To the Graduate Council:

I am submitting herewith a thesis written by Craig Friedman entitled "Athletic Injury Rehabilitation and Reconditioning Beyond the Clinical Setting." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Sport Administration.

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Patricia A Beitel, Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:

Associate Vice Chancellor and
Dean of the Graduate School

ATHLETIC INJURY REHABILITATION AND RECONDITIONING BEYOND THE CLINICAL SETTING

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To everyone who has helped me along the way

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ABSTRACT

The purposes of this study were to ascertain from the clinician's perspective the level of need and demand for extended care for injured athletes beyond the sports medicine clinic, and in turn, to determine if there is justification for providing the services of certified athletic trainers and certified strength and conditioning specialists in an alternative setting. The goal of an injured athlete should be to return to competition as quickly as possible at the same level of performance and fitness as they were before they were injured. If the athlete's care is compromised by restrictions from an insurance company, then they will be unable to meet this goal. By providing extended care beyond the clinical setting during the later phases of rehabilitation, an athlete's strengthening and reconditioning can be continued to the point of complete recovery.

Several physical therapy clinic's directors or administrators were approached and informed of the research project and possible benefits to their program. Following approval of each clinic's director, staff physical therapists, certified athletic trainers, and certified strength and conditioning specialists were given a questionnaire to be voluntarily completed. Although the questions were varied in scope and composition, the data were evaluated to draw conclusions and answer each of the following research questions.

(1) Is there a need for extended rehabilitative care beyond the clinical setting for the injured athlete?

(2) On what aspects of the rehabilitative process should the care focus?

(3) Would other settings such as health clubs or fitness centers be effective locations for delivering the extended care?

The demographic groups used to analyze the research questions consisted of physical therapists and sport therapists. The sport therapist group included any clinicians (including physical therapists) who are certified athletic trainers or certified strength and conditioning specialists.

The clinician responses indicated a consistent need for rehabilitative care for the injured athlete beyond the clinical setting. The information provided also suggested that both physical therapists and sport therapists believed the emphasis for the rehabilitative care should focus on athletic performance enhancing factors such as fitness, strength, conditioning, movement, and speed training. By focusing the extra care in these areas, effective reconditioning programs may be implemented beyond the clinical setting. Both groups agreed that individual strength and conditioning sessions in a health club setting with a certified athletic trainer or certified strength and conditioning specialist would be beneficial to an injured athlete in regaining performance enhancing components in these areas.

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CHAPTER I
INTRODUCTION

In today's world of managed health care following physical injury, needed care of the patient often does not equal covered care from the insurance company. Health care providers must bend to the will of the insurance companies, as they dictate the type and quantity of care which is covered and that which is not (Mooney, 1995). Certain procedures may not be allowed, some medical equipment may not be covered, and in the case of physical therapy, only a certain number of visits may be paid for by the insurance company (Bryan, Bursch, & Greathouse, 1998).

When an athlete is injured and is referred to a physical therapist by a physician, the treatment is heavily influenced by what the insurance company allows (Mooney, 1995). With moderate to severe injuries, athletes will be forced to discontinue treatment when their insurance stops payment, leaving them with residual weaknesses or dysfunction (Mooney, 1995). Obviously, this would leave the athlete at a disadvantage not only for return to competition, but for their return to training and daily activities as well. Access to a competent health care provider in an alternative setting would allow athletes to continue their rehabilitation and reconditioning after being released from physical therapy at a fraction of the cost of out of pocket payments to the physical therapy clinic for uncovered health care.

Certified athletic trainers and certified strength and conditioning specialists are trained and experienced to interact with athletes on a variety of levels. Certified athletic trainers are experts at preventing, assessing, evaluating, treating, and rehabilitating

athletic injuries (Arnheim and Prentice, 1993), while the certified strength and conditioning specialist's expertise lies in maximizing strength and conditioning levels, agility, and overall performance utilizing resistance and cardiovascular exercise (Wittwer, 1997). Clearly, all of these aspects are interrelated and necessary components of an effective plan for rehabilitating an athletic injury making both the certified athletic trainer and certified strength and conditioning specialist important members of an athlete's rehabilitative team (Kleiner, Holcomb, & Worley, 1996).

Purpose

The purposes of this study were to ascertain from the clinician's perspective the level of need and demand for extended care for injured athletes beyond the sports medicine clinic, and in turn, to determine if there is justification for providing the services of certified athletic trainers and certified strength and conditioning specialists in an alternative setting. The following questions were explored from physical therapist and sport therapist perspectives in order to ascertain this need.

1. Is there a need for extended rehabilitative care beyond the clinical setting for the injured athlete?
2. On what aspects of the rehabilitation process should that care focus?
3. Would other settings such as health clubs or fitness centers be effective locations for delivering the extended care?

Definition of Terms

The following terms and phrases are included to clarify the issues of concern addressed by the research questions and the technical elements of this study.

Alternative Setting. Facility other than a physical therapy clinic, such as a health club or fitness center, as the location for the delivery of athletic injury rehabilitative services.

Athlete. Any participant of organized sport on any level (recreational and competitive). In this study, **athlete** will refer only to those who are of age 18 years or older.

Athletic Training. The profession dealing with the health care of athletic injuries related to the five domains of athletic training as delineated by the National Athletic Trainers' Association (Arnheim & Prentice,1993).

1. **Prevention of athletic injury.** The practice of avoiding injury through various athletic training services such as stretching, taping, bracing, and avoiding of contraindicated exercises.

2. **Recognition, evaluation, and immediate care of athletic injuries.** The practice of assessing acute injuries and administering proper medical assistance.

3. **Rehabilitation and reconditioning of athletic injuries.** The practice of designing appropriate exercise programs to facilitate complete recovery from injuries.

4. **Health care administration.** The practice of maintaining proper medical records including treatment notes and insurance information and billing.

5. **Professional development and responsibility.** The practice of actively continuing the educational process as it relates to athletic training, as well as behaving in a professional manner while providing athletic training services.

Certified Athletic Trainer. An allied health care professional certified by the National Athletic Trainer's Association Board of Certification in the 5 domains of athletic training. The primary care giver to injured athletes at many sports medicine clinics.

Certified Strength and Conditioning Specialist. An individual certified by the National Strength and Conditioning Association and trained in the science and techniques of developing strength and increasing cardiovascular fitness.

Clinician. Health care provider in the clinical setting. For example: certified athletic trainer, physical therapist, or certified strength and conditioning specialist.

Health Care. Medical services received by someone who is ill or injured, i.e., for athletes, this includes prevention, recognition, evaluation and first aid, rehabilitation and reconditioning of athletic injuries.

Managed Care. A system of health care in which third-party insurance companies dictate the amount and type of care to be delivered by a health care practitioner such as a physical therapist.

