

Pre-Competition Mental Training, Self-Efficacy and Performance in Amateur Equestrian Athletes.

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Abstract

The current study examined the effects of a mental skills training (MST) intervention involving relaxation, visualisation and goal setting on the performance and self-efficacy of equestrians. It also investigated a possible relationship between self-efficacy and performance. Participants were 14 amateur equestrians (3 M, 11 F) who all competed in two combined training competitions. The results of the study found that performance was enhanced after the intervention ($t(13) = -11.16, p < .001$) and self-efficacy increased ($t(13) = -6.87, p < .001$). No significant relationship was found between self-efficacy and performance ($r(14) = .19, p = .538$) which is not consistent with previous research (Moritz and Feltz, 2000). Social validation feedback indicated all participants perceived the intervention to be useful and enjoyable. The findings of the current study provide evidence to suggest MST packages are beneficial for performance and self-efficacy in equestrians.

Introduction

Mental Training in Sport

Traditionally in sport the focus has been on physical training. However, in recent times there has been an increase in the use of psychological training to enhance performance. Mental training involves teaching athletes psychological techniques with the purpose of improving performances and increasing well-being (Dosil, 2006, p. 4). In the area of applied sports psychology mental training can be carried out in a clinical setting or use a field intervention. Online intervention is another method available which is also effective. The suitability of the context in which mental training is carried out depends on the needs and requirements of the client. For example, it may be more appropriate to use an office setting if the athlete has a personal problem they wish to address. However the field would be the more favourable option when a specific aspect of the athlete's particular sport needs to be evaluated. This is because it increases the reality of the situation thus giving a more accurate picture to the sport psychologist.

The clinical intervention reflects the classical approach from clinical psychology and consists of the psychological training of athletes being carried out in an office or consultancy room setting. The positives of this type of intervention is that clients can be assessed and treated, and have the privacy and safety of the clinical environment. It also allows the sport psychologist to inform the athlete about how mental training can enhance their performance and general well-being (Dosil, 2006, p.5). The main disadvantage of this setting is that contextual information may be lost.

The field intervention consists of the sport psychologist going into the sport environment and performing psychological assessments of coaches and athletes. The aim of this type of intervention is for the sport psychologist to work as part of the training team in their natural setting and providing strategies to help them with different situations. The advantage of this approach is that the work is carried out in the natural environment of the athlete so the effectiveness of strategies can be clearly observed. However, some disadvantages would be that confidentiality may be an issue if there is no appropriate place within this environment for clients to meet with the psychologist, and strategies such as relaxation require an appropriate place to learn and work on correctly (Dosil, 2006, p.5).

Online intervention offers certain advantages such as confidentiality and speed of access to training. The main disadvantage is that this approach is limited in the type of issues it can accommodate. However, online intervention can give advice to coaches and provide very effective guidelines to some athletes; and so this can be a valuable tool within sports psychology (Dosil, 2006, p.5). The expertise and skill of the sport psychologist is crucial in selecting and adapting the most suitable method for the needs of an athlete or a team. It is often ideal for all three intervention approaches to be utilised as different situations in sport may demand one method more than another.

Psychological Techniques

The key psychological techniques incorporated in mental skills training are mental imagery or visualisation, relaxation, self-talk and goal setting. Each of these has different

benefits to athletes. These can be used individually or developed into a complete mental training package with the aim of achieving maximum potential benefit to athletes. For example, a recent study found that using instructional self-talk improved the performance of novice basketball players (Perkos, Theodorakis and Chroni, 2002). Research studies, which all investigated the use of a mental skills training package, found that this enhanced performance in athletes (Patrick and Hrycaiko, 1998; Thelwell and Greenless, 2001; Blakeslee and Goff, 2007).

Mental Imagery/Visualisation

Mental imagery, or visualisation, is the ability to stimulate in the mind information that is not currently being perceived by the senses. This is a cognitive process which enables a person to 'see', 'hear' and even 'feel' things in their imagination. According to Kremer, Moran, Walker and Craig (2012, p. 93) mental imagery involves 'perception without sensation' and this can be visual, auditory or kinaesthetic. Mental imagery has a variety of purposes, which include mentally preparing for competitions, managing anxiety and learning skills. The main benefits are improving skill learning and enhancing performances. Mental imagery involves motivational and cognitive mechanisms, and these can be general or specific. Mental practice is the systematic use of mental imagery to rehearse an action in one's imagination without engaging in the actual physical movements involved.

Self-Talk

Self-talk is an effective cognitive technique which athletes can use to control their thoughts and feelings. It consists of statements which athletes make to themselves and these can be internal or aloud (Theodorakis, Hatzigeorgiadis and Chroni, 2008). Self-talk can be positive or negative, and instructional or motivational. Research has supported the effectiveness of positive self-talk. For example, a study (Hatzigeorgiadis, Zourbanos, Goltzios and Theodorakis, 2008) examining motivational self-talk in tennis players showed that motivational self-talk significantly improved performance. Research on instructional self-talk has also demonstrated that it enhances performance and skill acquisition (Perkos, Theodorakis and Chroni, 2002).

Goal Setting

Goal setting is an important tool for athletes and something which many do. By learning the most beneficial way to set goals athletes can be more likely to be successful in achieving their goals. Goal setting is a self-motivational technique and is based on the principal that by establishing specific and challenging short term goals these will lead to long term objects being accomplished (Kremer, Moran, Walker and Craig, 2012, p. 66).

Goal setting increases intrinsic motivation and enhances the perception of control. It can be very beneficial in sport as athletes can set short-term and long-term goals (Blakeslee and Goff, 2007) and this allows athletes to assess their progress. The SMART approach to goal-setting is based on the idea that goal setting works best when it follows certain

principles. SMART stands for specific, measurable, action-related, realistic and time bound. When goals are clear and specific they are more likely to be achieved. Goals which are measurable are more effective because progress can be tracked which helps to maintain interest. It is important for goals to be action-related and achievable to avoid confusion on what steps to take to accomplish the goals set. Goals should be realistic for an athlete's current level of fitness and ability. Time constraints on goals should be clear and identify an appropriate amount of time in which to accomplish each goal (Cox, 2007, p. 279). If a time constraint is too short this can discourage an athlete because the goal may not seem achievable.

Relaxation

Relaxation techniques are a useful tool in sport psychology, especially for athletes who experience high levels of anxiety and tension. High levels of anxiety can negatively affect performances and this in turn can lead to further increases in anxiety. Short-term anxiety usually takes two forms, either somatic anxiety or cognitive anxiety. Cognitive anxiety refers to negative thoughts whereas somatic anxiety is physiological manifestations such as a rapid heart-rate or sweating. There are a number of different relaxation procedures which can be used. The outcome of each is a similar physiological response which is referred to as the relaxation response (Cox, 2007, p. 255). The purpose of these is to control arousal and anxiety levels. Arousal control and anxiety management have a key role in reaching an optimal performance state (Maynard, 2006, p. 468). Cognitive-behavioural interventions can combine imagery with relaxation. According to Suedfeld and Bruno (1990) relaxation training enhances imagery use. This suggests that by combining

visualisation with relaxation training a mental skills training package may be more effective than mental imagery which does not incorporate relaxation techniques.

Benefits of Mental Skills Training in Sport

Mental skills training is used by sport psychologists, coaches and athletes in a wide variety of sports. This psychological training has been shown to have a positive effect on performance (Patrick and Hrycaiko, 1998; Thelwell and Greenless, 2001; Blakeslee and Goff, 2007). Mental skills training involves different cognitive techniques, and can be tailored specifically for different types of sports and the requirements of individual athletes. Furthermore the training may be administered in a variety of ways, such as 'self-administered' or taught by someone in a professional capacity (Hacker, 2000; Blakeslee and Goff, 2007). According to Hacker (2000) the mental skills coach employed for a professional team will conduct individual and group sessions, liaise with the coaching staff and travel with the team for select competitions.

