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Introduction of the Anatomy Academy Program To Children in a Rural Elementary School

Rox Aurelio
University of Nevada, Las Vegas

Madison Dobbs
University of Nevada, Las Vegas

Nicole Horn
University of Nevada, Las Vegas

Gianni Terrana
University of Nevada, Las Vegas

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INTRODUCTION OF THE ANATOMY ACADEMY PROGRAM TO CHILDREN IN A
RURAL ELEMENTARY SCHOOL

By

Rox Aurelio

Madison Dobbs

Nicole Horn

Gianni Terrana

A doctoral project submitted in partial fulfillment
of the requirements for the

Doctor of Physical Therapy

Department of Physical Therapy
School of Integrated Health Sciences
The Graduate College

University of Nevada, Las Vegas
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Doctoral Project Approval

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The University of Nevada, Las Vegas

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This doctoral project prepared by

Rox Aurelio

Madison Dobbs

Nicole Horn

Gianni Terrana

entitled

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is approved in partial fulfillment of the requirements for the degree of

Doctor of Physical Therapy
Department of Physical Therapy

Daniel Young, Ph.D.
Examination Committee Chair

Jason Ciccotelli, Ph.D.
Research Project Advisor

Merrill Landers, Ph.D.
Chair, Department of Physical Therapy

Alyssa Crittenden, Ph.D.
*Vice Provost for Graduate Education &
Dean of the Graduate College*

Abstract

Children in rural communities experience health and education disparities. Early exposure to health promoting habits can positively impact future health habits. Healthcare providers who grew up in rural areas are more likely to practice in rural areas. Doctor of physical therapy students and physical therapists implemented Anatomy Academy, a service-learning program aimed at promoting healthy living and introducing healthcare occupations, to elementary students in a rural area as this program had previously only been implemented in urban areas. The Biomedical Institutional Review Board at the University of Nevada, Las Vegas approved this study. A 40-minute lesson was delivered weekly for seven weeks by four doctor of physical therapy students and two physical therapists to fourth grade children at a rural Nevada elementary school. A cohort study design was used to collect data from the children using a twenty-question survey. Incomplete or unmatched pre/post surveys were not included in the final analysis. Statistical analyses were performed using SPSS Version 27. Wilcoxon Signed Rank Tests were used to compare pre- and post-survey data among all participants. Where significant differences were found, descriptive statistics to determine the actual changes in survey responses were analyzed. The data analysis included 43 completed surveys and excluded 32 incomplete or unmatched surveys. Significant differences were noted in the subjective responses to “How much do you like to learn about anatomy?” (pre-score 60.5% favorable response, post-score 90% favorable response, $p=.001$), “Do you have an interest in becoming a healthcare worker?” (pre-11.6% yes, 41.9% no, post-51.2% yes, 16.3% no, $p=.003$), and “How much screen time do you get per day?” (pre-48.8% < 2 hours, post-62.8% < 2 hours, $p=.013$). For objective responses, we noted significant increase in correct responses to the following questions: “Where is the first place digestion starts to occur?” (pre-32.6%, post-74.4%, $p=.003$), and “How many minutes per day should you and other children do physical activities?” (pre-23.3%, post-55.8%, $p=.0004$).

Study participants reported increased interest in health care and increased knowledge of some anatomy and health habits content following Anatomy Academy. The study was limited to fourth grade students at a rural elementary school in Nevada, so results may not be generalizable to other areas or populations. Student reflections on their Anatomy Academy experiences were collected through a Qualtrics questionnaire after weeks one and seven to allow doctor of physical therapy students to expand on the professional and interpersonal growth obtained throughout their opportunity, while also tying their experiences to the American Physical Therapy Association core values. A Qualtrics questionnaire was administered to stakeholders of the elementary school to assist with examining intervention outcomes and Anatomy Academy program perceptions. Physical therapists and doctor of physical therapy students can provide children in rural communities with knowledge about health promotion and fitness through programs such as Anatomy Academy, possibly creating opportunities for future healthcare leaders in rural areas where healthcare providers are limited. Future research in other rural areas is warranted.

Table of Contents

Abstract.....	iii
List of Figures.....	vi
Section 1: Introduction.....	1
Section 2: Purpose.....	4
Section 3: Methods.....	5
Project Design, Recruitment, and Participants.....	5
Program Description: Planning, Objectives, and Curriculum.....	5
Study Design.....	8
Reflections.....	8
Stakeholder Questionnaire.....	9
Section 4: Outcomes.....	12
Project Deviations.....	17
Section 5: Reflections.....	19
Section 6: Discussion.....	22
Section 7: Conclusion.....	24
Appendix A.....	25
Appendix B.....	30
Appendix C.....	36
References.....	38
Curriculum Vitae.....	39
Rox Aurelio.....	39
Madison Dobbs.....	43
Nicole Horn.....	47
Gianni Terrana.....	51

List of Figures

Figure 1 Example Lesson Plan – Week 1	7
Figure 2 “How much do you like to learn about anatomy?” Elementary Participants’ Pre- and Post-Survey Responses	13
Figure 3 “Do you have an interest in becoming a healthcare worker when you grow up?” Elementary Participants’ Pre- and Post-Survey Responses	14
Figure 4 “How much screen time (TV, phones, video games) do you get per day?” Elementary Participants’ Pre- and Post-Survey Responses	15
Figure 5 “What is the first place in the body where digestion starts to occur?” Elementary Participants’ Pre- and Post-Survey Responses	16
Figure 6 “How many minutes each day should you and other children do physical activities that make your heart beat faster and make you breathe faster, like walking fast or running?” Elementary Participants’ Pre- and Post-Survey Responses	17

Section 1: Introduction

Anatomy Academy (AA) is an established service-learning program, created by the University of California, Los Angeles (UCLA), that originally outlines content for doctor of physical therapy (DPT) students to teach anatomy to elementary and middle school students in an attempt to combat the upward trend of childhood obesity.¹ The program consists of seven interactive anatomy lessons appropriate for elementary-aged students. General objectives for the lessons include understanding basic anatomy and physiology of the various body systems, the importance of exercise, suggestions to promote lifelong fitness, basic injury and chronic disease prevention, and common risk factors for chronic diseases.²

AA was historically implemented in underserved urban areas, but we chose to bring this service-learning project to a rural area for many reasons. Compared to urban areas, individuals living in rural areas have less access to health information and healthcare related services.³ This lack of health information can lead to various health disparities amongst those who grew up in rural areas including higher premature morbidity rates and higher rates of mortality from chronic diseases.³ Individuals living in rural areas are more likely to employ unhealthy behaviors and have less preventive health care services.³ Compared to urban residents, rural residents also have reduced health literacy, adding an additional barrier to their health disparities.⁴ Health literacy is the ability of one to obtain, understand, and process health information, resources, and services to engage in healthy habits.⁴ Those living in rural communities are less likely to have a high school diploma, more likely to live below the poverty line, and be less proficient with health literacy compared to their urban counterparts.⁴ Various risk factors such as age, race, socioeconomic status, and education are associated with these health disparities.⁴ Of these risk factors, education is a risk factor physical therapists (PTs) and DPT students can attempt to

modify. We can provide children in rural communities with knowledge about health and fitness through early exposure programs such as AA, which could create opportunities for improved health literacy and formation of healthy habits for life. Our group aimed to introduce this outreach program to an underserved community with hopes of providing them with additional opportunities and resources.

Healthcare career interest of elementary age students in rural areas has not been measured in a service-learning project such as AA. Maintaining an adequate healthcare workforce in rural, remote, and structurally weak areas is an ongoing challenge for many countries.³ The World Health Organization (WHO) has recommended several strategies to attempt to overcome the shortage of healthcare providers in rural communities, including implementing a more detailed curriculum relevant to rural medical practice, providing opportunities to study outside of large hospitals and cities, encouraging more participation in internships or clinical rotations in rural areas during undergraduate studies, and lastly targeting students who come from rural backgrounds.⁵ Targeting students from rural areas has been found to be the most effective strategy to gain employment after graduation in rural practice.⁵ Rural counties experience high unemployment rates and a shortage of healthcare providers which emphasizes the importance of outreach programs such as AA.⁶ The implementation of AA into rural communities falls in line with the aforementioned strategies to gain healthcare professionals and potentially create opportunities for future healthcare leaders in rural areas.⁵

Teaching AA provides DPT students the opportunity to utilize their growing anatomy knowledge and skills in order to improve upon them. PTs, physical therapist assistants (PTAs), and DPT students use the American Physical Therapy Association's (APTA) core values to guide them in providing the highest quality of care. These values include accountability,

altruism, collaboration, compassion and caring, duty, excellence, inclusion, integrity, and social responsibility.⁷ Students are advised to refer to the core values frequently throughout school and for the rest of their future careers. Service-learning projects such as AA allow students to demonstrate their commitment to these values.

