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Participating in an exercise group after anterior cruciate ligament reconstruction (ACLR) is perceived to influence psychosocial factors and successful recovery: a focus group qualitative study

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Abstract

Objectives To explore the patients' experiences of participating in an exercise group following anterior cruciate ligament reconstruction (ACLR).
Design Hermaneutic phenomenological qualitative study of two focus groups.
Setting Outpatient care, private rehabilitation centre.
Participants Nine adults who had participated in an exercise group led by a physiotherapist following ACLR.
Results Three major themes emerged from the data: psychosocial factors, physical outcomes and identity of the exercise group. The most significant perception of engaging in an exercise group following ACLR was its influence on psychosocial factors, especially motivation, self-confidence and social support. The group influenced the participants' motivation, enjoyment and commitment to exercise during their rehabilitation. Social support, self-confidence and reassurance were mostly gained. The participants taking part in sport experienced the ACLR group as a substitute for sport trainings. The group was perceived to help enhance speed of recovery and facilitate the return to normal life, especially for participants with lower reported motivation and adherence to home-exercises. The authors interpreted that the subjective physical outcomes' improvements described by all the participants was potentially an increased level of self-efficacy.

The challenging role of the physiotherapist was highlighted as well as the promotion of shared accountability between patients and the group's leader. The exercise group's identity was questioned within the rehabilitation process, and the need for more knowledge of its existence in order to promote exercise group therapy was suggested.
Conclusion Participating in an exercise group therapy influences psychosocial factors such as motivation, self-confidence, social support, potentially self-efficacy and helps enhance a faster successful recovery following ACLR. Our findings indicate that participants with a lower reported adherence to home-exercises may especially benefit from it.

Keywords: Anterior cruciate ligament reconstruction; Exercise therapy; Exercise group; Qualitative research; Physical therapy modalities; Rehabilitation

Introduction

Anterior cruciate ligament reconstruction (ACLR) is a common surgical intervention and results in significant healthcare costs. Patients are mostly young and active, from recreational sport participants to professional athletes; therefore return to sport and leisure activities is an important objective of the rehabilitation. A high occurrence of suc-

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cessful impairment-based physical outcomes, such as knee range of motion, strength or stability, is reported in the literature. Despite these favourable results, a lower proportion of patients are able to return to their preinjury level of activity or sport participation [1]. While suboptimal physical outcomes may partially explain the less than satisfactory results of rehabilitation, psychosocial and contextual factors have been advocated to explain the discrepancy between successful objective impairment-based outcomes and the lower return to preinjury level of activity [1–5]. Motivation, adherence to rehabilitation, social support, fear of re-injury and self-efficacy seem to be essential to attain successful recovery following ACLR [6–12]. Rehabilitation following ACLR should therefore include interventions addressing these factors, and not only focus on physical factors [5,10,13,14].

Group exercise has been already proved to provide long-term physical and psychosocial benefits, such as increased motivation, self-confidence and self-esteem, as well as to provide social support for individuals affected by osteoarthritis (OA), peripheral neuropathy (PN), breast cancer, and in older people [15–18]. Group exercise might therefore be a relevant therapy to support individuals facing ACLR rehabilitation. To date, to the author's knowledge, it appears that no studies have explored the experiences of a group exercise following ACLR. Exploring people's experiences and perceptions of such an intervention may provide insight on how it influences rehabilitation. The present paper aims to answer the research question as follows: "What are patients' experiences of participating in an exercise group following ACLR?"

Methods

Design

A qualitative methodology, inspired by hermeneutic phenomenology and the interpretivist paradigm, was chosen as it enabled the researcher to explore and interpret the participants' unique lived experience, meaning and understanding of the exercise group [19,20]. Qualitative focus group design was selected as a method because it enabled the patients to speak about their experiences and promoted interactions, which may bring about richer information than individual interviews. This research was approved by the University of Brighton's Research Ethics and Governance Committee and by the appropriate Swiss ethics commission in April 2015. The participants gave written consent before data collection began.

Participants, therapists, centres

Contact details of all the potential participants who fitted the inclusion criteria of a minimum of four sessions of the ACLR exercise group's attendance between March 2014 and March 2015, were gained from the Swiss clinic involved in the study. Individuals with bone injuries or any complications requiring further surgery as well as knee multi-ligament reconstructions were excluded. For more information about the ACLR group's modalities, see Box 1.

