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Grit of First- and Second-Year Physical Therapy Students: A Pilot Study

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GRIT OF FIRST- AND SECOND-YEAR PHYSICAL THERAPY STUDENTS:
A PILOT STUDY

By

Brianne Halbur

Alison Kopp
Bachelor of Science
University of North Dakota, 2017

A Scholarly Project Submitted to Graduate Faculty of the

Department of Physical Therapy
School of Medicine and Health Science

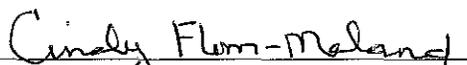
University of North Dakota

In partial fulfillment of the requirements for the degree of

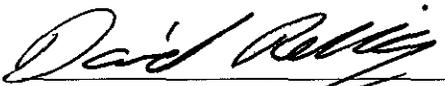
Doctor of Physical Therapy

Grand Forks, North Dakota
May 2019

This Scholarly Project, submitted by Alison Kopp and Brianne Halbur in partial fulfillment of the requirements of the Degree of Doctor of Physical Therapy from the University of North Dakota, has been read by the Advisor and Chairperson of Physical Therapy under whom the work has been done is hereby approved.



(Graduate School Advisor)



(Chairperson, Physical Therapy)

PERMISSION

Title GRIT AND DETERMINATION OF DOCTOR OF PHYSICAL
THERAPY STUDENTS: A PILOT STUDY

Department Physical Therapy

Degree Doctor of Physical Therapy

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Signature Alison Kopf
Date 11-6-18

Signature Brianne M. Hill
Date 11-6-18

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Abstract

Background and Purpose: The purpose of this pilot study was to compare year-one and year-two student physical therapists grit scores using Angela Duckworth's 12 question Grit survey to investigate if there were correlations between the Grit score, GPA, age, or gender. The results of this pilot study will help shape further research on using Grit score as an indicator for academic success and hardship for students in strenuous programs.

Methods: The Grit-O scale was distributed to both second and first year Doctor of Physical Therapy (DPT) students at the University of North Dakota by the primary investigator. There were 105 student participants total, 53 first-years and 52 second-years, who consented to the study and having demographic info pulled. The demographic data was pulled and coded by a non-blinded faculty member, and this data along with the coded Grit-O scores for each of the participants was put into a spreadsheet by student researchers for comparison.

Results: Following SPSS data analysis with both parametric and non-parametric measures, there were no significant findings when comparing overall grit score, age, and various GPA scores of year-one and year-two physical therapy students. Seventy-five percent of students (year 1 and 2) grit scores were at or above 3.63, with the mean $M=3.85$ and median score being 3.92. There were two grit scores that were significantly lower than the rest of the participants, which may have influenced the results.

Discussion: Mental health is a topic that is being discussed and looked into with increasing frequency throughout campuses. Being able to use the Grit score may help identify, or provide universities with a baseline tool, to help recognize and measure at risk students objectively. There are limitations with using the grit score to predict academic success, and there is need for further research on the topic.

CHAPTER ONE

BACKGROUND AND PURPOSE

American universities are facing a major epidemic as the awareness of the mental health of their students is coming into light. Psychiatric disorders have been reported to be prevalent in almost half of most campus populations, with less than 25% of those individuals seeking treatment for their mental health related disorders.¹ Students are in the midst of many new opportunities as they begin their journey into young-adulthood and independence, as well as pursuing the goals they are striving toward. The unfortunate outcome of this pursuit toward education and career results in increased stressors, and a challenge of the individual's resilience and grit. Research conducted gathered that 45% of undergraduate students dropped out of college due to a mental health related reason, stating they were unable to handle the increased stressors and had little knowledge or access to help.²

Mental health affects many aspects of students' lives and research has shown that even their perception of mental health has an effect on individual academic achievement.³ In a study done by the University of Minnesota (UMN),⁴ there was a link shown between mental health and grade point average. Questions on a survey completed by 9,931 UMN students inquired about the students' mental health, and how many poor mental health days the students felt they had in the past 30 days. Students who reported three or more poor mental health days had significantly lower grade point averages (GPA), than those who reported two or less, 3.14 compared to 3.26 respectively. The study showed that mental health does have a correlation with academic success for college students, and that due to the increase in mental health related issues

in college students, campuses need to come up with identification tools and resources to help meet the needs of their students. The increased awareness and prevalence of mental health among students, and its correlation to student achievement, makes it a topic that has the attention of universities.

The effect of mental health is not limited to undergraduate students, the effects of stress in graduate students is being investigated, and there is a need to research the mental health of students within different professional programs. Few research studies have been conducted specifically on the effects of stress in the doctor of physical therapy students (DPT) in United States, but one could conclude that with the increased academic load and class difficulty, increased financial burden, and the high-stakes environment of physical therapy programs, a DPT student may have a higher or equivalent stress load compared to their undergraduate studies. This added stress can complicate students achieving goals, retention rates of physical therapy schools, and ultimately damage the mental health of the young adults completing physical therapy programs.¹ A presentation led by Ellison et al⁵ addressed how the students in graduate programs have experienced overwhelming anxiety in the last 12 months and are in need of coping mechanisms, treatment resources, and nurturing strategies to maintain their resilience and increase DPT programs' retention of students and their future successes. The presentation incorporated research the team had done with Angela Duckworth's Grit and Determination scale⁶ (see appendix A), to see if there was a correlation between the Grit scores and student resilience and retention rates. Information presented to the audience of educators at an Education Leadership Conference showed that for every one point increase in 8-item Grit (Grit-S) score the likelihood of retention increases by 3.31 times for students who sought treatment for mental health.⁵ Higher scores on the survey showed more resilience, with students with lower scores at

risk for depression, anxiety, and dropping out of the program. Within a high stress program like that of physical therapy, graduate students' mental health can be affected, and has the potential to be linked to student and program outcomes.