Previous Research on MST in Sport

Research has documented the different approaches to delivering mental skills training. For example, a study examining the effect of a mental skills training package on endurance running used a self-teaching workbook (Patrick and Hrycaiko, 1998). This was divided in specific sections which consisted of relaxation, imagery, self-talk and goal setting. The main finding of this study was that, following the completion of the mental skills training package, performances improved for all of the athletes involved. A similar approach

was used by Thelwell and Greenless (2001) to investigate the effects of a mental skills training package on gymnasium triathlon performance. The results suggested that this training package enhanced triathlon performance. Furthermore, in both of these studies it was noted that participants perceived the intervention to be enjoyable and successful.

Blakeslee and Goff (2007) followed a taught approach to administer a mental skills training package designed for equestrian athletes. This study involved an initial two hour session, followed by weekly half hour sessions over four weeks. Relaxation, mental imagery, self-talk and goal setting were taught as individual skills. The results of this study showed that the mental skills training package improved performances in equestrian athletes. The current study will also use a mental skills training package which has been designed for equestrian athletes. There are a number of differences between the delivery and content of the MST packages, used by Blakeslee and Goff and in the current study. The current study will not use a taught approach, it is shorter, and self-talk is not included in the MST package. Therefore it will be interesting to see if the mental skills training which participants will receive in the current study will show similar benefits for equestrian athletes.

A recent study (Koehn, Morris and Watt, 2014) used an intervention which involved the use of an imagery intervention for tennis players. The results from this study showed that all participants had improvements in performance and ranking-list position. This provides support that imagery is beneficial as a psychological training technique. In the current study mental imagery will also be included as part of the mental skills training

package so it would be interesting to see if the findings of the current study will show similar benefits for performance.

Equestrianism

According to Pretty and Bridgeman (2006, p. 570) equestrian sports are unique because of the partnership between a human and another animal species. It is the only sport in which the athlete's teammate does not speak the same language, hear, see or feel in the same way. Communication between rider and horse is crucial and delicate. It is therefore important to consider not only the mental challenges of the equestrian athlete but also those of the horse. For example, when taking their horse into the busy competition environment, it is important for the rider to be aware that the demands of focus and attention asked of the horse when performing are counter-intuitive to its needs and abilities as a prey animal to remain hyper-vigilant in all aspects of its environment. While the rider must keep the horse's attention to perform the required task; the horse is challenged with ignoring other stimuli competing for his attention and essentially ignoring his natural senses and instead place his trust in the rider.

When riding the horse the equestrian athlete communicates different messages through the natural aids which are leg, hand and seat. In order to ride well the control and coordination of these aids are essential and to compete successfully also requires the mental focus to use these aids consistently and precisely (Pretty and Bridgeman, 2006, p. 574). The equestrian athlete must also aim to be a sympathetic rider; which refers to

understanding the horse, why he responds in a certain way to the signals the rider gives, and be aware of what the horse may be feeling in a given situation.

When the challenges of a team consisting of two different species is taken into account it is not surprising that difficulties can occur. According to Hothersall and Casey (2012) undesired behaviours in horses are often actually normal responses for this species. These behaviours become problematic for riders when they occur in certain circumstances such as a competition, when training or having a lesson with their coach. An example of such behaviour would be refusing to jump a fence, which may be because it is unfamiliar and therefore causes the horse anxiety. This is where a strong bond, between horse and rider can be crucial; because this bond allows the horse to submit to the rider and trust that the rider will keep them safe.

Dressage

One of the key elements of dressage is harmony between the horse and rider. During a dressage test the rider performs certain movements in walk, trot and canter at specific points in the arena. They are marked for each movement based on a variety of factors which include relaxation, rhythm, impulsion, willingness and accuracy. The rider is also judged on their position and way of riding.

It is essential for the rider to not only have the correct technical knowledge for different movements but also to be able to produce effective aids for the horse. This is so that the performance by the horse and rider team looks harmonious, fluid and relaxed. All of these will affect the score the dressage judge awards them. The current study will investigate if competitors' scores will increase after completing the MST intervention.

Show Jumping

Show jumping requires a high level of mutual trust between the horse and rider. A show jumping course consists of a series of fences which must be jumped. These vary in height and technical difficulty depending on the level of competition. The horse places his power in the control of the rider to set him up safely for each jump and the rider must maintain concentration and confidence in guiding this power. This can be challenging when a rider may not feel they are in control of their horse, which can impact on confidence and concentration. The performance of the rider may be influenced as a consequence of a decrease in their confidence and concentration in the show jumping ring.

Some of the most important skills in show jumping are maintaining balance, maintaining a rhythmic canter, communicating the correct instructions to the horse and judging where the horse should be asked to take off for a jump. In the current study participants will indicate how confident they are in their ability to perform these skills.

Combined Training

Combined training competitions consist of both a dressage test and a show jumping round on the same day. This requires the equestrian athlete to demonstrate their skill and ability in the disciplines of dressage and show jumping. Dressage tests range in difficulty and skill level, and the height of the jumps in the show jumping round will correspond to this in some way e.g. a competitor doing a preliminary level dressage test would probably jump a course of fences not exceeding 70cm.

Competitors receive a dressage score first, and if they have a clear round show jumping they remain on this dressage score. However, if a rider accumulates faults in the show jumping round this negatively affects the dressage score.

MST for Equestrian Athletes

The mental training skills techniques of mental imagery or visualisation, relaxation and goal setting may be beneficial to equestrian athletes. SMART goal setting is useful to establish what goals are achievable and required to accomplish during training, at each competition and by the completion of the competition season in question. There are many different specific skills which can be learnt and are required at different levels or disciplines of equestrian sport. Riders can measure their own progress and have their trainer do so too.

Relaxation techniques can help reduce anxiety and when it is considered that horse riding is naturally anxiety-inducing (Tenenbaum, Lloyd, Pretty and Hanin, 2002), it would therefore be appropriate for these to be used with equestrian athletes.

The use of mental imagery/visualisation by equestrian athletes gives them the opportunity to rehearse, in their imagination, how they would ideally like their performance in a training session or competition to go. Visualisation can be very specific to the needs of an individual, which makes it a useful tool for equestrians who may be competing in different disciplines such as show jumping and dressage on the same day. Cognitive-specific imagery, which involves the athlete imagining performing a particular sport skill correctly, has been found to have both cognitive and motivational functions (Davies, Boxall, Szekeres and Greenlees, 2014). The same study found that when equestrian athletes used CS imagery during training sessions, it enhanced their performance and increased their self-efficacy in relation to particular skills. Relaxation and visualisation can be incorporated together when using a mental skills training (Blakeslee and Goff, 2007).

Self-Efficacy

Self-efficacy is the belief in one's ability to achieve a goal or outcome. It refers to how confident an individual is that they can perform a certain skill. Self-efficacy may also be context dependent and in his reformulation of self-efficacy theory Bandura proposed that self-efficacy was not a stable predisposition as he originally thought.

Self-efficacy can vary in the expected level of attainment, the certainty that this will be and whether it is general or specific to a certain domain for a person (Kremer, Moran, Walker and Craig, 2012, p.87). Domain-specific self-efficacy refers to self-efficacy in a particular area. In the current study the domain is the sport of equestrianism and when measuring self-efficacy in this domain it will be divided further into two subscales which are dressage and show jumping. Previous research has found that self-efficacy may be an important predictor of performance in sport (George, 1994; Moritz and Feltz, 2000; Beauchamp and Whinton, 2005; Hatzigeorgiadis, Zourbanos, Goltzios and Theodorakis, 2008).

A recent study (Beauchamp and Whinton, 2005) investigated the relationship between self-efficacy and performance in intermediate level equestrian event riders. Equestrian eventing involves three disciplines, which are dressage, show jumping and cross country. They found that for dressage there was a significant relationship between self-efficacy and performance. However in the disciplines of show jumping and cross country no correlation was found between self-efficacy and performance. It has been noted that this may be explained by the lack of variability and were heavily skewed in show jumping and cross country performances. It will be interesting to examine if the current study will produce results which support the view that self-efficacy is an important predictor of performance in sport.

