine, producing 595 lb.-ft. of torque. I am removed from what these numbers mean and am determined to push on as if it was as simple as pressing the refresh button on the calculator and starting anew.*

*\*during my research I attended two gyms. The first is a gym-rat and amateur gym where there are staff members and squash courts. I will refer to this gym as the "Light Gym". The second gym I frequented had regulars who trained more seriously with heavier weights. This gym did not have a treadmill. The only staff was security at the front desk. I will refer to this gym as the "Heavy Gym".*

The superfluous permanence of these aesthetic alterations are disparate in comparison to the ever-changing standards of the industry and contests.

Two main issues have been raised concerning a female bodybuilder's lack of breasts: gender transgression or transcendence and femininity. In 1994, seventeen years after the first official competition female bodybuilding debut "marked the growing popularity of women's fitness competitions and heightened criticism of large female bodybuilders" (Heywood 15). Since fitness competitions were added to the Ms. Olympia contests they have steadily seized most of hardcore body building attention and money. Faced with fewer contestants (no professional female bodybuilding competitions in Europe in 1997), dwindling prize money, negligible television coverage, minimal publicity even in muscle magazines and nonexistent sponsorship have created a rapid decline of the hardcore female bodybuilders. Nonetheless, it is instructive to look at the competitive judging process to understand the pressures the female bodybuilders face.



Figure 9: Mia Finnegan, 1st Ms. Fitness Olympia and Adela Garcia, 2007 Ms. Fitness Olympia

Muscularity, symmetry and presentation are the three components comprising the judging guidelines (see Appendix C). However, female competitors are now also judged on a fourth component, that of an undefined standard of femininity. Is it possible to be feminine without breasts? This is another query that is highly debated not only within this bodybuilding industry, but everywhere in Western culture. Female bodybuilders should be considering the danger, pain, time and financial aspects of acquiring implants rather than basing their decision on the norms or expectations of the bodybuilding industry.



Despite the rise of female fitness and figure competitions and fall of hardcore female muscle, female bodybuilding competitors overall are vastly more muscular than they were twenty years ago. In large part, this increase can be attributed to another actor in the female bodybuilder cyborg network – supplements. More commonly used and widely accepted supplements such as Creatine, CLA (Conjugated Linoleic Acid), HMB (Beta-Hydroxy Beta-Methylbutyrate), Whey Protein and L-Glutamine that are not seen as dangerous or even enhancement drugs anymore, especially when juxtaposed with more controversial products on the market. Steroids, Esiclone, IGF-1, Insulin, Equipoise, Propionate, and the most recent intramuscularly injected muscle inflammatory chemical, Synthol, are just some of the other quick fixes bodybuilders are willing to use to see the results they want.

#### JOURNAL ENTRY:

*I sometimes cannot believe the precision that goes into the diet of a female bodybuilder. I remember when my mentor told me about the general rule of thumb for someone who is not training is to consume 1 gram of protein per pound of body weight. For someone my size, and training twice a day, I would be eating on average 5oz of protein, 6 times a day for a total of 2 ¼ lbs of protein a day. That is an appalling amount of tuna! I was finding the preparation time for six to seven meals incredibly overwhelming. In addition to buying and preparing the meals I also had to cook 2 ¼ lbs of chicken a day, measuring and weighing it to ensure the portions were adequate. It was a time-intensive process. After the first two weeks of eating an abundance of chicken, tuna and broccoli, my dietician introduced me to meal supplements such as protein bars and eventually shakes. By the end of my six weeks, I was now on a minimum of 4 liquid meals and 2 solid meals a day. In addition to all of this liquid intake I was also drinking 3 to 4 litres of water a day. (see Appendix D) I assumed that preparing a shake would be much less work than a meal. I was wrong. Depending when I was having a shake, I would have to include different ingredients. For example a post-workout shake (within 20 minutes) would include: Whey and vegetable protein powder as the main ingredients, dextrose to help raise insulin levels allowing the protein to be better and more quickly and fully absorbed, soy milk, creatine for energy and glutamine for muscle growth. I knew that diet was an important aspect of training, but I was not prepared for the science behind it. I now realise that it could take years to perfect a diet that works for my particular body.*

*I not only underestimated the time and costs (which I will discuss later) associated with this type of dieting, but I also underestimated the amount of energy and strength it would take to maintain it. The first few days I really didn't have any trouble since it was all new and very exciting. By the second week, my energy needs had gone up, but my caloric intake had not*

*changed, and I was constantly hungry, hence irritable. What I noticed the most in week three were the temptations. I felt like I had been doing so well and “deserved” a treat. I did the unthinkable and had a leftover cupcake from a baby shower we had at work earlier that day. Not only did I feel guilty, but I also felt sick. I had not had a concentrated amount of sugar of that sort in weeks. My insulin levels skyrocketed and I developed a headache for the rest of the afternoon. In addition to this, my diet for the rest of the day had been compromised as well as my early-evening training session. My body had been regimented in a way that it knew when to expect fuel and when to perform and the cupcake threw the entire system off. I learned a lot from that incident, but most importantly how the incredibly sensitive body adapts to certain lifestyles.*

These products along with implants might not be what we, as society, now consider to be complex advanced technology. However, they are still foreign apparatuses that female bodybuilders consume, inject or implant into their bodies.

Cosmetic altering includes teeth and jaw reconstruction, hair extensions and dye, acrylic nails and paint, pro-tan (sponge or spray on tanning solution), piercings, tattooed eyeliner, eyelash extensions, makeup (for body and face), body oils, coloured contact lenses, electrolysis hair removal, blepharoplasty (eyelid operations), costumes and high heels. These are just some of the products used during a competition, which for the purpose of this essay, are considered actors.

#### JOURNAL ENTRY:

*I would like to think that I am the type of person who accepts people as they are. This is why I found it hard to swallow when competitors underwent surgical alterations to change their appearances for the sake of competitions. It all just seemed so drastic, until I realized I was being hypocritical. I was also in the process of altering my appearances. Part of the contest preparation process is to learn how to walk and pose on stage. It is one thing to watch, but it is a whole other thing to perform. No matter what shape your body is in, you feel like all of your flaws are magnified on stage and under those lights. In trying to understand the preparation process, my trainer had me go through the motions on a mock stage. She recorded the session so I could later scrutinize my on-stage performance. “Front double biceps. Quarter turn to the right. Side chest. Quarter turn to the right. Rear double biceps. Quarter turn to the right. Side triceps. Face the front and hold. Two-arm overhead abdominal and quadriceps.” I was exhausted! Tomorrow would be my rest day, and I was happy about that since my quads were shaking so heavily during the last rehearsal, I thought I would fall over.*

*I was looking forward to the next step, which was to watch my performance. I have some formal training as a dancer and have eight years of stage experience. I felt good about my*

*performance and figured this would be relatively simple since I already knew the basics. I was wrong – again. Viewing was more painful then performing. I was astonished at how awful my teeth appeared. I had always been self-conscious of my teeth when I was younger. At the age of seventeen, I had had porcelain veneers affixed to two of my teeth, which had helped the appearance of my smile. Clearly my teeth had shifted and yellowed over the years. It would be impossible for me to compete or have any type of stage presence with this type of smile. I had read enough magazines and seen enough competitions to know that in order to qualify as a competitor, something needed to be done.*

*My dentist referred me to an orthodontist who could help. The orthodontist put together a two-year plan to achieve the results I had in mind. First I would have to straighten my teeth (the process in which I am now). Cognisant of the fact that I might compete before the entire orthodontic process was over, he suggested I opt for the Invisalign treatment instead of the old metal train-track braces. The custom-made Invisalign treatment consists of a series of aligners (see Figure 9) that you wear for two weeks at a time. Each aligner is individually manufactured with exact calculations to gradually shift your teeth into place. Since this is a cosmetic procedure, it is costing \$9,800.00. The next step is called crown lengthening, which is a surgical procedure that pushes back the gumline exposing a larger area of the tooth, making the teeth appear larger. Immediately following this procedure, I will have to have my veneers replaced in order to be the size of the new visible tooth. Lastly, the teeth will be whitened.*

Although orthodontics is a very popular procedure amongst Canadians, it is still a cosmetic alteration, needing advanced technological assistance. I am a victim and culprit of altering my appearance.

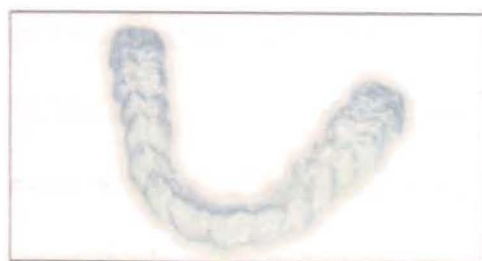


Figure 10: Invisalign

The vigorous process for building the body takes many months and even years of training in order to be competition ready. Since actors have the same interests and goals, it is important to discuss the actors equally. I have already examined implants and supplements, but there are many other human and non-human actors also implicated. Technologically advanced shoes, such as the Masai Barefoot Technology (MBT) shoe, is built for everyday muscle sport, fitness and

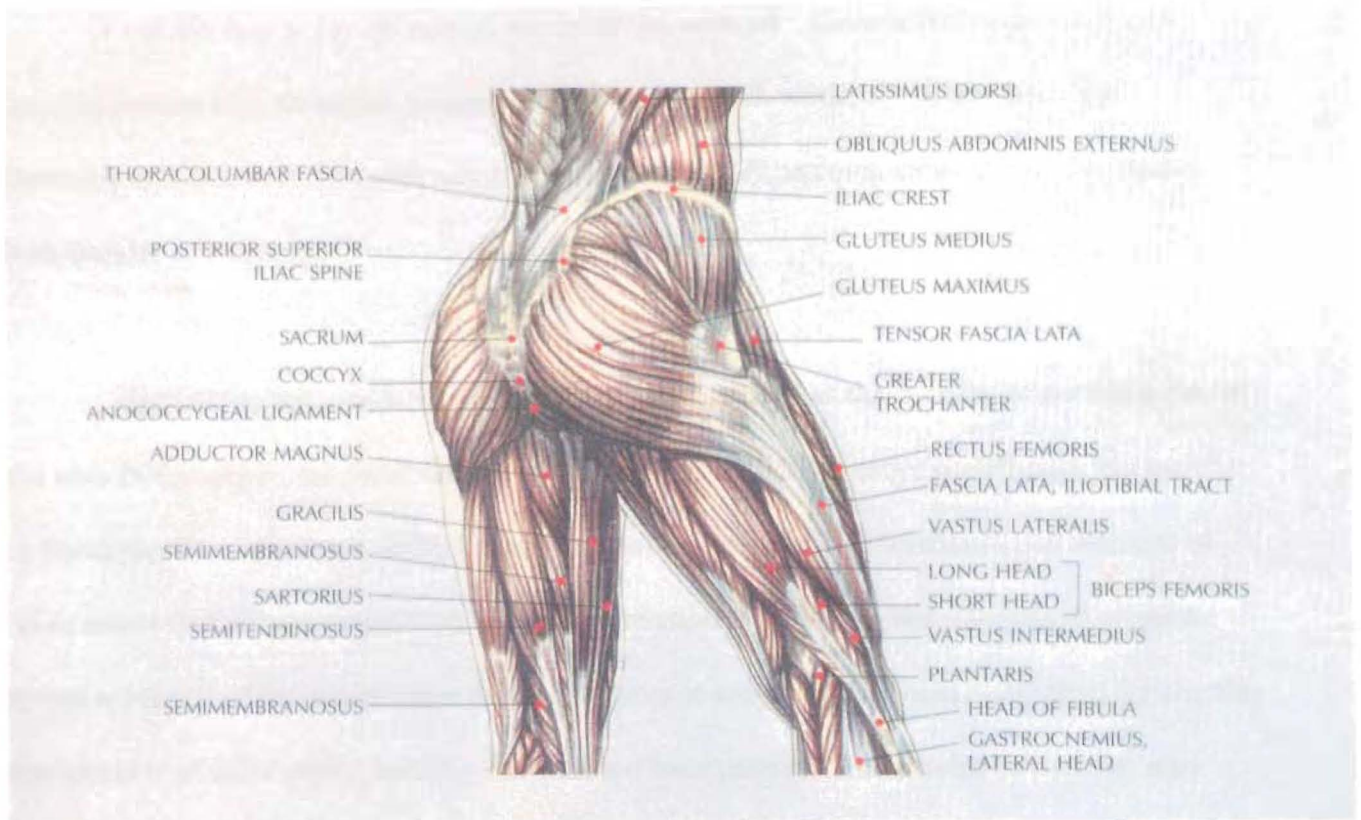


Figure 11: "Gluteal Deltoid" by Delavier, Frédéric. *Women's Strength Training Anatomy. Human Kinetics.* (11) Paris: Editions Vigot, 2002.