Physical Therapist. An individual who is trained and licensed to administer physical therapy.

Physical Therapy. Rehabilitation to restore function to pre-injury levels through the use of therapeutic modalities such as exercise, heat, cold, electricity, and soft tissue manipulation. The goal of physical therapy is to improve strength, range of motion, and proprioception to allow the patient to return to the activities of daily living.

Reconditioning. Development of strength, power, flexibility, agility, cardiovascular fitness, and muscular endurance to pre-injury levels.

Rehabilitation. The use of therapeutic exercise to restore musculoskeletal function to pre-injury levels.

Sportsmedicine Team. Group of professionals responsible for rehabilitating and reconditioning the injured athlete. The sportsmedicine team usually includes the athlete, physicians, athletic trainers, physical therapists, and strength and conditioning specialists.

Sport Therapists. For the purpose of this study, any individual currently certified as either an athletic trainer or strength and conditioning specialist.

Assumptions

It is assumed that the clinicians answered the questionnaire honestly and in an unbiased manner.

Scope of the Study

Certified athletic trainers, physical therapists, and certified strength and conditioning specialists (N = 44) employed by several sportsmedicine facilities located in the southeast United States were asked to complete and return the survey. Level of experience and gender of the clinicians from these selected facilities were not under the control of the researcher.

Significance of the Study

The goal of an injured athlete should be to return to competition as quickly as possible at the same level of performance and fitness as they were before they were injured. If the athlete's care is compromised by restrictions from an insurance company, then they will be unable to meet this goal. By providing extended care beyond the clinical setting during the later phases of rehabilitation, an athlete's strengthening and reconditioning can be continued to the point of complete recovery. This research

provides evidence for this type of health care and implementation of relevant interventions.

The results of this study provide information for health care professionals regarding the implications of providing extended care beyond the physical therapy clinic. If needed, rehabilitative strengthening would not only be continued, but advanced under the care of a qualified professional, ultimately leading to more favorable patient outcomes. The athlete would be able to return to competition and training more quickly and safely as the increased strength and conditioning levels would reduce the risk of reinjury. Out of pocket cost to the athlete for care in the alternative setting as compared to the physical therapy clinic would be dramatically decreased as well.

Rehabilitative exercise and reconditioning would be continued under the supervision of a qualified and competent health care professional at a fraction of the cost of physical therapy visits which are not covered by insurance. This study provides evidence supporting the employment of a certified athletic trainer or certified strength and conditioning specialist in the health club setting, thus providing extended care at much more reasonable costs to the patient.

CHAPTER II
REVIEW OF LITERATURE

The amount of literature available concerning the need or demand for extended rehabilitative and reconditioning care beyond the clinical setting is relatively scarce. The focus of this chapter includes literature dealing with: (a) the effect which managed care has had on physical therapy, (b) certified athletic trainers and certified strength and conditioning specialists providing rehabilitation for athletic injuries, and (c) new ideas concerning rehabilitative services in alternative settings such as health clubs. This review serves to bridge the gap between physical therapy and athletic performance, and potentially provides an answer to the problems managed care has caused the athletic population of the United States.

Effect of Managed Care on Physical Therapy

Mooney (1995) discussed the effect managed care has had on physical therapy coverage provided by insurance companies. He noted that for acute injuries, as few as 3-4 physical therapy visits may be covered today whereas several months would have been covered in the past. Mooney (1995) questioned whether or not insurance companies consider the patient's quality of life when determining coverage and noted that health care professionals still are unable to accurately predict recovery rates for their patients.

There is a question as to how much physical therapy should be allowed for problems with an uncertain outcome (Mooney, 1995). The amount cannot be based on subjective measures such as pain complaints, and objective measures such as functional testing scoring systems are very difficult to develop. Mooney (1995) pointed out,

however, that even if relative dysfunction could be measured and quantified, there is still the question of who would pay the bills.

Mooney (1995) suggested that the future of physical therapy will shift toward short term treatment for pain, while managed care companies will not reimburse for longer term rehabilitative exercise. The question of discerning fitness facilities between being recreational or rehabilitative could be a difficult one for insurance companies to answer in the future. This further supports the idea that the rehabilitative exercise will not be covered. He noted that the result would be that many patients who want continued care would be forced to pay for it themselves. Mooney (1995) suggested that one of the possibilities for these patients to receive continued care may very well be fitness facilities employing competent health care providers such as certified athletic trainers. Mooney (1995) also noted that it will be important to identify these qualified individuals and facilities in order to ensure a high standard of care using scientifically based treatment protocols.

Bryan, Bursch, and Greathouse (1998) discussed the effect managed care will have on physical therapy services in the future. Traditionally, physical therapists have been in tremendous demand for their services, but may experience a lack of demand in the near future. Managed care has restricted the demand for physical therapists' employment, as the emphasis has been placed on acute care and away from chronic rehabilitation protocols.

Bryan et al. (1998) concluded that in order for positive physical therapy outcomes to occur in the future, patients will have to be instructed in home-based long term

rehabilitation plans, reducing the number of treatments received in the physical therapy clinic. Bryan et al. (1998) noted that traditional health care facilities such as sportsmedicine clinics will experience a decrease in the amount of physical therapy administered there, as delivery will shift to other locations. Physical therapists may very well end up instructing patients at their local fitness facility, providing the same long term rehabilitation once located in the physical therapy clinic (Bryan et al., 1998).

The Certified Athletic Trainer and the Certified Strength and Conditioning Specialist and Injury Rehabilitation

Duncan and Wright (1992) discussed the role of certified athletic trainers in the clinical setting. They noted that an athlete's sportsmedicine team may include athletic trainers, physicians, and physical therapists among others, leaving tough decisions for the injured athlete when determining to whom to turn for help. Duncan and Wright (1992) also indicated that certified athletic trainers are becoming more frequently employed in sportsmedicine physical therapy clinics, extending the role athletic trainers play in the treatment of athletic injuries.

Arnheim and Prentice (1993) identified Certified Athletic Trainers as individuals qualified to rehabilitate athletic injuries. Recognized by the American Medical Association as allied health care professionals, there should be no argument about the competency of certified athletic trainers in the role of rehabilitating the injured athlete (Konin & Max, 1997).

Daub (1994) stated that an important aspect of the strength and conditioning specialist's involvement in the rehabilitative process is communication with the other

members of the sportsmedicine team. Limitations as well as goals for the athlete set forth by the physician, athletic trainer, or physical therapist are important to know as the Certified strength and conditioning specialist begins working with the athlete (Daub, 1994).

