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## Identifying Collegiate Athlete's Motivation to Continue Training in Quarantine Compared Between Sexes

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IDENTIFYING COLLEGIATE ATHLETES' MOTIVATION TO CONTINUE TRAINING IN  
QUARANTINE COMPARED BETWEEN SEXES

by

DELANEY JAMISON

(Under the Direction of Jessica Mutchler)

ABSTRACT

**Purpose:** To identify the type of motivation that was most common among NCAA Division I athletes to continue training during a period of quarantine and how this differs between sexes. **Methods:** Male and female student-athletes from a university in the southern United States were recruited for the study. 47 participants (males = 13, females = 34) completed the Sport Motivation Scale-II (SMS-II) and Basic Needs Satisfaction in Sport Sale (BNSSS) questionnaire to determine their motivation and basic needs satisfaction during the period of imposed quarantine. **Data Analysis:** A Mann-Whitney-U test was calculated to determine the differences of composite intrinsic motivation and composite extrinsic motivation and subscales of BNSSS between sex. This was also examined for the within-sex differences in composite motivation scores. **Results:** A total of 47 athletes completed the study. Both males and females reported statistically significant higher intrinsic motivation scores than extrinsic motivation scores on the SMS-II [(M: Intrinsic:  $39.9 \pm 18.0$ , Extrinsic:  $22.2 \pm 11.7$ ;  $p = .003$ ;  $d = 1.16$ ) (F: Intrinsic:  $42.2 \pm 13.2$ , Extrinsic:  $28.1 \pm 11.7$ ;  $p < .001$ ;  $d = 1.12$ )]. No other statistically significant differences were observed ( $P > .05$ ). Relatedness scored the highest for both males and females on the BNSSS. **Conclusion:** Collegiate athletes, regardless of sex, reported higher levels of intrinsic motivation than extrinsic, and scored satisfaction of relatedness the highest when reflecting on maintaining their sport training during quarantine.

INDEX WORDS: Motivation, Collegiate athlete, Self-determination theory, Basic psychological needs, Sports motivation scale

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## CHAPTER 1

### INTRODUCTION

In March of 2020, the Coronavirus pandemic caused a drastic shift in the structure of collegiate athletics. With little notice, competitions were canceled, teams were separated, and athletes were sent home to quarantine. This imposed quarantine aimed to separate and restrict the movement of a population in an attempt to minimize the spread of the virus (Schuchat, 2020). Although this was necessary, the lockdown significantly limited the accessibility of exercise and many athletes struggled to continue training amidst the uncertainty (Constandt et al., 2020). A typical collegiate training regimen is largely characterized by structured workouts, coach feedback, teammate rapport, and rigorous schedules. However, when this schedule was disrupted and there was no longer the external motivation of a team environment, athletes struggled to find a purpose in their training (Smalls II, 2020). This struggle can be generally observed over winter break or summer vacation, but was exacerbated by the cancellation of spring athletic events and the dramatic shift of collegiate athletics going into the fall season. The destabilization of routine combined with the uncertainty of the Covid-19 outbreak created numerous questions as to how athletes continued to train and motivate themselves when they were away from campus.

In order to look at how an athlete maintained the motivation to train in quarantine, it can start to be answered when examining motivation through a self-determination theory lens. Self-determination theory (SDT) has been a fundamental theory of sport psychology research centering around motivation (Rocchi et al., 2020). SDT states that an athlete can be either self-determined or non-self-determined, with a broad range of behavioral regulations. Within SDT, an athlete's level of self-determination is affected by whether or not their basic psychological

needs for autonomy, competence, and relatedness are met (Lauderdale et al., 2015). Autonomy reflects a person's need to be the controlling factor in their behavior, whereas competence represents how effective an individual feels in their ability to perform or complete the behavior (Lauderdale et al., 2015). SDT suggests that autonomy increases towards the intrinsic regulation end of the continuum (Deci & Ryan, 2000). Relatedness shows the need to feel secure and connected to others, which is typically met through team dynamics (Lauderdale et al., 2015). Previous research has shown that coaches play an integral role in confirming an athlete's need for satisfaction (Gagne, Ryan, & Bargmann, 2003). When an athlete feels supported and their need for autonomy (providing opportunities to have a choice), competency (providing helpful feedback), and relatedness (showing warmth and closeness) are met, the result is increased self-determined regulation (Deci & Ryan, 2000; Rocchi et al., 2020; Ryan & Deci, 2008). Alternatively, if a coach exercises behavior that is controlling (discourages autonomy), gives unhelpful criticism (decreases competence), and acts in a callous way (decreases relatedness), the athletes will exhibit less self-determined regulations (Rocchi et al., 2020).

The imposed quarantine could potentially have the same effect on basic need satisfaction as the minimizing behavior of the coach. The distance from the athlete's training environment could lead to an athlete feeling decreased autonomy due to the inability to make decisions when it comes to training location and partners. Furthermore, this minimalization impacts the need for relatedness because athletes cannot interact in the same space as their coach or teammates, further increasing feelings of incompetence due to the lack of a training schedule and the absence of feedback from coaches. This can become a cycle that leads to a loss of intrinsic motivation for sport due to the frustration of these needs being neglected (Lautenbach et al., 2021).

When these needs are entirely satisfied, the most self-determined athlete will participate in their respective sport and train for the enjoyment of the activity along with the opportunity to master a new skill or a challenge (Rocchi et al., 2020). This is associated with intrinsic motivation, which was first defined by Deci and Ryan (1985) as: “performing an activity for itself, in order to experience pleasure and satisfaction inherent in the activity” (p. 141). Contrastingly, Deci and Ryan (1985) defined extrinsic motivation as: “pertaining to a wide variety of behaviors where the goals of action extend beyond those inherent in the activity itself” (p. 141). A non-self-determined athlete, who is motivated extrinsically, participates in their respective sport for reasons other than their own (i.e. to win, impress others) (Rocchi et al., 2020). Extrinsic motivation is a non-self-determined behavior, but is considered to be more self-regulated than amotivation, due to the presence of an intent to complete the activity (Sheldon et al., 2017). Non-self-determined behavior is seen in an athlete who is neither intrinsically nor extrinsically motivated and no longer finds a purpose for continuing to participate in their sport, classified as amotivation (Deci & Ryan, 2002; Halbrook et al., 2013). Amotivated behaviors are described as the least self-determined because while there is no expectation of reward or sense of purpose, there is also no possibility of changing the behavior (Deci & Ryan, 1985).

Furthermore, SDT breaks down the continuum into specific forms of self-determined (intrinsic) and non-self-determined motivations (extrinsic) and amotivation. Deci and Ryan (2000) designated the forms of regulation to differentiate between lesser self-determined behaviors – external, introjected, identified, and integrated regulation. Intrinsic motivation and amotivation are on opposite ends of this continuum. External regulation is when an athlete engages in physical activity to achieve a desired result or avoid a punishment. This regulation type is predictable and typically requires maintenance to uphold this motivation, and if the

contingency is withdrawn, so is the motivation (Deci & Ryan, 1985; Deci & Ryan, 2000).

