THE INFLUENCE OF TRAINING STATUS ON MOOD

Honors Thesis

Presented in Partial Fulfillment of the Requirements
For the Degree of Bachelor of Science in Sport and Movement Science

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By

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Abstract

INTRODUCTION: Research has shown that regular exercise can favorably influence mood, but it is unclear if there is a threshold whereby too much exercise can negatively affect mood. Given the limited research in the area, we adopted the null hypothesis that there is no relation between training status and mood. PURPOSE: To survey the influence of training status on mood. METHODS: The present study conducted a cross-sectional survey of the undergraduate day-student population at Salem State University. Participants were primarily recruited by using email, social media, and word-of-mouth. Survey responses are anonymous, and no personal identifiers were collected. The target sample size to attain a 95% confidence interval is 358 students. The main tool that was used to measure mood was the validated Brunel Mood Scale. The Borg RPE scale is the main tool that was used to measure exercise intensity. These tools have been implemented into the survey using SurveyMonkey. RESULTS: Out of the eight subscales of the BRUMS, the strongest association between mood and exercise was related to VIGOUR, which has moderate positive associations with the number of exercise days and intensity of exercise, indicating that people who exercise more frequently, especially at higher intensities, tend to report higher levels of Vigour. CONCLUSION: Due to the limited number of responses, it has been concluded that more research needs to be done to validate any correlation data found in this study.

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Introduction

Exercise is extremely beneficial for the body and the mind. Studies have shown that positive effects of exercise include, but are not limited to, balance (Papalia et al., 2020), bone density (Gader, 2018) muscle strength and size (Krzystofik et al.,2019), and cardiac health (Nystoriak and Bhatnagar, 2018). To contrast these benefits, physical inactivity elevates the chances of all-cause mortality, CVD mortality, cancer risk, and risks for metabolic and musculoskeletal diseases (Park et al., 2020). While exercise is typically correlated with physical health, it can also positively influence mood by reducing depression, anxiety, and negative mood (Sharma et al., 2006). A low mood can be defined as negative feelings such as sadness, anger, frustration, tiredness, preoccupation, anxiety, low self-esteem, or any combination of these feelings. A low mood lasting two or more weeks can be a sign of depression (NHS inform, 2023). While low mood isn't always a sign of depression, it is important to understand their relationship as the incidence of depression is quite significant: an estimated 21 million citizens (18+) in the United States had experienced some sort of depressive episode in 2021. This number represents about 8.3% of the population (National Institute of Health, 2023).

Mood can be described as "a temporary state of mind or feeling". Although temporary, the duration of these mood "bursts" can be quite inconsistent. Benefits of a good mood can include, but are not limited to 1) improved relationships, both qualitatively and quantitatively; 2) improved productivity; 3) improved healthy behaviors (such as exercise); 4) improved immune function; 5) increased predicted longevity (De Neve et al., 2013). A positive mood can set you up for a very successful life; however, as humans, we cannot maintain a positive mood 24/7.

Like a positive mood, a poor or low mood can also impact your day-to-day life by contributing to digestive disorders, sleeping issues, and a lack of energy (Harvard Medical School, n.d.).

Physical activity can be defined as any skeletal muscle movement that produce energy expenditure. However, for the sake of this study, we want to narrow that definition down to intentional exercise (activity requiring physical effort, carried out to sustain or improve health or fitness), such as walking, running, resistance training, HIIT, etc.

Research aims

The main goal of this study was to investigate the impact of training frequency on mood. While the positive effects of regular exercise on mood are well-documented, it's not clear whether there's a point at which too much exercise starts to have a negative effect on mood. Previous research has largely focused on the short-term mood improvements that come immediately after exercising. Our research, however, sought to understand how different levels of exercise frequency might affect mood over the long term. This is crucial because if we find that higher levels of training are associated with a worse mood compared to lower levels, this information could be valuable for tailoring exercise recommendations to enhance mood. Given the limited amount of research examining the long-term mood effects of various levels of exercise, we started with the hypothesis that there is no significant link between the amount of exercise someone does and their mood.

