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A Qualitative Examination of the Sport Music Preferences of NCAA Division I Athletes

Zachary Ryan

A QUALITATIVE EXAMINATION OF THE SPORT MUSIC PREFERENCES OF
NCAA DIVISION I ATHLETES

by

ZACHARY RYAN

(Under the Direction of Daniel R. Czech)

ABSTRACT

Athletes report listening to music prior to their sport participation for a number of

reasons, including: mood-regulation, arousal control, and concentration (Laukka &

Quick, 2011; Sorenson, Czech, Gonzalez, Klein, & Lachowetz, 2008; Stevens & Lane,

2001). Researchers have found that many athletes report their music preferences for

everyday listening are different from what they listen to around sport participation

(Laukka & Quick, 2011). Music preferences have been found to be related to both gender

and aspects of an individual's personality, such as aggression (Rentfrow & Gosling,

2003; Colley, 2008; Rubin, West, & Mitchell, 2001;). The purpose of the current study is

to examine the sport music preferences (SMP) of NCAA Division I athletes. A secondary

purpose is to examine SMP from a gender and contact sport type (collision, contact,

limited-contact) perspective. The 21 participants (13 male, 8 female) were NCAA

Division I athletes from a southeastern university. The consensual qualitative research

(CQR) protocol was used to analyze the data pertaining to the music athletes prefer to

listen to prior to participating in their sport. The results suggest that, overall; athletes

prefer music that is fast and upbeat, pay more attention to the beat than the lyrics, and

like rap and/or hip-hop music. Female and limited-contact sport athletes also reported

listening to multiple genres of music, while male and collision sport athletes pay attention

to the lyrics in select songs.

INDEX WORDS: Sport Music Preferences, NCAA Division I Athletes

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ZACHARY RYAN

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ZACHARY RYAN

Major Professor:	Daniel R. Czech
Committee:	Brandonn Harris
	Samuel Todd

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CHAPTER 1

INTRODUCTION

Music has become an ever-present feature in the lives of individuals. In a

comprehensive study by Rentfrow and Gosling (2003), participants rated music as one of

their most important lifestyle activities; furthermore, participants reported frequently

listening to music while engaging in a number of other activities including driving, going

to bed, and exercising. Music also provides an avenue for others to interact and find

commonalities. In a study where participants were instructed to get to know a complete

stranger over the internet, music and music preferences were the most discussed topics

overall (Rentfrow & Gosling, 2006). Music preferences can function as an identifying

"badge" by which adolescents express themselves and make judgments about others

(North & Hargreaves, 1999).

Music preferences can also convey information about an individual's personality.

Past studies have found that the big five personality traits are related to music preferences

(Delsing, Bogt, Engels, & Meeus, 2008; Rentfrow & Gosling, 2003; Zweigenhaft, 2008).

Beyond the big five personality traits, relationships have been demonstrated between

music preferences and other aspects of personality such as aggression. More specifically,

Rubin, West, and Mitchell (2001) found that those with a preference for rap and heavy-

metal music exhibit significantly greater aggressive tendencies than those that preferred

the other four music genres in the study, which included classic rock, alternative,

dance/soul, and country western. In addition, Delsing and colleagues (2008) found that

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music preferences were relatively stable from adolescence and beyond, so the "badge" referred to by North and Hargreaves may be worn throughout an individual's life.

Different music preferences are not only seen regarding individual differences such as personality, but also gender. In a study by Mulder, Bogt, Raaijmakers, Gabhainn, and Sikkema (2010), females had more positive ratings of Pop (i.e., top 40, Latin, Dutch pop, boybands) and Urban (i.e., rap, R&B, reggae, dancehall) music. In the same study, Dance (i.e., trance, techno, electra, hardhouse) music was more positively rated by males. Colley (2008) found gender to be the only or most significant predictor of liking rock, heavy-metal, reggae, folk, and chart pop. Overall, males had a stronger liking for rock, reggae, heavy-metal, and folk, while females had a stronger liking for chart pop. The fact that music preferences are different between genders could be important when examining music use in sports, as these findings could hold true for athletes' music preferences around their sport.

One area where music seems to be ever present is in the world of sport. During stoppages of play in all current NBA games, one can hear an array of Top 40 singles, or one of many "sports rock anthems," such as The Village People's "YMCA" (McLeod, 2006). The last decade has brought the sporting world and music world even closer with music stars now running sports agencies. Outside of these familiar instances, one of the most common images that individuals see regarding music and sports is an athlete with headphones on listening to music before the start of a game. According to Laukka and Quick (2011), 66% of athletes reported listening to music "several times per day," and rated it as an important part of their daily lives. In addition, their study found that rating everyday music listening as important was positively related to rating music listening

around sport as important. This is important as the use of music to help with sport performance has become a growing area of research. Koc and Curtseit (2009) found that fast music stimulates the body and music use during athletic and exercise participation can increase performance. For example, rowers completing a 500 meter sprint had a shorter time to completion and more strokes per minute in a fast music condition compared to a slow music condition (Rendi, Szabo, & Szabó, 2008). Similarly, perceived effort, positive engagement, and revitalization were all lowest during a training session with slow music when compared to fast music and no music (Szabo & Hoban, 2004).

`   All of these examples demonstrate the facilitative effect of not only music, but faster-paced music, on sport performance. Furthermore, these results could also indicate a preference for music with a faster tempo, as many athletes report listening to this type of music when incorporating it as a mood-regulating strategy (Terry, Dinsdale, Karageorghis, & Lane, 2006). While music may not be permitted during competition in most sports, as previously mentioned, it is commonly played during stoppages in play in professional sports. In addition, the use of music during training sessions could translate to better performance in competition by improving the quality and quantity of work done during that time (Koc & Curtseit, 2009; Szabo & Hoban, 2004). While this information can be helpful to understanding the potential benefits of music use around sport participation, it tells us little about why athletes use music, and what music they listen to, which are both key parts of the relationship.

In a study by Sorenson, Czech, Gonzalez, Klein, and Lachowetz (2008), athletes were interviewed about their music use during sport. The most common themes that came about were using music for arousal regulation, to gain focus, regulate their mood, and to

build camaraderie with the team. Laukka and Quick (2011) also found that athletes most often use music for arousal and mood regulation, and often use it as part of pre-event preparation, just as in Sorenson et al. (2008). The use of music as a mood regulation strategy is also found in other research (Stevens & Lane, 2001; Terry et al., 2006). This would make sense as music has been shown to have an influence on emotions. Runners introduced to a music intervention reported an increase in pleasant emotions and decrease in unpleasant ones from pre- to post-intervention. They also found these changes in emotion to help facilitate their improved performance (Lane, Davis, & Davenport, 2011). This emotional impact of music on athletes, coupled with the common use of music during pre-event preparation, could indicate the presence of a difference in athlete's music preferences around their participation in sport. In the study by Laukka and Quick (2011), athletes rated their everyday music preferences and music preferences when listening to music around their sport participation. For everyday listening uptempo and conventional (i.e., country, pop, religious music, and soundtrack) music was preferred by the majority of respondents. When asked about their preferred music for sports, intense and rebellious (i.e, alternative, rock, and heavy-metal) music was preferred by the majority. This difference in music preference between everyday listening and sport participation has made athletes' sport music preference (SMP) a subject of interest for the current research, as Laukka and Quick (2011) did not examine individual athlete differences such as gender or sport type.

The American Academy of Pediatrics (2001) differentiates and defines three types of contact sports, collision, contact, and limited-contact. "Collision" sports, such as football and rugby, are those in which athletes will intentionally hit one another,

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inanimate objects, or the ground with great force. "Contact" sports, such as basketball and soccer, are sports in which athletes regularly make contact with one another or inanimate object but with less force than collision sports. Lastly, "limited-contact" sports are those in which contact with athletes or inanimate objects is not regular or is unintentional, like baseball and softball. It has been shown that athletes of different contact sport types have different levels of aggressive tendencies (Silva, 1983; Tucker & Parks, 2001).

Similar studies by Silva (1983) and Tucker and Parks (2001) had athletes give legitimacy ratings of rule violations (i.e., aggressive behavior) in sport. Both studies found significant differences in the legitimacy ratings, with collision sport athletes scoring higher than contact or limited-contact athletes. In addition, the study by Silva (1983) found that males gave higher legitimacy ratings than did females. The framework utilized by both of these studies was social learning theory as applied to aggression by Akers (1998). Social learning theory posits that individuals learn about behaviors from their social groups through modeling and reinforcement. In the context of these studies the individuals would be athletes, their social groups would be their teams, and they would learn about the use of aggressive behaviors. Thus, it would make sense for male collision sport athletes such as football players to have higher levels of aggression with the cheers and praise that come for big hits in the sport. While these studies do not study aggression specifically, the differences in legitimacy ratings of aggressive behaviors suggests that males and those in collision sports would be higher in aggression than females and other contact sport types. Differences in aggression may impact the music selection athletes make prior to their sport.

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Currently, the research surrounding music preferences has focused on the general population and has not narrowed to more specific populations such as athletes. As has already been demonstrated music preferences can differ between males and females (Colley, 2008; Mulder et al., 2010), which suggests the same could be true for male and female SMP. Additionally, certain music preferences are related to higher levels of aggressive tendencies (Rubin et al., 2001). Consequently, past studies have suggested that aggression, or views about aggressive behaviors, can differ based on an athlete's contact sport type (Silva, 1983; Tucker & Parks, 2001). Keeping in mind that athletes commonly use music to regulate their mood and arousal pregame (Sorenson et al., 2008; Stevens & Lane, 2001; Terry et al., 2006), the current study utilizes the framework that contact sport type and gender may impact athletes' SMP due to the relationships between these two variables and aggression. In essence, athletes of different genders and sport types may prefer to listen to different types of music prior to their sport depending on the levels of aggression they seek to reach before participation. For the purpose of this study aggression refers mostly to instrumental aggression in sport. Bredemeier (1975) defines instrumental aggression as behavior that intentionally causes harm or injury to an opponent when trying to accomplish a non-aggressive goal like scoring or winning. The only difference from this definition is that there may not always be specific intent, but rather willingness if it is believed to be necessary.

To best understand the experience of athletic SMP, the humanistic approach will be adopted for the study. Research from this framework requires that the primary researcher recognizes that each individual is different, and can be best understood within context (Patton, 2002). Once a researcher works from this frame of mind, and by having

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an individual relive an experience retrospectively, the researcher can examine some phenomenon and how the individual experienced it more fully (Patton, 2002). In the current study, the humanistic approach will be taken through the use of a thorough interview process and the interpretation of the data, to gain a full understanding of the significance of the experience of listening to music around sport participation.

An understanding of SMP for both gender and contact sport type can be helpful to coaches and sport psychology professionals. First, coaches aimed at using music to positively impact their team would be given a better idea of what might be preferred and why. The same can be said for sport psychology professionals working with athletes in different sports and of different genders. As the use of music-based interventions becomes more prominent in the field, the findings from the current study can help determine the music that would be most effective. Furthermore, research of this nature has yet to be done and would work to extend research on music preferences from the past.

Purpose of the Study

The purpose of this study is three-fold. The first purpose will be to examine sport music preferences (SMP) of NCAA Division I athletes from a qualitative perspective. The second purpose will be to qualitatively examine SMP from a gender perspective. The third purpose will be to qualitatively examine SMP from a contact sport type (collision, contact, limited-contact) perspective.

CHAPTER 2

METHODS

The Humanistic Approach

The present study was conducted using a humanistic approach. According to

Patton (2002), when utilizing this approach the primary researcher must understand that

each individual is different so that their answers can be viewed in the proper context.

Research done from a humanistic approach seeks to fully understand how an individual

experiences some phenomenon (Patton, 2002). This is achieved by requiring the

individual to relive their experience and look at it retrospectively (Patton, 2002). In-depth

interviews and thorough interpretation of the data permitted the primary researcher to

learn about each individual's experience and the significance of that experience.

Exploring Biases and Bracketing

As is the nature of qualitative research, the primary researcher is often a part of

the instrumentation, and it is important to understand how their life experiences are tied

to the topic of study (Gearing, 2004). Gearing (2004) suggests that the use of bracketing

interviews can help to control for researcher biases in qualitative research. The ability to

"bracket out" beliefs and experiences aids in collecting data that is both valid and

unbiased, in addition to preventing the researcher from using their biased judgment when

interpreting the interview later. In this study, bracketing was completed for the purposes

stated above, through a bracketing interview led by an experienced qualitative researcher.