Similarly, introjected regulation is found when an athlete still participates in the activity to avoid punishment or consequences, but this is when the consequences are given by themselves, such as feeling guilt / shame if they quit, or pride when they succeed. It is important to note that these rewards or punishments are within the person, but still exist outside of the self (Deci & Ryan, 2000). Identified regulation describes an athlete who recognizes that the activity is central to their values, and therefore accepts it as essential to their identity (Wilson et al., 2003). Although identified regulation reflects a more self-determined behavior, it still has extrinsic elements due to the participation being tied to their personal values and identity (Deci & Ryan, 2000).

Integrated regulation is the most complete version of internalized extrinsic motivation, involving the athlete identifying with the importance of their sport and integrating it into the other behaviors in their life— described as ‘self-determined extrinsic motivation (Deci & Ryan, 2000). Finally, intrinsic motivation occurs at the end of the SDT continuum as the most self-determined and autonomous, suggesting that individuals participate in sport for knowledge, stimulation, or to attempt something new (Deci & Ryan, 2000; Mageau & Vallerand, 2003).

When looking at motivation within sport, sex may be an important aspect to take into consideration. Kilpatrick (2005) reported that men tend to be more motivated when ego-related aspects are involved in the activity, such as challenge, strength, and endurance, or to gain a competitive edge. Contrastingly, women showed they participate in sport or exercise for the joy of the activity. In another study exploring sex differences and scholarships, the results suggested that male collegiate athletes reported higher external regulation when compared to female collegiate athletes, and athletes on scholarship report higher external and introjected motivations than athletes not on scholarship and females, respectively (Amorose & Horn, 2000). This study

may be the exception with additional studies reporting results in agreement that female athletes have reported significantly higher intrinsic motivation levels than their male counterparts (Fortier, Vallerand, & Guay, 1995; Halbrook et al., 2012).

Given this literature, the purpose of this study was to identify the type of motivation most common in NCAA Division I student-athletes who are training while in quarantine. This study also aimed to examine the differences in type of motivation and basic needs satisfaction between sex. It was hypothesized that athletes would have a higher intrinsic motivation composite score compared to an extrinsic composite score. Based on previous observations in the literature, it was hypothesized that female athletes would have a higher intrinsic motivation composite score compared to male athletes (Fortier, Vallerand, & Guay, 1995; Kingston, Horrocks, & Hanton, 2006). It was also hypothesized that there would be a difference in basic needs satisfaction between male and female athletes. It is important to note that throughout this study, there were references to male and female athletes. This terminology was meant to include transgender athletes for the term they identify most with. This applied to women's and men's athletic teams as well, per the NCAA guidelines on transgender athlete inclusion (Morrison, 2011).

## CHAPTER II

### METHODS

#### *Participants*

A convenience sample of National Collegiate Athletics Association (NCAA) Division I student-athletes at a public university in southeast Georgia were included in this study. Inclusion criteria included being a student-athlete at the university, over the age of 18 years old, as well as current eligibility and participation in an NCAA Division I sport. Athletes were excluded if they were not participating in active practice when the quarantine started or were medically disqualified but remained on the roster. Participation in this study was completely voluntary, with no rewards or compensation provided for participation. G\*Power calculations for a Mann-Whitney-U test with effect size of 0.55 and alpha level set to 0.05 recommended a total sample size of 110 would be needed to reach 80% power. These calculations were based on group means reported by a previous study comparing intrinsic and extrinsic motivation between sex (Kingston, Horrocks, & Hanton, 2006). The present analysis included a sample of 47 athletes (13 male, 34 female), who were primarily Caucasian (70.2%) and represented from eight sports at the university.

#### *Procedures*

Following approval from the Institutional Review Board, coaches and athletic trainers (ATs) were contacted via their university email to inform them of the study. In this email, we asked the coaches and ATs to pass along the Qualtrics survey link to their respective athletes. The first question of the survey contained the informed consent. If a participant selected not to voluntarily participate in the study, the survey ended. After the initial e-mail invitation was sent

to coaches and ATs, the survey remained open for a total of six weeks with a follow-up e-mail, based on response rate, sent after two and four weeks. If a coach or AT declined to send their survey, they would be removed from the follow up emails, however this did not occur. The survey took approximately 10-15 minutes to complete, and each participant only completed the survey once. Participants were informed that the information they offered in the study would be anonymous and confidential, but their sport remained attached to their answers. All data are reported as group data, and not individual data. No individual answers were shared with teammates or coaches. The survey, including informed consent and demographic questions, can be found in Appendix C. Qualtrics survey software (Qualtrics Software Company, Provo, UT, USA) was the platform used to administer the survey and all options to secure anonymity were selected.

## Measures and Instrumentation

### *Sport Motivation Scale-II (SMS-II)*

The original English-version of the Sport Motivation Scale (SMS) was created in 1995 by Pelletier et al., (1995) to measure motivation toward sport within SDT, but did not include integrated regulation. This was a major criticism of the original measure because it did not represent each regulation in the entirety of the SDT framework (Pelletier et al., 2012). Although the SMS demonstrated adequate reliability and validity, it was revised in 2013 to respond to the criticism it received. The SMS-II was created to examine an individual's, specifically an athlete's, intrinsic motivation, extrinsic motivation, and amotivation toward athletic participation (Martens & Webber, 2002). This scale contains 18 items, analyzing the six subtypes of regulation in SDT: intrinsic, integrated, identified, introjected, external, and amotivated. Each of the items are ranked on a 7-point Likert-type scale, ranging from 1 (do not agree), to 7



(completely agree). When interpreting the SMS-II, each subscale, consisting of 2-3 questions, were averaged to calculate a score for each subscale. The self-determined subscales of intrinsic, integrated, identified were summed and averaged to determine an intrinsic motivation composite score. The non-self-determined subscales of introjected, extrinsic, and amotivated regulation were summed and averaged to determine an extrinsic motivation composite score (Rocchi et al., 2020).

Reliability and validity of the SMS-II has been previously established (Lonsdale et al., 2014; Pelletier et al., 2012). Cronbach's alpha coefficient was used to assess the reliability of each subscale of the SMS-II, and demonstrated good reliability with all values greater or equal to 0.70 (Pelletier et al., 2012). Validity was confirmed through the use factor analyses, tests of internal consistency and correlations within and between subscales. Suitable validity was determined (Pelletier et al., 2012).

#### *Basic Needs Satisfaction in Sport Scale (BNSSS)*

The BNSSS was first developed in 2011 by Ng, Lonsdale, and Hodge (2011) employing the framework of SDT to provide a measure for the satisfaction of the basic psychological needs of autonomy, relatedness, and competence, related to sport. It is a 20-item scale, with five subscales, scored on a Likert-type scale ranging from 1 (not true at all) to 7 (very true). The subscales are autonomy, volition, internal perceived locus of causality (IPLOC), relatedness, and competence. (Ng, Lonsdale, & Hodge, 2011). The reliability and construct validity for the BNSSS has been previously demonstrated. The scale's internal consistency produced Cronbach's alpha coefficients of 0.77 for competence, 0.82 for autonomy-choice, 0.61 for autonomy-volition, 0.76 for autonomy-internal perceived locus of causality (IPLOC), and 0.87 for

relatedness (Francisco et al., 2018; Ng, Lonsdale, & Hodge, 2011). For the present study, the subscales were named autonomy (choice), volition, IPLOC, relatedness, and competence.

