IMPLEMENTATION OF MINDFULNESS-ACCEPTANCE-COMMITMENT PROTOCOL FOR INJURED ATHLETES: AN ACTION RESEARCH STUDY

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ABSTRACT

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Mindfulness-Acceptance-Commitment (MAC) protocol has been implemented and studied for the purpose of performance enhancement with several positive results in the past 10 years. More recently, an increasing, but limited, number of MAC studies have also been done in the field of sport injury prevention and rehabilitation. Since MAC is a protocol with flexible implementation, sport psychology consultants, especially novice, can be confused by a wide range of its strategies. It is important to study implementation because it doesn't provide only information about the effect but also detailed contents and mechanisms of an intervention, which will reduce variability and fidelity of it. The purpose of this action research case study was to describe and evaluate implementation of the MAC protocol with injured athletes in a small group setting by a novice consultant. 4 injured athletes were included in a 6-session educational MAC program which was conducted in a period of 4 weeks. Data was collected by reviewing participants' assignments, semi-structured interviews, feedback questionnaires, and reviewing the consultant's reflective diary. Narrative and content analyses were used in the study. The results suggest that novice consultants who want to use the MAC protocol to work with a group of injured athletes should emphasize the importance of adequate case formulation, time management, creativity in facilitating strategies, experience of the approach and adaptation of the protocol to sport injury. Also, mindful movement technic was an effective tool. This study provides detailed description and evaluation of the program for consultants and future researchers to further develop mindfulness- and acceptance-based interventions for sport rehabilitation.

Keywords: mindfulness, acceptance, commitment, sport injury, action research

TABLE OF CONTENTS

1 INTRODUCTION

Athletes are generally viewed by others as physically strong and healthy people. They train their physical fitness and skills in order to perform better in their sports. However, sport situations such as, trainings, games and competitions can be physically demanding and challenging. This may be the reason why athletes have a risk of injury higher than normal exercisers (Brewer, 2009). When an athlete sustain an injury, it does not affect exclusively physical capabilities, but also contextual and psychological aspects (Santi & Pietrantoni, 2013). If these consequences are not dealt with properly, they can negatively affect the future of athletes. Studies have been done in order to understand psychosocial effects of sport injury on athletes, so that proper psychosocial interventions can be furthered investigated and implemented.

During rehabilitation, injured athletes tended to seek more emotional support from the staff in charge of rehabilitation as opposed to family (Carson & Polman, 2008), so it is important for staffs who work with athletes to be knowledgeable about psychological interventions and social supports or to seek help from sport psychology consultants. Several approaches, for example, problem solving, behavior therapy, cognitive-behavior therapy (CBT), acceptance-commitment therapy (ACT) and other mindfulness-based approaches, have been implemented for this matter. Traditional cognitive-behavior-based approach, such as goal setting, relaxation training, imagery and self-talk, has been a major approach used in sport psychology with evidence of benefits, however, when an individual uses it in a strongly controlled manner, its positive effects may decrease or it might cause negative effects for some athletes. Therefore, third-wave approaches, for example, ACT and mindfulness-based cognitive therapy, which add concepts of awareness of emotions and thoughts, and value to the cognitive-behavior approach, were developed and have received increasing attention. Most studies and implementations of the third-wave approaches have been done for a purpose of performance enhancement and they have shown promising results so far. Recently, more but limited number of studies has focused on the acceptance-based interventions for sport injury prevention and rehabilitation. In order to develop knowledge about psychological interventions for injured athletes who definitely experience some psychosocial consequences, this new acceptance-based approach should be explored more.

1.1 Psychological Response to Sport Injury and Rehabilitation Process

According to the biopsychosocial model (Brewer, 2007, 2009) (Figure 1), when an injury occurs, injury characteristics including the type, the location, the history of previous injuries, the cause, and the severity are factors that affect biological (tissue repair, circulation, immune function, etc.), psychological (personality, affect, behavior, etc.), and social-contextual aspects (social network, life stress, rehabilitation environment, etc.) of an athlete. In addition, an athlete's socio-demographic characteristics including age, gender, ethnicity, and socio-economic status, also have an effect on those three aspects. These biopsychosocial aspects of an athlete are factors that affect the biopsychological intermediate outcomes, which include the range of motion, the strength, the endurance, the joint laxity, the duration of the recovery and the pain perception. The intermediate outcomes, then, affect the injury rehabilitation outcomes, which are functional performance, quality of life, satisfaction of the treatment, and readiness to return to sport. Psychological factors also have a reciprocal relationship with biological factors, socio-contextual factors, intermediate outcomes and injury rehabilitation outcomes.

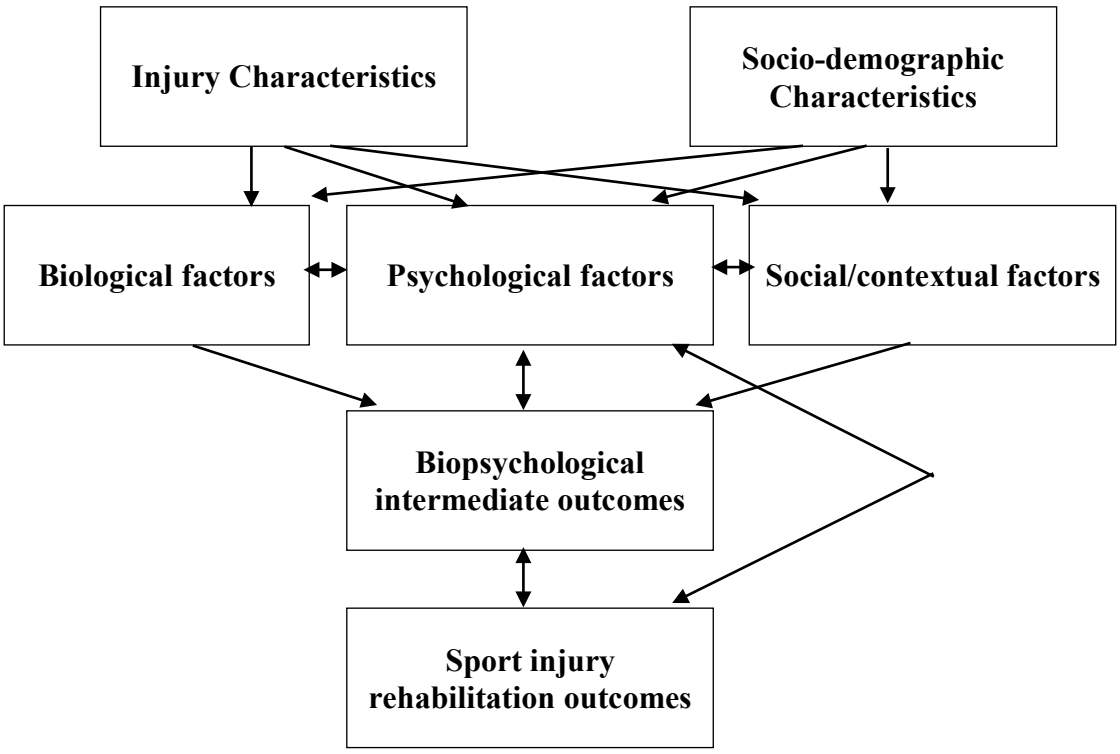

Figure 1. Biopsychosocial model (Brewer, 2007, 2009).

Brewer (1994) proposed the "cognitive appraisal model of psychological adjustment from athletic injury". to explain the relationships between different psychological factors and underlined how cognition plays a central role in determining individual reactions to sport injury. Later, Wiese-bjornstal, Smith, Shaffer, and Morrey (1998) revised this model and proposed their "integrated model of psychological response to the sport injury and rehabilitation process" (Figure 2). According to this model, personal factors (injury characteristics and athlete characteristics) and situational factors (sport, social and environmental agents) have an effect on cognitive appraisal of an athlete. Then, the cognitive appraisal determines emotional response of an athlete, for example, re-injury anxiety, depression, and positive attitude. The emotional response affect behavioral response of an athlete, such as adherence to the rehabilitation program, effort and intensity. Finally, these three psychological factors, cognitive appraisal, emotional response and behavioral response, affect and are affected by physical and psychological rehabilitation outcomes.

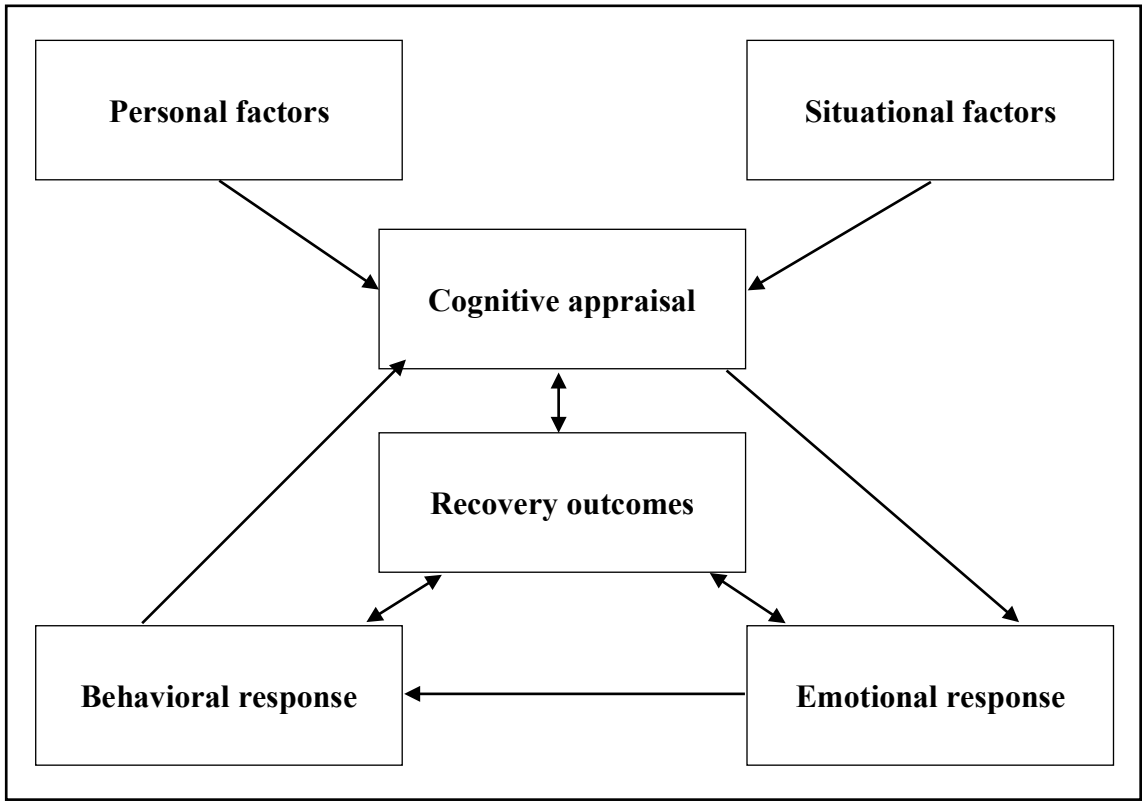

Figure 2. Integrated model of psychological response to the sport injury and rehabilitation process (adapted from Weise-Bjornstal et al., 1998).

Considering psychological stages of sport injury rehabilitation, the “affective cycle of injury” was proposed (O’Connor, Heil, Harmer & Zimmerman, 2005). Injured athletes experience three types of response to the injury. First, “denial” is the stage when an athlete refuses the consequences of the injury. It often occurs during the early phase of rehabilitation. Athletes may exhibit denial verbally or behave in a way that neglects or contradicts other important information about their injuries and rehabilitation. They may deny actual severity of injuries, consequences on their future careers and on their well-beings. Moreover, they may resist to collaborate with medical staff for the rehabilitation. Second, “distress”, which is also more common in the early stage, is characterized by experience of negative emotions after injury, such as anxiety, depression, anger, and fear. It can also happen during the later stage of the rehabilitation, for example, re-injury anxiety and loss of previous identity while trying to make a comeback. Lastly, an athlete begins to evaluate resources, set realistic goals, maintain commitment, focus on the rehabilitation program and cooperate with staffs, after overcoming denial and distress, when he/she has entered the “determined coping” stage. In other words, a passive attitude has been overcome and coping with the new situation has been established. Although this model is a stage model, it does not use a predetermined sequence. It can be used in relation to the fact that emotions, thoughts and coping changes at any time naturally.

In conclusion, during sport injury rehabilitation, whether in an early or a later phase, athletes experience several psychological effects. According to the models that have been proposed, injuries affect athletes’ coping mechanisms, emotional response, ways of thinking and behavioral response, which in turns influence rehabilitation outcomes. Moreover, psychological factors also have an effect on biological and social-contextual factors. Psychological interventions that help athletes to go through this psychologically-involved rehabilitation process optimally are as important as physical interventions and worth further exploration.

1.2 Mindfulness

Mindfulness is the English translation of the Pali term, sati, and the Sanskrit term, smṛti, in Buddhism. An operational working definition of mindfulness is the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment (Kabat-Zinn, 2003). It

is originally a Buddhist practice to examine who we, as human beings in this world, are. Initially the Buddha practiced meditation to find greater satisfaction and reduce, or even eliminate, suffering in life but found out that mindfulness is actually the heart of meditation. It wakes up people from our unconscious and automatic actions and behaviors, often driven by deep-seated fears and insecurities, which may fail us to live lives in ways that would lead to greater satisfaction and happiness (Kabat-Zinn, 1994). In other words, if we simply live in the present moment and pay attention to the unfolding experience with non-judgmental attitude, we will be able to live our lives meaningfully with satisfaction and happiness, even when we face with any obstacles in lives.

According to the meaning of mindfulness, there is an unsurprising large number of methods to practice mindfulness because almost everything can be paid attention to but the most important part is the practice of the mind. Examples are mindful breathing, listening, seeing, other daily activities, such as washing a dish and brushing teeth, and physical related activities, such as waking and yoga. Several types of mindfulness-based interventions have also been practiced, for example, mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1982), mindfulness-based cognitive therapy, and Acceptance and Commitment Therapy (ACT).