This interview gave information regarding the researcher's own experiences and

knowledge regarding the music preferences and the use of music around sport

participation. The following is a description of that information.

I have played sports for the majority of my life, starting around the age of five. As with most other people I listened to music on the radio and the occasional CD throughout my childhood, but as I got to high school my involvement with sports and music changed. I played baseball for most of my life, but when I entered high school that was the highest level of competition I had played in. Furthermore, the amount of time I spent listening to music more than doubled as I entered high school. I would often listen to music prior to games, mostly to try and pump myself up. I had specific songs picked out in a "Pregame" playlist that I would listen to, but this did not always serve me well. I often did not perform to the level I strived for.

As I have learned more about sport psychology I have learned much about anxiety and arousal. I remember feeling very nervous before many games. I have realized that trying to pump myself up may have been doing more harm than good, pushing me way beyond an optimal level of arousal. Additionally in my research on this topic, I have found music to be commonly used by athletes to calm them down prior to a game, something I would have benefitted from had I thought about it. I had in my mind the image of my football playing friends, who often listened to upbeat rap and rock music to get them going before a game.

In addition to my own experience with music and sport, my music preferences have expanded immensely as I have gotten older. I have most likely doubled the genres of music that I listen to on a regular basis since I have left high school. That being said, this has given me a number of different types of music or artists that I would think could serve the functions athletes hope to get out of listening to music prior to sport participation. Due to my experience with music and sport, my knowledge and general

interest in what kind of music people listen to, it is necessary for me as the primary researcher to bracket out my biases towards athletes sport music preferences.

Participants

This study was comprised of 21 NCAA Division I athletes from a southeastern university that reported listening to music prior to most, if not all, competitions and/or practices for at least three years. A sample of 21 was chosen to ensure sampling adequacy, meaning there was sufficient data collected to account for all aspects of the phenomenon studied (Morse, Barrett, Mayan, Olson, & Spiers, 2002). There were 13 males and 8 females from sports that represented the three different contact sport types (collision, contact, limited-contact). The mean age of the participants was 20 (SD = 1.55), 12 of which were White, 7 were Black, and 2 were Biracial. The participants came from the following sports: football, baseball, softball, men's and women's soccer, and men's and women's basketball.

Instrumentation

Researcher: This study utilized a semi-structured qualitative design to collect data, making the primary researcher the main instrument. The researcher was responsible for conducting, recording, and transcribing the interviews for all 21 participants.

iPad Mini: An iPad Mini with the app "Recorder Plus" was utilized to record the participants' responses to the interview questions.

Procedures

After attaining IRB approval, participants were recruited from undergraduate kinesiology classes, contacted through email or in person, and asked to participate in the study. Each participant was given an informed consent and further educated about the

nature of the study and its procedures. The participants were interviewed separately and in person in a closed office, and informed prior to the start that the interview would be recorded for accuracy and be transcribed later. Participants were also informed that the interview could stop at any moment if the participant felt uncomfortable for any reason, and that there would be no repercussions for doing so.

Interview Protocol

This study utilized semi-structured interviews to obtain data, which assisted the participants' ability to answer questions in detail, due to the nature of this type of interview. Additionally, semi-structured interviews allowed participants to discuss their experience in real time conversation as each question was asked. This type of interview protocol also allowed the researcher to ask probing questions and the ability to deviate from the specific questions already set when needed. The questions developed for the interviews were open-ended so that athletes could answer by speaking through their own experiences. The primary researcher asked the following questions:

1. Tell me about why you listen to music before participating in your sport.

2. What characteristics do you look for in the music you choose to listen to prior to participating in your sport?

3. What, if any, attention is paid to the lyrics of the songs you listen to?

4. When you think of a specific type of music that you like to listen to before participating in your sport, what comes to mind?

5. If you were to think about three of your favorite songs that you like to listen to before practice or games, what comes to mind?

6. Does listening to your favorite music impact your practice or game performance? If so,

how does listening impact your practice or game performance?

As previously mentioned, the researcher had the ability to ask additional probing

questions to clarify what was meant by a participant's response when necessary. For

example the researcher may have asked, "What did you mean by this...."

Data Analysis

To analyze the data collected, the consensual qualitative research (CQR) protocol

was utilized (Hill, Thompson, & Williams, 1997). CQR is viewed as an effective

methodology for analysis because it requires multiple researchers to examine the data and

reach a consensus about its meaning (Hill et al., 2005).

The first step of CQR is to create a research team, which included the primary

researcher, a male second year sport and exercise psychology graduate student, a female

second year exercise science graduate student, and two female first year sport and

exercise psychology graduate students. In addition to the research team, there was an

external auditor, who served as a "check" on the analysis. The external auditor, a sport

and exercise psychology faculty member, was chosen for his expertise in both sport

psychology and qualitative research utilizing CQR.

Following the creation of the research team, all members were trained in CQR.

Each member was provided articles on CQR (i.e., Hill et al., 1997; Hill et al., 2005) along

with a sample article effectively utilizing this methodology (i.e., Steinfeldt, Zakrajsek,

Bodey, Middendorf, & Martin, 2013). As suggested by Hill et al. (2005), a preliminary

meeting was held with the research team to discuss the articles and ensure all had a

thorough understanding of the analysis procedure.

Once all interviews were completed, they were transcribed in full by the primary researcher. Following the transcription of the interviews, the primary researcher assigned each research team member a set of transcripts to review. The primary researcher reviewed all 21 transcripts and all research team members reviewed the first seven transcripts. Then, two members reviewed transcripts 8-14, and another member reviewed transcripts 15-21. The transcripts were divided among the research team, as suggested by Hill et al. (2005), to prevent fatigue and reduce the repetition involved in the analysis procedure. Each research team member reviewed the transcripts individually, multiple times using the Hill et al. (1997, 2005) articles as guidelines for this process. The research team was given broad topics to utilize when generating themes within the transcripts. These topics included "music characteristics," "preferred music," and "favorite songs and artists." The research team was given a preexisting list of potential themes in order to focus the data analysis on answering the primary research questions. The individual research team members reviewed each line of the transcripts in order to create themes that thoroughly depicted how the participants described their experience (Hill et al., 2005). In accordance with suggestions by Hill et al. (1997) each team member was instructed to keep notes of their process of developing the themes. This allowed other team members to best understand how they came to the conclusions they did.

The next step in CQR is the process of building consensus. The research team met for approximately three hours to discuss the themes they derived independently to reach consensus on a set of domains. Domains are topic areas used to help group data pertaining to similar topics and allow the segmentation of the interview data. Each member of the research team presented the themes they derived, and the team as a whole

discussed and challenged each of these themes until a consensus was reached on the domains found in the transcripts. Members of the research team that did not review a particular interview transcript were given a copy to inform their input during the consensus process.

Following the creation of the domains, the research team is then to build consensus on core ideas. Due to the nature of the subject matter, with little differentiation in music preferences, the research team decided to skip up to the cross-analysis step before coming back to creating consensus on core ideas. During the cross-analysis, which took place at the same meeting as domain consensus, the research team worked together to create categories that described the common themes found within each domain across all of the cases (Hill et al., 1997; 2005). Cross-analysis also entails determining the prevalence of each category within the data. Once more due to the limited variation within the data collected, and as suggested by the external auditor, this process differed from the typical CQR procedure described by Hill and colleagues (1997; 2005). Instead of determining categories and then determining their prevalence, categories were formed based on their prevalence within the data. For example, in determining categories for each of the contact sport types, data pertaining to a particular category had to be found in five of the seven transcripts. Data that might make up a category that was not found in more than half of the cases were excluded from the results. In relation to the frequency labels suggested by Hill and colleagues (1997), this meant all categories were labeled either *general* or *typical*. Once this was completed, the research team moved on to creating consensus on core ideas.

Core ideas are used to summarize the data by providing a clearer picture of what was said in a more concise manner that is comparable across cases, while staying as close to the interviewee's exact words as possible (Hill et al., 2005). As noted by Hill and colleagues (2005), the process of creating core ideas can be repetitive after a few cases, so the research team worked to develop core ideas for three of the cases to ensure all understood the process. Upon completion, the primary researcher then developed core ideas for the remaining cases with the rest of the research team serving as internal auditors reviewing, challenging, and editing the core ideas created until consensus was reached. Once domains, categories, and core ideas were completed the research team had its initial coding scheme.

The domains, categories, and core ideas extracted, along with all of the transcripts, were then sent to the external auditor for their feedback and to gain an additional perspective. Furthermore, the external auditor helped to check for any groupthink tendencies that may have occurred during the consensus building process. The external auditor provided feedback on the coding scheme that had been developed, stating that it looked, "optimal" in their opinion. Their only suggestion was to reword the categories prior to writing up the results so that they better reflected exactly what the participants said.

The final step of CQR is called the member check. The coding scheme, including the domains, core ideas, and categories were sent to the participants via email, with the option of receiving their transcript, in person, if desired. Participants were asked to give their feedback on the coding scheme and how accurately it reflected their

experience and responses to the interview questions. After waiting a week, with a follow

up email sent halfway through, none of the participants had responded with any feedback.

The primary researcher decided to go move on from data analysis and write up the results

using the categorization structure that had been formed.

CHAPTER 3

RESULTS

Following the analysis of all 21 participant interviews as outlined in the previous

section, a few thematic categories were found related to athletes' SMP. These categories of

SMP were grouped first by the research question they sought to answer, and then further by the

specific interview questions that had been asked to help answer the research question. In

addition, quotes from the participants are included to better illustrate each thematic category.

Since some athletes were short in their responses, and all of the athletes are part of multiple

groupings, some participants' quotes will be used twice.

Research Question 1: What are the SMP of NCAA Division I athletes?

Category 1: Look for music that is fast and upbeat.

Question: What characteristics do you look for in the music you choose to listen to prior to participating in your sport?

15 of the 21 athletes interviewed specifically mentioned they looked for music that was

fast and/or upbeat in nature. The terms "fast" and "upbeat" were both used because "fast" can

be a description of the tempo, whereas "upbeat" is related to the structure of a measure of

music but can also describe the tempo. This category was common amongst all of the athlete

groupings, as will be demonstrated throughout the results.

"…it definitely has to be upbeat, I don't want to listen to…really slow music."
(Participant 4)

"…for games it's more fast-paced, more upbeat kind of tempo." (Participant 8)

"Just something upbeat and fast-paced, nothing slow." (Participant 11)

Category 2: Pay more attention to the beat than the lyrics

Question: What, if any, attention is paid to the lyrics of the songs you listen to?

      13 of the 21 athletes interviewed alluded to the fact that they did not pay much attention to the lyrical content of the music they listened to. Most of the athletes mentioned that the musical aspects of the songs chosen were much more important for them, specifically the beat and/or rhythm. This category was also common throughout most of the athlete groupings with the exception of male and collision sport athletes.

> "It's a beat and a rhythm. It's a beat that keeps me going and…I like the beats of it. It's more with the beats than the words….yeah I like the words but I really like the beat." (Participant 3)

> "Yeah it's really just the music I pay attention to." (Participant 18)

> "…I'm not so much listening to the lyrics, I'm more so listening to the beat." (Participant 6)

Category 3: Like to listen to rap and/or hip-hop

Question: When you think of a specific type of music you like to listen to before participating in your sport, what comes to mind?

      18 of the 21 athletes stated that they listen to rap, hip-hop, or both. These two styles of music are commonly grouped together, especially when describing music preferences. When Rentfrow & Gosling (2003) created the Short Test of Music Preferences (STOMP), they clustered preferences for music genres into four categories. One of those categories was Energetic and Rhythmic music, which was defined as rap/hip-hop, soul/funk, and electronica/dance music. That being said, according to diffen.com (n.d.), "Rap music is a combination of rhyming and poetry to a beat. It is a part of the hip-hop genre which involves lyrics over fast-paced music." Since both musical styles are considered to vary from one another they will be viewed as different throughout the study.