Methods

General Design:

A Cross-sectional survey of students at Salem State University was undertaken. Participants were recruited by word-of-mouth, email, and social media. The email recruitment process was initiated by emailing invitations directly to students known to the researchers and these participants were also free to share the IRB approved survey invitation with their peers. Professors were also asked to share the approved invitation text with faculty for distribution.

The approach to recruitment was designed to be respectful and non-intrusive. Potential participants were given the option to opt out of the survey when they first accessed it on a web-enabled device and could discontinue their participation at any point. What's more, to ensure sensitivity to status relationships in the recruitment process, it was emphasized that survey completion is always voluntary. We hope that this approach mitigated any perceived pressure that could arise from hierarchical dynamics, ensuring that consent to participate is fully informed and freely given. This recruitment strategy was carefully designed to respect the autonomy of potential participants, aligning with the ethical standards and principles upheld by the Institutional Review Board.

Population

This study explored the relationship between mood and training status of Salem State University (SSU) undergraduate day students. Inclusion criteria included Salem State University undergraduate day students who are at least 18 years of age. Anyone who was not an SSU student and/or was not 18+ years old was excluded from the data. In the fall of 2022, Salem State University had ~5078 undergraduate students. To obtain a 95% confidence level with a 5% margin of error, a sample size of 358 students needed to be recruited to the survey

(SurveyMonkey: Sample Size Calculator).

Survey Tools

Surveys were administered using SurveyMonkey and all surveys taken were anonymous. The validated Brunel Mood Scale (BRUMS) was used to survey student mood, while a series of questions related to training frequency, intensity, and participation were also used to identify training status.

The Brunel Mood Scale: The Brunel Mood Scale (BRUMS) is a concise tool designed to assess mood states in adolescents and adults. It features 32 mood descriptors like angry, energetic, nervous, and unhappy, rated on a 5-point scale from 0 (not at all) to 4 (extremely). Respondents reflect on their current mood, their mood over the past week, or their typical mood, with completion taking 1-2 minutes. The BRUMS is divided into eight subscales—anger, confusion, depression, fatigue, tension, and vigour, calmness, and happy—each with four items. Subscale scores range from 0 to 16. Developed and validated through studies by Terry, Lane (University of Wolverhampton, UK) and colleagues, the BRUMS is effective for both adolescent and adult populations. See Appendix A for specific questions.

Training status: This survey section asked about participants' exercise habits, covering the types of exercise they engage in, such as walking, running, biking, lifting weights, playing sports, or any other activities they might perform. It also queries the frequency of their exercise routines, asking how many days per week they engage in physical activity at various levels of intensity, ranging from no exertion at all to extremely hard or maximal exertion. The rationale behind these

questions was to gather detailed information on the participants' physical activity patterns, including the mode, frequency, and intensity of their workouts. This data is crucial for understanding how different types of exercise and their associated intensities might influence mood, allowing the study to more accurately assess the relationship between exercise habits and mood variations among the participants. See Appendix A for specific questions.

Background questions: The survey included background questions to verify participant eligibility (such as informed consent, age, and enrollment status) and to identify external factors that could impact mood beyond training status. This included an anonymous question about the influence of activities or medications on mood. This question aimed to pinpoint external variables that may affect mood, ensuring that the study's results more accurately represent the connection between training status and mood by considering these factors. It seeked detailed information on the nature, frequency, and length of any activities or medications that could alter mood, thereby helping to distinguish the specific impact of training status from other mood-influencing elements. This survey also collected de-identified demographic information, including ethnic background, gender identification, and LGBTQ+ identity, to analyze how mood and training status vary across different ethnic groups, genders, and within the LGBTQ+ community. This approach enabled a more comprehensive understanding of potential trends and differences in mood and exercise habits related to these demographic factors. See Appendix A for specific questions.

Asking these questions allowed researchers to gather comprehensive data while respecting participants' rights and ensuring that the study's conclusions are as accurate and generalizable as possible within the context of the surveyed population.

Analysis

As mentioned previously, survey responses were anonymous. All questions in the survey were made mandatory as the relationships between the questions and responses throughout the survey were equally important in the analysis process. Data was analyzed through Microsoft Excel and through SurveyMonkey's result-analysis features such as 'filter', 'compare', and 'show'. These tools allowed the data to be converted into comprehensible information to better understand the influence of training status on mood.