In physical rehabilitation, mindfulness interventions have been investigated more in general clinical context than sport context. Benefits of mindfulness interventions have been found for patients in rehabilitation. In their scoping review, Hardison and Roll (2016) concluded that the strongest findings were for improvements in adaptation to illness or disability such as self-efficacy for disease management, increased quality of life, and acceptance of pain symptoms. These were not only immediately effective but also maintained effectiveness at follow-up at a clinically significant level. At least three experimental studies, using mindfulness for chronic pain, found a significant reduction in pain severity after participation in the interventions (Kabat-Zinn, Lipworth & Burney, 1985; McCracken & Gutiérrez-Martínez, 2011; Zangi et al., 2012). However, in a randomized trial (Wong et al., 2011), clients receiving the mindfulness intervention reported pain reduction was over time, but the amount of pain reduction was not significantly different from a control group. In stroke rehabilitation and transient ischemic attack patients, a systematic review (Lawrence, Booth, Mercer & Crawford,

2013) found four studies with a positive trend in favor of the benefits of mindfulness-based interventions across a range of outcomes including anxiety, depression, mental fatigue, blood pressure, perceived health, and quality of life. In another systematic review (Lazaridou, Philbrook & Tzika, 2013), it showed that mindfulness interventions, yoga and stroke rehabilitation have seldom been addressed, but found to have some positive results. Johansson, Bjuhr, and Rönnbäck (2012) applied an 8-week mindfulness-based stress reduction program (MBSR) for traumatic brain injury and stroke patients and found improvements in mental fatigue. John, Khanna, and Kotwal (2010) found significant improvement in disability, balance, fatigue, and depression after a 6-week yoga intervention.

1.3 Acceptance Commitment Therapy (ACT)

ACT is a third-wave cognitive behavioral approach and also a relatively new form of mindfulness and acceptance-based therapy recommended for psychological, behavioral, and performance difficulties. It is rooted in relational frame theory (RFT), which states that individuals make links between events and symbols so that each represents, at least partially, the functions of the other (Hayes, Barnes-Holmes, & Roche, 2001). The symbols connected to the event may also spread to other symbols through related terms. For instance, an athlete who experiences a sense of loss due to an injury during a competition may re-experience that sense again and also feel anxious while talking about it later. The sense of loss is connected to the language symbols of the injury event and a symbolic connection is also made between injury and anxiety because sense of loss triggers anxiety. Moreover, according to RFT, the function of symbols associated with events is often altered due to them being evaluated as "positive or "negative." Human beings tend to avoid negative experience, a phenomenon referred to in RFT and ACT as experiential avoidance (Hayes, Strosahl & Wilson, 1999). This phenomenon is reinforced by the immediate alleviation of uncomfortable experiences but often costs an individual general functioning and well-being in a long term. Maladaptive experientially avoidant behaviors are seen in an individual with psychological inflexibility.

The primary goal of ACT is to adopt a state of psychological flexibility, or the acceptance of emotional distress while simultaneously engaging in value-driven behavior (Hayes, Strosahl & Wilson, 2011). The practice of psychological flexibility combines six processes including contact with the present moment, acceptance,

cognitive defusion, self-as-context, values identification, and committed action (Hayes et al., 2011). ACT emphasizes the importance of being in the present moment because it allows for value-driven behaviors providing individuals with psychological flexibility (Hayes, Luonma, Bond, Masuda, & Lillis, 2006). Acceptance is a willingness to experience sometimes painful emotions in the service of pursuing performance related values that are personally meaningful (Gardner & Moore, 2007). If cognitive defusion, which is the unbinding of cognitions and contexts, is practiced, an individual's behaviors are likely to be determined by personal values (McCracken, 2006). Self-as-context is the perspective from which noticing happens (Harris, 2009). Awareness of this process allows an individual to view oneself as a being with transient experiences. Mahoney & Hanrahan, 2011). Values are defined as being chosen qualities of purposive action that can be attended to moment-by-moment. Uncovering values allows individuals to follow through with consistent behaviors (Hayes et al., 2006). These consistent behaviors that can be facilitated by any behavior change methods, such as exposure, shaping methods, and goal setting (Arch & Craske, 2008; Hayes & Duckworth, 2006) are called committed actions.

Similar to other mindfulness-acceptance based interventions, There are increasing evidences of ACT as an effective intervention to enhance athletes' performance and psychological well-being. However, less number of researches has been done to investigate the benefits for injured athletes during their rehabilitation process. In a study including 48 injured collegiate athletes, psychological flexibility was shown to have an influence on rehabilitation protocol adherence (DeGaetano, Wolanin, Marks, & Eastin, 2016). Moreover, Baranoff, Hanrahan, & Connor (2015) demonstrated, in their study of 44 athletes who had undergone anterior cruciate ligament surgery, that lower acceptance was predictive of more severe depression score and also associated with greater use of alcohol and other substances. These studies indicated that ACT theory has potential to facilitate the injury rehabilitation process. Furthermore, the application of case specific interventions has been studied in at least a couple of studies. Mahoney and Harrahan (2011) applied a brief, 4-session educational intervention using ACT with 4 injured athletes. They concluded that the injured athletes typically avoided the private events experienced during injury and engaged in emotion driven behaviors. An adapted ACT approach could help injured athletes accept private events and commit to rehabilitation behaviors, however, more could be done to address the needs of injured athletes.

Bennett and Lindsay (2016) conducted an ACT based intervention for a female hockey player experiencing post injury performance anxiety. They stated that it was important to be experienced and practiced in the methods prescribed. Moreover, the ACT model provided a necessary structure for each session in and around training. These qualitative studies demonstrated that acceptance-based intervention can be effectively implemented in various styles but its effectiveness may rely on the consultant's experience. Therefore, researches on the implementation are useful for consultants who want to develop their application skills.

1.4 Mindfulness-Acceptance-Commitment (MAC) approach

The MAC approach to performance enhancement is an acceptance-based behavioral intervention designed specifically for use with performance populations (Gardner & Moore, 2007). It draws heavily upon the ACT theory. For example, a tennis player, who avoids going to the net, even when there is a clear advantage, in response to negative thoughts after making several volley errors, is formulated as having experiential avoidance. The MAC approach promotes acceptance of one's internal experience, while at the same time focusing the performer on the contextually appropriate behavioral responses required to effectively navigate through life's ever-changing situations in order to fully engage in one's valued activities and achieve goals that really matter (Gardner & Moore, 2007). In addition, mindfulness practice is a foundation to performance enhancement works through four basic processes: 1) serves as an acceptance-based behavioral intervention, 2) positively influences the experience of emotion, 3) teaches individuals to see their own thoughts simply as thoughts and not absolute realities to which they must respond, and 4) promotes attentional focus onto necessary performance-relevant cues and contingencies instead of emotional stimuli and other internal processes. (Gardner & Moore, 2007)

The MAC protocol consists of intervention planning and 7 modules of intervention (Gardner & Moore, 2007). Before applying the MAC intervention to an athlete, case formulation is required. It allows an individually tailored MAC intervention to be developed for each client. The athlete's presenting problem, psychological and behavioral processes need to be evaluated and understood before the intervention is conducted. Basic elements that should be carefully assessed for the case formulation includes contextual performance demands, current performance development, relevant

situational demands, developmental issues, psychological characteristics, direction of attentional focus during performance (self versus task), cognitive responses, affective responses, behavioral responses, and readiness for change. After these elements have been understood, the consultant classifies the client's performance issues. The issues can be classified as performance development, performance dysfunction, performance impairment, and performance termination.

There are 7 modules, which are normally delivered in order, in the MAC protocol. In an individual consultation, the total duration of the intervention is not strictly limited but depends on the pace of each case. The modules are structured as follows:
Module 1: Preparing the client with psychoeducation
Module 2: Introducing mindfulness and cognitive defusion
Module 3: Introducing values and values-driven behavior
Module 4: Introducing acceptance
Module 5: Enhancing commitment
Module 6: Skill consolidation and poise—combining mindfulness, acceptance, and commitment
Module 7: Maintaining and enhancing mindfulness, acceptance, and commitment
In each module, several modes of intervention delivery are used in addition to verbal explanation, for example, metaphors, practical exercises, and written forms. In general, each module consists of a mindfulness practice in the beginning, a review of what the client has previously learned, the main content, a review of the session, and between-session assignments.

A growing number of empirical data suggested that the MAC can be effective in enhancing performance (Gardner & Moore, 2004, 2006; Wolanin, 2005). However, studies that focus on MAC and sport injury are still scarce. A MAC intervention for injury prevention study (Ivarsson, Johnson, Andersen, Fallby & Altemyr, 2015) with 41 junior elite soccer players, 16 and 19 years of age, in Sweden showed no statistically significant differences in injury rates between the MAC and the attentional control groups, but produced some practically significant results. To the best of my knowledge, there is no study focusing on the MAC protocol and injury rehabilitation at the moment. Nevertheless, since there were studies that showed promising results with ACT for sport

injury rehabilitation, the MAC protocol, which adopts the ACT theory as a basic principle, is a reasonable approach to be investigated in this context.

As a novice in the MAC protocol, or in most psychological interventions in the past, I am often confused with the implementation of it because of its flexible nature. Central to program quality are clear and well-defined objectives, well planned and executed training of instructors, and effective delivery of the program. Moreover, there are very limited researches on the implementation of the MAC protocol or even ACT. The scarce description of the content of interventions may introduce considerable variability in the extent to which the programmes are implemented and the fidelity of the interventions. Consequently, it is difficult to replicate the effective training strategies and practices, interpret study results and understand causal mechanisms. Doğan (2016) conducted an action research case study applying the MAC protocol with 16 athletes for the purpose of performance enhancement and discussed that the MAC protocol can be effectively implemented in a group setting. Several learning methods were highlighted in the study including a discussion in small group of 3-4 people, metaphors, games and videos. The use of metaphor in sport has received strong support (Anderson, Lau, Segal & Bishop, 2007; Lindsay, Thomas & Douglas, 2010). Considering that there are a couple of researches on the implementation of ACT, but not one of the MAC protocol, for sport injury rehabilitation, my thesis would provide an information, especially for novice instructors, on the implementation of the MAC program, and an addition to the current knowledge on acceptance-based approach for a small group of injured athletes.

2 PURPOSE OF THE STUDY

The purpose of this study was to adapt the original MAC protocol so as to implement the program with injured athletes, competitive and non-competitive, within group setting and to learn how to optimally deliver the process, as a novice consultant, by the program evaluation. The aims of the study were: (a) to develop a MAC-based program which helps athletes to cope with injuries; (b) to describe and evaluate the implementation both through the researcher's and the athletes' perspectives; and (c) to learn what facilitates and inhibits an effective MAC-based program for injured athletes.

3 METHODS

3.1 Research design

Educational action research case study was chosen for this study as a process to systematically examine the the implementation, the teaching and the learning process of the MAC program for injured athletes and make improvements within the context of the study. Action research was defined as any systematic inquiry conducted by teachers, administrators, counselors, or others with a vested interest in the teaching and learning process, for the purpose of gathering data about how their particular schools operate, how they teach, and how students learn (Mills, 2003). Suter (2006) expanded on this concept by asserting that classroom teachers who conduct such research are "reflective practitioners" who can make exemplary contributions to instructional improvement.

3.2 Participants

The program was advertised through verbal communication, posters, internet social media and emails. The inclusion criteria were a) athletes (competitive and non-competitive) and b) sustain at least one injury that affect the athlete's training physically or psychologically. The exclusion criteria were a) less than 15 years of age, b) unable to provide informed consent, c) unable to give an interview and d) unable to communicate in English. People who were interested were asked to provide information with regard to their involvement in sports, ongoing injuries and prior experience with mindfulness or acceptance-commitment approach to aid the planning of the program. The study was designed to have at least 3 but not more than 10 participants since they would have to take time to reflect on their own experience and also learn from the other's through discussion during each session. Initially, 7 participants were recruited by voluntary application. 3 of them withdrew from the study in the orientation session, which was the first session, before giving their consents. One of the remaining participants, who gave their consents to the study, completed the first half of the study but withdrew after that. In the end, there were 3 participants who completed the entire program, however, data from all 4 participants were analyzed. The participants' ages ranged between 23 and 30 years (mean = 25.5). There were 2 male and 2 female participants. 2 of the participants were competitive athletes (Finnish baseball and floorball; and TeamGym). Main sports of the other 2 participants, who were non-competitive athletes, were tennis and handball; and circus. 3 participants were Finnish and the other was Portuguese. 3

participants were students in the Faculty of Sport and Health Sciences at the University of Jyväskylä and the other was a midwife. (See Table 1)

participant	gender	age	occupation	type of sports	type of injury
1	female	30	midwife	circus	fracture 5th metatarsal bone, ankle sprain
2	male	24	student	tennis, handball	type II meniscus tear
3	female	23	student	TeamGym	knee dislocation
4	male	25	student	Finnish baseball, floorball	herniated nucleus palposus

Table 1. Demographic data of the participants

3.3 Background and Role of the Author

I had two roles in this study, an insider's role as a facilitator of the modified MAC program and an outsider's role a researcher, therefore, it is important to clarify my background which certainly had an influence on my implementation of the program and data interpretation. I got my M.D. in 2009 and then had practiced as a general practitioner for a year before I was in psychiatric residency training for three years. After getting my diploma, I practiced as a psychiatrist and an academic staff, teaching medical students general psychiatry, in a medical school for three years. Now I have been studying for my further Master's degree in sport and exercise psychology in JYU. I have previous experience in applying several psychological techniques and intervention including group therapy in clinical settings, individual psychotherapy, mostly brief supportive, in clinical settings, and self-development workshops to facilitate life skills in medical students and university staffs. I have three years experience in conducting classes for medical students. I have always been interested in psychological interventions and attended several workshops including mindfulness-based intervention, cognitive-behavioral therapy, Satir transformational systemic therapy and Acceptance Commitment Therapy (ACT) but my main interests are

mindfulness and ACT. During my first year of the Master's study at JYU, I took a 1 ECTS course on application of MAC in sport and exercise performance contexts. However, I had never conducted any class or workshop of applying psychological techniques in sport and exercise contexts yet, except for my training in classes. Also, I had never received any specific accreditation for my psychological intervention practice, except for my psychiatric diploma. My sport background also influenced my interest in mindfulness and acceptance-commitment approach in sport contexts. I was a tennis player and competed for my school and university in Thailand from 11 to 19 years old. This experience enabled me to understand some aspects of sport and athletic contexts. I had never experienced any injury that kept me from trainings or competitions but as a doctor I had treated patients with injuries or acquired disabilities who would have to cope with their consequences.

