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Abstract

This article addresses a question posed within medical research about why different patients with anterior cruciate ligament (ACL) injuries experience different postrehabilitation knee function. Unlike the medical literature that focuses narrowly on rehabilitation, the study research shows that standardized rehabilitation programs are interpreted, experienced, and executed differently by participants. The authors argue that these differences are related to preinjury understandings of self and body, previous sport movement experiences, and differing faith in the physiotherapist and rehabilitation center's expertise. It is very likely that understanding how patients think about their embodied selves and their differing interpretations and executions of rehabilitation programs can contribute to a more useful understanding of different functionality and more effective rehabilitation program.

Keywords

phenomenology, rehabilitation, experience, ACL injury, qualitative interviews, functional ability

Introduction and Background

Medical research remains ambiguous about why persons who sustain injuries to their anterior cruciate ligament (ACL), the ligament that stabilizes the knee, experience different postrehabilitation stabilization abilities. Most of the literature on ACL rehabilitation focuses on athletes since athletes are most likely to sustain ACL injuries; thus, studies of knee rehabilitation is particularly important for sport studies. In their research on ACL injury rehabilitation, Noyes, Mooar, Matthews, and Butler (1983) and Rudolph et al. (Rudolph, Axe, Buchanan, Scholz, & Snyder-Mackler, 2001) use the concept "functional outcome" and claim that postrehabilitation functional outcome is uncertain and unpredictable. Fitzgerald et al. (Fitzgerald, Axe, & Snyder-Mackler, 2000) and Rudolf et al. (Rudolph, Eastlak, Axe, & Snyder-Mackler, 1998) call for more research into physiological and biomechanical issues in an effort to help explain functional differences. Notably, despite their reliance on these terms, the researchers do not clarify the definitions of "functional outcome" or "function."

Research using biomechanical measurements of the hip, ankle, and knee joint, and electromyographical measurements of the musculature in the lower extremities shows that, biomechanically speaking, all people move differently. Research results show no constant or reliable difference in movement strategies between patients who sustain an ACL injury and persons not injured (Rudolph, Axe, & Snyder-Mackler, 2000). However, some research has shown differences in movement patterns and muscular activity in the legs during walking, running, and jumping following ACL injury (Rudolph et al., 2000). Fitzgerald and Kelley (2000) claim that there is a limited understanding of the role of neuromuscular control mechanisms play in maintaining knee stability. Overall, the research related to biomechanical aspects and muscle activity does not provide clear or definite insight into why patients adapt to ACL injury differently (Rudolph et al., 1998).

This article contributes to academic discussions about different postrehabilitation function of patients with knee injuries, and more specifically, ACL injuries. Whereas medical research is typically guided by a narrow focus on knee stabilization, movement strategies, and/or muscular activity, we show that patients' interpretations, experiences, and execution of rehabilitation are intertwined with postrehabilitation functioning. In order to provide insights into how patients with ACL injuries interpret and practice and exercise their rehabilitation program, we analyze interviews and observations of persons with ACL injuries undergoing rehabilitation. The perspective taken by the researchers is that patient approaches to and experiences of rehabilitation are shaped by lived bodily processes, especially prior movement experiences (participation and/or sport-specific

training). By focusing on the lived-body experiences, we highlight social and personal dimensions of rehabilitation typically obscured by medical research.

Theoretical Perspective

We build on a perspective that recognizes the patient is a subject with capacities for personal and kinesthetic movement experience (Merleau-Ponty, 1962; Sheets-Johnstone, 1999). As Grosz (1994) writes, for Merleau-Ponty the body is both object (for others) and a lived reality (for the subject), it is never simply object nor simply subject. It is defined by its relations with objects and in turn defines these objects as such—it is “sense-bestowing” and “form-giving,” providing a structure, organization, and ground within which objects are to be situated and against which the body-subject is positioned (p. 8).

Movement constitutes a foundational significance in human life (Sheets-Johnstone, 1999), and kinesthetic and tactile consciousness is basic to perception. When injured, people’s personal and kinesthetic movement experiences change: taken-for-granted functions are disrupted and ingrained, and routinized, skillful coping mechanisms are destabilized (Todes, 2001). Sustaining an injury can lead a person to feel what the philosopher Svenaeus calls *unheimlichkeit*. Svenaeus argues that there are important connections between disease and the experience of being ill and between the assessment of disease and healing and the perspective taken on disease. We apply Svenaeus’s phenomenological insights to injuries. In this case, the injured person is not reduced to a biological body but is recognized as a living and experiencing body (Svenaeus, 2003). Movement and the lived body subject, as Zahavi (2002) suggests, can be expressed from a first-person perspective. Thus, we focus on the patients’ perspective on rehabilitation. We investigate patients’ expressions of their experiences and their articulation of these experiences in relation to the rehabilitation context and their prior movement experiences.