Ethical considerations

The primary goal of this research was to investigate the impact of training frequency on mood among undergraduate students at Salem State University. The study was motivated by the documented benefits of exercise on physical health and mood, and aimed to address the gap in understanding the long-term mood effects of varying exercise frequencies. Specifically, it sought to determine whether there exists a threshold at which the frequency of exercise might begin to have a negative effect on mood.

Participants in this study were recruited from Salem State University through various methods and asked to complete a survey after giving their consent. The survey verified their eligibility, collected anonymous demographic information, assessed their mood using the Brunel Mood Scale, inquired about their exercise habits, and identified any external factors that may influence

mood. This structured approach aimed to comprehensively analyze the relationship between training frequency and mood among university students while ensuring ethical standards are maintained.

Research participants for this study were chosen from the undergraduate day student population at Salem State University. The selection process was designed to be inclusive yet specific to the study's needs, based on the following criteria:

Inclusion criteria:

- Age: Participants must be 18 years of age or older to ensure they can legally provide consent to partake in the study.
- Enrollment Status: Only individuals currently enrolled as undergraduate day students at Salem State University are eligible to participate. This criterion ensures the study focuses on a specific educational and demographic group, allowing for more targeted analysis of mood and training status relationships.

Exclusion criteria:

- Non-SSU Students: Anyone not enrolled at Salem State University, including those affiliated with other institutions or the general public, will be excluded from participating. This exclusion criterion maintains the study's focus on the SSU student body.
- Underage Individuals: Potential participants under the age of 18 will be excluded due to legal and ethical considerations regarding consent.

- Non-Day Students: Evening, online, or part-time students might have different lifestyle patterns affecting mood and exercise habits and are therefore excluded to keep the study population homogeneous.

Participants were recruited through a combination of word-of-mouth, email invitations, and social media. The recruitment strategy was designed to be respectful and non-intrusive, with an emphasis on the voluntary nature of participation. Potential participants were given the option to opt out at first access of the survey and could discontinue their participation at any time. This approach to selecting and recruiting participants was intended to create a sample that is representative of the broader undergraduate day student population at Salem State University, while ensuring the research adheres to ethical standards and achieves its objectives effectively.

The study did not collect any information that identifies participants. The survey was designed to be anonymous, ensuring that participants' responses cannot be traced back to them personally. This approach respects participant privacy and adheres to ethical standards for conducting research, particularly in sensitive areas such as mood and exercise habits.

The information was collected through an anonymous online survey hosted on SurveyMonkey, ensuring no identifying details were gathered. To safeguard confidentiality, responses were stored securely on SurveyMonkey’s platform, accessible only to the research team. The survey's design emphasized anonymity from the outset, with no collection of names, email addresses, or any other personal identifiers. This approach, combined with secure storage and restricted access, ensured that participant confidentiality was maintained throughout the study.

The research presented minimal risks to participants, primarily related to potential discomfort or emotional distress when reflecting on personal mood states or exercise habits. Given the focus on

mood and training frequency, some individuals may have experienced unease or stress while considering their physical activity levels or mood fluctuations. However, these risks were considered low and are common in surveys assessing psychological or behavioral factors. To mitigate these risks, the survey included clear instructions that participation is voluntary, with participants free to withdraw at any time without any negative consequences.

Participating in this study offered indirect benefits to participants rather than direct personal gains. Participants may have experienced increased self-awareness regarding their mood states and exercise habits as they reflected on these aspects through the survey questions. This introspection could have potentially encouraged individuals to consider the impact of their physical activity levels on their mood and overall mental health, possibly motivating positive changes in their exercise routines or approaches to mood management. Additionally, by contributing to research that sought to understand the relationship between training frequency and mood, participants aided in the development of knowledge that could inform future exercise recommendations aimed at enhancing mental well-being.

This research on the impact of training frequency on mood could offer significant societal benefits by enhancing understanding of the exercise-mood relationship, informing targeted exercise recommendations for mental well-being, influencing public health strategies to promote physical activity for mental health, and guiding educational and clinical practices. Additionally, it can spur future interdisciplinary research, contributing to improved mental health outcomes, public health policies, and overall quality of life through evidence-based insights into physical activity's role in mood regulation and mental health improvement.