These stressors continue to move from the DPT students' studies into their careers, as addressed in Meredith Castin's blog, "What causes physical therapy burnout?" Factors include a rising cost of education, expectation of the career vs the reality, changing reimbursement structures, unrealistic productivity demands, the traditional "pecking order" in medicine, lack of non-clinical career opportunities for physical therapists, and the glaring omission of PT (physical therapy) school education itself.⁷ Because of the noted decreasing wellness and self-care of health care professionals, the American Physical Therapy Association (APTA) has taken action at the national level, following a motion presented by the Ohio component to the 2018 APTA House of Delegates, which focuses on the advocacy and possible involvement in the National Academy of Medicine's Action Collaborative on Clinician Well-Being and Resilience. This group is an organization that utilizes "evidence-based practices to improve patient care by caring for the caregiver, raise visibility of clinician stress and burn-out, and improve understanding of baseline challenges to clinician well-being."⁸ p. 151 The goal of this motion in the APTA is to improve the physical therapist's well-being, decrease burn-out, and increase patient care. With noted action occurring at the national organization level, faculty and program directors for DPT education also have an opportunity to begin the process of well-being and self-care advocacy for their students prior to the move into the workforce.

One way to begin addressing DPT students' wellness and retention is to understand the effects of the graduate level program on individuals' resilience and grit through optional screenings and surveys. By researching and understanding DPT student grit scores, correlations

between grit score and academic success may be viewed. The value of this knowledge has great potential to foster student academic and career wellness and retention. The purpose of this pilot study is to begin diving into mental well-being of the DPT student by utilizing the 12-item Grit scale (Grit-O) developed by Angela Duckworth.⁶

Duckworth began her research to understand why some people fail in attaining their goals while others succeed. The author of the New York Times bestseller, *Grit: The Power of Passion and Perseverance*,⁶ found that individuals with high levels of grit were more likely to be high achievers who were able to attain their goals. Her research also showed that grit, defined as a combination of passion and perseverance toward a goal, also has scientific evidence to increase. Duckworth developed her scales as self-reporting questionnaires. In her research, she has shown that individuals with higher grit scores are more likely to make fewer career changes, earn higher undergraduate GPAs, progress further in formal education, and show increased satisfaction in life.^{7,8,9} Duckworth's grit scale has been shown to have incremental predictive validity and validation across many studies, including those conducted on West Point cadets, National Spelling Bee finalists, grade school children, Ivy League undergraduate students, and more.^{6, 10}

The use of the Grit-O scale will be used to identify if there are any correlations between grit, GPA, and program retention within the University of North Dakota's first and second year students. During this study, the researchers will identify any correlations between grit, academic success, and demographics in the DPT population, and identify any limitations of the Grit-O scale for this particular population. This pilot study will be used to inform a later longitudinal study, on an informed volunteer basis, with incoming DPT and doctor of occupational therapy students to the two respective programs. This pilot study was designed to study the relationship of grit to the student physical therapist and academic achievement, the possible effects on

retention, and to determine whether the Grit-O scale was a valid and reliable way to help students and programs identify issues with mental health and resiliency within DPT students.

CHAPTER TWO

METHODS

Participants

In total, 105 students completed the survey, with 53 in the first-year class, and 52 in the second-year class. Ages of the individuals ranged from 21 years to 42 years old, of whom 60 participants were women and 45 were men. The only inclusion criteria needed for the study was to be a consenting first or second year student in the DPT program at the University of North Dakota in the year of 2018.

Study Design

The pilot study was completed using the 12-Item Grit Scale Survey (Grit-O), developed by Angela Duckworth¹⁴ (see appendix A). Prior to initiating the study, Institutional Review Board (IRB) at the University of North Dakota (UND) reviewed and approved the design proposed by the investigators (see appendix B).

Procedure

The survey was administered by the primary investigator (PI), being an UND physical therapy faculty member, and two student researchers. The survey was distributed to current first and second year DPT students at UND. Along with the questionnaire, all participants were given a document of information on how their results were to be used, and factors that would be reviewed by the investigators (see appendix B). After reviewing the document, the participants were then able to consent to the study by completing and returning the survey. By consenting to the survey, students were also agreeing to have their GPA and demographic data pulled and collected from a

database by a non-blinded member of the study, whom was also a faculty member of the physical therapy program. All forms were returned to the primary investigator, who coded each survey numerically to ensure personal information was kept confidential and anonymous to the student researchers involved with data collection.

Following coding of surveys, Grit-O score data was placed onto a spreadsheet. The spreadsheet contained the numerical code numbers for the students, their birthdates, year in the DPT program, and GPA data. Each of the 12 items on the survey were entered into the spreadsheet along the row that corresponded to the students' identities and reviewed by another researcher for accuracy.