AA is a service-learning opportunity that takes the wisdom and skills gained from formal education and implements them within interactive experiences that serve members within our community.² Concurrently, participant learning is augmented through the various opportunities for professional development, interprofessional interactions, career-related activities, and self-reflection.² This mutual benefit between those participating and receiving the program differentiate service-learning from other forms of learning and volunteer opportunities.²

Section 2: Purpose

The purpose of this service-learning project was for DPT students and PTs to implement the seven-week AA program amongst elementary school students in a rural Nevada community, as this program had previously only been implemented in urban areas. The first aim of this project was to educate elementary students in rural Nevada about basic anatomy and physiology of the body's various systems, promote healthy lifestyle habits, and introduce healthcare occupations in an attempt to get them interested in healthcare professions. The second aim of this project was to help the DPT students develop their professional and personal skills, so they can grow as mentors within their field and strengthen the nine core values as determined by the APTA.

Section 3: Methods

Project Design, Recruitment, and Participants

The Biomedical Institutional Review Board (IRB) at the University of Nevada, Las Vegas (UNLV) approved this project. Two PTs and four DPT students implemented this program. Six elementary schools that matched the criteria for implementation in rural Nevada were identified and asked to participate. One elementary school responded to the invitation to participate in the seven-week AA program and expressed their interest, specifically stating that they had three fourth grade classes with a total of 75 students that could participate in our program during the time allotted for their special classes (art, physical education, and computers class). Due to the original guidelines of AA stating the amount of time spent each week on the anatomy lectures must be determined on an individual school basis, the time allotted by the elementary school for the AA program was a 40-minute class session. During the 40-minute class session, we delivered the anatomy lecture and had the students engage in an interactive activity relevant to the topic for that week. The two PTs were project coordinators, responsible for communicating, scheduling, and the timing of sessions with the stakeholders, which included the elementary school's principal, art teacher, physical education teacher, and computers class teacher. The DPT students were project mentors, responsible for the delivery of the material.

Program Description: Planning, Objectives, and Curriculum

The standard AA curriculum included a variety of lesson plans and interactive activities in which AA mentors, being the DPT students and PTs in this project, had autonomy in creating their own lessons from. In preparation for each lesson, DPT students had weekly meetings to develop and discuss lesson plans with the school's time constraints and project supplies in mind. The topics that were discussed were focused on seven important body systems: the five senses,

the cardiovascular system, pulmonary/respiratory system, gastrointestinal, oral cavity, musculoskeletal, and the brain. In a typical classroom, class size ranged from twenty to thirty fourth grade students, with one-two DPT students allocated to each classroom. Each lecture had time allotted to explain the objectives for the day, define key terms associated with the anatomy lesson for that week, an interactive video, explanation of anatomy models, and then an interactive kinesthetic activity. After each lesson, students were provided with activity sheets specific to that day's topic and to serve as an at home resource for them and their families. Providing this information allows all those involved the opportunity to further their health literacy and implement that information in their daily lives. A summary of the five senses lesson plan is provided in Figure 1 as an example of the lesson plan layouts.

WEEK 1 – The Five Senses	January 20, 2023
Objectives <ul style="list-style-type: none"> ❖ Understand the basic anatomy of a neuron and the spinal cord ❖ Understand the basic anatomy of the ear ❖ Understand the basic anatomy of the eye ❖ Understand the five senses and why they are important 	
Materials and equipment needed <ul style="list-style-type: none"> ❖ Teaching <ul style="list-style-type: none"> ➢ Eye models and ear models ❖ Activity <ul style="list-style-type: none"> ➢ Senses activity box, cups, tin foil, napkins, exercise card, and plates ➢ Taste: Skittles (at least 100 pieces) ➢ Touch: uncooked rice and cooked noodles ➢ Smell: sliced bananas, sliced oranges, smashed garlic, and peppermint toothpaste 	
Lesson <ul style="list-style-type: none"> ❖ 10:55-11:10 AM: Introductions and pre Anatomy Academy survey ❖ 11:10-11:22 AM: Group 1 at station A and Group 2 at station B ❖ 11:22-11:34 AM: Groups switch stations ❖ 11:35 AM: students return to homeroom 	
Background Material <ul style="list-style-type: none"> ❖ There are 5 senses: sight, smell, sound, taste, and touch. ❖ “For sight, we need our eyes. The eye is a very complex organ that takes in all of the information around you including light, color, texture, movement and more. The back of the eye is called the retina and it is composed of cells called rods and cones. Rods process light in black and white and cones process color. The lens in the front of the eye allows us to focus the light passing through the eye on the retina so we can see clearly. If your eye is a different length so that the light cannot focus properly on the retina, you may need glasses.” ❖ “The ear is also a very important part of our senses! The ear is composed of parts of the inner ear and the outer ear that work together to help us hear. If the fluid within your ear is off, this can cause dizziness, or vertigo.” ❖ “The spinal cord is important for us to move and touch. You will learn in the next lesson that all of these senses connect back to your brain! Thanks to brain cells, or neurons, signals are sent throughout your brain down through your spinal cord with your nerves.” 	
Activity <ul style="list-style-type: none"> ❖ Students will be broken up into 2 groups and participate in 2 stations. Each station will have approximately 12 minutes to complete their objectives. ❖ Station A will learn about the spinal cord, neurons, the eye, and do a tasting activity with Skittles. One student at a time will be asked to close their eyes and open their hand. A Skittle will be placed in their hand for them to eat. They will attempt to name the flavor of the Skittle they received. ❖ Station B will learn about the ear and do an activity with the senses box. One student at a time will be handling the box. Students will insert their hand into a hole in the box to feel either a plate of noodles or rice and be asked what they feel. The PT student can switch the different plates as each student goes. After the student names what they feel, they will be asked to smell one of four cups covered with tin foil poked with holes. They will attempt to name what they smell and do the corresponding exercise on the exercise card. 	

Figure 1 Example Lesson Plan – Week 1

Study Design

A cohort study design was used to collect data from the fourth-grade students, in which they were asked to answer a twenty-question survey centered around basic anatomy topics (Appendix A). The survey included multiple choice and free response questions to gauge their exercise habits, nutrition habits, health literacy, and interests in healthcare and healthcare occupations on week one of the seven-week program. They completed a post-survey at the end of the program, including the anatomy questions from the pre-survey along with additional sections for feedback (Appendix B). Incomplete or unmatched pre/post surveys were defined as surveys that did not have both a pre and a post match. Incomplete surveys or unmatched pre/post surveys were not included in the final analysis because the goal was to measure student interest in health care, as well as knowledge of anatomy pre and post program. Complete and matched surveys were required to be able to run statistical analysis. Pre- and post-survey data for individual questions were analyzed using SPSS Statistics Version 27 (IBM Corp, Armonk, New York). Normality testing through the Shapiro-Wilk test due to small sample size, revealed that the data was not normally distributed, and a Wilcoxon Matched Pairs Test analyzed correct pre- and post-survey scores for statistical significance. No statistical analysis was run on individual job interest, as the goal was to assess general interest in becoming a healthcare worker pre- and post-AA.

Reflections

The Anatomy Academy program serves as an opportunity for student mentors to engage in a teaching opportunity, as well as grow their professional and interpersonal skills during their graduate education. The DPT students were asked to reflect on their experience with teaching AA, while also applying the APTA core values to said experiences. Self-assessments were

performed after week one and at the conclusion of AA to assist in determining the effects, if any, that teaching AA had on the APTA core values throughout the seven-week program. Responses were collected through a Qualtrics questionnaire developed by one of the licensed PTs involved with this project.

The first component of the Qualtrics questionnaire asked the following question: “How comfortable did you feel with communicating the anatomy terms to the 4th graders?” The DPT students were given choices on a five-point Likert scale: extremely uncomfortable, somewhat uncomfortable, neither comfortable nor uncomfortable, somewhat comfortable, and extremely comfortable. The second component of the Qualtrics questionnaire asked the DPT students to explain, in a free response format, the APTA core values they felt they demonstrated after week one of AA and then again after the completion of the seven-week program. Lastly, the DPT students were asked to reflect on their experience, explain things that went well, and explain things that were difficult. The DPT students then completed a post-participation questionnaire that asked the same reflection questions that were on the preparticipation questionnaire.

Stakeholder Questionnaire

A Qualtrics questionnaire was administered to four stakeholders (the elementary school’s principal, art teacher, physical education teacher, and computers class teacher). Five-point Likert scales were used for each question and statement to assist in quantifying intervention outcomes as well as individual perceptions towards the AA program (Table 1).