Box 1: Description of the ACLR exercise group.

Modalities	One hour, once a week, participants gather to exercise under a physiotherapist's supervision.
Inclusion criteria to participate	A non-swollen knee, good knee mobility (120°/0° flexion/extension), and the ability to maintain a single leg stand, which usually concurred with the 6th–8th week post-surgery.
Type of training	Warm-up, circuit training focusing on increased strength, core stability and proprioception, cool-down. All exercises are adapted to the participants' level by the physiotherapist.

Two focus groups took place in summer 2015, lasted 60 minutes and were audio-recorded. Each participant completed a demographic questionnaire (see Table 1) and was assigned a code number to ensure the anonymization of data. The focus groups were facilitated by the study's main researcher with an independent observer in order to increase the overall trustworthiness of the study. Both were physiotherapists, respectively 6 and 4 years experienced in the musculoskeletal field (PT MSc/PT), working in the clinic where the exercise group took place. Neither of them had led the group within the previous year to avoid relationship bias between the participants and the researchers. Hermeneutic phenomenology considers the researcher as an integral participant of the study [20]. Therefore the main researcher completed a diary in order to better reflect on the data's interpretation in the light of her own pre-assumptions regarding the topic. The open-ended focus group's questions followed a semi-structured outline and were designed to invite participants to describe their experience in the ACLR exercise group (Box 2). This outline remained purposely similar for both focus groups in order to provide the same base for discussion with all participants. Data saturation was not expected according to the hermaneutic phenomenological methodology [20] and it would have been impossible to reach because the cluster of accessible patients was not indefinite.

Data analysis

Thematic analysis, following a systematic coding, was used to analyse the data [21]. Inductive coding, which highlighted the meaningful parts of the transcripts, was done separately for both focus groups.

The data were transcribed verbatim. The main researcher performed five rounds of coding which gathered the meanings together, in order to enhance the credibility of the analysis. Only the transcription and initial coding were performed in the original language (French) in order to better interpret the participants' dialogue. From the second round of coding, the data were translated in English. Between each round of coding, the data were discussed between the main researcher and

Table 1
Participants' individual characteristics.

Participant	Sex (F = female, M = Male)	Age	Practiced sports	Trainings per week	Number of group session attended	Type of surgery
No. 1	F	21	Tennis, handball	5	15	Hamstring tendon autograft (HT)
No. 2	M	25	Handball	4	12	HT
No. 3	M	25	Football	4	8	HT
No. 4	M	44	No	0	5	HT
No. 5	M	21	Cycling, running, motorcycling	2–4	6–7	Not mentioned
No. 6	F	30	Yoga, swimming	2	5	HT
No. 7	M	57	Not mentioned	1	6	Allograft
No. 8	M	51	Not mentioned	1	7–8	HT
No. 9	F	50	Swimming	1	Not mentioned	HT
Summary	3 females 6 males	Range = 21–57			Range = 5–15	8 HT grafts 1 allograft

Box 2: Focus group questions.
Considering the ACLR exercise group in which you participated:

- Write down three words that describe best your experience.
- What were your initial expectations of participating in the ACLR group?
- What did it mean to you to come and exercise each week in this group?
- Once you were participating, what was the main reason(s) for you to continue to attend the group?
- How did this group impact on your whole rehabilitation experience?
- How would you compare the group with the individual treatments and the home-exercises?
- Can you tell us about the interactions/relationships you had with the other participants?
- Can you tell us about the interactions/relationships you had with the physiotherapist leading the group?
- When and why did you stop the group?
- Retrospectively, did the group failed to bring you something you initially expected?
- What do you think was the most important aspect of your experience in the exercise group?

the observer to a common agreement to add confirmability to the findings. This process led to 19 sub-categories following the initial coding, then 5 categories, 6 sub-themes and 3 main themes.

Results

Participants

The authors initially contacted by email the 31 individuals who met the inclusion criteria. Nine participants consented to take part in the focus groups (3 females, age: 21–57 year). All participants reported that they returned to their previous level of daily activity or sport participation. Their path into the study is illustrated in Fig. 1. Individual characteristics are presented in Table 1.

