

Original Research

Perceptions of Physical Therapy and The Role of Physical Therapists In Injury Prevention Among Professional Basketball Players: A Qualitative Study

Alison Marks¹, Carol A. Courtney^{1a}, William E. Healey²

¹ Physical Therapy and Human Movement Science, Northwestern University, ² Physical Therapy and Human Movement Sciences, Northwestern University

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Background

Injury prevention is critical in competitive professional sports, however, the role of physical therapists in this aspect of healthcare is not fully understood.

Purpose

The purpose of this study was to describe professional basketball players' perceptions of physical therapy (PT) and physical therapists' role in injury prevention.

Study Design

Qualitative, semi-structured interview

Methods

Thirty-five professional basketball players (mean age 23.1 years \pm 3.9; 42% female; 72% African American; 90% college graduates) from over 20 teams participated. Athletes participated in semi-structured interviews that focused on injury prevention and utilization of PT services. Two researchers coded the transcripts, organized the findings into general categories, and created major themes. Data saturation was reached when no new information emerged.

Results

Over half (62.9%) stated that PT mainly addressed post-injury and return-to-sport rehabilitation. An overwhelming majority of players highlighted the use of an athletic trainer (AT) over physical therapists in injury prevention due to perceived expertise and trust.

Conclusion

While PTs are educated in preventive care and acute injury management, professional basketball players viewed their role primarily for return-to-sport rehabilitation. The organizational structure of healthcare in professional basketball may promote closer professional relationships with ATs while limiting those with physical therapists. The result is that elite athletes may miss out on treatment specific to the PT profession.

a Corresponding author:
Carol A. Courtney PT, PhD, ATC
Professor
Northwestern University
Department of Physical Therapy and Human Movement Sciences
645 N. Michigan Ave, Room 1121
Chicago IL 60611 USA
Carol.courtney@northwestern.edu
Phone: 312-503-2603
fax: 312-908-0741

Level of Evidence

Level 4

BACKGROUND

There is a growing concern regarding injury rates in elite athletes, specifically professional basketball players, with concrete evidence demonstrating that lower-extremity injuries are a major source of missed games.¹⁻³ Reduction of these injuries is a main objective of professional sports teams as any injury can result in significant time lost in training and competition. Overuse injuries are common in professional basketball.⁴⁻⁶ Researchers have identified risk factors for injury and overuse in professional basketball, including history of injury in the last 12 months^{7,8} and player schedules with back-to-back games.⁹ It is clear that injuries, including overuse injuries, are prevalent in professional basketball and a paradigm shift may be needed for adequate medical management to take place. Team medical personnel including physicians, athletic trainers, strength and conditioning coaches, and physical therapists understand that injury prevention is critical to the long-term success of the professional athlete, yet prevention guidelines are not explicit.

Recent authors have suggested that best outcomes occur when the patient participates in the clinical decision-making process regarding their care.^{10,11} Accordingly, a patient's health beliefs and their knowledge of healthcare play a major role in optimal holistic patient care.^{10,11} More specifically for the professional athlete, knowledge of factors that may predispose them to injury, and identifying the appropriate health care professional from whom to seek care may be critical. Determining knowledge and beliefs regarding injury prevention in professional basketball players is needed to provide valuable, individualized services for these athletes.

To investigate risks and prevention factors in professional basketball, a previous study characterized the opinions of physical therapists, physicians, and athletic trainers who worked with elite athletes.¹⁰ Study investigators used a qualitative approach to conduct interviews and identify themes about injury risk and prevention factors and found that inadequate sport technique, nutrition, and overtraining were causative factors. Factors to prevent injuries included categories of training interventions/physical therapy (PT), psychological features, and behavioral strategies. Determining the knowledge level of professional basketball players on injury prevention may help to guide management and provide specific protocols to ensure appropriate interventions. While the Saragiotto study¹⁰ provided valuable input from medical professionals associated with professional teams, the perspectives from athletes were not investigated.

Knowledge of beliefs related to prevention of injuries may contribute to the planning and implementation of more adequate strategies than those presently used. A new framework¹² concluded that adherence to injury prevention programs improved with understanding and believing in the program. In addition, the relationship between a player

and the provider may enhance their own prevention program.¹² The purpose of this study was to describe professional basketball players' perceptions of PT and physical therapists' role in injury prevention.