### *Data Analysis*

When scoring the SMS-II, we determined the mean composite scores for intrinsic motivation and extrinsic motivation for comparison. First, the participants' ratings for intrinsic, integrated, and identified regulations were added and averaged to determine an intrinsic motivation composite. Then, the participants' scores for introjected, external, and amotivation were summed and averaged to indicate the extrinsic motivation composite. This data analysis was previously used in a study conducted by Rocchi et al., (2020), who identified performance trajectories and motivational indicators and profiles in collegiate swim athletes.. This was then compared between sex. Overall mean scores for each subscale, as well as group mean scores for males and females, were calculated and recorded for analysis.

When scoring the BNSSS, each subscale was summed and averaged for the separate values of autonomy, relatedness, perceived locus of control, volition, and competence. This gave a score for each of the five basic needs and was compared between males and females and ranked accordingly, from highest to lowest.

### *Statistical Analysis*

A statistical analysis was completed using SPSS 25.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used to describe participant sample (age, sex, sport). Overall mean scores and standard deviations for each subscale, as well as mean scores for males and females were calculated. Multiple Mann-Whitney-U tests were used to examine within-group differences of intrinsic motivation, extrinsic motivation, and the BNSSS subscales of autonomy, relatedness,

perceived locus of causality, volition, and competence between male and female groups.

Levene's test of homogeneity was used to assess the assumption of equal variance in the sample.

The alpha level was set at 0.05 to determine statistical significant. For each comparison, Cohen's *d* effect sizes were calculated and interpreted as 0 = no effect, 0.2 = small effect, 0.5 = medium effect, and  $\geq 0.8$  = large effect (Cohen, 1988). These effect sizes assisted in supporting practical significance.

## CHAPTER III

### RESULTS

In total, 62 student-athletes participated in the survey, out of 354 rostered athletes (17.5%). Ten participants were eliminated for being ineligible for their 2020 season, and five participants did not complete the entire questionnaire. Therefore, the analysis included a sample of 47 athletes. Demographic statistics can be viewed in Table 1. The sample was primarily female, with a sex makeup of 72.3% females and 27.7% male, and primarily Caucasian (70.2%). Student-athlete participants were recruited from all sports, but not all sports were represented, with the highest representations from track and field ( $n = 18$ , 38.3%), women's swim and dive ( $n = 8$ , 17.0%), and men's soccer ( $n = 7$ , 14.9%).

#### *SMS-II*

There were no outliers, as assessed by a simple box plot, and homogeneity was not violated, as assessed by Levene's test for homogeneity ( $P > .05$ ). Both males (M) and females (F) reported statistically significant higher intrinsic motivation scores than extrinsic motivation scores on the SMS-II [(M: Intrinsic  $39.9 \pm 18.0$ ; Extrinsic:  $22.2 \pm 11.7$ ;  $p = .003$ ;  $d = 1.16$ ) (F: Intrinsic  $42.2 \pm 13.2$ ; Extrinsic:  $28.4 \pm 11.7$ ;  $p < .001$ ;  $d = 1.12$ )].

There was no statistically significant differences in intrinsic motivation between males and females (M:  $39.9 \pm 18.0$ ; F:  $42.2 \pm 13.2$ ;  $p = .90$ ;  $d = 0.145$ ). There was no statistically significant differences in extrinsic motivation between males and females (M:  $22.2 \pm 11.7$ ; F:  $28.4 \pm 11.7$ ;  $p = .12$ ;  $d = 0.527$ ). Means and standard deviations for all subscales and composite scores by sex can be viewed in Table 2.

*BNSSS*

There were no outliers, as assessed by a simple box plot, and homogeneity was not violated, as assessed by Levene's test for homogeneity ( $P > .05$ ). There were no statistically significant differences between sex for any of the components of the BNSSS ( $P > .05$ ). Both male and female participants scored relatedness the highest of the subscales (M:  $24.3 \pm 10.7$ ; F:  $27.3 \pm 8.3$ ) and volition the lowest (M:  $13.5 \pm 3.9$ ; F:  $13.2 \pm 2.7$ ). Means and standard deviations for all scores on the BNSSS by sex can be viewed in Table 3.

Table 1. Participant Demographics

		Frequency	Percent
Sex	Male	13	27.7
	Female	34	72.3
Age	19.89 ± 1.82		
Sport	Track / Cross Country	18	38.3
	Women's Swim & Dive	8	17.0
	Men's Soccer	7	14.9
	Volleyball	3	6.4
	Football	3	6.4
	Softball	3	6.4
	Men's Tennis	3	6.4
	Women's Rifle	2	4.3
Race	Caucasian	40	70.2
	African-American	14	24.6
	American Indian	1	1.8
	Other	1	1.8

Table 2. Means and SD for SMS-II Scores Between Males and Females

	Subscales	Males	Females	<i>p</i> -value	Effect Size ( <i>d</i> )
Intrinsic	Internal	15.7 ± 4.3	14.2 ± 4.8	.905	0.32
	Integrated	13.6 ± 4.1	14.2 ± 4.7		0.13
	Identified	15.8 ± 4.99	14.9 ± 4.8		0.19
	<i>Composite Score</i>	39.9 ± 18.0	42.2 ± 13.2		0.15
Extrinsic	Introjected	10.9 ± 5.5	12.7 ± 4.9	.119	0.33
	External	5.5 ± 3.2	10.4 ± 5.2		1.12
	Amotivated	3.6 ± 1.3	8.4 ± 4.5		1.45
	<i>Composite Score</i>	22.2 ± 11.7	28.4 ± 11.7		0.53

Table 3. Means and SD for BNSSS Scores Between Males and Females

Subscales	Males	Females	<i>p</i> -value	Effect size ( <i>d</i> )
Relatedness	24.3 ± 10.7	27.3 ± 8.3	.321	0.31
Competence	25 ± 9	25.5 ± 6.9	.960	0.06
Autonomy	18.5 ± 7.6	19.2 ± 6.8	.940	0.09
IPLOC	15.9 ± 4.4	15.6 ± 5	.930	0.05
Volition	13.5 ± 3.9	13.2 ± 2.6	.541	0.08



## CHAPTER IV

### DISCUSSION

The purpose of this study was to examine collegiate athlete motivation through a self-determination theory framework and to compare this between male and female participants during an imposed quarantine. The motivation to continue training in quarantine can be defined as “the extent to which our behavior is selected, directed, energized, and maintained to satisfy a particular motive,” (Kazén & Quirin, 2018, p. 15) – that motive being sport training for the purpose of this study. The data analysis used in this study was previously used in a 2020 study conducted by Rocchi et al., who looked at collegiate swimmers’ motivation and the associated coaching behaviors. In an effort to examine training and motivation during the Covid-19 crisis, there were three research hypotheses tested.