As for my background in mindfuness practice, I participated in one mindfulness retreat program in Thailand three months before the data collection. The program included five days of mindful movement practices in a group setting and individual discussions with the facilitator. Furthermore, as a Buddhist who was born and raised in Thailand, which has Buddhism as a main religion, I was taught mindfulness and meditation since I was a child and, also, when I was in the psychiatric residency training.

3.4 Procedure

The program started in November 2016 and was conducted for one month. There were 6 sessions of 90 minutes in total. All the sessions were conducted at 16.15 - 17.45. The schedule of the program were determined by asking the participants for common dates that most participants would be able to attend the sessions but there needed to be at least one free day between each session, preferably 5 - 7 days because the participants would be given instructions to practice and reflect on what they had learned between each session during the program. The program was also delivered as an elective course. The participants, who were students, earned 1 ECTS study credit for participation. Student participants needed to attend at least 5 sessions to complete the program and get the credit. There was no grading for any assignment.

All of the sessions took place in the classrooms of the Faculty of Sport and Health Sciences at the University of Jyväskylä. All the classrooms were a small conference

room type, not a lecture hall. They were intentionally selected because there would be practical exercises in which the participants would have to move around and discuss with the group in the sessions.

The program was planned by combining data from the original MAC protocol, a previous action research study on MAC program for athletes and exercisers, the researcher's experience and the information provided by the participants during the recruitment. The main structure of the program i.e. the sequence of topics of the program were similar to the original MAC protocol but the 6th module and the 7th module were combined together in the 6th session. The structure of the program can be summarized as follows:

1st session: Module 1
2nd session: Module 2
3rd session: Module 3
4th session: Module 4
5th session: Module 5
6th session: Module 6 & 7

In the first session, informed consent was obtained from the participants. English was used throughout the program. The aim of the program was to introduce mindfulness and acceptance-commitment concepts and practical exercises to the participants, so that they can be adopted and used to cope with injuries and other contexts of life. The learning process in the program was comprised of practical exercises (during-session and between-session), group discussions, written assignments and lectures. Participants were instructed to do a mindfulness practice in the beginning and between-session exercises in the end of every session. During each session, they were encouraged to actively reflect on what they had learned, discuss with the group and ask questions, as major modes of learning.

3.5 Data collection

Qualitative method was used to collect data in this study which were collected through (a) continuous observations of the activities, participants' reactions and discussions in the program which were recorded in the researcher's reflective diary, (b) exercise forms

that the participants completed doing and between each session, and (c) semi-structured interviews with the participants after the third and the last session of the program.

Reflective diary. The researcher, also served as a facilitator of the program, observed everything that had happened in each session including the process, the participants' comments, questions, reactions and behaviors, and the researcher's own thoughts, feelings, reactions and behaviors. After each session, I reflected on the observation and kept a diary and then used the data to plan the following sessions. In the end, there were eleven pages of the reflective diary in total.

Exercise forms. During the course of this study, the participants were given various forms to complete as exercises (See Appendixes). Some of them were completed in the sessions, others were between session exercises. Data provided in most of these forms were collected to assess perceptions, understandings and reactions of the participants, in addition to using them as parts of the learning process.

Semi-structured interview. Each participant were interviewed twice, after the third and the last session, except for Participant 1, who gave only the first interview because she withdrew from the program after the third session. The participants were asked about their experiences, evaluations of and perceived effects from the program. Moreover, in the final interview, they were asked to give feedbacks about some particular activities, exercises and materials that had been presented during the program. All the interviews were done by a Finnish interviewer who didn't involve in the program. because the participants may have felt uneasy if they had to answer questions about the program and the facilitator directly to the researcher. In addition, since 3 out of 4 participants were Finnish, it was easier for them to clearly communicate in their native languages. The other participant's interview was done in English.

3.6 Data analysis

Narrative analysis was done by, first, reviewing the program plan of each session and reading through my reflective diary, and then, making connections with the background information provided by the participants and between the events that happened during the program in order to create the case description. The background information about injury, past experience of mindfulness and expectation of the program was analyzed

beforehand using content analysis. After the whole program was described, content analysis was done again with data collected from the interviews, assignments and the reflective diary. The interviews that were conducted in Finnish were translated by the interviewer herself. Then all the interviews were transcribed and, with the other data sources, coded to find common themes regarding program implementation and evaluation. All the data were read through and analyzed using narrative analysis again in order to refine the case description, common themes and individual differences concerning the perceptions and the feedbacks of the participants. Moreover, during the whole process of this study, the research method and the data were also brought to discussion with supervisors and a peer group organized by the Master's program for the purpose of thesis development.

3.7 Ethical issues

In the beginning of this study, the participants were informed about the research project in detail verbally and also through a written consent form (See Appendix 1). They were clearly told that they had the right to not participate or to withdraw from participation at anytime. Furthermore, all the information given would be treated confidentially. Only the researcher, the interviewer and the supervisors would have access to it, however, some parts of it would be summarized and presented in a small peer group discussion for thesis development. The MAC protocol was developed from ACT theory and the concept of mindfulness which were supported by empirical researches as mentioned before, so it was an ethically appropriate approach to use in a research study. Furthermore, since injured athletes may face possible psychological effects of injury, the participants have had experienced them during the program. Although the MAC approach can be beneficial to the participants, I tried not to use many methods that might cause them psychological trauma, for example, confrontation and too much re-experience because the present program had an educational rather than therapeutic purpose.

3.8 Trustworthiness

Trustworthiness in qualitative researches is judged on four criteria including credibility, transferability, dependability and confirmability (Guba 1981). This study took each of them into consideration carefully.

Several methods was used to promote credibility of the present research. Narrative analysis and content analysis which are well established methods were adopted. The data were collected using triangulation which involved the use of different methods and the use of a diversity of informants. Specifically, the data collection strategies were semi-structured interview, assignment document review and researcher's reflective diary. The participants were diverse in their types of sport, gender and experience of mindfulness. Also, as a facilitator of the program, I tried to develop familiarity and establish a relationship with the group but kept the distance enough, for instance, by using the chat application only to communicate about the program, in order to get fruitful data without compromising my own judgement. Moreover, to help ensure honesty in the participants, they were given opportunities to withdraw from the study at any time and the semi-structure interviews were conducted by an outsider of the program. Because this was a Master's thesis study, it involved regular discussions with supervisors and peers which gave me different perspectives and challenged my assumptions. Furthermore, to give readers clear picture of the context of this study, my background and the program detailed description were provided.

In terms of transferability, despite the study was conducted in only one university in Finland for 1 cycle. the detailed description of the program was provided as many as possible to clarify the context for the readers enough to make a decision on transference. Moreover, as stated above, my background information and qualifications were also offered. Next, in addressing the issue of dependability of the present study, the research design, its implementation, the detail of data gathering, and the reflective evaluation of it were included in this text, so that a future researcher can repeat the work. Finally, to promote confirmability, triangulation strategies mentioned above were employed to reduce my bias. I also provided as many reasons underpinning the methods adopted in this study as possible.

4 RESULTS

4.1 Planning for the program

Before the first session, an email was sent to each participant, asking them to provide basic information about their main sports, level of competitions, current states of injury and reasons for attending this program. The information was used to modify the program delivery to be as much suitable for the participants as possible. As mentioned in the “Participants” section, the participants had various sport backgrounds and injury types but most of them (3 out of 4) required surgical treatment and were in their post-operative rehabilitation phases. Their reasons to participate in the program can be categorized as follows: (a) psychological concerns (e.g., “I'd like to learn how to change my attitude and way of thinking to a more positive direction”); (b) physical concerns (e.g., “I want to make sure that my foot heals as completely as possible”); (c) deepening knowledge (e.g., “I've attended already to some mindfulness courses, but i want to deepen my knowledge”); and (d) helping with the research (e.g., “I am always happy to contribute to friends' research projects”), however, there was no participant who only gave the last reason. Moreover, their experiences about mindfulness or acceptance commitment approach ranged from “no prior experience” to “already attended some courses”. As a result, I decided to plan the program as I would do with participants without any prior knowledge, for example, spending more time with the first few modules and explaining some specific terms, because it would be difficult for them to understand the concept if I followed the pace of the participants who had prior experiences. Due to the small group setting with nobody who knew one another well, I also planned to approach all emerging situations during the program with awareness not to explore and expose too many personal details of the participants. For instance, I chose not to push the participants to share their emotional experiences about their injuries or to explore about them deeper when there were signs of emotional discomfort on their body languages. However, whenever an exploration of a participant’s psychological experience was considered because it seemed useful for his/her own and the other’s learning process, the participant would be informed about the right to share or not to share.

4.2 Program description and evaluation of each session

In this section, the description of the MAC program implemented in this study will be presented and followed by the evaluation of each session, which consists of results from the data analysis of the semi-structured interview, participants' exercise forms and my reflective diary. The overall evaluation of the whole program will be presented after this section.

Session 1: Group Introduction and Preparation

Although the first session of this program was based on *Module 1: Preparing the Client With Psychoeducation* of the original MAC protocol, the first half focused on group introduction and orientation since it was the first time all the group members, the participants and I, met one another in the program setting. The participants were asked to sit on chair that were placed to form a circle line in the middle of the room, so that they can see one another. I, as a facilitator, also sat down in the circle to place myself as one of the group members.

After a little small talk and appreciation for their participation, I started the program by asking the group members to introduce themselves to the group one by one. They were asked to tell the others, as much or as less as they wanted to, about their names, main sports, injuries, expectation of the program, prior experience of mindfulness or acceptance-commitment approach, and anything else that they wanted the others to know. As I wanted the participants to feel more comfortable with the sharing process, I decided to introduce myself first before asking for a volunteer to be the second one who got to decide whether the direction of the following introductions would go clockwise or counter-clockwise. Most of the group members, including myself, were still a little awkward at the moment. There were a few signs, such as reluctance to speak English, shaking voice and avoidance of eye contact. However, we all introduced ourselves to one another with good amount of details and everybody was very attentive while listening. After this activity, I had an impression that the participants were expressive enough to go on without any additional ice-breaking activity.

Next, the program's schedule and group's policies were presented to the participants. The schedule can be seen in Figure 3. The group's policies were partly initiated by the facilitator before asking for agreements from the participants because there were several

important group setting-related issues to be addressed, for example, confidentiality within the group, punctuality and freedom to contact the facilitator. Moreover, there were also some recommendations that would facilitate mindfulness learning process, such as silence during practices, and asking for your own permission before doing anything. The latter was difficult to understand as some participants had to ask for a clarification. When someone ask for their own permissions, whether by saying out loud or not, before doing something, it can facilitate a process of being mindful of what they are about to do and prevent themselves from doing anything automatically without awareness. The participants agreed with all the policies mentioned and then were asked whether they had any additional policy for the group. No additional policy was brought up.

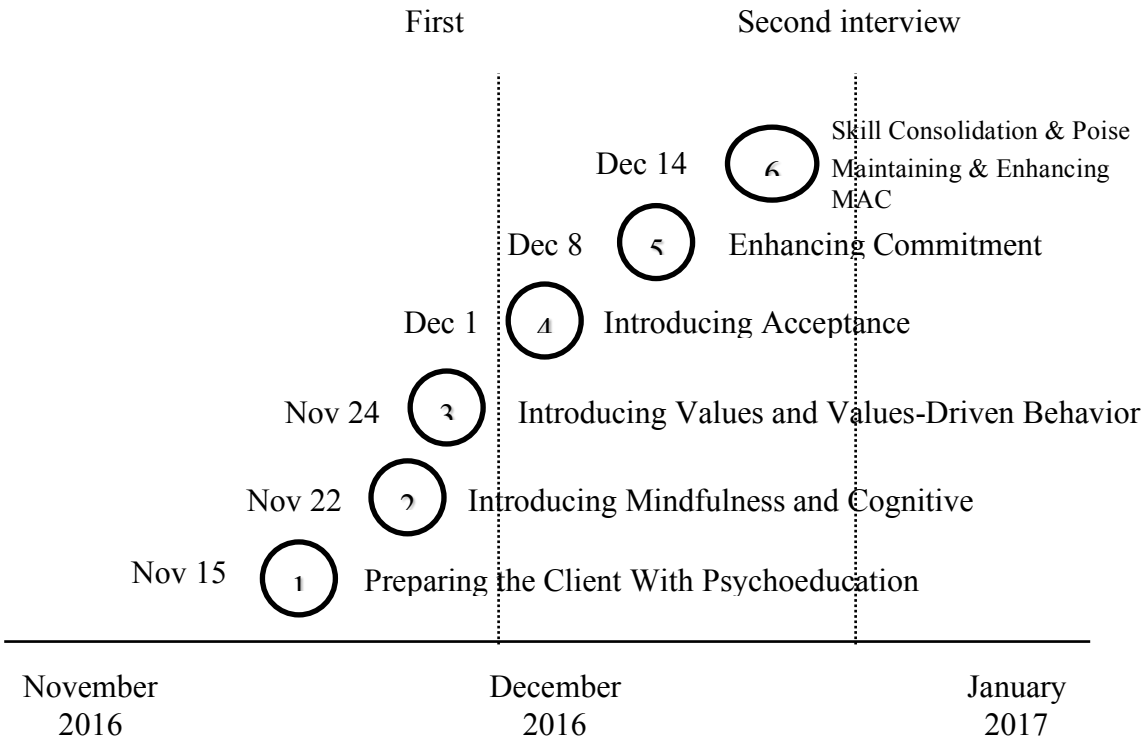

Figure 3. Schedule of the MAC program for injured athletes

Since MAC was a relatively new approach, especially in sport psychology, and it was different from the older and more common approach, psychological skill training (PST). For example, according to MAC, emotions and thoughts are internal experience that cannot be controlled, on the other hand, PST trains athletes to control or change them. Therefore, to prepare the participants for the concept that may be totally different from

what they used to believe, I decided to include a content, based on The Buddha's Charter of Free Inquiry (Kalama Sutta), which signifies a teaching that is exempt from fanaticism, bigotry, dogmatism, and intolerance **(**Thera, 1987**)**. The content comprised of 10 instructions, such as "be not led by tradition", "be not led by the authority of texts", and "be not led by the idea, this is our teacher". I used this content to create a receptive group learning atmosphere. After I had presented all 10 instructions, one of the participants asked me what they should trust or believe in since the instructions only suggested them not to be led by anything. I answered that it didn't mean that they shouldn't believe in anything. They can still believe in what they read or learn in the past but be aware not to be only led by their past experience which would limit their new learning experience. This topic was quite difficult for me to explain in English, especially when giving examples to clarify the concept and conveying the message, with which I was more familiar in my native language. Moreover, I added in the end that the participants should not be also only led by everything that would be presented in the program. From my observation, I assumed that the participants were still not totally clear about the concept but it was not the main idea of the program, so I decided to end the discussion at the time. It would have been clearer and can be more connected to mindfulness if we spent more time discussing about it in the end.