The three main themes emerging from the patients' dialogues are developed below and summarised in Table 2.

Theme 1: psychosocial factors

Motivation

Motivation to exercise was reported by all participants as a major factor influenced by the group. The exercise group was positively perceived as an innovative and motivating treatment approach. Motivation, conveyed by both the physiotherapist leading the group and/or by the other group's members, was mentioned as the overall feeling experienced.

"Being in the group was enjoyable. Instead of exercising by myself. [. . .] It was different, less boring." (Participant 7)

"That was motivating because exercising with someone else is more fun than alone at the gym." (Participant 3)

Benefits on **mental health and well-being** were associated with motivation. Enjoyment, fun and pleasure were cited by the majority of patients. Two participants with a high self-reported rate of team sport participation (Participants 1 and 2, see Table 1) mentioned the group as a hobby and as a temporary substitute for sport training.

"It reminded me a bit of handball. Every Monday, I looked forward to attending the group, to see friends, and do a bit of. . .sport. Well, that was the only sport I could do at that time." (Participant 1)

"I missed my sport training sessions since the operation. That's why it felt so good to have something that replaced it." (Participant 2)

The exercise group was positively perceived as an **obligation to exercise** by seven participants. Individuals with a

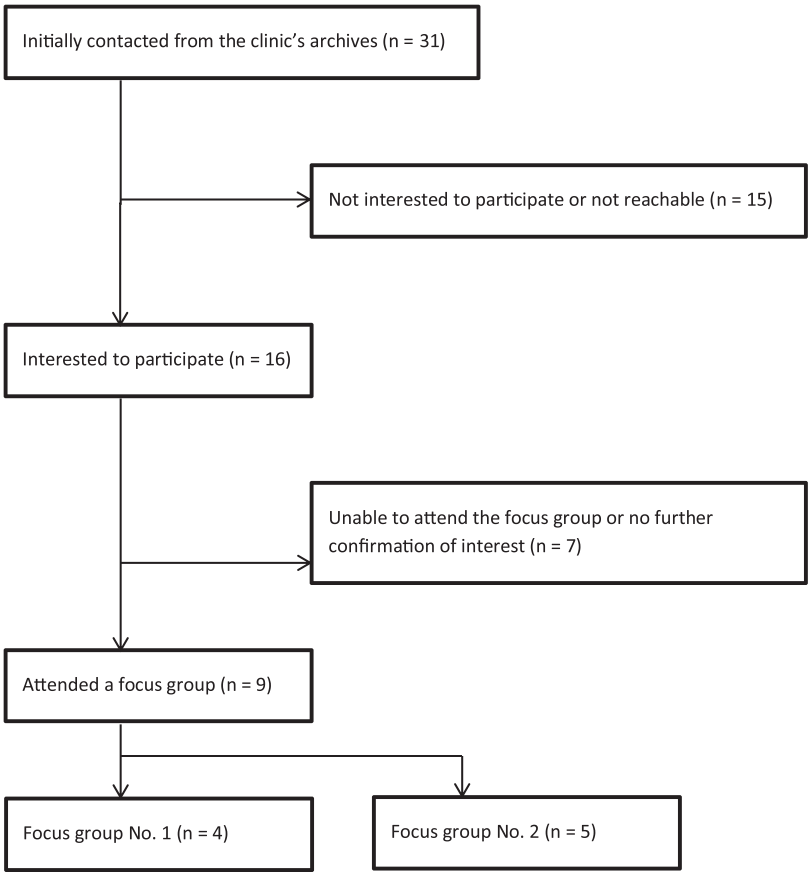

Fig. 1. Flow of respondents through the study.

Table 2
Themes and categories resulting from the analysis of the focus groups.

Themes	1. Psychosocial factors	2. Physical outcomes	3. Identity of the ACLR group
Categories	1.1 Motivation 1.2 Reassurance and fear	2.1 Speed of progression 2.2 Monitoring	3.1 The rehabilitation journey 3.2 Stakeholders' roles

self-reported low adherence to home-exercises specifically described benefits from this regular commitment.