The first research hypothesis stated that overall, athletes would have a higher level of intrinsic motivation (self-determined behavior), compared to extrinsic motivation (non-self-determined behavior). This research hypothesis was supported, as both sexes scored highest in the intrinsic motivation composite. The second research hypothesis stated that female athletes would have a higher intrinsic motivation composite score, or self-determined behavior, compared to male athletes. After careful search of the literature, we expected males to report higher extrinsic motivation than intrinsic and to exhibit higher extrinsic motivation than females (Kingston, Horrocks, & Hanton, 2006; Halbrosk et al., 2012). We also expected to observe difference in BNSSS scores between males and female. Instead, this study observed that as athletes reflected on their motivation to continue their training while in quarantine, no significant differences were observed between motivation in male and female collegiate athletes. Therefore, this research hypothesis was not supported, and the null hypothesis was accepted. This was not

consistent with previous research reporting that men participated for more extrinsic reasons compared to women (Kilpatrick, 2005). Additionally, there were no statistically significant differences found in the BNSSS results between sex so this research hypothesis was rejected and the null hypothesis was retained. Males and females presented with the same pattern of basic needs satisfaction with relatedness scoring the highest. This suggests that strong team dynamics were present across each sport, especially throughout quarantine. This is a good indication that although away from campus, athletes are still interacting and supporting their teammates, which should continue to be fostered.

Interestingly, each sex had the same ranking of needs satisfaction from the highest to lowest: relatedness, competence, autonomy, internal perceived locus of causality, then volition. This is displayed in Table 3. This result is consistent with the findings of Kawal and Fortier (2000), who observed that a positive relationship between satisfaction of basic needs – specifically competence and autonomy – were associated with higher self-determination levels in exercise. Athletes' satisfaction of volition was scored considerably lower than the rest of the basic needs, suggesting that although their motivation was high, there were other factors driving them to exercise, rather than solely their volition. This low satisfaction of volition should be further explored by coaches in order to promote increased feelings of will in their athletes and create a stronger environment for training. There is further evidence of a correlation between basic psychological needs satisfaction and exercise regulation (Wilson et al., 2003). Therefore, if the less satisfied basic needs (volition and IPLOC) were fostered and encouraged, this could positively impact the athletes' intrinsic motivation.

The findings of this study provide support for both high levels of intrinsic motivation in males and females with corresponding higher rankings of relatedness, competence, and

autonomy. Although the athletes were training remotely, they still found ways to satisfy their needs for relatedness and competence, which is especially important during difficult times, such as the Covid-19 quarantine. It is interesting that even from a large distance, the team dynamics that support relatedness persevered. The higher intrinsic motivation scores than extrinsic scores in males could be attributed to the reduced external factors pushing male athletes to rely on their internal drive or intrinsic motivation to continue training. These needs should continue to be fostered and satisfied during prolonged breaks from campus through strong team dynamics and coach communication in order to maintain motivation to continue training (Mageau & Vallerand, 2003).

### Limitations

While this study did find trends in the motivation and basic need requirements of student-athletes, it is not without limitations. First, the study examined a convenience sample from one university, which resulted in a smaller sample size than desired. Effect sizes were calculated to support significant results, but caution should still be taken when generalizing the results to the population. Second, this study relied heavily on self-reporting from student-athletes, which could cause a bias in the answers. Additionally, the outside factors that were present during quarantine, such as personal, environmental, or situational influences, could have a heavy impact on an athlete's motivation for physical activity, and those were not reported. Despite the limitations, this study provided information on motivation and basic needs satisfaction of athletes during a unique time of quarantine.

It is important to note that this study compares participants based on biological sex of male and female. There was a third option of 'other,' if an athlete identified with a sex not stated or a sex not biologically assigned to them, however, none of the participants selected this option.

The current study may not be representative of gender identities beyond that of the binary male and female categories, and some participants may have felt forced to select a binary sex, which could have influenced the results of the study and/or influenced participation in the study. During the time of this study, the literature on motivation in athletes had been reported based on sex and not gender, which influenced the researchers decision in an attempt to make the presence of quarantine the primary difference between the current study and those previously reported. Additionally, the NCAA's written guidelines for transgender or gender-nonconforming athletes were taken into account. In the future, this study should be broadened from sex to gender to include all athletes and gender identifies.

### *Conclusion*

This study contributes to the existing body of research on collegiate athletes' motivation and explores the motivations and basic needs satisfaction of athletes when in quarantine. Additionally, these findings have significant implications for the understanding of athletes, especially during absence from campus. Collegiate athletes, regardless of sex, reported higher levels of intrinsic motivation than extrinsic, and scored relatedness satisfaction the highest when reflecting on maintaining their sport training during quarantine. Additionally, collegiate athletes reported the lowest levels of volition satisfaction during quarantine, which should be addressed within coaching techniques by incorporating athlete willingness into training in order to satisfy this basic need. It has been shown that the interpersonal behaviors of coaches are an essential factor when promoting a team environment through the enhanced use of autonomy and relatedness behaviors (Rocchi et al., 2020). Although this is not a new concept, it has been altered with the added layer of quarantine. After increasing the understanding of athlete motivation in quarantine, it can be applied to yearly sustained breaks from campus.

Therefore, these results may be beneficial to coaches when training athletes from a distance, and further supports that coaches and athletic personnel may benefit from developing intrinsic-type motivation among student athletes, rather than relying on external stimulus for motivation, such as scholarship, consequences, or fear of punishment. Although this study focused on quarantine, the findings have numerous implications for scheduled prolonged periods away from campus, such as winter break or summer vacation. As coaches struggle to motivate athletes to continue training during these scheduled breaks, it may be beneficial to also increase the satisfaction of basic needs through phone calls, varied training plans, or encouragement to assist in increasing intrinsic motivation. If future research confirms that during these breaks athletes rely more heavily on intrinsic motivation, it may be beneficial for coaches and others in a supportive role to obtain training on how to facilitate intrinsic motivation and basic needs satisfaction during times away from the team. Additionally, further research is warranted for how athletes maintained their motivation throughout the absence of teammates and coaches. This research should focus on what motivation tools were employed, if teammates or coaching staff were a factor in motivation, and how heavily each athlete relied on the internal volition to continue training.

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## APPENDIX A

## EXTENDED METHODS

*Research Questions:*

RQ<sub>1</sub>: What type of motivation is most common in NCAA Division I student-athletes who are training while in quarantine?

RQ<sub>2</sub>: Is there a difference in the type of motivation and basic needs satisfaction between male and female athletes training during quarantine?

*Research Hypothesis:*

H<sub>0</sub>: There is no difference in athletes' type of motivation identified.

H<sub>1</sub>: Overall, athletes will have a higher intrinsic motivation score compared to an extrinsic score.

H<sub>0</sub>: There is no difference in type of motivation or basic needs satisfaction between sex.

H<sub>2A</sub>: Females athletes will have a higher intrinsic motivation score compared to male athletes.

H<sub>2B</sub>: There will be a difference in basic needs satisfaction between male and female athletes.

*Inclusion Criteria:*

- Male and female students-athletes at Georgia Southern University
- Current eligibility in an NCAA Division I sport
- Participated in sport at the start of quarantine
- Voluntary participation

*Exclusion Criteria:*

- Student-athlete under the age of 18 years old.

- Student-athlete not participating in university-sanctioned athletics at start of quarantine or have been medically disqualified but remained on roster.

*Limitations:*

- Relying on return rate through Qualtrics to obtain an adequate sample size.
- The survey in the study relies heavily on self-reporting from student-athletes.
- Outside factors influencing an athlete's motivation, such as personal, environmental, or situational influences.

*Delimitations:*

- The participants are part of a convenience sample from the same studied university.
- All student-athletes were part of a competitive NCAA team when the quarantine was imposed.

*Assumptions*

- All participating student-athletes will be truthful and honest in their responses.