The Current Study

The current study will use a mental skills training package as an intervention for amateur equestrian athletes. The techniques which will be incorporated are guided visualisation and relaxation, and goal setting. Performance will be measured at two separate combined training competitions, the first time point will be before the intervention to establish baseline scores and the second time point will be after the mental skills training has been completed. Domain specific self-efficacy will be measured before each of the combined training competitions to examine if there is a correlation between self-efficacy and performance; and to establish if there is a relationship between mental skills training and domain specific self-efficacy.

Rationale for the Current Study

The rationale for this study is to develop an effective and beneficial mental skills training package which can be used by amateur equestrian athletes to mentally prepare for competitions. There has been limited psychological research to date in the area of mental skills training for equestrians, especially at amateur level. Thus, another objective of this study is to add to this body of research and potentially provide a platform for future research.

The potential implications of the current study are that if the MST package is found to be beneficial to amateur equestrian athletes by enhancing their performance and improving self-efficacy, these participants may continue to use the MST package provided or

engage in some form of mental training before competitions. The current study also has the potential to highlight the importance of being mentally prepared as well as physically prepared for a competition. Therefore the applied value of the current study for amateur equestrian athletes may be very important and feedback from participants will provide qualitative information on the enjoyment and perceived benefits of completing the mental skills training.

Hypotheses

It is hypothesised that there will be a significant relationship between mental skills training and performance. This study predicts that there will be also be a significant relationship between mental skills training and self-efficacy. Finally it is also hypothesised that there will be a correlation between performance and self-efficacy.

The focus of the first hypothesis is to examine the effects of a pre-competition mental skills training package on combined training competition performance in amateur equestrian athletes. It will determine if the MST package developed for the current study enhances performance or not.

The second hypothesis is concerned with whether or not there will be a change in domain specific self-efficacy in equestrian athletes after completing the mental skills training intervention.

Domain specific self-efficacy refers to a person's confidence in their ability to compete certain skills in a particular area, thus the focus of the final hypothesis is to ascertain if there will be a correlation between a participants self-efficacy regarding a combined training performance (dressage and show jumping) and their performance in that combined training competition.

Methodology

Participants

Fourteen amateur equestrian athletes (3 M, 11 F) participated in this study ranging in age from 18 to 51 years, with a mean age of 33.21 years ($SD = 8.77$). Participants were recruited through advertisement at an equestrian competition venue and via an advertisement on social media.

The current study consisted of a single group who all received Mental Skills Training (MST). The decision was made not to have a separate control group because of the limited number of eligible participants available. This single group represented a random sample of amateur horse riders of different experience levels in competing. This ranged from .25 to 33 years competing with a mean of 9.38 years ($SD = 11.59$).

Participants did not receive any payment for taking part in this study. However, following full completion of the study each participant was given a small gift bag of treats for their horse as a thank you gesture.

Design

The current study used an experimental within-subjects design to measure the effects of a mental skills training intervention on the performance of amateur equestrian

athletes in a combined training competition and the effects of this mental skills training package on their domain specific self-efficacy. This study also explored if there was a correlation between domain specific self-efficacy and performance in amateur equestrian athletes.

There is also a qualitative element to the current study because open ended questions were asked, following completion of the study by participants. Therefore this study can be considered a mixed methods within-subjects design.

Hypothesis 1

Independent Variable: Pre-competition mental skills training (MST) intervention.

Dependent Variable: Combined training competition performance scores. This is measured at two separate time points (1) baseline score (2) post MST intervention score.

Hypothesis 2:

Independent Variable: Pre-competition mental skills training intervention.

Dependent Variable: Self-efficacy scores prior to a combined training competition. This is measured at two separate time points (1) baseline score (2) post MST intervention score.

Hypothesis 3:

Predictor Variable: Self-efficacy scores prior to a combined training competition.

Criterion Variable: Combined training competition scores.

Materials**Information Sheet (See Appendix: 1)**

This provided information to the participants regarding the title and aim of the current study, rights of the participants, what would be required of participants during the study and participation eligibility requirements. It also provided the college name, researcher's name and email contact details and the supervisor's name.

Consent Form (See Appendix: 2)

This informed participants of their rights and that the results of the current research study would be published for an undergraduate psychology thesis.

Demographic Questionnaire (See Appendix: 3)

Participants completed a demographic questionnaire which recorded their gender, age, how long they had been riding and competing for, how often they trained or rode per week and how often they competed.

Self-Efficacy Questionnaires (See Appendices: 4 – 7)

This instrument measures an equestrian's domain specific self-efficacy. It was created by Beauchamp and Whinton (2005) in accordance with Bandura's (1997, 2001) recommendations for assessing domain specific self-efficacy. There are two subscales which assess dressage self-efficacy and show jumping self-efficacy. Separate self-efficacy questionnaires are administered to the participant for each equestrian discipline.

Each questionnaire consists of 10 items on an 11 point Likert scale, anchored by: 0 (cannot do at all), 5 (moderately certain can do), and 10 (certain can do). Participants are asked to rate their confidence, using this scale, in performing each of skills on the questionnaire, to the level required for their competition.

Items on the dressage self-efficacy questionnaire include "maintain balance effectively", "to be disciplined with each movement, and "to maintain concentration throughout the test". Examples of items on the show jumping self-efficacy questionnaire are "to maintain a positive attitude", "to maintain a strong seat" and "to respond quickly in different situations". Beauchamp and Whinton (2005) found acceptable internal consistencies for each of the self-efficacy scales (dressage $\alpha = 0.95$ and show-jumping $\alpha = 0.95$).

Social Validation Questionnaire (See Appendix: 8)

A social validation questionnaire which was developed by Thelwell and Greenless (2001) was administered following completion of the study in order to provide information concerning the importance of the study and satisfaction regarding the mental skills training. Using a 7-point Likert scale participants were asked the following four questions:

1. "How important is an improvement in performance to you?" (*responses ranging from 1 – not at all important to 7 – extremely important*)
2. "Do you consider the changes in performance to be significant?" (*responses ranging from 1 – not at all significant to 7 – extremely significant*)
3. "How satisfied were you with the mental skills training program?" (*responses ranging from 1 – not at all satisfied to 7 – extremely satisfied*)
4. "Has the intervention proved useful to you?" (*responses ranging from 1 - not at all useful to 7 - extremely useful*)

In the second part of the social validation participants were asked two open ended questions. Firstly participants were asked to state if and why they perceived the mental skills training to have enhanced or inhibited their performance. Finally it asked if the participant enjoyed doing the mental skills training and to provide a reason why or why not.

Mental Skills Training Package: Goal Setting Form (See Appendix: 9)

As part of the mental skills training participants are asked to complete a goal setting form. They are encouraged to make 'SMART' goals. These are goals which are: (1) Specific (2) Measurable (3) Attainable (4) Realistic and (5) Time Sensitive.

This form is divided into three goal sections which are (1) goals for training, (2) goals for the next competition, and (3) goals for the competition season.

Mental Skills Training Package: Relaxation and Guided Visualisation MP4 Audio

An audio relaxation and guided visualisation MP4 specific to equestrian athletes was created for this study. The length of this was 11:15 minutes. Participants were also offered this audio on CD format should they require it. All participants selected the MP4 format.

Procedure

Ethical approval was received by the Department of Psychology at Dublin Business School in November 2014. Combined training competitions at equestrian venues usually take place in the form of a league run over 6 weeks at different times of the year. It was therefore necessary to wait until January 2015 for information about the next set of dates to be confirmed. The owner of the venue and organiser of the combined training competition league were contacted to request permission to advertise for participants at the venue and

on social media, which was agreed. Participants responded via email to indicate their interest in taking part in the current study.

Two consecutive competition dates were selected. Prior to the first competition each participant received an information sheet, consent form, self-efficacy questionnaire for dressage and self-efficacy questionnaire for show jumping. Written instructions were provided on the top of each of these for the participants to follow. These were completed and returned to the researcher before the first combined training competition.