METHODS

This was a qualitative research study using semi-structured interviews questions, which were initially piloted with retired professional and collegiate basketball players (APPENDIX). The study interviews were performed over a four-month period. One of the authors had extensive qualitative research experience.

PARTICIPANTS

A convenience sample of professional basketball players currently on the active roster of a National Basketball Association (NBA), Women's National Basketball Association (WNBA), or NBA Growth League (G-League) team who were >18 years old were invited by email to participate in this study. Northwestern University Institutional Review Board approved this study. Participants were assigned a numerical subject identification to promote confidentiality and anonymity.

DATA COLLECTION

Semi-structured interviews were used to investigate participants' understanding of injury prevention and their knowledge and use of PT services. Team-related personnel were identified through public websites, such as NBATA.com, RealGM.com, NBA.com, WNBA.com, gleague.nba.com. Prior to each interview, participants provided consent and the researchers used an audio recording device to capture the content. A participant responded by telephone at a mutually-agreed upon time between him/herself and the research investigator (APM). Each recording was transcribed verbatim. Interviews lasted approximately 10-15 minutes.

Follow-up interviews were scheduled after coding analysis for member checking to enhance trustworthiness and to explore the credibility of results.¹³ Ten participants (four NBA players, three WNBA, three G-League) were contacted and verified their statements and findings.

DATA ANALYSIS

Based on the comparative qualitative analysis process,¹⁴⁻¹⁶ two of the authors created a codebook to develop categories and themes ([Figure 1](#)). During open coding, all ideas and phrases were examined and given a label.¹⁷ Transcriptions were coded separately by the two researchers and then differences were discussed and modified to reach consensus.¹⁸

Codes with commonalities were grouped together to create categories for analysis (See example in [Table 1](#)). Inves-