Data Analysis

Grit-O score information from completed surveys was then used to compile information on physical therapy students' ability to combine passion and perseverance for a singularly important goal. Comparison of this compiled information to demographics and student performance, as well as predicting students' academic outcomes followed. This process was completed using IBM SPSS Statistics for windows, version 25.0 software.¹¹

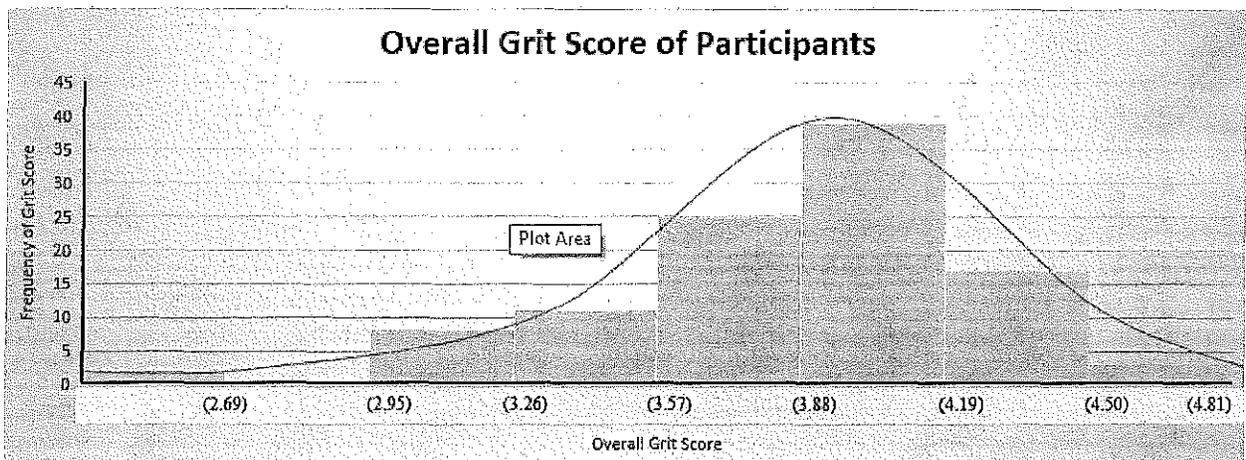
CHAPTER THREE

RESULTS

Results

Following SPSS data analysis with both parametric and non-parametric measures, there were no significant findings when comparing overall grit score, age, and various GPA scores of year-one and year-two physical therapy students. No group differences were found, therefore the cohorts were combined into one group for further analysis (n=105). Post data extraction and analysis, seventy-five percent of the students' overall grit score was at or above 3.63. The mean overall grit score was $3.85 \pm .420$, with the median score at 3.92 (interquartile range is from 3.63-4.08). Reasoning behind the higher median score compared to the mean was due to two subjects whose survey score was below 2.40, resulting in negatively skewed and clustered data, as shown in Figure 1 below.

Figure 1. Frequency of overall grit scores of participants



In Table 1 below, results are depicted for Pearson Correlation and Spearman's Rho testing, using the variables of overall grit score to GPA. Essentially the chart is using two types of correlation tools to compare the individual participants overall grit scores to their age and GPA. An alpha level of .05 was used. Neither the Pearson correlation or Spearman Rho techniques found significant correlation between grit scores and these factors, indicating that GRIT scores from these participants may not influence or connect to GPA.

Table 1 Correlations Between Overall Grit Score and GPA

Test			Age	SGPA Admit	CGPA Admit	CGPA YR 1	CGPA YR 2
Pearson Correlation	Grit Score	r	.036	.016	.037	.107	.026
		n	105	105	105	105	105
		p	.713	.874	.708	.277	.857
Spearman rho	Grit Score	r _s	.006	.001	.009	.118	.061
		n	105	105	105	105	105
		p	.953	.991	.928	.23	.668

CHAPTER FOUR

DISCUSSION AND CONCLUSION

This pilot study was designed to look at Grit-O scores of student physical therapists, and see if there were any correlations between how much grit a student had and their GPA, including their undergraduate science GPA, cumulative GPA at time of admittance into the program, cumulative year-one and year-two GPAs. The results showed that there were no significant correlations, and the overall grit scores were found to be lower than anticipated by the research team. We anticipated the average overall grit scores of the participants to be closer to 4.0. Physical therapy students can be described as high-achieving individuals, whom we would predict to have a lot of grit to partake in such a demanding program. We anticipate that the overall grit score was lower for these subjects may be due to the recent change in stigma and more receptive climate on mental health.

According to the National Alliance on Mental Illness,¹² people facing mental health often face rejection, isolation, and discrimination, making them afraid to reach out and or speak to a professional. A large turning point for mental health awareness began in 1990, when Mental Health America and the American Red Cross jointly published *When the Yellow Ribbons Come Down*, a book to help Operation Desert Storm veterans and their families cope with readjusting to life at home. Since then, numerous surveys, legislature, and awareness events have been established to raise awareness of mental illness in America and end the stigma that was once associated with those who live with a mental health disease.¹³ With less perceived judgement to coping with struggles, including those associated with anxiety or depression, we believe

individuals are more open to being honest to themselves and to those around them on their feelings and attitudes. It is this openness and honesty that we feel led to the lower than anticipated grit scores. As the researchers, we feel that this gives some insight to the rise in mental health issues in collegiate level of academia.

There were limitations of this pilot study. In a review of literature conducted by Stoffel and Cain,¹⁴ the authors found that students who demonstrated high resilience also had lower anxiety and depression scores. Mental health status, including levels of anxiety and depression, were not evaluated with the subjects in this study and one could argue, these factors may have a possible effect on grit scores. In future studies, we recommend adding a mental health questionnaire and evaluating for possible correlations noted.