Kleiner, Holcomb, and Worley (1996) indicated that the certified strength and conditioning specialist is a valuable member of the injured athlete's sportsmedicine team. They described three principles of rehabilitation which are similar to strength and conditioning principles: (a) to stress the body resulting in an overload which evokes a positive adaptation from the body, (b) to provide the body with enough rest for the adaptation to occur, and (c) to cause no further damage to the body than has already been done. The progression from the rehabilitation phase to the conditioning phase is often ambiguous as the athletic trainer has focused on the former while the strength and conditioning specialist has focused on the latter. Both phases are vitally important to restoring the injured athlete to full function, and it is therefore important to have an individual, or individuals, properly trained to direct each. As the athlete moves beyond the rehabilitation phase into more advanced resistance, agility, and cardiovascular exercises, the Certified strength and conditioning specialist is fully qualified to direct the injured athlete through the recovery process (Kleiner et al., 1996).

Wittwer (1997) examined the relationship between certified athletic trainers and certified strength and conditioning specialists. She noted that while at times the roles can be strikingly similar, they can be quite different at others. Collaboration between the two groups of professionals is essential for enhancing the athlete's performance and care, and

cross-over between each professional field of expertise is commonplace. One such area is the realm of athletic injury rehabilitation, which traditionally falls within the athletic trainer's role. Wittwer (1997) noted that the certified strength and conditioning specialist is in a position to be of great support to the athletic trainer as well as the injured athlete during the rehabilitation process. As the athlete progresses beyond the acute stages of rehabilitation toward the later phases, the certified strength and conditioning specialist is in a position to take over the supervisory role of the athlete's care, freeing the certified athletic trainer to handle other new injuries and responsibilities.

Health Care in Alternative Settings

Hamel (1992) discussed the existence of sportsmedicine physical therapy centers within health clubs. She noted that one of the main reasons for the popularity of such partnerships is that athletically inclined patients do not want to be around sick or invalid people while they are trying to recover from their injuries. Hamel (1992) stated that as the emphasis on fitness encourages more and more people to become active, more people will subsequently get hurt, increasing the demand for "upbeat therapy environments." The existence of a sportsmedicine clinic within a health club could encourage a patient's psychological process of healing by main streaming them with other healthier individuals.

While approximately 5% of health clubs currently offer physical therapy, Hamel (1992) suggested that this will become a quickly growing trend in the near future. The existence of a physical therapy clinic within the health club benefits the club by offering services to the existing members in a convenient location, as well as providing the club

with an infusion of new member prospects. This symbiotic relationship reduces the overhead for the physical therapy clinic since much of the necessary equipment is already within the health club, which is also a benefit to the physical therapy patient as well. Hamel (1992) also indicated that having a health club in such proximity to the sportsmedicine clinic makes continuation of exercise beyond rehabilitation more convenient and likely, thus reducing the risk of reinjury and future health care costs.

Hamel (1992) stated, however, that the health club based physical therapy may not be appropriate for everyone. Patients with chronic injuries or disabilities may benefit from smaller rehabilitation clinics, where the emphasis may be on return to daily activities rather than athletic performance. More important than the location of the rehabilitation, though, is the quality and competency of the physical therapist or certified athletic trainer who is directing the patient (Hamel, 1992).

Merk (1994) indicated that the existence of rehabilitation centers within health clubs is not only quite common, but is experiencing rapid levels of growth. The establishment and growth of such clinics can be attributed to a trend among physical therapists towards the use of rehabilitative exercise within their protocols of treatment.

Merk (1994) believed that the rehabilitation centers are beneficial to club owners as patients are introduced to the health club as a result of the clinics. He indicated that anywhere from 10-25% of a clinic's clientele may end up joining the health club after their injury has resolved. Merk (1994) also maintained that the partnership of the physical therapy clinic with the health club benefits the health care provider by providing

a base of potential patients as well as by eliminating the need for the construction of a free standing facility.

Merk (1994) held that the patient being in a more "mainstreamed" environment aids in the psychological aspect of healing, as they view a health club as a healthier location than a clinic. The variety of equipment in the same location is also convenient for the patients as they progress from rehabilitative care to fitness exercise (Merk, 1994).

Conviser (1997) explored the relationships many hospitals have established with health and fitness facilities. These coalitions have come into existence as health care providers, and have realized that as a result of managed care, prevention, wellness, and fitness are playing a much more important role in the delivery of quality health care. Conviser (1997) noted that hospitals and health club partnerships can come in a variety of forms, and that both sides will benefit from the arrangement. The health club becomes an extension of the care once received in the hospital and, thus, can become a viable location for healthcare provision.

Summary

Managed care has had a profound effect on the delivery of physical therapy services. Physical therapists are expected to have quality outcomes with fewer visits with the goal of containing costs (Mooney, 1995; Bryan et al.,1998). The trend for physical therapy services in the future appears to be away from long term rehabilitation and toward a limited number of visits in the acute phase of injury. This shift may result in moving rehabilitative services away from the physical therapy clinic to other alternative settings (Bryan et al., 1998).

Both certified athletic trainers and certified strength and conditioning specialists are important members of an injured athlete's sportsmedicine team (Arnheim & Prentice, 1993; Daub, 1994; Kleiner et al., 1996). By working in conjunction, all facets of an athlete's return to activity can be covered by the certified athletic trainer and certified strength and conditioning specialist, leading to an effective rehabilitation plan. Many individuals carry dual certifications in both of these fields, making them extremely valuable resources for the injured athlete. Early rehabilitation may begin under the supervision of such an individual, and continue through later phases of reconditioning and eventually return to full activity.

As injury rehabilitation moves away from the physical therapy clinic as a result of managed care, the health club can become a viable location for the delivery of these services (Conviser, 1997). Already physical therapy clinics exist within health clubs, largely due to the availability and convenience of the exercise equipment, so it is clear that they are indeed a logical choice for long term rehabilitation of athletic injuries (Hamel, 1992; Merk, 1994; Conviser, 1997).

The three aspects of the literature reviewed can be linked together to form a possible solution to the potential problems in the future of the delivery of rehabilitative services. Certified athletic trainers and certified strength and conditioning specialists could be utilized in a health and fitness facility to rehabilitate athletic injuries beyond what is reimbursable in the physical therapy clinic. Long term rehabilitation would again be available to the athlete in an effective setting, ensuring a quicker and healthier return to activity.

CHAPTER III
METHODS

The purposes of this study were to ascertain from the clinicians' perspectives the level of need and demand for extended care for injured athletes beyond the sports medicine clinic, and in turn, to determine if there is justification for providing the services of certified athletic trainers and certified strength and conditioning specialists in an alternative setting. Three research questions were identified (Chapter 1) and examined using responses from a questionnaire. Within this chapter, the sample of clinicians is described, the rationale from the research design is provided, and the procedures are discussed in detail.