Each individual skeletal muscle is comprised of specialized cells called myofibers which contain bundles of even smaller structures called myofibrils. For medical or anatomically correct studies, these micro-details would be pertinent, however, for the purpose of this paper, I will refer to a major muscle group (gluteal deltoid) as an actor. Each actor or muscle is trained individually like a machine. Marcia Ian illustrates how a bodybuilder "trains her physique by dividing it into parts and 'working' each part separately... each according to a regiment of specialized exercises performed in sets of repetitions or 'reps'. The compulsion to repeat ... causes us to 'battle biology'" (Ian 85).



Upon establishing a primary actor and ensuing actors with similar interests, the primary actor tries to establish herself as an obligatory passage point (OPP). To do so, the female bodybuilder must ensure that she is the point through which all other actors must pass. By becoming the obligatory passage point between actors and the network, she becomes indispensable to the network. In the case of my research, the OPP is the body of the female bodybuilder. Without the physical body of the female bodybuilder, the network would dissolve. For example, grip gloves would have no use if there was no body to wear them, the synthol would have no muscle to be injected into, and the weights would go un-lifted. Similarly, if one of the other actors becomes the obligatory passage point, the network would not function as properly and would not have the same purpose. For example, if the dumbbell was the obligatory passage point, other actors such as the nutritionist would not be directly connected as there is no reason for the two actors to interact. If my network remains (a human female body surrounded by the actors it has enrolled), yet was missing one of its actors, the network would not have the same structure-stability. For the intention of this paper, I propose that the network I am analyzing is stable in order to facilitate the understanding of using ANT as a framework for female bodybuilders as cyborgs.

#### JOURNAL ENTRY:

*I had just finished reading about how "Arnold Schwarzenegger recalls how, when notified of his father's death, he refused to interrupt his training long enough to go to the funeral" (Klein 171). I started contemplating how and if I could ever become so machine-like that I could continue my training despite such devastating news. It really is the separation of the mind from the body. If my network were to collapse, I wonder if it would be due to an emotional set-back such as this or if I can segregate my emotions to the point of detachment. In my research I found other examples of bodybuilding networks that buckled.*

*Gregg Valentino, holds the record as the man with the biggest biceps in the Guinness Book of Records (28 inches circumference). After years of steroid use, Valentino became careless. He reused unsterilized needles, which eventually caused an infection in his award-winning arm. The infection caused a bad fever and his arm to balloon with a large abscess.*

*Valentino drained the welt by stabbing it with a syringe. After twenty minutes of self-mutilation, the record-breaker was admitted to emergency surgery. In addition to losing a significant amount of muscle from his arm to the surgeon's knife, he also lost his freedom as he was jailed for the illegal use and distribution of steroids. This is a prime example of the complete dissolving of a bodybuilder as a network.*

*It is more common to find information about male bodybuilders who have taken their training to extremes since male bodybuilding has a much richer history and more participants. I was curious to see if women were as careless with the networks they had built up as men had proven to be. I came across a website called Athletes Against Steroids which has page a dedicated to steroid deaths. Among them were very young male bodybuilders and this female:*

Louise Halliwell, 38-year-old Scottish bodybuilding champion, also known as Scotland's Strongest Woman, died on December 10, 2003 after spending nearly two years in a coma. Insulin overdose was the suspected cause of her death although there has been an aura of secrecy regarding the particulars of her case. Halliwell operated a popular gym with her brother and won several bodybuilding and powerlifting titles. She was also highly sought after as a personal trainer. According to officials, the insulin overdose, which she apparently was using to improve her bodybuilding efforts, caused irreparable brain damage. ([www.athletesagainsteroids.org](http://www.athletesagainsteroids.org))

*This is not only a case of a broken or interrupted network, but a network that ceases altogether.*

## **Stage Two: Interessement**

The second moment of translation is called the interestment process. "The aligning of the interests of actors in the network involves the translation of those interests into a common interest" (McBride 271). For example, the female bodybuilder needs to find a personal trainer who is interested in helping her put together a program that will prepare her for competition. The realization that a trainer is needed and the pursuit of this goal constitutes a problematization moment whereas hiring or convincing a trainer to take her on as a client would fall under the interestment moment. Besides getting the actors interested, the primary actor must also negotiate the terms of the involvement of the other actors. The primary actor attributes to each actor an interest that they must satisfy and she must convince them that the roles she has defined for them is acceptable.

Perhaps, considering non-human items, the female bodybuilder finds a sports bra that is adequate with what her physical requirements will entail. When purchasing a sports bra, the bodybuilder must take into consideration its size, shape, motion control, level of compression, ability to transfer moisture, breathability, stain resistance, and most importantly comfort.

### **Stage Three: Enrolment**

Finally the enrolment, or inscription moment, is when the actors accept the interest defined by the primary actor. For example, the enrolment moment would be when the trainer accepts the proposal and joins the network of the female bodybuilder. This process can be referred to as the mobilization of allies.

### **JOURNAL ENTRY:**

*When I attended one of the fitness competitions I ran into an old gym friend (who for the purpose of this study I will call Joe) from my hometown. He had driven 4 hours to come and watch his girlfriend compete. I hadn't seen him in years and it was great to catch up. It only seemed natural to find him there since we were both gym rats. After the first round, his girlfriend (who I will call Jane) came from backstage to spend time with us before she had to be back on stage. Once Joe introduced us, Jane and I hit it off from there. She asked me if I had ever considered competing because I had the perfect physique for it. With a little guidance, it wouldn't take much to be ready for my first competition. I was only months away from hormone treatments for the egg-donor procedure, and told her I would definitely consider it when I was finished with the process. I then went on to bombard her with questions about her routine, her training and her dieting. I was fascinated with the way she looked. I even asked her if I could touch her skin because it looked like overdone dried chicken. (You really are what you eat!)*

*Jane and I kept in touch as I followed her accomplishments at the various competitions and her transition from competing to training others for competitions. It was a natural transition for Jane because of her background in Kinesiology and Health Sciences. Now that she was officially in the training business, I would ask her to take me on as a client. She knew I had the potential; she was the one who had originally pointed it out to me. Her biggest concern wasn't whether I was capable, but whether I had the time to commit. She knew the challenges I faced with my full-time job and my schoolwork. "I also need to know if you can commit 3 days per week - you can pick the days. Twice a week will not get you the results that you are looking for. It has to be at LEAST 3 times per week, 4 preferably. This way your body will get into the proper metabolic zone. We have to choose a time where you can MAXIMIZE your results."*

*She put together a special training package for me which included 24 training sessions, make-up, stage prep, learning to pose and quarter-turns, the walk and if I decided to enter in the Fitness category, she would put together a routine. Her sessions are usually \$75.00 per hour, a choreographer costs, on average \$500.00 in the GTA, and the rest could easily add up to \$200.00. She agreed to give me the lot for a total of \$1,000.00, which is priced at a value of \$2,500.00. This was a testament to her belief in my ability. I was set, I had 'interested' and 'enrolled' my actor.*

From there, the actors begin to work together as a network and the enrollment becomes active support.

### **Irreversability**

Irreversibility, also known as punctualisation, occurs when it is subsequently impossible to return to a point where alternative possibilities exist (Walsham 1). Once an object (or technology) is surgically inserted into the body, it is impossible to go back to the way it was prior to the introduction of the foreign object – even if this object is removed. For example, even though the breast implant can be removed, scar tissue in the muscle and skin will always remain.

Networks are unreliable and can become unstable. This is the reason that ANT takes the network one step further to create what is called a Black Box. When a network is deemed a Black Box it is irreversible. Ultimately, the goal is to consider the network as a whole - its contents no longer considered individually. The actors become an entity which is embedded into society and is no longer questioned (McBride 272).



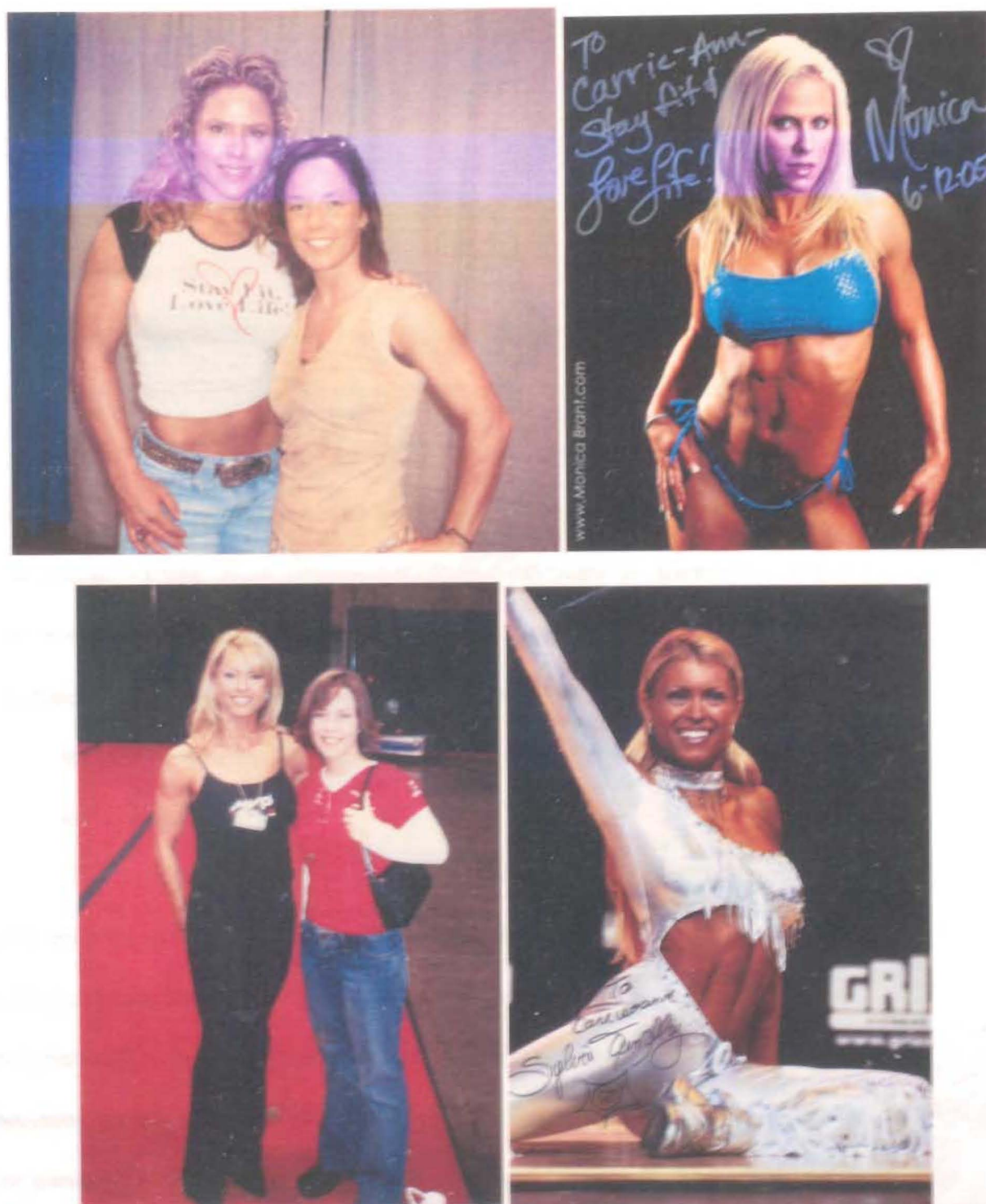


Figure 12: (top left to right) Monica Brant and Carrie-Ann; Monica Brant; Sylvia Tremblay and Carrie-Ann; Sylvia Tremblay

Once you become a well-known contender, and receive your pro status, the audience and industry come to recognize you as a professional competitor. People such as IFBB fitness pro,

Monica Brant or female bodybuilder-academics Leslie Heywood and Maria R. Lowe are prime examples of what the bodybuilding industry would consider Black Boxed. Ian suggests: “the aggressive division of the physique into body parts that must be individually trained in separate workouts [...] using the mirror to see if the parts add up to the total package...” (78). She also refers to the total package as “Total Thingification”.