On the day of the first competition participants competed in dressage and show jumping. There were 6 classes for different experience levels which were: starters x-poles, novice 70cm, novice 80cm, intermediate 90cm, advanced intermediate 1m and open 1.10m. Participants did a class at their selected level; this consisted of a dressage test and then a show jumping round of 9 jumps. They were given a score for their dressage test, if they had a clear round in the show jumping phase they remained on this score. If faults were accumulated during the show jumping phase these were deducted from their score. This final score was their combined training score.

On the evening of their first competition date participants were emailed the MST intervention package which consisted of (1) the guided relaxation and visualisation MP4 audio, and (2) the goal setting form. They were instructed to listen to the relaxation and visualisation audio three times during the week prior to their next combined training

competition. Instructions for using the goal setting form were written on the top of the sheet and participants were informed this was for their personal use and it was not necessary to return this to the researcher.

Two days prior to the second combined training competition participants were emailed a second self-efficacy questionnaire for dressage and show jumping in order for them to complete it the day before their competition but after the MST intervention. This was returned via email to the researcher.

On the day of the second competition participants competed in the same way as they had in the first competition. They were in the same class as they had been in the previous competition. For example, if they were in novice 70cm for the first competition they were also in novice 70cm for the second competition. They competed on the same horse each week, and the same judges and organisers were also present.

Combined training performance scores for the second competition were calculated in exactly the same way as for the first competition. Following their participation in the current study participants were thanked for taking part and asked to fill out a social validation questionnaire. This was emailed to the participants and there was written instructions at the top of this questionnaire. Participants returned the completed social validation form to the researcher via email.

Results

Descriptive Statistics

Table 1: Frequency table of gender.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	3	21.4	21.4	21.4
	Female	11	78.6	78.6	100.0
	Total	14	100.0	100.0	

Fourteen participants took part in the current study, 3 were male and 11 were female. The participants ranged in age between 18 and 51 years. The mean age was 33.21 years ($SD = 8.77$) and the majority of participants were in their thirties (figure 1).

All participants were competing in dressage and show jumping at the time of the current study. The mean number of years participants had been riding for was 14.71 ($SD = 12.69$) and the mean number of years participants had been competing was 9.38 ($SD = 11.59$). The majority of participants competed once per month, with only one participant competing more than once per week.

Table 2: Frequency table of how often participants compete.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	More than once per week	1	7.1	7.1	7.1
	Once per week	3	21.4	21.4	28.6
	Twice per month	3	21.4	21.4	50.0
	Once per month	4	28.6	28.6	78.6
	Less than once per month	3	21.4	21.4	100.0
	Total	14	100.0	100.0	

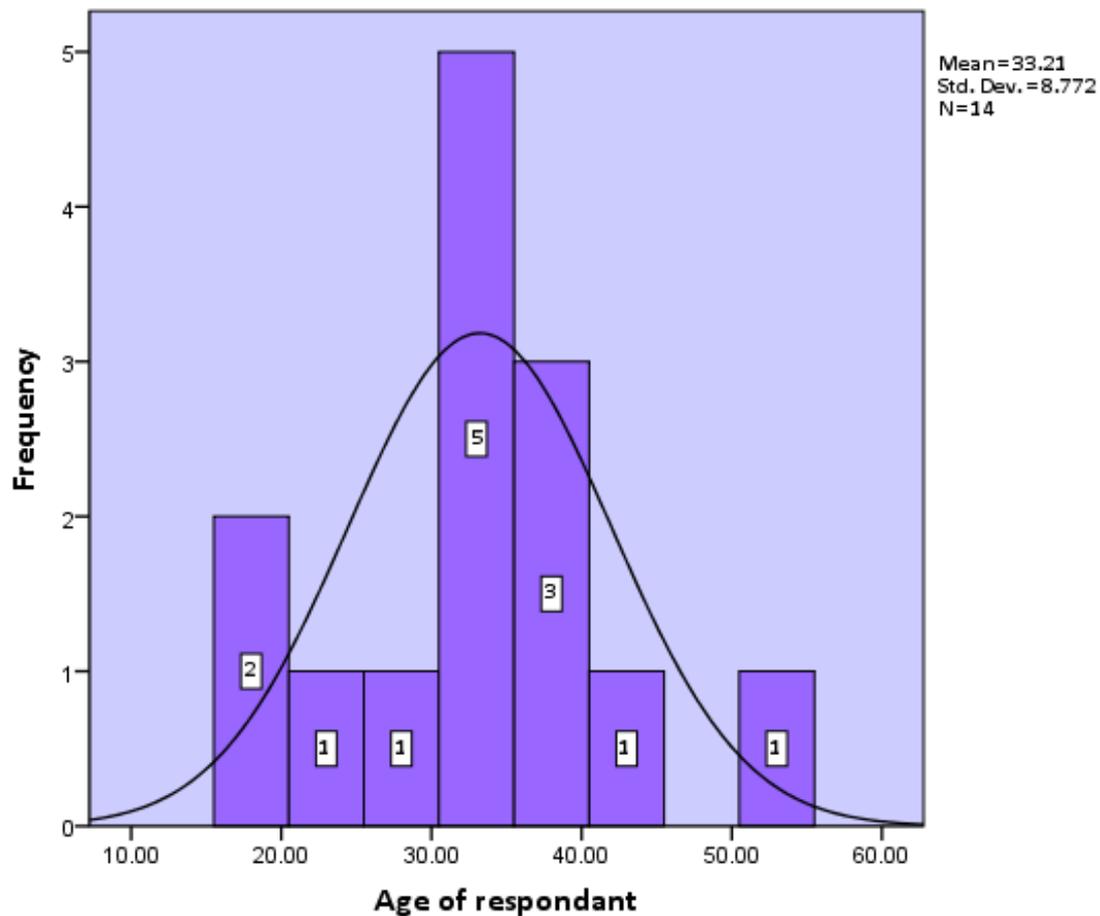


Figure 1: Histogram representing the frequency of ages of the participants

Psychological measures are provided in table 3. The mean scores for combined training performance at time point 1 (baseline score) was 63.48 (SD = 6.91) and at time point 2 was 72.20 (SD = 5.96). Self-efficacy had a mean score of 141.79 (SD = 31.72) at time point 1 (baseline score) and at time point 2 self-efficacy had a mean score of 157.93 (SD = 27.5).

Table 3: Descriptive statistics of psychological measures

Variables	Mean	Standard Deviation
Combined Training Performance 1	63.48	6.91
Combined Training Performance 2	72.20	5.96
Combined Training Self-efficacy 1	141.79	31.72
Combined Training Self-efficacy 2	157.93	27.50

Descriptive statistics were run on the social validation variables. These indicated that an improvement in performance was extremely important for the majority of participants, and they perceived changes in performance to be significant following the MST intervention; and that the MST intervention was useful and satisfactory. The mean score (maximum possible score is 28) for social validation of the MST intervention was 22.21 (SD = 2.36). It was also found that all of the participants enjoyed the MST.

Table 4: Frequency of enjoyment of the mental skills training.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	100.0	100.0	100.0