"I definitely listen to a lot of rap and hip-hop." (Participant 1)

"…I listen to hip-hop right before the game…" (Participant 17)

"…I'm more towards rap right before a game." (Participant 7)

Research Question 2: What are the SMP of male and female NCAA Division I athletes?

Females

Category 1: Look for music that is fast and upbeat

Question: What characteristics do you look for in the music you choose to listen to prior to participating in your sport?

Six of the eight female athletes interviewed specifically said they looked for music that was fast in nature. As previously mentioned, this category was common across the athlete groupings by both gender and contact sport type.

"…music with good beats…like high tempo and stuff like that."
(Participant 18)

"I mean probably like everybody else…upbeat music, stuff like that."
(Participant 19)

Category 2: Pay more attention to beat and tempo than the lyrics

Question: What, if any, attention is paid to the lyrics of the songs you listen to?

Similar to athletes overall, six of the eight female participants were less focused on the lyrics of the songs they listened to and more focused on musical aspects such as beat and tempo.

"It's more tempo, I don't really care about the lyrics, just…something that's fast."
(Participant 21)

Category 3: Like to listen to a mixture of different types of music

Question: When you think of a specific type of music you like to listen to before participating in your sport, what comes to mind?

Seven of the eight female athletes reported listening to more than one type of music prior to participating in their sport. While rap and/or hip-hop were included for all of the athletes, other music genres mentioned included pop, country, and religious music. Most of the females interviewed would listen to these different types of music as a mix, but others were deliberate in their transition from one type of music to the next.

"Like today's music or like rap and hip-hop…I think it's a mixture."
(Participant 11)

"I would listen to gospel early in the mornings just to…make me feel relaxed. Then…after I'm feeling relaxed and everything…I'd listen to hip-hop or rap…"
(Participant 6)

Males

Category 1: Look for music with a good, fast beat

Question: What characteristics do you look for in the music you choose to listen to prior to participating in your sport?

Once more the preferred music characteristics were similar to what has been reported to this point. Nine of the thirteen male athletes reported they looked for beats that were fast and/or good. The change in verbiage to include "good" as opposed to "upbeat" were the only real differences from what has been reported to this point.

"Pretty high tempo…something that has…a good beat, good flow to it."
(Participant 15)

"Probably something that moves. Fast-paced, good beat, nothing slow…"
(Participant 13)

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Category 2: Listen mostly to the beat, except for the lyrics in some songs

Question: What, if any, attention is paid to the lyrics of the songs you listen to?

Unlike athletes overall and female athletes, eight of the thirteen male athletes

mentioned paying attention to the lyrics in some songs. That said, many of the athletes

acknowledged that most of their attention is on the musical characteristics such as the beat.

Most of them only mentioned a song or two that this applied to for them.

> "Oh yeah, I mean a lot of the times…it's just about the beats because when I listen to rap that's all I really take out of it…they're good to listen to. But like Eminem…that song "Not Afraid"…the stuff he says in it can really get to your mind…get you motivated." (Participant 15)

> "Some of the songs, they speak about grindin', workin' hard…I can relate to it. Like a song called "Ambition" by Wale, you can kind of relate that song to anything you do. (Participant 5)

Category 3: Like to listen to rap and hip-hop

Question: When you think of a specific type of music you like to listen to before participating in your sport, what comes to mind?

Consistent with athletes overall, 10 of the 13 male athletes reported that they liked to

listen to rap and hip-hop music. While a few of the male athletes reported only listening to rap

or one or the other, most included both types of music when describing the music they liked to

listen to.

> "I can say it's hip-hop and rap, stuff like that." (Participant 9)

> "…when you're playing a sport I think our team thing is rap or hip-hop." (Participant 13)

Research Question 3: What are the SMP of collision, contact, and limited-contact sport NCAA Division I athletes?

Collision Sport

Category 1: Look for music with fast, up-tempo beats

Question: What characteristics do you look for in the music you choose to listen to prior to participating in your sport?

Remaining similar to the characteristics looked for by athletes overall, and by gender, five of the seven collision sport athletes looked for music with fast beats. There was little to no mention of a desire for the music to be "upbeat," instead many of the athletes referred to the music at "up-tempo."

"A high tempo. Something that has a very fast beat." (Participant 2)

"A fast and up-tempo beat." (Participant 5)

Category 2: Pay attention to lyrics relatable to their sport

Question: What, if any, attention is paid to the lyrics of the songs you listen to?

Unlike any other athlete group, six of the seven collision sport athletes reported paying attention to at least some lyrics in the songs they listen to. Specifically, they were attentive to song lyrics that they found to be relatable to their sport. These athletes did note that this was not applicable to every song they chose. Many of the collision sport athletes mentioned they

chose some songs for the lyrics and others simply for the musical characteristics like tempo

and rhythm.

> "If you have a song that can relate to your team…about somebody watching your back. Like "The Boys of Fall" is a song that talks about how if somebody gets into a confrontation you're going to meet them all." (Participant 2)

> "Some lyrics relate to what you're about to do, like some music they actually talk about football…it's very relatable…just going out there, working hard…never giving up, things like that." (Participant 16)

> "Sometimes the lyrics mean something…maybe an Eminem song or something…and the words apply to…getting ready to play in a game." (Participant 12)

Category 3: Like to listen to rap

Question: When you think of a specific type of music you like to listen to before participating in your sport, what comes to mind?

Unlike the previous groups which reported at least liking both hip-hop and rap, six of

the seven collision sport athletes only mentioned enjoying listening to rap prior to their sport

participation. Many of these athletes were short in answering this question without much

elaboration. That being said, many later equated this type of music to helping with aggression

and energy levels prior to the start of the game.

> "Rap." (Participants 5 & 14)

> "I'll probably listen to rap music…real aggressive music…stuff that will get your energy going…" (Participant 2)

Contact Sport

Category 1: Look for music that is fast and upbeat

Question: What characteristics do you look for in the music you choose to listen to prior to participating in your sport?

Staying similar to what has been reported to this point; six of the seven contact sport athletes interviewed said that they liked music that was fast and upbeat. As with the collision sport athletes, many related fast music to help with their energy levels.

"…for games it's more fast-paced, more upbeat kind of tempo." (Participant 8)

"…something pretty fast-paced." (Participant 7)

Category 2: Pay more attention to the beat and rhythm than the lyrics

Question: What, if any, attention is paid to the lyrics of the songs you listen to?

Once more, in relation to the attention paid to the lyrics of songs, five of the seven contact sport athletes stated that they paid more attention to things like the bass or melody of songs instead of the lyrics. This is consistent with much of what has been found to this point amongst athletes overall and female athletes. The two contact sport athletes that mentioned attending to lyrical content only did so when listening to other types of music well before the game start time got close.

"Yeah I think it's more about the bass and the rhythm than the actual lyrics itself." (Participant 13)

Category 3: Like to listen to rap or hip-hop

Question: When you think of a specific type of music you like to listen to before participating in your sport, what comes to mind?

All of the contact sport athletes indicated that they liked to listen to either rap or hip-hop music. While a couple mentioned both of these types of music together, the majority of these athletes just mentioned one or the other.

"I mean my favorite is hip-hop…" (Participant 8)

"…I'm more toward rap right before a game." (Participant 7)

Limited-Contact Sport

Category 1: Look for upbeat music

Question: What characteristics do you look for in the music you choose to listen to prior to participating in your sport?

All of the limited-contact sport athletes reported looking for upbeat music to listen to before their participation in their sport. This continues to stay rather consistent with what was reported from other athlete groupings, although many specifically said "upbeat" over any other term to describe the music characteristics.

"I like upbeat…" (Participant 20)

"…before a game I'll probably listen to some more upbeat stuff."
(Participant 10)

Category 2: Like to listen to more than one type of music

Question: When you think of a specific type of music you like to listen to before participating in your sport, what comes to mind?

Similar to what was indicated by the female athletes interviewed five of the seven limited-contact sport athletes said they listened to more than one type of music. The types of music mentioned included country, rap, hip-hop, pop, and techno. A majority of the athletes listened to country and rap or hip-hop.

"I listen to a lot of country music…pop music…I'll also listen to funky

music…" (Participant 4)

"I mean a lot of country but also a lot of rap and hip-hop…"
(Participant 19)

"…I listen to…some country music but then…kind of like hip-hop and
rap music…" (Participant 18)

Data Not Reported

The results shown above did not include all of the data collected from the interview

questions asked. It is common for data collected in research utilizing CQR to not be included in

the results section if it does not contribute to the purpose of the study (Hill et al., 2005). For

that reason, the data collected for the following interview questions were excluded, "Tell me

about why you listen to music before participating in your sport" and "Does listening to your

favorite music impact your practice or game performance? If so, how does listening impact

your practice or game performance?" The data collected from these questions went outside the

scope of this study's focus on athletes' SMP, but could be utilized in further research as will be

discussed in the next session. Furthermore, Hill and colleagues (2005) also note that there are

often interview questions for which not enough data was collected from the participants. When

asking participants, "If you were to think about three of your favorite songs to listen to before

practice or games, what comes to mind?" many of the participants had difficulty naming

specific songs, which is why that data was excluded as well.

CHAPTER 4

DISCUSSION

The purposes of this study were to qualitatively examine the sport music preferences (SMP) of NCAA Division I athletes overall, by gender, and by contact sport type (collision, contact, limited-contact). Specifically, the study aimed to get an understanding of the musical genres and characteristics that these groups of athletes preferred to listen to prior to participating in their sport.

The present study utilized a qualitative, semi-structured interview approach to gain a better understanding of the experiences of these athletes as they selected their specific music choices prior to activities in their sport. Following the conduction, transcription, and analysis of the interviews there were few thematic categories that surfaced, which were similar amongst the different athlete groups (overall, gender, contact sport type). The categories related to athletes' SMP included: look for music that is fast and upbeat, pay more attention to the beat than the lyrics, and like rap and/or hip-hop music. There were slight variations on the attention to the beat and liking rap and/or hip-hop categories for select athlete groupings, which will be further discussed in this section.

The results found highlight similarities in SMP for athletes of different genders and contact sport types. As the use of music becomes more common for coaches and sport psychology consultants (SPCs) to positively impact their athletes, the results point to certain aspects of the music chosen that are most important to athletes. Due to this, it can make it easier for coaches and SPCs to select music that may be the most impactful. Though athletes may commonly play their own music, some of the athletes interviewed mentioned that their

coaches would only allow music to be played over a speaker as a team. While similar overall, the results point to males attending to lyrics at times, while females will commonly listen to multiple genres. These results seem to indicate that coaches and SPCs should also take into account the gender of their athletes when making music selections, if individual music is not allowed. Additionally, the results can also help inform the music selected during sporting events. It is not uncommon to see athletes dancing or singing along to the tracks played during competition, often similar to SMP found in the present study. By examining SMP by gender and contact sport type, the results help extend past research related to the topic by incorporating these individual differences not before looked at. Furthermore, little research as looked specifically at the music preferences of athletes. The findings of this study can contribute to further research exploring this phenomenon.

Look for Music that is Fast and Upbeat

Each of the athlete groupings reported that they look for music that was fast and/or upbeat. Koc and Curtseit (2009) found that fast music stimulates the body and that music use during exercise or athletic participation can increase performance. While the present study focused on athletes' preferred music prior to participation, many athletes reported they believed their performance would be negatively impacted without their music. A preference for fast and upbeat music is in line with results found by Terry and colleagues (2006), where athletes reported listening to music with a faster tempo. This was also similar to what was found by Sorenson et al. (2008). Their study utilized a phenomenological approach to examine collegiate athletes' experience of music in sport and found the athletes listened to fast or upbeat music to help increase their arousal. Multiple athletes in the current study mentioned that the

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music they chose helped to increase their energy levels in a similar fashion to increasing

arousal. Participant 6 illustrates this in a quote:

> "…it gets my heart racing and pumped up so I can go out there
> and actually have high energy when I go out there and play."

It appears is it commonplace for athletes to enjoy music that is fast and/or upbeat in nature,

especially around participation in their respective sport.

Paying More Attention to the Beat than the Lyrics

A majority of the athletes interviewed said they were more attentive to the musical

characteristics, specifically beat or rhythm, of the songs they listened than the lyrical content.

According to the athletes, the lyrics of the songs did not play a role in their music selection.