The consent process for the study began with participants encountering a consent form upon accessing the online survey, which detailed the study's purpose, procedures, duration, and

emphasized voluntary participation. The details of this are found in Appendix B: Participant Information Sheet. It assured anonymity and confidentiality of responses, explained the right to withdraw at any time without consequence, and provided contact information for any inquiries. Participants needed to acknowledge understanding and agree to participate before accessing the survey questions, ensuring they made an informed decision about their involvement.

Results

Table 1: Correlation Matrix

	How many days per week do you…					
	…exercise?	…exercise at no exertion at all?	…exercise at a very light to light intensity?	…exercise at a somewhat hard intensity?	…exercise at a hard to very hard intensity?	…exercise at an extremely hard to maximal exertion intensity?
ANGER	-0.38	-0.10	0.15	-0.06	-0.12	-0.09
TENSION	-0.16	-0.15	0.12	0.03	0.09	0.09
DEPRESSION	-0.25	-0.10	-0.03	-0.13	-0.01	0.14
VIGOUR	0.48	0.11	-0.09	0.37	0.50	0.38
FATIGUE	-0.23	-0.17	0.09	-0.05	-0.01	-0.01
CONFUSION	-0.21	-0.08	0.07	-0.01	0.08	0.03
HAPPY	0.14	0.11	-0.04	-0.09	0.16	0.02
CALMNESS	0.24	0.05	-0.11	-0.04	0.16	0.15

Key Findings from Correlational Data

- The strongest associations observed are related to Vigour, which has moderate positive associations with the number of exercise days ($r = 0.48$), and intensity of exercise ($r = 0.50$), indicating that people who exercise more frequently, especially at higher intensities, tend to report higher levels of Vigour.
- Negative emotions such as Anger, and the number of exercise days had a weak negative association ($r = -0.38$), while Depression, Fatigue, and Confusion had weak negative associations with the number of exercise days, suggesting that more exercise might be linked with lower levels of these negative emotions, though the association is not strong.
- There's a positive, though weak, association between Calmness and the number of exercise days, as well as with the intensity of exercise, implying some connection between exercise and increased feelings of Calmness.

- Happy shows very weak positive associations with the number of exercise days and intensity, indicating that there may be a slight connection between exercise and happiness, but it is not a strong one.
- It's important to reiterate that correlation does not imply causation; these associations could be influenced by various other factors. Additionally, the weak associations observed might not be practically significant despite being statistically significant.