"It forced me to come. Well, I didn't have to, really, but it forced me to come and exercise. I'm not sure that I would have exercised if I'd have stayed at home." (Participant 3)

However, the group was perceived as a duty which was not always easily compatible with daily activities. Pragmatic difficulties regarding personal or professional life, such as time schedules or transports, were experienced.

"I had to travel one hour to get here and one hour back home. So that was a real professional and personal commitment for me." (Participant 8)

Social interactions were described to influence motivation either positively or negatively.

Sharing experience and feelings with others, group members and/or the leading physiotherapist, was mostly described as form of positive social support. Participants who attended the group for longer appeared to be role models for the new members, regarding pain, activity's participation or the encountered difficulties.

"We talked with the others, in the changing room for example, that was friendly. We gave each other advice, comparing the exercises that we'd done and liked in the individual therapy." (Participant 1)

"I'm not sporty at all, and sometimes I felt bad during the exercises. But they [the physiotherapists] were great and supported me." (Participant 9)

For some participants, the comparisons with the other group members were experienced as a motivating feeling through competition with self and others. Some participants emphasized the group's facilitation to surpass, compete with others, and therefore push their limits further.

"Seeing the other participants performing difficult exercises pushes you to do the same. You always try to do better than the others. That's motivating." (Participant 3)

Comparison was also experienced as something demotivating in relation to the differences of physical abilities' levels among group members.

"When you have, in the same group, semi-professional football players, and me, who just play sport for fun, that's tough to follow the rhythm. This huge difference of physical abilities was really demotivating for me." (Participant 8)

The **group's cohesion and dynamics** was influenced both positively and negatively by the other members, the physiotherapist and contextual factors. The group's size and the physiotherapist's role to act as a cohesive element were highlighted to contribute to the overall conviviality and/or camaraderie.

"Depending what kind of person is in the group, you can either be super motivated, or on the contrary, really demotivated." (Participant 7)

"There were different dynamics [than the individual therapy]. There was music and we were doing different exercises. That was motivating." (Participant 6)

Reassurance and fear

The group's influence on **reassurance** and **increased confidence** was experienced by most participants. Difficulties in the transition between being fully active and independent to being disabled were highlighted. Reassurance was mainly related to the feeling of "*being not alone*", to the encouragement and support from the other members and the physiotherapist. Increased confidence was reported regarding the knee itself, but also more generally regarding overall self-confidence.

"At the beginning, people who were in the group for longer than me were able to do amazing things compared to me [laughs]! But they reassured me [. . .] and they explained to me how things evolved for them, and exactly the same happened to me later." (Participant 6)

"It helped me to gain self-confidence." (Participant 5)

"When you're in the group, it's good to talk with others, to compare, to see what is normal. Because when you exercise by yourself, you never know what's normal or not." (Participant 4)

In contrast, three participants with high self-reported sports participation mentioned a **fear of re-injury**, mostly triggered by pain, when returning to sports activities. Attending the group was not described to reduce fear of re-injury, which was related to the initial mechanism of injury.

"Basically, you're always afraid that it will break again. As soon as I feel the slightest pain I think 'Oh no, my ligament's torn again!"' (Participant 1)

"I don't think the group helped to reduce my fear of re-injury, because I was injured during a contact when I was playing football. And you don't have contacts in the group." (Participant 3)

Theme 2: physical outcomes

Speed of progression

An increased speed of progression was subjectively attributed to the exercise group's participation for seven participants. They all mentioned that without attending the group, the knee's outcomes such as pain, strength, and mobility would have not improved so fast. These benefits were especially emphasised by participants with a lower self-reported commitment to home-exercises.

"I could see the difference from one session to the other. For example I could maintain a position longer, or at first I couldn't do an exercise at all and then I could, step by step. I found the improvement really fast." (Participant 6)

"Attending the group decreased my pain." (Participant 4)

"I think it really helped me to be physically stronger." (Participant 5)

Monitoring

Monitoring was described by the physiotherapist's presence, his or her ability to adapt exercises and to assess the physical outcomes' progression. It was perceived by all participants to be more accurate in the exercise group than in the home-exercises, but less than in individual physiotherapy treatments. The majority of participants highlighted better monitoring when provided by the same physiotherapist.