The preparation for MAC with psychoeducation began at this point. The main theoretical rationale for the program was presented. MAC is described as a means of helping clients to maintain attention and poise without any need to reduce, limit, or otherwise control naturally occurring internal experiences (Gardner & Moore, 2007). I presented simple comic strips (See Appendix 2) to give a clear picture of this concept. It was a drawing of 2 people , pushing a bubble (i.e. speech/thought bubble) containing their negative thoughts/feelings against each other. In fact, those two people were two separate selves of the exact same person. One wanted to control the negative thoughts/feelings, the other wanted to protect the right of an ordinary human being to think/feel as one would normally do in a negative situation. They represented conscious and unconscious reaction of an athlete respectively. In the following comic strip, another person who was playing floorball and try to call those two people to get their attention was included. This comic strips explained that athletes would suffer a loss of task-focused attention in their performance situations if they were busy using self-focused attention controlling their negative internal states. Task-focused attention,

which is required for functional performance (Barlow, 2002; Gardner & Moore, 2001; Rapee & Lim, 1992; Sbrocco & Barlow, 1996; Stopa & Clark, 1993), is attention to external stimuli, options, and contingencies. This is in contrast to self-focused attention which is attention toward internal thoughts and processes. Moreover, the definitions of attention and poise were clarified. MAC is a psychological intervention with the ultimate goal of performance enhancement through enhanced regulation of attention and poise. Attention is defined as the capacity to pay attention to task-relevant information as needed. Poise is defined as the ability to act in the service of values and goals despite negative internal states such as thoughts, emotions, and physical sensations that the client may be experiencing (Gardner & Moore, 2007). Then, the participants were asked whether they had any questions or experience related to the concept to share. One participant brought up an interesting question. He asked how the concept would be applied if thoughts/emotions were positive instead of being negative since athletes would not feel any need to push them away and prefer to have them during their performances. I answered him that, according to MAC, it may seem like thoughts and feelings, positive or negatives, should be avoided but that is not what MAC approach is. Instead, athletes can have any kinds of thoughts and emotions, however, if they get too attached with positive internal states, this can distract them from the task when they must deal with changing thoughts/emotions again because they will be busy holding on to their positive states. I had trouble explaining this concept at the time because I thought no matter how I tried to explain, it sounded like there are positive and negative sides of internal states that athletes should not possess. Therefore, I still thought that my explanation was a little judgmental and did not convey the concept of acceptance clear enough. I also saw some doubtful facial expressions on some of the participants, so I kept in mind that this topic would need more clarification in the following session. The primary goal of the MAC program, which is to allow one's skills and abilities to emerge automatically, with one's mind being quiet and focused on only the task at hand, was also explained to the participants.

Next, the participants were given the Performance Rating Form (See Appendix 3) and asked to complete it during the session. They were encouraged to add a domain related to injury rehabilitation in the Performance Domain column. The form was a little difficult for me to use when injury was a topic of focus because the main focus of the form was on performance but all the participants were all limited in this area which

made them difficult to think of other aspects of performance barriers rather than physical barriers.

The concepts of mindful awareness and mindful attention were first introduced to the participants after they had completed the Performance Rating Form. Mindful awareness is the process by which one learns to notice and accept a variety of thoughts and emotions as naturally occurring phenomena that are not necessary to control. Mindful attention is defined as the ability to self-regulate task attention. These two concepts are abstract and can be difficult to understand for anyone who is new to them. I used the comic strips I had presented in this session to give them clarification. However, I didn't think that the concept of mindfulness can be fully understood only by explanation, so a mindfulness practical exercise was introduced to the participants at this point. I decided not to use the Brief Centering Exercise as a core mindfulness practice of the program like the original protocol because, from my own experience, I found it quite difficult to understand and practice. I had been introduced to another mode of mindfulness practice, which was mindful movement practice, when I attended a mindfulness retreat in Thailand. It is a practice that was taught by a respectable Buddhist monk in Thailand. The participants were instructed to do 14-step movements of hands and arms. Between each step, there is a short pause to create enough rhythm of the movements to prevent the participants from doing them too automatically. They were also asked to observe anything that came into their mind, such as thoughts, feelings and judgments, then, just accepted them as they were without any need to get rid of them, and move their attention back to the current task which was the hand and arm movements. During the practice, I also did the movements to give a demonstration and, at the same time, observed each participant’s movements. If I found someone struggle or uncomfortable, which can be seen from body language, for example, facial expressions and stiffness, I would instruct them, without directing to a specific person, to observe those uncomfortable physical sensations, emerging thoughts/feelings and then direct their attention back to the task. The participants were encouraged to “be kind” to whatever , good or bad, came to their internal experience. The phrase, “be kind”, is used because it is an encouraging phrase with very little, if there is some, accompanying attempt to stop anything from happening. I chose this method as a regular mindfulness practical exercise for the participants because physical movement is easier than breathing, thoughts and emotions to sense, be aware of, keep participants awake, and use as an

anchor for mindfulness. This first mindfulness practice was approximately 5 minutes long with a discussion afterwards. Most participants found it a little difficult to follow the movements in the beginning and , so it distracted them from observing thoughts and feelings. However, when they were reminded to observe their physical sensations and internal experience, it gave them a sense of awareness. All the participants seemed to be able to learn the concept of mindfulness, at least partially, after this practice. The central conclusion of MAC and all acceptance based psychological interventions was presented to the participants in connection to the practice: "the struggle to be without distress is the problem, not the presence of these thoughts and feelings".

In the end of the session, the participants were informed about between-sessions practices and assignments. First, they were encouraged to do the mindfulness practice every day for at least 5 minutes and try to extend the duration. They were asked to discuss and make an agreement on one possible time that the group members would practice at the same time and we agreed on 21.00, so I would send a reminding message to the group members via a mobile chat application. Second, they were given the What I Have Learned About Performance And Myself Form (See Appendix 4) to complete after the session and we would have a group discussion in the following session. Finally, participants were given the Preparing for MAC handout (See Appendix 5). I ended the session approximately 5 minutes later than the schedule. All the participants seemed to be engaged to the session. They were willing to discuss and ask questions.

Evaluation of Session 1

All of the participants thought that this session was more of an introduction session to the program, rather than an introduction to what the content of the program would be. It was my intention to start the program this way in order to set the group's learning atmosphere to be cooperative and the pace not to be too fast for the beginners. As a result, I achieved in creating relaxing atmosphere, despite the fact that all of us had to communicate with a second language. However, more time could have been spent on introducing the whole picture of the program, so that the participants would be able to connect what they were about to learn in the following sessions easier.

The presentation of the operation of mind while pushing away thought and emotions was practical to the participants. They were able to relate it to their own experience. Using an illustration was beneficial when attempting to introduce this concept.

Session 2: Introducing Mindfulness and Cognitive Defusion

All the following sessions began with a mindfulness practical exercise. In this session, the mindful hand and arm movements were practiced for 5 minutes. After the exercise, there was a time for discussion on the practice and the What I Have Learned About Performance And Myself Form. I decided to spend as much time as needed, but no longer than 30 minutes, on this activity, which would later be in the beginning of each session because I wanted to allow the participants enough time to learn from and reflect on their experience. In this second session, the participants discussed about how difficult it was to keep their mind focus on the movements, especially when they became easy to follow. We came to a conclusion that it was actually the purpose of the exercise which was to be able to acknowledge any thoughts and feelings during the practice before they were able to bring their attention back to the task again. The fact that they were able to notice the themselves being distracted was actually one evidence of mindful moments. Also, we discussed about how the concept of MAC differs from the traditional strategy that focuses on changing negative internal states into positive ones. The latter seemed easier to practice for some participants but for others, to accept any states that happened was more practical to keep their focus on the task. I didn't make any conclusion at that time but suggested the participants to explore more whether high-level athletes or even themselves perform better when trying to change their negative states or just bringing their attention back to the task. After the discussion, the Preparing for MAC handout was reviewed with the participants.

Next, the simplified definition of "mindfulness", which is paying attention in a particular way (i.e. on purpose, in the present moment, and non-judgmentally) was presented to the participants. This was connected to the mindful hand and arm movement exercise to help the participants to better understand the concept of mindfulness. When we did the practice, we paid attention to the movements on purpose. By paying attention to the movements, it facilitated a process of being in the present moment. Moreover, we kept in mind that whatever came to our mind, negative, positive, or judgmental thought, we practiced to acknowledged them non-judgmentally

by simply move our attention back to the movements. The participants got a clearer picture of what mindfulness is after this explanation.

Then, the concept of "cognitive fusion and defusion" was explained by using comic strips. In this comic strips, a man was occupied by speech/thought bubbles over his head, containing various negative thoughts that happened after his injury, such as "I won't be able to make a comeback", "I always injure myself" and "others won't trust me". Afterwards, cognitive fusion was explained when those bubbles fused all over the man as if the negative thoughts were himself. To further explain this concept, the Dating Game was used. The participants were asked to write on their own pieces of paper 5 internal qualities of men/women whom they wanted to be in a relationship with. Then they were asked to pair up. One pair took on a role of a couple who met each other for the first time on a blind date and another took on a role of the couple's inner voices. The former pair was asked to talk to and get to know each other as much as possible since, according to their roles, it was the first time they had met. The latter pair was instructed to read what the other pair had written on their pieces of paper, so that they would be able to become the inner voices of the other pair. During the conversation of the dating couple, the inner voice pair had to continuously tell one of the couple how his/her partner didn't match his/her list of internal qualities. After approximately 3 minutes, the pairs changed their roles. The purpose of this game was to give a metaphor for a consequence of cognitive fusion. When the participants strongly held on to their own sets/thoughts of internal qualities of a preferred date, as if they were fused with their lives, during the conversation, there would be inner voices in their minds that disturb that present moment experience to get to know the person in front. As a result, instead of being able to focus on the task of getting to know the other person, they were more self-focused on their own fused thoughts.

On the other hand, cognitive defusion was clarified by separating those bubbles from the man's head to explain that they were just bubbles of thoughts, not who the man was and they can be "defuse" from himself. To facilitate experiential learning about cognitive defusion, the "I Have A Thought…" exercise was used at the moment. The participants were asked to write down on a piece of paper a sentence that states one thing that they didn't like about themselves by beginning the sentence with "I", for example, "I always injure myself", or "I have a bad backhand groundstroke". Then, they

were instructed to read their own sentence quietly and repeatedly. While they were reading, they were asked to observe their emerging thoughts, feelings and body sensation. Next, instead of beginning the sentence with “I”, a phrase, “I think” was used, for instance, “I think I always injure myself”, or “I think I have a bad backhand groundstroke”. Again, the participants were asked to read their own sentence and observe their states in the same manner as before. Lastly, the beginning of the sentence was replaced by a phrase, “I have a thought that” and the participants were instructed to do the same process as the first two steps. After the last observation, we discussed about the differences, if there were any, between those three sentences. As expected, all the participants felt less negative when the phrase, “I think” or “I have a thought that”, were used. They also understood the concept of cognitive fusion and defusion better. These two phrases can be applied to separate thoughts from self and, also, to facilitate the process of being mindful whenever thoughts come to mind.

Next, the participants were introduced to another type of mindfulness practical exercise which was the mindful walking practice. Throughout the program, the mindful walking exercise can be used as an alternative to the mindful hand and arm movement exercise. Using the same principle, the participants were instructed to simply naturally walk in the room with their arms and hands being kept somewhere, for example, in their pockets, by crossing them in front of their torsos, or by holding them together, so that they can focus only on walking. Then, while they were walking, they were asked to observe their internal states, acknowledge and be kind to them, and gently bring their attention back to the walk. During this practice, I also find a few moments to remind the participants verbally to notice their thoughts, feelings and body sensations without any need to judge them. After the practice, we had a short discussion. At first, I gave an opinion that the mindful walking is a good mindfulness exercise because it is a very simple activity, so it can be the first step before applying the concept to more advanced activities, such as during practices and competitions. A participant shared a very interesting different opinion. She discussed that it was more difficult for her to focus in this exercise because the task was very simple and, as a result, her mind was wandering a lot. I realized this fact and replied to the group that this was also a purpose of the exercise which is to do a simple activity and to observe what happens internally. The fact that she noticed her wandering thoughts was actually an evidence of the time when she was mindful. However, usually, people tends to judge themselves when being

distracted from the task and then preoccupied with thoughts again, so I encouraged the participants to kindly observe that natural phenomena of mind and allow their attention back to the task.

Before ending the session, all the topics of this session were briefly reviewed. The importance of practicing mindfulness exercises to develop the skill was emphasized. Between this session and the following session, the participants were assigned to complete the What I Have Learned About Performance And Myself Form and do the mindfulness practice, which they can choose whether they wanted to use the hand and arm movement exercise or the walking exercise, every day.

Evaluation of Session 2

It was this session after which the participants had a clearer picture of the MAC program. Some of them who were new to the concept found their first contact with mindfulness and its practices interesting. Both mindfulness and cognitive delusion were quite abstract and confusing to them in the beginning. They thought that I explained them well with practical examples but they were still not fully clear about the terms, which may have been because of the language used.

The pictures that were used to explain about cognitive fusion and defusion transmitted the message well. One participant gave this example during the interview: "…we are not (our) thoughts. They don't have to make who (we) are." Furthermore, the exercises delivered in this session were useful and clarify the concept nicely. The participants were able to identify with the "I Have a Thought…" exercise and found it simple to use. The "Dating Game" was fun and showed how thoughts can limit their present experience, however, a participants found it "…more fun rather than useful." This activity also facilitated the group's communication and relationship because it required them to interact informally.

Overall, after this session, the participants got to know more about mindfulness, experientially learn about a state of being mindful, and how to distance thoughts from themselves. A participant thought that something in this session could be used as a tool while working with injury, hence, there was no clear connection between the program and injury management for another participant.