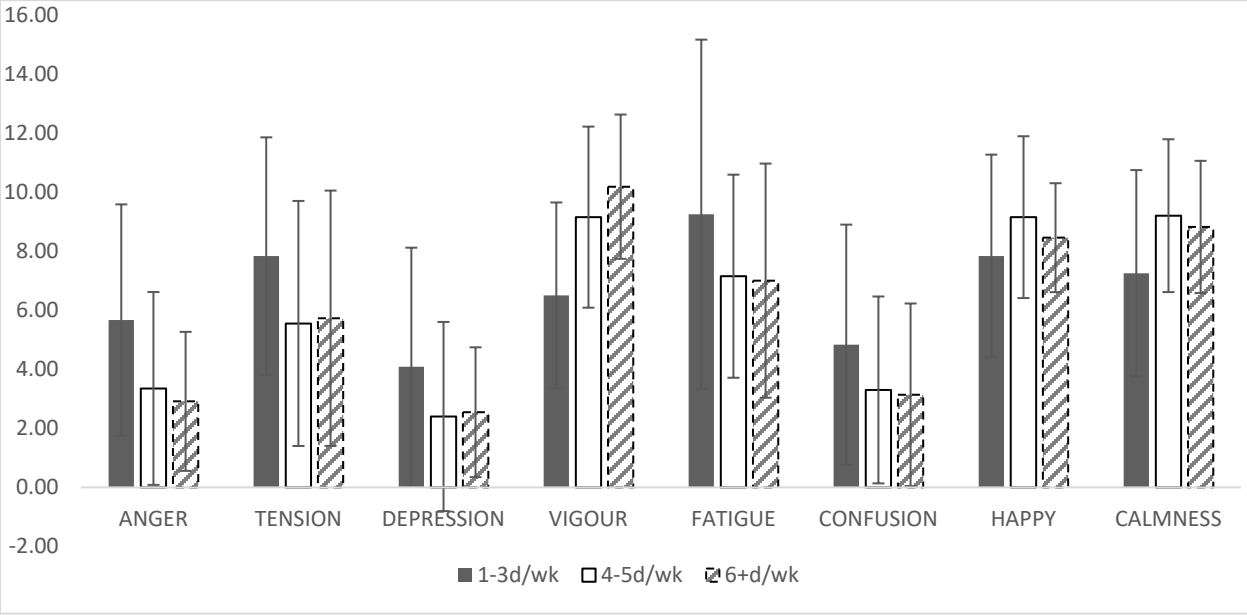

Figure 1. Brunel Mood Subscales by the number of days per week respondents exercise.

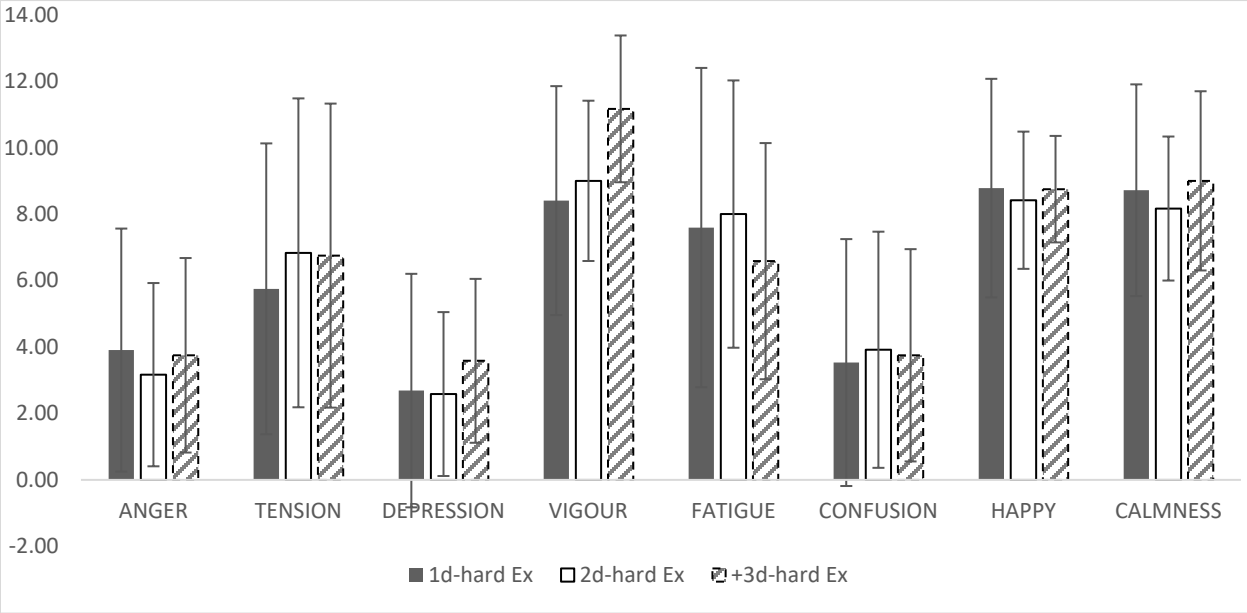

Figure 2: Brunel Mood Subscales by the number of days per week respondents exercise at a hard or extremely hard to maximal exertion.