The Rehabilitation Program

In this study, patient rehabilitation took place at a medical sport clinic that is integrated within a commercial fitness center. Training equipment, ergometer bikes, and treadmills cover the training room floor. Injured and noninjured people train at the center. Most of noninjured are mostly older adults. The clinic is staffed by physiotherapists whose rehabilitation methods are based on the belief that neuromuscular training and increased muscular strength contribute to increased stability around the knee joint. The training program serves as ACL treatment, preparation for surgery, or postsurgery training.

The rehabilitation program includes balance, stabilization, and strength exercises. Patients perform rehab exercises for approximately 1 hour, twice a week, for 10 weeks. When and how to increase the number of activities and/or repetitions is decided by the physiotherapist in cooperation with the patient, on the basis of tests and assessments of the function of the patient’s knee joint. This increased stability resulting from the program should help persons with an ACL injury to avoid surgery. The decision about surgery for ACL repair is based on three tests (jump, muscle strength, and self-reports about movement skills) administered pre- and post-rehabilitation.

Material and Method

The study consists of interviews with and observations of 28 patients aged between 15 and 40 years. Of the 28 patients, 19 were men and 9 were women. All interviewees were sport participants with full or partial ACL ruptures. We conducted two 1-hour interviews with each patient. The first interview took place at the rehabilitation center 1 to 2 weeks after the patient started rehabilitation training and 3 to 4 weeks following the injury. The second interview was conducted at a patient-selected site, postrehabilitation, 9 to 12 months after the first interview.

The interview structure was inspired by Spradley (1979, 1980), Kvale (1996), Håvind (2001), and Rapley (2002). In accordance with Rapley, we regard the interview as a reciprocal and reflexive process “dependent on the local interactional contingencies in which the speakers draw from, and

co-construct, broader social norms” (p. 303). Interviews were tape-recorded and transcribed in full. Our analysis is based on the informants’ statements and our theoretical interpretations of the information they provided.

Results

All of the patients interviewed were driven by their desire to return to sport participation. In their interviews, patients recounted the importance of sports in their lives, often in terms of their fear of being unable to participate in the upcoming season. Yet their approaches to rehabilitation differed. We identified three key approaches to the rehabilitation taken by the patients. First, some patients moved through the exercise routine as quickly as possible to avoid being confronted with “problem bodies” (aging and vulnerable bodies). Second, some patients performed rehabilitation according to their own sense of what was most beneficial. Third, some patients were compliant—strictly following the physiotherapist’s directions and finding comfort in the program. The interviews elucidate patients’ different approaches and show how they are influenced by a complex blend of prior experience with movement, trust in one’s own expertise and body perception, confrontation with injured and aging bodies, the desire to return to sports, and a high trust in the physiotherapists’ expertise.

Efficiency and Speed: Avoiding Aging, Weak, and Vulnerable Bodies

The patients who emphasize moving through the program quickly are keenly aware of the local dynamics in the rehabilitation space. They are aware of other people in the training room and which training equipment was most and least used. These individuals were preoccupied with gaining access to and using as quickly as possible the pieces of equipment most in demand. These patients might even interrupt their exercise on one piece of equipment to gain access to the high-demand machine.

In some cases, patients explained their strategy as their response to boredom. One patient found the “training . . . really boring,” but continued with it “to avoid an operation. . . . This training is really monotonous . . . it is a kind of retiree’s life.” Another patient said, “It is just about completing the program. To work on strength training is so boring. I am used to participating in a team sport filled with action . . . but I know this is for my own good.”

Although it seems contradictory that patients used to training and participating in sports find rehabilitation training boring, Merleau-Ponty’s understanding of the body as both object for (others) and a lived reality (for oneself) helps us understand this apparent contradiction. It can be understood as an expression of the experienced difference between the objectified body trained through general exercises that are neither meaningful nor performed in a meaningful setting, and the lived reality in which patients as subjects engage in and identify with the world outside the centre, for example, in sports and social relationships. The effect of the standardized exercise program in which the patient and his and her circumstances are not considered meaningful in the exercise program leads to patients’ disengagement, which can be expressed as boredom.

Other interviewees expressed a more profound discomfort with the social world of the rehabilitation center. For example, one male hockey player explained his approach:

You have to be quick, and take [a machine when it’s] free, and you have to remember your program by heart, and you can do the exercises, and then you change around a little. You try to be smart and plan in relation to how you see the others train, and when there’s something free there, then okay I’ll take it and then jump quickly back to the other. So you have to be flexible, like, in how you go through your training program. If you follow that list of yours obediently, you may have to wait for ten minutes before that old lady is finished with her exercises that you also [should do].