*Operational Definitions:*

- Collegiate student-athlete: A full-time student who is concurrently a rostered member on an NCAA sanctioned varsity sport.
- Intrinsic motivation: aka internal regulation; participating in an activity because the activity is pleasant; the athlete participates in the sport with a "strong sense of volition" (Mageau & Vallerand, 2003); participating in an activity purely for the satisfaction and pleasure that is inherently derived from it (Karoblis, 2016)
- Integrated regulation: The most complete version of internalized extrinsic motivation, involving the athlete identifying with the importance of the behaviors and integrating it into other behaviors; "self-determined extrinsic motivation" (Deci & Ryan, 2000)

- Identified regulation: Recognizing that the activity is central to their identity and they will participate because of their values (Deci & Ryan, 2000)
- Introjected regulation: A form of extrinsic motivation; participating in an activity to avoid the consequences that may come from not participating, but these are administered by the self, not others (Deci & Ryan, 2000)
- Extrinsic motivation: aka external regulation; participating in an activity for the external outcomes or consequences that will come from activity participation (Mageau & Vallerand, 2003); engaging in an activity to achieve a desired result or avoid a punishment (Deci & Ryan 1985; Deci & Ryan, 2000)
- Amotivation: A type of regulation that is neither intrinsically or extrinsically motivated; the least self-determined behavior that lacks purpose with no sense or reward or possibility of change (Deci & Ryan, 1985)

## APPENDIX B

### REVIEW OF LITERATURE

The following review of literature will summarize the current knowledge of intrinsic motivation, its relation to sport, and its measurement. Included in this review of literature is background and early theory regarding self-determination and motivation, how sport motivation applies to collegiate athletes, and how an unexpected disruption can affect an athlete's motivation. These main topics will break down into an overview of the current quarantine issue, early background and current application of Self-Determination Theory, basic psychological needs, how motivation applies to collegiate athletes, measuring sport motivation, and how coaches can be involved to sustain motivation levels in their athletes when separated.

#### *Background*

In March of 2020, the Coronavirus pandemic caused a drastic shift in the structure of collegiate athletics. Almost without notice, competitions were canceled, teams were separated, and athletes were sent home to quarantine. This imposed quarantine aimed to separate and restrict the movement of a population, or group of people, in an attempt to minimize the spread of the virus (Schuchat, 2020). Although this was necessary, the lockdown significantly limited the accessibility of exercise and many athletes struggled to continue training amidst the uncertainty (Constandt et al, 2020). A typical collegiate training regimen is largely characterized by structured workouts, coach feedback, and strict schedules. However, when this schedule is disrupted and there is no longer the external motivation of coaches' feedback, teammates praise, or personal pride, athletes may struggle to find a purpose to their training. This struggle can regularly be observed over winter break or summer vacation, but was exacerbated by the recent

cancellation of spring and summer athletic events and the dramatic shift of collegiate athletics into the fall season, leading to a destabilization of routine and creating numerous questions as to how athletes continued to train.

This disruption of routine can lead to a loss of motivation, lack of excitement toward the sport, or general apathy towards training. This can be exacerbated in collegiate athletes due to the reliance on sport and athletic identity. These consequences can lead to a significant decrease in motivation, especially when there is not a foreseeable future of competition. Although applying motivation to training during quarantine is a recent topic, the concept of motivation in sport has been a topic of discussion for years.

### *Background of Early Motivation*

The first mention of motivation was conceptualized in 1924 by Sigmund Freud's theory of energy discharge, as a "provisional idea" and was purely hypothetical (Nuttin, 1956). However, Freud's ideas were foundational in the creation of motivation research and has been an enduring influence in the field since its conception (Nuttin, 1956). The concept of motivation was revised and applied directly to concrete ideas in 1959 by White, who argued that motivation was more complex than these rudimentary ideas and Freud's theory did not wholly capture an individual's motivation (Marten & Webber, 2002). According to White, an organism can be competent, which is the innate ability to effectively interact with the surrounding environment. This may be an innate ability in lesser organisms, but in humans, this is attained slowly through interaction and learning (White, 1959). The argument that most individuals exhibit intrinsic motivation as a way to experience competence and self-determination, laid the foundational roots for intrinsic motivation and the following theories (Deci & Ryan, 2000). Thus, as the complexity



of human motivation began to deepen, the basic theory underlying motivation was reviewed, and the definitions began to expand.

### Self-Determination Theory (SDT)

SDT was created, among the other motivational theories, to separate and examine goal-oriented behavior (Deci & Ryan, 1985). However, contrary to other theories, SDT distinguishes between the *content* of the outcomes or goals, and the outcome pursuits that involve certain *regulatory processes*, thus allowing researchers to cast predictions when examining individuals in this motivational model (Deci & Ryan, 2000). Furthermore, it names *innate psychological needs* as the main reason for integrating these contents and regulatory processes (Deci & Ryan, 2000).

In recent years, SDT has remained a fundamental theory of sport psychology research centering around motivation (Rocchi et al., 2020). SDT states that athletes are motivated to participate in sport for various reasons, which can be categorized as types of motivation and self-determination (Deci & Ryan, 1985, Deci & Ryan, 2000). A self-determined athlete will participate in their respective sport and train for the enjoyment of the activity and the opportunity to master a new skill or a challenge. Contrastingly, a non-self-determined athlete participates in their respective sport's training for reasons other than their own (i.e. to win, impress others); this can also be seen in an athlete who is unsure if they want to continue in the sport (Rocchi et al., 2020). Furthermore, Deci & Ryan (1985) defined subcategories of human motivation: intrinsic motivation, extrinsic motivation, and amotivation. At the highly motivated end of the continuum, there is intrinsic motivation, which has been defined as “performing an activity for itself, in order to experience pleasure and satisfaction inherent in the activity” (Deci & Ryan, 1985). On the other end of the continuum, extrinsic motivation was first defined as “pertaining to a wide

variety of behaviors where the goals of action extend beyond those inherent in the activity itself.” (Deci & Ryan, 1985). Extrinsic motivation is considered to be more self-regulated than amotivation, due to the presence of an intent to complete the activity (Sheldon et al., 2017). In stark contrast, amotivation is when an individual is said to be neither intrinsically nor extrinsically motivated; there is no sense of purpose and no expectation of reward or possibility of changing the course of events, making amotivated behaviors the least self-determined (Deci & Ryan, 1985). These definitions serve as the basis of all motivation research.

SDT takes the fundamental definitions previously discussed and breaks down the motivational profiles into six types that exist on a continuum in descending order of self-determination: intrinsic, integrated, identified, introjected, extrinsic, and amotivation. Deci & Ryan (2000) designated the forms of regulation to differentiate between non-self-determined behaviors – amotivated, external, introjected– and more self-determined behaviors – identified, integrated, intrinsic. Originally, these definitions were applied to the workplace or to mundane daily activities; only recently have these concepts been applied to sport and competitive athletes.