The importance of musical characteristics versus lyrics in songs to impact athletic and exercise

performance has become a growing area of research. The results of the present study are

consistent with many of the findings to date. Bishop, Karageorghis, and Loizou (2007)

investigated tennis players' use of music to manipulate their emotional states and found that

the musical properties of songs largely influenced the music they selected before matches.

Next, 61% of athletes surveyed felt the effects on their performance from music came from

"aspects of the music" such as, "the beat of the music" (Laukka & Quick, 2011). In the same

study, only 6% of the athletes felt the lyrics had an impact on their performance. Lastly,

Sanchez, Moss, Twist, and Karageorghis (2013) found no additional impact of music with

lyrics over music without lyrics in a cycling trial, other than an increased cycling cadence in

the final minute of cycling. The researchers did not view the increased cadence in the final

minute as a result of the music, but because the participants knew the trial was about to end.

Overall, these results point too little emphasis placed by athletes on the lyrical content of the

songs they choose to listen to prior to participating in their sport. That being said, the male and collision sport athletes interviewed varied slightly from the rest of the athlete groups in the study.

Both male and collision sport athletes noted that they attend to the lyrics of select songs that they listen to before their sport participation. Specifically, these athletes paid attention to lyrics they felt related to them personally, to their sport, or their team. Looking back at the Bishop et al. (2007) study on tennis players' use of music, they found that the tennis players would include lyrical content as part of their decision-making process in selecting tracks. Similar to the current study, lyrical content was not most important but did play a part in the selection of some songs for these athletes. In relation to the impact of lyrical content on performance, many of the athletes that attended to the lyrics in at least some songs noted that the lyrics helped motivate or inspire them. Participant 2's quote exemplifies this:

"…with the emotional aspect one of them [song] is "Dear Mama"
by Tupac…just because he kind of explains how…his mom kind of
did everything for him…that really motivates me, so I…like to
make sure that my mom is definitely a part of me when I'm on the field."

This relates to a study by Baranie, Pooraghaei, and Zareian (2015) in which participants ran on a treadmill to music with and without lyrics. They suggested that their results point to the presence of lyrics in music having an impact on the improvement of the psychological conditions of athletes. These improved psychological conditions referred to the enjoyment of the physical activity the athletes may take part in.

While it would appear that musical characteristics, such as beat, are more indicative of athletes' SMP, select lyrical content is important for some athletes. Those athletes primarily being male, collision sport athletes. While the attention to song lyrics is only for select songs,

these results do suggest that the athlete population music is to be chosen or played for should be considered prior to its selection.

Like to Listen to Rap and/or Hip-Hop

All but three of the 21 athletes interviewed mentioned rap and/or hip-hop as genres of music they liked to listen to prior to participating in their sport. In relation to music preferences, Rentfrow and Gosling (2003) would identify this as a preference for energetic and rhythmic music. As previously mentioned, this category of music preferences is characterized by rap/hip-hop, soul/funk, and electronica/dance music. This differs slightly from what was found by Laukka and Quick (2011), where 32% of the athletes surveyed reported a preference for intense and rebellious music prior to their sport. This type of music is characterized by heavy-metal, rock, and alternative music. In that same study 28% of the athletes preferred energetic and rhythmic music. Only three athletes interviewed in the present study made any mention of listening to music that would be considered intense and rebellious, and all listened to those genres in conjunction with rap or hip-hop.

Listening to rap and/or hip-hop was common across all contact sport types. As stated previously, past research has found a positive relationship between aggression and both a preference for rap music, as well as playing a collision sport (Rubin et al., 2001; Silva, 1983; Tucker & Parks, 2001). The results of this study do not support this notion entirely, as aggression was not measured and a preference for rap music was found across all of the contact sport types. Future research would need to focus on collision sport athletes only in an effort to support the relationship between all three variables.

In examining SMP for male and female athletes the results showed that both genders liked to listen to rap and/or hip-hop music. Female athletes also reported enjoying country,

pop, and religious music and would commonly listen to multiple genres of music in advance of their sport participation. In addition, limited-contact athletes were the only contact sport type that also reported to listening to multiple genres, and that athlete grouping was made up of a majority females. These results were not entirely consistent with research by Colley (2008), who found being male was related to a preference for rock, reggae, heavy-metal, and folk, while being female was related to a preference for pop. While the results of the present study differ slightly, it suggests there is support for the findings by Laukka and Quick (2011) that athletes' music preferences differ for their everyday music listening and music listening prior to their sport. These differences in situational music preferences are reflected in a quote by Participant 12:

"…I personally listen to every type of genre of music, but towards the game…I'll listen to rock or some kind of rap…"

The findings presented here point to rap and hip-hop music commonly being the music of choice for the athletes interviewed. It is noted that female athletes and limited-contact sport athletes reported listening to other genres in addition to these. Once more, this would suggest that the makeup of the athlete population music is to be played for be taken into account prior to its selection.

Alternative Explanations for the Results

Considering all of the similarities in SMP of athletes of different genders and contact sport types, alternative explanations for the results must be considered. In regard to how the athletes listened to their music, many commented that they listened through speakers in the locker room. In some of these instances the athletes had no say in what was being played. It is

possible that when asked about their SMP these athletes described what is commonly heard, even if it did not match their specific SMP.

Along the same lines, cultural influences must be taken into account. It has become common for professional athletes to share their pregame music selections with the general public. Perhaps the athletes interviewed had been trying to emulate a favorite professional athlete from their sport in hopes of reaching similar success. While this may not be the most likely, it is a possibility. Another possibility for the influence of an athlete's culture revolves around their friends and family. Individuals often learn about new music from those closest to them, or are raised listening to particular styles or genres. Many of the athletes in the current study may not have been introduced to a large variety of music up to this point in their lives. If that were the case then it is possible they have not yet discovered other types of music they might prefer prior to their sport. As the athletes in the current study were not specifically asked about the influences driving their SMP alternative explanations for the results must be taken into consideration.

Limitations

Due to the sample for this study being small and purposeful, the results cannot necessarily be generalizable to the entire population. The study also only focused on athletes at the NCAA Division I level, and it is possible different SMP could be found from athletes at different levels of competition. The sample of this study was also comprised of a majority males, which could give an uneven picture of SMP for NCAA Division I athletes overall. Furthermore, the collision sport group was comprised of only males, due to the lack of NCAA Division I female sports considered to be collision. This could create an unbalanced look at

SMP for this contact sport type. It could be appropriate to create a more balanced gender sample in future studies. The final limitation for consideration is the fact that only one interview took place between the primary researcher and athletes. Additional interviews might have given the researcher more in depth data to analyze, as well as a chance for the researcher to follow-up on questions that were not answered fully or needed clarification.

Implications for Future Research and Conclusions

The present study examined the music NCAA Division I athletes preferred to listen to prior to participating in their respective sport. The data was examined for athletes overall, by gender, and by contact sport type (collision, contact, limited-contact). The results pointed to athletes looking for music that was fast and upbeat, paying more attention to the beat than the lyrics, and liking rap and/or hip-hop music. Male and collision sport athletes were found to pay attention to the lyrics of select songs they found relatable to themselves or their sport/team. Female and limited-contact sport athletes reported commonly listening to other genres of music in addition to rap and/or hip-hop.

Results of the study in regards to athletes looking for music that was fast and upbeat were consistent with previous research on the topic of music in sport. While consistent, there was variability in using the terms "fast" or "upbeat." As stated previously, "upbeat" is also used to describe the composition of a measure of music. In addition, other words such as, "up-tempo," were used to describe the characteristics of the music the athletes looked for when selecting the songs they would listen to. Due to the slight variation in verbiage and potential double meaning of the term, "upbeat," future research should aim to better clarify what is meant by the terms athletes used to describe the music characteristics they look for.

When examining the results pertaining to the attention paid to lyrics by the athletes, male and collision sport athletes paid attention to the lyrics of select songs. The other athletes focused more on the aspects of the music listened to, such as the beat. These songs commonly had lyrics that related to the athlete personally or that they found related to their sport. While, overall, the male and collision sport athletes said they would choose songs based on the characteristics of the music over the lyrics, if they had to choose, this finding is worth noting. To gain a better understanding of the importance of lyrical content for athletes' pre-event music preferences future research should focus solely on that subject. In addition, focusing studies to one particular gender or contact sport type may help to better explore the variations found in the current study.

In relation to the specific types of music athletes prefer listening to prior to participating in their sport, a majority of the athletes mentioned listening to rap and/or hip-hop. Female and limited-contact sport athletes noted that they listened to one or both of these genres in addition to at least one other. This is not necessarily unexpected, as athletes would not be expected to restrict their music selection to just one type of music. Furthermore, with each of the athlete groupings liking rap and/or hip-hop there is no support for playing a collision sport and/or preferring rap music being positively related to aggressive tendencies. For the most part that is because results of that nature are outside of the scope of this study. To better examine the role of contact sport type played, or music preferred, on differences in aggression future research should include some measure of aggression. Additionally, as already stated, future research may choose to focus on each contact sport type separately to get a clearer understanding of their respective SMP.

As mentioned at the end of the results section, data pertaining to some of the interview questions asked was excluded because they did not pertain to the research questions being investigated. These two questions centered on why athletes chose to listen to music prior to participating in their sport and the impact they felt their favorite music had on their practice or game performance. Many of the responses to both questions were similar, but inconsistent across the athletes, another reason they were excluded. Similar to the study by Sorenson and colleagues (2008), many athletes mentioned that listening to music helped them to focus and increase their energy levels prior to competition. To better understand why athletes listen to music and their perceived impact of the music on their performance, future research may focus specifically on each of these topics.

Based on the results of this study, it appears that athletes are similar in the music they prefer to listen to before participating in activities for their sport. Verbal descriptions of the music chosen to listen to provides strong insight into the types of music, and what about that music, athletes look for in their selections. That being said, more research would help to get a clearer picture of the differences that exist among athletes of different genders and sport types. This information is beneficial to coaches and sport psychology professionals that are interested in the use of music to positively impact their athletes in some way. The benefit from this information comes from a better understanding of the types of music to select because it falls in line with that the athletes prefer to listen to. Since many athletes are seen listening to music prior to their sport, at all levels, this is a topic that could prove important for coaches and sport psychology consultants alike to become more knowledgeable about.

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APPENDIX A

RESEARCH QUESTIONS, LIMITATIONS, DELIMITATIONS, ASSUMPTIONS, &
DEFINITIONS

Research Questions

1. What are the sport music preferences (SMP) of NCAA Division I athletes?

2. What are the SMP of male and female NCAA Division I athletes?

3. What are the SMP of collision, contact, and limited-contact sport NCAA Division I
   athletes?

Limitations

- The sample was small and purposeful, preventing the results from being generalizable
  to the entire population.

- The sample was comprised of mostly males which could give an unbalanced view of
  SMP by gender.

- The athletes interviewed as part of the collision sport group were all male. Football was
  the only sport the researcher had access to that qualifies as a collision sport, and could
  give an uneven picture of SMP for this contact sport type.

- Each participant was only interviewed once, and multiple interviews may have provided
  more in depth information or follow up with questions from the first interview.

Delimitations

- This study examined 21 NCAA Division I athletes, with the same number from each of
  the three contact sport types (7 collision, 7 contact, 7 limited-contact).

- Other than collision sport athletes, there were male and female athletes from the contact
  and limited-contact sport groups.

- Data from the interviews were interpreted by researchers well trained in qualitative
  research.

Assumptions

- The researcher assumes that all participants will answer the questions truthfully and honestly in regards to their sport music preferences.

- Because the participants are aware of the study's purpose, it is assumed that they did not do any preparation for the interview, including research.

- It is assumed that participants have no indication of any type of "desired" answer for the researcher.

Definitions

- <u>Sport Music Preference (SMP):</u> the music characteristics and genres that athletes prefer to listen to prior to their participation in sport.

- <u>Contact sport type:</u> based on the the American Academy of Pediatrics (2001) classification of three types of contact sports, collision, contact, and limited-contact. Collision sports are those in which athletes intentionally hit one another, objects, or the ground with great force. Contact sports are those in which athletes regularly make contact with one another or objects but with less force than collision sports. Limited-contact sports are those where athletes contact with others or with objects is not regular or is unintentional.