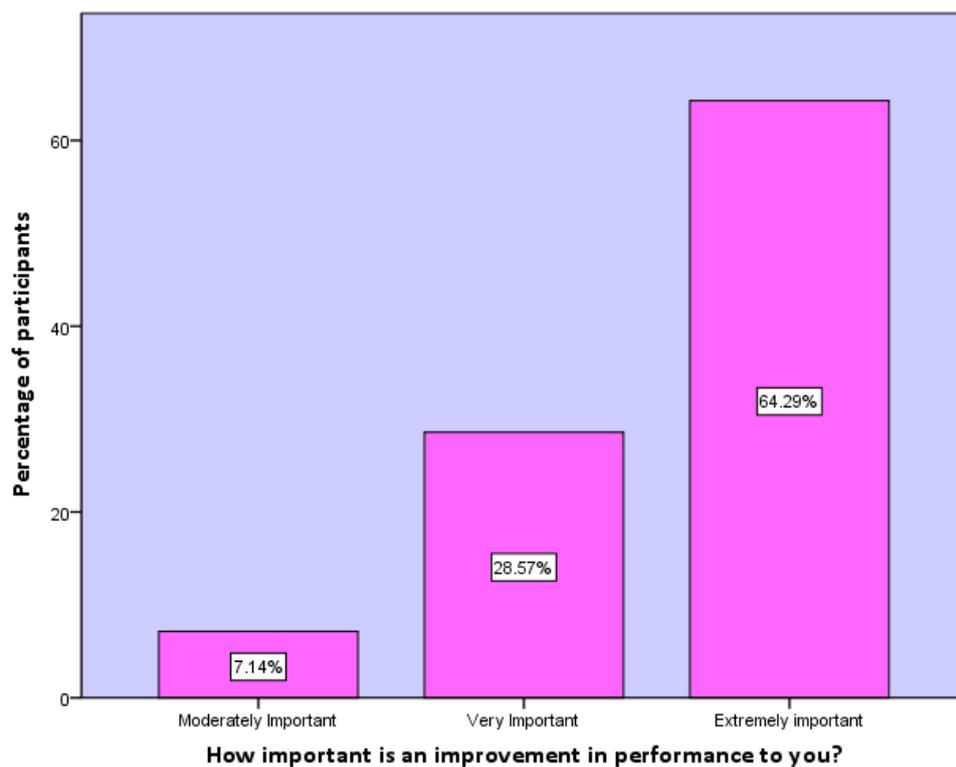


Figure 2: Bar chart representing importance of performance improvement.

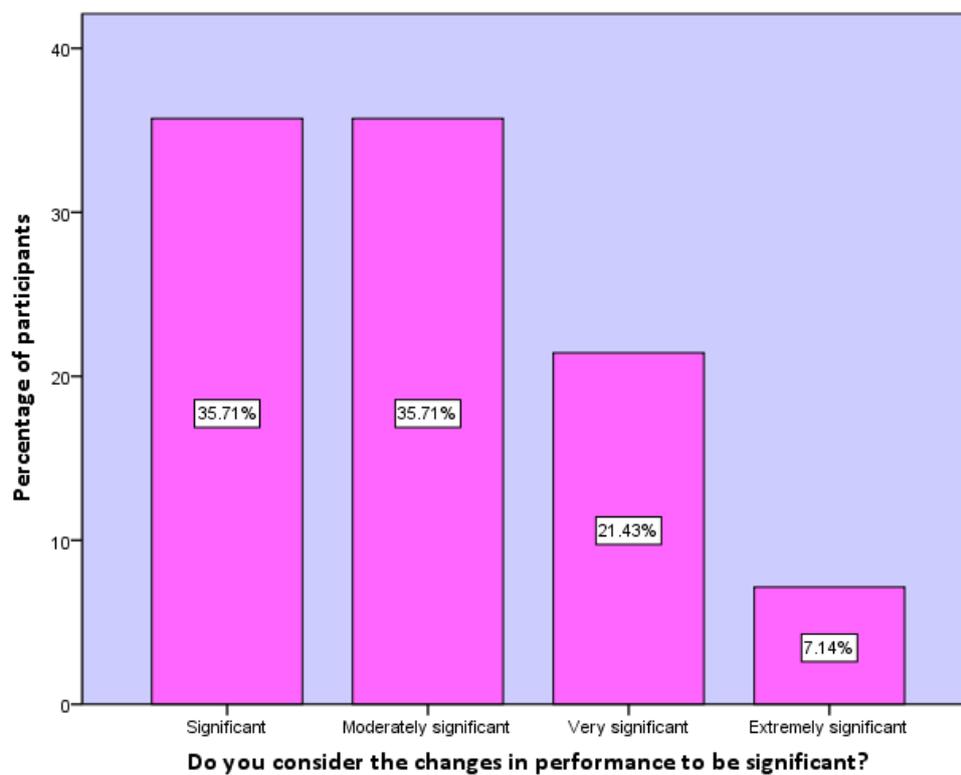


Figure 3: Bar chart representing perceived changes in performance.

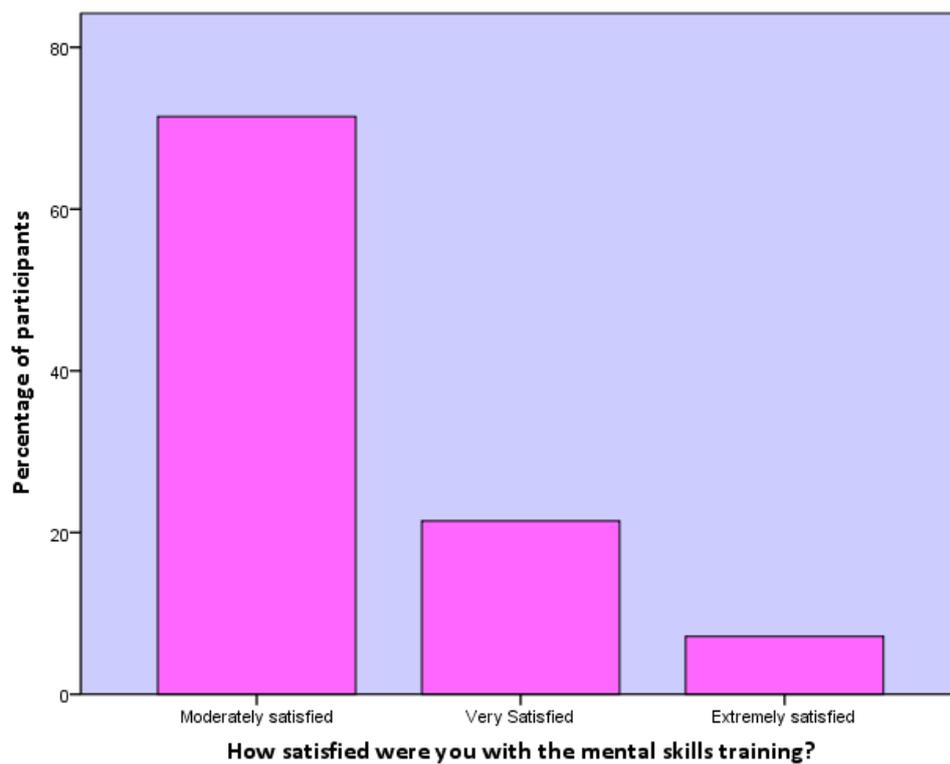


Figure 4: Bar chart representing satisfaction with the mental skills training.

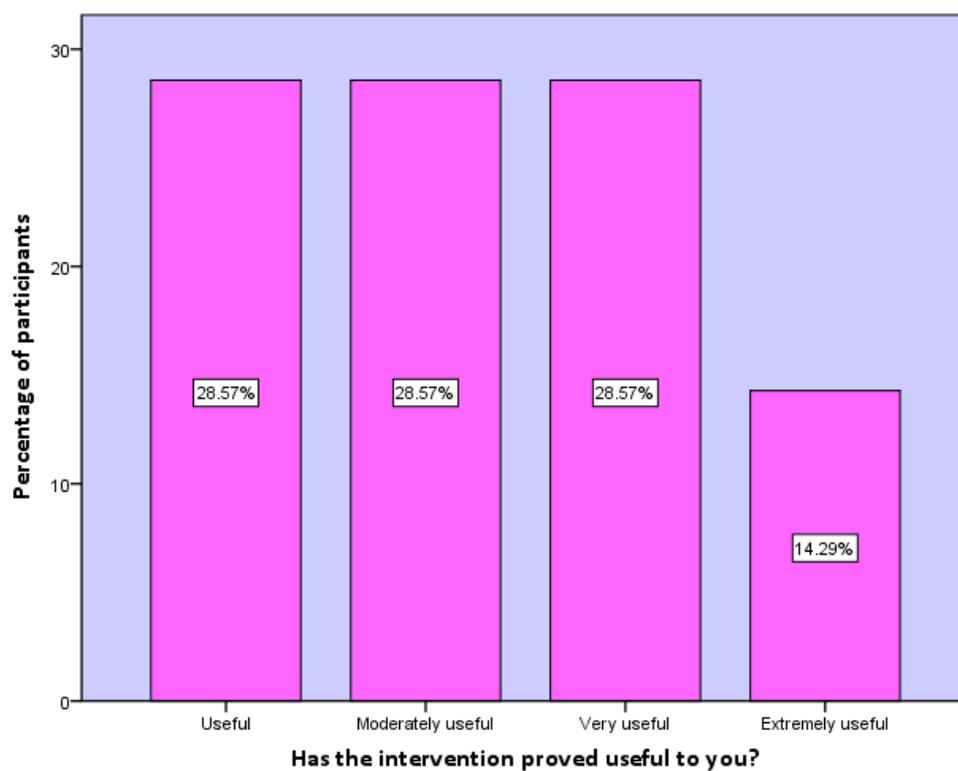


Figure 5: Bar chart representing the usefulness of the mental skills training intervention.