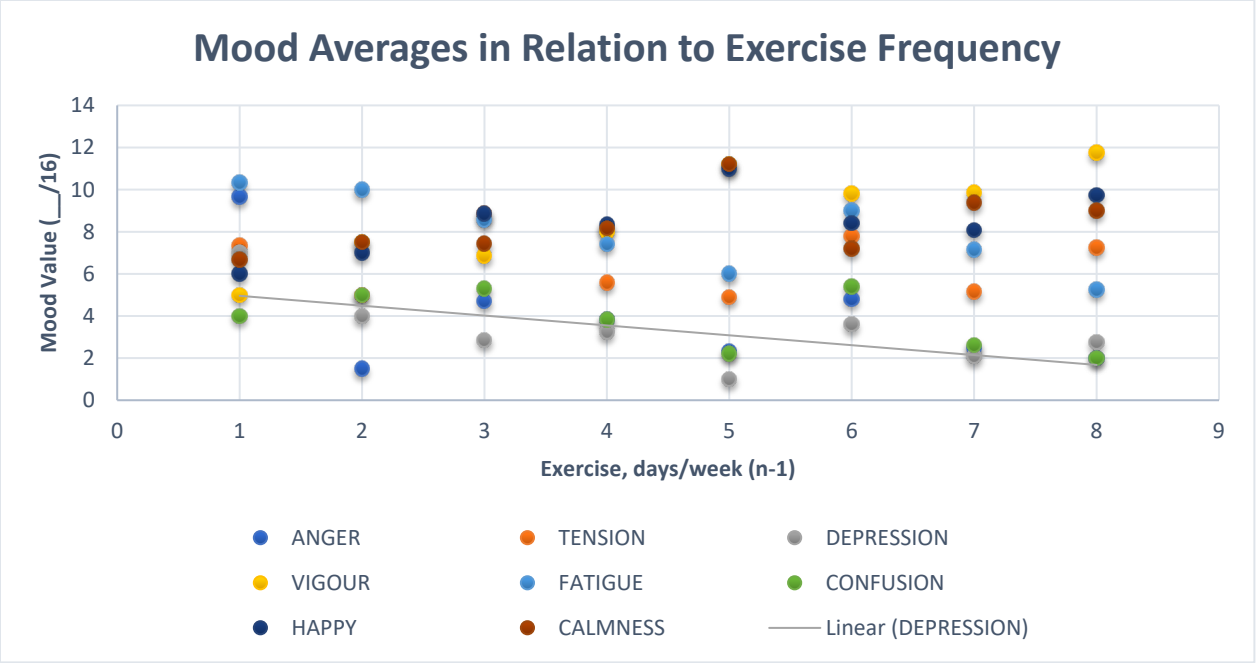

Figure 3: Visualization of correlation using linear trendline of DEPRESSION from subscale scores related to exercise frequency.

Discussion

Table 1 illustrates many different possible relationships between training status and mood. As noted in the *Key Findings from Correlation Data* section of the results, the strongest associations observed are related to Vigour, which has moderate positive correlations with the number of exercise days and intensity of exercise. These correlations indicate that those who exercise more frequently *and* at higher intensities tend to report higher levels of Vigour. Interestingly enough, it can be seen in the correlation matrix that Vigour peaks when exercise intensity is classified as hard to very hard, and the intensities below (somewhat hard) and above (very hard to maximal exertion) are lower, *possibly* supporting the claim that there is a maximal threshold for exercise to affect mood.

Negative emotions such as Anger, Depression, Fatigue, and Confusion all had weak negative associations with the amount of exercise days, suggesting that more exercise might be linked with lower levels of these negative emotions. This association can be seen in Figure 3, which uses a linear trendline to visualize the correlation between exercise days and how strongly depression is felt.

Happy and Calmness display weak and very weak (respectively) positive associations with the amount of exercise days and intensity, indicating that more exercise may improve these sensations.

Target sample size to obtain a 95% confidence interval with a 5% margin of error was 358 students. Of the 84 responses to the survey, only 55 could be used for data analysis after data exclusion. Because of the low sample size, data from this study is *not* statistically significant. That being said, correlation data seems to suggest mood improvements with increased exercise frequency and intensity; however, it is important to remember that correlation does imply causation. A greater sample size needs to be recruited and analyzed before any claim about training status and mood can be made.

Conclusion

Data obtained from this survey indicates that there may be a link to higher exercise frequency and lower levels of negative moods such as anger, depression, fatigue, and confusion. Additionally, there are positive correlations for calmness and vigour as exercise frequency and intensity rises. However, due to a low sample size (n=55), this data cannot be considered statistically significant. It has been concluded that more data needs to be obtained on this subject before any claims about the influence of training status on mood are made.