Table 1. Stakeholder Responses to Qualtrics Questionnaire

Question or statement	Likert scale responses	Response 1	Response 2
“Did you like or dislike Anatomy Academy?”	Strongly dislike Dislike No opinion Like Strongly like	Like	Like
“How comfortable did you feel that the DPT students formed authentic relationships with the elementary school students in Anatomy Academy?”	Very uncomfortable Uncomfortable No opinion Comfortable Very comfortable	Comfortable	Comfortable
“How much effort did it take to implement Anatomy Academy for the class?”	None at all A little No opinion A lot A great deal	A little	A lot
“How acceptable was Anatomy Academy to you?”	Completely unacceptable Unacceptable No opinion Acceptable Completely acceptable	Acceptable	Acceptable
“How confident did you feel about the DPT students administering Anatomy Academy?”	Very unconfident Unconfident No opinion Confident Very confident	Unconfident	Confident
“What did you like or not like about Anatomy Academy? Please provide details”	Free Response	“The Anatomy Academy was a good way for students to be introduced to anatomy. Students enjoyed the hands-on activities much more than the paper pencil activities. I thought it was quite difficult for college level students without a background in teaching to administer the lessons. Maybe a brief lesson on how to manage students would be a good idea before having them teach the lessons.”	<i>Did not respond</i>
“Do you have any suggestions to improve Anatomy Academy?”	Free Response	“More hands-on activities and better awareness on how to manage students.”	<i>Did not respond</i>

“Anatomy Academy interfered with my other priorities”	Strongly disagree Disagree No opinion Agree Strongly agree	Agree	Agree
“Anatomy Academy has improved the elementary school student's learning”	Strongly disagree Disagree No opinion Agree Strongly agree	Agree	Agree
“It makes sense to me how using Anatomy Academy results in an improved understanding of health and wellness in elementary students”	Strongly disagree Disagree No opinion Agree Strongly agree	Agree	Agree

Section 4: Outcomes

Of the 75 student survey recipients, 43 surveys met the criteria with all questions answered on both pre- and post-surveys for the participant. We analyzed all 22 survey questions but only 5 showed a significant difference. The other 16 survey questions had a p-value above 0.05, indicating insignificant findings. Significant differences were noted in the subjective responses to “How much do you like to learn about anatomy?” pre-score 60.5% favorable response, post-score 90% favorable response, $p=.001$ (Figure 2), “Do you have an interest in becoming a healthcare worker?” pre-11.6% yes, 41.9% no, post-51.2% yes, 16.3% no, $p=.003$ (Figure 3), and “How much screen time do you get per day?” pre-48.8% < 2 hours, post-62.8% < 2 hours, $p=.013$ (Figure 4). For objective responses, we noted a significant increase in correct responses to the following questions: “Where is the first place digestion starts to occur?” pre-32.6%, post-74.4%, $p=.003$ (Figure 5) and “How many minutes per day should you and other children do physical activities?” pre-23.3%, post-55.8%, $p=.0004$ (Figure 6). After analyzing post-survey responses, general interests in anatomy and pursuing a career as a healthcare worker increased, along with a decrease in daily screen time, when compared to pre-survey responses. Ultimately, the seven-week AA program resulted in increased health literacy and increased interest in future healthcare professions for the elementary school students.

The DPT student mentors attained professional and personal growth as a result of the AA intervention, evidenced by the reflections performed at the end of the first and seventh week of the program. Statistical analyses were not conducted on student reflections due to sample size and subjective nature of responses. Table 2 outlines these reflections and correlates them to the APTA core values. Acknowledgement and demonstration of these core values were prevalent throughout the entirety of the service-learning project, evident in the students’ pre- and post-

reflections. Table 3 outlines the DPT students' reflections on their experiences on what worked for the program and what was more difficult to manage. The reflections from the students aided in their self-development by facilitating greater awareness and deeper understanding of themselves and their experiences.

In terms of the stakeholder questionnaire, two out of the four recipients submitted responses (Table 1). Statistical analyses were not conducted for the stakeholder questionnaire due to a small sample size.

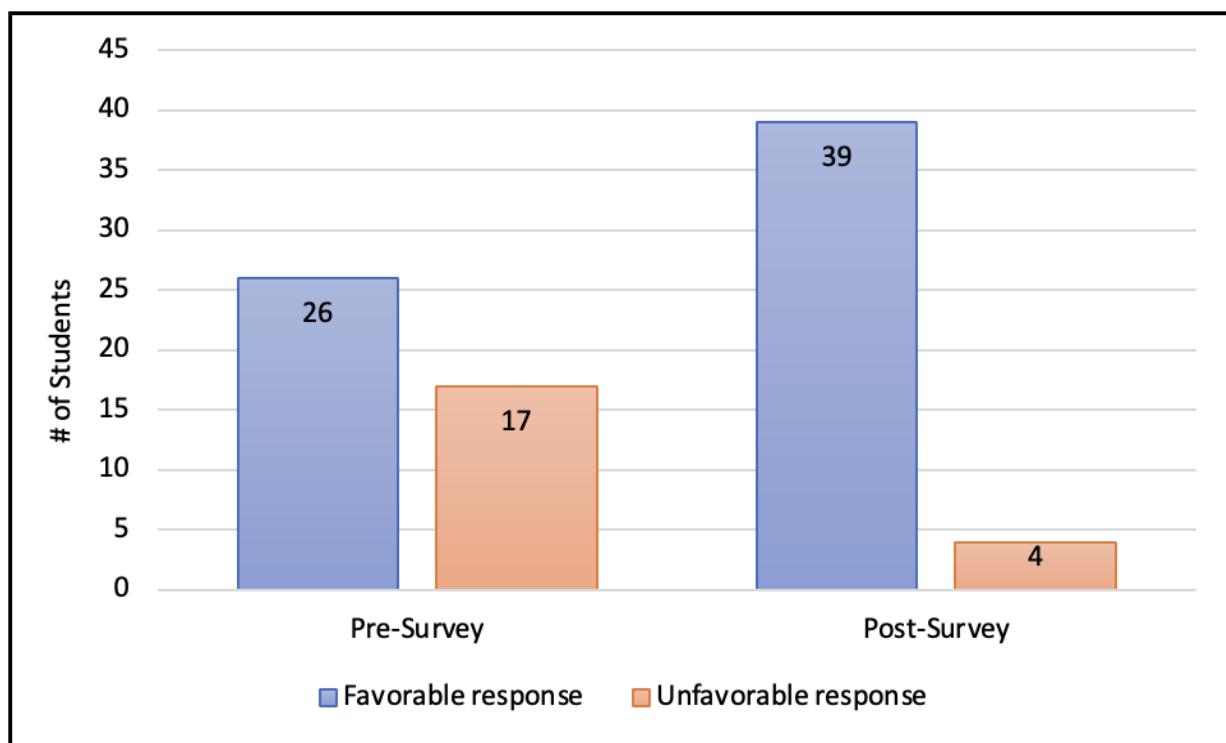


Figure 2 “How much do you like to learn about anatomy?” Elementary Participants’ Pre- and Post-Survey Responses

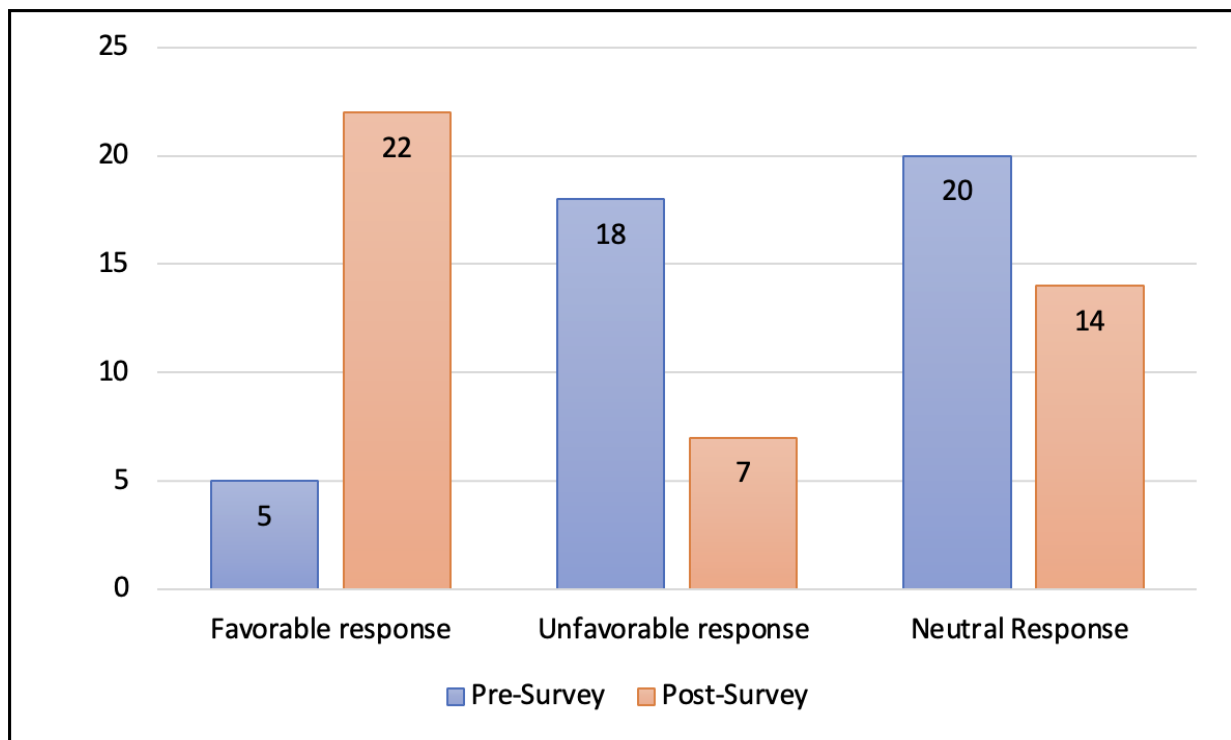


Figure 3 “Do you have an interest in becoming a healthcare worker when you grow up?”
Elementary Participants’ Pre- and Post-Survey Responses