External regulation is synonymous with extrinsic motivation, where an athlete engages in physical activity to achieve a desired result, or avoid a punishment. This regulation type is predictable and typically requires maintenance to uphold; if the contingency is withdrawn, so is the motivation. (Deci & Ryan, 1985; Deci & Ryan, 2000). Incorporating external regulation, introjected regulation is found when an athlete still participates in the activity to avoid punishment or consequences, but this is when the consequences are given by themselves, such as feeling guilt or shame if they quit, or pride when they succeed. It is important to note that these are within the person, but still outside of the self (Deci & Ryan, 2000). Identified regulation is the type of regulation when the athlete recognizes that the activity is central to their values, and

therefore accept it as central to their identity. This is a more self-regulated behavior, but still has extrinsic elements. (Deci & Ryan, 2000). The next regulation type before intrinsic motivation is integrated regulation, where it encompasses identification elements, as well as intrinsic elements. This can be described as “self-determined extrinsic motivation” (Deci & Ryan, 2000). Finally, intrinsic motivation is at the end of the SDT continuum as the most self-determined and autonomous, and is where an athlete participates in sport because they take pleasure in the training and the activity (Mageau & Vallerand, 2003). More recently, intrinsic motivation has been described as participating in an activity purely for the satisfaction and pleasure that is inherently derived from it, whereas extrinsic is described as activities that athletes engage in that are not for the activity itself, but rather as a means to an end, usually involving extrinsic rewards (Karoblis, 2016).

### *Basic Psychological Needs*

As mentioned previously, within SDT, there are innate psychological needs for autonomy, competence, and relatedness, which affect an athlete’s level of intrinsic motivation (Deci & Ryan, 2000; Lauderdale et al., 2015). Satisfaction of autonomy and competence specifically is essential for the development of strong intrinsic motivation within an individual (Deci & Ryan, 2000). Additionally, Francisco et al. (2018) found that satisfaction of basic psychological needs has a direct effect on positive athlete engagement and an indirect effect on athlete motivation. Autonomy reflects a person’s needs to be the controlling factor in their behavior, whereas competence represents how effective an individual feels in their ability. (Lauderdale et al., 2015). SDT suggests that autonomy increases towards the intrinsic regulation end of the continuum (Deci & Ryan, 2000). Relatedness shows the need to feel secure and connected to others, which is typically met through team dynamics (Lauderdale et al., 2015). Previous research has shown that coaches play

an integral role in confirming an athlete's need for satisfaction (Gagne, Ryan, & Bargmann, 2003). When an athlete feels supported and their need for autonomy (providing opportunities to have a choice), competency (providing helpful feedback), and relatedness (showing warmth and closeness) are met, the result is increased self-determined regulation (Deci & Ryan, 2000; Rocchi et al., 2020; Ryan & Deci, 2008). Alternatively, if a coach exercises behaviors that are controlling (discourages autonomy), gives unhelpful criticism (decreases competence), and acts in a cold way (decrease relatedness), the athlete will exhibit less self-determined regulations (Rocchi et al., 2020).

During the lockdown, these psychological needs could be abandoned due to quarantine and being removed from athletics, leading to a frustration over lack of competence, autonomy, and relatedness with their teammates and their training (Lautenbach et al., 2021). Thus leading to an overall dissolution of the athlete's willingness to continue training.

### *SDT and Motivation in Sport*

Assessing the prominent motivation type in an athlete is critical for a coach to completely understand the motivators behind an athlete's training. For this purpose, SDT provides a complex, yet practical understanding of motivation in sport (Readdy et al., 2014). This is presumably more applicable when looking at student-athletes.

Remarkably self-determined individuals will continue to engage in an athletic event with a strong sense of passion, regardless of circumstance (Mageau & Vallerand, 2003). Conversely, the athlete that is motivated by scholarship, pride, or internal guilt is classified as extrinsically motivated athlete. When an athlete feels pressure or obligation to partake in an athletic activity by either their external factors (i.e. their coach) or internal factors (i.e. their

feeling of guilt), extrinsic motivation occurs (Mageau & Vallerand, 2003). An externally motivated athlete tends to engage in the athletic activity to achieve a desired reward, or to avoid a specific punishment (Deci & Ryan 2000; Readdy et al., 2014). Centered around the SDT continuum, there are athletes that fall amidst the intrinsic and extrinsic categories (Readdy et al., 2014). Most athletes are a combination, tending towards one side or the other. If an athlete is intrinsically motivated, but has extrinsic tendencies, they are classified as identified – engaging in athletic competition for accomplishing an ulterior goal, such as staying in shape. If an athlete is extrinsically motivated, with sparse intrinsic tendencies, they are considered introjected – engaging in the activity for the pride when they succeed or guilt when they fail (Deci & Ryan, 2000; Readdy et al., 2014). Although these factors are multidimensional, they factor into each other as they drive the athlete to perform.

### *Motivation for Physical Activity*

According to the relatively limited research, SDT can be a helpful tool in examining exercise motivational issues in the exercise domain (Kowal & Fortier, 2000; Mullen & Markland, 1997). Wilson et al. (2003), found that identified and intrinsic regulations were moderately correlated with physical fitness and exercise behavior, extending the evidence that more self-determined regulation types are found in athletes and individuals who participate in habitual exercise.

### Measuring Motivation

There were several tools developed early in the process of measuring sport motivation using SDT, but none of these tools were accurately able to assess all types of motivation present in SDT (Pelletier et al., 2012). After examining this problem and the increasing awareness of

sport-related motivation, Ryan and Connell (1989) recommended a scale that used the SDT continuum and adjacent subscales having higher positive correlations. This notion provided a bridge between the regulation types in SDT and measuring sport motivation with the necessary framework to create tools to measure motivation in every domain (Pelletier et al., 2012).

Through these developments, several scales to measure motivation were created.

### *Behavior Regulation in Exercise Questionnaire (BREQ)*

The BREQ is one way to measure the type of motivation to participate in physical activity. It is a 15-item survey, which analyzes external regulation, interjected regulation, identified regulation, and intrinsic motivation (Brunet & Sabiston, 2010). Investigations by Wilson et al (2003), support the reliability/validity of this tool across various populations. Construct validity for the BREQ was determined by Mullen & Markland (1997) whose research showed a simplex structure of relationships between the BREQ subscales. This *simplex structure* (Ryan, 1995), refers to each point along the continuum being more positively related to the adjacent points than the more distal points. In order to establish discriminant validity, the confidence intervals ( $\pm 1.96 SE$ ) were calculated for all of the intercorrelations and did not encompass 1.0 (Mullen & Markland, 1997).

### *Sport Motivation Scale-II (SMS-II)*

The SMS, originally developed in 1995 by Pelletier et al., was created as a sport-specific measure examining an individual's intrinsic motivation, extrinsic motivation, and amotivation toward athletic participation (Martens & Webber, 2002). In 2013, the SMS was revised and condensed into the most reliable and statistically supported items, creating the SMS-II (Pelletier et al., 2013). The revised SMS-II was argued to be more aligned with SDT and quicker to

administer, due to only being 18-items, when compared to the original 28-item SMS (Li, Kawabata, & Zhang, 2016). The 18-item survey evaluates the six regulation subtypes in SDT: intrinsic, integrated, identified, introjected, external, and amotivated. Each of these subscales are scored on a seven-point Likert scale ranging from 1 – not at all true to 7 – very true. Pelletier et al. (2013) conducted two studies and established that there was a higher effect size in the non-self-determined forms of motivation when compared to the self-determined forms; this further supports the validity of the SMS-II when combined with other validation studies. Furthermore, the shown “simplex pattern [is] consistent with the hypothesized relationships among the types of motivation proposed by SDT and very good support for the relative-autonomy continuum” (Pelletier et al., 2013).