Description of Subjects

Certified athletic trainers, physical therapists, and certified strength and conditioning specialists (N = 44) from several sportsmedicine and rehabilitation clinics located in the southeast United States were the subjects for this research project. There were no restrictions as to gender or experience level. Procedures regarding research with human subjects were followed for the researcher's degree granting university.

Rationale

Certified athletic trainers and physical therapists were included due to the fact that they have the closest contact with the athletes, have extensive training in the management of athletic injuries, and are recognized by the American Medical Association as allied health care professionals. Certified strength and conditioning

specialists were included as they are responsible for the strengthening and conditioning of the athlete newly released from the physical therapy clinic.

Instrumentation

The questionnaire (Appendix C) consisted of items which were designed by the researcher to cover each of the research questions. The first research question (Is there a need for extended rehabilitative care beyond the clinical setting for the injured athlete?) is represented by survey questions 1, 2, 4, 6, 7, 10, 11, and 14; the second research question (On what aspects of the rehabilitative process should that care focus?) by survey questions 3, 5, 6, 8, 9, 11, and 13; and the third research question (Would other settings such as health clubs or fitness centers be effective locations for delivering the extended care?) was evaluated with survey question 14.

Logical validity of the survey was evaluated by distributing the list of survey questions to 2 certified athletic trainers and 2 certified strength and conditioning specialists with instructions to assign each survey question to the appropriate research question. Percent of agreement to the research design was calculated and used to confirm logical validity of the instrument. The first research topic was met with 88% agreement to the design from the validators, while research questions 2 and 3 had 100% agreement to the design from the validators. The lack of 100% agreement in the first research question was attributed to differences in interpretation of the research design, and no changes were made in the survey questions.

Procedures

Each clinic's director or administrator was approached and informed of the

research project and possible benefits to their program and given a copy of the informed consent statement (Appendix A). Following approval of each clinic's director (Appendix A), the staff members were given a cover sheet (Appendix B) and questionnaire (Appendix C) to be voluntarily completed. The cover sheet (Appendix B) attached to each portion of the survey (Appendix C) discussed the nature of the study with instructions that the completion of the survey is voluntary and constitutes informed consent to participate in the study. All of the responses were returned to the researcher with pre-paid, self addressed envelopes.

CHAPTER IV
RESULTS & DISCUSSION

The purposes of this study were to ascertain from the clinicians' perspectives the level of need and demand for extended care for injured athletes beyond the sports medicine clinic, and in turn, to determine if there is justification for providing the services of certified athletic trainers and certified strength and conditioning specialists in an alternative setting. This chapter addresses the rationale behind the evaluation of data, presents demographic information, analyzes and discusses the data collected with respect to the individual research questions, and offers projections based on the data collected and analyzed.

Evaluation of Data

The information obtained through the survey was utilized to answer all of the research questions. Although the questions were varied in scope and composition, the data were evaluated in different ways to draw conclusions and answer each research question (Chapter 1). The demographic groups to be used to analyze the research questions were separated based on demographic survey question 4 as physical therapists were compared to sport therapists. The sport therapist group included all clinicians (including physical therapists) who were certified athletic trainers or certified strength and conditioning specialists. The two groups were examined due to the fact that certified athletic trainers and certified strength and conditioning specialists typically have more contact with the athlete after return to competition than will the physical therapists.

Differences in opinion were analyzed with respect to professional credential for differences in patterns of opinion between the two groups.

Demographics

Twenty-two surveys (50% return) were returned from qualified clinicians with 9 female and 13 male respondents. The mean age and experience level of the clinicians was 31.55 years with an average of 7.24 years of work experience. Eleven of the respondents were solely physical therapists while 11 were of other or multiple professional certifications (physical therapist and certified athletic trainer; certified athletic trainer; certified strength and conditioning specialist; certified athletic trainer and certified strength and conditioning specialist; or physical therapist and certified strength and conditioning specialist) who were labeled sport therapists. Sixteen (72.7%) of the 22 clinicians had worked with a certified strength and conditioning specialist before, while 6 (27.3%) had not.

Research Question 1

Research question 1 examined whether or not there was a need for continued rehabilitative care beyond the clinical setting and was addressed by survey questions 1, 2, 4, 6, 7, 10, 11, and 14. The evaluation utilized was a cross tabulation of each respective survey question by professional group which indicated the frequencies and percentages of responses for each of the two professional groups. The results of the cross tabulations are presented, followed by discussion of the patterns of responses.

Results

In survey question 1, 9% of the sport therapists agreed, 27% had no opinion, 36%

disagreed, and 27% strongly disagreed that the number of visits allowed by an insurance company is adequate to completely rehabilitate most injuries (Table 1). Among the physical therapist group, 36% had no opinion, while 56.5 disagreed, and 9% strongly disagreed. While the percentage of people disagreeing was similar between the two groups, more sport therapists than physical therapists strongly disagreed that the number of physical therapy visits allowed by the insurance companies were adequate to completely rehabilitate the patient (Table 1).

Evaluation of survey question 2 (It would be beneficial to an athlete's performance to have continued rehabilitation and reconditioning training after they are released from your care for a significant injury) indicated that 91% of the sport therapist group strongly agreed and 9% agreed (Table 2). In the physical therapist group, 45.5% strongly agreed, 45.5 agreed, and 9% had no opinion (Table 2). Many more sport therapists than physical therapists felt strongly that continued rehabilitative care beyond the clinical setting would be beneficial to the injured athlete (Table 2).

In response to survey question 4, 100% of the sport therapist group strongly agreed while 82% of the physical therapist group strongly agreed and 18% agreed that it is important for an injured athlete to have adequate access to health care professionals during the entire rehabilitation process in order to ensure a successful return to competition (Table 3). Both groups felt strongly that adequate access to health care was important to the injured athlete, but some of the physical therapists did not feel as strongly as the sport therapists (Table 3).

Analysis of survey question 6 (A certified strength and conditioning specialist

Table 1. Survey question 1 responses by clinician group.
1. The number of visits allowed by an insurance company is adequate to completely rehabilitate most injuries.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n		1	3	4	3
	%		9.0	27.3	36.4	27.3
Physical Therapists	n			4	6	1
	%			36.4	54.5	9.1

Table 2. Survey question 2 responses by clinician group.
It would be beneficial to an athlete's performance to have continued rehabilitation and reconditioning training after they are released from your care for a significant injury.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	10	1			
	%	90.9	9.1			
Physical Therapists	n	5	5	1		
	%	45.5	45.5	9.0		

Table 3. Survey question 4 responses by clinician group.
It is important for an injured athlete to have adequate access to health care professionals during the entire rehabilitation process in order to ensure a successful return to competition.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	11				
	%	100				
Physical Therapists	n	9	2			
	%	81.8	18.2			

would be a valuable member of an athlete's sportsmedicine team when rehabilitating a moderate to severe injury) indicated that 91% of the sport therapist group strongly agreed while 9% agreed (Table 4). Among the physical therapist group, 45.5% strongly agreed, 45.5% agreed, and 9% had no opinion (Table 4). In comparison to the physical therapists, sport therapists generally felt more strongly that certified strength and conditioning specialists would be valuable professionals to assist in the rehabilitation of an injured athlete than physical therapists (Table 4).