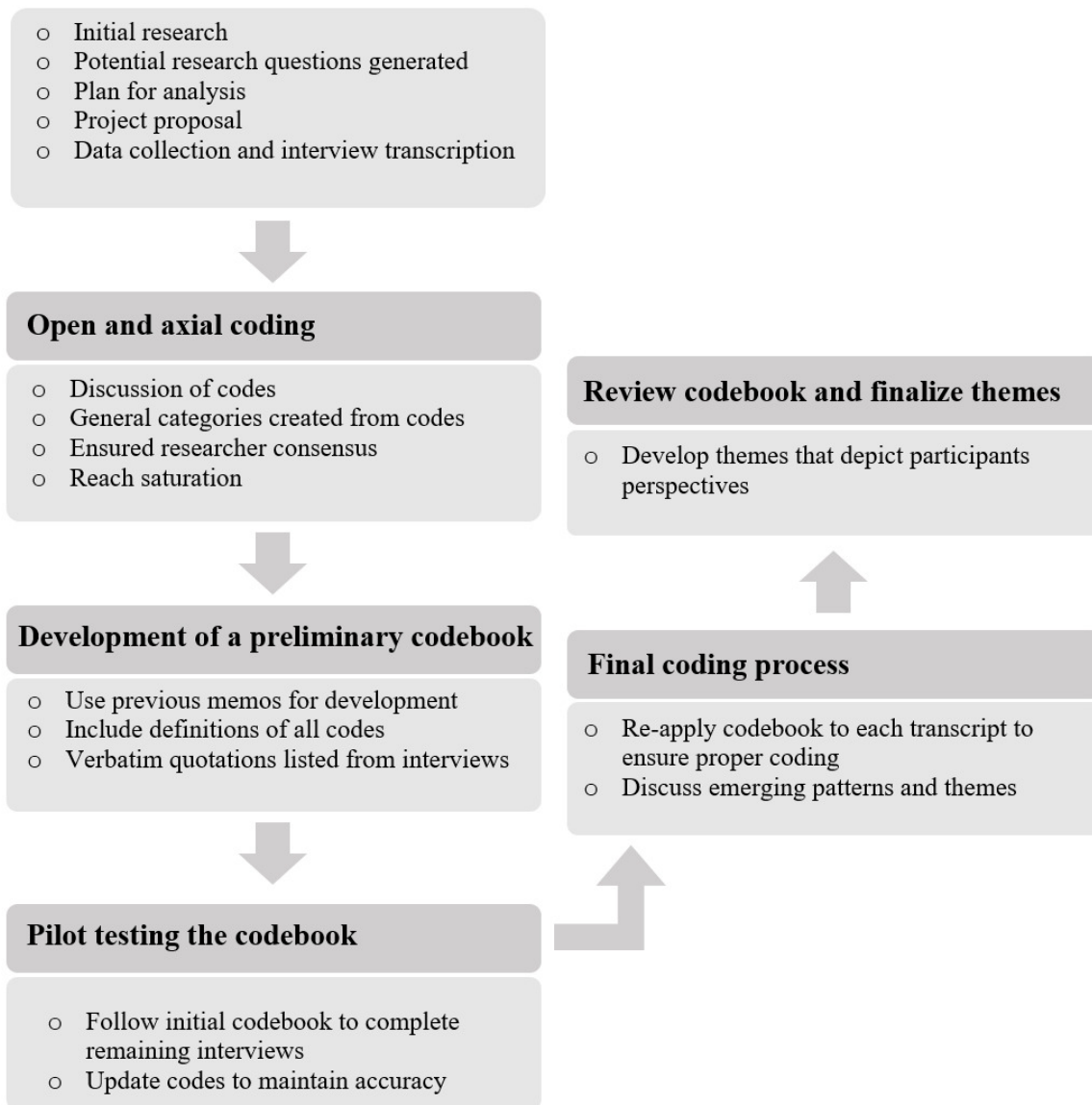


Figure 1. Comparative Qualitative Analysis

tigation into the differences and similarities between categories contributed to the creation of themes by the authors.

RESULTS

A total of 35 professional basketball players (age 23.1 years ± 3.9; 42% female; 90% college graduates) from over 20 teams participated in the study (Table 2), with 15 individuals from the WNBA, 10 from the NBA, and 10 from the NBA G-League. Almost 90% of study players reported a previous injury that caused them to miss out on practice or games. An online review of the organization’s medical staff revealed that 29 of 30 NBA teams, three of 12 WNBA, and three of 29 G-League teams had a team physical therapist listed.

The three research questions, associated interview guide questions, and participant responses are found in Table 3. Percentages based on count of players’ responses were calculated for each interview guide question and included in Table 3.

Three primary themes emerged from the coded data that described the perceptions of these professional basketball players regarding PT and the role of physical therapists overall and specifically in injury prevention. The themes were: 1) these athletes reported a general knowledge of PT centered around post-injury rehabilitation; 2) when asked, they perceived physical therapists’ role in injury prevention to include strengthening and flexibility exercises, and individualized educational approaches; and 3) to prevent injuries, athletes chose a team healthcare provider they trusted, and this was most commonly the team athletic trainer. Below three themes are presented with exemplary supporting quotes.

Table 1. Example of Codebook

Interview Question	Codes	Definitions	Quotations from Transcripts
What do you think can cause injuries in athletes participating in your sport?	Ill prepared	Any discussion about lack of preparation, including strength training, flexibility, mobility. This includes types of training, such as lifting weights, prevention/maintenance programs.	"I think a lot of injuries happen from the lack of almost prevention, things that you do before ever stepping on a court or before practice starts or things like that to strengthen all the muscles and everything that surrounds big-time injury areas. I think the biggest thing is that we don't take that serious"
	Overuse	Any mention of overuse, wear & tear, increased fatigue due to duration of sport activity, or length of season.	"Constant pounding on dudes' knees when they jump up and down and how fast they're going and starting and stopping. Easy to hurt your knees with all the wear and tear of jumping up and down"
	Lack of proper rest and recovery	Includes inadequate sleep, lack of time or ability to recuperate throughout the year.	No proper rest No sleep No time to recover

THEME 1: ALMOST ALL PARTICIPANTS HAD A GENERAL KNOWLEDGE ABOUT PT, WHICH EMPHASIZED POST-INJURY REHABILITATION IN ORDER TO RETURN TO THEIR SPORT

When asked to describe PT, the majority (63%) of professional basketball players in this study connected PT with post-injury rehabilitation. Post-injury rehabilitation was defined by the interviewer as, "any mention of an injury or source of discomfort to rehabilitate. Any factor contributing to recovery for the purpose of returning to game play". The following players described physical therapists' role in recovery after an injury.