The female bodybuilder perceives herself to be an object, a thing that is composed of many other items, similar to a black box’s network which is composed of many actors. In the female bodybuilding industry, Monica Brant is considered a black box. Even if she stopped competing or bodybuilding, she would still be considered as more than just a person, but as “the bodybuilder”. Some-‘thing’ those in the industry can relate to. Klein explains that a bodybuilder can “make use of the objectified self-as-machine” (245). He describes it as “the image of a machine that works ceaselessly, without error, and powerfully [...] the notion of a workout involving hundreds of pistonlike repetitions, which stop at nothing is something all bodybuilders strive for” (245).

The network is further congealed as the message is transmitted through the network. Over time, muscles develop, heavier weights become lighter to lift, and the cravings become easier to manage. As the female bodybuilder becomes more successful, the message: “I am a bodybuilder” resounds throughout the network and serves to reaffirms itself. The network becomes increasingly punctualized and reified. However, when a network begins to break down, the punctualisation effect ceases. Latour in refers to this process as depunctualization, or the opening of Pandora’s box (Latour).

**JOURNAL ENTRY:**

*The ultimate stage of becoming a bodybuilder, whether competitive or non, comes when neophytes and outsiders seek your advice, assistance, and coaching about bodybuilding. It is very rare that a woman is asked to “get a spot” while she is at the gym.*

*[When someone asks you if they can get a spot, it means that they would like for you to watch over them as they do a set of heavy lifting, usually an overhead exercise such as a dumbbell press, where precaution needs to be taken. The spotter should really only help if the lifter is in jeopardy of hurting themselves or they want to finish their set with a few forced repetitions.]*

*It is even rarer when she is asked for advice. I did not take it too seriously when my Mom asked me to take her and a friend of hers to the gym to show her how to use some of the equipment. It is my Mother after all. Slowly I started to notice a shift in attitude towards me as conversations with co-workers and friends would always turn to the topics of working out and eating right. Then some began to ask about tips and techniques. Others just needed the motivation and I would always say: “6:00 a.m. tomorrow morning – I’ll be there.” Sometimes one would join me for my morning workout or my evening workout, but I never had any one follow-me for an entire day. I thought nothing of the fact that I was at the gym twice a day, for a total of on average 3 hours or the fact that some of the staff members at the Light Gym called me ‘Muscles’. I just took it as fun- teasing since they probably didn’t know my real name. It wasn’t until I attended the FAME World Championships and Expo that I finally understood what it meant to have reached bodybuilder status. Someone, a complete stranger, also visiting the Expo sat next to me while I was watching my friend on stage competing. Clearly a beginner or simply an observer of the subculture, this stranger asked if I was “that competitor’s trainer” – my friend on stage. And on the conversation went from there. After a slew of questions about my training regiment and eating habits, he asked if he could have his picture taken with me so that when I became pro, it would be worth money. Whether his interest was genuine or not, it was the event that signified recognition that I had achieved status and respect from others as having become a bodybuilder. “I have an audience, therefore I am” (Heywood 158).*

### **Omission**

In order to form a network, a process of elimination must take place. When considering a network, it is important to consider the potential actors and the ones that should not be considered. Understanding the actors that have been omitted is as valuable as studying those that are part of the network. Often, these intangibles are less noticeable, and, therefore, are often left unexamined. One of the ways to study these omissions is to examine the sacrifices made so that

success is possible. Bodybuilders put their physical bodies and social lives under tremendous stress in order to build bodies that the subculture idealizes.

To achieve a tight or hard-looking physique, it is common for serious bodybuilders to take diuretics and restrict their water intake during precontest training. This practice, known as depletion, rids the body of subcutaneous water and fat in order to show every line and fibre in the muscle (striations). “For the last two weeks before a show, they eliminate carbohydrates from the diet altogether, which makes them very light-headed. Some bodybuilders confessed that they take off from work the week before a meet because without carbohydrates in their diet, they cannot carry on a conversation for more than a couple of minutes without losing their train of thought” (Lowe 51).

In addition to severe dehydration, some women sacrifice the ability to have children. In his research, Klein encountered women at the gym that tended to view pregnancy as “inopportune, intrusive to their competitive careers” (178). Some had cut down their subcutaneous body fat content, menstruating infrequently or not at all, hindering the possibility of having children and having “temporarily compromised their reproductive capacities” (178). The omission process can entail more than physical sacrifices; it can also include time and social sacrifices as well as Lowe observes:

While training for a bodybuilding show, one must have tunnel vision and exclude any distractions from one’s life. Furthermore, bodybuilders are taking their bodies to their physical limits by drastically limiting their carbohydrate and water intake and continuing to lift weights, basically starving and dehydrating themselves. This often leads to moodiness and irritability, which may cause interpersonal conflict (35).

*JOURNAL ENTRY:*

*I’m noticing that the further invested and committed I get to this sport (bodybuilding), the more sacrifices I must make. I have always been the type of person who socializes over lunch, drinks or dinner. As my meals become more regimented, eating out becomes challenging. I have yet to find a restaurant that serves 6 ounces of light tuna in water and a one-cup side of steamed broccoli, not to mention all of the liquid meal supplements required. Besides, I’d rather not have*

*to explain myself every time I eat a meal. When my co-workers see me preparing my lunch, I am always interrogated about the portion, the taste, the contents, etc., and I'd rather not deal with the scrutiny. Because of the nature of my job, I am also often at receptions or meetings where there is an abundance of 'off-limit' food. I am now finding it necessary to become relatively isolated from these social events in order to avoid having to restrain myself from the temptations. Restricting alcohol has been the most difficult. It just seems so odd to order a glass of milk, or water when I go out to watch my friend's band play or leave before the band is finished packing up their equipment because I know I have a heavy lifting session in the early morning and I need to get my sleep in order to perform.*

*As time goes on, and the further I get into my routine, it becomes easier to accept my isolation and dietary restrictions. The physical changes are addictive as are the physiological ones. The adrenaline and endorphin effects are intoxicating and I start to depend on them to start my day. I compare it to those who can not go without a coffee in the morning – I can not go without my workout in the morning. I do not function the same without it. I see the effects on my off-days (the days I do not train). I am cranky, get headaches and have a much harder time getting motivated and my day started. If this is the dependency I have acquired this early in my bodybuilding career, I can only imagine the physical addictions that come with years of competing.*

These sacrifices not only have the potential to harm the physical health of the athlete, but also have a significant psychological impact. When the reclusive behaviour of a female bodybuilder isolates her from social gathering with family and friends, it inevitably affects how she perceives and deals with everyday activities and tasks. Over time, this way of life can be detrimental. Haywood describes this kind of obsession:

Resent distractions from outside: friends, social activities, work. Anxiety over tortilla chips, grams of fat on every package. Engineered food and herbal diets, the endless stare into the mirror, rage against a surface made too smooth by an extra percentage of subcutaneous fat. Day by day, hour by hour, rep by rep, piling the iron on heavier every week, injured back, compressed knees, distorted joints. Admiring looks, the awed questions, the requests for advice- assurance no one else will sport such an impressive physique (19).

Despite the increasing popularity of figure and fitness competitions over muscle, and the supposed cultural pressures to limit the size of the competitors, already hard bodies seem to get more striated every year. Looking at pictures of the 1995 fitness winner and the 2007 fitness

winner (see Figure 8), the difference is noticeable. The heightened standards increase the pressure on the competitors to strive for unattainable results.

Disorder development and addictions are just some of the signs of the significant social anxieties and pressures female bodybuilders succumb to in response to the demands of the bodybuilding culture. “Muscle Dysmorphia” (also known as “reverse anorexia” or “bigorexia”) is a rampant disorder where bodybuilders obsess over a body with which they are never satisfied (*Pope et al.* 548-557). “One can find it in the splitting up of the body into distinct parts with certain attributes associated with each, as well as in the psychological compartmentalization that occurs elsewhere in the world of the bodybuilder” (Klein 42). The female bodybuilder compartmentalizes her ideas in order to simplify their concepts. For instance, one part of her psyche focuses on training despite the pain and fatigue. Another part focuses on the nutrition, supplements and all other products she ingests. Despite knowing that these products can harm her and damage her long-term health, she compartmentalizes the knowledge of what she needs to do in order to succeed as a bodybuilder and what she needs to do to have a long and healthy life as a human being. One of the key factors in psychological compartmentalization is the attempt to inhibit certain ideas from mixing together. If, as a female bodybuilder, the thought of compromising your health crosses with the thought attaining your goal, you might not necessarily succeed. It is essential for a female bodybuilder to acknowledge the psychological compartmentalization and to ensure it is done in a manner that allows for her network to stay strong all the while maintaining functionality: “Whereas the process of self-objectification, perceiving one’s body as totally distinct from oneself, is thought of as schizophrenic, in bodybuilding self-objectification is partially functional” (Klein 243). In fact, their efforts often cause a great deal of pain, not only psychological and physical strain, but social as well. It can

damage social relationships; bodybuilders know they must be willing to make sacrifices in order to succeed.

Bodybuilders have to make sacrifices for the sport. The financial expenses alone easily add up when you take into account the choreographers, dieticians, supplements, entry fees, transportation, costumes and trainers; just to name a few: “It was also not uncommon to hear some top pros and plenty of wanna-bes spending between fifty and a hundred thousand bucks a year on anabolics and growth hormones” (Paris 87).

The female bodybuilder must also deal with physical pain. Many athletes have developed their own unique coping mechanism treating pain as a separate entity altogether: “I noticed that in performing difficult sets (with heavy weights or a long string of repetition), one has a tendency to look at one’s mirror image and transfer the labour and/or pain to the image in the mirror. [...] This separation of self into self and other works to promote self-objectification” (Klein 211), as an actor, or using it as a motivator. “When you’re dogging it like I do prior to a competition, it [working out] definitely hurts. My attitude is to make friends with the pain and ride it to the top. The more it hurts to keep pushing in a set, the more the workout improves my muscle mass and density, and the more I enjoy the pain” (Klein 260).

Supplement usage also increases the risk that an athlete will temporarily or even permanently harm herself for the sake of the sport, as women often consume these supplements without acknowledging their varying potential side effects. While the repercussions of steroid usage in men is widely known within and outside of the bodybuilding culture, the effect of steroid on the female body are still somewhat unknown outside of bodybuilding. Some of the side effects result in facial hair, body acne and a lowered voice. Severe repercussions included big joints, a blocky waist, liver damage and the enlargement of the clitoris (Klein 183).

While steroids are the most popular drugs associated with the body building culture, many others are used by women to tone and shape their muscles and alter the physical appearance. Some women take synthetic male hormones in order to increase their musculature. They do this to decrease their body fat and increase musculature, as estrogens and other female hormones have a predisposition to creating body fat while testosterone has a tendency to build muscle. Men's bodies naturally produce approximately nine times more testosterone than women. Insulin is used to manipulate blood sugar and metabolism to have a harder appearance. Many high level female bodybuilders are on several drugs simultaneously. Even more harmful, these women have the equivalent of biochemists working for them to administer these hazardous substances: "Most public reaction was that of repulsion, and gyms were gathering places where [...] women wove alchemistic magic, turning ordinary flesh into bulging rivers of steel" (Heywood 61). If the bodybuilder or the alchemist does not calculate the ingredients accurately it can have grave consequences. If diuretics are misused, they can cause a heart attack and death. Two days prior to Bob Paris competing in a Niagara Falls Grand Prix competition, he explained the severity of his precontest diet:

I had already started cutting back on my liquid intake; four cups of black coffee were my only rations that day. The day before I'd started on Aldactazide, a potent combination of diuretic and aldosterone inhibitor, and in addition to having to pee every five minutes, my skin was beginning to wrap like cellophane around already fat-free muscles. I had just gone to the gym to do a final thirty minutes on the stationary bike. I did it more to burn nervous energy than phantom fat (83).