"When we had a new physiotherapist to lead the group, he didn't know us. Having the same physio each week is better, he knows you, and it provides a better monitoring." (Participant 2)

Theme 3: identity of the ACLR group

The rehabilitation journey

Attending an exercise group following ACLR was acknowledged to be untraditional and therefore an innovative therapy in Switzerland. The exercise group was perceived as **complementary to individual physiotherapy** treatments, and as a necessary and integral element of the overall ACLR rehabilitation.

"The group presented different dynamics, it's. . . how can I say. . . complementary I think [to individual treatment]." (Participant 9)

"For me it was indispensable for the overall rehabilitation. I would definitely do it again if I had to." (Participant 6)

The group's ability to facilitate the transition to **return to the preinjury level of activity** was highlighted by a majority of participants.

"I think the group was for me like a transition to normal life. The individual treatment was more useful at the beginning, but at the end [of the rehabilitation], the group was more important for me." (Participant 6)

Stakeholders' roles

The **physiotherapist's role** was emphasized to be challenging and multitasking. All participants acknowledged the physiotherapist's ability to create the exercises, provide information and advice, adapt to each participant, and manage the group's interactions.

"The wide range of exercises allowed you to work at your level, it suited everyone." (Participant 5)

Thus, the need for **shared accountability** between participants and the physiotherapist was highlighted for the rehabilitation process.

"Of course the physio was always there to correct us. But I knew what I was allowed to do or not. Everyone had an individual physiotherapist and should have known what they could and couldn't do, according to the protocol." (Participant 1)

Need for more knowledge regarding the ACLR group was mentioned by five participants, who have been confronted with a lack of awareness concerning the group's content and existence by the stakeholders. A better interdisciplinary implementation of the group within the whole rehabilitation was suggested.

"When I asked for exercise group session's referral, my surgeon didn't know what it was." (Participant 4)

"People need to be told that group therapy exists." (Participant 8)

Discussion

The most important finding of this qualitative study was the influence, consistently reported by participants, of exercising in a group after ACLR on psychosocial factors, especially motivation to exercise, social support and self-confidence. The literature vastly highlighted the need for including physical but also psychosocial interventions in order to reach successful recovery and return to sport after ACLR [5–14]. Our findings support that the exercise group can fulfill this need for some patients.

In this study, motivation was the first factor mentioned by the participants to be positively associated with the exercise group. The group's impact on motivation was especially emphasised by the participants who reported a subjective lower adherence to home-exercises. This finding is essential in the ACLR context as it is known that motivation tends to reduce over time during rehabilitation and influences long term adherence to treatment [6]. Similarly, a study on people affected by peripheral neuropathy (PN) described perceived benefits on motivation to exercise following exercise group attendance, mentioning camaraderie and social support as being key elements to overcome the barriers to exercise [18]. In a clinical setting, it seems crucial to identify patients struggling with motivation and suggest them to participate in group exercise therapy as they may especially benefit from it in the long term.

Even if the majority of participants described a positive influence on motivation, one participant (no.8) mentioned demotivation. This demonstrates that individual perceptions and external factors, such as the group members and their physical abilities or the physiotherapist leading the group, can lower motivation for some patients. In a clinical context, physiotherapists should therefore pay extra attention to methods encouraging good relationships and positive dynamics in order to promote motivation. It is fundamental because it is known that motivation influences adherence to rehabilitation, which in return enhances return to previous level of activity following ACLR [5,9,22].

In the present study, all participants returned to their preinjury level of activity, even though three of them described fear of re-injury. Our findings stand somewhat in opposition with the current literature which states that fear of re-injury is one of the main reasons to not return to sport [3,5,14,22]. An explanation for this difference in findings could be the population that was studied. Our study's population was very heterogeneous, from elite and amateur athletes to sedentary people. Whereas studies that examine return to sport usually select elite athletes only. Besides fear of re-injury is of crucial importance because it influences the quality of life following ACLR in the long term [23].

Readiness to return to sport is not only influenced by fear of re-injury, but also by the confidence in performing a sport related task. A recent cohort study found that after five weeks of intensive group training following ACLR, readiness to return to sport and some functional outcomes significantly increased [24]. This could give clues on how similarly all our participants successfully returned to their preinjury level of activity, despite some fear.