#### *Basic Needs Satisfaction in Sport Scale (BNSSS)*

Centered in self-determination theory and developed specifically for sport, the BNSSS is a 20-item survey that measures the satisfaction of five basic psychological needs: autonomy-competence, autonomy-choice, autonomy-volition, relatedness, and internal perceived locus of causality (IPLOC) (Ng, Lonsdale, & Hodge, 2010). For the purpose of the current study, the three factors of autonomy will be referred to as autonomy (choice), competence, and volition, as they were in the original article. The advantage of using this study, as opposed to sports from other domains, is the sport specific nature of the BNSSS is more applicable to athletes. The intra-class coefficients (ICC) were calculated to assess the scores between two sets of responses, as assessed by a test-retest method. This provides evidence to support the internal consistency for this testing process (Ng, Lonsdale, & Hodge, 2010). The coefficients for the five subscales are as follow: competence = 0.83, choice = 0.78, volition = 0.83, relatedness = 0.74, IPLOC = 0.87: Construct validity was examined through three confounding studies conducted by Ng, Lonsdale,

and Hodge (2010) and provided support for the factorial and content validity of the resulting scores.

### *Motivational Strategies*

There can be negative consequences if an athlete's motivation is not maintained and begins to fall into a different category or starts to diminish all together. Reduced intrinsic motivation can lead to a loss of pleasure in sport and, consequently, decreased performance (Medic et al., 2007). For this reason, among others, it is vital for an athlete to have a strong drive behind the training they complete to maintain motivation, especially throughout quarantine (Moore, 2020). One way for coaches to measure their athletes ability to be motivated is to assess the satisfaction of their basic needs when it comes to the coaching techniques and team environment, since these must be met before an athlete can truly motivate themselves in this domain.

### *Coaching Perspective*

A coaches interpersonal behavior and coaching style plays a pivotal role in their athletes' motivation types. Through their interactions and team dynamics, coaches can determine whether athletes experience self-determined or non-self-determined motivation (Mageau & Vallerand, 2003). When an athlete feels supported and their autonomous needs (providing opportunities to have a choice), competency (providing helpful feedback), and relatedness (showing warmth and closeness) are met, the result is increased self-determined motivation (Rocchi et al., 2020). Alternatively, if a coach exercises behaviors that are controlling (discourages autonomy), gives unhelpful criticism (decreases competence), and acts in a cold way (decrease relatedness), the athletes will exhibit less self-determined behaviors (Rocchi et al., 2020).



A coaching strategy for increasing preparedness is on the rise: planned disruptions. These “structured and deliberate training activities” attempt to expose athletes to constantly evolving demands while under controlled circumstances (Kegelaers, Wylleman, & Oudejans, 2020). If an athlete is prepared for disruptions, abruptly being uprooted from their schedule and moved into quarantine may be a bit easier to manage. In a study conducted by Kegelaers, Wylleman, & Oudejans (2020), it was found that when coaches challenged their athletes with various planned disruptions, it helped to develop familiarity with high pressure situation, development of personal coping skills, and promoted strategies that could be used when found in a difficult situation, such as another quarantine period. This could be pivotal training when preparing athletes for unexpected circumstances.

#### *Sex Differences in Motivational Contexts*

Kilpatrick (2005) found that men tend to be more motivated when ego-related aspects are involved in the activity, such as challenge, strength and endurance, or to gain a competitive edge. Whereas women tend to participate in sport or exercise for the joy of the activity. This study found a distinctive link between intrinsic motivation and sport participation. Given this research and the connection between athletes and motivation, it is warranted to examine the motivational differences between males and females in quarantine.

However, the research on motivational disparities between sexes appears to be inconclusive across various studies. In one such study, the researchers “found that collegiate male athlete demonstrated higher levels of extrinsic motivation, specifically external regulation,” when compared to females (Kingston, Horrocks, & Hanton, 2006; Halbros et al., 2012). However, this study was originally created by Amorose and Horn (2000), which found distinctively different results. The original study showed that athletes receiving a scholarship had

higher levels of intrinsic motivation than those not on scholarship, regardless of sex. When looking at these studies together, as well as other confounding studies, it has been shown that female athletes have reported significantly higher intrinsic motivation levels than their male counterparts (Fortier, Vallerand, & Guay, 1995; Halbrook et al., 2012).

APPENDIX C  
DEMOGRAPHIC FORMS AND QUESTIONNAIRES

**Identifying Collegiate Athletes Motivations for Physical Activity While in Quarantine**

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**Start of Block: Demographics**

Informed Consent

**Participant Informed Consent**

**Identifying Collegiate Athletes' Motivation for Physical Activity While in Quarantine**

My name is Delaney Jamison and I am a current graduate student at Georgia Southern University. I am an Athletic Trainer for Georgia Southern Athletics and interact with student-athletes on a daily basis. Because of this interaction, I have a great interest in athlete motivation, as well as how this motivation is maintained when away from campus.

The purpose of this research is to identify collegiate athletes' motivation for physical activity while in quarantine and examine the sex differences in levels of motivation.

Participation in this research will include completion of one online survey – administered via Qualtrics surveys sent to your Georgia Southern e-mail address.

The risk assumed during this study is no greater than you experience in daily life. The survey involved in this study should not bring about any mental and/or emotional discomfort but may cause stress as it asks athletes to think about quarantine. If this study does begin to produce stress or discomfort, understand you have the right to terminate participation and have access to your Team Athletic Trainer as well as the Georgia Crisis & Access Line at 1-800-715-4225.

You will likely receive no direct benefit from participating in this study. The results of this study have the potential to improve the understanding of motivation to train while away from campus and/or in quarantine, as well as how to measure this motivation.

The study should take you approximately 10-15 minutes to complete.

Your survey responses will be anonymous, meaning that no identifying information will be kept (name, e-mail address, etc.) You will not be identified by name in the data set or any reports using information obtained from this study. Data answers will not be shared with specific coaches or teammates. Surveys will be administered via Qualtrics online, and therefore there is only limited assurance of anonymity due to the technological advances of the internet. Following the completion of this study, data will be stored under the custody of Dr. Jessica Mutchler in a locked room on a password protected computer for three years before being destroyed.

**Right to Ask Questions:** Participants have the right to ask questions and have those questions answered. If you have questions about this study, please contact the researcher named above or the researcher's faculty advisor, whose contact information is located at the end of the informed consent. For questions concerning your rights as a research participant, contact Georgia Southern University Institutional Review Board at 912-478-5465 or [irb@georgiasouthern.edu](mailto:irb@georgiasouthern.edu).

You will not receive compensation for your participation in this study.

You understand that you do not have to participate in this study and your decision to participate is purely voluntary. At any time, you may choose to end your participation with no consequences by exiting out of the online survey.

You understand that you may terminate participation in this study at any time without penalty or judgement.

You understand there is no deception involved in this study.

All information will be treated confidentially, and all responses will be kept completely confidential. There is one exception to confidentiality that we need to make you aware of. In certain research studies, it is our ethical responsibility to report situations of child or elder abuse, child or elder neglect, or any life-threatening situation to appropriate authorities. However, we are not seeking this type of information in our study nor will you be asked questions about these issues.