Responses to survey question 7 (If an injured athlete had access to it, rehabilitative strengthening and conditioning would be of benefit after he or she returned to competition) indicated that 91% of the sport therapist group strongly agreed and 9% had no opinion (Table 5). In the physical therapist group 54.5% strongly agreed and 45.5% agreed (Table 5). Again, while most agreed in some fashion to the idea of continued rehabilitative care, sport therapists agreed more strongly than the physical therapists (Table 5).

Cross tabulation of group by survey question 10 indicated that 36% of the sport therapist group strongly agreed, 36% had a neutral opinion, and 27% disagreed that when athletes are released from your care, they are able to perform at the same strength and power level as they did before they were injured (Table 6). Among the physical therapist group, 18% agreed, 36% were neutral, and 46% disagreed (Table 6). Almost half of the physical therapists believed that their patients were unable to perform at pre-injury strength and power levels, while sport therapists were more evenly divided across the positive to negative spectrum (Table 6).

Table 4. Survey question 6 responses by clinician group.
A Certified Strength and Conditioning Specialist would be a valuable member of an athlete's Sports Medicine Team when rehabilitating a moderate to severe injury.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	10	1			
	%	90.9	9.1			
Physical Therapists	n	5	5	1		
	%	45.5	45.5	9.0		

Table 5. Survey question 7 responses by clinician group.
If an injured athlete had access to it, rehabilitative strengthening and conditioning would be of benefit after he or she returned to competition.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	10		1		
	%	90.9		9.1		
Physical Therapists	n	6	5			
	%	54.5	45.5			

Table 6. Survey question 10 responses by clinician group.
When athletes are released from your care, they are able to perform at the same strength and power level as they did before they were injured.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n		4	4	3	
	%		36.4	36.4	27.2	
Physical Therapists	n		2	4	5	
	%		18.1	36.4	45.5	

In response to survey question 11 (When athletes are released from your care, they are able to perform at the same fitness level as they did before they were injured), 27% of the sport therapist group agreed, 36% were neutral, and 36% disagreed (Table 7). Of the physical therapist group, 18% agreed, 36% were neutral, 36% disagreed, and 9% strongly disagreed. Percentages of agreement showed similar opinions among the professional groups with physical therapists feeling slightly more strongly that injured athletes do not return to competition at the same fitness level as they were before they were injured (Table 7).

Analysis of survey question 14 (Individual strength and conditioning sessions in a health club setting with a certified athletic trainer and certified strength and conditioning specialist would be beneficial to an injured athlete in regaining strength, agility, and speed) indicated 82% of the sport therapist group were in strong agreement, 9% in agreement, and 9% had a neutral opinion. Of the physical therapist group, 36% strongly agreed, 55% agreed, and 9% had no opinion (Table 8). Many more of the sport therapist group than the physical therapists felt strongly about the value of individual rehabilitation sessions in an alternative setting.

Discussion

The clinician responses indicated a consistent need for rehabilitative care for the injured athlete beyond the clinical setting (Tables 1-8). This need stems from the data concerning the number of physical therapy visits allowed by insurance companies. Both the physical therapists and sport therapists felt certified strength and conditioning specialists or certified athletic trainers would be effective in delivering extended care

Table 7. Survey question 11 responses by clinician group.

When athletes are released from your care, they are able to perform at the same fitness level as they did before they were injured.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n		3	4	4	
	%		27.2	36.4	36.4	
Physical Therapists	n		2	4	4	1
	%		18.1	36.4	36.4	9.1

Table 8. Survey question 14 responses by clinician group.
Individual strength and conditioning sessions in a health club setting with a Certified Athletic Trainer and Certified Strength and Conditioning Specialist would be beneficial to an injured athlete in regaining strength, agility, and speed.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	9	1	1		
	%	81.8	9.1	9.1		
Physical Therapists	n	4	6	1		
	%	36.4	54.5	9.1		

after athletes are released from the physical therapy clinic. Although the responses were similar with respect to the positive or negative spectrum, the sport therapists seemed to have stronger feelings than the physical therapist group about most issues (Tables 1, 2, 3, 4, 5, 7, and 8).

Only concerning the idea that athletes return at the same power and strength levels after their injury (Table 6) did the physical therapist group feel more strongly than the sport therapist group. This is possibly due to the fact that sport therapists have a greater level of contact with the injured athlete and associated appreciation for what it takes for an athlete to return to competition after injury.

Comparisons cannot be made to current literature as there is very little in this area. This survey provides new information on the feelings of health care professionals concerning the rehabilitative needs of injured athletes.

Research Question 2

The goal of research question 2 was to identify areas in which the rehabilitative care should focus with information based on responses to survey questions 3, 5, 6, 8, 9, 11, and 13. Cross tabulations of survey questions by clinician group indicated the frequencies of responses between the two groups.

Results

Cross tabulation by clinician group with survey question 3 indicated that 73% of the sport therapist group strongly agreed and 27% agreed that it is important for athletes to return to competition after an injury at the same level of performance as they were before their injury. Of the physical therapist group, 55% strongly agreed, 27% agreed,

Table 9. Survey question 3 responses by clinician group.
It is important for athletes to return to competition after an injury at the same level of performance as they were before their injury.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	8	3			
	%	72.7	27.3			
Physical Therapists	n	6	3	1	1	
	%	54.5	27.3	9.1	9.1	

9% had no opinion, and 9% disagreed (Table 9). Although both groups of clinicians agreed, the sport therapists felt more strongly than the physical therapists that it is important for athletes to return to their sport at the same level of performance as they were before their injury (Table 9).

In response to survey question 5 (When returning to competition, athletes should be at the same fitness level as they were before they were injured), 55% of the sport therapist group strongly agreed, 36% agreed, and 9% had no opinion. Thirty-six percent of the physical therapist group strongly agreed while 64% agreed (Table 10). While both groups agreed that returning in the same fitness level was important, more of the sport therapists felt more strongly than the physical therapists (Table 10).