The female bodybuilder must ensure that all actors in the network are working together to ensure the network does not collapse as did that of Mohammed "Momo" Benaziza. Momo was a professional bodybuilder who died of a heart arrhythmia at the last show in the European Grand Prix series: "During prejudging Momo left the stage frequently to vomit blood and wobbled just this side of collapse. Later it was determined that he had suffered at least one heart attack during



the grueling morning competition. As the day went on, his condition grew worse, but he was winning” (Paris 87). He was found dead in his hotel room shortly after the competition. “His autopsy showed that the overuse of diuretics caused his death” (Paris 90). Though studying the omission of actors can be as valuable as examining those which are tangible, it is important for the network itself to weigh their consequences as well.

## **Conclusion**

As with most theories, ANT is often contested and different versions are presented. Since ANT can be used widely across many disciplines, the definitions can be diluted or manipulated to fit the research at hand. As some critics complain, ANT is often over-simplified.

The protagonists of ANT have also identified the risk of oversimplifying complex phenomena, and trying to make the technology processes fit into simplified explanations. As mentioned earlier, even Latour has tried to distance himself from ANT. Aware of the dangers of using ANT as a simple passkey to explain all technology adoption, he has suggested the recall of ANT, like a faulty car, criticizing ‘actor’, ‘network’ and ‘theory’ and questioning its use as alternative social theory (McBride 268).

With the mixed messages from ANT theorists, it is often difficult for a researcher to fully understand and utilize it. I was often faced with some bewilderment. It was not until I found a prologue on Latour’s website about another student experiencing similar uncertainty about the use of the theory that I realized this uncertainty was felt by others (see Appendix A). I was not alone. I then accepted that ANT, although complex, could be used as I saw it fit for this research. I would rather use, simplify and apply ANT, then leave the theory uncultivated for it to disappear from any contemporary pedagogical use.

My intention while writing this paper was to explore the notion of female bodybuilding and the use of Actor Network Theory (ANT) to explore the concept of today’s female bodybuilder as a cyborg. As I have portrayed, ANT and the female bodybuilder are comparable, for the cyborg is a blend of both as it demonstrates the notion of having human and non-human counterparts working together in order to create an individual entity.

It is inappropriate to study the actors separately, since they are so highly interconnected, especially when they have become a black box. This generates ethical concerns when trying to determine what constitutes a cyborg. “As bodybuilders continue occasionally to die, offstage and

on, as the direct result of the extremes to which they subject their bodies” (Ian 79) the balance between human and non-human actors is questioned. Even though the female bodybuilder may perceive her body to be an object which she can mould and modify with the adoption of technology to become more machine-like, she must understand that balance is needed to ensure that this is achieved without undue risk. The female bodybuilder industry might now have reached an epoch in which the black box of the female bodybuilder cyborg must be opened and its contents re-evaluated in order to make the sport safer where there are certain limits as to how many human, and most-importantly, non-human actors, form the network.

Despite the findings of this study, one question remains for the cyborg, ANT and the female bodybuilder – where does one draw the line? Where do the human parts or actors end and where do the non-human actors begin? And does it really matter?

In order to answers these questions, further investigation is needed. Researchers should evaluate how the industry promotes itself to athletes and how, in turn, these athletes modify their training and appearance to achieve the idealized image that is promoted. As the subculture exists today, a female bodybuilder needs to form a network which can be detrimental to the health of the body (as an actor) itself. The primary actor (body) can be compromised if the network is not properly assemble and the effects can be disastrous: “When we’re up there (on the posing platform), we’re closer to death then we are to life” (Klein 153). Since the objective of my study is to better understand the adoption, transformation and the consequent culture that motivates female bodybuilders’ goal to become a contestant or, more successfully, a winner in fitness, figure or bodybuilding competitions, I must accept that these are the sacrifices they are willing to make in order to succeed.

However, relative to other fields in academia, bodybuilding scholarship is still coming out of infancy. Comprehensive examination of the subculture from ethnographic perspective is clearly needed. This is why I believe the auto-ethnographic method of analysis for understanding the subculture of female bodybuilding suits my particular study. It allows me to trace the actors in a useful way and to better understand how and why their associations form and stay intact.

I see three areas for further research on female bodybuilders as cyborgs. The first is to study the reversion from bodybuilding to bodysculpting. This would entail a healthier network comprising of actors who, although technologically advanced, are not self-threatening. The second option is to expand on the existing subculture and strive to understand the motivations behind certain female bodybuilders and the risks they continue to take in order to push the boundaries of their networks to extremes. In this era of the female bodybuilding subculture, participants are willing to conform to the extreme expectations by way of their actions. Paris recounts the following incident:

Supposedly some women had found various ways to circumvent detection. In one legendary story, a female athlete used a catheter and small squeeze bottle containing another person's drug-free urine, and when she went into the rest room-accompanied by a testing official to witness the passing of fluids-the athlete pressed her legs a certain way and filled the cup with this steroid-free pee-pee, letting it flow, seemingly naturally, from the device stuffed up inside her vagina, and she passed the test (84).

Examples such as these demonstrate that female bodybuilders are accepting the industry standards as they are.

The final research option is through further development of existing norms. As I have indicated throughout, female bodybuilders already see their network as composed of both natural and artificial pieces, leaving the separation of the two thoroughly ambiguous. Since the ultimate goal of female bodybuilders is to strive to have the most successful network, and they are already

manipulating their bodies metabolically in order to obtain the biochemical reactions needed, research could be used in conjunction to serve their goals rather than deter them. Technology has permitted society to extend into cyborgism medically by developing implantable defibrillators and pacemakers. This same principle could be endorsed within the female bodybuilding community. There is no need for our bodies to end at the skin in one field and not the other when technology has allowed us to go beyond it and society expects us to. This option can be viewed as an opportunity to build pre-existing female bodybuilder cyborg networks and inspire technological developments for further biological change in order to attain perfection.

Regardless of the way in which the research into this field continues, it is important to realize that female bodybuilding is about far more than simply lifting weights and building muscle. It would also be a mistake to simply focus on professional female bodybuilders as they only comprise a small portion of the larger subculture. Though they get the majority of the attention in the media and in bodybuilding literature, the number of beginners and amateurs are vast and therefore deserve academic attention.

As I conclude that humans need a network to help achieve the goal of becoming an accomplished bodybuilder cyborg, I must state that my research has been more suited to creating theories rather than testing them. With this I conclude on a personal level that, after six-weeks into my auto-ethnographic pursuit of cyborgism: I am a work-in-progress.

## **APPENDIX A – A Prologue**

A Prologue in form of a dialog between a student and his professor (Latour website)

*(An office at the London School of Economics, a dark Tuesday of February at the end of the afternoon, before moving to the Beaver for a pint. A quiet but insistent knock is heard. Student peers into the office.)*

Student —Am I bothering you?

Professor —Not at all; these are my office hours anyway. Come in, have a seat.

P— So... I take it that you are a bit lost?

S — Well, yes. I am finding it difficult, I have to say, to apply Actor Network Theory to my case study in organisations.

P — No wonder— it isn't applicable to anything!

S — But we were taught... I mean... it seems like hot stuff around here. Are you saying it's really useless?

P — It might be useful, but only if it does not 'apply' to something.

S — Sorry —are you playing some sort of Zen trick here? I have to warn you: I'm just a straight Organisation Studies doctoral student, so don't expect... I'm not too much into French stuff either, just read a bit of Thousand Plateaus but couldn't make much sense of it...

P — Sorry. I wasn't trying to say anything cute. Just that ANT is first of all a negative argument. It does not say anything positive on any state of affairs.

S — So what can it do for me?

P — The best it can do for you is to say something like: "When your informants mix up organization and hardware and psychology and politics in one sentence, don't break it down first into neat little pots; try to follow the link they make among those elements that would have looked completely incommensurable if you had followed normal academic categories." That's all. ANT can't tell you positively what the link is.

S — So why is it called a 'theory', then, if it says nothing about the things we study?

P — It's a theory, and a strong one I think, but about how to study things, or rather how not to study them. Or rather how to let the actors have some room to express themselves.

S — Do you mean that other social theories don't allow that?

P — In a way, yes, and because of their very strengths: they are good at saying positive things about what the social world is made of. In most cases that's fine; the ingredients are known; their numbers should be kept small. But that doesn't work when things are changing fast, and, I would add, not, for instance, in organization studies, or information studies, or marketing, or science and technology studies, where boundaries are so terribly fuzzy. New topics, that's when you need ANT for.

S — But my agents, actors, I mean the people I am studying at the company, form a lot of networks. They are connected to a lot of other things, they are all over the place...

P — But see, that's the problem, you don't need Actor-Network to say that: any available social theory would do the same. It's a waste of time for you to pick this very bizarre argument to show that your informants are in a network.

S — But they are! They form a network! Look, I have been tracing their connections: computer chips, standards, schooling, money, rewards, countries, cultures, corporate board rooms, everything. Haven't I described a network in your sense?

P — Not necessarily. I agree this is terribly confusing, and it's largely our fault — the word we invented is a pretty horrible one... But you should not confuse the network that is drawn by the description and the network that is used to make the description.

S — ...?

P — But yes! Surely you'd agree that drawing with a pencil is not the same thing as drawing the shape of a pencil. It's the same with this ambiguous word, network. With Actor-Network you may describe something that doesn't at all look like a network — an individual state of mind, a piece of machinery, a fictional character; conversely, you may describe a network — subways, sewages, telephones — which is not all drawn in an 'Actor-Networky' way. You are simply confusing the object with the method. ANT is a method, and mostly a negative one at that; it says nothing about the shape of what is being described with it.

S — This is confusing! But my company executives, are they not forming a nice, revealing, significant network?

P — Maybe yes, I mean, surely, yes — but so what?

S — Then, I can study them with Actor-Network-Theory!

P — Again, maybe yes, but maybe not. It depends entirely on what you yourself allow your actors, or rather your actants to do. Being connected, being interconnected, being heterogeneous, is not enough. It all depends on the sort of action that is flowing from one to the other, hence the words 'net' and 'work'. Really, we should say 'worknet' instead of 'network'. It's the work, and

the movement, and the flow, and the changes that should be stressed. But now we are stuck with 'network' and everyone thinks we mean the World Wide Web or something like that.

S — Do you mean to say that once I have shown that my actors are related in the shape of a network, I have not yet done an ANT study?

P — That's exactly what I mean: ANT is more like the name of a pencil or a brush than the name of an object to be drawn or painted.

S — But when I said ANT was a tool and asked you if it could be applied, you objected!

P — Because it's not a tool — or rather because tools are never 'mere' tools ready to be applied: they always modify the goals you had in mind. That's what 'actor' means. Actor Network (I agree the name is silly) allows you to produce some effects that you would have never obtained by any other social theory. That's all that I can vouch for. It's a very common experience: try to draw with a lead pencil or with charcoal, you will feel the difference; cooking tarts with a gas oven is not the same as with an electric one.

S — But that's not what my supervisor wants. He wants a frame in which to put my data.

P — If you want to store more data, buy a bigger hard disk...

S — He always says: 'Student, you need a framework'.

P — Ah? So your supervisor is in the business of selling pictures? It's true that frames are nice for them: gilded, white, carved, baroque, aluminium, etc. But have you ever met a painter who began her masterpiece by first choosing the frame? That would be a bit odd, wouldn't it?