Sassatelli’s (2000) research on identity and training spaces suggests that the attempt to finish training as quickly as possible can be understood as a strategy for avoiding confrontation with

“problem bodies” and picturing oneself as “old and weak.” Structuring training to complete it quickly to avoid weak and injured bodies is also a strategy to return to social space outside the rehabilitation center and to be oneself. This interpretation is supported by the following excerpt from an interview with a male hockey player:

The rehabilitation centre is a place for injured people. SATS [a commercial and popular fitness center] is somewhat more youthful, more fresh. . . . I think to myself, “That’s OK, and this is a training period.” I take it for what it is. It has, like, nothing to do with me as a person.

Some patients respond by isolating the experience of training, by isolating other bodies through simple, stark rhetorical oppositions, and by separating their rehabilitation and injuries from their social selves or how they imagine themselves in a broader sense.

The confrontation with weakened, older, and vulnerable bodies in the health clinic influences the way interviewed patients perceive being injured. Drawing on Svenaeus (2003), one can express this as a tension between living with the a diagnosed injury and the personal experience of having a knee injury. The injured persons experience themselves as primarily a biological “ACL body” (it’s not me) at the training centre and at the same time that they are the lived and experienced body. Whereas the rehabilitation center signifies their vulnerability, sport represents their personal experiences and positive associations. They are in a situation of feeling *unheimlichkeit* in life.

Self-Compliance: I Trust My Body and My Sense of What Is Right

Several of the patients we interviewed expressed surprise that the physiotherapists prescribed identical rehabilitation programs for everyone. By their view, different sports require different movements and the demands and movements required by different sports should shape the program. Some patients made working on different sport-specific movements a personal task outside of the rehabilitation program. As one male martial arts performer stated, physiotherapists may be the experts on injuries, but he (the martial artist) is the expert on his own body.

No, I have not received any help in how to train. . . . [The physiotherapist] is an accomplished trainer, so I’m sure he knows something. It was all musculature . . . only restoring musculature. Only weights, training with weights all the time in order to become strong. Balance was not a part of it. They said, “Do this, do that, do it like before,” and then they left. I had no problems lifting heavy weights, I don’t know either. When I was training, everybody around me was doing the same things, and there was little attention to the fact that they all came from different sports. It was strange, I thought, that everybody should do the same exercises.

Whereas the standardization of rehabilitation programs can be interpreted differently, for some, the lack of distinction clearly makes them doubt the program’s efficacy. This was particularly true of dancers and martial artists. One taekwondo practitioner stated: “I train in martial arts; they’re the world’s best sports, so therefore I try to remain on top of things, to keep up the pace.” Another martial artist explained, “The training at the center builds up my muscles, but really what’s meaningful for my rehabilitation is that I work hard. Train in taekwondo to build up kicks and fast movements and concentration. I have learned that through taekwondo.”

Yet another martial arts performer explained why he did not follow the rehabilitation protocol:

I have little time for my ordinary training [taekwondo]. That’s where I put my efforts. Since I usually train in taekwondo, my body is used to this training, and my knee will also get used to taekwondo eventually. . . . I have trained in taekwondo for so long, so I know how to train.

I trained for a short time there [the rehabilitation center] but then I cut back because I felt that my knee really started to hurt, my body is not used to surgery, so I took it slowly.

To take advantage of one's own kinesthetic awareness and to trust one's bodily knowledge (which from Merleau-Ponty's perspective is an expression of their being) has consequences. Specifically, in this case, it means that one is more likely to receive less attention from the physiotherapist. One physiotherapist that we interviewed made clear that he interpreted this patient's behavior as disinterest in the rehabilitation program and, therefore, put less time into the patient.

Compliant Patients

It is an explicit expectation from the rehabilitation center that patients will complete the prescribed training programs; and, most of the patients manage to fulfill it in different ways. Even the patients who find rehabilitation boring and view it as unrelated to the movements they need to be able to do in the sport they play, follow the prescribed program. One male snowboarder says,

I train according to what the physiotherapist says. . . . I always finish what he has given me, I do . . . It has nothing to do with snowboarding. . . . Training is the more boring part . . . but you become dependent on it, somehow, so you just have to train. . . . That was all that was in my head, like, getting well again. It was safe [to train] with the physiotherapist.

The patients who adhere most closely to the program relate to the physiotherapist as an expert and pay strict attention to his or her advice and comments.

I like him [the physiotherapist] a lot; he's a good guy. It's easy to be confident with him - he makes an effort. Calling him gives me such a feeling of calm. I find it really comforting. When he has said that it's okay, I trust that. I think it will be all right (male snowboarder).

Other patients we interviewed indicated that they decided to give full responsibility to the physiotherapist. A female handball player, for example, states, "I have decided to put great value in the physiotherapist." A male soccer player says, "I follow the plan. It is nice to have a given order to follow each time. You come here. Train 1½ hours and leave again."