 <u>Aggression:</u> Based on the legitimacy ratings given to aggressive behaviors (Silva, 1983; Tucker and Parks, 2001).

Delsing, M., Ter Bogt, T., Engels, R., & Meeus, W. (2008). Adolescents' Music
Preferences and Personality Characteristics. *European Journal of Personality,* 22,
109-130.

This study sought to replicate and expand upon past research investigating the relationship between music preferences and personality. The researchers discussed one theory that served as a foundation for their study, called the uses and gratification approach. This view suggests that individuals have different motives for their music and stresses individual choice. So, individuals would choose music that satisfies particular needs for their personality, such as extraverts preferring music that would facilitate social situations. In addition, music preferences may gratify physiological needs. This is based on the model of optimal situation, so that individuals would choose music that helps them to achieve their optimal level of stimulation.

This theory of music preferences and personality, led the researchers to the current research study, by replicating past research that found a relationship between the two. This study was also an extension, by seeing if the results that had been found would be generalizable to younger adolescents. Furthermore, due to the view that adolescence is when the time spent listening to music is believed to be at its highest, this made an ideal population to study music preferences. The researchers further extended the past studies by examining if these music preferences and personality correlates changed over time. The purpose of the study was to examine the relationships between Big Five personality characteristics and (changes in) music preferences in Dutch adolescents.

The participants for this study were 2334 Dutch adolescents (mean age = 14.37, Male = 1097, Female = 1234). A subsample of 1234 adolescents were randomly selected from the original sample to participate in three follow-up assessments that happened 1, 2, and 3 years after the intial assessment. At each of the four waves data was collected on the adolescents' music preferences and personality. A total of 1044 participated in all four of the measurements. The participants were recruited in conjunction with a longitudinal study involving 12 Dutch schools. Parents and students received a letter describing the study as well as told not participating was an option. The participants would then take two questionnaires in their classrooms, with the help of research assistants, who provided verbal instructions to supplement the written ones.

The variables for this study included music preferences, time, and personality. Music preferences was measured by the Musical Preference Questionnaire (MPQ). This measure has participants rate their preference for 11 categories of music, which came from interviews with CD retailers and pilot-study data. This questionnaire is similar to the STOMP used in past research but lack three genres, country, blues, and folk, because they were deemed unfamiliar to Dutch adolescents. The 11 categories were grouped into four categories of preferences though, just as in the STOMP. Personality was then assessed

using the Big-Five factors, where the adolescents would self-report how much they felt they were alike 30 different adjectives. The results give scores for each of the big five personality dimensions. Time was incorporated by having a subsample take the measures one, two, and three years after the initial testing.

To analyze the stability of music preferences and personality characteristics, unit-weighted scales were created to give scores for each of the dimensions at all of the measurement points. Next, correlations were computed between scores at all measurement points for each of the personality and music preference dimensions. The results found there to be stability across the three intervals, and that while they are fairly stable at adolescence, the stability increases as they get older. To test for the contemporary associations between music preferences and personality characteristics, the data were analyzed in two ways. First, scale scores were computed for all of the dimensions at each measurement, and correlations were computed. These correlations found various associations, both positive and negative, between personality and music preferences that tended to be the same at most measurement times. For example, extraversion was positively related to the Urban music preference dimension at each measurement. The second way to examine the association between adolescents' music preferences and personality characteristics was by specifying an SEM model in which data from the four measurements was combined to estimate the associations between the four music-preference dimensions and the five personality dimensions. This gave results similar to the previous analysis where many of the same commonly related personality and music preference dimensions were related here as well.

The results of this study were important as they illustrated similar relationships between music preferences and personality that were found in other studies. Furthermore, these relationships were found with participants of another country, age, and using a different measure of music preferences. The results also showed that these relationships were stable over time, meaning that when testing collegiate athletes, chances are their preferences and personality characteristics have been this way for some time. All of these things are why this article is important to the current thesis research, as they provide evidence of the relationship between music preferences in a different population, and that results in my study would have been well engrained in the participants for years.

Koc, H. & Curtseit, T. (2009). The effects of music on athletic performance. *Ovidus University Annals, Series Physical Education and Sport/SCIENCE MOVEMENT AND HEALTH,* 1, 44-47.

This article was a narrative on the theory, research, and applications of the psychosocial effects music in sport and exercise. As there is no other specific purpose, nor participants, measured variables, or specific findings to be addressed, the following is a summation of what is reported in the article.

First, the authors briefly described a number of views that have resulted from past research surround music in sport and exercise. Music is suggested to affect perceived exertion and exertion tolerance through multiple mechanisms. Music is believed to synchronize the exercise pacing, tempo, and rhythm, to enhance arousal when the music has personal meaning helping them to cope, to affect mood, self-esteem, and confidence

of exercises and also to enhance imagery. Next, the various research on the performance enhancing effects of fast and slow music is addressed. The sum this up, there has been mixed results from the research, some of it suggests fast music is more facilitative, others that slow music is, and some that there is no positive affect by music at all on performance.

Following this introduction an examination of various ways by which music wields an effect on performance was done. First, music can divert attention during low-intensity exercise from sensations of fatigue through dissociation which lowers perceptions of effort. The researchers say that this is specifically done by improving positive aspects of mood such as vigor and happiness while decreasing tension, anger, and depression. While music may not cause dissociation in high intensity exercise, it is also reported to may the experience more enjoyable. Second, music can affect emotional or physiological arousal which can create an optimal mindset. Athletes will use loud, upbeat music to "psych up" and softer selections to "psych down." Components of music, such as rhythm, is believed to affect physiological arousal and lyrics or extramusical associations impact emotions. Third, research has shown that the synchronization of music with repetitive exercise is associated with increased levels of work output. Additionally, synchronization enables more efficient performance, resulting in greater endurance. Fourth, they briefly touched on how listening to music can be used to learn motor movements, but that the research and theory underlying this was still limited and needed further examination.

While thus far the authors had focused mostly on music's ability to have an effect on performance, most of this was in an exercise setting. The next portion of the article moved into music's ability to enhance athletic performance. They noted that most governing bodies of sports make it difficult to incorporate a music intervention, which is why there were very few studies not done in a laboratory setting. Despite this it was suggested that music could be used during pre-match, at timeouts, and at halftime. Pre-match was most investigated, and the use of music was found to help increase flow states when listened to prior to performing a sport-related task. Other research on music's impact suggested that music could benefit runner's performance whether it was motivational or not, as long as it was synchronized with their movements. Lastly, the authors looked at research in which athletes utilized music to manipulate their emotional states and how that could facilitate improved mood, increased arousal, and visual and auditory imagery.

The authors concluded that this research could mean there are opportunities for individuals to use music to maximize their performance, but that further research is required. All of the research covered here, illustrates the numerous ways athletes can use music. This relates to the current study as it seeks to determine if personality differences mediate why athletes use music. In addition, the article has a whole proved helpful in finding other research on the topic of music use that would contribute to the research as well.

Lane, A., Davis, P., & Devonport, T. (2011). Effects of music interventions on emotional states and running performance. *Journal of Sports Science and Medicine,* 10, 400-407.

The purpose of this study was to examine the effects of two different music interventions on changes in emotional states before and during running, as well as exploring the effects of music interventions on performance outcomes. Some of the theoretical foundation for this research was that music has been found to be a common mood-regulating strategy used in sport by past studies, as well as a strategy to improve performance. Based off of this, other research had suggested that individuals learn from emotional experiences, where they develop beliefs about the performance states that are optimal and those that detract from performance. This all contributes to the selection of actions intended to regulate emotions to elicit specific emotions and outcomes. This is done from the proposed Triple-A framework for sport. First, is awareness of thoughts or feelings about the current situation, followed by acceptance that the experience influences performance, and finally choosing an action to self-regulate or cope with the emotions and/or consequences. This is then applied to selecting music as athletes have their own views of emotions that help or hurt performance and then choose music to either bring out or eliminate those emotions. Getting into the selection of music, athletes must spend time examining the potentially motivating effects of different songs, and qualities associated with being motivational in a song is often measured by the Brunel Music Rating Inventory (BMRI). These four factors are rhythm response, musicality, cultural impact, and association. Rhythm response and musicality are internal factors associated with components of the music itself such as tempo and harmony. Cultural impact and association are external factors dealing with extramusical associations individuals may have with the songs they listen to. It has been proposed and supported by other research that internal factors are more important in predicting how a person will respond to a piece of music than external factors.

The researchers chose to pursue their purpose in order to argue that self-regulatory mechanisms underlie the effectiveness of music for emotional regulation and performance enhancement. The propose that instead of internal factors evoking emotional responses, it is the act of selecting each song influences the likely effects of listening to music before and during running. Furthermore, the deliberate act of choosing to listen to music before and during is not distinguished from the act of listening to music in past research, and there was little research on emotion regulation in sport and the identification of music as an effective emotion regulation strategy.

Participants were 65 volunteer runners (mean age = 41.48 yrs., Male, n=19, Female, n=41, five did not provide gender and age information). Participants were mixed in their previous experience, 56 were club or recreational athletes, with nine reporting being national standard. Lastly, they ran an average of 25.51 miles per week and participated in races ranging from 5ks to marathons.

The dependent variables consisted of emotions, music-mood regulation, motivational quotient of music, goal difficulty & importance, and performance. Emotions were measured using a 9-item measure with the items selected from previously validated scales, assessing pleasant emotion, unpleasant emotion, and unpleasant emotion associated with high activation. Music-mood regulation was measured using the Music-Mood Regulation Scale which assess the perceived effectiveness of music as a strategy to change feelings. The motivational music quotient of music was measured using the Brunel Music Rating Inventory-2, where participants select the type of music that would motivate them

for a certain action, time, and context. Goal difficulty and importance was assessed by having participants answer the questions "How important is it for you to achieve you goal?" and "How difficult will it be for you to achieve your goal?" Lastly performance was measured using a self-referenced measure based on questions such as "How well did you perform today?" and "To what extent do you believe your emotional state helped you during the run?"   The independent variable was the music condition participants were put in, self-selected or *Audiofuel* which provides music specifically for running.

        The procedure took place in three stages and all data was recorded online. First, the participants were to recall a recent running event, the extent to which music was used for emotional regulation, and then provided ratings on the motivational quotient of their current music. Next, there were to set a running goal they wanted to reach for the study. They were to attempt to reach this goal during pre-intervention stage two to provide baseline data. During both stages two and three, the perceptions of emotions and emotion regulation strategies used by the athletes before and during were reported with reference to each run. In stage three, participants were randomly assigned to a self-selected music group or *Audiofuel* music group. The self-selected group was encouraged to think about music that would get them to feel how they wanted to before and during their runs and used the BMRI-2 for each track. The *Audiofuel* group selected music based on beats per minute similar to their running speed.

        Data was first analyzed to compare the differences between the groups for music-mood expectancy beliefs. Perceived goal importance and difficulty were investigated using a one-way MANOVA. To examine the extent to which one music condition led to significantly different changes in emotions than the other a repeated-measures MANOVA with a within-subjects group factor (change in emotions before, during the early stages, and during the latter stages of running) and a between-group factor (self-selected vs. *Audiofuel*) over time (pre- and post-intervention). A repeated measures MANCOVA with a within-group factor (performance, beliefs on whether emotions helped or harmed performance) and a between-group factor (self-selected vs. *Audiofuel*) was used to asses the extent to which each music condition associated with improved running performance and improved emotional experience during running.

        The results showed no difference in *Audiofuel* and self-selected music groups in terms of the expectancies of how effective listening to music is as a mood-regulation strategy, perceived goal difficulty, and goal importance. This was important as it showed that groups were similar in their beliefs on the music's ability to be a mood regulation strategy. Descriptive statistics showed there were changes in emotion before and after the intervention, which were significant. Which further shows the ability of music to be an effective emotional regulation strategy.There was no interaction between time and intervention group on changes in emotion during each run. There were also no significant interactions for differences by time and intervention group for changes in emotion in each run. Lastly, it was shown that performance did improve with no interaction between music group. Additionally, those that rated music as motivating reported significantly greater improvements in performance and believed the increase in pleasant emotions facilitated this.