S — You're playing with words. By 'frame' I mean a theory, an argument, a general point, a concept — something for making sense of the data. You always need one.

P — No you don't! Tell me, if some X is a mere 'case of' Y, what is more important to study: X which is the special case, or Y which is the rule?

S — Probably Y... but X too, just to see if its really an application of... well, both I guess.

P — I would bet on Y myself, since X will not teach you anything new. If something is simply an 'instance of' some other state of affairs, go study this state of affairs instead... A case study that needs a frame in addition, is a case study that was badly chosen to begin with!

S — But you always need to put things into a context, don't you?

P — I have never understood what context meant, no. A frame makes a picture look nicer, it may direct the gaze better, increase the value, but it doesn't add anything to the picture. The frame, or the context, is precisely the sum of factors that make no difference to the data, what is common



knowledge about it. If I were you, I would abstain from frameworks altogether. Just describe the state of affairs at hand.

S — ‘Just describe’. Sorry to ask: but is this not terribly naïve? Is this not exactly the sort of empiricism, or realism, that we have been warned against? I thought your argument was, how should I say? more sophisticated than that.

P — Because you think description is easy? You must be confusing description, I guess, with strings of clichés. For every hundred books of commentaries, arguments, glosses, there is only one of description. To describe, to be attentive to the concrete states of affairs, to find the uniquely adequate account of a given situation-- I have, myself, always found this incredibly demanding. Ever heard of Harold Garfinkel?

S — I’m lost here, I have to say. We have been told that there are two types of sociology, the interpretive and the objectivist. Surely you don’t want to say you are of the objectivist type?

P — You bet I am! Yes, by all means.

S — You? But we have been told you were something of a relativist! You have been quoted as saying that even the natural sciences are not objective... So, surely you are for interpretive sociology, viewpoints, multiplicity of stand points, all that.

P — I have no real patience for interpretive sociologies, whatever you may call by that name. No. On the contrary, I firmly believe that sciences are objective — what else could they be? They’re all about objects, no? I simply say that objects might look a bit more complicated, folded, multiple, complex, entangled, than what the ‘objectivist’, as you say, would like them to be.

S — But that’s exactly what ‘interpretive’ sociologies argue, no?

P — Oh no, not all. They would say that human desires, human meanings, human intentions, etc., introduce some ‘interpretive flexibility’ into a world of inflexible objects, of ‘pure causal relations’, of ‘strictly material connections’. That’s not at all what I am saying. I would say that this computer here on this desk, this screen, this keyboard, as objects, this school are made of multiple layers, exactly as much as you, sitting here, are: your body, your language, your questions. It’s the object itself that adds multiplicity, or rather the thing, the ‘gathering’. When you speak of hermeneutics, no matter which precaution you take, you always expect the second shoe to drop: someone inevitably will add “but of course there also exist ‘natural’, ‘objective’ things that are not interpreted”.

S — That’s just I was going to say! There are not only objective realities, but also subjective ones! This is why we need both types of social theories...

P — See? That’s the inevitable trap: ‘Not only but also’. Either you extend the argument to everything, but then it becomes useless — ‘interpretation’ becomes another synonym for ‘objectivity’ — or else you limit it to one aspect of reality, the human, and then you are stuck—

since objectivity is always on the other side of the fence. And it makes no difference if the other side is considered greener or more rotten; it's beyond reach anyway.

S — But you wouldn't deny that you too possess a standpoint, that ANT is situated too, that you too add another layer of interpretations, a perspective?

P — No, why would I 'deny' it? But so what? The great thing about a standpoint is, precisely, that you can change it! Why would I be stuck with it? From where they are on earth, astronomers have a limited perspective, for instance in Greenwich, the Observatory down the river from here — have you been there? it's fabulous. And yet, they have been pretty good at shifting this perspective, through instruments, telescopes, satellites. They can now draw a map of the distribution of galaxies in the whole universe. Pretty good, no? Show me one standpoint, and I will show you two dozen ways to shift out of it. Listen: all this opposition between 'standpoint' and 'view from nowhere', you can safely forget. And also this difference between 'interpretive' and 'objectivist'. Leave hermeneutics aside and go back to the object — or rather to the thing.

S — But I am always limited to my situated viewpoint, to my perspective, to my own subjectivity?

P — You are very obstinate! What makes you think that 'having a viewpoint' means 'being limited' or especially 'subjective'? When you travel abroad and you follow the sign 'belvedere', 'panorama', 'Bella vista', when you finally reach the breath-taking site, in what way is this a proof of your 'subjective limits'? It's the thing itself, the valley, the peaks, the roads that offer you this grasp, this handle, this take. The best proof is that two meters lower, you see nothing because of the trees, and two meters higher, nothing because of a parking lot. And yet you have the same limited 'subjectivity', and have exactly your very same 'standpoint'! If you can have many viewpoints on a statue it's because the statue itself is in three-dimensions and allows you, yes, allows you to turn around it. If something supports many viewpoints, it's just that it's highly complex, intricately folded, nicely organized, and beautiful, yes, objectively beautiful.

S — But certainly, nothing is objectively beautiful — beauty has to be subjective... taste and colour, relative... I am lost again. Why would we spend so much time here fighting objectivism then? What you say can't be right.

P — Because the things people call 'objective' are most of the time a series of clichés. We don't have much good description of anything: of what a computer, a piece of software, a formal system, a theorem, a company, a market is. We know next to nothing of what this thing you're studying, organisation, is. How would we be able to distinguish it from subjectivity? So, there are two ways to criticize objectivity: one is by going away from the object to the subjective human view point. But the other direction is the one I am talking about: back to the object. Why should we leave objects to be described only by the idiots?! Positivists don't own objectivity. A computer described by Alan Turing is quite a bit richer and more interesting than the ones described by Wired Magazine, no? As we saw in class yesterday, a soap factory described by Richard Powers in *Gain* is much more lively than what you read in Harvard Case Studies. The name of the game is to get back to empiricism.

S — Still, I am limited to my own view.

P — Of course, you are, but again, so what? Don't believe all that crap about being 'limited' to one's perspective. All of the sciences have been inventing ways to move from one standpoint to the next, from one frame of reference to the next, for God's sake: that's called relativity.

S — Ah! So you confess you are a relativist!

P — But of course, what else could I be? If I want to be a scientist and reach objectivity, I have to be able to travel from one frame of reference to the next, from one standpoint to the next. Without those displacements, I would be limited to my own narrow point of view for good.

S — So you associate objectivity with relativism?

P — 'Relativity', yes, of course. All the sciences do the same. Our sciences too.

S — But what is our way to change our standpoints?

P — I told you, we are in the business of descriptions. Everyone else is trading on clichés. Enquiries, polls, whatever—we go, we listen, we learn, we practice, we become competent, we change our views. Very simple really: it's called field work. Good field work always produces a lot of new descriptions.

S — But I have lots of descriptions already! I'm drowning in them. That's just my problem. That's why I'm lost and that's why I thought it would be useful to come to you. Can't ANT help me with this mass of data? I need a framework!

P — 'My Kingdom for a frame!'. Very moving; I think I understand your desperation. But no, ANT is pretty useless for that. Its main tenet is that actors themselves make everything, including their own frames, their own theories, their own contexts, their own metaphysics, even their own ontologies... So the direction to follow would be more descriptions, I am afraid.

S — But descriptions are too long. I have to explain instead.

P — See? This is where I disagree with most of the training in the social sciences.

S — You would disagree with the need for social sciences to provide an explanation for the data they accumulate? And you call yourself a social scientist and an objectivist!

P — I'd say that if your description needs an explanation, it's not a good description, that's all. Only bad descriptions need an explanation. It's quite simple really. What is meant by an 'explanation', most of the time? Adding another actor to provide those already described with the energy necessary to act. But if you have to add one, then the network was not complete, and if the actors already assembled do not have enough energy to act, then they are not 'actors', but mere intermediaries, dopes, puppets. They do nothing, so they should not be in the description

anyhow. I have never seen a good description in need, then, of an explanation. But I have read countless numbers of bad descriptions to which nothing was added by a massive addition of 'explanations'! And ANT did not help...

S — This is very distressing. I should have known—the other students warned me not to touch ANT stuff even with a long pole... Now you are telling me that I shouldn't even try to explain anything!

P — Student, Student, I did not say that: simply that either your explanation is relevant and, in practice, you are adding a new agent to the description—the network is simply longer than you thought—or it's not an actor that makes any difference and you are simply adding something irrelevant which helps neither the description nor the explanation. In that case, throw it away.

S — But all my colleagues use a lot of them: 'IBM corporate culture', for instance, or 'British isolationism', or 'market pressure', or 'self-interest'. Why should I deprive myself of those contextual explanations?

P — You can keep them if this amuses you, but don't believe they explain anything—they are mere ornaments. At best they apply equally to all your actors, which means they are absolutely superfluous since they are unable to introduce a difference among them. At worst, they drown all the interesting actors in a deluvium of bad ones. As a rule, context stinks. It's simply a way of stopping the description when you are tired or too lazy to go on.

S — But that's exactly my problem: to stop. I have to complete this PhD. I have just eight more months. You always say 'more descriptions', but this is like Freud and his cures: indefinite analysis. When do you stop? My actors are all over the place! Where should I go? What is a complete description?

P — Now that's a good question because it's a practical one. As I always say: a good thesis is a thesis that is done. But there is another way to stop than by 'adding an explanation' or 'putting it into a frame'.

S — Tell me it then.

P — You stop when you have written your 50.000 words or whatever is the format here, I always forget.

S — Oh! That's really great! So my thesis is finished when it's completed... so helpful, many thanks! I feel so relieved...

P — Glad you like it! No seriously, don't you agree that any method depends on the size and type of texts you promised to deliver?

S — But that's a textual limit, it has nothing to do with method.

P — See? That's again why I totally dislike the ways doctoral students are trained. Writing texts

has everything to do with method. You write a text of so many words, in so many months, for so much grant money, based on so many interviews, so many hours of observation, so many documents. That's all. You do nothing more.

S — Of course, I do: I learn, I study, I explain, I criticize, I...

P — But all those grandiose goals —you achieve them through a text, don't you?

S — Of course, but it's a tool, a medium, a way of expressing myself.

P — There is no tool, no medium, only mediators. A text is thick. That's an ANT tenet, if any.

S — Sorry, Professor, I told you, I have never been into French stuff; I can write in C and even C++, but I don't do Derrida, semiotics, any of it. I don't believe the world is made of words and all of that...

P — Don't try to be sarcastic, it doesn't suit the engineer in you. And anyway I don't believe that either. You ask me how to stop, I am just telling you that the best you will be able to do, as a PhD student, is to add a text read by your advisors and may be a few of your informants, three or four fellow doctoral students, to a given state of affairs. Nothing fancy in that. Just plain realism. One solution for how to stop is to 'add a framework', an 'explanation'; the other is to put the last word to the last chapter of your damned thesis.

S — I have been trained in the sciences! I am a systems engineer— I am not coming to Organisation Studies to abandon that. I am willing to add flow charts, institutions, people, mythologies, psychology to what I already know. I am even prepared to be 'symmetric' as you teach us about those various factors. But don't tell me that science is about telling nice stories. This is the difficulty with you. One moment you are a completely objectivist, naïve realist even —'just describe'— and the other moment, completely relativist —'tell some nice stories and run'. Is this not so terribly French?

P — And that makes you so terribly what? Don't be silly. Who talked about 'nice stories'? Not me. I said you were writing a PhD thesis. Can you deny that? And then I said that this so-many-words-long PhD thesis —which will be the only lasting result of your stay among us— is thick.

S — Meaning?

P — Meaning that it's not just a transparent window pane, transporting without deformation, the information about your study. Can you deny that? "There is no in-formation, only trans-formation", translation if you want. I assume that you agree with this slogan of my class? Well, then this is surely also true of your PhD thesis, no?

S — Maybe, but in what sense does it help me to be more scientific, that's what I want to know. I don't want to abandon the ethos of science.