Another limitation would be concerning the claim that the grit score of a person can influence or correlates to the level of academic achievement. A study from King's College London claims that grit as a personality trait adds very little to the prediction of an individual's success in academia.¹⁵ Other studies using Angela Duckworth's scale, stated by the article, that do show associations between grit and academic success have relied on, "highly selected populations."^{15, p. 781} This particular study used 4,500 sixteen-year-old twins, and compared grit scores between the set of twins, and within the whole sample, to the respective GPAs. Results showed that aspects of personality like grit only predict about .5% differences between General Certificate of Secondary Education results and success in school. Studies like these should not discredit the role grit has in a student's hardiness and determination to achieve high standards, and the first author, Kaili Rimfeld, of the study states that, "This does not mean teaching children to be grittier cannot be done or that it is not beneficial."^{15, p. 788} Overall more research is needed with larger samples to make firm conclusions on the claim of grit relating to academic success.

Concern for the validity and reliability of the 12-item grit scale versus the 8-item grit scale was also noted. The 12-item grit has been used and shown to be predictive of academic performance in elite universities based on their educational level, age, undergraduate GPA, lower SAT scores amongst undergraduates. The same study also found the scale to be predictive of final rank in the National Spelling Bee and West Point Candidate retention.¹⁰ While the 12-item grit survey proved valid and reliable, the researchers determined that they could improve upon and shorten the instrument.¹⁶ A factor analysis was completed, and the 8-item Grit scale came to be. Duckworth and Quinn¹⁶ concluded that this new scale is more “psycho-metrically stronger than the 12 item Grit-O.”^{16, p. 175} Efficiency is also noted with this scale as it contains four less questions. Through Duckworth and Quinn’s research, the validity and reliability of the 8-item Grit scale was developed and shown to be superior to that of the Grit-O scale.¹⁶

Many other academic departments have begun to dive into the predictive value of grit and GPA. For instance, a study conducted by Williams¹⁷ found that there was a positive and statistically significant relationship between grit and academic success of first- and second-year education majors. Grit research also is taking place in pharmacy programs. No correlation was found between grit and academic success in a study conducted by Palisoc et al,¹⁸ just as with this pilot study, further investigation is needed to view the role grit plays in graduate student successes in academics and future endeavors.

Recommendations moving forward for this study include the continuation of using Angela Duckworth’s Grit scale, but to switch from the Grit-O scale to the Grit-S scale due to its higher predictive validity and increased use in other areas of research. Addition of a mental health questionnaire may also be useful, as there may be possible correlating factors between mental health and grit scores among the students. With these changes, continuation of the survey

in subsequent years may be used to further investigate any correlations between grit and the DPT student. Future studies may then evolve and encompass all types of students, to further determination of the role grit plays in academic success of students. Also, with the continuation of the pilot study for subsequent years, researchers may track change in the grit scores of students from year one to year three.

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APPENDIX A

12- Item Grit Scale

Directions for taking the Grit Scale: Here are a number of statements that may or may not apply to you. For the most accurate score, when responding, think of how you compare to most people -- not just the people you know well, but most people in the world. There are no right or wrong answers, so just answer honestly!

1. I have overcome setbacks to conquer an important challenge.
 - Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all

2. New ideas and projects sometimes distract me from previous ones.*
 - Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all

3. My interests change from year to year.*
 - Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all

4. Setbacks don't discourage me.
 - Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all

5. I have been obsessed with a certain idea or project for a short time but later lost interest.*
 - Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all

6. I am a hard worker.
 - Very much like me
 - Mostly like me
 - Somewhat like me
 - Not much like me
 - Not like me at all

7. I often set a goal but later choose to pursue a different one.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

8. I have difficulty maintaining my focus on projects that take more than a few months to complete.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

9. I finish whatever I begin.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

10. I have achieved a goal that took years of work.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

11. I become interested in new pursuits every few months.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

12. I am diligent.

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

Scoring:

1. For questions 1, 4, 6, 9, 10 and 12 assign the following points:
 - 5 = Very much like me
 - 4 = Mostly like me
 - 3 = Somewhat like me
 - 2 = Not much like me
 - 1 = Not like me at all

2. For questions 2, 3, 5, 7, 8 and 11 assign the following points:
 - 1 = Very much like me
 - 2 = Mostly like me
 - 3 = Somewhat like me
 - 4 = Not much like me
 - 5 = Not like me at all

Add up all the points and divide by 12. The maximum score on this scale is 5 (extremely gritty), and the lowest score on this scale is 1 (not at all gritty).

Duckworth, A.L., Peterson, C., Matthews, M.D., & Kelly, D.R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 9, 1087-1101.

APPENDIX B

Institutional Review Board
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264 Centennial Dr Stop 7134
Grand Forks, ND 58202-7134
Phone: 701.777.4279
Fax: 701.777.6708
Email: UND.irm@research.UND.edu

May 14, 2018

Principal Investigators:	Cindy Flom-Meland, PT, PhD, NCS
Project Title:	GRIT of 1st and 2nd Year Physical Therapy Students - A Pilot Study
IRB Project Number:	IRB-201805-310
Project Review Level:	Exempt 2
Date of IRB Approval:	05/14/2018
Expiration Date of This Approval:	05/13/2021

The application form and all included documentation for the above-referenced project have been reviewed and approved via the procedures of the University of North Dakota Institutional Review Board.