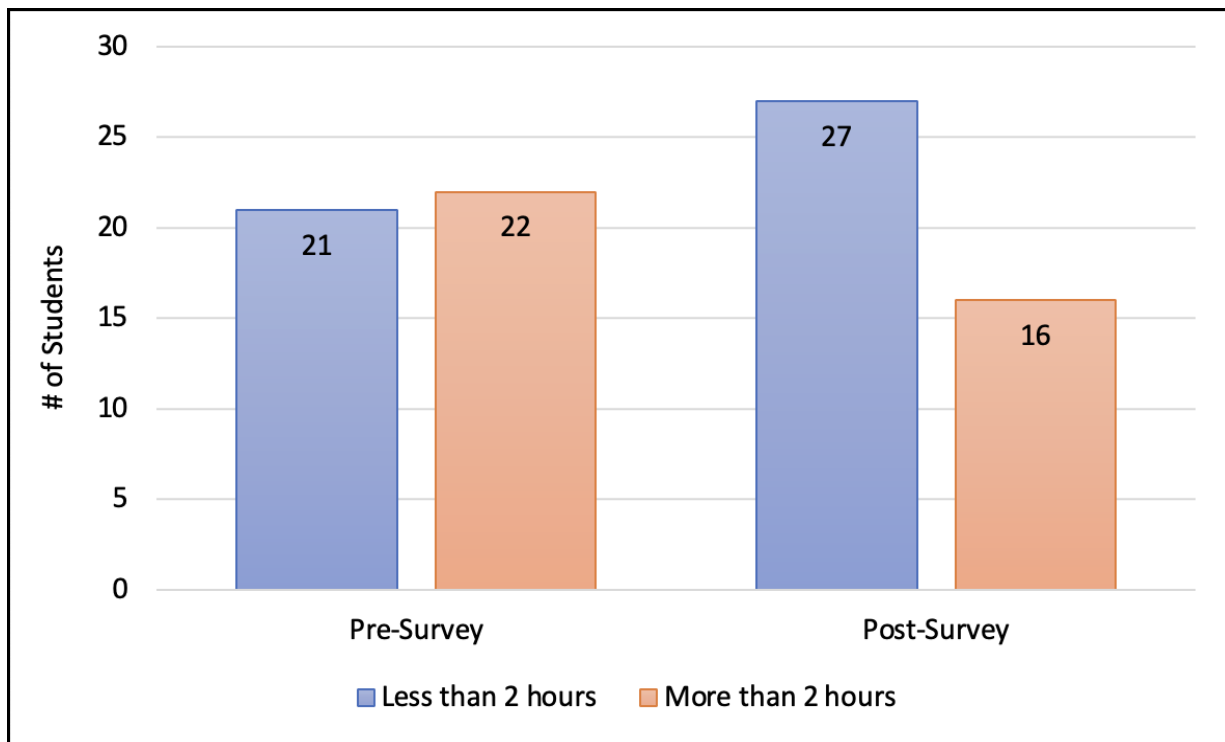


Figure 4 “How much screen time (TV, phones, video games) do you get per day?” Elementary Participants’ Pre- and Post-Survey Responses

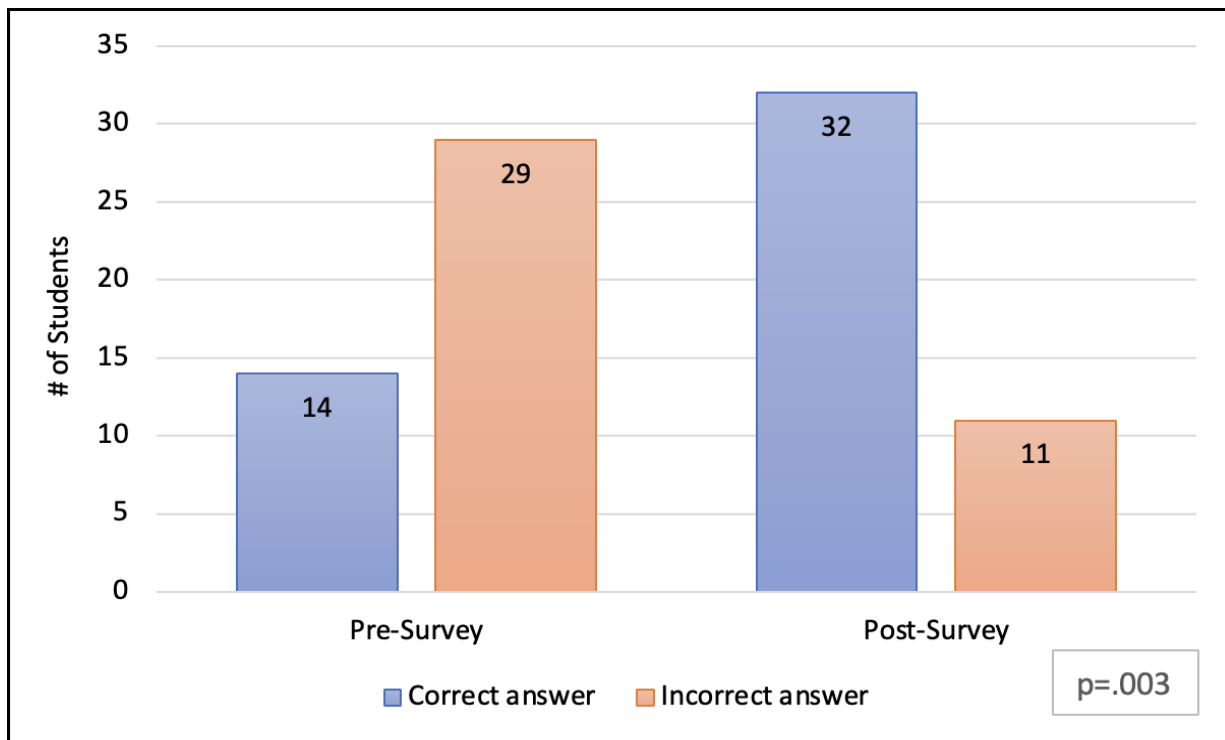


Figure 5 “What is the first place in the body where digestion starts to occur?” Elementary Participants’ Pre- and Post-Survey Responses

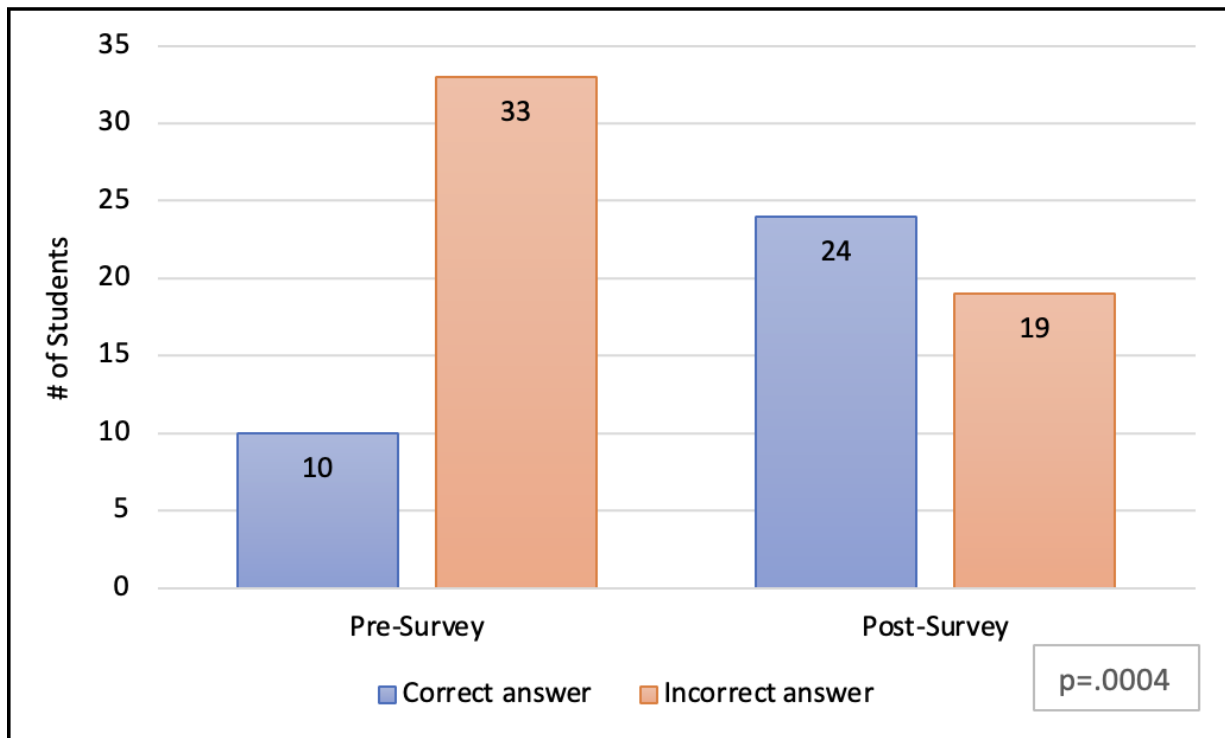


Figure 6 “How many minutes each day should you and other children do physical activities that make your heart beat faster and make you breathe faster, like walking fast or running?” Elementary Participants’ Pre- and Post-Survey Responses

Project Deviations

The original service-learning project aimed for two PTs and four DPT students working with one rural fourth grade class of around 30 students. The plan was to have each DPT student lead a small group of 5-6 students at a time through the learning activities to make them more personable and manageable. One of the stakeholders only agreed to implement the intervention under the condition that all three fourth-grade classes be involved. With this deviation, our DPT students had to take on more fourth grade students per person, leaving us with a ratio of 1 DPT student to about 15 students per learning activity. This caused our DPT students to quickly adjust their teaching style and time management skills to appropriately accommodate these deviations.