I think they help you recover from injury and you do the steps necessary to make sure that you're able to carry on with regular life ... or in athletics being able to get back on the field or court or whatever you're doing. (NBA #33)

I think of them as the person for rehab. Once you actually have an injury, I guess is what I think of physical therapist is doing. (WNBA #24)

I think a physical therapist works on whatever is injured or whatever you broke or injured, and they get it back up to speed and even stronger so you are able to perform and do whatever you were doing before you injured whatever it was. (G-League #5)

Players appeared to have preconceived notions that they were required to use a physical therapist at that time, describing PT as a requirement to check off prior to returning to team play. Twenty-five participants (71.4%) mentioned rehabilitation methods for utilization of a physical therapist, as exemplified by these athlete's comments.

"I broke my ankle about two years ago. So I had to use a physical therapist because I was coming back and trying to get back ready to play. But once I was cleared I didn't really use them ... So I'll say during an injury or coming off an injury." (G-League #5)

If I have like a very serious injury or I have to gain strength back in a certain part of my body, so that'll probably be like the only time I'll use the physical therapist. (NBA #13)

Several athletes described PT as only one part of their rehabilitation and that they followed the team physician's or athletic trainer's recommendations, as exemplified by this athlete's comment, "Personally, [I go to PT] probably when the trainer recommends it." The following player described how PT was one of several team providers who contributed to her rehabilitation.

To kind of jumpstart the recovery rehabilitation process, and once I got to a certain point with the PT, and they would allow me to go where I need to go, then it would be to the next person." (WNBA #19)

Only one participant struggled with uncertainty and lack of knowledge on the role of a physical therapist. Without experience of a previous injury at the time of the interview, he was less knowledgeable on this topic. He provided more generalized statements about PT; however, his response still mentioned PT being a last resource following an injury.

What does a physical therapist do? I feel like this would be an easy question, but ... I don't know. I've never ever been to one, to be honest with you, but if it really got to that point, I don't know, I guess I can't really answer that one. (G-League #16)

THEME 2: PHYSICAL THERAPISTS' ROLE IN INJURY PREVENTION INCLUDED STRENGTHENING AND FLEXIBILITY EXERCISE AND INDIVIDUALIZED EDUCATIONAL APPROACHES

The vast majority of participants did not recognize a role for physical therapists in injury prevention. However, when probed, the athletes mentioned physical therapists' ability to improve strength and flexibility (54.3%), provide individualized plans of care (42.9%), and education (42.9%). Prevention methods and assessments were consistently discussed during each interview, which ranked second to post-injury rehabilitation. While injury prevention was mentioned as a role of physical therapists, none of the participants admitted to using a physical therapist for this healthcare need unless it was part of a post-injury rehabilitation.

Participants frequently mentioned that a physical therapist would provide exercise programs focused on their weaknesses. It was perceived that player education and physical assessments will improve a player's outcome. Participants had positive comments regarding a physical therapist's ability to provide education, which emphasized prevention. The following player described this individualized treatment plan.

Probably the most important thing is they give you a workout plan specifically to your needs, whatever your injury or whatever your prevention wants to be. They can give you a routine that can help you either solve your problem or prevent your problem. (WNBA #17)

Athletes believed injuries were caused by being ill-prepared (54.3%), overuse (45.7%), accidents (37.1%), lack of proper rest and recovery (34.3%), nutrition (25.7%), and improper biomechanics (20%). To prevent injuries, players reported they would strengthen (77.1%), stretch (54.3%), use therapeutic modalities (45.7%), maintain healthy behaviors (28.6%), and visit a healthcare provider (22.8%). A large majority of WNBA players mentioned playing for multiple leagues during a calendar year. After concluding the WNBA season, they would continue their career overseas, before returning to start the next season. The women believed their care is affected by the constant playing without a true offseason.

I don't think we get the right treatment because each trainer wants to get us through the season without thinking about the one right after. So, I feel like the main thing is just people trying to find the quickest solution versus trying to find a solution that will help us long term. (WNBA #10)

Some athletes, however, reported the benefits of using a physical therapist for proactive or preventive care.