P — Because this text, depending on the way it's written, will or will not capture the actor-

network you wish to study. The text, in our discipline, is not a story, not a nice story, it's the functional equivalent of a laboratory. It's a place for trials, experiments and simulations. Depending on what happens in it, there is or there is not an actor and there is or there is not a network being traced. And that depends entirely on the precise ways in which it is written —and every single new topic requires a new way to be handled by a text. Most texts are just plain dead. Nothing happens in them.

S — But no one mentions 'text' in our program. We talk about 'studying organisation, not 'writing' about it.

P — That's what I am telling you: you are being badly trained! Not teaching social science doctoral students to write their PhDs is like not teaching chemists to do laboratory experiments. That's why I am teaching nothing nowadays but writing. Really, I feel like an old fart always repeating the same thing: "describe, write, describe, write..."

S — The problem is that that's not at all what my supervisor wants! He wants my case studies to be generalisable. He does not want 'mere description'. So even if I do what you want, I will have one nice description of one state of affairs, and then what? Then, I still have to put it into a frame, find a typology, compare, explain, generalise. That's why I'm starting to panic.

P — You should panic only if your actors were not doing that constantly as well, actively, reflexively, obsessively: they too compare, they too produce typologies, they too design standards, they too spread their machines as well as their organisations, their ideologies, their states of mind. Why would you be the one doing the intelligent stuff while they would act like a bunch of morons? What they do to expand, to relate, to compare, to organise is what you have to describe as well. It's not another layer that you would have to add to the 'mere description'. Don't try to shift from description to explanation: simply go on with the description. What your own ideas are about your company is of no interest whatsoever compared to how this bit of the company itself has managed to spread.

S — But if my people don't act, if they don't actively compare, standardize, organize, generalize, what do I do? I will be stuck! I won't be able to add any other explanations.

P — You are really extraordinary! If your actors don't act, they will leave no trace whatsoever either. So you will have no information at all. So you will have nothing to say.

S — You mean when there is no trace I should remain silent?

P — Incredible! Would you raise this question in any of the natural sciences? It would sound totally silly. It takes a social scientist to claim that they can go on explaining even in the absence of any information! Are you really prepared to make up data?

S — No, of course not, but still I want...

P — Good, at least you are more reasonable than many of our colleagues. No trace left, thus no information, thus no description, then no talk. Don't fill it in. It's like a map of a country in the

16th century: no one went there, or no one came back, so for God's sake, leave it blank! Terra incognita.

S — But what about invisible entities acting in a hidden way?

P — If they act, they leave some trace, then you have some information, then you can talk about them. If not, just shut up.

S — But if they are repressed, denied, silenced?

P — Nothing on earth allows you to say they are there without bringing in the proof of their presence. That proof might be indirect, exacting, complicated, but you need it. Invisible things are invisible. Period. If they make other things move, and you can document those moves, then they are visible. Again: period.

S — 'Proof, proof'. What is a proof anyway? Isn't that terribly positivistic?

P — I hope so, yes. What's so great about saying that things are acting whose existence you can't prove? I am afraid you are confusing social theory with conspiracy theory —although, these days, I agree, most of critical social science comes down to that.

S — But if I add nothing, I simply repeat what actors say.

P — What would be the use of adding invisible entities that act without leaving any trace and make no difference to any state of affairs?

S — But I have to make the actors learn something they didn't know; if not, why would I study them?

P — You social scientists, you always baffle me. If you were studying ants, instead of ANT, would you expect ants to learn something from your study? Of course not. They know, you don't. They are the teachers, you learn from them. You explain what they do to yourself, for your own benefit, or for that of other entomologists, not for them, who don't care a bit. What makes you think that a study is always supposed to teach things to the people being studied?

S — But that's the whole idea of the social sciences! That's why I'm here at the LSE: to criticize the ideology of management, to debunk the many myths of information technologies, to gain a critical edge over all the technical hype, the ideology of the market. If not, believe me, I would still be in Silicon Valley, and I would be making a lot more money —well, maybe not now, since the bubble burst... But anyway, I have to provide some reflexive understanding to the people...

P — ... who of course, before you came, were unreflexive!

S — In a way, yes. No? They did things but did not know why... What's wrong with that?

P — What's wrong is that it's so terribly cheap. Most of what social scientists call 'reflexivity' is

just asking totally irrelevant questions to people who ask other questions for which the analyst does not have the slightest beginning of an answer! Reflexivity is not a birthright you transport with you, just because you are at the LSE! You and your informants have different concerns-- when they intersect it's a miracle, and miracles, in case you don't know, are rare...

S — But if I have nothing to add to what actors say, I won't be able to be critical.

P — See, one moment you want to explain and play the scientist, while the next moment you want to debunk and criticize and play the militant...

S — I was going to say: one moment you are a naïve realist —back to the object— and the next you say that you just write a text that adds nothing but simply trails behind your famous 'actors themselves'. This is totally apolitical. No critical edge that I can see.

P — Tell me, Master Debunker, how are you going to gain a 'critical edge' over your actors? I am eager to hear.

S — Only if I have a framework. That's what I was looking for in coming here, but obviously ANT is unable to give me any.

P — And I am pretty glad it doesn't... This framework of yours, I assume, is hidden to the eyes of your informants, and revealed by your study?

S — Yes, of course. That should be the value of my work —I hope so at least. Not the description, since everyone knows that anyway, but the explanation, the context they have no time to see, the typology... See, they are too busy to think. That's what I can deliver, and, by the way, at the company they are interested, and ready to give me access to their files, and willing to pay for it!

P — Good for you... What you are telling me is that in your six months of field work, you can by yourself, just by writing a few hundred pages, produce more knowledge than those 340 engineers and staff that you have been studying?

S — Not 'more' knowledge maybe, but different, yes, I hope. Shouldn't I strive exactly for that? Is this not why I am in this business?

P — I am not sure what business you are in, but how different is the knowledge you produce from theirs, that's the whole question.

S — It's the same kind of knowledge as all the sciences, the same way of explaining things: by going from the case at hand to the cause, and once I know the cause, then I can generate the effect as a consequence. What's wrong with that? It's like asking what will happen to a pendulum that has been moved far from equilibrium; if I know Galileo's law, I don't even need to look at any concrete pendulum anymore; I know exactly what will happen-- provided I forget the perturbations, of course.



P — Of course...! So what you are hoping for is that your explanatory framework will be to your case study what Galileo's law is to the fall of the pendulum— minus the perturbations.

S — Yes, I guess so, sort of, though less precisely scientific, naturally. Why? What's wrong with that?

P — Nothing, it would be great, but is it feasible? It means that, whatever a given concrete pendulum does, it will add no new information to the law of falling bodies. The law holds in potentia everything there is to know about the pendulum state of affairs. The concrete case is simply, to speak like philosophers, the 'realization of a potential' which was already there.

S — Is not that an ideal explanation?

P — That's just the problem: it's an ideal, and squared: it's the ideal of an ideal explanation. I doubt somewhat that your company subsidiary behaves that way. And I am pretty confident that you can't produce the law of its behaviour which will allow you to deduce everything as the realization in concreto of what was already there potentially.

S — Minus the perturbations...

P — Yes, yes, yes, this goes without saying... your modesty is admirable...

S — Are you making fun of me here? Striving for that sort of framework seems feasible to me ...

P — But is it desirable? See, what you are really telling me is that the actors in your description make no difference whatsoever. They have simply realized a potential —apart from minor deviations. Which means they are not actors at all: they simply carry the force that comes through them. So, my dear Student, you have been wasting your time describing people, objects, sites that are nothing, in effect, but passive intermediaries, since they do nothing on their own. Your fieldwork time has been simply wasted. You should have gone directly to the cause.

S — But that's what a science is for! Just that: finding the hidden structure that explains the behaviour of those agents you thought were doing something but in fact are simply place-holders for something else.

P — So you are a structuralist! Out of the closet, finally. Place-holders, that's what you call actors?! And you want to do Actor-Network Theory at the same time! That's stretching the limits of eclecticism pretty far!

S — Why can't I do both? Certainly if ANT has any scientific content, it has to be structuralist.

P — Have you realized that there is the word 'actor' in actor-network? Can you tell me what sort of action a place-holder does in a structuralist explanation?

S — Yes of course: it fulfils a function, that's what is so great about structuralism, if I have understood it correctly. Any other agent in the same position would be forced to do the same...

P — So a place-holder, by definition, is entirely substitutable to any other?

S — Yes, that's what I am telling you is so great.

P — But that's also what is so silly and what makes it radically incompatible with ANT: an actor that makes no difference, in my vocabulary, is not an actor at all. An actor, if words have any meaning, is exactly what is not substitutable for anyone else, it's a unique event, totally irreducible to any other. Except, that is, if you render one commensurable with another one by some sort of standardization —but even that requires a third actor, a third event.

S — So you are telling me that ANT is not a science!

P — Not a structuralist science, that's for sure.

S — That's the same, any science...

P — No! If information is transformation, Organisation Studies, Science and Technology Studies, Business studies, Information studies, Sociology, Geography, Anthropology, whatever the field, they cannot rely, by definition, on any structuralist explanation.

S — 'Systems of transformations', that's exactly what structuralism is about!

P — No way, my friend, since in structuralism nothing is really trans-formed. You don't seem to fathom the abyss that exists between it and ANT. A structure is just a network on which you have only very sketchy information. It's useful when you are pressed for time, but don't tell me it's more scientific. If I want to have actors in my account, they have to do things, not to be place-holders; if they do something they have to make a difference. If they make no difference, drop them, start the description anew. You want a science in which there is no object.

S — You and your stories... Eventful stories, that's what you want! I am talking about explanation, knowledge, critical edge, not writing scripts for soap operas on Channel 4!

P — I was getting to that. You want your bundle of a few hundred pages to make a difference, no? Well then, you have to be able to prove that your description of what people do, when it comes back to them, does make a difference to the way they were doing things. Is this what you call having a 'critical edge'?

S — I guess so, yes.

P — But, then, you would agree that it wouldn't do to provide them with irrelevant appeal to causes that make no difference at all to what they do, because they are too general?

S — Of course not; I was talking about real causalities.

P — But those won't do either because if they existed, which I doubt very much, they would have no other effect than transforming your informants into the place-holders of other actors, which you call function, structure, etc. So in effect they would be not actors anymore but dopes, puppets—even less than puppets since those are making their puppeteers do quite a lot of unexpected things... Well, anyway, you are making actors to be nothing: at best they could add some minor perturbations like the concrete pendulum which only adds slight wobbles.

S — ...

P — Now you have to tell me what is so politically great about transforming those you have studied into hapless, 'actless' place-holders for hidden functions that you, and you only, can see and detect?

S — Hmm, you have a way of turning things upside down... I am not so sure now. If actors become aware of the determinations imposed on them... more conscious... more reflexive... is their consciousness not raised somewhat? They can now take their fate in their own hands. They become more enlightened, no? If so, I would say that now, at last, in part thanks to me, yes, there are more actors now, fully.

P — Bravo, bravissimo! So an actor for you is some fully determined agent, plus a place-holder for a function, plus a bit of perturbation, plus some consciousness provided to them by enlightened social scientists? Horrible, simply horrible... and those folks want to do ANT! After you have reduced them from actors to place-holders you want to add insult to injury and generously bring to those poor blokes the reflexivity they had before and that you have taken off by treating them in a structuralist way! Magnificent! They were actors before you came in with your 'explanation'—don't tell me that it's your study that might make them so. Great job, Student. Bourdieu could not have done better...

S — You might not like Bourdieu very much, but at least he was a real scientist, and even better, he was politically relevant. As far as I can tell, you are neither...

P — Thanks. I have been studying the links between science and politics for about thirty years, so I am hard to intimidate with talks of which science is 'politically relevant'.

S — Arguments of authority don't intimidate me either, so your thirty years of study make no difference to me.

P — Touché... But your question was: 'What can I do with ANT'? I answered it: no structuralist explanation. The two are completely incompatible. Either you have actors who realize potentialities and they are not actors at all, or you describe actors who are making virtualities actual (this is Deleuze's parlance by the way), and that requires very specific texts, and your connection with those you study requires very specific protocols to work—I guess this is what you would call 'critical edge' and 'political relevance'.