These project deviations resulted in increased elementary student to DPT student and PT ratios, decreased overall time for lessons, and decreased supplies for interactive activities.

Section 5: Reflections

The DPT students were asked to reflect on their AA experiences after week one and after week seven. The reflections asked students to report on their experiences and apply the APTA core values to these experiences (Table 2).

Table 2. American Physical Therapy Association (APTA) Core Values within Doctor of Physical Therapy Student Reflections

APTA Core Values	Student Reflections After Week 1	Student Reflections After Week 7
Accountability	<i>"I had to have accountability in preparing myself to teach senses to 4th graders meaning that I had to be well-versed in it beforehand." -Rox</i>	<i>"As student teachers, we had to learn how to keep the students' attention throughout the lesson plans and activities. We had a goal for them to learn a pre-planned topic each week, so we had to come up with ways for them to want to engage in the material." -Gianni</i>
Altruism	<i>"By performing this service in a rural and underserved area, we are demonstrating altruism. We acknowledged that there was a need in this area that was not being met." -Madison</i>	<i>"I felt I demonstrated altruism by having a primary regard for the interest of the students. I made sure to address their questions before, during, and after the lesson and activity each session." -Nicole</i>
Collaboration	<i>"I demonstrated collaboration by working with my partner to develop a plan for that day's activities . . . in order to optimally deliver the information in a way that would benefit the students." -Nicole</i>	<i>"This experience strengthened the skill of collaboration for me because not only did we have to communicate with each other as educators, but we also had to collaborate with the principal, fourth grade students, and their teachers." -Gianni</i>
Compassion and Caring	<i>"I found it heartwarming for some of the kids to tell stories or relate to what I was teaching. For example, when I was teaching about the eye, one of the students got really excited to show me their glasses." -Gianni</i>	<i>"I demonstrated compassion and caring when working with children who were unable to read and with children who spoke different languages; I did this by taking a little extra time to explain concepts to them." -Rox</i>
Duty	<i>"I demonstrated duty by committing to my obligations of having to understand the lesson plan material and being able to deliver correct information in a simple manner." -Nicole</i>	<i>"We got involved in professional activities and duties outside of school and the normal practice setting. We were also able to promote the profession by introducing it to students who had never heard of it." -Madison</i>
Excellence	<i>"Through excellence, we are sharing our knowledge with others and demonstrating an investment into our profession. We are taking what we know about anatomy and are hopefully getting these students interested in a new topic." -Madison</i>	<i>"I demonstrated excellence by presenting updated and accurate information to the kids while also being honest about how much I knew." -Rox</i>
Inclusion	<i>"I demonstrated inclusion by creating an environment where every child in the classroom would feel comfortable engaging with my partner and I." -Nicole</i>	<i>"All students were included to participate in the lessons and pre/post surveys. We had a few students who had intellectual disabilities, so they needed extra explanation on the survey questions..." -Gianni</i>
Integrity	<i>"I was able to demonstrate integrity by ensuring fairness when playing the taste game. Some students were asking for more [Skittles] when they saw I had a few extra in the bag, but I had to say no because I wanted everyone to have the same amount and share the same experience." -Gianni</i>	<i>"I feel I demonstrated integrity by always ensuring fairness amongst the students and explaining my rationale for the lesson plans and activities we had planned. I never favored any one student and always wanted to hear from every student that wanted to speak or ask questions." -Nicole</i>
Social Responsibility	<i>"I feel the social responsibility of helping introduce anatomy to these children in an underserved area hoping to have a positive impact on their health and wellness." -Rox</i>	<i>"Not only did we advocate for the health and wellness of the fourth graders, but we were also advocating for the children's families. We told them to go back to their families and tell them what we had talked about each day. We hoped to create change starting with the students." -Madison</i>

Table 3. Pre and Post Anatomy Academy Experience Student Reflections

Anatomy Academy Experience	Student Reflections After Week 1	Student Reflections After Week 7
Elements that went well	<p><i>“What I enjoyed about this experience was seeing all the smiles and hearing all the laughs while we were doing the activities. I found it heartwarming for some of the kids to tell stories or relate to what I was teaching. For example, when I was teaching about the eye and talking about why some people will have to wear glasses, one of the students got really excited to show me their glasses. She was happy to be able to relate to what I was talking about, and I was able to identify with her experience.” - Gianni</i></p> <p><i>“It was fun to teach about senses for the first lecture because the students were very engaged with the material and had lots of questions. It was great to see how curious and excited they were. I think the lesson plan and activities went really well.” - Nicole</i></p>	<p><i>“Some things that went well included my positive interactions with the 4th graders (especially with those that were eager to learn about anatomy), my confidence bloomed with public speaking, I reviewed some anatomy that I haven’t studied much since my first year, and I got to work in a group setting to provide a service to a rural community.” - Rox</i></p> <p><i>“As the weeks went on, the children started to really enjoy our presence. They were sad when we would tell them that the program was almost over. It was rewarding to see them learn and retain information each week. Before starting a new lesson, we would quiz them on the previous week’s material. It was amazing to see them all shoot their hands up ready to answer. Even if they don’t remember everything we taught them, I think they understood the importance of taking care of your body and how to do it. Some students even asked if we would be next year when they were 5th graders.” - Madison</i></p>
Elements that were difficult	<p><i>“We experienced a few difficulties during our time with the class. There were so many of them and only two of us. We separated into two groups, and our group sizes were over a dozen students each. While doing activities within our groups, children would begin wandering off. It was tough trying to get them all focused on what we were doing.” - Madison</i></p> <p><i>“One thing that was challenging was keeping the attention of the 15 students I had in my group while they were doing the activity one at a time. I think in the future, we may want 4 mentors in a classroom of 30 students, so there are less kids in each group.” - Gianni</i></p>	<p><i>“Some difficulties included struggling with keeping the class under control sometimes in the presence of substitute teachers, keeping the kids engaged during the lesson portions of Anatomy Academy (vs. the interactive games), and motivating kids with no interest in anatomy to participate in certain activities.” - Rox</i></p> <p><i>“Another difficulty was not having enough students/ mentors in the room. I think we did a good job this first round, managing the students we had with two of us in the room and sometimes their teacher. However, I think it would have gone much smoother if we could have had at least four students/mentors in the classroom, especially when we broke off into small group activities. If we had at least two extra per classroom this would have allowed us to gain more focused attention from the students, give them our more divided attention, and get to know them better.” - Nicole</i></p>

Section 6: Discussion

The Biomedical IRB at UNLV approved this service-learning project after all project deviations. Due to stakeholder request of including all fourth-grade classes in the AA program, classroom ratios consisted of one DPT student and one licensed PT per classroom. Overextension of resources, disproportionate student to DPT student and PT ratios, and time constraints all posed as limitations throughout this program, making the delivery of the program possible but not optimal. Future iterations would benefit from improved student to DPT student and PT ratios, along with increased supplies. More resources such as funding for AA project supplies (anatomy models, interactive activities, teaching aides, and prizes for competitions conducted), DPT students, and PTs were needed for improved project structure, lesson delivery, and classroom management. Gaining pre- and post-survey validation should be a goal for future AA projects that aim to record similar outcomes. Future AA projects also would benefit from validation of the DPT student reflections and stakeholder Qualtrics questionnaires. Elementary student management was commented on by one stakeholder in the stakeholder questionnaire, suggesting that a lesson on student management should be provided to the AA mentors prior to administration of the AA program. Future implementations of this program should also consider the benefits of a lesson on classroom and student management to aid in the delivery of the AA program. Although the survey results yielded significant findings that the fourth grade students had an increased interest in healthcare careers after the seven week AA program, as well as an increased number in correct responses about health topics, full survey completion from all elementary school participants that attended the AA lectures would have strengthened our results by providing us with a larger sample size to analyze because incomplete surveys were thrown out. Gaining a higher response rate was difficult to achieve due to factors such as student

absences, class time limitations, inability to match pre- and post-surveys to the same respondent, student disinterest in completing the survey(s), and inability to complete part(s) of the surveys due to illiteracies and/or language barriers. Through the responses received on the question regarding interest in healthcare careers on the post-survey, it appears that the AA program aided in increasing general interest about anatomy and future healthcare careers. We did not run specific statistical analysis on individual job interests, as our goal was to assess general interest in becoming a healthcare worker pre- and post-AA. Our findings warrant future implementations of this program in similar settings to better gauge the effects of this program. Similar subsequent projects should address the above limitations in order to strengthen our findings in rural communities lacking access to health information and health-related resources, including healthcare establishments and community health/wellness programs, when compared to their urban counterparts. Additionally, we did not complete our reflections before week one and accept this as a limitation. We recognize this style of reflection is typically performed prior to the start of a project; however, we decided as a project group that our reflections would be valuable after our first week of program implementation.