        What all of this shows is a way in which music improves performance through its effect on emotions. This contributes to the present study as helping to show just one way

in which music is believed to enhance performance is supported. Furthermore, it shows that it can be internal or external factors associated with music that can help this, as both music groups were instructed to pick their music using different criteria.

Laukka, P. & Quick, L. (2011). Emotional and motivation uses of music in sports and exercise: a questionnaire study among athletes. *Psychology of Music,* 41 (2), 198-215.

While no set theories were the foundation for this research, the authors based much off a model of the potential benefits of music in sport and exercise developed form previous research. This model believed music could be beneficial by having psychological, psychophysiological, and ergogenic effects on athletes. The psychological and psychophysiological benefits include increasing positive affect, decreasing negative affect, regulating pre-task arousal, lessening levels of perceived exertion, dissociation from unpleasant bodily sensations, and helping athletes experience flow. Ergogenic benefits included things like increased work output from synchronization of movement with the music, enhanced motor acquisition of motor skills when music matches movement patterns, and enhanced performance from a combination of the two.

Thus, the researchers sought to gain more knowledge about how athletes use music in sport and exercise settings, since there is a relative lack of empirical investigations on the topic to this point. This knowledge could then give a better idea about which of the potential benefits of listening to music athletes find most important. The purpose of this study was to understand more about the how and why athletes use music in sport and exercise settings, building off of past research.

The participants for this study were 252 Swedish athletes (mean age = 23 yrs, Male = 117, Female = 135) who played various individual sports at the national or international level. They were all contacted via e-mail and asked if they would like to participate in a survey concerning the uses of music in sports. Addresses were obtained from various national athletic associations and sport clubs, in addition to social networking websites.

The variables for this study were music preferences, everyday listening to music, uses of music in sport and exercise, and emotional episodes in relation to music in sports. Music preferences were measured using the Short Test of Music Preferences. Everyday music listening was assessed, first, with a Likert scale on the importance of music to them and then an open-ended response how how often they usually listen to music, in addition to a rating of how often they experienced emotions in relation to music. Uses of music in sports and exercise were assessed with a series of ratings of various questions on Likert scales. Questions inquired about how important music was to them during practice, how often they listened to music during different situations in sport and exercise (warm-up, pre-event preparation, exercise sessions, etc.), what types of music they preferred listening to during sports, their motives for listening to music during sports, and how often they feel various affects and emotions in response to music during sport and exercise. Topics such as motivations, music preference, and emotions were rated from given lists. Lastly, the were asked about emotional episodes in relation to music in sports by recalling the latest episode and answering a number of free-response questions. Athletes were first asked how long ago the episode was, and then what emotions they had experienced during the

recalled episode. They were then asked about the duration, what genre of music they had listened to, their opinion of how the music impacted their performance, and what they thought caused the emotion in their reported episode.

The quantitative data was analyzed using descriptive statistics, t-tests, and mixed model ANOVA, depending on the data. The free responses were coded by two independent coders. The results for everyday listening to music found music to be considered generally important by the athletes as most listened to music several times a day, and most preferred uptempo and conventional music. Music was still generally important in relation to listening during practice of sports and was positively correlated with importance ratings of music in everyday life. Pre-event preparation was the most common situation in which music was listened to and showed a preference for listening to intense and rebellious music. Athletes reported mostly being motivated to listen to music around sports to increase pre-event arousal or positive affect. Lastly, feeling happy, alert, and confident were the most frequently felt emotions when listening to music around sports. As for the emotional episodes, the recalled episodes were most highly reported as having happened "just a couple of days ago," and the most commonly felt emotion was alertness, based on the coding of the responses, along with feeling happy. Athletes mostly listened to uptempo and conventional music during these episodes. Additionally, the emotional episode was reported by a majority of the athletes to have taken place during training or warm-ups. Finally, a wide variety of performance enhancing effects were attributed to the musical emotional episodes, among the most common being, increased level of arousal, endurance , and motivation. These results are important as they show a number of things about the use of music by athletes that are to be examined by this thesis. The researchers were able to get a quantitative and qualitative assessment of why and when athletes use music around their sport participation. In addition, they found information about not only the athletes' general music preferences, as well as their preferences when they listen to music around their sports. Lastly, there was some insight given about the perceived impact on performance the music provided for the athletes.

Overall, this article was extremely valuable to the present topic. The results supported assumptions and beliefs that initiated this line of study first. Furthermore, it provided a potential methodology to be used, with the unique questionnaire that was used. Finally, the researchers discuss in the discussion about the lack of personality as a variable in this line of research, which further supports the rationale behind this thesis.

Rendi, M., Szabo, A., & Szabó, T. (2008). Performance enhancement with music in rowing sprint. *The Sport Psychologist, 22,* 175-182.

The purpose of this study was to examine how fast- and slow-tempo music would affect performance on a 500-m rowing sprint. The researchers used three views of how music could facilitate exercise performance as their theoretical foundation. First, the parallel processing model which suggest music could facilitate exercise performance by diverting attention from the perception of fatigue. Attention is diverted due to limited processing capacity, but this is suggested only to hold true for exercise at low workloads, as fatigue is an internal stimulus and high workloads would trump music's distraction. The

next view comes from drive theory and the assertion that increased arousal could facilitate simple motor tasks. The arousal hypothesis suggests that fast music could be used to increase arousal at high workloads, which would then improve exercise performance, in this case the rowing sprint. Lastly, the authors used the view that body movements could synchronize with music, but note that past research has not focused on the characteristics of the music. Despite this, previous research showing that synchronous music could facilitate sprint performance led them to hypothesize that fast music would increase performance and slow music would debilitate it. The authors chose this purpose, and this framework, due to the lack of empirical on the first two views investigated, and the conflicting results from the last one.

The participants were comprised of 22 regularly training rowers with a mean age of 28.5 years old, mean height of 171.0 cm, and mean weight of 79.1 kg. The participants had a mean rowing experience of 64.1 months and trained an average of 9.6 hr/week over the course of an average of 4.1 days/week. There were 13 males and 9 females, and non of them reported using music in their training before the study. Participants volunteered to be a part of the study.

The rowers had their heart rate taken for a baseline measure, and were asked to perform three 500m sprints on the same day under three randomly determined conditions: no music, slow music, and fast music. Each sprint was performed after heart rate fully recovered to the baseline rate, which was measured before exercise, at rest. The music used was an edited extract from Beethoven's Symphony no. 7 in A major, and played via speakers at a volume of 40-50 dB. The slow music condition was played at a tempo of 76 beats per minute and the fast music was played at twice the speed of the slow music. Immediately after completing each of the sprints, participants were asked to indicate their perceived exertion on the Borg Rating of Perceived Exertion scale.

The data was comprised of the rating of perceived exertion, stokes per minute, and time to completion. The rating was from the previously mentioned Borg Rating of Perceived Exertion scale, and the other two were gathered via the rowing ergometer's display. The investigators were the ones giving the athletes the scales to rate their perceived exertion, and taking the readings from the rowing ergometer's display. There were multiple statistical tests performed on the data, both inferential and descriptive. First, was a two by three mixed model repeated measures multivariate analysis of variance using perceived exertion, time to completion, and strokes per minute as the multivariate dependent measures. The statistically significant multivariate effects were then followed with univariate tests, and then dependent paired t tests were used to follow up further on the statistically significant "condition" main effects. To calculate any treatment effect effect sizes (Cohen's d) were also calculated. There was no mention of the statistical program used. The questions that the analysis was meant to answer were: 1)Does fast tempo music increase performance in rowing spring? 2)Does music alter the perception of fatigue in a high intensity, sprint exercise? 3)Does fast tempo music enhance performance while slow tempo music debilitates performance in a rowing spring?

There was no statistically significant difference in perceived exertion among the three conditions. There were statistically significant differences for time to completion between the three conditions. Fast tempo music condition had the shortest time to completion, and slow tempo music had a shorter time to completion than the control

group. There was also a statistically significant difference in strokes per minutes. The fast tempo music condition had more strokes per minute than both of the other conditions. There was no statistically significant difference between the slow tempo and control conditions in strokes per minute. The results were important as they demonstrated the performance-enhancing benefits music can provide, specifically fast-tempo music.

The article itself was important to this thesis research as it references to other studies similar in topic. Furthermore, the results show how those introduced to a music intervention can increase performance from the start, which further supports the need for further research on music in sport. Lastly, the theoretical framework could lead to future directions of research depending on the results that come from the current study.

Rentfrow, J. & Gosling, S. (2003). The Do Re Mi's of Everyday Life: The Structure and Personality Correlates of Music Preferences. *Journal of Personality and Social Psychology.* 84 (6), 1236-1256.

This article was comprised of six total studies, one aimed at understanding beliefs about the importance of music, three that examined the structures of music preferences, one to examine the psychological attributes of different styles, and one which examined the relationship between personality and music preferences. Each study will be briefly looked at individually. The main rationale behind this study was the lack of personality research focused on typical every day behaviors, such as listening to music, and their relationship to personality. Music was the focal point because of its inclusion in a number of other areas of psychological research. Some personality research on music suggested that music preferences are a manifestation of explicit personality traits. Additionally, other research suggested music preferences and personality are linked through the physiological correlates of music preferences, and that music preferences are a way for individuals to communicate their social identity to others. This past research provided the theoretical foundation for each of the studies.

The purpose of study 1 was to ensure that the researchers' beliefs about the importance of music in individuals' lives was empirically supported, by seeking to understand the lay beliefs about the role of music in everyday life. The participants for this study were 74 University of Texa at Austin undergraduate students (Male = 44, Women = 30). They volunteered in exchange for partial fulfillment of an introductory psychology course requirement. Participants filled out a series of questionnaires about various lifestyle and leisure activities. The first had them rank the importance of eight different activities to them. Next, they were to rate how much each of the activities said about their self-views, personalities, and other people's personalities. Lastly, they were asked to indicate the frequency with which they engaged in various activities while in nine different contexts (e.g., alone at home, driving, exercising, etc.). The data was analyzed using descriptive statistics and examining graphs. The results found music to be as important if not more important than the other seven domains. Next, participants felt music preferences revealed as much about themselves, if not more information, than the others. Only hobbies was rated higher than music preferences in the amount of information they would reveal about other's personalities, and the two were the highest for how much they reveal about one's own personality. Lastly, participants reported they listened to music frequently in each of

the contexts, and more often than in other activities across all situations. The results were important as they supported the notion of music being important in individuals' lives. Additionally, they showed that music is listened to in a number of contexts and that individuals think music preferences convey information about themselves and others. This is useful as the importance of music, and its ability to convey information based on preferences is a foundation of this thesis.

The purpose of Study 2 was to do an exploratory factor analysis of music preferences. Before the study started a pilot study was done in which to compile genres and subgenres to include on a measure of music preferences. The researchers had a panel of five judges list all of the musical genres and subgenres that came to mind. Following this, they then consulted music websites to compile a larger list. This whole procedure generated 80 genres and subgenres. This list was then given to a group of 30 participants and asked to indicate their preference for each, but to skip any they were unfamiliar with. Most of the blank spaces were for subgenres which led the researchers to conclude examining preferences at the genre level would suffice. This game them the Short Test of Music Preferences (STOMP), which was comprised of 14 genres: alternative, heavy metal, rock, classical, jazz, electronic/dance, folk, rap/hip-hop, pop, religious, soul/funk, country, sound tracks, and blues.

Participants for this study were 1,704 University of texas at Austin undergraduates (Male = 633, Female = 1,058) who volunteered in exchange for partial fulfillment of an introductory psychology course. Three weeks after this sample was tested, a subsample of 118 of the participants was tested again in exchange for partial fulfillment of an introductory course requirement. Both of these groups completed the STOMP and a number of personality measures, the subsample then completed the STOMP again three weeks later. The data were analyzed to determine if there were underlying structures of music preferences by performing a principal-components analysis on the participants' ratings. To determine the number of factors to retain they used multiple converging criteria to decide on the factors to retain, which gave them a four-factor solution. To determine labels for each of these factors seven psychologists examined each factor structure and generated labels to capture the themes of the genres they were comprised of. This gave them Reflective and Complex, loaded with blues, jazz, classical, and folk music. Next, was Intense and Rebellious defined by rock, alternative, and heavy metal. Third, was Upbeat and Conventional defined by country, pop, religious and sound tracks. Lastly, was Energetic and Rhythmic defined by rap/hip-hop, soul/funk, and electronic/dance. The subsample was retested to ensure that preferences were not changing on a daily basis based on things such as mood. A correlation was computed between the STOMP scores the first and second time taken and showed that preference for each dimensions stayed stable across time. These results illustrated that there is a clear underlying structure to music preferences, and that the preferences are relatively stable over time. This is important as stable music preferences can be incorporated into the use of music by athletes and play into any use of music interventions.