Inferential Statistics

A paired samples t-test found that there was a statistically significant difference between combined training performance scores before (M = 63.48, S = 6.91) and after (M = 72.20, S = 5.96) the mental skills training intervention ($t(13) = -11.16, p < .001$). Therefore the null hypothesis can be rejected.

A paired samples t-test was run and found that there was a statistically significant difference between self-efficacy scores before the first combined training competition (M = 141.79, SD = 31.72) and self-efficacy scores before the second combined training competition (M = 157.93, SD = 27.5), after completing the mental skills training intervention ($t(13) = -6.87, p < .001$). Therefore the null hypothesis can be rejected.

A Pearson correlation coefficient was computed to examine the relationship between the domain specific self-efficacy scores and combined training performance scores. It was found that there was a moderate positive correlation between combined training self-efficacy (M = 141.79, SD = 31.72) and combined training performance (M = 63.48, S = 6.91) at the first time point ($r(14) = .56, p = .037$).

A Pearson correlation coefficient was also run for the second time point and found that there was a moderate positive correlation between combined training self-efficacy (M = 157.93, SD = 27.5) and combined training performance (M = 72.20, S = 5.96) after the MST

intervention ($r(14) = .59, p = .027$). Therefore the null hypothesis can be rejected. The results for both of the Pearson correlation coefficient tests are represented by simple scatterplots in figure 6 and 7.

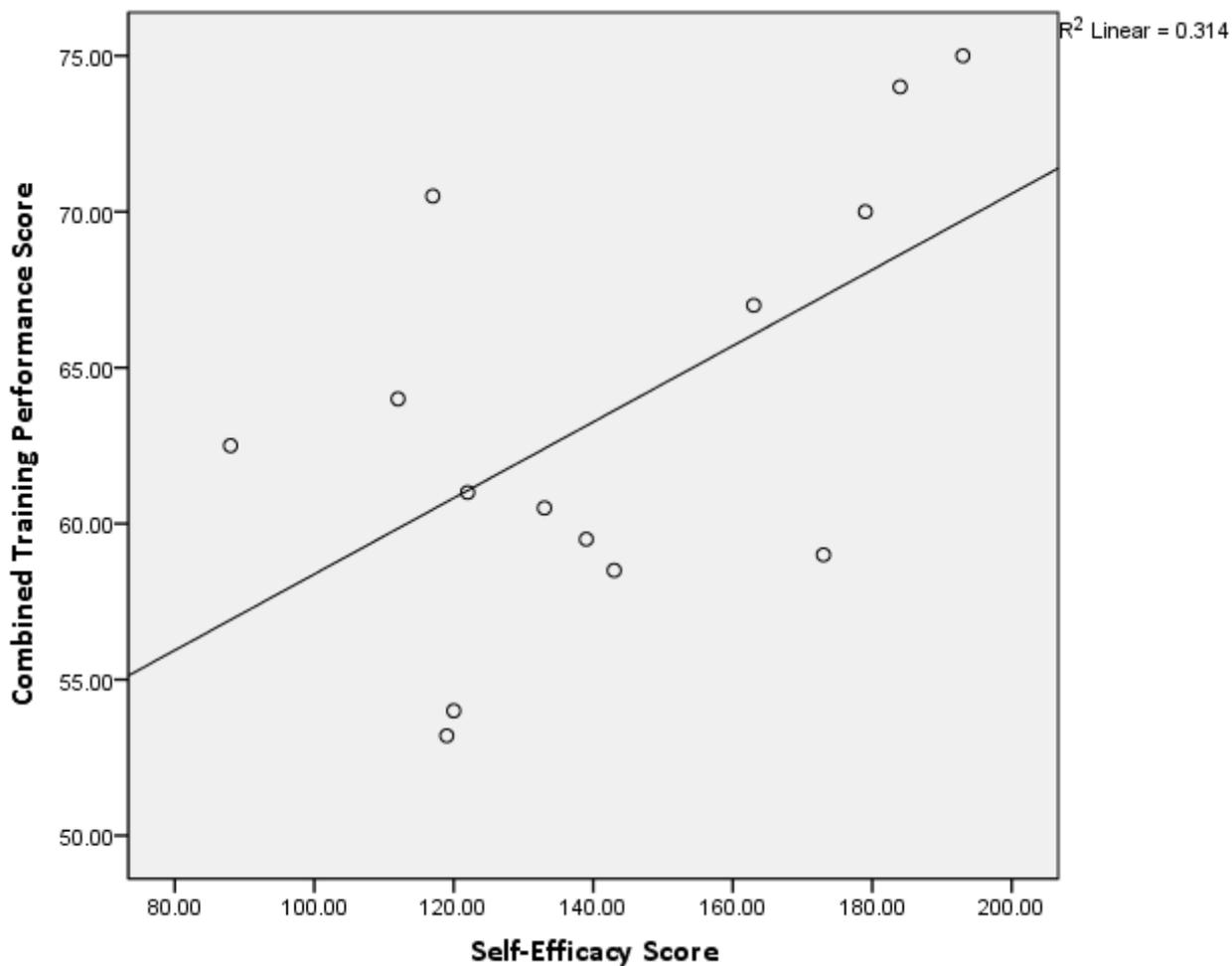


Figure 6: Simple scatterplot representing the relationship between self-efficacy and combined training performance at time point 1.