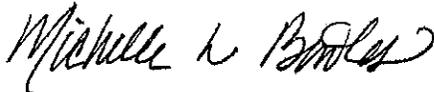
Attached is your original informed consent statement that has been stamped with the UND IRB approval and expiration dates. Please maintain this original on file. You must use this original, stamped consent form to make copies for participants. No other consent form should be used, and no signatures should be obtained from participants. Each participant must be given a copy of the informed consent statement to keep for their records.

If you need to make changes to your research, you must submit a Protocol Change Request Form to the IRB for approval. No changes to approved research may take place without prior IRB approval.

This project has been approved for 3 years, as permitted by UND IRB policies for exempt research. You have approval for this project through the above-listed expiration date. When this research is completed, please submit a Termination Form to the IRB.

The forms to assist you in filing your project termination, adverse event/unanticipated problem, protocol change, etc. may be accessed on the IRB website: <http://und.edu/research/resources/human-subjects/>

Sincerely,



Michelle L. Bowles, M.P.A., CIP
IRB Manager

MLB/sb

Enclosure

Cc: Chair, Physical Therapy (w/o attachment)

**UNIVERSITY OF NORTH DAKOTA
Institutional Review Board
Informed Consent Statement**

Title of Project: GRIT of 1st and 2nd Year Physical Therapy Students – a Pilot Study

Principal Investigator: Cindy Flom-Meland, 777-4130, cindy.flom.meland@med.und.edu

Purpose of the Study:

The purpose of this research study is to explore whether or not there is a relationship between the level of GRIT and academic retention and success.

Procedures to be followed:

You will be asked to complete a 12-question survey.

Risks:

There are no risks in participating in this research beyond those experienced in everyday life.

Benefits:

This research might provide a better understanding of how GRIT affects college students and you may learn something about yourself.

Duration:

It will take about 5 minutes to complete the questions.

Statement of Confidentiality:

The survey does not ask for any information that would identify who the responses belong to. The surveys will be coded with a number and only the Principal Investigator (PI) will know whom the code belongs to. This will allow the PI to obtain GPA information and record demographic data. The demographic data will be pulled from our database and GPA information will be obtained from the Chair of the department. Therefore, your responses are recorded anonymously. If this research is published, no information that would identify you will be included since your name is in no way linked to your responses.

Right to Ask Questions:

The researchers conducting this study are Cindy Flom-Meland, PI, Brianne Halbur and Alison Kopp. You may ask any questions you have now. If you later have questions, concerns, or complaints about the research please contact Cindy Flom-Meland at 701-777-4130.

If you have questions regarding your rights as a research subject, you may contact The University of North Dakota Institutional Review Board at (701) 777-4279. You may also call this number with problems, complaints, or concerns about the research. Please call this number if you cannot reach research staff, or you wish to talk with someone who is an informed individual who is independent of the research team.

Approval Date: MAY 14 2018

Expiration Date: MAY 13 2021

University of North Dakota IRB

General information about being a research subject can be found on the Institutional Review Board website "Information for Research Participants" <http://und.edu/research/resources/human-subjects/research-participants.cfm>

Compensation:

You will not receive compensation for your participation.

Voluntary Participation:

You do not have to participate in this research. You can stop your participation at any time. You may refuse to participate or choose to discontinue participation at any time without losing any benefits to which you are otherwise entitled.

You do not have to answer any questions you do not want to answer.

You must be 18 years of age older to consent to participate in this research study.

Completion and return of the survey implies that you have read the information in this form and consent to participate in the research.

Please keep this form for your records or future reference.

Approval Date:	<u> MAY 14 2018 </u>
Expiration Date:	<u> MAY 13 2021 </u>
University of North Dakota IRB	

University of North Dakota Exempt Certification Form -- JANUARY 2015 VERSION
Research Involving the Use of Survey, Interview, Observational Procedures or Educational Tests

Complete this form if you are requesting permission to use survey, interview, or observational procedures, or educational tests.

All research with human participants conducted by faculty, staff, and students associated with the University of North Dakota, must be reviewed and approved as prescribed by the University's policies and procedures governing the use of human subjects. No activities are to be initiated without prior review and approval by the Institutional Review Board.

Please answer the following questions regarding your research. Handwritten forms are not accepted -- responses must be typed.

1. Are prisoners included in the research? Yes No

If you answered "Yes" to the above question, this research does not qualify as exempt. Please fill out and submit a "Human Subjects Review Form". If you answered "No", continue to question 2a.

2a. Are children included in the research? Yes No

If you answered "No" to the above question, please skip question 2b and continue to question 3. If you answered "Yes", continue to question 2b.

2b. Does the research include survey or interview procedures? Does the research involve the observation of public behavior with researcher interaction with the subjects? Yes No

If you answered "Yes" to questions 2a and 2b, this research does not qualify as exempt. Please fill out and submit a "Human Subjects Review Form". If you answered "No", continue to question 3.

3a. Will the data be documented in such a manner that subjects cannot be identified, either directly or through identifiers linked to the subjects (subject name, social security number, birth date, coding, etc.)? Yes No

If you answered "Yes" to the above question, please skip question 3b and continue with the rest of the form. If you answered "No", continue to question 3b.

3b. Will the disclosure of the subjects' responses outside of the research reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation?