Survey question 6 indicated 91% of the sport therapist group were in strong agreement and 9% were in agreement with the idea that a certified strength and conditioning specialist would be a valuable member of an athlete's sportsmedicine team when rehabilitating a moderate to severe injury. Of the physical therapist group, 45.5% were in strong agreement, 45.5% were in agreement, and 9% had no opinion (Table 11). Both groups were in favor of a certified strength and conditioning specialist being a member of the sportsmedicine team, but more of the sport therapists felt more strongly than the physical therapists (Table 11).

Results of the cross tabulation of survey question 8 (Movement training and coaching would be beneficial to an athlete who is recovering from a moderate to severe injury) indicated that 82% of the sport therapist group strongly agreed while 18% agreed (Table 12). Of the physical therapist group, 73% strongly agreed, 18% agreed, and 9%

Table 10. Survey question 5 responses by clinician group.
When returning to competition, athletes should be at the same fitness level as they were before they were injured.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	6	4	1		
	%	54.5	36.4	9.1		
Physical Therapists	n	4	7			
	%	36.4	63.6			

Table 11. Survey question 6 responses by clinician group.
A Certified Strength and Conditioning Specialist would be a valuable member of an athlete's Sports Medicine Team when rehabilitating a moderate to severe injury.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	10	1			
	%	90.9	9.1			
Physical Therapists	n	5	5	1		
	%	45.5	45.5	9.0		

Table 12. Survey question 8 responses by clinician group.
Movement training and coaching would be beneficial to an athlete who is recovering from a moderate to severe injury.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	9	2			
	%	81.8	18.2			
Physical Therapists	n	8	2	1		
	%	72.7	18.2	9.1		

had no opinion. Both groups felt movement training would be beneficial to injured athletes, with the sport therapist group feeling more strongly than the physical therapists (Table 12).

The results of survey question 9 (Injured athletes may have residual functional strength deficits even after they are allowed to return to normal activity after rehabilitating an injury) indicated 82% of the sport therapist group strongly agreed, 9% agreed, and 9% had no opinion (Table 13). Among the physical therapist group, 36% strongly agreed, 36% agreed, 18% had no opinion, and 9% disagreed. Sport therapists tended to believe that injured athletes have residual functional strength deficits more strongly than the physical therapists did (Table 13).

Analysis of survey question 11 (When athletes are released from your care, they are able to perform at the same fitness level as they did before they were injured) indicated that 27% of the sport therapist group were in agreement, 36% had no opinion, and 36% were in disagreement. The physical therapist group indicated 18% in agreement, 36% of no opinion, 36% in disagreement, and 9% in strong disagreement (Table 14). Percentages of responses among the two groups were very similar, with slightly more physical therapists strongly believing that athletes are not able to return to competition and training at the same level as they were before they were injured (Table 14).

The results of survey question 13 revealed that 55% of the sport therapist group strongly agreed, 18% agreed, 18% were of a neutral opinion, and 9% disagreed that movement and speed training and coaching are an integral part of your rehabilitation plan

Table 13. Survey question 9 responses by clinician group.
Injured athletes may have residual functional strength deficits even after they are allowed to return to normal activity after rehabilitating an injury.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	9	1	1		
	%	81.8	9.1	9.1		
Physical Therapists	n	4	4	2	1	
	%	36.4	36.4	18.2	9.1	

Table 14. Survey question 11 responses by clinician group.
When athletes are released from your care, they are able to perform at the same fitness level as they did before they were injured.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n		3	4	4	
	%		27.3	36.4	36.4	
Physical Therapists	n		2	4	4	1
	%		18.2	36.4	36.4	9.1

Table 15. Survey question 13 responses by clinician group.

13. Movement and speed training and coaching are an integral part of your rehabilitation plan.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n		3	4	4	
	%		27.3	36.4	36.4	
Physical Therapists	n		2	4	4	1
	%		18.2	36.4	36.4	9.1

(Table 15). The physical therapist group responses showed 27% strongly agreed, 36% agreed, and 27.3% were of a neutral opinion. Sport therapists tended to incorporate movement and speed training into rehabilitation programs to a greater extent than physical therapists did, however many of both groups did not have opinions on this statement (Table 15).

Discussion

The information provided suggested that both physical therapists and sport therapists believed the emphasis for the rehabilitative care should focus on athletic performance enhancing factors such as fitness, strength, conditioning, movement, and speed training. By focusing the extra care in these areas, effective reconditioning programs may be implemented beyond the clinical setting. Although the responses across the demographic groups were of similar opinion, the sports therapist group generally felt more strongly about their responses especially in tables 9, 11, and 13. The physical therapist group felt slightly more strongly that athletes were unable to perform at the same fitness level as they did before they were injured.

Again, no research is available on extended athletic injury reconditioning programs beyond the clinical setting. These results serve to provide an early guideline for such care.

Research Question 3

The focus of research question 3 was to determine whether or not an alternative setting to the physical therapy sportsmedicine clinic such as a health club or fitness center would be a viable location for the delivery of extended rehabilitative care. The data to

analyze this question were gathered from survey question 14, and cross tabulation by professional group indicated the frequencies of responses between the two groups was analyzed (Table 16).

Results

Analysis of responses to survey question 14 (Individual strength and conditioning sessions in a health club setting with a certified athletic trainer and certified strength and conditioning specialist would be beneficial to an injured athlete in regaining strength, agility, and speed) indicated that 82% of the sport therapist group were in strong agreement, 9% were in agreement, and 9% were of a neutral opinion (Table 16). Thirty-six percent of the physical therapist group strongly agreed, 55% agreed, and 9% had no opinion. Many more of the sport therapist group than the physical therapists felt strongly about the value of individual rehabilitation sessions in an alternative setting (Table 16).

Discussion

Both groups agreed that individual strength and conditioning sessions in a health club setting with a certified athletic trainer or certified strength and conditioning specialist would be beneficial to an injured athlete in regaining performance enhancing components identified in research question 2. The sport therapist group felt more strongly about their responses than the physical therapist group. Again, this is probably due to a more comprehensive understanding of the needs of the injured athlete by the sport therapists.

These findings are consistent with the current literature on the effectiveness of physical therapy delivery in the health club setting (Conviser, 1997; Merk, 1994; &

Table 16. Survey question 14 responses by clinician group.
Individual strength and conditioning sessions in a health club setting with a Certified Athletic Trainer and Certified Strength and Conditioning Specialist would be beneficial to an injured athlete in regaining strength, agility, and speed.

Group	Value	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Sport Therapists	n	9	1	1		
	%	81.8	9.1	9.1		
Physical Therapists	n	4	6	1		
	%	36.4	54.5	9.1		

Hamel, 1992). The main difference however, is that this study suggests that individual or one-on-one sessions would be effective. This means that it is not necessary to have an entire physical therapy clinic in the fitness center, only the appropriate staff members. This allows the center to provide similar services at a fraction of the cost of opening an entire clinic with the services of these specialists paid for through the membership fee or through supplemental fees.