Section 7: Conclusion

Rural communities demonstrate a lack of access and use of health information and health resources. When compared to their urban counterparts, these communities have lower health literacy and higher unemployment rates of healthcare providers.^{3,4,5} In an attempt to combat this, an AA program was implemented amongst rural fourth grade students. Subsequent increases in interests towards healthcare careers and objective knowledge of AA content were observed following the program. Targeting younger rural generations may be beneficial in influencing these health disparities in the future. This project was limited to fourth grade students at a rural elementary school in Nevada, so results may not be generalizable to other areas or populations. Providing DPT students with the opportunity to run the AA outreach program allowed them to grow as professionals and uphold the nine APTA core values.

Appendix A



Pre-Anatomy Academy Questionnaire (Rural)

Please answer the following questions to the best of your ability. This is not a test. There is no right or wrong answer. If you do not feel comfortable answering a question, you can leave it blank.

1. Do you currently exercise or participate in sports
 - A. Yes
 - B. No

2. How much you like to learn about anatomy (bones, muscles, brain and organs, senses)
 - A. I love it
 - B. It's ok
 - C. I don't like learning about it
 - D. I don't know much about anatomy so I don't know if I like learning about it

3. Do you have an interest in becoming a healthcare worker when you grow up? (For example: doctor, nurse, dietician, dentist, physical therapy, etc.)
 - A. Yes
 - B. No

4. What are some reasons you would want to work in healthcare:

5. What are some reasons you would NOT want to work in healthcare:

6. How often do you eat vegetables?
 - A. Never
 - B. 1-3 times per month
 - C. 1-2 times per week
 - D. 3-4 times per week
 - E. More than 5 times per week

7. How often do you eat fruit?
- A. Never
 - B. 1-3 times per month
 - C. 1-2 times per week
 - D. 3-4 times per week
 - E. More than 5 times per week
8. How often do you eat sweet rolls, doughnuts, cookies, brownies, cupcakes, pies or cakes?
- A. Never
 - B. 1-3 times per month
 - C. 1-2 times per week
 - D. 3-4 times per week
 - E. More than 5 times per week
9. How many bottles of water do you drink a day?
- A. None
 - B. 1 bottle
 - C. 2 bottles
 - D. 3 bottles
 - E. 4 or more bottles
10. How often do you exercise or participate in sports activities that make your heartbeat fast and make you breathe hard for at least 20 minutes?
- A. 0-1 days per week
 - B. 2-3 days per week
 - C. 4-5 days per week
 - D. More than 5 days per week
11. How often do you read the nutrition labels on food packages?
- A. Almost always or always
 - B. Most of the time
 - C. Sometimes
 - D. Almost never
 - E. Never
 - F. I don't know how to read nutrition labels

12. How many total servings of fruits and vegetables should you eat each day?
- A. At least 2
 - B. At least 5
 - C. At least 9
 - D. At least 10
 - E. I don't know
13. I think I eat a balanced diet.
- A. True
 - B. False
14. What is the benefit of a nutrient dense breakfast?
- A. A nutrient dense breakfast will slow down our metabolism
 - B. Nutrient dense food gives the brain energy for the day
 - C. Eating a nutrient dense breakfast means you can skip lunch
 - D. An extra full tummy feels very good
15. What is the first place in the body where digestion starts to occur?
- A. Mouth
 - B. Esophagus
 - C. Stomach
 - D. Small intestine
16. Which of the following are associated with what tobacco products can do to the body? (for example: cigarettes, vaping, hookah, chewing tobacco)
- A. Faster healing times
 - B. An increased risk of lung cancer
 - C. Lower levels of stress and anxiety
 - D. Make you smarter
17. Muscle strength or muscular endurance means...
- A. How well the muscles can push or pull
 - B. How well the heart pumps blood and the lungs provide oxygen
 - C. Having a healthy weight for our height
 - D. The ability to play the sports that we like

18. Cardiorespiratory fitness means...
- A. How well the muscles can push or pull
 - B. How well the heart pumps blood and the lungs provide oxygen with physical activity.
 - C. Having a healthy weight for our height
 - D. The muscle's ability to work for a long time
19. How many minutes each day should you and other children do physical activities that make your heartbeat faster and make you breathe faster, like walking fast or running?
- A. 10 minutes
 - B. 20 minutes
 - C. 30 minutes
 - D. 60 minutes
20. How much screen time (TV, phones, video games) do you get per day?
- A. Less than 1 hour
 - B. 1 to 2 hours
 - C. 3 to 4 hours
 - D. More than 5 hours
21. How many senses do you have?
- A. 0
 - B. 3
 - C. 5
 - D. 10
22. What does your cerebellum help control?
- A. Talking
 - B. Balance
 - C. Smelling
 - D. Eating



Instructions: This is *not* a test! We are looking for your thoughts and opinions. All of your answers are completely anonymous, so please *do not* put your name anywhere on this survey.

You will be given a list of jobs. Please rank them based on how exciting you find them by marking with an "X" whichever box best fits your opinion.

	Not Exciting	Neutral	Very Exciting
1. Fire Fighter			
2. Nurse			
3. Veterinarian			
4. Doctor			
5. Dentist			
6. Professional Athlete			
7. Physical Therapist			
8. Soldier			
9. Scientist			
10. Teacher			
11. Police officer			

Appendix B



Post Anatomy Academy Questionnaire (Rural)

Please answer the following questions to the best of your ability. This is not a test. There is no right or wrong answer. If you do not feel comfortable answering a question, you can leave it blank.

1. Do you currently exercise or participate in sports
 - A. Yes
 - B. No
2. How much you like to learn about anatomy (bones, muscles, brain and organs, senses)
 - A. I love it
 - B. It's ok
 - C. I don't like learning about it
 - D. I don't know much about anatomy so I don't know if I like learning about it
3. Do you have an interest in becoming a healthcare worker when you grow up? (For example: doctor, nurse, dietician, dentist, physical therapy, etc.)
 - A. Yes
 - B. No
4. What are some reasons you would want to work in healthcare:

5. What are some reasons you would NOT want to work in healthcare:

6. How often do you eat vegetables?
 - A. Never
 - B. 1-3 times per month
 - C. 1-2 times per week
 - D. 3-4 times per week
 - E. More than 5 times per week

7. How often do you eat fruit?
- A. Never
 - B. 1-3 times per month
 - C. 1-2 times per week
 - D. 3-4 times per week
 - E. More than 5 times per week
8. How often do you eat sweet rolls, doughnuts, cookies, brownies, cupcakes, pies or cakes?
- A. Never
 - B. 1-3 times per month
 - C. 1-2 times per week
 - D. 3-4 times per week
 - E. More than 5 times per week
9. How many bottles of water do you drink a day?
- A. None
 - B. 1 bottle
 - C. 2 bottles
 - D. 3 bottles
 - E. 4 or more bottles
10. How often do you exercise or participate in sports activities that make your heartbeat fast and make you breathe hard for at least 20 minutes?
- A. 0-1 days per week
 - B. 2-3 days per week
 - C. 4-5 days per week
 - D. More than 5 days per week
11. How often do you read the nutrition labels on food packages?
- A. Almost always or always
 - B. Most of the time
 - C. Sometimes
 - D. Almost never
 - E. Never
 - F. I don't know how to read nutrition labels

12. How many total servings of fruits and vegetables should you eat each day?
- A. At least 2
 - B. At least 5
 - C. At least 9
 - D. At least 10
 - E. I don't know
13. I think I eat a balanced diet.
- A. True
 - B. False
14. What is the benefit of a nutrient dense breakfast?
- A. A nutrient dense breakfast will slow down our metabolism
 - B. Nutrient dense food gives the brain energy for the day
 - C. Eating a nutrient dense breakfast means you can skip lunch
 - D. An extra full tummy feels very good
15. What is the first place in the body where digestion starts to occur?
- A. Mouth
 - B. Esophagus
 - C. Stomach
 - D. Small intestine
16. Which of the following are associated with what tobacco products can do to the body? (for example: cigarettes, vaping, hookah, chewing tobacco)
- A. Faster healing times
 - B. An increased risk of lung cancer
 - C. Lower levels of stress and anxiety
 - D. Make you smarter
17. Muscle strength or muscular endurance means...
- A. How well the muscles can push or pull
 - B. How well the heart pumps blood and the lungs provide oxygen
 - C. Having a healthy weight for our height
 - D. The ability to play the sports that we like

18. Cardiorespiratory fitness means...
- A. How well the muscles can push or pull
 - B. How well the heart pumps blood and the lungs provide oxygen with physical activity.
 - C. Having a healthy weight for our height
 - D. The muscle's ability to work for a long time
19. How many minutes each day should you and other children do physical activities that make your heartbeat faster and make you breathe faster, like walking fast or running?
- A. 10 minutes
 - B. 20 minutes
 - C. 30 minutes
 - D. 60 minutes
20. How much screen time (TV, phones, video games) do you get per day?
- A. Less than 1 hour
 - B. 1 to 2 hours
 - C. 3 to 4 hours
 - D. More than 5 hours
21. How many senses do you have?
- A. 0
 - B. 3
 - C. 5
 - D. 10
22. What does your cerebellum help control?
- A. Talking
 - B. Balance
 - C. Smelling
 - D. Eating



Instructions: This is *not* a test! We are looking for your thoughts and opinions. All of your answers are completely anonymous, so please *do not* put your name anywhere on this survey.