Yes No

If you answered "Yes" to the above question, this research does not qualify as exempt. Please fill out and submit a "Human Subjects Review Form".

4. Will the research involve the use of audio, video, digital or image recordings of subjects? Yes No

If you answered "Yes" to the above question, this research does not qualify as exempt. Please fill out and submit a "Human Subjects Review Form". If you answered "No", provide the information requested below:

Principal Investigator: Cindy Flom-Meland

Telephone: 701-777-4130

E-mail Address: cindy.flom.meland@med.und.edu

Complete Mailing Address: 1301 N. Columbia Rd, stop 9037, Grand Forks, ND 58202-9037

School/College: SMHS

Department: Physical Therapy

Student Advisor (if applicable): _____

Telephone: _____

E-mail Address: _____

Address or Box #: _____

School/College: _____

Department: _____

*** All IRB applications must include a Key Personnel Listing

Project Title: GRIT of 1st and 2nd Year Physical Therapy Students - a Pilot Study

Proposed Research Beginning Date: May 15, 2018

Exempt research will be approved for 3 years from the original approval date.

Funding agencies supporting this research: NA

(A copy of the funding proposal for each agency identified above MUST be attached to this proposal when submitted.)

YES or NO Does any researcher associated with this project have a financial interest in the results of this project? If yes, submit on a separate piece of paper an additional explanation of the financial interest. The Principal Investigator and any researcher associated with this project should have a Financial Interests Disclosure Document on file with their department.

YES or NO Will any research participants be obtained from another organization outside the University of North Dakota (e.g., hospitals, schools, public agencies, American Indian tribes/reservations)?

YES or NO Will any data be collected at or obtained from another organization outside the University of North Dakota?

If yes to either of the previous two questions, list all institutions:

Letters from each organization must accompany this proposal. Each letter must illustrate that the organization understands its involvement and agrees to participate in the study. Letters must include the name and title of the individual signing the letter and should be printed on organizational letterhead.

Does any external site where the research will be conducted have its own IRB? _____ YES or _____ NO

If yes, does the external site plan to rely on UND's IRB for approval of this study? _____ YES or _____ NO
(If yes, contact the UND IRB at 701 777-4279 for additional requirements)

If your project has been or will be submitted to other IRBs, list those Boards below, along with the status of each proposal.

_____ Date submitted: _____ Status: Approved Pending
_____ Date submitted: _____ Status: Approved Pending

(include the name and address of the IRB, a contact person at the IRB, and a phone number for that person)

Type of Project: Check "Yes" or "No" for each of the following.

YES or NO New Project YES or NO Dissertation/Thesis/Independent Study

YES or NO Continuation/Renewal YES or NO Student Research Project

YES or NO Is this a Protocol Change for previously approved project? If yes, submit a signed Protocol Change Form, along with a signed copy of this form with the changes bolded or highlighted.

Please provide additional information regarding your research by responding to questions 5-11 on a separate sheet of paper.

5. In non-technical language, describe the purpose of the study and state the rationale for this research.

6. In non-technical language, describe the study procedures.

How will subjects be informed of the research? If you will be having subjects sign a consent form, justify why. How will instrument(s) be distributed/collected? Will compensation be provided? What is the suspected duration of subject participation? Etc.

7. Where will the research be conducted?

8. Describe what data will be recorded.

9. How will data be recorded and stored (that is will it be coded, anonymous, etc.)?

Note: Must state that data will be stored for a minimum of three years after data analysis is complete, or for a period of time sufficient to meet federal, state, and local regulations, sponsor requirements, and organizational policies and procedures.

10. Describe procedures you will implement to protect confidentiality of data collected from participants and privacy of participants when participating in research activities.

11. Describe the nature of the subject population and the estimated number of subjects.

If participants who are likely to be vulnerable to coercion and undue influence are to be included in the research, define provisions to protect the privacy and interests of these participants and additional safeguards implemented to protect the rights and welfare of these participants.

12. Include a copy of the study information sheet to be given to participants (either in person or online, depending on the nature of the research) that discloses research information. A template is available under 'Exempt Certification Forms' on the IRB Forms page of the IRB website: <http://und.edu/research/resources/human-subjects/forms.cfm>

Necessary attachments:

- Signed Student Consent to Release of Educational Record Form (students and medical residents only);
- Investigator Letter of Assurance of Compliance;
- Key Personnel Listing;
- Surveys, interview questions, or educational tests;
- Printed web screens (if survey is over the Internet);
- Advertisements, including recruitment emails/letters and social network postings; and
- Informed consent statement.

NA
NA

Request to participate will be face to face prior to a class session.

NOTE: The UND IRB requires that all key personnel involved in the research complete human subject education before IRB approval to conduct research can be granted.

By signing this form, I certify that the above information is accurate and that this research will be conducted in accordance with the statements provided above; this research does not involve prisoners, but if a subject becomes a prisoner, I will notify the IRB.

Cindy Flom-Melamed
(Principal Investigator)

 4-30-18
Date:

(Student Adviser)


Date:

****All students and medical residents must list a faculty member as a student advisor on the first page of the application and must have that person sign the application.****

Submit the signed application form and any necessary attachments to the Institutional Review Board, 264 Centennial Drive Stop 7134, Grand Forks, ND 58202-7134; or bring it to Twamley Hall, Room 106.