Projections

This research study has shown that injured athletes would benefit from extended rehabilitative care after they are released from the physical therapy clinic. Certified athletic trainers and certified strength and conditioning specialists are two professional groups who are qualified to fulfill this need and who should strive to take advantage of this market.

One possible scenario would be for physical therapy clinics to employ certified athletic trainer's and certified strength and conditioning specialist's devoted to the care of athletes after their insurance coverage has depleted. The athletes would be charged a fee to be paid out of pocket for continued injury reconditioning which would allow them to fully rehabilitate their injuries. The facility could use existing space within the clinic provided that the clinic already had appropriate space and equipment.

Another location for the continuation of care is the health/fitness club. Certified athletic trainers and certified strength and conditioning specialists could be added to the facility's existent staff in order for the club to expand the services offered to their

members. The club could charge for the rehabilitation and reconditioning sessions much like they do for personal fitness trainer sessions.

If the fitness club did not want to sponsor this type of service, certified athletic trainers and certified strength and conditioning specialists could freelance on their own much like personal fitness trainers do. They could pay the health club a monthly fee for access to the facility and take on clients within their own private business. For this to be successful, however, it is necessary to have good working relationships with area physicians and physical therapy clinics for referrals to build a solid client base.

Offering extended rehabilitative care beyond the physical therapy clinic would benefit all parties involved. The job market for certified athletic trainers and certified strength and conditioning specialists could expand immensely and athletes would be able to return to competition stronger and more quickly. Also, fitness centers may see a rise in membership much as Hamel (1992), Merk (1994), and Conviser (1997) have previously suggested.

At the onset of the 21st century, insurance companies cannot be depended upon to completely cover the amount of needed care for the injured athlete. It is important to develop creative solutions to complicated problems in order to deliver the appropriate amount of health care. Managed care has created a market for extended injury rehabilitation and reconditioning which has remained untapped. There are a variety of vehicles for certified athletic trainers and certified strength and conditioning specialists to deliver this care, and it is time to begin "test driving" them to determine which ones are most effective.

CHAPTER V
SUMMARY, CONCLUSIONS, AND IMPLICATIONS

The purposes of this study were to ascertain from the clinician's perspective the level of need and demand for extended care for injured athletes beyond the sports medicine clinic, and in turn, to determine if there is justification for providing the services of certified athletic trainers and certified strength and conditioning specialists in an alternative setting. The goal of an injured athlete should be to return to competition as quickly as possible at the same level of performance and fitness as they were before they were injured. If the athlete's care is compromised by restrictions from an insurance company, then they will be unable to meet this goal. By providing extended care beyond the clinical setting during the later phases of rehabilitation, an athlete's strengthening and reconditioning can be continued to the point of complete recovery.

Several physical therapy clinic directors or administrators were approached and informed of the research project and possible benefits to their program. Following approval of each clinic director (Appendix A), staff physical therapists, certified athletic trainers, and certified strength and conditioning specialists were given a questionnaire (Appendix C) to be voluntarily completed. Although the questions were varied in scope and composition, the data were evaluated to draw conclusions and answer each of the following research questions.

(1) Is there a need for extended rehabilitative care beyond the clinical setting for the injured athlete?

(2) On what aspects of the rehabilitative process should the care focus?

(3) Would other settings such as health clubs or fitness centers be effective locations for delivering the extended care?

The demographic groups used to analyze the research questions consisted of physical therapists and sport therapists. The sport therapist group included any clinicians (including physical therapists) who are certified athletic trainers or certified strength and conditioning specialists.

The clinician responses indicated a consistent need for rehabilitative care for the injured athlete beyond the clinical setting. The information provided also suggested that both physical therapists and sport therapists believed the emphasis for the rehabilitative care should focus on athletic performance enhancing factors such as fitness, strength, conditioning, movement, and speed training. By focusing the extra care in these areas, effective reconditioning programs may be implemented beyond the clinical setting. Both groups agreed that individual strength and conditioning sessions in a health club setting with a certified athletic trainer or certified strength and conditioning specialist would be beneficial to an injured athlete in regaining performance enhancing components in these areas.

Conclusions

The following conclusions can be drawn from the data collected and analyzed from this research project:

(1) There is a need for offering extended rehabilitative care beyond what is covered by the insurance company to the injured athlete.

(2) Extended rehabilitation and reconditioning services should focus on fitness, strength, conditioning, movement, and speed training.

(3) Alternative settings such as health clubs or fitness centers are viable locations for the delivery of extended athletic injury rehabilitative care.

Implications

Due to the lack of existent literature in this area, this research project highlights many areas for future evaluation. The format for the extended rehabilitative care should be addressed by future research and could include such aspects as payment structure, marketing strategies, and client base development. After these aspects have been established, a cost savings analysis should be investigated.

The effect extended care would have is far reaching. Better patient outcomes would be experienced by the athletes as they would return to their sport sooner and stronger with less risk of reinjury. The cost of the extended care would be a fraction of what it would cost to pay for continued care in the physical therapy clinic after insurance coverage has run out. The employment opportunities for certified athletic trainers and certified strength and conditioning specialists would increase as would the client base of the alternative settings. Long term analysis of these effects could show exactly the practical value of such a program.

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APPENDICES

APPENDIX A
CLINIC DIRECTORS LETTER OF CONSENT

Injury Rehabilitation and Reconditioning Beyond the Clinical Setting

This research questionnaire is part of my special project requirement for the Master of Science degree in Sport Administration. The goal is to determine the level of need for continued rehabilitation and reconditioning of athletic injuries beyond the traditional clinical setting where managed care dictates how many visits are allowed per patient. **With the results, an appropriate service can be provided to augment the health care an athlete receives in a sports medicine clinic, benefitting future patients.**

Your staff's willingness to participate or not participate and their responses to the questionnaires will have no bearing on their work status within your physical therapy clinic. Only the researcher will have access to the clinicians' individual responses, all answers will remain confidential, and only group data will be used to report the results.

Your completion of the following survey is completely voluntary and acts as informed consent to your participation in the research project. The clinicians may discontinue their participation at any time without penalty or consequence.

By signing below, you give me permission to approach members of your staff with the intent of collecting data for the described research project. All data collection scheduling will be in accordance with time frames approved by you. Should you have any questions concerning the research project, feel free to contact either of the following people.

Craig Friedman ATC, CSCS
M.S. Candidate, The University of Tennessee
(520) 621-4182

Patricia Beitel, Ed. D.
Professor and Advisor
The University of Tennessee
(423) 974- 1277 or 974-5111

I give permission for Craig Friedman to approach members of my staff with the intent of collecting data for his thesis requirement for the Master of Science degree.