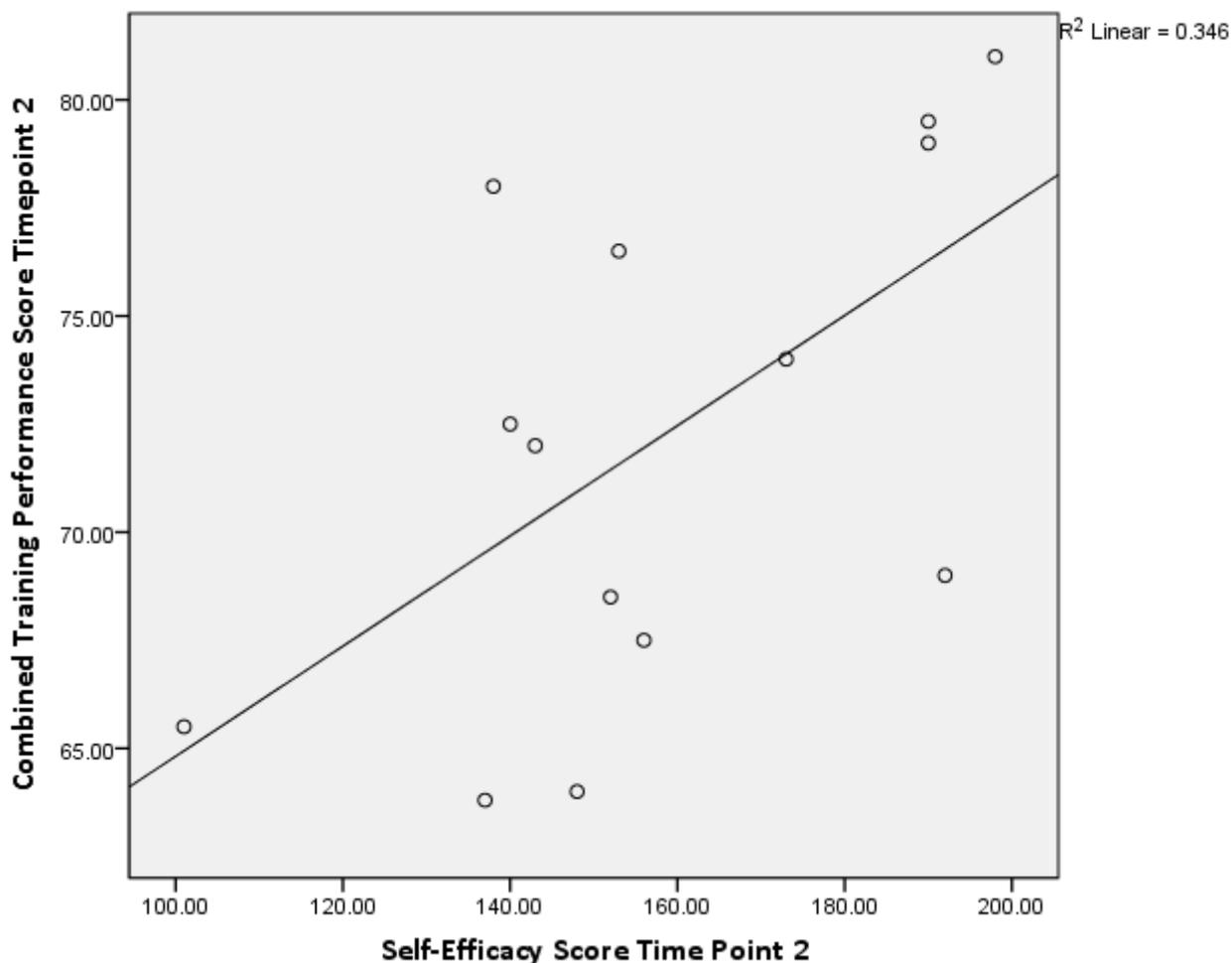


Figure 7: Simple scatterplot representing the relationship between self-efficacy and combined training performance at time point 2.

A further Pearson correlation coefficient was computed to examine if there was a relationship between the number of years a participant had been competing for and domain specific self-efficacy scores at time point 2. A moderate positive correlation between how long participants had been competing for ($M = 9.38$, $SD = 11.59$) and self-efficacy ($M = 157.93$, $SD = 27.50$) was found ($r(14) = .69$, $p = .007$).

In order to examine if the correlation found between combined training performance and domain self-efficacy was influenced by the number of years participants had been competing for, a partial correlation was computed for combined training performance and domain self-efficacy while controlling for the number of years participants had been competing for. When this variable was controlled for at time point 2 it was found that there was no significant relationship between self-efficacy scores ($M = 157.93$, $SD = 27.5$) and combined training performance scores ($M = 72.20$, $S = 5.96$); ($r(14) = .30$, $p = .321$). A partial correlation was also computed using these variables for time point 1 and similar results were found: self-efficacy scores ($M = 141.79$, $SD = 31.72$), combined training performance ($M = 63.48$, $S = 6.91$); ($r(14) = .19$, $p = .538$). Therefore when taking into account the number of years participants have been competing for the null hypothesis is accepted.

Further Analysis

To investigate possible differences by gender a paired samples t-test was run and this found that there was a statistically significant difference between combined training performance scores for males before ($M = 58.07$, $SD = 7.75$) and after ($M = 67.27$, $SD = 5.83$) the MST intervention ($t(2) = -8.26$, $p = .014$) and females before ($M = 64.95$, $SD = 6.23$) and after ($M = 73.55$, $SD = 5.48$) the MST intervention ($t(10) = -8.88$, $p < .001$).

However a paired samples t-test found that there was no statistically significant difference between self-efficacy scores for males before the first combined training

competition ($M = 134.00$, $SD = 25.12$) and self-efficacy scores before the second combined training competition ($M = 152.67$, $SD = 18.45$), after completing the mental skills training intervention ($t(2) = -3.59$, $p = .070$). There was a statistically significant difference between self-efficacy scores for females before the first combined training competition ($M = 143.91$, $SD = 34.04$) and self-efficacy scores before the second combined training competition ($M = 159.36$, $SD = 30.08$), after completing the mental skills training intervention ($t(10) = -5.67$, $p < .001$).

Discussion

The aim of the current research study was to examine the relationship between (1) pre-competition mental training and performance and (2) pre-competition mental training and domain specific self-efficacy in amateur equestrian athletes. An additional aim was to investigate if there was a correlation between domain specific self-efficacy and performance in amateur equestrian athletes.

A mental skills training (MST) intervention was used in the current study. The main findings were that there was a statistically significant difference in both combined training performance scores and domain specific self-efficacy scores before and after completing the MST intervention. Therefore the hypothesis that there would be a statistically significant relationship between MST and performance was supported, as was the hypothesis that there would be a relationship between MST and self-efficacy.

Results initially suggested that there was a moderate positive correlation between domain specific self-efficacy and combined training performance. However, it was found that when the number of years participants had been competing for was controlled for, there was no correlation between domain specific self-efficacy scores and combined training performance scores. Therefore the hypothesis that there would be a correlation between self-efficacy and performance was not supported. An additional finding was that there was a moderate positive correlation between the number of years participants had been competing for and domain specific self-efficacy.

The current research study provides support to previous research (Patrick and Hrycaiko, 1998; Thelwell and Greenless, 2003) which has found that MST enhances performance in sport and specifically in equestrian sports (Blakeslee and Goff, 2007). These studies used a similar combination of mental skills training tools such as relaxation, visualisation, goal-setting and self-talk. Thus it is evident from the findings of the current research study and previous research that using a mental skills training package can enhance performance in athletes.

Contrary to previous research (George, 1994; Beauchamp and Whinton, 2005; Hatzigeorgiadis, Zourbanos, Goltsios, and Theodorakis, 2008) the current study found that self-efficacy was not a predictor of performance in sport, when the length of time participants had been competing for was controlled for. In a study which also involved equestrian athletes, Beauchamp and Whinton (2005) found that self-efficacy was a predictor for performance in dressage but not in show jumping or cross country. It is possible that in the current study that the high range of years competing may have affected the finding that self-efficacy and performance were not correlating variables. This should be considered as although each participant rode at their own skill level, and was therefore indicating their self-efficacy based on this; it is likely that the participants who had been competing for a high number of years would be more confident in their abilities and more confident in a competition environment in general. Therefore it would be interesting to conduct this research with participants who had been competing for a similar length of time to examine if this would influence results.

One of the main strengths of the current study was that the MST intervention used has good ecological validity because the results found it to be beneficial in a real world situation. Furthermore, the MST was not too time consuming, which was important as many amateur equestrian athletes may be busy not only with training/riding but also with the care of their horse. An additional strength of the current study was that the social validation questionnaire was included which provided feedback on how participants perceived the MST intervention.

A limitation of the current study was the small sample size. This was due to difficulties in recruiting a higher number of participants. The target population of this study is relatively small and in order to be consistent with the venue and dates, to maintain the same conditions, it limited the number of potential participants. Another limitation of this study was that there was no separate control group. Initially this research study planned to have a separate control group. However, it was decided that the sample size achieved was not large enough to assign participants to two separate groups. Finally, there was a much higher ratio of females to males. This however may be due to the tendency for more females than males competing at amateur level in equestrianism. It would therefore be interesting to conduct a future research study using the same MST intervention but with a control group and higher sample size.

The current study, and previous research, in the area of mental skills training in equestrianism has focused on the adult population. Thus, a possible future direction in this

area would be to develop a MST intervention for younger riders and examine if this affected their domain specific self-efficacy and performance in equestrian competitions. Depending on the age group, it would be important to ensure that the language used in questionnaires and in any MST was appropriate for their level of understanding.

The results suggest there are positive benefits of the MST for performance and self-efficacy. The social validation questionnaire found that not only did participants find the MST useful, they also enjoyed it. This is a very positive outcome as part of the rationale of the current study was to develop a MST which would benefit amateur equestrian athletes and help them prepare mentally for competitions. In the open-ended element of the social validation questionnaire participants reported that they found the MST helped them to relax, it calmed nerves and helped them to focus. Considering that horse-riding can be anxiety producing (Tenenbaum, Lloyd, Pretty and Hanin, 2002) it is important to note that the MST intervention used in the current study helped to diminish nerves and produce a relaxation response.