Session 3: Introducing Values and Values-Driven Behavior

The session started with the mindfulness practical exercises which the participants were able to choose between the hand and arm movement or walking exercises, and they can also change in the middle if they wanted to. The duration was increased a little without notify the participants beforehand. In a group discussion after the practice, some participants said that they chose to do the hand and arm movement exercise at home, others decided to do the mindful walking exercise. Due to the short gap between last session and this one, only one day in between, the discussion focused more on the mindfulness exercises in the current session and the activities in the previous session. All the participants expressed their struggles to focus on their tasks because of both internal and external stimuli, for example, seeing another person passing by. However, this expression of struggles was an indicative sign of awareness, so I reassured and encouraged them that they actually had progressed with the practices, and the next step was to learn how to let those thoughts and feelings go without any need to judge them. The participants also discussed about the Dating Game which they had found interesting. They learned that their thoughts had associated with their past experience and they became judgmental if they were not mindful, so I added that this situation also hindered the learning experience of what was in the present moment.

Next, the participants were introduced to the concept and the definition of "values". First, they were asked about their own values of life in general and being an athlete. Although some of the participants found it difficult to give an answer because they were not sure about the definition of values, I encouraged them to bring up one that they were able to think of and there was no correct or incorrect answer since everybody can have one's own definition of words and I would present them the definition of values according to MAC later. A question about the difference between values and goals was also asked because these two terms can be confusing for the participants and it was important to know the difference in this program. After a short discussion, I used imagery to give an example of the difference between values and goals. The script of this imagery was a metaphor given in the original MAC protocol. The participants were instructed to imagine themselves as a driver who drove cross-country to begin a new job and compare two situations. One was a situation when they tried to go to the destination as quick as possible because they were excited. The other was a situation when they completed the trip more slowly and took the time to experience it. In this metaphor, the

destination is the goal and the journey is the value. It explained the difference between achievement of outcomes and day-to-day journey of life to the participants, respectively. After this imagery, a couple of participants expressed their negative feelings about experience of being on long-journey buses with their teams and they just wanted to get to the destinations as quick as possible. At that time I was struggling to further explain about the concept of values because I thought it was misleading. Therefore, I decided to give another sport-involved example which was a difference between achieving a gold medal faster by doping and doing it slower by an athlete's own effort. The participants seemed to understand the difference between goals and values better with this example. Moreover, the definition of "mental toughness" was explained to the participants because it has a connection to the ability to act in the pursuit of the values.

Performance Obituary (See Appendix 6) was the next activity used to facilitate the process of finding values. The participants were asked to close their eyes if they wanted to or looked slightly downward to the ground and find their points of focus. An imagery script was read to guide the participants to imagine themselves being in a retirement party with their significant ones. The participants were instructed to fill in the form what and how they would like their performance or work career and them as an athlete to be remembered. Then the participants were given an opportunity to share what they had written if they wanted to. I emphasized that the values they had figured out at this moment was very important for the following sessions in the program.

Next, the concepts of "value-directed behavior" & "emotion-directed behavior" were explained to the participants by a participant-involved demonstration. One participant were asked to be the key person who shared his value, goal, behaviors, thoughts and emotions related to his injury. He told the group about one time when he was worried about worsening his injury, so he didn't do any exercise that he could have done, in spite of his injury, according to his value of being physically active. After his situation were identified, another participant was asked to stand in front of him and take on a role of his value. The other participants were instructed to be close to the key person and take on a role of his thoughts and feelings. The key person was asked to step towards his value of being physically active but in every step he took the thought-and-feeling person would hold him back and convince him that he should be worried, stop going to

exercise and do something else. This demonstration was an intention to facilitate an experiential learning process about value-directed and emotion-directed behavior, and, also prepare the participants for the concepts of experiential avoidance and acceptance in the next session. At this point, it was easy for the participants to understand these two types of behavior. We had a short discussion about them. Interesting topics were brought up, for example, possible pros and cons of emotion-directed behavior's short term relief, learning about values from emotions, and different sources of values (one's own or from others, such as family and society).

After discussing about value-directed and emotion-directed behavior, one participant brought up her situation when she was emotional about being unable to train because of her injury and felt guilty after that because of being too sad and still being unable to do what she valued. This brought the group to the next terms that I planned to introduce, "clean emotions" and "dirty emotions". In her situation, the sadness she experience because of being unable to train was a clean emotion since it was a direct feeling associated with the loss of her ability but the guilt after the sadness was a dirty emotion which, from her learning experience, was a response to her avoidant behavior triggered by the clean emotion.

Before the session ended, the participants had been given the Given Up for Emotions Form (See Appendix 7) and the Performance Values Form (See Appendix 8). Moreover, they were asked to choose one of their daily activities, such as brushing teeth, taking a shower, eating and washing dishes to practice the "relevant mindful activity". They were instructed to do this exercise in the same objective as the hand and arm movement, and the mindful walking exercises, which were still one of the between-session practices to do, but change the task to more complex activities. Lastly, the What I Have Learned About Performance And Myself Form was given to the participants as usual.

Evaluation of Session 3

This session was extremely relatable for all of the participants. They were able to connect the concept of values to their experience, both in sport contexts and daily life. Most of the participants found it important and interesting to think about what was important to them, however, they thought it did not really relate to mindfulness.

The use of new-job-journey imagery was beneficial for the majority of the participants. They did not learn only the difference between "goals" and "values", but also how values determine actions. However, one participant was confused and did not completely agree with it. The Performance Obituary, another tool for value identification, was easy for the participants to fill but they thought that the purpose of it was a little unclear and it was somehow artificial. The Given Up for Emotions Form and the Performance Values Form were very useful for the participants in their daily lives but they thought that the forms could have been better explained and found them difficult and burdensome during the program.

Again, in this session, metaphors, activities and pictures were used to facilitate the learning experience somewhat successfully. One participant, however, felt that it was unnecessary to explain the same thing with different methods. After this session, I thought that the mindfulness concept and practice were well introduced to the participants because they had interesting discussions and were willing to practice it. Although the participants seemed to understand the concept of values, I was not certain that I understood the concept well enough because I could not give a clear example while explaining how to fill in the forms.

Session 4: Introducing Acceptance

The fourth session began with the mindfulness exercises similar to what the group did in the previous session, however, the duration was increased a little to give the participants a challenge of longer time to experience natural flow of mind activities. During the exercises, I also added "hearing exercise" which required the participants to observe as many sounds as they were able to hear and the quality of them. The purpose of this exercise was to let the participants observe how effective they were able to sense the environment in relation to states of being mindful. After the practice, a discussion about what the participants had learned so far and from the What I Have Learned About Performance And Myself Form was conducted as usual.

The participants found that they were able to hear more details of sounds than usual when they were attentive, but sometimes found it tricky when they realized that they had lost attention to the walk and they should have also focused on it. The fact that they were able to notice when they got distracted during the hearing exercise and, for

example, when they saw each other walking and felt funny, was, again, an evidence of periods of time that they were mindful. I emphasized that what happens after a moment that they notice distraction is interesting because they can get caught up in another normal flow of thoughts and feelings which they can be mindful of again. Sometimes they used counting as a strategy to concentrate on the movements. However, I suggested them that it would be more useful for this practice without counting because it was also one kind of thought preoccupation which was not the purpose of the practice. Moreover, we discussed about the relevant mindful activity that the participants were encouraged to do as a between-session practice since the previous session. All the participants chose brushing teeth as an activity to practice mindfulness. Interestingly, they managed to do the relevant mindful activity more regularly than the hand and arm movement and the mindful walking exercises because it was an activity that they normally do each day. They were able to notice their thoughts and feelings, especially thoughts about future plans and events in the past, during brushing their teeth. They also noticed the difference of level of engagement to the task of brushing their teeth between during the practice and before.

The Performance Values Form between-session exercise was brought up to a discussion at this point. In this form, the participants had to identify their values in several aspects of performance life and then identify the barriers to, and the actions that must be taken in pursuit of, those values. Some of the responses showed that the participants were able to identify values, barriers and necessary actions pretty well. For example, one participant wrote that he valued enjoyment with his teammates and wanted to be considered as a hard-working person that put efforts at work, however, he struggled with doing boring tasks, so he suggested that his necessary action would be doing tasks with small breaks in between to increase concentration. On the other hand, there were also some responses that showed misunderstandings from the participants, such as writing goals instead of values, identifying external barriers without connecting them to internal barriers, and suggesting unspecific actions or no suggestion at all. For example, a participant wrote that injuries were barriers to his enjoyment in sports but didn't state how they made him live a less joyful athletic life, as a result, it was difficult to find necessary actions to be taken. He needed to realize that, even with injuries, he could choose to be an athlete who enjoyed his experience as much as possible.

Next, the Given Up for Emotions Form, which was another between-session exercise, was discussed. Due to an issue of time management from the previous session, I didn't take time to explain how to fill in this form enough for the participants to understand it clearly, so a few situations given by them, although did trigger strong emotions, did not really affect their behaviors. As a result, it was difficult for me to connect them to the concept of emotion-directed behavior. However, we had an interesting discussion in relation to this exercise. A participant shared her story about the time when she was angry with her coach who tried to ask her what was wrong, so she tried to keep herself busy with training, look away from the coach and answer shortly because she didn't like being emotional in front of other people but she realized that it caused more communication problems and distraction from the training in a longer term. Another participant discussed that sometimes this kind of emotion-directed behavior can be beneficial too because if, at that time, she was too emotional and went to talk with the coach, the situation could have been worse and it would have been unprofessional also. I thought it was a very good point and agreed that there were benefits of emotion-directed behavior but they were mostly short-termed. If we were not aware enough we may have followed this path repeatedly until it became a habit, and then we would forget to follow our path of value-directed behavior.

Next, the participants were introduced to the terms, "experiential avoidance" and "experiential acceptance". A figure (See Appendix 9) was used to explained these terms in relation to the concept of value-directed and emotion-directed behavior. It showed that when people face emotions, which sometimes come along the path of value-directed behavior, they tend to behave in a manner that gives them short-term reliefs. This process is called experiential avoidance. In contrast, experiential acceptance is accepting those emotions as they are and behaving according to values to achieve long-term outcomes. At this point, the participants were able to understand these two terms easily.

The Emotion and Performance Interference Form (See Appendix 10) was introduced to the participants since it would be on of the between-session exercises. They were asked to monitor their performance situations after this session and record their emotions and performance interference. The purpose of this exercise was to let the participants learn about experiential acceptance and, also, experiential avoidance from their own

situations. Lastly, they were encouraged to practice the mindfulness hand and arm movement exercise, the mindful walking exercise and the relevant mindful activity regularly with longer duration.

Evaluation of Session 4

The participants were able to connect mindfulness with the concept of acceptance very well. They also stated that it was one of the key thing in mindfulness. There were good signs of their understanding during the interview, for example, when they discussed about the process of acknowledgement before acceptance, and acceptance of the presence of negative thoughts/emotions. On the other hand, I was concerned that the concept may have been misunderstood at the same time and used acceptance as a way to control their thoughts and feelings. Examples were evident in the interviews: "…we just 'have to' acknowledge and accept (it)" and "we don't have to feel bad." I could have more attended to this issue in the session.

The main material used in this session was the slide which summarized the whole concept of experiential avoidance and acceptance. All participants found it very useful to aid their understanding and give them a clearer picture of what we had gone through in the previous sessions. There was also the "Emotion and Performance Interference Form." At this point, some of the participants felt that it was difficult to find the time to complete the form. One of them stated that "It's a good form if you manage to use it."

Session 5: Enhancing Commitment

The mindfulness exercises at the beginning of this session was different from the previous sessions because there was only one participant showing up, so I decided to practice the mindfulness exercises with him until another participant came. Since there were only two of us, it was easier for me to observe the participant and I recognized a few important situations that required me to give instructions to him. He was very tired on that day and he did the mindful hand and arm movement exercise with his eyes closed, so I suggested him to open his eyes and look forward normally. However, he closed his eyes again a few minutes later. That was when I realized that he got sleepy, so I told him that he was allowed to change his exercise between the two. One of the most important things was to be aware of sleepiness and get himself out of it because he

would not have been able to be mindful at all if he stayed with it. We had done the exercises for approximately 15 minutes before another participant showed up.

Next, the "seeing exercise" was introduced to the participants. The purpose of this exercise is similar to the hearing exercise from the previous session. The participants were asked to choose an object in the room and observe its quality, such as shape, size, color and texture carefully. After that, they were asked to describe what they had observed in as many details as possible without using any labels or names that had been attached to them. For example, they had to describe a remote control as a small hard shiny black stick with multiple smaller soft rectangles on it. This exercise also facilitates a process of observing things as they are with as less past-experience labelling as possible. The participants were able to follow this activity very well.

Because we spent a lot of time on discussion in the previous session and there were several topics that should have been explained, the discussion after the mindfulness exercises was skipped and a clarification of several topics was done instead. First, thoughts and emotions that we may call negative or positive are actually just thoughts and emotions without any labels if we accept them as they come without judgement. Second, the main aim of mindfulness practice is not to promote relaxation, even though it is one of the benefits in the end. Third, values identification is an important process for a person to commit to making choices and engage in actions that are in the service of personal growth. And lastly, the concepts of value-directed behavior, emotion-directed behavior, experiential avoidance and experiential acceptance were summarized in one figure for the participants. At this point, they understood the contents well.

Next, the Emotion and Performance Interference Form between-session exercise was reviewed but both participants who attended this session had not done it beforehand because one of them thought it was another form and the other didn't attend the previous session. Therefore, the participants were asked to fill in the form at that time after I had given an example of my own experience. I told them about the time I competed in a badminton match and I lost 4 first points in a row. I felt nervous and upset with myself and I thought they affected my performance because I started to play the points after too safe. One of the participants shared his experience when he was criticized from others and it made him feel angry and upset. However, he thought that

those emotions didn't affect his performance, so he wasn't sure how to fill in the column, "What Happened?". His example was actually a situation that MAC approach aims to achieve. No matter how intense emotion is, it is not a cause of performance interference and the intensity of this column in the form should be 0. It was difficult for me to realize this connection at that moment, so I asked the participant to find a situation that had interfered his performance, which was not necessary.

Then, the concept of poise was further explained to the participants. This time it was connected to an example of physical training. When athletes want to achieve a high level of physical fitness, they follow a pattern of steps. First, they decide that the achievement of a specific fitness level matters for health, well-being, and attractiveness and to follow a specific plan of action. These connect to the concepts of values and goals. Second, they commit to values by making daily choices required to follow that plan. Lastly, they have willingness to experience discomfort and yet persevere even when they are hungry or fatigued. The latter connects to the concepts of acceptance and commitment which is also the definition of poise. The participants were also explained that poise is an ability they need if they want to be like this statement, "I want to perform optimally 'and' I feel bad, in contrast to another one, "I want to perform optimally 'but' I feel bad". The connection to physical training in this part seemed to be very useful for the participants as they looked interested and asked me to send him the slides later.