GRIT of 1st and 2nd Year Physical Therapy Students – a Pilot Study

5. In non-technical language, describe the purpose of the study and state the rationale for this research.

The purpose of this pilot study is to investigate whether or not there is a relationship between a grit score and academic success in a professional physical therapy program. The results of this study will inform a larger longitudinal study that will look at the same items, in addition to other information, over the course of health science students as they complete their professional programs.

Mental health challenges have become a topic of focus for universities and society in general as adolescent mental health has declined significantly since the 1980s.¹ According to the American College Health Association-National College Health Assessment data report, a high number of graduate and professional students live with a variety of mental health conditions.² Graduate programs have more students with mental health conditions than ever before. Healthcare professionals work in high stake situations that will be stressful. A mechanism to nurture and measure resiliency is an important consideration for physical therapy programs to consider. Grit is a non-cognitive trait that has been defined as “perseverance and passion for long-term goals”^{3p.1087} In 2007, Duckworth et al,³ developed a scale to measure *grit* and has found evidence that suggests that grit may be as essential to high achievement as intelligence. The results of this pilot study and later expanded study, may inform professional programs in regard to the potential need to foster the development of resiliency.

6. In non-technical language, describe the study procedures.

This study will be a survey distributed to first and second year students currently enrolled in the physical therapy program at UND. There are 105 students that will be invited to participate in the study. The surveys will be made available to each co-hort of students the first day of our summer session. The survey will be scored and data will be analyzed using an SPSS output.

The results of the survey will be utilized to inform a longitudinal study of GRIT of incoming physical therapy students this fall and potentially other health science students from other programs at UND. The results may also be used for a poster and/or platform presentation. No compensation for participation will be provided. We will provide a summary of abbreviated results of our study to participating students upon their request. The expected participation time will be 5-7 minutes.

7. Where will the research be conducted?

The research will be conducted in the SMHS within the Department of Physical Therapy.

8. Describe what data will be recorded.

We will request the participants give age, gender, and year in school. We will obtain GPA from the Chair of the Department. The participants will be asked to answer questions related to grit (see survey).

9. How will data be recorded and stored (that is will it be coded, anonymous, etc.)?

The surveys will be coded with a number and only the PI will have the list of which student each individual number belongs to; this information will not be available to student researchers. Participant

GPA will be requested from the Chair of the department and will be coded to the correct student as per the survey coding. Individual GPAs will only be available to the PI; student researchers will not have access to this individual information. We will be reporting the results in aggregate. The only people with access to the data will be the faculty and students conducting the research and a hard copy of the responses will be stored in a locked cabinet separate from the demographics in the UND Physical Therapy department. There will also be an electronic copy of the results stored on several password-protected computers. Access to these computers will be limited to the students and faculty conducting this research.

10. Describe procedures you will implement to protect confidentiality of data collected from participants and privacy of participants when participating in research activities.

The surveys will be coded with a number and only the PI will have the list of which student each individual number belongs to. The GPA data will also be coded to the individual student; this information will only be available to the PI; student researchers will not have access to this information. We will be reporting the responses in aggregate with no ability to discern individual responses. We will be storing the hard copies of the data in locked file cabinets, and the electronic data on password protected computers with access only granted to students and faculty leading the research.

11. Describe the nature of the subject population and the estimated number of subjects.

For the pilot study, the current first and second year UND physical therapy students will be recruited to participate in the study. The estimated number of subjects is 105.

References:

1. Twenge JM, Gentile B, DeWall CN, Ma D, Lacefield K & Schurtz DR (2010). Birth cohort increases in psychopathology among young Americans, 1938-2007: a cross-temporal meta-analysis of the MMPI. *Clinical Psychology Review*, 30(2), 145-154.
2. American College Health Association National College Health Assessment: http://www.acha-ncha.org/docs/NCHA-II_SPRING_2017_GRADUATE_REFERENCE_GROUP_EXECUTIVE_SUMMARY.pdf
3. Duckworth AL, Peterson C, Matthews MD, & Kelly DR (2007). Grit: Perseverance and Passion for Long-Term Goals. *J Personality & Soc Psych*, 92(6), 1087-1101.

UNIVERSITY OF NORTH DAKOTA
Institutional Review Board
Informed Consent Statement

Title of Project: GRIT of 1st and 2nd Year Physical Therapy Students – a Pilot Study

Principal Investigator: Cindy Flom-Meland, 777-4130, cindy.flom.meland@med.und.edu

Co-Investigator(s): NA

Advisor: NA

Purpose of the Study:

The purpose of this research study is to explore whether or not there is a relationship between the level of GRIT and *[Explain the purpose of your study. Example: to explore how college students develop into who they are. Also of interest is how they understand the relationships with friends and romantic partners in their lives.]*

Procedures to be followed:

You will be asked to complete a 12 question survey.

Risks:

There are no risks in participating in this research beyond those experienced in everyday life.

Benefits:

- *This research might provide a better understanding of how GRIT affects college students and you may learn something about yourself.*

Duration:

It will take about 5 minutes to complete the questions.

Statement of Confidentiality:

The survey does not ask for any information that would identify who the responses belong to. The surveys will be coded with a number and only the Principal Investigator (PI) will know whom the code belongs to. Therefore, your responses are recorded anonymously. If this research is published, no information that would identify you will be included since your name is in no way linked to your responses.

Right to Ask Questions:

The researchers conducting this study are *Cindy Flom-Meland, PI, Brianne Halbur and Alison Kopp*. You may ask any questions you have now. If you later have questions, concerns, or complaints about the research please contact Cindy Flom-Meland at 701-777-4130.