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Appendix A: Survey Questions

Introduction and Consent:

This survey aims to identify the relationship between mood and training status in University students. Data will be collected on individual mood and exercise habits including mode, frequency, and intensity. This survey is intended for Salem State University undergraduate day students and should take about 6 minutes to complete.

View the Participant Information Sheet for further details.

Select 'yes' below if you consent to take part in this survey.

1. This survey aims to identify the relationship between mood and training status in University students, focusing on individual mood and exercise habits including mode, frequency, and intensity. Do you consent to partake in this survey? Participation is voluntary and responses are anonymous. Y/N

Eligibility:

2. Are you 18+ years of age? Y/N

3. Are you currently enrolled in Salem State University as an undergraduate day student? Y/N

Demographic Information:

4. Choose one option that best describes your ethnic group or background:

    - Asian / Pacific Islander
    - Black or African American
    - Hispanic American
    - White / Caucasian
    - Multi-Racial
    - Prefer to self-describe (Please specify)

5. What best describes your gender?

    - Male
    - Female
    - Non-binary
    - Prefer to self-describe (Please specify)

6. Please select your sexual orientation (select all that apply):

    - Heterosexual.
    - Gay.
    - Lesbian.
    - Bisexual.
    - Asexual.
    - Prefer not to say.

- Prefer to self-describe (Please specify)

Exercise and Mood Influences:

7. Are you currently engaging in any activities (e.g., meditation, yoga) or taking any form of medication or supplements that are known to influence mood? Y/N, prefer not to say.

The Brunel Mood Scale (BRUMS)

Below is a list of words that describe feelings people have. Please read each one carefully. Then circle the answer that best describes **HOW YOU FEEL RIGHT NOW**. Make sure you respond to every word

	Not at all	*A little*	*Moderately*	*Quite a bit*	*Extremely*
1. Active	0	1	2	3	4
2. Alert	0	1	2	3	4
3. Angry	0	1	2	3	4
4. Annoyed	0	1	2	3	4
5. Anxious	0	1	2	3	4
6.Bad tempered	0	1	2	3	4
7. Bitter	0	1	2	3	4
8. Calm	0	1	2	3	4
9. Cheerful	0	1	2	3	4
10 Composed	0	1	2	3	4
11.Confused	0	1	2	3	4
12.Contented	0	1	2	3	4
13. Depressed	0	1	2	3	4
14.Downhearted	0	1	2	3	4
15. Energetic	0	1	2	3	4
16. Exhausted	0	1	2	3	4
17. Happy	0	1	2	3	4
18. Lively	0	1	2	3	4
19. Miserable	0	1	2	3	4
20. Nervous	0	1	2	3	4
21. Panicky	0	1	2	3	4
22. Relaxed	0	1	2	3	4
23. Restful	0	1	2	3	4
24. Satisfied	0	1	2	3	4
25. Sleepy	0	1	2	3	4
26. Tired	0	1	2	3	4
27. Uncertain	0	1	2	3	4
28. Unhappy	0	1	2	3	4
29. Worn-out	0	1	2	3	4
30. Worried	0	1	2	3	4
31. Mixed-up	0	1	2	3	4
32. Muddled	0	1	2	3	4

SCORING FOR THE BRUMS-32 (Add the responses for the responses to each of the subscales)

Subscale	**Scores**	**Total**
Anger	ANGRY____ + ANNOYED____ + BAD TEMPERED____ + BITTER____	
Tension	ANXIOUS____ + NERVOUS____ + PANIC____ + WORRY____	
Depression	DEPRESSION____+ DOWNHEARTED____+ MISERABLE____ + UNHAPPY____	
Vigour	ACTIVE____ + ALERT____ + ENERGETIC____+ LIVELY____	
Fatigue	EXHAUSTED____+ SLEEPY____+ TIRED____+ WORN-OUT____	
Confusion	CONFUSED____ + UNCERTAIN____ + MIXED-UP____+ MUDDLED____	
Happy	CHEERFUL____ + CONTENT____+ HAPPY____+ SATISFIED____	
Calmness	CALM____ + COMPOSED____+ RELAXED____+ RESTFUL____	

Exercise Habits

The following questions will ask you about your exercise habits, including mode, frequency, and intensity.