The implications of these findings are that it supports the use of mental skills training in sport and highlights that it is beneficial to prepare mentally as well as physically for a competition. Furthermore, the feedback regarding the MST from participants was generally very positive.

The main findings of the current study were that there is a relationship between MST and performance; and MST and domain specific self-efficacy; in amateur equestrian athletes. When the number of years participants had been competing was controlled for, there was no correlation found between self-efficacy and performance. This finding was contrary to previous research so it would be interesting to investigate this further to determine why this was the case. The current study has highlighted the benefits of mental skills training in sport and provides additional support to previous research in this area. Furthermore, feedback from participants regarding the mental skills training intervention was positive which may imply that they would use this MST package before future competitions.

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Appendix: 1

Information Sheet

My name is Liz O'Callaghan and I am a final year student in Dublin Business School. I would like to invite you to take part in the following research study. I will be supervised by Dr. John Hyland.

Title of Research Study:

Pre-Competition Mental Training, Self-Efficacy and Performance of Amateur Equestrian Athletes.

Aims of the Study:

To explore how mental training effects competition performance of amateur equestrians.

Requirements of Participants:

You will be asked to complete questionnaires regarding your confidence in your ability to complete certain skills, take part in two separate combined training competitions. Then

after the first competition you will be asked to follow a short mental training programme designed specifically for equestrian athletes.

Risks:

It is not anticipated that there will be any significant risks involved in taking part in this research.

Confidentiality:

Your confidentiality will be maintained, ID will be coded. Data will be in a thesis within DBS and displayed in a presentation in DBS, identity of participants will be protected. Data will be stored securely until it is destroyed in accordance with data protection laws.

Voluntary Participation/Right to withdraw:

It is completely voluntary to participate in this research study and you have the right to withdraw at any time.

Eligibility Requirements:

At least 18 years of age; currently compete in dressage and show jumping; and train/ride at least once per week.

Researcher Contact Details

Please contact me should you have any queries or require further information.

Email: xxxx@gmail.com

Thank you and best wishes for your competitions.

Appendix: 2

Consent Form for Participation in Research

I have read the information provided and I understand that the purpose of this study is to explore the effects of mental skills training on performance in amateur equestrian athletes.

Please tick the box next to each statement to verify you have read it and understand your role in this study.

- I understand that I will be asked to complete two questionnaires, regarding my confidence in my ability to complete certain skills, before two separate combined training competitions.
- I understand that confidentiality will be maintained my identity will be protected.
- I understand that participation is completely voluntary and that I may withdraw at any time.
- I understand that the results of this research will be published as a thesis for an undergraduate psychology degree.

I declare that I am at least 18 years of age and I hereby give my consent to participate in this study:

Signature: _____ Date: _____

Appendix: 3

Demographic Questionnaire

Please complete the following questionnaire which will ask questions about you and your equestrian activities.

1. Gender (circle one): **Male** **Female**

2. Age in years?

3. Number of years you have been riding for?

4. Number of years you have been competing for?

5. How often do you usually compete?

(Circle the answer which best applies to you)

More than once a week

Once a week

Twice per month

Once per month

Less than once per month

6. How many days do you train/ride each week?

Appendix: 4

Dressage Questionnaire 1:

Please complete before 1st combined training competitionDressage

Please rate your confidence, on a scale of 0-10, in performing each of the skills listed below, to the level required for your competition.

0 1 2 3 4 5 6 7 8 9 10

(0 = cannot do at all; 5 = moderately certain can do; 10 = certain can do)

How confident are you in your ability...	Confidence (0-10)
1. To maintain balance effectively	
2. To have the correct technical knowledge	
3. To produce effective aids for the horse	
4. To maintain concentration throughout the test	
5. To have the appropriate level of understanding of the horse	

6. To maintain a positive attitude	
7. To co-ordinate different body parts effectively	
8. To be disciplined with each movement	
9. To maintain a strong seat	
10. To produce the required movements accurately	

Appendix: 5

Show Jumping Questionnaire 1: Please complete before 1st combined training competition

Show Jumping

Please rate your confidence, on a scale of 0-10, in performing each of the skills listed below, to the level required for your competition.

0 1 2 3 4 5 6 7 8 9 10

(0 = cannot do at all; 5 = moderately certain can do; 10 = certain can do)

How confident are you in your ability...	Confidence (0-10)
1. To maintain balance effectively	
2. To have the correct technical knowledge	
3. To produce effective aids for the horse	
4. To maintain concentration throughout the course	

5. To have the appropriate level of understanding of the horse	
6. To maintain a positive attitude	
7. To maintain an effective posture throughout the ride	
8. To maintain a rhythmic canter	
9. To respond quickly in different situations	
10. To effectively judge distances and strides	

Appendix: 6

Dressage Questionnaire 2: Please complete before 2nd combined training competition

Dressage

Please rate your confidence, on a scale of 0-10, in performing each of the skills listed below, to the level required for your competition.

0 1 2 3 4 5 6 7 8 9 10

(0 = cannot do at all; 5 = moderately certain can do; 10 = certain can do)

How confident are you in your ability...	Confidence (0-10)
1. To maintain balance effectively	
2. To have the correct technical knowledge	
3. To produce effective aids for the horse	

4. To maintain concentration throughout the test	
5. To have the appropriate level of understanding of the horse	
6. To maintain a positive attitude	
7. To co-ordinate different body parts effectively	
8. To be disciplined with each movement	
9. To maintain a strong seat	
10. To produce the required movements accurately	

Appendix: 7

**Show Jumping Questionnaire 2:
Please complete before 2nd combined training competition**

Show Jumping

Please rate your confidence, on a scale of 0-10, in performing each of the skills listed below, to the level required for your competition.

0 1 2 3 4 5 6 7 8 9 10

(0 = cannot do at all; 5 = moderately certain can do; 10 = certain can do)

How confident are you in your ability...	Confidence (0-10)
1. To maintain balance effectively	
2. To have the correct technical knowledge	
3. To produce effective aids for the horse	

4. To maintain concentration throughout the course	
5. To have the appropriate level of understanding of the horse	
6. To maintain a positive attitude	
7. To maintain an effective posture throughout the ride	
8. To maintain a rhythmic canter	
9. To respond quickly in different situations	
10. To effectively judge distances and strides	

Appendix: 8

Feedback Questionnaire

Part A

Please answer each question giving your response on a scale of 1-7

1. How important is an improvement in performance to you?

(1 = Not important at all, 2 = Not very important, 3 = Moderately unimportant, 4 = Important, 5 = Moderately important, 7 = Extremely important)

2. Do you consider the changes in performance to be significant?

(1 = Not significant at all, 2 = Not very significant, 3 = Moderately insignificant, 4 = Significant, 5 = Moderately significant, 6 = Very Significant, 7 = Extremely significant)

3. How satisfied were you with the mental skills training?

(1 = Not satisfied at all, 2 = Not very satisfied, 3 = Moderately unsatisfied, 4 = Satisfied, 5 = Moderately satisfied, 6 = Very satisfied, 7 = Extremely satisfied)

4. Has the intervention proved useful to you?

(1 = Not useful at all, 2 = Not very useful, 3 = Not useful, 4 = Useful, 5 = Moderately useful, 6 = Very useful, 7 = Extremely useful)

Part B

1. If you feel that this mental skills training intervention has enhanced or hindered your performance please state why you perceive this to be the case:

2. Did you enjoy doing the mental skills training? _____ Why/why not?

Appendix: 9**Goal Setting Form**

Please complete the following goal setting form during the week between the two competitions. This is for your own personal use and does not need to be returned to the researcher. You are encouraged to make 'SMART' goals. These are goals which are (1) Specific (2) Measurable (3) Attainable (4) Realistic and (5) Time Sensitive.

Goals for training:

1.

2.

3.

Goals for your next competition:

1.

2.

3.

Goals to complete by the end of this competition season:

1.

2.

3.