The purpose of Study 3 was to test the cross-sample generalizability of the dimensional structure of the music preferences that had been found in the previous study.

Participants were 1,383 University of Texas at Austin undergraduate students (Male = 490, Female = 726) who volunteered in exchange for partial fulfillment of an introductory psychology course requirement. The procedure was the same as in Study 2 and there was no overlap of participants between the two studies.

A confirmatory factor analysis (CFA) was performed on the data to examine the generalizability of the four music preference dimensions. They tested two models, one in which factors were independent and one in which the factors were allowed to correlate. The results indicated there was cross-sample congruence of the music preference dimensions from Study 2, and the CFA fit from the study was evidence that four music preference dimensions exist. While these results did show the generalizability of the results across samples, the researchers did note that the data was self-reported which could have been biased from impression-management motivations. Additionally, the participants all came from a university in the same geographic region which has a strong presence of country music which raised concerns about the generalizability across geographic regions, as there could be cultural influences. This was addressed in Study 4.

The purpose of Study 4 was to address the limitations from the previous two studies and ensure the generalizability of the results that had been obtained across samples, methods, and geographic regions. Using audigalaxy.com, which allows individuals to download and share music on the Internet, they were able to access a list of users online around the globe. Furthermore, this was organized into users by state in the United States and had a page containing all the songs each user had downloaded since joining the site, which represents behaviorally revealed music preferences of each. The participants came by selecting 10 users from each state randomly, making 500 total, who had a minimum of 20 songs in their music libraries. For those with more than this, 20 songs were selected at random. The 500 music libraries were separated amongst seven judges who were trained to code each user's music library into one of the 14 genres covered by the STOMP. If a judge was unfamiliar with a song they consulted towerrecords.com or another judge to determine the appropriate genre. A user's preference for a certain genre was determined by the number of songs that appeared in each of the music genres so scores could range from 0 to 20. There was no demographic information on the users so age and gender could not be determined.

The researchers again performed a CFA on the data as they did in Study 3. The results confirmed the generalizability of the four dimensions of music preferences that had been found. The only limitation is that the estimated age range of the participants in Study 4 (average age of 25 yrs) was not as large as may be preferred. Otherwise, there is strong evidence that music preferences can be divided into Reflective/Complex, Intense/Rebellious, Upbeat/Conventional, and Energetic/Rhythmic dimensions, which are generalizable across time, populations, method, and geographic region. This is important as it solidifies the use of the STOMP in the current study which is one of the few measures used to assess music preferences.

The purpose of Study 5 was to understand the qualities of the music that define each of the music preference dimensions. This was important as attributes of music can vary across a range of moods, energy levels, complexities, and lyrical contents. First,

songs were selected that exemplified each of the 14 genres on the STOMP. Due to the overlap of some attributes of genres online music resources were consulted to ensure each song selected was only attributed to one genre. Using this information a compilation of 25 songs per genre was created, which was then narrowed to 10 songs that represented a number of styles, artists and time periods for each genre giving 140 songs total. Next, they wanted to select attributes of the songs that could be judged. This was done in a multistep procedure which started with the use 300 adjectives used to describe people from the Adjective Check List, as songs are often described using similar words. Three expert judges rated each of the words independently in their relevance to describing aspects of music. This results in a pool of 130 attributes. Following this, four judges independently use free association to come up with as many music attributes they could when thinking about all types of music, which added seven new attributes. Following this, seven judges were asked to independently rate the extent to which each attribute could be used to describe various aspects of music. This was done divided in the attributes ability to describe music and then if it best described the lyrics, music, or both. To narrow the choices down, words had to be rated on 4.5 or higher, out of 5, to be included which gave a list of 20 attributes. They added five more attributes based on tempo and music style (i.e., acoustic or electric) for a total of 25.

After all of this was established a group of seven judges, with varying musical tastes, independently rated the songs on the attributes. The 140 songs mentioned before were put onto CDs and grouped by genre. Judges were unaware of the purpose of the study and simply instructed to listen to each song and rate it on all the attributes.

The data was first tested for reliability by computing Cronbach's alphas across songs for each attribute, and reliability was generally high. To determine the attributes that distinguish the music preference dimensions analyses of variance were performed on each of the attributes within three music-attribute categories, using music dimension as the independent variable. The results found all of the dimensions to significantly differ across all of the different attributes. This supported that the dimensions were labeled appropriately and shed light on the attributes that tie the different genres together. This is relevant as it can provide information and insight into why certainly personalities may prefer certain types of music. In addition, this information can be applied to determining the types of music to be selected for individuals to have certain reactions such as affecting arousal.

The purpose of Study 6 wanted to examine the relationship between music preferences and personality. Participants were the samples from Studies 2 and 3 as well as the retest sample from Study 2. Personality was measured using the Big Five Inventory (BFI), The Personality Research Form-Dominance, The Social Dominance Orientation Scale. To assess individual differences in interpersonal communication styles the Brief Loquaciousness and Interpersonal Responsiveness Test was administered. Self-esteem and depression were assessed with the Rosenberg Self-Esteem Scale and the Beck Depression Inventory, respectively. Additionally, self-views were asked about on political affiliation, physically attractiveness, wealth, athleticism, and intelligence. Finally, cognitive ability was assessed using the Wonderlic IQ Test. All of these individuals had already taken the STOMP as well, as mentioned previously.

The results came from performing correlations on the scale scores from the STOMP, measures of personality, self-views, and cognitive ability. There was a fairly strong link between music preferences and personality, self-views, and cognitive ability. There was an absence of statistically significant correlations between music preferences and emotional stability, depression, and self-esteem. This suggests chronic emotional states do not impact music preferences very strongly. These results were important to the current study by demonstrating the relationship that is found between music preferences and personality. This article was one of the most thorough bodies of research on this topic and supplies the starting point for the look at music preferences and personality in athletes. Furthermore, the discussion by the researchers about how more information is needed to form a formal theory of music preferences provided some rational behind examining athletes specifically in this line of research.

Rentfrow, J. & Gosling, S. (2006). Message in a Ballad: The Role of Music Preferences in Interpersonal Perception. *Psychological Science,* 17 (3), 236-242.

This article was comprised of two studies, the first of which had the purpose of understanding what people talk about as they become acquainted, and the second examined what interpersonal information music preferences conveyed. The basis for both of these studies came first from the fact that many zero-acquaintance studies in the past had focused mostly on nonverbal communication as opposed to verbal, in essence the content of conversations. Furthermore, they found music preferences to reflect information about a person's personality, be common parts of profiles in online dating, and were curious as to what other information may be conveyed by music preferences and how. The basis for how came from two views 1) specific features of a person's music preferences (i.e., tempo) which could allow direct inferences about that person and 2) judgements of a person based on music preferences can come from stereotypes about the types of people that like that particular type of music. They then examined the role of these two types of information with Brunswik's lens model. In this model cue utilization is the link between an observable cue (e.g., preference for rap) and an observer's judgment (e.g.,extraverted). Cue validity then refers to the link between the observable cue (rap preference) and the person's actual level of the underlying construct (extraversion). If these intact and observers' judgments converge with the construct being observed, the result is observer accuracy.

Participants for study one were made up of 60 (55% female, mean age = 18.4 yrs.) University of Texas at Austin undergraduate students, and study two was made up of 74 (40.5% women, mean age = 18.9 yrs.) such students. Both groups of participants volunteered in exchange for partial fulfillment of a psychology class requirement.

For study one the researchers sought to determine what types of things strangers discussed as they got to know one another. Based on examinations of online dating sites they found preferences for movies, books, music, clothing, & television shows to be most common. They also added two categories for sports due to the popularity of football, and athletics in general, at the university, one category for football and one for all other sports.

Participants talked with another participant online for 6 weeks and the transcripts were recorded.

To analyze the transcripts of the interactions they used the Linguistic Inventory and Word Count computer program, which checks each word against an internal dictionary. The words that are in the text and dictionary are assigned to a specific linguistic category, and the percentage of total words in each category is reported. For the study the internal dictionary consisted of keywords related to the seven preference and activity categories mentioned above. Each week the researchers calculated the percentage of participants who had mentioned a keyword at least once for each of the categories.

The results of study one found music to be the most discussed topic overall and among the most common topic each week. The difference between discussion of music and the next closest category, movies, was significant. Even as other categories decreased in the amount of discussion, music remained among the top, being the most discussed topic all but one week. This was important as it demonstrated the effect music can have in interpersonal communication, especially as individuals get to know one another. This applies to the present thesis research as it can provide a means for coaches and SPCs to build rapport with new athletes or work on team building in the early stages of a season.

For study two,

Stevens, M. & Lane, A. (2001). Mood-regulating strategies used by athletes. *Athletic Insight: The Online Journal of Sport Psychology,* 3 (3), 1-12.

The purpose of this study was to examine the strategies used by athletes to self-regulate different dimensions of mood, and see if they use strategies common to them all. There were no specific theories behind the study, but some past research that contributed to the purpose. First, was the relationship that has been found between mood and sport performance, but little not research has yet to focus on how athletes may control mood. Next, one of the common mood-management techniques is self-regulation, in which individuals monitor their mood and develop strategies to regulate it. Coming from this, the authors discussed that most of the research investigating strategies to self-regulate mood have been in general psychology, and not sport psychology. The main research was by Thayer, Newman, and McClain (1994) which developed a tool to assess mood-regulating strategies and then investigated the strategies used to eliminate bad moods, increase energy, and decrease tension. They found a number of common strategies for each. Thus this study sought to extend the research of Thayer et al. (1994) by examining the frequency and effectiveness of strategies to self-regulate mood used by athletes. Rationale for this was that if mood can impact performance, then it would be important to be able to provide athletes with strategies that can help to regulate their mood as needed. This could also lead to the development of strategies designed to improve performance through managing mood.

Participants for this study were 107 athletes (mean age = 19.68 yrs, Males = 64, Females= 43). They represented a variety of sports, both individual and team, as well as contact and non-contact. They were all undergraduate sport science students at a

university in the United Kingdom and all ranged from recreational level of participation at the time of testing.

Data was collected using the Self-Regulating Strategies of Mood Questionnaire that was comprised of 29 strategies. Participants were first asked if they believed it was possible to change mood, then to nominate one or more strategies from the list. Furthermore, they were asked the extent to which these strategies were directed to changing a bad mood as well as mood dimensions from the Profile of Mood States (POMS) used in previous research. Since the athletic population was not in these past studies participants were also given an open-ended question to add any strategies not included on the list. Lastly, they were asked to rate the relative effectiveness of the strategy used to regulate mood. The data was analyzed first by conducting frequency counts to show the percentage of participants who used each strategy, and was repeated for each mood dimensions. In addition, the effectiveness scores were analyzed using factor analysis. These ratings were used to identify which strategies have the most value to athletes.

The results found thee to be three common strategies used to regulate each mood dimensions, which were "change location," "exercise," and "listen to music." The most strategies selected for any dimensions was 16, to regulate depression and tension. A MANOVA was conducted to investigate whether participants reported differences in the perceived effectiveness of the strategies "listen to music," "change location," and "exercise." This determined there was a significant effect and that listening to music had significant differences as a strategy to regulate each mood dimensions. Music was reported to be more effective at regulating anger, depression, fatigue, tension, and vigor than confusion. These results were important as it shows another way in which listening to music can help enhance athletic performance. Furthermore, it shows that athletes view this as effective, and would lead one to assume that this is commonly used. This article helps contribute to the foundation of this thesis by focusing on a specific use of music by athletes that has been commonly found.

Szabo, A. & Hoban, L. (2004). Psychological effects of fast- and slow-tempo music played during volleyball training in a national league team. *International Journal of Applied Sport Sciences,* 16 (2), 39-48.