_____ _____

sign name date

_____

print name & title

APPENDIX B
CLINICIAN QUESTIONNAIRE COVER SHEET

Injury Rehabilitation and Reconditioning Beyond the Clinical Setting

This research questionnaire is part of my special project requirement for the Master of Science degree in Sport Administration. The goal is to determine the level of need for continued rehabilitation and reconditioning of athletic injuries beyond the traditional clinical setting where managed care dictates how many visits are allowed per patient. Responses from both patients and clinicians will be used for the need assessment.

Your willingness to participate or not participate and your responses to the questionnaires will have no bearing on your employment status. Clinic Directors and Administrators will not have access to your responses, all answers will remain confidential, no names will be reported, and only group data will be used to report the results.

Completion of the following survey is completely voluntary and acts as informed consent to your participation in the research project.

RISKS AND BENEFITS: There are no physical or social risks to completing this survey, and you may discontinue your participation at any time without penalty or consequence. With the results, an appropriate service can be provided to augment the health care an athlete receives in a sports medicine clinic, benefitting future patients.

Should you have any questions concerning the research project, feel free to contact either of the following people.

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The University of Tennessee
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Patricia Beitel, Ed. D.
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APPENDIX C
CLINICIAN QUESTIONNAIRE

Injury Rehabilitation and Reconditioning Beyond the Clinical Setting

Instructions: The following statements concern your feelings about the need for continued health care services **beyond what is allowed by insurance companies in your clinic.** For each statement, please indicate to what degree you agree or disagree with the statement as it relates to your current and past work experiences. Circling a 1 represents a strong agreement, while circling a 5 represents strong disagreement with the statement. If your opinion is not as strong as a 1 or 5, circle one of the numbers in between with 3 being neutral. There are no correct answers, only indications of your feelings concerning the statements.

1. The number of visits allowed by an insurance company is adequate to completely rehabilitate most injuries.

1	2	3	4	5
Strongly Agree				Strongly Disagree

2. It would be beneficial to an athlete's performance to have continued rehabilitation and reconditioning training after they are released from your care for a significant injury.

1	2	3	4	5
Strongly Agree				Strongly Disagree

3. It is important for athletes to return to competition after an injury at the same level of performance as they were before their injury.

1	2	3	4	5
Strongly Agree				Strongly Disagree

4. It is important for an injured athlete to have adequate access to health care professionals during the entire rehabilitation process in order to ensure a successful return to competition.

1	2	3	4	5
Strongly Agree				Strongly Disagree

5. When returning to competition, athletes should be at the same fitness level as they were before they were injured.

1	2	3	4	5
Strongly Agree				Strongly Disagree

6. A certified strength and conditioning specialist would be a valuable member of an athlete's Sports Medicine Team when rehabilitating a moderate to severe injury.

1	2	3	4	5
Strongly Agree				Strongly Disagree

7. If an injured athlete had access to it, rehabilitative strengthening and conditioning would be of benefit after he or she returned to competition.

1	2	3	4	5
Strongly Agree				Strongly Disagree

8. Movement training and coaching would be beneficial to an athlete who is recovering from a moderate to severe injury.

1	2	3	4	5
Strongly Agree				Strongly Disagree

9. Injured athletes may have residual functional strength deficits even after they are allowed to return to normal activity after rehabilitating an injury.

1	2	3	4	5
Strongly Agree				Strongly Disagree

10. When athletes are released from your care, they are able to perform at the same strength and power level as they did before they were injured.

1	2	3	4	5
Strongly Agree				Strongly Disagree

11. When athletes are released from your care, they are able to perform at the same fitness level as they did before they were injured.

1	2	3	4	5
Strongly Agree				Strongly Disagree

12. Your facility employs a certified Strength and Conditioning Specialist who provides sport-specific strengthening and reconditioning exercise prescription to injured athletes.

1	2	3	4	5
Strongly Agree				Strongly Disagree

13. Movement and speed training and coaching are an integral part of your rehabilitation plan.

1	2	3	4	5
Strongly Agree				Strongly Disagree

14. Individual strength and conditioning sessions in a health club setting with a Certified athletic trainer and certified Strength and Conditioning Specialist would be beneficial to an injured athlete in regaining strength, agility, and speed.

1	2	3	4	5
Strongly Agree				Strongly Disagree

APPENDIX D
DEMOGRAPHIC QUESTIONNAIRE

Please circle the appropriate number or answer. If you are a patient, do not respond to the questions labeled "only for clinicians," and if you are a athletic trainer, physical therapist, etc., do not respond to the questions labeled "only for patients."

1. **Gender:** (1) Female (2) Male

2. **Age (years):** _____

3. **Years of Experience (only for clinicians):**_____
_____

4. **Credentials (ex: ATC, PT, CSCS, etc.) (only for clinicians):**_____
_____

5. **Level of Competition (only for patients):**
   (1) Recreational
   (2) Intramural
   (3) League
   (4) High School
   (5) Varsity Intercollegiate
   (6) Professional
   Other (Please Specify)_____

6. **Diagnosis/Assessment of Injury (only for patients):**_____
_____

7. **Length of Rehabilitation (Weeks) (only for patients):**_____

8. **Have you worked with a certified strength and conditioning specialist before?**
   (1) No (2) Yes

9. **Have you ever worked out at a local health club? (only for patients)**
   (1) No (2) Yes

10. **Are you still a member of the health club? (only for patients)**
    (1) No (2) Yes

11. **Have you ever employed a personal fitness trainer in a health club? (only for patients)**
    (1) No (2) Yes

VITA

Craig Friedman was born in Oak Ridge, TN on July 24, 1973. He attended Linden Elementary School, followed by Robertsville Junior High School. Craig graduated from Oak Ridge High School in June 1991.

He enrolled in the University of Tennessee in August of 1991 as an Exercise Science major. In 1993, Craig began working as a student athletic trainer in the women's athletic department. In November 1995, he passed the National Athletic Trainers' Association certification exam, and became a certified athletic trainer upon his graduation in December 1995.

In July 1996, Craig moved to Tucson, AZ where he worked as a graduate assistant athletic trainer with The University of Arizona's athletic department, where his primary duties were assistant athletic trainer for the varsity football team. While in Arizona, Craig became a certified strength and conditioning specialist in February 1997. In the summer of 1997, Craig enrolled in the University of Tennessee's Graduate School to study Sport Management, but returned to Tucson for the Fall semester in 1997 for another season with the football team. In January 1998, he returned to Knoxville.

Currently, Craig resides in Sarasota, FL where he works as a Performance Specialist with The International Performance Institute. His responsibilities include athletic performance enhancement, and injury prevention, rehabilitation, and reconditioning for elite and youth athletes.