I think that more athletes can work with physical therapists before injury. I think for a long time it's kind of been something that if you get injured, it's a result to go see a physical therapist. But I like the thought of it being more proactive and working with them beforehand. (WNBA #24)

[Would see a PT] Usually only once I've injured something or if I'm coming off of an injury. But actually, well since this injury ... I'm planning on continuing meeting up with a physical therapist throughout the season. Maybe not as vigorous as if I was still injured, but maybe once or twice a week or maybe once every couple of weeks just to continue doing stuff that will strengthen up my foot. But even other parts of my body so that way I can make sure that I'm doing all that I can to prevent future injury. (WNBA #12)

THEME 3: TO PREVENT INJURIES, ATHLETES CHOSE A TEAM HEALTHCARE PROVIDER BASED ON TRUST AND THE PERSON'S EXPERTISE, AND THIS WAS MOST COMMONLY THE TEAM ATHLETIC TRAINER

An overwhelming majority (82.8%) of study participants mentioned an athletic trainer as the healthcare provider

to perform injury prevention, followed by strength coach (40%), physical therapist (14.3%), physician (8.6%), and chiropractor (5.7%). Reasoning for using these healthcare providers for injury prevention included expertise (62.9%), trust (40%), comfort (34.3%), treatment modalities (14.3%), and other factors (5.7%).

Expertise was operationally defined as "any discussion of knowledge or expertise in their field, which includes experience or education". Study participants verbalized that they strived to have the best care during their prevention and rehabilitation of injuries. Since PT was associated with rehabilitation after injuries have occurred, the players discussed physical therapists as being the experts for that specific role. Athletic trainers (AT) and strength coaches were associated with expertise in preventing injuries from happening based on their perceived knowledge and skills.

Just because they [AT] usually have the best expertise on how the body works, and symptoms, and things like that. Usually, they're the best at knowing those things. (NBA #11)

That's their field of expertise. The trainer, that's what he studies, so he just... That's really what he does, is just tries to prevent an injury from happening. (G-League #22)

A trusting relationship with the team provider was a positive factor that was repeated throughout many interviews, and exemplified with the following player's comment:

Especially in this league, ... try to find people they trust. Everybody knows it's a business, but you got to find people that you trust, because you don't want your information going everywhere. (NBA #9)

Other factors associated with trust included the close relationships with and confidence in the provider, as well as previous history between the player and provider, which made them feel comfortable in their care. The players with providers who were with them from the start had more detailed reviews of their care. In some instances, these clinicians would be retained for care outside of team responsibilities, as noted by the following two athletes.

Just because of the relationship I had with him [strength coach]. I know him for seven, eight years now, been working with them for six or seven of those years. I'm just comfortable with him. (NBA #6)

I have someone who's worked with me since I was 16 after my ankle injuries. No matter if I'm in Europe or in WNBA, I still use his [strength coach] programs because I know that he knows my body best and I just trust him the most. (WNBA #10)

As mentioned earlier, feeling comfortable with the team provider was identified as another key component in injury prevention, and time together helped build these feelings of trust and comfort.

We spend the most time with them [AT], too, so we have a good rapport and I'm comfortable speaking with them about stuff. (NBA #30)

I go to her [chiropractor] now more than I would any other physician because for one, I trust her, but number two, just what I've learned and experienced through our time together, she makes me feel comfortable. (WNBA #19)

DISCUSSION

This is the first study to explore the perspectives of professional basketball players' knowledge and use of PT, specific to injury prevention methods. Based on the responses of the participants, our results revealed that professional athletes valued general PT services to recover from a serious injury; however, the role of physical therapists in injury prevention was perceived to be limited mostly to post-injury rehabilitation. Once recovered, employment of the physical therapist services was rare. Athletes emphasized the benefit of PT, but participants highlighted the preference to use their individual athletic trainers for prevention of injury due to perceived expertise and trust. When discussing the use of PT, the majority of athletes were unsure if their team had a physical therapist on staff although 49% of all teams had one based on the results of a general search online.