S — So where do we differ? You too want to have a critical edge.

P — Yes, maybe, but I am sure of one thing: it's not automatic, and most of the time, it will fail. Two hundred pages of interviews, observations, etc. will not make any difference whatsoever just like that. To be relevant requires another set of extraordinary circumstances. It's an event. It requires an incredibly imaginative protocol. As great, as rare, as surprising as Galileo with his pendulum, or Pasteur with his rabies virus.

S — So what should I do? Pray for a miracle? Sacrifice a chicken?

P — But why do you want your tiny little text to be more automatically relevant to those who might be concerned by it—or not—than, say, a huge laboratory of natural sciences? Look at how much it takes for Intel™ chips to become relevant for mobile phones! And you want everyone to have a label 'LSE™ inside' at no cost at all? To become relevant you need extra work.

S — Just what I need: the prospect of even more work!

P — But that's the whole point: if an argument is automatic, across the board, all purpose, then it can't possibly be scientific. It's simply irrelevant. If a study is really scientific, then it could have failed.

S — Great reassurance, nice of you to remind me that I can fail my thesis!

P — You are confusing science with mastery. Tell me, can you imagine one single topic to which, for instance, Bourdieu's critical sociology, which you are so fond of, could possibly not apply?

S — But I can't imagine one single topic to which ANT would apply!!

P — Beautiful, you are so right, that's exactly what I think...

S — That was not meant as a compliment.

P — But I take it as a true one! An application of anything is as rare as a good text of social science.

S — May I politely remark that, for all your exceedingly subtle philosophy of science, you have yet to tell me how to write one...

P — You were so eager to add frames, context, structure, to your 'mere descriptions', how would you have listened to me?

S — But what's the difference between a good and a bad ANT text?

P — Now, that's a good question!

S — At last?

P — At last! Answer: The same as between a good and a bad laboratory. No more, no less.

S — Well, okay, um, thanks... It was nice of you to talk to me. But I think after all, instead of ANT... I was thinking of using Luhmann's system theory as an underlying framework— that seems to hold a lot of promise, autopoiesis and all that. Or maybe I will use a bit of both.

P — ...

S — Don't you like Luhmann?

P — I would leave aside all 'underlying frameworks', if I were you.

S — But, your sort of 'science', it seems to me, means breaking all the rules of social science training.

P — I prefer to break them and follow my actors... As you said, I am, in the end, a naïve realist, a positivist.

S — You know what would be real nice? Since no one seems to understand what is ANT around here, you should write a guide about it; that would make sure our teachers know what it is and then, if I may say, I don't want to be impolite... but they might not try to push us too hard into it... if you see what I mean...

P — So it's really that bad? Um, a guide?

S — See, I'm just a PhD student. You're a professor. You have published a lot, you can afford to do things that I can't. I have to listen to my supervisor. I simply can't follow your advice too far.

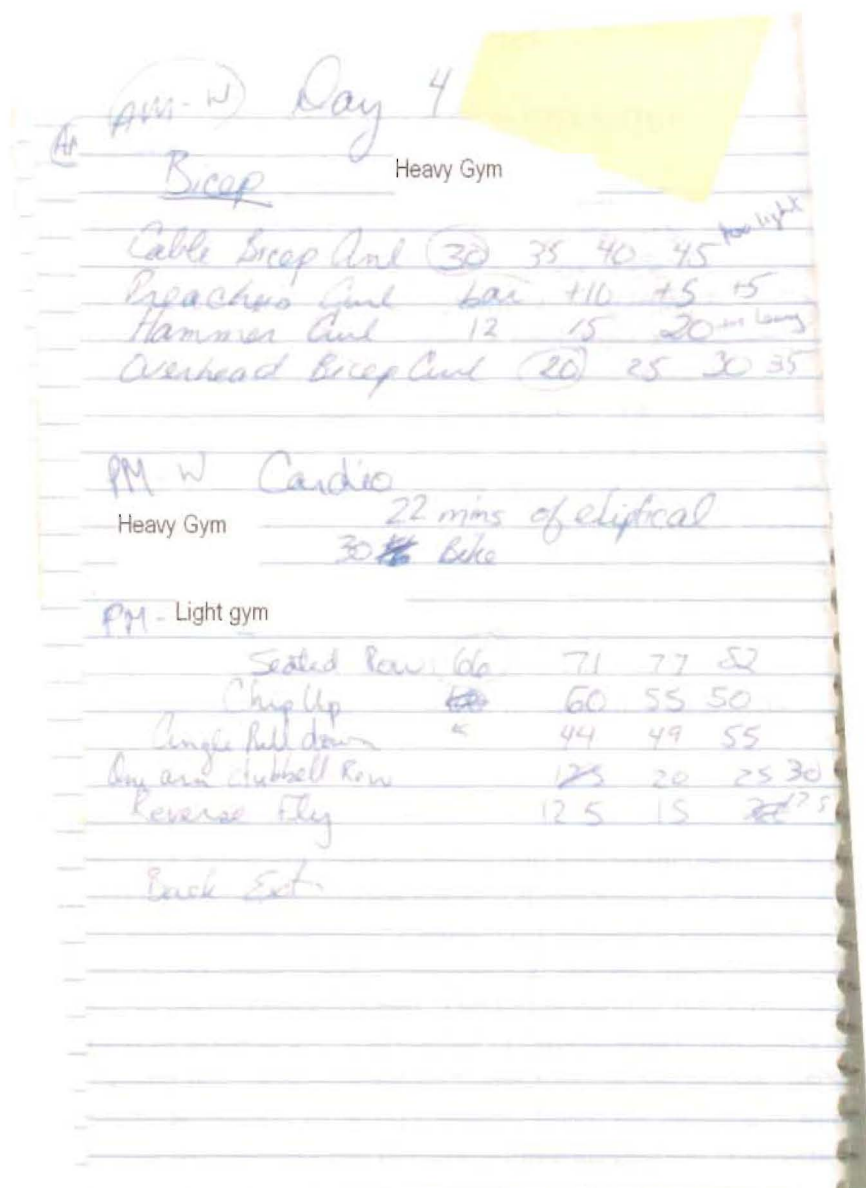
P — Why come to me then?

S — For the last half hour, I have to confess, I've been wondering the same thing...

The Social Study of Information and Communication Study, edited by C. Avgerou, C. Ciborra, and F.F. Land, Oxford University Press, 2004, 62-76.

## APPENDIX B – A5 Training Journal Entries

Day 3 - #13				
5 Bkto				
25 elliptical				
BACK AM Light Gym				
Seated Row (6lb)	71	77	82	
Chin Up	60	55	50	
Single Pull down	44	49	55	
Barbell Dumbbell Row	20	25	30	
Reverse Fly	12.5	15	17.5	
Back Ext	15	20	25	
CHEST PM Light Gym				
Smith Machine	65	70	75	80
Incline Dumbbell Press	25	30	35	
Decline	25	30	35	
Cable Fly	20	25	30	
Flat Dumbbell Fly	<del>20</del>	20	25	30
Tricep				
Cable Tricep Extension	75	80	85	90
One Arm Kickback	15	17.5	20	
Full Up	20	25	30	
Seated Dip	0	10	20	



## **APPENDIX C – IFBB Guidelines**

### **HOW TO ASSESS AN ATHLETE'S PHYSIQUE**

#### **1.1 General:**

When assessing a competitor's physique, a judge should follow a routine procedure which will allow a comprehensive assessment of the physique as a whole. During the comparisons of the compulsory poses, the judge should first look at the primary muscle group being displayed. The judge should then survey the whole physique, starting from the head, and looking at every part of the physique in a downward sequence, beginning with general impressions, and looking for muscular bulk, balanced development, muscular density and definition. The downward survey should take in the head, neck, shoulders, chest, all of the arm muscles, front of the trunk for pectorals, pec-delt tie-in, abdominals, waist, thighs, legs, calves and feet. The same procedure for back poses will also take in the upper and lower trapezius, teres and infraspinatus, erector spinae, the gluteus group, the leg biceps group at the back of the thighs, calves, and feet. A detailed assessment of the various muscle groups should be made during the comparisons, at which time it helps the judge to compare muscle shape, density, and definition while still bearing in mind the competitor's overall balanced development. The comparisons of the compulsory poses cannot be overemphasized as these comparisons will help the judge to decide which competitor has the superior physique from the standpoint of muscular bulk, balanced development, muscular density and definition.

#### **1.3 Assessing Prejudging:**

In assessing prejudging, overall shape and that of the various muscle groups is important. The judge should favour competitors with a harmonious, classical physique. The judge should look for good posture and athletic bearing, correct anatomical structure (including body framework, broad shoulders, high chest, correct spinal curves, limbs and trunk in good proportion, straight legs, not bandy or knock-kneed). The judge should also look for good skin tone with an absence of surgical or other scars, spots, acne or tatoos, which the IFBB considers as a skin blemish, tidily dressed hair, well-shaped feet, and toes. When having difficulty in placing two or more competitors who seem to be on the same level, the judge should look for faults in those aspects listed above which will help to differentiate among the competitors.

#### **1.4 Assessing the Female Physique:**

First and foremost, the judge must bear in mind that this is a women's bodybuilding competition, and that the goal is to find an ideal female physique. Therefore, the most important aspect is shape - a muscular yet feminine shape. The other aspects are similar to those described for assessing the male physique, but muscular development must not be carried to such an excess that it resembles the massive muscularity of the male physique. Definition of a woman's muscles must not be confused with emaciation resulting from extreme loss of weight. Competitors shall also be assessed on whether or not they carry themselves in a graceful manner while walking to and from their position onstage.

(IFBB Rules: Bodybuilding, Fitness, Body Fitness. 2006-2007 Edition. 52)



## **APPENDIX D – Daily Meal Journal**

<i>Wake</i>	<i>Multivitamins, Zinc, Chromium Picolinate, fish oils, cayenne pepper (half an aspirin when cardio)</i>	<i>6:00am</i>
<i>Workout</i>	<i>1 Litre of water</i>	<i>6:15am</i>
<i>Breakfast</i>	<i>Protein Shake (whey, creatine, glutamine)</i>	<i>8:20am</i>
	<i>1/2 cup of oatmeal</i>	<i>9:15am</i>
	<i>7 almonds</i>	
<i>Snack</i>	<i>Cheese</i>	<i>11:00am</i>
	<i>5 almonds</i>	
	<i>¼ avocado</i>	
	<i>Finish 2<sup>nd</sup> Litre of water</i>	
<i>Lunch</i>	<i>Large green salad (all greens)</i>	<i>1:00pm</i>
	<i>6 oz. chicken breast</i>	
	<i>Flax seed oil</i>	
	<i>Small baked potato (cold)</i>	
<i>Snack</i>	<i>Tuna</i>	<i>3:00pm</i>
	<i>Pepper</i>	
	<i>Celery</i>	
	<i>Lemon juice</i>	
<i>Workout</i>	<i>Finish 3<sup>rd</sup> Litre of Water</i>	<i>5:00pm</i>
<i>Snack</i>	<i>Protein shake (l-glutamine)</i>	<i>7:00pm</i>
<i>Dinner</i>	<i>White fish</i>	<i>8:00pm</i>
	<i>1 cup of steamed broccoli</i>	
	<i>Salad</i>	
	<i>5 almonds</i>	

## **Works Consulted**

Akrich, Madeleine and Bruno Latour. "A Summary of a Convenient Vocabulary for the Semiotics of Human and Nonhuman Assemblies," Shaping Technology, Building Society: Studies in Sociotechnical Change. Cambridge, Mass.: MIT Press. (259-264). 1992.

Aoki, Doug. "Sex and Muscle: The Female Bodybuilder Meets Lecan." Body & Society 2.4. (59-74). 1996.

Balsamo, Anne. Technologies of the Gendered of the gendered Body: Reading Cyborg Women. Durham, NC: Duke University Press. 1996.