The Committing to Performance Values Exercise (See Appendix 11) was introduced to the participants next. The purpose of this exercise was to let the participants figure out behaviors that needed to be committed to achieve their performance values and goals, made changes to their daily life and monitored them. This exercise was one of the between-session exercises after this session.

The relevant mindful exercise was another between-session exercise for this session but the participants were encouraged add another version of it. They were asked to do this exercise with their relevant sport performances, so that they would be able to integrate mindfulness practice to their sport situations. Mindful stretching and mindful weight training were examples I gave to them since I thought they could be connected to what all the injured participants were certainly able to do. To give a concrete example of this,

the Penalty Shootout Game was used. Each participant had 5 opportunities to throw a tennis ball into a bucket and the one who scored the most would win the competition. If there was a tie after 5 attempts from each participant, sudden death rules would be applied. One was also able to say negative comments to the other to create distraction. They were instructed to imagine that this was a real important competition, so that they would be able to get the most out of the experience. Also, they were encouraged to practice mindfulness during the game. The participants had fun and were very determined with the activity. In the discussion afterwards, both participants discussed that they practiced mindfulness during the activity by just paying attention to their own bodies and the task. One participant said that he tried to forget everything else. This statement can be tricky though because MAC doesn't encourage us to forget our thoughts but accepting them as they are and then commit our valued actions. However, I didn't point this out at that time because we were running out of time and I didn't want the participant to think that his words were criticized without enough explanation.

In addition to two exercises mentioned, the mindful hand and arm movement, the mindful walking exercises, and the What I have Learned About Performance And Myself Form were this session's between-session exercises.

Evaluation of Session 5

In this session, the participants felt that they were able to connect all the things they had learned, including mindfulness, cognitive defusion, values, and acceptance, with commitment. Furthermore, they had more ideas about how to use these concepts in daily activities and sport specific contexts. One example from the interview that I found as a sign of successful learning was: "Our emotions and values are not like something that we have to separate to achieve our long-term outcome or goals." This showed the participant's understanding that an individual doesn't need to control or get rid of his/her emotion to act according to his/her values. However, because I didn't take much time to go through the between-session assignments and I saw participants' expression of confusion during the discussion, the concepts of values and commitment must have been still confusing to the participants at that time.

The Emotion and Performance Interference Form assignment was not very successful because the participants did not manage to use it in real life despite the fact that they

saw the benefits of it. There may have been several factors, for instance, the participants' busy schedules, too many paper assignments and lack of clarity of the concept. Conversely, the use of the Penalty Shootout Game was successful. The participants liked it because it was a sport specific exercise and were able to relate it to their performance situations. However, I found both exercises quite vague if the concerns were about injury. Injury-related examples and activities could have been added to the exercises to solve this issue.

Session 6: (a) Skill Consolidation and Poise—Combining Mindfulness, Acceptance, and Commitment, (b) Maintaining and Enhancing Mindfulness, Acceptance, and Commitment

This final session of the program combined the last two modules of the original MAC protocol. I decided to do this combination because the contents of theses two topics are integration of and strategies to maintain knowledge and skills that had already been learned so far in the program. The session started with 15 minutes of the mindfulness exercises and a discussion of what the participants had learned about performance and themselves. At this point, the participants were impressed that they were able to be aware of their thoughts and feelings faster and pay attention to the mindful tasks without feeling bored longer than in the beginning. I congratulated them and emphasized that the experience they had was a consequence of practicing which is really important for mindfulness skill development.

After the discussion, another kind of mindfulness exercises, the Task Focused Attention Exercise, was introduced to the participants. I decided to modify this exercise from the original MAC protocol, which uses a personal story telling activity, because of lack of time and the participants would have had to share at least two or three of their personal stories to another which could be too uncomfortable in a group setting. Instead of the story telling activity, the concentration grid activity was used. First, the participants were instructed to search for as many numbers as possible on the concentration grid, from 00 - 99, in order, in two minutes. Next, the participants were asked to write down their own recent situations that triggered strong emotions and read them repeatedly and quietly on their own, so that they could relive their experience. Then, they were asked to do the concentration grid activity once again and see how they performed in an emotional situation. Ideally, this exercise should have been done with more rounds of

emotion triggers and concentration tasks to practice task focused attention, however, because of lack of time, I decided to end the activity after only 2 cycles of the concentration task. The participants were able to understand the idea of the exercise but they didn't experientially learned it at that moment.

Next, a short recap of the program, from session 1 to session 5, was conducted and the figure of the general concept was reviewed again, so the participants would be able to connect what they had learned so for to the contents of this session, which were mainly about consolidation and maintenance of the knowledge.

Because there was one participant who was absent from the previous session, the Emotion and Performance Interference Form exercise was reviewed briefly before continuing with this session's content. It was important to emphasize on the concept of experiential acceptance before focusing on committed action strategy, or else it would be more difficult to commit to the strategy and, moreover, this action strategy would be conditioned to unpleasant emotions that the participants usually avoided.

Next, the Committing to Performance Values Exercise, which was the between-session exercise, was discussed. In this exercise, the participants were asked to identify a performance value, a short-term and a long-term goal associated with that value. Next, they had to think about what behavior they should add or change to achieve the value. Then, during the between-session period, they were instructed to monitor related situations that actually happened and their actions taken for those situations. Again, because of the time constraints, I decided not to go through everyone's forms but ask if there was any impression they had experienced during this exercise. One participant discussed about what he had written on the form and it was practical for him. Another participant did not bring the form in the session but she submitted it to me later after the program and I found out that she was struggling when she attempted to act according to her plan, which was not uncommon. It would have been more helpful for her if her situation was discussed during the session.

Then, the Post-MAC Practice Plan Form (See Appendix 12), which was related to the purpose of this final session, to maintain and to enhance MAC, was introduced to the participants. They were asked to plan their own MAC practices according to their

performance value(s). Each of their plans was required to consist of a basic mindfulness practice, a performance-relevant mindfulness practice, a task-focused attention exercise and a behavioral activation strategy. They were given approximately 15 minutes in the session to work on the form. All of them were able to figure out which exercises they wanted to use as their future practices, however, they expressed that they wouldn't do them every day or frequently because they had already had several tasks and issues to deal with and to add more practices into their schedules would burden them more. Some of them stated that they may use some mindfulness practices, both the basic and the performance-related one, at least every month or whenever they felt they needed.

Before the session ended, all the sessions of the program were briefly reviewed to the participants again. Moreover, the ACT Hexaflex (See Appendix 13) was presented to them to summarize the components of MAC approach, i.e. being in the present moment, acceptance, defusion, self-as-context, committed action, and values, that altogether promote psychological flexibility which ultimately would allow their coping skills and abilities to emerge optimally. Lastly, I also concluded that the end of the program was similar to graduation. The participants had learned from all the program had to offer but if they wanted to continue developing MAC skills, they had to practice and learn more in their daily routines, similar to lives after graduation.

Evaluation of Session 6

The participants found this session a good summary of what they had learned in the program. It gave them clear instructions on how to continue to practice the MAC approach. One participant, however, was not certain whether she had learned anything after this session because she were not able to define some terms even though she were able to remember that they had been talked about. This can also suggest that this session was a good review of the program which helped the participants to be aware of the concepts before they would be practiced in the future.

Two forms that were discussed in this session both have the purpose of future planning for the participants' MAC real life application. Again, all the participants were able to see the importance and the benefits of them but they thought that it was difficult for them to identify their values and plan their actions in such a short period of time. Some of them thought that the Post-MAC Practice Plan Form "painted goals that were too

grand." Another comment from the interview gave me a good look back to the previous sessions: "…it's sometimes difficult to do a plan when we cannot define that well." This partially confirmed one of my doubts that the group members, including myself, were not clear enough about the concept of values and that made the following process, which involved committed actions according to the values, more difficult to continue.

The Task Focused Attention Exercise was an interesting activity to the participants because it involved integration of the MAC approach with a more complexed task, although it was difficult to create emotional atmosphere during the task. The participants thought that it could be a useful tool to practice mindful attention. Lastly, the ACT Hexaflex was able to conclude the whole program really well in their opinions. The summary helped the participants to learn the MAC approach for their sport contexts and also for their lives.

4.3 Evaluation of the Whole Program

Strengths

To the best of my knowledge, this is the first study that describes the implementation of mindfulness approach with injured athletes. There were several strong aspects in this program. First, after the program, the participants were able to understand half of the concepts in the MAC approach, including mindfulness, cognitive delusion and experiential acceptance, well and know the way to practice in the future. This may have shown that the learning methods, such as metaphors, mindful movement exercises and other practical exercises, were beneficials to the participants. They also partially grabbed the concepts of values and committed action. This is impressive for the fact that they were a combination of beginners and more experienced to the approach. Second, the participants found the program interesting and practical because it was sport-focused. They were able to easily identify with and learn from sport-related examples. Moreover, since the group consisted of athletes, they were able to share ideas that each of them found interesting during discussions. Third, because the participants have sport injury as a common feature, and as a small group, they felt that they were understood and were able to learn from the others' perspectives and willing to openly discuss about the topics. Fourth, the learning atmosphere created in this program was mostly appropriate. The pace of the program was not too fast for the beginners to follow and it

allowed interesting discussions to happen. A pleasant relationship among the group members was established in the beginning of the program and this also facilitated a safe learning environment. Fifth, the participants appreciated the fact that I had some experience of mindfulness and the MAC approach and had prepared myself prior to the program. I was perceived by them as professional, enthusiastic, positive, comprehensive and able to explain the concepts fairly well. Sixth, all participants were able to see the opportunities to use what they had learned in their general well-being situations. Finally, for a participant who had an obvious psychological issue during the program, the MAC approach was relatable. For instance, thoughts and emotions related to injury were noticed and gradually accepted.

Weaknesses

Several weaknesses of the program were also acknowledged. The most important one was the lack of connection to sport injury rehabilitation. I found that it was not easy for the participants, especially the ones who did not have a strong psychological impact from their injury, to relate the MAC approach automatically to their injury situations when it was presented without much effort to connect them by the facilitator. The format of and the examples given in the forms provided by the protocol were also based on performance enhancement. As a result, it was difficult for me to adapt them to injury rehabilitation when I had not prepared to do that beforehand. Next, my lack of clarity on some topics, such as values and committed action, especially the difference between goals and values, and value identification technics, may have been one major setback. It may have affected the clarity of some examples, the practical use of some forms in the program and the process of implementing the MAC approach in real life, including the uncertainty of mindfulness practice adherence. In addition, this may have led to the misunderstanding of "using mindfulness when needed" instead of adopting mindfulness as a way of life. Third, the amount of the between-session assignments was not well-balanced. Most of the participants thought that the assignments were more of an annoying burden than learning experience because they were not able to fit them in their already busy schedules. It may be also because of the lack of clarity in some exercises or the participants' avoidance of uncomfortable feelings when doing assignments. Next, the program did not go deep enough to focus on a certain aspect that should have been concerned, "using MAC as a control-based approach by mistakes." As stated in the Evaluation of Session 4, some statements showed that acceptance and cognitive

defusion can be used as a way to achieve positive emotions when an individual misunderstands them or is not aware of it. As a result, it could have misled the participants to the completely opposite direction. Furthermore, time was also one of the weaknesses which was somewhat difficult to control. Six 90-minute small group sessions in 4 weeks were too short to include everything in the MAC protocol and allow the participants to get it effectively. Time management of the participants outside of the sessions affected the learning experience and was hard to control. Lastly, because a participant was absent in some sessions, sometimes the group became too small. The participants thought that they could have had more interesting discussions with a larger group, for example, 6 or 7 people.

5 DISCUSSION

The purpose of this study was to adapt the original MAC protocol that was created for performance enhancement and implement a program with injured athletes within a small group setting, and to learn how to optimally deliver the process, as a novice consultant, by the program evaluation. This study aimed to develop a MAC-based program which helps athletes to cope with injury, to understand the athlete's and the facilitator's reactions to the program implementation, and to learn what facilitates and inhibits an effective MAC-based program for injured athletes.

5.1 Planning and Implementation of the MAC Program

In the original protocol (Gardner & Moore, 2007), it includes the case formulation method for sport psychology (Gardner & Moore, 2005) in the model of intervention planning which pays attention to the details of athlete's performance issues and conceptualize them case by case before implementing any intervention. This approach suits better with individual cases than group settings, especially with educational format because it is very difficult to focus on each person's issue in a program that has to be carried on with a certain structure so that the whole group can follow at the same pace. Injury rehabilitation obviously involved sensitive issues, such as loss of identity and anxiety. Athletes with injury might also be more psychologically vulnerable than ones with performance issues. This led my decision not to explore the participants' psychological states too deeply because, in an educational group setting, we would not have enough time and an appropriate situation to take care of the sensitive issues. As a result, it may have caused the program to be too unspecific for injured athletes. However, concerning the context and the setting of this program, the planning of the size of the group, the group atmosphere, and the knowledge about the participants' prior experience and the program pace, were appropriate to the program's progression. After all, case formulation is important for the MAC program planning but fewer details may be needed and they need to be handled carefully during the implementation of an educational group intervention.

The frequency of the MAC program in this study was 6 sessions in a span of 4 weeks. According to the feedbacks of the participants and my own reflection, several aspects, such as the clarity of each topic, benefits of the assignments and reasonable future

plans, may have been better achieved if there were more sessions or time in the program. Although the ACT-based intervention had been applied in a brief, 4-session educational program before (Mahoney & Harrahan, 2011), it was also concluded that more could be done to address the needs of injured athletes. This resembles the present study which was successful in introducing the majority of the concepts of MAC but somewhat failed to address the participants' more individual needs.

Similar to the previous action research study utilizing MAC approach with performance enhancement (Doğan, 2016), using multiple learning technics, such as a discussion in small group of 3-4 people, metaphors, games, visual aids and practical exercises, effectively facilitates experiential learning process in the present MAC program for injured athletes. The participants were able to understand the concepts of mindfulness, cognitive defusion and acceptance well. Interestingly, the adaptation of the basic mindfulness practice in this study, which used the mindful hand and arm movement and the mindful walking exercises instead of the brief centering exercise, was successful as a method to introduce mindfulness to the beginners and to further enhance learning experience of the one who had prior knowledge.