You will be given a list of jobs. Please rank them based on how exciting you find them by marking with an "X" whichever box best fits your opinion.

	Not Exciting	Neutral	Very Exciting
1. Fire Fighter			
2. Nurse			
3. Veterinarian			
4. Doctor			
5. Dentist			
6. Professional Athlete			
7. Physical Therapist			
8. Soldier			
9. Scientist			
10. Teacher			
11. Police officer			

Instructions: These last few questions are for you to give feedback on how you think the Anatomy Academy program went. Answers will be used to improve the program for future classes, so please answer honestly. Remember this is *completely anonymous*. Please check the box that best describes your response to the statement, and use the spaces provided to write any comments.

	Strongly Disagree		Neutral		Strongly Agree
1. Anatomy Academy was interesting					
2. Anatomy Academy made me interested in health					
3. The guest teachers were prepared					
4. The teaching tools (models, pictures, activities) helped me understand things better					

5. The guest teachers made me feel comfortable and welcome to learn					
6. I know more about anatomy now than before the course started					

7. What did you like the most about Anatomy Academy?

8. What did you like the least about Anatomy Academy?

9. What would you like to see Anatomy Academy change?

10. Any final comments or suggestions?

Appendix C

Stakeholders Qualtrics Questionnaire

1. Do you like or dislike Anatomy Academy?
 - a. Strongly dislike
 - b. Dislike
 - c. No opinion
 - d. Like
 - e. Strongly like
2. How comfortable did you feel that the DPT students formed authentic relationships with the elementary school students in Anatomy Academy?
 - a. Very uncomfortable
 - b. Uncomfortable
 - c. No opinion
 - d. Comfortable
 - e. Very comfortable
3. How much effort did it take to implement Anatomy Academy for the class?
 - a. None at all
 - b. A little
 - c. No opinion
 - d. A lot
 - e. A great deal
4. How acceptable was Anatomy Academy to you?
 - a. Completely unacceptable
 - b. Unacceptable
 - c. No opinion
 - d. Acceptable
 - e. Completely acceptable
5. Anatomy Academy interfered with my other priorities.
 - a. Strongly disagree
 - b. Disagree
 - c. No opinion
 - d. Agree
 - e. Strongly agree
6. Anatomy Academy has improved the elementary school student's learning.
 - a. Strongly disagree
 - b. Disagree
 - c. No opinion
 - d. Agree
 - e. Strongly agree

7. It makes sense to me how using Anatomy Academy results in an improved understanding of health and wellness in elementary students.
 - a. Strongly disagree
 - b. Disagree
 - c. No opinion
 - d. Agree
 - e. Strongly agree
8. How confident did you feel about the DPT students administering Anatomy Academy.
 - a. Very unconfident
 - b. Unconfident
 - c. No opinion
 - d. Confident
 - e. Very confident
9. What did you like or not like about Anatomy Academy? Please provide details.
10. Do you have any suggestions to improve Anatomy Academy?

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Curriculum Vitae

Rox Aurelio

Contact Information

roxmaurelio@gmail.com

Education

- Doctorate of Physical Therapy, University of Nevada, Las Vegas (June 2021 - May 2024)
- Bachelor of Science in Kinesiology, University of Nevada, Las Vegas (August 2017 - May 2021)
 - Graduated Cum Laude

Clinical Experience

- Sports Plus Physical Therapy (January 2024 - March 2024)
 - Completed a 10-week clinical rotation in the outpatient orthopedic and sports setting, treating patients with various musculoskeletal conditions. Treated patients in all phases of healing, from early post-operative to return to sport rehabilitation.
- Sunrise System - Sunrise Hospital and Medical Center (September 2023 - November 2023)
 - Completed a 10-week clinical rotation primarily treating patients with neurological conditions, including patients post-stroke requiring ICU-level care, post-TBI, postictal, post-surgical, and the adult oncology population. Further gained exposure in the TICU, CICU, ER, and step-down units.
- Advanced Health Care (July 2023 - September 2023)
 - Completed a 10-week clinical rotation in a skilled nursing facility treating patients of the geriatric population. Involved in determining safe discharge parameters, locations, and appropriate DME equipment.
- Dignity Health (June 2022 - July 2022)
 - Completed a 5-week clinical rotation in the outpatient orthopedic setting treating post-operative musculoskeletal conditions.

Employment

- UNLVPT Graduate Teaching Assistant (July 2022 - July 2023)
 - Responsible for assisting in UNLVPT informational sessions and tours, screening prospective student applications, answering admissions-related questions, and organizing our program's annual interview and orientation days for the incoming class. Assisted with a research project aiming to increase diversity within the Physical Therapy profession through more holistic mechanisms.
- UNLV School of Public Health - Senior Disease Investigator and Contact Tracer (March 2021 - June 2021)

- Interviewed individuals who have tested positive for COVID-19 and obtained information about potential exposures to minimize virus spread. Responsible for training new Contact Tracers on UNLV's Contact Tracing team and ensuring quality assurance by reviewing the data inputted into our respective infectious disease surveillance systems.

Community

- 11/04/23: UNLVPT Interviews, Student Escort, 3.5 hours
 - Escorted UNLVPT interviewees to designated interview destinations.
- 11/04/22 - 11/05/22: UNLVPT Interviews, Admissions TA, 30+ hours
 - Planned and coordinated UNLVPT interview days for incoming class. Lead volunteers through their designated tasks.
- 06/01/23: UNLVPT G1 Picnic, Admissions TA, 4 hours
 - Assisted with event planning and coordination for incoming UNLVPT class.
- Western Semifinal Wheelchair Rugby Set Up – Las Vegas (2023), volunteer, 6 hours
 - Helped with gym set up for a Wheelchair Rugby Semifinal for adaptive athletes.
- 04/06/23: UNLVPT Student Panel
 - Answered UNLVPT program questions and shared experiences with members of UNLV's Pre-Physical Therapy Honor Society
- 03/25/23: Gigi's Playhouse Event, Admissions TA for UNLVPT table, 6 hours
 - Managed the UNLV Physical Therapy table at Gigi's Playhouse Event to support individuals with Down Syndrome. Provided UNLVPT program information and answered program questions.
- 10/07/22: Nevada Senior Games, volunteer, 6 hours
 - Helped to conduct a variety of senior games. Helped with event set-up and organization.
- 10/08/22: Rock Steady Boxing, volunteer, 1.25 hrs
 - Assisted individuals with Parkinson's Disease through various exercises. Ensured participant safety throughout sessions
- 9/20/22: Desert Vista Community Center Balance and Memory Screening Event, 6 hours
 - Educated community members on fall risk and performed a variety of assessments to screen for fall risk. Provided relevant patient education on findings.
- 9/10/22: Rock Steady Boxing, volunteer, 1.25 hrs
 - Assisted individuals with Parkinson's Disease through various exercises. Ensured participant safety throughout sessions.
- 9/10/22: UNLV DPT Virtual Information Session and Application Workshop, 3 hours
 - Conducted informational session regarding UNLV's physical therapy program for prospective students.
- 7/16/22: UNLV DPT Virtual Information Session and Application Workshop, 1.5 hours

- Conducted informational session regarding UNLV's physical therapy program for prospective students.
- 6/2/22: UNLVPT G1 Welcome Picnic, coordinator and volunteer, 2 hours
 - Assisted with event planning and coordination for incoming UNLVPT class.
- 6/2/22: UNLVPT Orientation, volunteer, 2 hours
 - Assisted with event planning and coordination for incoming UNLVPT class.
- 1/21/22 and 1/22/22: UNLVPT Interview Days, volunteer
 - Conducted campus and departmental tours with UNVPT interviewees.
- 10/22/21: Meeting with Gear Up By Design to prepare online UNLVPT store, 2 hours
 - Worked with other members of class leadership to help set up UNLVPT online store.

Leadership

- UNLVPT Admissions Teaching Assistant, 2022-2023 school year
 - Assisted UNLVPT's Administrative Student Affairs Coordinator, Jessica Allen, MHA, with various program tasks, informational sessions, events, and research projects.
- UNLV DPT Class of 2024 Vice President, Jul 2021 - May 2024
 - Participated in various leadership activities and meetings, including helping start up the UNLVPT online store, organizing school events, and serving as a liaison between faculty and students.