Our participants described their fear of re-injury triggered by pain, but especially by the initial injury mechanism encountered. They reported that the group exercise did not decrease their fear because it did not focus on training exercises similar to the mechanism of injury. This highlights the need for sport specific training between the end of rehabilitation and return to sport for

patients who have high sports expectations. This psychological gap was also described by another qualitative study [25]. It emphasized the greater importance of psychological barriers than physical barriers when returning to sport. Di santi *et al*. concluded that the implementation of peer mentoring groups could help address these difficulties. Concurring with these observations, a study by Rosso *et al*. [22] showed that the adherence to an on-field rehabilitation programme post ACLR, consisting of a more functional sport-specific training, resulted in better subjective outcomes. The author explained an increase in athletes' confidence resulting from this functional training. Literature has already suggested the importance of social support in and out of the ACLR rehabilitation setting to build self-confidence [8,11,12].

The participants of our study mostly described increased confidence in the knee and in self, and a subjective faster speed of recovery promoted by the exercise group. The authors interpret that this wording is actually a demonstration of a higher level of self-efficacy. The word "self-efficacy" did not appear as such in the results section because the participants were not familiar with this theory and it was not specifically under research in the questionnaire outline. However, when the participants mentioned "self-confidence in self and in the knee" or "seeing the other participants as role models", the authors assume it refers to sources that build self-efficacy [26].

Self-efficacy has already been suggested to influence the adherence behaviours, symptoms' perceptions and speed of recovery following ACLR [10,27,28]. A higher level of self-efficacy leads to more chances to return to sport after ACLR [8,29]. Self-efficacy has also been shown to be a predictor of muscle function and symptoms at one year post surgery, and to have the strongest association with satisfaction in the long term [5,30,31]. Through our participants' dialogue, the authors can conclude that the exercise group likely had a positive influence of self-efficacy, and could therefore indirectly influence rehabilitation adherence and return to sport. For future research, asking specific questions about the participants' beliefs about their abilities or fulfilling the knee self-efficacy scale (K-SES) could help focus on this psychological factor [32].

The last theme of our findings highlighted the need for better definition of the exercise group's identity. A qualitative study about physiotherapists' and patients' perceptions has already reported the challenging but necessary therapist-patient shared goal-setting and decision-making [33]. The patient-practitioner trustful relationship has been suggested to be as a significant predictor for adherence to rehabilitation and clinical outcomes among individuals with musculoskeletal injuries [11,34]. This concurs with the present study's emphasis on the physiotherapist's challenging role and on the need for shared accountability, or collaborative process. The patient's active participation in rehabilitation was suggested to be influenced by his/her involvement in the decision-making regarding the treatment's content and preferences [33,35]. Attending an ACLR exercise group could be a treatment option that might better suit some patients and improve this collaborative process. According to the participants' overall opinions, emphasis should be put on the group's complementary role rather than on its substitution for the individual physiotherapeutic treatment. A systematic integration of the exercise group within the routine ACLR rehabilitation would benefit those who prefer exercising in a group.

This study concludes that participating in an exercise group following ACLR influences psychosocial factors, especially motivation to exercise, self-confidence, social support, and potentially self-efficacy. It supports that attending group sessions can contribute to overcoming some difficulties encountered in rehabilitation, as it was reported especially beneficial for those who struggle to keep motivation high and those with a lower reported adherence to home exercises. This delivery mode of exercises may broaden the scope of practice, better suit some patients' preferences and therefore enhance optimal recovery and return to sport.

For the future, better visibility of the ACLR group to the stakeholders would promote a better interdisciplinary and clinical management of patients, as well as facilitate its implementation in the routine ACLR rehabilitation.

Key messages

- Exercising in a physiotherapy led group following ACLR influences psychosocial factors, especially motivation, self-confidence, social support and potentially self-efficacy and therefore successful recovery and return to preinjury level of activity.
- Group exercise promotes exercise adherence particularly for those who initially have a lower motivation to exercise.
- In addition to individual physiotherapy treatments, exercise group sessions should be proposed to better suit patients' needs and preferences following ACLR.

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Conflicts of interest: None declared.

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