If you have questions regarding your rights as a research subject, you may contact The University of North Dakota Institutional Review Board at (701) 777-4279. You may also call this number with problems, complaints, or concerns about the research. Please call this number if you cannot reach research staff, or you wish to talk with someone who is an informed individual who is independent of the research team.

General information about being a research subject can be found on the Institutional Review Board website "Information for Research Participants" <http://und.edu/research/resources/human-subjects/research-participants.cfm>

Compensation:

You will not receive compensation for your participation.

Voluntary Participation:

You do not have to participate in this research. You can stop your participation at any time. You may refuse to participate or choose to discontinue participation at any time without losing any benefits to which you are otherwise entitled.

You do not have to answer any questions you do not want to answer.

You must be 18 years of age older to consent to participate in this research study.

Completion and return of the survey implies that you have read the information in this form and consent to participate in the research.

Please keep this form for your records or future reference.

**INVESTIGATOR LETTER OF ASSURANCE OF COMPLIANCE
WITH ALL APPLICABLE FEDERAL REGULATIONS FOR THE
PROTECTION OF THE RIGHTS OF HUMAN SUBJECTS**

I Cindy Flom-Meland
(Name of Investigator)

agree that, in conducting research under the approval of the University of North Dakota Institutional Review Board, I will fully comply and assume responsibility for the enforcement of compliance with all applicable federal regulations and University policies for the protection of the rights of human subjects engaged in research. Specific regulations include the Federal Common Rule for Protection of the Rights of Human Subjects 45 CFR 46. I will also assure compliance to the ethical principles set forth in the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research document, The Belmont Report.

I understand the University's policies concerning research involving human subjects and agree to the following:

1. Should I wish to make changes in the approved protocol for this project, I will submit them for review PRIOR to initiating the changes. (A proposal may be changed without prior IRB approval where necessary to eliminate apparent immediate hazards to the subjects or others. However, the IRB must be notified in writing within 72 hours of any change, and IRB review is required at the next regularly scheduled meeting of the full IRB.)
2. If any problems involving human subjects occur, I will immediately notify the Chair of the IRB, or the IRB Coordinator.
3. I will cooperate with the UND IRB by submitting Research Project Review and Progress Reports in a timely manner.

I understand the failure to do so may result in the suspension or termination of proposed research and possible reporting to federal agencies.

Cindy Flom-Meland
Investigator/Signature

4-26-18
Date

STUDENT RESEARCHERS: As of June 4, 1997 (based on the recommendation of UND Legal Counsel) the University of North Dakota IRB is unable to approve your project unless the following "Student Consent to Release of Educational Record" is signed and included with your IRB application.

STUDENT CONSENT TO RELEASE OF EDUCATIONAL RECORD¹

Pursuant to the Family Educational Rights and Privacy Act of 1974, I hereby consent to the Institutional Review Board's access to those portions of my educational record which involve research that I wish to conduct under the Board's auspices. I understand that the Board may need to review my study data based on a question from a participant or under a random audit. The title of the study to which this release pertains is GRIT of 1st and 2nd Year Physical Therapy Students - a Pilot Study.

I understand that such information concerning my educational record will not be released except on the condition that the Institutional Review Board will not permit any other party to have access to such information without my written consent. I also understand that this policy will be explained to those persons requesting any educational information and that this release will be kept with the study documentation.

0915673
ID #

Alison Kopp
Printed Name

4-26-18
Date

Alison Kopp
Signature of Student Researcher

¹Consent required by 20 U.S.C. 1232g.

STUDENT RESEARCHERS: As of June 4, 1997 (based on the recommendation of UND Legal Counsel) the University of North Dakota IRB is unable to approve your project unless the following "Student Consent to Release of Educational Record" is signed and included with your IRB application.

STUDENT CONSENT TO RELEASE OF EDUCATIONAL RECORD¹

Pursuant to the Family Educational Rights and Privacy Act of 1974, I hereby consent to the Institutional Review Board's access to those portions of my educational record which involve research that I wish to conduct under the Board's auspices. I understand that the Board may need to review my study data based on a question from a participant or under a random audit. The title of the study to which this release pertains is GRIT of 1st + 2nd Year Physical Therapy Students - a Pilot Study

I understand that such information concerning my educational record will not be released except on the condition that the Institutional Review Board will not permit any other party to have access to such information without my written consent. I also understand that this policy will be explained to those persons requesting any educational information and that this release will be kept with the study documentation.

0947036
ID #

4/26/18
Date

Brianne M Halbur
Printed Name

Brianne M. Halbur
Signature of Student Researcher

¹Consent required by 20 U.S.C. 1232g.

**UNIVERSITY OF NORTH DAKOTA
INSTITUTIONAL REVIEW BOARD
KEY PERSONNEL LISTING**

Names of Research Personnel		Position (select from drop-down menu)	Highest Academic Degree (High School, B.S., M.A., Ph.D., M.D., etc.)	Responsibilities (check all that apply)					
First Name	Last Name			Consent Subjects	Recruit Subjects	Research Design	Intervention	Data Analysis	
1	Cindy	Flom-Meland	Faculty	PhD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Brianne	Halbur	Graduate student	B.S.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Allison	Kopp	Graduate student	B.S.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* Attach proof of education in human subjects research for all non-UND personnel

Revised 03/15/2017