In discussions about the use of PT services, it may be beneficial for athletes to be educated on the various roles physical therapists may perform beyond post injury. Moreover, it was apparent from the data that athletic trainers had significantly greater contact with the athlete, which may play a key role in promoting communication between members of the sports medicine team, the coach, and athlete.¹⁹ High levels of trust and comfort were conveyed to the team athletic trainer due to constant exposure and access to this member of the healthcare team. A possible strategy for expansion of the physical therapists' role may begin with improved interdisciplinary communication. Specifically, increased presence of physical therapists within the professional team organization and interaction with team players, staff and leadership may build trust and increase understanding and utilization of PT services.

Previous rehabilitation literature has provided clinicians with a vast library of resources regarding the common injuries sustained with each sport. Prior to this current study, there was a lack of research highlighting the athletes' knowledge and beliefs about the psychological or functional risk factors for potential injuries. The players' interviews strengthened previous research by attesting that risk factors, such as overuse injuries⁵ and highly demanding schedules,²⁰ can contribute to future injuries. Moreover, psychological, physical, and behavioral beliefs of the athlete can influence injury prevention.^{10,11} These beliefs may affect the use of PT due to the perceived negative connotation for injuries.

Strategies to increase utilization of PT within professional sports include increasing time present in the training room with the purpose to increase collaboration with the team staff. Multiple study participants clarified their perspective of PT to be influenced by the lack of presence in the training room. This finding aligns with previous re-

search, which stated main themes perceived to influence patient-therapist interactions included interpersonal skills, practical skills, individualized patient-centered care, and environmental factors.²¹ An example of an effective strategy to build positive relationships with the players include taking time to learn their backgrounds and personalities, which enabled players to view their relationship with the clinician as positive.²² Moreover, the same study confirmed that participants reported a positive recovery when they were actively involved in the rehabilitation process. It was viewed as beneficial to increase their knowledge about the injury, overall increasing the participants' sense of control.²²

In a recent editorial,²³ Strack et al. cited the emergence of the Doctor of Physical Therapy degree, direct access in physical therapist practice and sport specialization as factors that have provided new opportunities for physical therapists, and specifically sport physical therapists, on professional sportsmedicine staffs. While the prospects for sport physical therapists to work at the professional level have clearly improved, it is possible that athletes may lack understanding of their role in their healthcare and overall injury prevention. With sports physical therapists taking on leadership positions within the healthcare team,²³ this may aid in rectifying this apparent lack of understanding.

Research has lacked the viewpoint of the athlete, which has restricted the holistic treatment physical therapists can provide to their players. This study identifies the potential beliefs of the players and provides an opportunity for the therapist to address them. In the future, physical therapists can collaborate with the training staff and athletes to provide continuous education, promote autonomy, and work towards a standardization of care. As established by the participants, the physical therapist needs to be visible and accessible to build trust for a lasting relationship. Physical therapists working with elite athletes require thoughtful, deliberate strategies for creating a niche within professional sports.

LIMITATIONS

The study sample represented only a small sample of the total population of professional basketball players in the United States and therefore may not represent the views of all professional players. However, saturation was reached after 35 participant interviews, supporting the major themes identified in this study.

CONCLUSION

Previous research has characterized the opinions of physical therapists, physicians, and athletic trainers on their roles when working with elite athletes, however the perceptions of the role of physical therapists in professional sports by the athletes themselves had not been studied. Based on the viewpoint of the athletes in this study, physical therapists were employed primarily for post-injury and return-to-sport rehabilitation. Results of this study suggested that professional basketball players engaged with

athletic trainers for injury prevention because of their level of trust and comfort with these healthcare providers. The organizational structure of healthcare in professional basketball may promote closer professional relationships with athletic trainers while limiting those with physical therapists. The result is that elite athletes may miss out on treatment specific to the PT profession. To address this, increased education and the expansion of physical therapists' role on interprofessional healthcare teams may allow for more comprehensive care. Expansion of the physical therapist's role on interprofessional healthcare teams may allow for more comprehensive and holistic care and potentially diminish injury rates among basketball players.

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CONFLICT OF INTEREST

No potential conflict of interest declared

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SUPPLEMENTARY MATERIALS

Appendix 1

Download: <https://ijspt.scholasticahq.com/article/88137-perceptions-of-physical-therapy-and-the-role-of-physical-therapists-in-injury-prevention-among-professional-basketball-players-a-qualitative-study/attachment/181601.docx>