The purpose of the study was to examine if music could better the training experience in a British national league volleyball team. The case was made for this study by the fact that most research on the use of music focused on aerobic exercise and not how it could impact a team-sport environment. The topic fits into the existing literature by focusing on an area that has not yet been examined. The authors highlight the theories behind the use of music to enhance the exercise experience, distracting from sensations of fatigue, increased levels of arousal, stimulation of motor coordination, and increased regulation. These also play into the use of music as a mood-regulating strategy, but fewer studies have been done to examine the mood accompanied by various music types during exercise. As previously stated, all of these theories have been studied in exercise settings, and the researchers believe that they could translate over to team sports, improving the

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quality of training through less perceived exertion and positive psychological experiences. This improved view on training and more positive gains at training could then lead to better physical performance down the road.

The participants were made up of the the British Royal Air Force Women's National League Volleyball Team. Their mean age was 23 years old, mean weight was 67.3 kg, & mean height was 167 cm. Nine of the athletes reported that they participated in physical activity regularly, three or more times a week, for an average of 8.4 years.

The study was done twice in the exact same way, except the order of the training conditions was different, which meant there was a total of 6 testing times (twice for each condition). In study 1 the order for the presentation of conditions was control (no music), slow music, & then fast music. Study 2 was slow music, fast music, and control. Before and after each session the participants completed the Exercise-Induced Feelings Inventory (EFI), which assesses the acute emotional state of the athletes, and the Spielberger State Anxiety Inventory (SSAI), which measures the level of a person's state anxiety. At the midpoint of each training session (exactly the 40-minute mark) participants rated their perceived effort on a seven-point scale. At the end of each session they used a five-point rating scale to rate how much they liked or disliked the session. The selection of music was chosen from a list of contemporary popular songs and made so that the tempo for the fast music was about twice that of the slow music. The music was played between 40 & 66 decibels, which depended on where a player was and their distance from the speakers, this was measured using the "Eurisem Technics" *Sound Level Meter*.

The data was made up of the scores from the EFI, SSAI, and ratings of perceived effort and like or dislike of the session. The data analysis, both descriptive and inferential, was aimed at determining whether the different music conditions had an effect on the athletes' feelings and state anxiety from their training. It also sought to determine whether perceived effort and preference for the session differed between the conditions. For the first question, a 3 x 2 (condition x period: before/after training) multivariate repeated measures analysis of variance was done. For the second questions, a repeated measures analysis of variance was performed.

The primary results were that there were significant differences in positive engagement and revitalization (measures from the EFI) in both studies. It was shown that both of these decreased in the slow music condition. Additionally, perceived effort was significantly lower in the slow music condition than in the other two conditions, but fast music was significantly lower than the no music condition. Lastly, there was no difference in preference between fast and no music, but slow music was less preferred than either fast or no music. These results illustrate that the performance enhancing benefits of listening to music could be applied to a team setting, and again that fast music tends to be more beneficial in this respect. Additionally, it shows a preference for fast music by the athletes, which lends itself to the music preference side of research in the current study.

This article proved important to as it was one of the first to incorporate music in a team sport setting versus exercise alone. It also provided a different theoretical framework to potentially work from, and shows that athletes tend to have preference for listening to music in practice which is not commonly done. There were also useful references surrounding the current study's topic that could be used.

Terry, P., Dinsdale, S., Karageorghis, C., & Lane, A. (2006). Use and perceived effectiveness of pre-competition mood regulation strategies among athletes. In M. Katsikitis (Ed.), Psychology bridging the Tasman: Science, culture and practice (pp. 420-424). Melbourne, VIC: Australian Psychological Society.

The purpose of this study was to examine the mood regulation strategies athletes used to help their sport performance, and their perceived effectiveness. The researchers cited past research that found over 160 mood regulation strategies reported to have been used by athletes. Furthermore, past research had found there to be specific strategies which were effective depending on how an individual wanted their mood changed. The researchers discussed that many of the studies on mood regulation studies had been geared toward the general population and little was known about the strategies used by athletes.

The participants in this study were 195 athletes from the United Kingdom. These participants ranged in age from 18-33, played multiple sports, and had varying levels of competition, from the club to international level. Participants were given the Regulation of Feelings Scale, which was designed for this study, but based on lists from past ones. Participants rated the frequency that they used each of 37 strategies to reduce feelings of anger, fatigue, confusion, depression, and tension, and to increase vigor on the day of a competition. Each of the 37 strategies was the same for all participants but given in different orders, which participants were assigned to randomly.

The results found that engaging in physical activity, spending time alone, and giving themselves a pep talk were among the most frequently used strategies. In addition, the researchers found a correlation between frequency of use and perceived effectiveness. Among the top 25% of strategies used was listening to fast, upbeat music. While not at the top of the list, this finding suggests that listening to music is commonly used pre-competition by athletes, and specifically fast, upbeat music. In addition, this can point to a specific music preference for athletes prior to competition, which this study aims to explore.

Sorenson, L., Czech, D., Gonzalez, S., Klein, L., & Lachowetz, T. (2008). Listen up! The experience of music in sport - a phenomenological investigation. *Athletic Insight: The Online Journal of Sport Psychology,* 10 (2), unpaginated.

Music is not only prevalent in the everyday lives of individuals, but in sport as well. this article discussed the many uses listening to music can have in sport. For example, the authors discussed the uses of music as a mood regulation strategy, to impact arousal regulation, and to increase motivation. Furthermore, the authors discuss how different types of music can affect body movements, and that many sport psychologists encourage athletes to listen to music prior to competitions. There is little research that examines athletes experience of listening to music from a phenomenological perspective. This led to the purpose of this study, to investigate NCAA Division I athletes' experience of music in sport from a phenomenological perspective.

The participants for this study were 7 NCAA Division I athletes from a southeastern university. The athletes participated in soccer, football, and tennis, five of which were Caucasian and two were African American. The athletes were interviewed by

being asked one open-ended question, "Tell me about a time when you listened to music before, during, and after an athletic competition." From there, the athletes would be asked further probing questions to clarify anything that was not clear.

The results of examining the responses to the interviews found there to be four themes of music use, arousal, focus, mood, and team. Each of these had subthemes related to the overarching theme. These results helped to illustrate that athletes had multiple reasons for listening to music. The fact that they were asked about a time when they listened to music around three points of their participation in athletic competition, and there were four broad themes, suggests that the music listened to could be different at each occasion. The present study hopes to explore the experience of listening to music prior to competition, and a get a better understanding of what that music does. This study provided themes to potentially look for and a similar methodology to work from.

Mcleod, K. (2006). "We are the champions": masculinities, sports, and popular music. *Popular Music and Society,* 29 (5), 531-547.

This article discussed, at length, the connection between music and sport, starting with how the two used to be so disconnected. Much of this article, mostly historical, discusses how music and sport were viewed socially, focusing much on the masculinity in sport and touch of femininity that could be present in music. The author discusses many of the ways that the two areas crossed over, specifically citing the common cultural trends related to the NBA and hop-hop music. Furthermore, the article discusses the literal cross over between the two, talking about NBA athletes that have gone on to release their own albums. The article continues to illustrate the connection between the two worlds by pointing out how many concerts take place in sporting venues.

More specific to the current study. the article talks about how music tied to sport is often aggressive, and marketed toward a masculine audience. This pertained to the current study, as many of the genres uses in a number of sports, form NASCAR to the NBA are those related to be listened to by athletes around their sport participation. This marketing and growing prevalence of music in sport was further discussed as the author pointed out many of the common songs heard at sporting events during stoppages in play, often designed to help the home team or hurt the visiting one. This applied to the current study, as their music preference is assumed to have a perceived impact on their performance.

Colley, A. (2008). Young people's musical taste: relationship with gender and gender related traits. *Journal of Applied Social Psychology,* 38 (8), 2039-2055.

This article sought to examine how music preference in adolescents might be related to personally identifying with gender-related traits. The article bases much of their framework on past research finding that musical preferences can serve as a way to signal things about oneself for adolescents. The authors found there to be differences in music preferences by gender in the past and wanted to further this research, in addition to testing past work that found gender differences in music preference were linked to the musical styles similarity to gender-related traits. The authors were also working to continue work on music preferences that did not differentiate by gender, but came up with distinct

attributes to four categories of music preferences. In addition to the gender differences the authors sought to understand self-perceptions of the individuals that may play into their music preferences which looking at the differences alone could overlook.

Participants in the study were 208 undergraduate students in Europe with a mean age of 19.7 years. The participants were assessed for musical training which might play into their music preferences by being exposed to more styles of music in their lives. The participants were asked ot give their ratings of 11 genres of music in addition to Bem Sex Role Inventory, to assess for the gender that would most guide the way in which an individual behaves.

The results found gender to be the main predictor for liking genres such as heavy-metal, rock, and reggae. Furthermore, males had a stronger liking for these genres, while females preferred chart pop. These results led to the current study's interest in how sport music preference may differ for athletes.

Rubin, A., West, D., & Mitchell, W. (2001). Differences in aggression, attitudes toward women, and distrust as reflected in popular music preferences. *Media Psychology, 3*, 25-42.

The purpose of this article was to examine the relationships that had been found between music preferences, personality dispositions, and attitudinal differences. The authors discussed the beliefs that music individuals select are for specific reasons and that they are involved with this music on physical and cognitive levels. Popular music genres, such as heavy-metal and rap/hip-hop, are often criticized for the belief that they foster many ill attitudes and behaviors such as aggression and violence. The authors discussed research that found violent and aggressive themes prevalent in rap music, and for listeners of heavy metal music to experience more aggression after listening to that type of music. The authors sought to better examine how preferences for particular types of music would reflect the attitudinal differences in listeners

Participants for this study were 243 undergraduates from a large midwestern university. 70.4% of the participants were at or under the age of 21 years old, and the authors stated 75% of the popular recordings purchased were by consumers between the ages of 12 and 20. The participants first answered a questionnaire about their music listening, being asked about how often they listened to music in a day, then reported the genres they listened to, and finally participants how often they listened to each of a number of different genres of music, with examples provided of what constituted each. The authors operationalized aggression as assault, and used the BUSS Durkee Hostility Inventory (BDHI), which gives 10 statements that participants rated as agree or disagree with it being true. The authors also tested about dispositions and other attitudes not relevant to the current study.

The results surround aggression and music preferences found that listeners of rap and heavy-metal exhibited greater aggressive tendencies than the listeners of the other genres. Furthermore, these greater excessive tendencies were significant greater than the other genres, and there was no difference between rap and heavy-metal. This contributed to the current study by illustrating that aggression had a tendency to be higher in those that listen to particular types of music. These results supported the framework of SMP

differing by contact sport, as it had already been found that aggression different between the sports.

Tucker, L., & Parks, J. (2001). Effects of gender and sport type on intercollegiate athletes' perceptions of the legitimacy ratings of aggressive behaviors in sport. *Sociology of Sport Journal*, 18, 403-413.

The purpose of this article was to examine the legitimacy ratings of aggressive behaviors in collision, contact, and non-contact sports, and to see if there were differences between raters' gender and contact sport type. The authors discussed social learning theory, and how the environment athletes are in could impact their view of aggressive behaviors. Furthermore, they discussed the socialization process that takes place as athletes are involved in a sport for longer in their lives, noting some differences in these ratings of aggressive behaviors form high school to college. The authors also discussed how the sport type and sport environment differed for females and for contact sport type. The authors believed that both of these would contribute to differences in legitimacy ratings of aggressive behaviors found in the past.

Participants for the study were 84 male and 84 female collegiate athletes, representing five different ethnic groups. The ages of the participants ranged from 18 to 24 years old. 55 athletes were in collision sports, 53 were in contact sports, and 54 were in non-contact sports. The participants were given a modified version of the Sport Behavior Inventory (SBI), which gives them 10 sport scenarios. For each scenarios the participants are asked six questions, the first being if the action is "OK" and the rest asking if the action is "OK" under certain conditions.

The results contributed to the formation of the current study. Collision sport athletes had higher legitimacy ratings of the aggressive behaviors than non-contact and contact sport athletes. In addition, the females viewed the behaviors as significantly less legitimate than the males, though neither rated any of the behaviors as legitimate. These results were important as they illustrated the differences in attitudes about aggressive acts by both gender and sport type. These differences are what the current study believes could impact SMP by both gender and contact sport type.