1. What type of exercise(s) do you perform?
    a. Walking
    b. Running
    c. Biking
    d. Lifting weights
    e. Playing sports
    f. Other (specify)
2. How many days per week do you exercise?
3. How many days per week do you exercise at *no exertion at all?*
4. How many days per week do you exercise at a very light to light intensity?
5. How many days per week do you exercise at a somewhat hard intensity?
6. How many days per week do you exercise at a *hard to very hard* intensity?
7. How many days per week do you exercise at an *extremely hard to maximal exertion* intensity?

Appendix B: Participant Information Sheet

Participant Information Sheet

Title of Study: The Impact of Training Frequency on Mood Among University Students

Student Researcher: Greg Gentle, Department of Sport & Movement Science, Exercise Science, Salem State University.

Supervisor: Dr. Jason Gillis, Associate Professor, Department of Sport & Movement Science, Exercise Science, Salem State University.

Introduction: Thank you for considering participation in our research study. This document provides important information to help you make an informed decision about participating. Please read it carefully and feel free to contact us if you have any questions.

Purpose of the Study: This study aims to investigate how different frequencies of physical exercise impact mood among university students. We seek to understand if there is a specific level of exercise frequency that optimizes mood enhancement, contributing to both physical and mental well-being.

What Will Happen In the Study: If you agree to participate, you will complete an online survey that asks about your exercise habits, including the type, frequency, and intensity of your workouts, and assesses your mood using the Brunel Mood Scale (BRUMS). The survey is expected to take approximately 6 minutes to complete.

Voluntary Participation: Your participation in this study is entirely voluntary. You have the right to withdraw at any stage without penalty or loss of benefits to which you are otherwise entitled.

Confidentiality: Your responses will be anonymous, and no personal identifying information will be collected. All data will be stored securely and accessible only to the research team for analysis purposes.

Risks and Benefits: The risks associated with participation are minimal and primarily involve potential discomfort from reflecting on personal mood states or exercise habits. While there are no direct benefits to you, your participation will contribute valuable insights into the relationship between exercise and mood, potentially informing public health recommendations and exercise guidelines.

Right to Withdraw: You can withdraw your consent and discontinue participation at any time without any negative consequences.

Contact Information: If you have any questions about the study, please feel free to contact Greg Gentle g_gentle@salemstate.edu

Consent: By proceeding to the survey, you acknowledge that you have read and understood this information sheet, and consent to participate in the study.

Thank you for considering participation in our research. Your contribution is invaluable to advancing our understanding of the relationship between exercise and mood.

Appendix C: Email Text

Subject: Invitation to Participate in a Study on Exercise and Mood at SSU

Dear [recipient],

I hope this message finds you in good spirits. As a Commonwealth Honors student working on my senior thesis, I'm excited to invite you to take part in a survey that investigates how exercise habits influence mood among SSU undergraduate students.

Your involvement will offer crucial insights into the effects of various exercise frequencies on mood, which could help shape future guidelines for exercise to enhance mental health.

Study Overview: The purpose of this study is to understand the impact of exercise frequency on mood. Participation involves completing a short, anonymous online survey about your exercise habits and mood states. The survey is designed to be both quick and easy, taking no more than a few minutes of your time.

Why Participate?

- **Contribute to important research** that could help improve exercise guidelines for enhancing mood and mental well-being.
- **Reflect on your own exercise habits** and mood, contributing to self-awareness.

Eligibility:

- You must be an undergraduate day student at Salem State University.
- You must be 18 years of age or older.

Participation Details:

- The survey is entirely voluntary, and you can choose to withdraw at any time.
- Your responses will be anonymous to ensure privacy and confidentiality.

How to Participate: If you're interested in participating, please click the link below to access the survey: https://www.surveymonkey.com/r/M6YJDCN

Should you have any questions or need further information, please don't hesitate to contact us by email [g_gentle@salemstate.edu]. We're more than happy to provide additional details or address any concerns you may have.

Thank you for considering this opportunity to contribute to our understanding of exercise and mood. Your participation is invaluable to us and could lead to significant benefits for both the university community and broader public health efforts.

Warm regards,

Greg Gentle, Commonwealth Honors Student, Department of Sport & Movement Science, Exercise Science