Berg, Anne-Jorunn & Merete Lie. "Feminism and Constructivism: Do Artifacts Have Gender?" Science, Technology, & Human Values. Vol 20 No. 3. SAGE Publications Inc. (332-351). Summer 1995.

Berger, L. "Inside Out: Narrative Autoethnography as a Path Toward Rapport" Qualitative Inquiry, 7. (504-518). 2001.

Blinn, Tony. A Brief History of the IFBB: As Told Through Its International Congress Reports. www.ifbb.com. November 2007.

Brown, Steve and Nick Lee. "Otherness and the Actor Network: the Undiscovered Continent," American Behavioural Scientist, 36. (772-790). 1994.

Buzard, James. "On Auto-Ethnography Authority." The Yale Journal of Criticism 16(1). (61-91). 2003.

Callon, Michael. 'Actor-Network Theory – The Market Test' Actor Network and After Workshop. Centre for Social Theory and Technology (CSTT), Keele University, UK, <http://www.keele.ac.uk/depts/sst/sst/ant/callon.htm>, July 31, 1997.

Clandinin, Dr. Jean and F. Michael Connelly. Narrative Inquiry: Experience and Story in Qualitative Research. San Francisco, California: Jossey-Bass Inc., 2000.

Connors, E. and P. Grymkowski. The Gold Gym's Encyclopaedia of Bodybuilding. New York: NTC/Contemporary Publishing. 1998.

Crawford, L. "Personal ethnography". Communication Monographs. V63. (158-170). June 1996.

Delavier, Frédéric. "Women's Strength Training Anatomy." Human Kinetics. Paris: Editions Vigot, 2002.

Duncan, Margot. "Autoethnography: Critical Appreciation of an Emerging Art".

International Journal of Qualitative Methods. 3(4), Article 3. 2004.

Eisner, E. The Enlightened Eye: Qualitative Inquiry and the Enhancement of Educational

Practice. New York: Macmillan. 1991.

Ellis, C. "Evocative Autoethnography: Writing Emotionally about Our Lives."

Representation and the Text (115-139). New York: State University of New York Press. 1997.

Ellis, C. & Bochner. "Autoethnography, Personal Narrative, Reflexivity. Researcher

asubject." The Handbook of Qualitative Research. 2nd ed. (733–767). Thousand Oaks, CA:

Sage Publications. 2000.

Farnell, B.M. "Ethno-graphics and the moving body." Man. New Series, 29.(929-974).

1994.

Fussell, S.W. Muscle: Confessions of an Unlikely Bodybuilder. New York: Avon

Books. 1992.

Gans, H.J. "Participant Observation in the Era of 'Ethnography'". Journal of

Contemporary Ethnography. V28, n5. (540-548). 1999.

Geertz, Clifford. "Thick Description: Toward an Interpretive Theory of Culture". The Interpretation of Cultures: Selected Essays. New York: Basic Books (3-30). 1973.

Gilding, Anthony. & Arthur Tatnall. "Actor-Network Theory and Information Systems Research". ACIS (Australasian Conference on Information Systems), 1999.

Glesne, Corrine. Becoming Qualitative Researchers: An Introduction. 2nd Edition. University of Vermont: Adisson Wesley Longman, Inc., 1999.

Goodland, Terry. "The Scoop: Bad Judgement?" Vol. 9, Issue 05 (#81). Oxygen. (140-142). May 2006.

---. "The Scoop: On Choosing and Organization: Part II." Vol. 9, Issue 06 (#82). Oxygen. (164-166). June 2006.

Haraway, Donna. Simians, Cyborgs, and Women. New York: Routledge, 1991.

Hayano, D.M.. "Auto-ethnography: Paradigms, Problems, and Projects". Human Organization. V38, n1. (99-104). 1979.

Hayles, Katherine N. How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics. University of Chicago Press. 1999.

Heywood, Leslie. Bodymakers: A Cultural Anatomy of Women's Body Building. New Brunswick: Rutgers UP, 1998.

Holt, N. L., Representation, Legitimation, and Autoethnography: An Autoethnographic Writing Story. International Journal of Qualitative Methods, Article 2, 2003.  
[www.ualberta.ca/~iiqm/backissues/2\\_1/html/holt.html](http://www.ualberta.ca/~iiqm/backissues/2_1/html/holt.html).

---. Beyond technical reflection: Demonstrating the modification of teaching behaviors using three levels of reflection. Avante, 7(2). (66-76). 2001.

Honey, Kim. "Embraceable hues." Thestar.com. January 27, 2007.

Ian, Marcia. "From Abject to Object. Women's Bodybuilding." Postmodern Culture 1.3 September 7, 2001a.  
[http://muse.jhu.edu/journals/postmodern\\_culture/toc/pmcl.3.html#articles03](http://muse.jhu.edu/journals/postmodern_culture/toc/pmcl.3.html#articles03).

---. "The Primitive Subject of Female Bodybuilding: Transgression and Other Postmodern Myths". A Journal of Feminist Cultural Studies 12.3. 2001b.

Kamler, Barbara, and Pat Thomson. "Talking Down 'Writing Up' or tTn-E-mails Make a Conference Paper". Email #2. Australian Association for Research in Education, Annual Conference. University of Notre Dame, Fremantle Western Australia. 2-6 December 2001.  
<http://www.aare.edu.au/01pap/kam01166.htm>

Kennedy, Stacy. "The Birth of Figure." Vol 8, Issue 12 (#76). Oxygen. (108-100).

December 2005.

Klein, A.M. Little Big Men: Bodybuilding and Gender Construction. Albany: State University of New York Press. 1993.

Latour, Bruno. Science in Action: How to Follow Scientists and Engineers Through Society. Milton Keynes: Open University Press. 1987.

---. We Have Never Been Modern. Harvard University Press, Cambridge, MA. 1993.

---. Pandora's Hope: Essays on the Reality of Science Studies. Cambridge, MA; London, UK: Harvard University Press. 1999.

---. Reassembling the Social: An Introduction to Actor-network-theory. Oxford University Press, 2005.

Law, John. Networks, Relations, Cyborgs: On the Social Study of Technology.  
<http://www.lancs.ac.uk/fss/sociology/papers/law-networks-relations-cyborgs.pdf>. 2000.

---. "Objects and Spaces." Theory, Culture & Society. SAGE London. Vol 19 (5/6). (91-105). 2002.

---. "Traduction/Trahison: Notes on ANT." Centre for Science Studies, Lancaster University, Lancaster. [www.comp.lancs.ac.uk/sociology/papers/Law-Traduction-Trahison.pdf](http://www.comp.lancs.ac.uk/sociology/papers/Law-Traduction-Trahison.pdf). 2003a.

---. "Notes on the Theory of Actor Network: Ordering, Strategy and Heterogeneity." Centre for Science Studies, Lancaster University, Lancaster. <http://comp.lancs.ac.uk/sociology/soc054jl.html>. 2003b.

Law, John. and John Hassard. Actor Network Theory and After. Blackwell Publishers: UK, 1999.

Lenehan, Pat. Anabolic Steroids: And Other Performance-enhancing Drugs. Taylor & Francis, 2003.

Leppihalme, Ilmari. "Do Muscles Have a Gender?". University of Oulu. <http://www.hum.utu.fi/mediatutkimus/affective/leppihalme.pdf>. 2001.

Lewis, G. "The Beginning of Organized Collegiate Sport." American Quarterly, v22, n2(1). (222-229) 1970.

Lindlof, T.R. Qualitative Communication Research Methods. Thousand Oaks, CA: Sage Publications. 1995.



Lindsay, Cecile. "Bodybuilding: A Postmodern Freak Show." Freakery: Cultural Spectacles of the Extraordinary Body. New York: New York UP. (356-67). 1996.

Lowe, Maria R. Women of Steel: Female Bodybuilders and the struggle for self-definition. New York: New York University Press. 1998.

Lykke, Nina. Between monsters, goddesses and cyborgs: Feminist confrontations with science, medicine and cyberspace. London and Atlantic Highlands, N.J: Zed. 1996.

McBride, Neil. "Actor-Network Theory and the Adoption of Mobile Communications". Geography, Vol. 88 (4).(266-276). 2003.

Moore, P.L. Building Bodies. New Brunswick, NJ: Rutgers University Press. 1997.

Morgan, K. (1991). "Women and the Knife: Cosmetic Surgery and the Colonization of Women's Bodies". Hypatia, 6(3), 25-53.

Nirenberg, R. . Modes of Constructing the Masculine Body: An autoethnographic journey into competitive bodybuilding. M.A. Thesis. The Annenberg School for Communication, Philadelphia: University of Pennsylvania. 2001.

Paris, Bob. Gorilla Suit: My Adventures in Bodybuilding. New York: St. Martin's Press. 1997.

Patton, M. Q. Qualitative Research and Evaluation Methods (3rd ed.). Thousand Oaks, CA: Sage. 2002.

Pumping Iron. Dir. Butler, George. and Robert Fiore. Cinegate, 1977.

Pumping Iron II: The Women. Dir. George Butler. Perf. Rachel McLish and Bev Francis. Central Park Media, 1985.

Rader, Benjamin G. American Sports: From the Age of Folk Games to the Age of Spectators. Prentice-Hall. 1983.

Reed-Danahay, D.E. (Ed.). Auto/ethnography: Rewriting the Self and the Social. Oxford: Berg. 1997.

Schapman, David L. Sandow the Magnificent: Eugen Sandow and the Beginnings of Bodybuilding. University of Illinois Press. 2006.

Schön, D. Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions. San Francisco: Jossey-Bass. 1987.

Schwarzenegger, Arnold and Bill Dobbins. The New Encyclopedia of Modern Bodybuilding: The Bible of Bodybuilding. Simon & Schuster. 1999.

Scott-Dixon, Krista. "Cyborgs in the Gym: The Technopolitics of Female Muscle." Conference at Duke University, Durham, NC. Discipline and Deviance: Genders, Technologies, Machines. [www.stumptuous.com/dukepaper.html](http://www.stumptuous.com/dukepaper.html). Oct. 1998.

Shea, Christine B. "The Paradox of Pumping Iron: Female Bodybuilding as Resistance and Compliance". Women and Language. Urbana: Vol. 24 Issue: 2. Fall 2001.

Sparkes, A.C. "Autoethnography and Narratives of Self: Reflections on Criteria in Action". Sociology of Sport Journal, 17 (21-41). 2000.

---. "The Fatal Flaw: A Narrative of the Fragile Body-self". Qualitative Inquiry, 2 (463-294). 1996.

---. "Telling Tales in Sport and Physical Activity: A Qualitative Journey," Champaign, IL: Human Kinetics. 2002.

Spry, T.. "Performing Autoethnography: An Embodied Methodological Praxis". Qualitative Inquiry, 7 (706-732). 2001.

Stevenson, Craig. "The Evolution of Fitness." Oxygen. Vol 8, Issue 11 (#75). (114-120). November 2005.

Strauss, A. & Corbin, J. Basics of Qualitative Research: Grounded Theory Procedures and Techniques. London: Sage. 1990.

Walsham, G. "Actor-network Theory and IS Research: Current Status and Future Prospects" in Proceedings of the IFIP Tc8 WG 82 International Conference on Information Systems and Qualitative Research. Chapman & Hall Ltd., London, UK. (466-480). 1997.

Wayne, Rick. Muscle Wars: The Behind the Scenes Story of Competitive Bodybuilding. New York: St. Martin's P. 1985.

Wiegers, Y. "Male Bodybuilding: The Social Construction of a Masculine Identity." Journal of Popular Culture, v32 n2. (147-161) 1988.

Wolcott, H. Ethnography: A Way of Seeing. Walnut Creek, CA: Altamira. 1999.

Wolf, Naomi. The Beauty Myth. Vintage, London and New York, 1991.

Vandenberghe, Frédéric. "Reconstructing Humans: A Humanist Critique of Actant-Network Theory." Theory, Culture & Society. SAGE London. Vol. 19 (5/6) (51-67). 2002.

Van Maanen, J. Tales of the Field: On Writing Ethnography. Chicago, IL: The University of Chicago Press. 1988.