These patients believe that the physiotherapist knows more about musculature than they do and can decide whether the knee functions well or not. Simply knowing that they can call the physiotherapist gives the patients a feeling of security. The patients who are more likely to develop this trust in the physiotherapists seem to be less aware of their own experience with movement as something they can activate while doing the exercises.

Close adherence to the program can engender a variety of feelings. One patient says that he felt like he was being used for tests, that it was very important for the training center and their research to include him, "but I do not get very much out of being here, so I doubt if I would fulfill [the program] if. . . ." The "if" refers to if he did not have to go through the training program in order to get the chance to have an operation in his knee. The institution's rules about going through their training program can be understood as an effect of institutional power, which influences the patients' choice to do the exercises.

Others express that they feel really safe doing the training they are advised to do because they know it is part of a research program and they have heard that the center is a competent place. A female basketball player says, "I try to get as much as possible out of it [the rehabilitation center], and because it is [part of a research program] I feel really sure that the supervision I get is the best I can get. I trust the program totally."

All of these patients share a strong drive to do the exercises and a feeling of loyalty to the rehabilitation program. However, there is great diversity in their reasons for fulfilling the program. The institutional ideas behind the program are woven into the patients' decisions and choices in

different ways. Some patients follow the program because they feel safe and trust the physiotherapist. Some do it for more strategic reasons because they know it is the only way to get an operation. Still others do it because the program is a part of a research program and they feel sure that because of that they are receiving the best possible care.

Summary and Conclusion

Our research demonstrates the importance of moving beyond the traditional medical approaches to rehabilitation by investigating and making visible patients' experiences and interpretations in understanding functional ability after an ACL injury. Moreover, this study's results problematize the idea that rehabilitation programs are methods for healing in and of themselves. Rehabilitation program may be standardized, but patients are not. In fact, as we have shown, some patients actively resist standardization. In other cases, patients appear to be performing the same exercises, but they approach and interpret the exercises differently. As we have shown, prior movement experience, preinjury self-understandings, rehabilitation space, and faith in expertise shape how patients exercise. Patient exercise performance cannot be separated from their interpretations of his or her own and expert knowledges, their personal moving style, and their social comfort in the rehabilitation space. These differences can be measured in results related to knee stability, muscle strength, jump tests, and the postrehabilitation functioning of the patients' bodies and muscles.

The analyses presented here show that individual experiences could be included in the dialogue between the physiotherapist and the patient in the rehabilitation situation. This is in accordance with national and international health strategies, where there is a strong emphasis on incorporating the perspective of the patient (Århus County Quality Division, 2003; Social og helsedepartementet, 1998; Social og helsedepartementet, 2000; Statens forvaltningstjeneste, 1997; Sundhedsministeriet, 1999; Timm, 1996; WHO, 2001).

Herbert and Bø (2005) state that it is difficult to assess the quality of an intervention before it is known whether it is effective. Our results suggest that the quality of an intervention is complex and cannot be separated from the patient's experiences and relationships, and context specificity. Thing (2004, 2005, 2006) has argued that the taboo about expressing emotions in rehabilitation programs is the effect of the treatment's neglect of the body's physical, mental and social dimensions. Thus, intervention effectiveness cannot be determined by considering the intervention as an isolated phenomenon.

As we have shown, some of the patients, most prominently those who do martial arts, have extreme confidence in their own body and express this confidence in the way they do the exercises. Cohen (2006) explains finding movement "inside" one's own body as a tactile-kinesthetic entity is born out in martial art practice. While such patients devote considerable energy to making sense of their own situation, their limited dialogue with physiotherapists or their trainers may leave them vulnerable. Research from physiotherapy (Schraver, 2003) shows that when patients contribute to or are even positioned as cocreators of their rehabilitation, they experience increased desire for and greater confidence related to movement. In particular, patients gain confidence in their ability to judge and to adapt training and movement to their life situations. Dialogue between patients and physiotherapists is a crucial part of this process.

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Bios

Nina Billenstein Schraver is an associate professor in the Department of Physical Education at the Norwegian School of Sport Sciences. She is also the founder and director of the consultant company Momentum Ltd., a company that is involved both nationally and internationally in developmental projects and consultancy work. Her research, teaching, and consultancy work revolve around change, anchoring, and learning processes with a special focus on the meaning of space, relations, and reflection. She specializes in movement in rehabilitation and learning processes.

Gunn Engelsrud is part-time professor at the Institute for Health and Society, Faculty of Medicine, University of Oslo, and Head of Department of Physical Education at the Norwegian School of Sport Sciences. She has recently published articles in *Dance Research Journal* 2008, *International Journal of Qualitative Studies on Health and Well-being*, and *Nordic Journal of Dance*. Her methodological expertise includes qualitative methods and phenomenology. Her research interests include the experience and performances of movement (yoga, fitness, dance)

improvisation, and martial arts).