Gardner & Moore (2007) stated "…the successful utilization of the MAC intervention requires the practitioner to both understand and embrace the theoretical model (to avoid inadvertently conveying mixed messages) and to engage in personal efforts at using these principles and techniques in one's own life." Also, a case study has demonstrated the importance of a consultant's experience and regular practice in the ACT-based methods (Bennett & Lindsay, 2016). Although the MAC protocol has been implemented successfully in an educational small group setting for athletic performance enhancement (Doğan, 2016) and the present study has also produced some benefits to a group of injured athletes, several setbacks that were probably, more or less, caused by the lack of experience of the facilitator were evident in this study. Some of the core concepts of MAC can be difficult for a novice sport psychology consultant to understand and explained to athletes. Examples are: (a) What kind of state should an individual achieve with mindfulness practice? (There is no preferred mindful state. An individual will not be mindful if he/she tries hard to achieve a preferred state.), (b) What are the athlete's values? (It can be confusing because athletes often lives their professional lives with a lot of goals.), and (c) What should a consultant suggest to an

athlete who has “accepted” the reality and is still unhappy? (Athletes may use acceptance or cognitive defusion as a way to control their emotions but those skills cannot and are not meant to do that.) Moreover, in a group of injured athletes, it may require a novice consultant to be sensitive to psychological aspects of injury rehabilitation, especially when working with an athlete who doesn’t face any obvious psychological issues, and able to come up with injury specific examples and exercises.

In the present study, I intended to conduct the MAC program with minimal adaptation to the original protocol in order to see how much the concepts would be transferred to sport injury contexts. The result was not very impressive. All the participants were not able to fully connect the MAC program to injury rehabilitation except for one participant who noticed some connections with her coping mechanism. Most of the assignment forms were not easily connected to injury rehabilitation either. As a result, several forms were not effectively used. Nonetheless, all the injured athletes in the program perceived the benefits of performance enhancement and general well-being in daily life contexts.

5.2 Future direction for program implementation

Future implementation of the MAC program for injured athletes in a small group setting should emphasize on addressing athletes’ individual needs, longer span of the intervention period, a consultant’s experience and an injury specific adaptation. Knowing about an athlete’s individual needs will help a consultant to adapt and design the program in a limited time frame easier and the injured athlete will find it more beneficial to his/her injury rehabilitation. However, the athlete should also be clarified that when the program is for an educational purpose and conducted in a small group, it may not be possible to address all the issues and some issues may have to be omitted because of the group setting. If a consultant perceives that an athlete needs individual consultation, it can also be done, especially for a therapeutic purpose, after the program has ended.

I suggest future researchers to conduct the program using eight 90-minute sessions in a span of eight weeks (1 week between each session). Most people may argue that longer duration for a psychological intervention will most likely result in better outcomes. Nonetheless, the fact that athletes usually have busy schedule and slower progression

can affect their careers should be considered. If they are allowed to practice, do the exercises and observe their progression for at least 7 days between each session during the program, they may be able to experientially learn more in an optimal time frame. Furthermore, they will have more time to discuss and reflect on what they have learned and especially the between-session assignments which were not effectively discussed in the present study.

It is always important to have enough experience in any professions. When working with the MAC approach, this should be emphasized because it is different from what most people have been taught or train to do, which is to control or to solve problems. As a result, an inexperience consultant can easily convey mixed messages to the athletes. A novice consultant is encouraged to adopt and practice the approach in his/her daily activity, for example, regular mindfulness practice, using the forms and the exercises, and identifying his/her own values. These examples are the ones that I personally found confusing during the present study. Moreover, getting familiar with using the approach with injury rehabilitation contexts, for instance, acceptance of re-injury anxiety or feelings of loss and commitment to the rehabilitation protocol, is recommended.

Lastly, injury specific content should be integrated into the MAC protocol for injured athletes. Common thoughts, emotions and coping mechanisms that are typically found during injury rehabilitation, for instance, sadness from athletic identity loss and fear of re-injury, can be used as examples during the program. Also, the athlete's experience, such as his/her own rehabilitation task and barriers can be explored and used as a program activity. Furthermore, these mentioned examples should also be included in the exercise forms of the program.

5.3 Limitations and Suggestions for Future Research

First, the MAC program was conducted for only one cycle, so there was no implementation after the first evaluation. This limited an opportunity to follow the development of the program in the present study. Acoording to the action research principles, several cycles are recommended to test and develop the program. Second, the intervention was conducted in English which was not a native language of anyone in the study including the facilitator. Some meaningful information may have lost during verbal communication, especially in the MAC program in which there were several

activities involving experiential learning triggered by verbal speeches. For example, the participants may have had to think of a word that represents a certain feeling in their native languages before they were able to express it to the group, or when the mindful walking practice were guided in English, the translating process could have distracted them from the walk. Third, there was no quantitative data collection in this study. Although, with small sample size and the purpose of the study, quantitative data would not have given any reliable answers about correlations, it could have been beneficial for each participant's progression monitoring, especially when combining with the qualitative data. Fourth, trustworthiness of this study could have been better if there was another researcher included in the program as a participating observer in order to have more data from a reflection of a non-facilitator would not have been evaluated by the participants. Lastly, the semi-structured interview was conducted by an outsider who did not involve in the MAC program. This strategy was, on one side, beneficial because the participants were able to give their feedbacks about the program and the facilitator more openly with an outsider. On the other hand, even though the interviewer had been informed about the study and the details of the program, some in-depth information could have been lost when the interviews were not between the insiders of the program.

Researchers who want to explore more about the MAC approach and sport injury rehabilitation have a large number of possibilities to conduct future researches because studies in this area are still scarce. Future action researches with at least 2 cycles of program implementation are suggested. They may also include participants whose characteristics, in some aspects, are homogeneous, for instance, same psychological issues of injury or same sport because the results will give an idea of the MAC program implementation and development for a certain group of athletic population. A researcher who will take only an outsider role in the program should be included to improve trustworthiness of future researches. He/she can provide fruitful information by keeping a reflective diary and also as an insider interviewer. Furthermore, quantitive data collection i recommended for a couple of ways. First, it can be used to follow participants' progression of the MAC approach learning outcomes and the injury state during rehabilitation, both physical and psychological. Second, quantitative researches that investigate effectiveness of the MAC approach are still needed. Finally, longer follow up period should be done in both qualitative and quantitative researches because

there is a possibility that the educational MAC program may be an introduction that will trigger life-long learning experience later.

In conclusion, the present study found that, when a novice sport psychology consultant works with a group of injured athlete using the MAC approach, the case formulation for each individual athlete should be done adequately for a group intervention purpose. The time management of the program should be organized in order to utilize learning activities and materials effectively. Using an appropriate amount of multiple modes to facilitate the learning process was beneficial. Mindful movement technic can be added as a tool of the program. Most importantly, he/she should be eager to gain more experience in this approach by adopting it in daily life and learn the way to integrate the knowledge of sport injury rehabilitation into the MAC protocol to make it become more relevant for injured athletes.

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APPENDIXES

Appendix 1: Information sheet and consent form

Application of the Mindfulness-Acceptance-Commitment (MAC) Program with Injured Athletes: an Action Research Study

INFORMATION SHEET FOR RESEARCH SUBJECTS AND CONSENT TO PARTICIPATE IN RESEARCH

Contact information of researchers

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Research background information

This study will be conducted as a research for a Master's thesis in the Sport and Exercise Psychology Program (SEPPRO) of the Department of Sport Sciences, Faculty of Sport and Health Sciences, University of Jyväskylä. The research will be conducted from October 2016 – February 2017

Purpose, target and significance of the research

Mindfulness- and acceptance-based approaches are the third-wave approaches to performance enhancement in the area of performance psychology. Mindfulness-Acceptance-Commitment (MAC) program is mainly designed for sport performance but can also be used in other areas of performance. It has gained more positive evidence in performance enhancement in recent years. Moreover, it has promising concepts and study results that may be effectively applied to sport injury prevention and rehabilitation. However, MAC approach can be interpreted and, especially, applied in different ways when it comes to contents and practices delivered in the program. The purpose of this study is to elaborate and evaluate the process of MAC application with injured athletes and exercisers who are in their recovering process. The results of this study will give more concrete insights about facilitating components and setbacks when applying MAC program with injured athletes and exercisers, and more ideas to MAC users to develop more facilitating processes of the program.

Purpose of use, handling and storage of research data

The research data will be used for research purpose only. All data, manual and digital, will be kept confidential by the head researcher. It may be used in the process of the Master's thesis such as supervision and small group discussion with colleagues. However, names and personal information of the participants will not be presented without permissions. The data will be stored for ___ years before it is destroyed.

Procedures targeted to the research subjects

The research will be advertised via several means, for example, posters, e-mail lists of University of Jyväskylä and telling in person. The participants must be athletes or exercisers who have at least one injury that limits their capabilities to engage in their normal practice routines or competitions. They must not have any on-going major psychiatric disorder. They will be participated in the Mindfulness-Acceptance-Commitment (MAC) program, aiming to provide mental skills training to the participants, conducted by the head researcher. The program will be conducted in small group settings. It will include informative sessions, mental skills practices (e.g. meditation), reflective activities and in-between sessions self-practices. There will be no physically invasive procedure. The participants will be interviewed for data collection. The interview will be recorded audio-visually for the purpose of transcription later. Moreover, forms and questionnaires will be given to the participants during, in between and after sessions and collected as the data for the research.

Benefits and potential risks to subjects

The participants will receive knowledge about MAC approach, which includes concepts of mindfulness and acceptance-commitment. Moreover, they will have a chance to practice mental skills according to this approach that has gained more positive evidence in sport performance enhancement. Experience in the program can be a life-long learning one and transferred to other life aspects. The research methods are, in general, safe since they have no physically invasive procedure. One probable risk is that the practices in the program may not be suitable for people who have on-going psychiatric disorders because the practices will require the participants to attend to their internal states, so it may have adverse effects on the ones who have fragile internal states at the moment. However, it the information about mental health will be asked before recruiting each participant. The participants' physical and mental health conditions will be monitored during the study. The participants will also be able to withdraw from the program at any time.

Use of research results

The results of this research will be used for the Master's thesis in the Sport and Exercise Psychology Program (SEPPRO) of the Department of Sport Sciences, Faculty of Sport and Health Sciences, University of Jyväskylä. They will be presented in the Master's thesis seminar class of the program. The final results will be published in the database of the university. Names and personal information of the participants will not be revealed without permissions. The participants will be notified about the completion of the research results via contact information they give.

Rights of research subjects

Your participation in this research is completely voluntary. If you choose to participate in it, you have the right to withdraw from the study at any time without any consequences.

The organization and conduct of the ways in which the research and the reporting of its findings will be done so that your identity is treated as confidential information. No personal information that is collected during the research will be disclosed to anyone else besides you and the research group. When the results of the research will be published, no information will be included that would reveal your identity. At any point, you will have the right to receive further information about the research from the members of the research group.

Insurance

The personnel and activities of the University of Jyväskylä are covered by insurance. This includes insurance for the treatment of injury, liability insurance and voluntary accident insurance.

During the study, the research subjects are insured against damages, accidents and injuries caused by an external cause. Accident insurance is valid during physical tests and journeys directly to the research site and back. However, insurance companies do not cover muscle or tendon sprains caused by sudden strain if no external cause is involved. In case of sudden injury or illness during physical testing, the research unit is prepared to provide immediate first aid. The laboratory has first aid equipment and the personnel are trained to use them. As insurance companies do not provide a complete insurance coverage for research projects, for example, in case of a sudden illness, it is recommended that the research subjects also have a personal accident/health insurance and a life insurance

The participants are entitled to see the register specification of the study if they wish to do so.

Consent to participate in research

I have been informed of the purpose and content of the research, the use of its research materials, and the potential risks and problems it may cause to myself as a research subject, as well as of my rights and insurance protection. I hereby agree to participate in the study in accordance with the instructions given by the researchers. In case of illness – cold, fever, for example– , while recuperating from an illness, or if I'm not feeling well, I will not participate in physical tests that involve such measurements as blood tests or other sampling, or physical strain. I can withdraw from the research or refuse to participate in a test at any time. I give my consent to the use of my test results and the data collected on me in such a way that it is impossible to identify me as a person.