You must be 18 years of age or older to consent to participate in this research study. You will be given a copy of this consent form to keep for your records. This project has been reviewed and approved by the GS Institutional Review Board under tracking number H21179.

**Title of Project:** Identifying Collegiate Athletes' Motivation for Physical Activity While in Quarantine

Principal Investigator: Delaney Jamison, 480-710-3481, dj10299@georgiasouthern.edu  
Other Investigator(s): Jessica Mutchler, Ph.D, ATC, jmutchler@georgiasouthern.edu  
    Brandonn S. Harris, Ph.D., bharris@georgiasouthern.edu  
    Charles (Hal) Wilson, Ph.D, charleswilson@georgiasouthern.edu

Faculty Advisor: Dr. Jessica Mutchler, Ph.D, ATC, jmutchler@georgiasouthern.edu

Please select an option below to indicate whether or not you agree to participate in this research:

- Yes, I read the terms and consent to participate in this research. (1)  No, I do not consent to participate in this research. (2)

*Skip To: End of Survey If Participant Informed Consent Identifying Collegiate Athletes' Motivation for Physical Activity Wh... = No, I do not consent to participate in this research.*

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Page Break

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Age: Please provide your age?

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*Skip To: End of Survey If Condition: Please provide your age. Is Less Than 18. Skip To: End of Survey.*

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Page Break

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Exclusion Criteria: Were you eligible through the NCAA and actively participating in your sport when quarantine was imposed?

Yes (1)

No (2)

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Page Break

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Sex: What is your biological sex?

Male (1)  Female (2)

Other (3)

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Page Break

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Ethnicity: How would you describe yourself? Please select all that apply.

White (1)

Black or African American (2)

American Indian or  
Alaska Native (3)

Asian (4)

Native Hawaiian or Pacific Islander (5)

Other (6)

Prefer not to indicate (7)

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Sport:

What sport do you participate in?  Womens swim & dive (1)  Volleyball (2)  Football (3)  
 Womens track & field / cross country (4)  Rifle (5)  Softball (6)  Baseball (7)   
Womens basketball (8)  Mens basketball (9)  Mens tennis (10)  Womens tennis (11)   
Mens golf (12)  Womens golf (13)  Mens soccer (14)  Womens soccer (15)

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SMS-II:

The following questionnaire asks "Why do you play your sport?". We would like you to specifically think about your time during quarantine and base your answers on what motivated you to continue your training and engage in physical activity while away from your team.

Please select the most accurate answer on the 7-point scale for each statement.

1 = Not at all true  
4 = Somewhat true  
7 = Very true

1      2      3      4      5      6      7

Because people around me reward me when I do. ( )	
Because it gives me pleasure to learn more about my sport. ( )	
Because I would feel bad about myself if I did not take the time to do it. ( )	
Because practicing sports reflects the essence of whom I am. ( )	
Because through sport, I am living in line with my deepest principles. ( )	
Because I think others would disapprove of me if I did not. ( )	
Because it is very interesting to learn how I can improve. ( )	
So that others will praise me for what I do. ( )	
Because I have chosen this sport as a way to develop myself. ( )	
It is not clear to me anymore; I don't really think my place is in sport. ( )	
Because it is one of the best ways I have chosen to develop other aspects of myself. ( )	
Because I feel better about myself when I do. ( )	
Because I find it enjoyable to discover new performance strategies. ( )	
Because I would not feel worthwhile if I did not. ( )	
Because participating in sport is an integral part of my life. ( )	
Because people I care about would be upset with me if I didn't. ( )	
Because I found it is a good way to develop aspects of myself that I value. ( )	
I used to have good reasons for doing sports, but now I am asking myself if I should continue. ( )	



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End of Block: Demographics

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BNSSS:

The following questions are about your specific sport. Please indicate how often you have felt this way by choosing a number from 1 to 7. 1 means "not true at all" and 7 means "very true." There are no right or wrong answers, so please answer each question as honestly as you can.












Please select the most accurate answer on the 7-point scale for each statement.

1 = Not at all true

4 = Somewhat true

7 = Very true

	1	2	3	4	5	6	7
I can overcome challenges in my sport. ()							
I am skilled at my sport. ()							
I feel I am good at my sport. ()							
I get opportunities to feel that I am good at my sport. ()							
I have the ability to perform well in my sport. ()							
In my sport, I get opportunities to make choices. ()							
In my sport, I have a say in how things are done. ()							
In my sport, I can take part in the decision-making process. ()							
In my sport, I get opportunities to make decisions. ()							

In my sport, I feel I am pursuing goals that are my own. ()	
In my sport, I really have a sense of wanting to be there. ()	
In my sport, I feel I am doing what I want to be doing. ()	
I feel I participate in my sport willingly. ()	
In my sport, I feel that I am being forced to do things that I don't want to do. ()	
I choose to participate in my sport according to my own free will. ()	
In my sport, I feel close to other people. ()	
I show concern for others in my sport. ()	
There are people in my sport who care about me. ()	
In my sport, there are people who I can trust. ()	
I have close relationships with people in my sport. ()	

## APPENDIX D

## IRB DOCUMENT



RESEARCH INTEGRITY

**Institutional Review Board (IRB)**

Veazey Hall 3000  
 PO Box 8005 • STATESBORO, GA 30460  
 Phone: 912-478-5465  
 Fax: 912-478-0719  
[IRB@GeorgiaSouthern.edu](mailto:IRB@GeorgiaSouthern.edu)

**To:** Jamison, Delaney  
 Mutchler, Jessica; Harris, Brandonn; Wilson, Charles

**From:** Eleanor Haynes, Director, Research Integrity

**Approval Date:** December 22, 2020

**Subject:** Approval with Conditions from the Georgia Southern University Institutional Review Board – Exempt/Limited Review

After a review of your proposed research project numbered: “[H21179](#)” titled: “[Identifying Collegiate Athletes' Motivation for Physical Activity While in Quarantine](#),” it appears that (1) the research subjects are at minimal risk, (2) appropriate safeguards are planned, and (3) the research activities involve only procedures which are allowable.

Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that the Institutional Review Board has approved your proposed research with the understanding that you will abide by the following conditions:

- Please be aware that the format by which you plan to collect your data appears to fall under the requirements of the [Georgia Southern University Survey Policy](#). Your IRB approval does not address your access to the GS email system for survey research purposes. Once you have received IRB approval for your research methodology, the IRB approval will be conditioned upon you taking the additional step of submitting your survey delivery methodology for President's council approval through the [Provost's office](#) (faculty, student) or the [Office of Institutional Research](#) (Staff, NonGS affiliates).

According to the Code of Federal Regulations Title 45 Part 46, your research protocol is determined to be exempt from full review under the following exemption category(s):

**Exemption 2** Research involving only the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, if: Information obtained is recorded in such a manner that human participants cannot be identified, directly or through identifiers linked to them. Please visit our FAQ's for more information on anonymous survey platforms; Any disclosure of the human participant's responses outside the research could not reasonably place the participant at risk of criminal or civil liability or be damaging to the participant's financial standing, employ-ability or reputation; Survey or interview research does not involve children; The research project does not include any form of intervention.

Any alteration in the terms or conditions of your involvement may alter this approval. *Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that your research, as submitted, is exempt from IRB approval. You will be asked to notify the IRB upon project completion. If you alter the project, it is your responsibility to notify the IRB and acquire a new determination of exemption.*