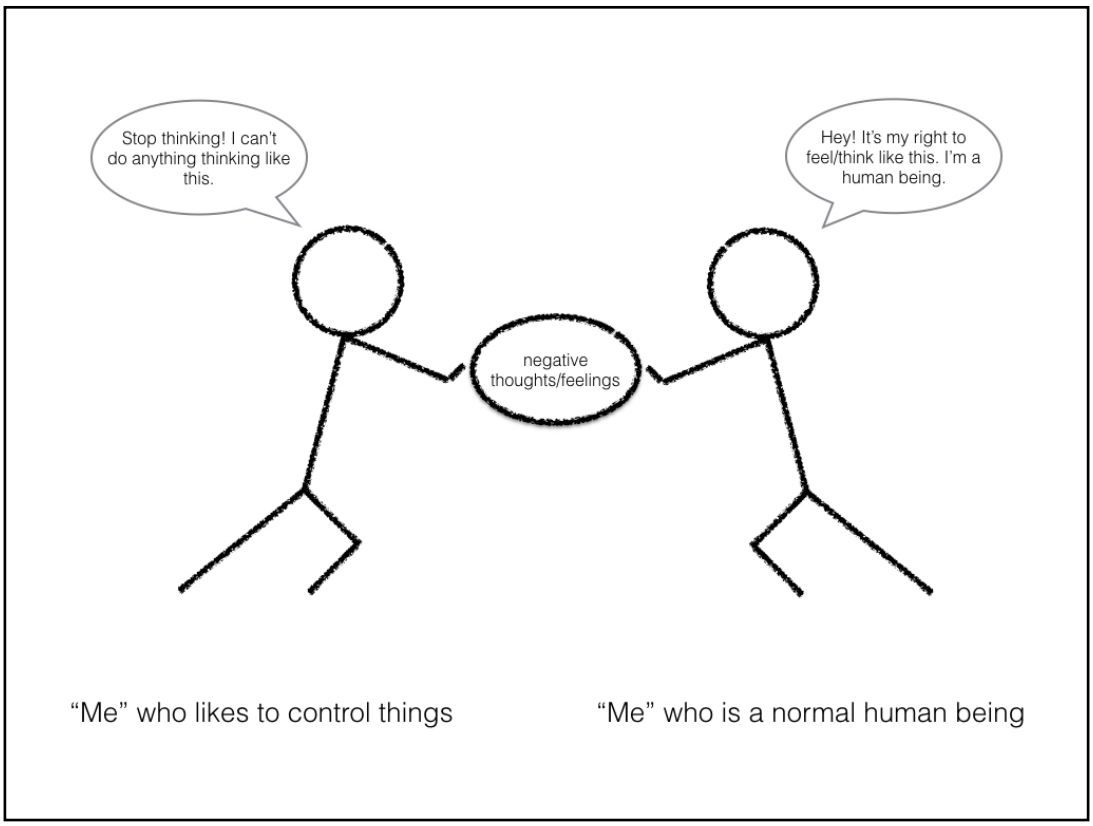
_____

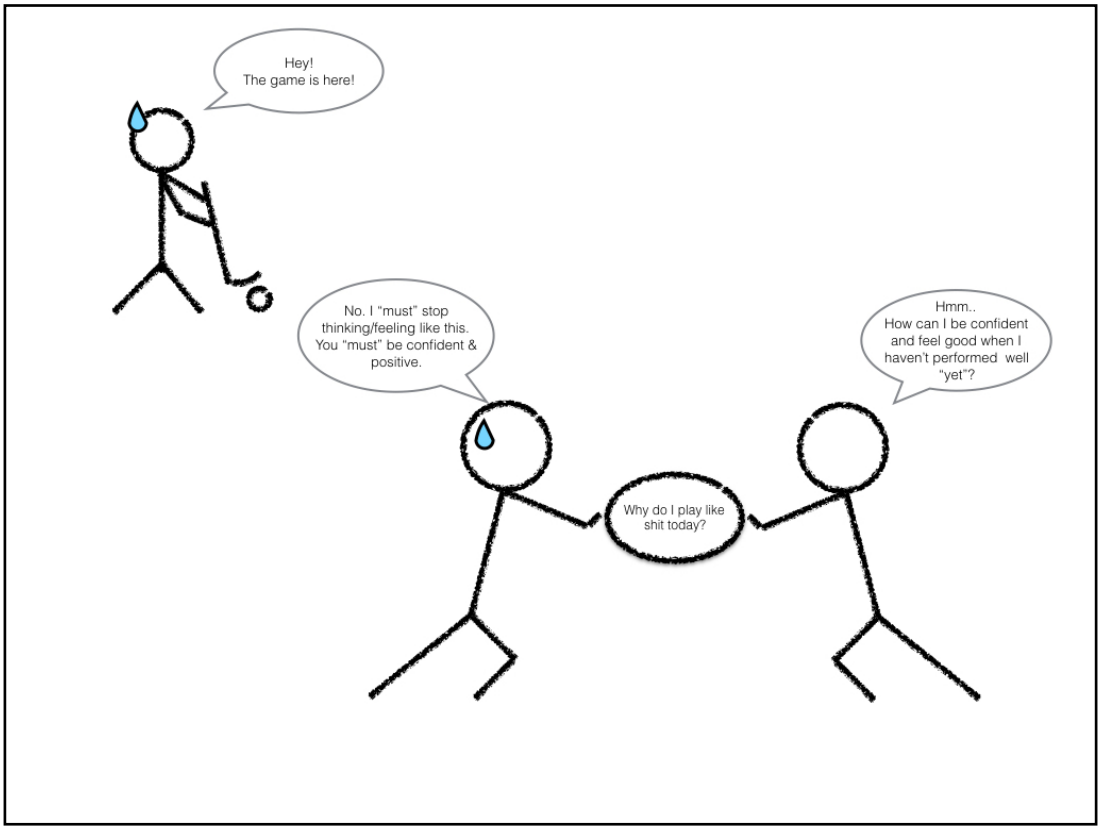
Date Signature of the research subject

_____

Date Signature of the researcher

Appendix 2: Pushing thought and emotions comic strips





Appendix 3: Performance Rating Form

Performance Rating Form

Initials_____ Date_____ Age_____ Occupation_____ Gender_____

Please list performance barriers that have occurred within the last 2 weeks (such as negative thoughts, negative emotions, interpersonal problems, lack of concentration, etc.).

_____

_____

_____

_____

0 None **1** **2 Mild** **3** **4 Moderate** **5** **6 Strong** **7** **8 Extreme**

Please rate each of the following using the 0–8 scale above.

Performance Domain	Satisfaction With Performance	Impact of Performance Barrier
Practice/Training		
Competition/Work		
Relationships With Staff		
Relationships With Coworkers/Teammates		
Other (please describe): _____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____

Appendix 4: What I Have Learned About Performance And Myself Form

What I Have Learned About Performance and Myself

Initials_____ Date_____ Age_____ Occupation_____ Gender_____

During each session, and across each week of the MAC training program, you are likely to learn a variety of new things about yourself and human performance. After you leave each week's session, I would like you to complete this form as soon as possible. The purpose of this is to ensure that you are learning and remembering the important concepts from each of our sessions together. This allows me to make sure that you are developing all the necessary performance enhancement skills included in the MAC program.

1._____

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2._____

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3._____

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4._____

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5._____

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Appendix 5: Preparing for MAC handout

Preparing for MAC

Now that you have learned about human performance and the MAC training program for performance enhancement, it is time to prepare yourself for our work together. Changing the way we respond to what our mind tells us (our thoughts) and what we feel (our emotions and physical sensations) is not easy, but not impossible either. You have already achieved things that others told you were not possible. As you know, it helps to approach developing new skills with the correct attitude and mind-set. Here are some tips to keep in mind as you begin the journey of mental skill development, the MAC way.

- Developing the mental skills of mindful attention, mindful awareness, and poise requires an active effort and commitment, both in our sessions and between our sessions. Think of this as equivalent to physical training or physical rehabilitation. In many respects, the saying, "no pain, no gain" is appropriate to what you are about to undertake.

- Remain curious and keep an open mind about what you hear and what you are being asked to do. Many of the concepts are different from what you have been taught to believe. See the MAC program as an opportunity to experiment and learn something new.

- To increase the likelihood of success, keep your expectations reasonable and choose areas to work on that are manageable and realistic.

- Accept the idea that enhancing your performance is an evolutionary process and not a single revolutionary event.

- Don't be overly hard on yourself for slips, errors, or inconsistent success with the program. Your skills will develop in the same way that all previous skills have developed in your life—with hard work, repeated practice, and gradually over time.

- Most importantly, remember that your presence here is not because you have failed or because there is something wrong with you. The attitude, "just do it," is not enough… if it was, everyone would be an elite performer!

Appendix 6: Performance Obituary

Performance Obituary

Initials_____ Date_____ Age_____ Occupation_____ Gender_____

What and how would you like your performance/work career and you as an athlete, attorney, salesperson, coworker, teammate, etc. to be remembered?

_____

_____

_____

_____

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Appendix 7: Given Up for Emotions Form

Given Up for Emotions Form

Initials_____ Date_____ Age_____ Occupation_____ Gender_____

The purpose of this form is to help you become more aware of what you have given up to reduce or eliminate your emotions. What opportunities in the service of your values are you giving up in the service of feeling less emotion? How is this affecting your ability to perform better and enjoy your competitive/work world more?

In the first (far left) column, list a situation related to practice, training, or actual competition/work that triggered a strong emotion. In the second column, write down the specific emotion that was experienced. In the third column, record what you did to reduce or satisfy your emotion. In the fourth column, write down what effect your efforts to control or reduce your emotion had on you. In last (far right) column, write down the long-term consequences of your efforts to rid yourself of these emotions (what you gave up to reduce or satisfy your emotion).

Complete form beneath example provided below

Situation or event	Emotion	What you did to control emotion	Short-term effect	Long-term effect on you
Criticized by coach	Angry and thought over and over about him being a jerk	Stayed quiet and took a "don't give a damn" attitude. Thought about friends	Felt less angry, but uninvolved the next day	Looked even worse in coach's eyes, didn't practice well, looked like I was pouting, didn't further my goals

Appendix 8: Performance Values Form

Performance Values Form

Initials_____ Date_____ Age_____ Occupation_____ Gender_____

The following is a list of performance values that may help direct your actions on a daily basis. After each value is recorded, please identify the barriers to, and the actions that must be taken in pursuit of, those values.

Teammate/coworker: What type of teammate/coworker do you want to be? What does it mean to be a good teammate/coworker? Why is being a solid team member/coworker important to you?

_____
_____
_____

Barriers and Necessary Actions:

_____
_____
_____

Sport/Work/Performance Activity: What do you value about your activity? The challenge? Prestige? Enjoyment? Getting to interact with teammates? Helping people?

_____
_____
_____

Barriers and Necessary Actions:

_____
_____
_____

Training: Is developing your skill important to you? Why is working at getting better meaningful to you? Are there any skills you'd like to learn or develop more fully?

_____
_____
_____

Barriers and Necessary Actions:

_____

_____

_____

Technical Skills: What issues or behaviors related to technical skill development do you care about (e.g., working on golf swing, sales presentation skills, etc.)? What would you like to do more of?

_____

_____

_____

Barriers and Necessary Actions:

_____

_____

_____

Tactical Skills: What issues or behaviors related to tactical skill development do you care about (e.g., planning a sales or presentation strategy, developing greater understanding of pitch or club selection, play, etc.)? What would you like to do more of?

_____

_____

_____

Barriers and Necessary Actions:

_____

_____

_____

Recreation/Fun: What type of activities do you enjoy? Why do you enjoy them?

_____

_____

_____

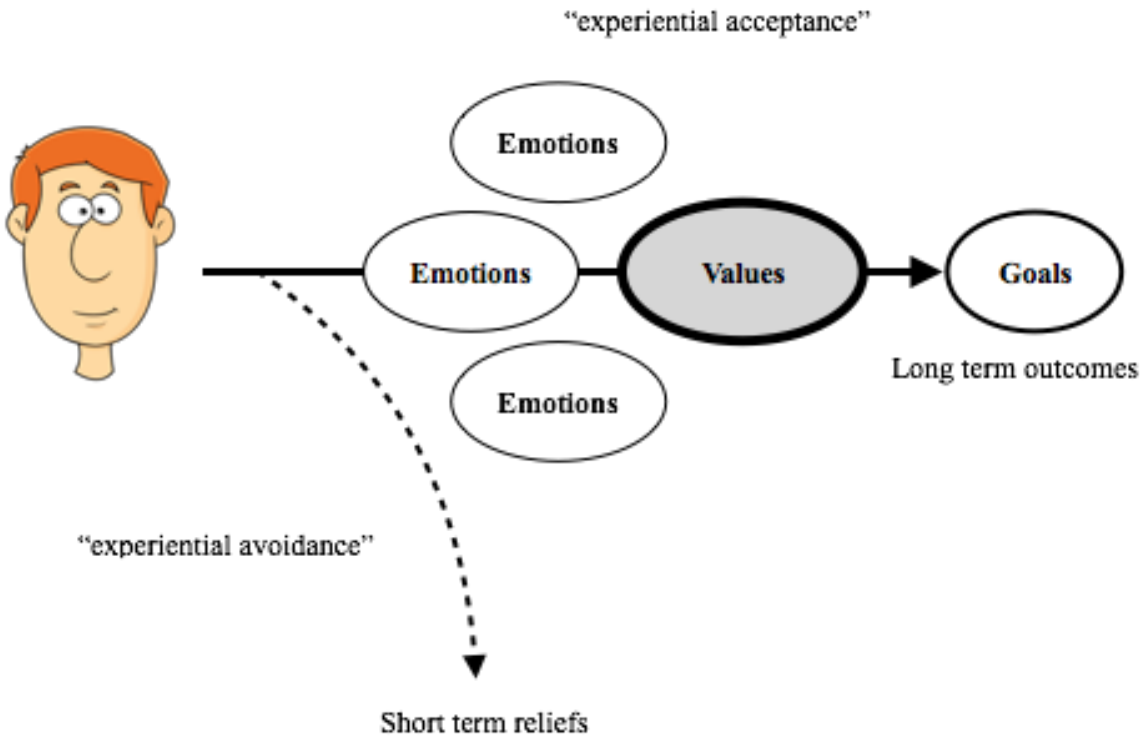
Barriers and Necessary Actions:

_____

_____

_____

Appendix 9: Figure explaining experiential avoidance and acceptance



Appendix 10: Emotion and Performance Interference Form

Emotion and Performance Interference Form

Initials____ Date_____ Age_____ Occupation_____ Gender_____

Please record performance situations that occurred during the past week, the emotion(s) experienced, the degree to which these emotions interfered with performance, and how these emotions interfered with performance.

Situation	Emotion Rate Intensity 0 = none 10 = extreme	Performance Interference Rate Intensity 0 = none 10 = extreme	What Happened?

Appendix 11: Committing to Performance Values Exercise

Committing to Performance Values Exercise

Initials____ Date_____ Age_____ Occupation_____ Gender_____

Performance Value (PV):

_____

Short-Term Goal Associated With PV:

_____

Long-Term Goal Associated With PV:

_____

Behavior To Be Added or Changed To Achieve PV:

_____

Situation:

_____

_____

Action Taken:

_____

_____

Situation:

_____

_____

Action Taken:

_____

_____

Appendix 12: Post-MAC Practice Plan Form

Post-MAC Practice Plan Form

(Page 1)

Performance Value(s):_____

1. Basic Mindfulness Practice
    a. Exercises to be used
    b. Situations(s) in which it is used
    c. Frequency
    d. Time of day
2. Performance-Relevant Mindfulness Practice
    a. Exercises to be used
    b. Situations(s) in which it is used
    c. Frequency
3. Task-Focused Attention Exercise
    a. Situations(s) in which it is used
    b. Frequency

Record Weekly Mindfulness Practice:

_____

_____

_____

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_____.

Post-MAC Practice Plan Form

(Page 2)

4. Acceptance, Willingness, and Commitment
    a. Performance value and associated goal
    b. Obstacle—thoughts and/or emotions
    c. Avoidant behavior(s)
    d. Specific opposite-action behavior(s) to be activated

Record Weekly Behavioral Activation:

_____

_____

_____

_____

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_____

_____

_____

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_____

_____.

Evaluation of Practice and Use of MAC Skills During the Past Week:

(1 = no use/infrequent use, 5 = moderate use, 10 = frequent use): _____

Appendix 13: ACT Hexaflex