Research

- 2021 - 2024: Introduction of the Anatomy Academy Program to Children In a Rural Elementary School
 - SPT mentor and Anatomy Academy Instructor for 2 fourth grade classes. Encouraged healthy lifestyle habits through interactive anatomy lessons.
- 09/12/22: Disability Scholarship Project with Jessica Allen and Dr. Szu-Ping Lee
 - Assisted in researching available scholarships in the Western United States for individuals with disabilities pursuing careers in healthcare
- 07/22/22: KIRA Research Project
 - Data input for UNLVPT cohorts who matriculated in 2021 and 2022
- 2020: Assisted Dr. Labus and Dr. Brooke Conway-Kleven in obtaining data on the public's adherence to mask-wearing guidelines during the COVID-19 pandemic
- 9/29/20: University of Miami - Research Project Participant (Pain beliefs, pain assessment, and management)

Consume/Share

- UNLVPT Faculty Meetings
 - 8/16/21 - 2023: Representing the UNLVPT class of 2024

- UNLVPT Distinguished Lecture Series
 - 3/25/22: Adriaan Louw, PT, PhD, Pain Neuroscience Education
 - 11/18/21 and 11/19/2: Julie Fritz, PhD, PT, ATC, “Pain Management in a Time of Dueling Pandemics” and “Evidence-Based Physical Therapy for Patients with Low Back Pain: Past, Present and Future”
- UNLVPT Brown Bag Lectures
 - 3/31/23: Tyretel Sprianu, PT, DPT, “Best PT Practices for Patients with Dementia and Psych Diagnoses”
 - 2/11/22: Merrill Landers, PT, DPT, PhD, “Becoming a Faculty Member: Pathways, Tips, and Strategies”
 - 11/5/21: Robert Asuncion, PT, DPT, “How to Become a Sports Physical Therapist & Return Athletes to High-Level Play”
 - 10/6/21: Dean Charlene Portee, PT, PhD, FAAPT, "The Road to Success: Are We Ready to Change Direction?"
 - 09/10/21: Danille Parker, PT, DPT, GCS, CEEAA, Clinical Associate Professor and Director of Clinical Education at Marquette University, “iPT: There’s an App for that? Enhancing your practice and learning through mHealth technology”
 - 06/18/21: Joseph Reinke, CFA, Financial Literacy for PT Students
 - 03/03/21: Nicole Piemonte, PhD, Creighton University, “Cultivating the Habits at the Heart of Patient Care: Compassion, Vulnerability, and Imagination”
- APTA NV Student Special Interest Group
 - 09/26/22: Divya Raghavan, PT, DPT, OCS, "On-Site Physical Therapy: Why Wait? Bringing Care to the Workplace"
- Clubs
 - UNLV Sports Medicine Club, member
 - 04/19/23: Stop The Bleed
 - 09/13/22, Dr. Joreitz PT, DPT, SCS, ATC, "*D1 Football, Basketball and Academia*"
 - 09/06/22, Kyle Moore, MS, LAT, ATC, CSCS, “Return to Play Decision Making”
 - UNLV DEI Club, member
 - 10/19/21: Cultural appropriation
 - 09/21/21: Ableism

Membership in Professional Organizations

- American Physical Therapy Association, member 2021-Present
 - Member ID: 972772
 - Member of Hand SOR

Madison Dobbs

Contact Information

madisondobbs97@gmail.com

Education

- Doctor of Physical Therapy, University of Nevada, Las Vegas (June 2021-May 2024)
- Bachelor of Science in Kinesiology, University of Nevada, Las Vegas (August 2016-May 2020)

Clinical Experiences

- Valley Health Specialty Hospital (January 2024-March 2024)
 - Completed a 10-week clinical rotation in the inpatient rehabilitation setting consisting of stroke, other neurological, orthopedic, cardiac, and amputee patients.
- Sunrise Children's Hospital (September 2023-December 2023)
 - Completed a 10-week clinical rotation in the inpatient acute pediatric and outpatient pediatric setting including the NICU, PICU, and CVCU.
- Valley Hospital Medical Center (July 2023-September 2023)
 - Completed a 10-week clinical rotation in the inpatient acute setting in the emergency department.
- Optimal Therapy (June 2022-July 2023)
 - Completed a 10-week clinical rotation in the outpatient orthopedic setting.

Employment

- Private Nanny (October 2020-June 2021)
 - Cared for infant aged 2 months. Maintained strict schedule provided by infant's parents. Provided various opportunities for learning and development.
- Physical Therapy Technician, Kelly Hawkins Physical Therapy (June 2019-October 2020)
 - Instructed patients through exercises. Set patients up with various modalities. Worked alongside other technicians, physical therapists, and physical therapist assistants
- Online English Language Teacher, Qkids (August 2018-August 2019)
 - Taught English to Chinese children aged 5-12 through an online program.
- Customer Service Representative, Allstate (July 2014-August 2018)
 - Answered phone calls from clients and other companies. Processed payments and managed bank deposits. Completed various daily tasks.

Volunteer Work

- Lone Mountain Stake Activity Days Camp (09/12/2023)
 - Helped check children in and ran different activities throughout the camp.
- Texas Hold'em Wheelchair Rugby Tournament (11/20/2022)
 - Scorekeeper for the tournament and helped clean up the gym after the tournament ended.

- Las Vegas Honor Ride (11/12/2022)
 - Helped serve lunch and guided cool down stretches to those returning from the ride.
- UNLVPT Interview Days (11/04/2022 – 11/05/2022)
 - Mingled with students and answered any questions they had about UNLV's PT program. Escorted students to and from their interviews.
- Shelby Estocado Charity Golf Tournament (10/31/2022)
 - Helped check in tournament participants. Collected donations and handed out raffle tickets.
- Lone Mountain Stake Activity Days Camp (09/24/2022)
 - Helped children make over 200 blankets to be donated to Child Haven.
- UNLVPT Balance and Memory Screening (09/20/2022)
 - Ushered, ran STEADI/Mini-Cog assessments, and conversed with participants.
- APTA – Legislative Action Center (9/13/2022)
 - Wrote a personalized email to the Nevada state senators in support of H.R. 3759/S. 2676 to add physical therapists to the National Health Service Corps (NHSC) and increase availability of rehabilitation services to individuals in rural and underserved areas.
- Rock Steady Boxing (09/10/2022)
 - Set up equipment and cheered on participants with Parkinson's Disease throughout the class.
- UNLVPT Interview Days (01/21/2022 – 01/22/2022)
 - Mingled with students and answered any questions they had about UNLV's PT program. Escorted students to and from their interviews.
- PT Day of Service 2021 (10/09/2021)
 - Made motivational posters for Las Vegas AMBUCS and wrote letters to older adults to combat isolation.

Leadership

- APTA NV Student SIG President (October 2022-January 2024)
 - Attended quarterly APTA Nevada meetings and hosted monthly events for student members. Coordinated with all PT and PTA programs in Nevada.

Continuing Education

- Well-Being: Your Career Depends On It (09/29/2022) – APTA Learning Center
- OTAGO Exercise Program: Falls Prevention Training Certification (09/28/2022)
 - Used this training to properly exercise and train older individuals to reduce their risk of falls.
- Professionalism Module 1: Introduction to Professionalism (09/27/2022) – APTA Learning Center
- Professionalism Module 2: History of Professionalism in Physical Therapy (09/27/2022) – APTA Learning Center
- Professionalism Module 3: Ethical Compass (09/27/2022) – APTA Learning Center
- Implicit Bias Tests (09/18/2022)

- Took multiple implicit bias tests through Project Implicit to identify any biases that I may unconsciously have, so I can work on reducing them.
- STEADI Certification (09/10/2022)
 - Used this training to accurately screen older individuals during a fall screening event.
- APTA – Core Values Self-Assessment (09/07/2022)
 - Identified core value sections that I scored lower in so that I am able to actively address these limitations within myself.
- Attended CSM 2022 (02/03/2022 – 02/05/2022)
 - Attended numerous lectures, poster presentations, and booths. Learned a lot about new research and devices being utilized for physical therapy rehabilitation.

Research

- Co-investigator: *“Introduction of the Anatomy Academy Program to Children in a Rural Elementary School”* - Dr. Lisa Taylor

Consume/Share

- UNLVPT Brown Bag
 - 03/04/2022: Logan Ponce, PT, DPT, CSCS – “How physical therapy contributes to performing arts medicine”
 - 02/11/2022: Merrill Landers, PT, DPT, PhD – “Becoming a faculty member: pathways, tips, and strategies”
- UNLVPT Sports Medicine Club
 - 11/07/2023: Kira Markus, PT, DPT – “Considerations for the BJJ Athlete”
 - 09/27/2022: Erik Meira, PT, DPT, SCS, CSCS – “Critically Reading and Appraising Research”
 - 09/06/2022: Kyle Moore – “The Unique Needs of Hockey Athletes”
- UNLV Multidisciplinary Club
 - 01/24/2022: Dr. Sukanta Maitra – “Managing the Spine in Sports”
- APTA Nevada SSIG
 - 10/12/2023: Ron Garcia, PT, DPT and Danielle Garcia, PT, DPT – “How Two UNLVPT Alums Paid Off \$330,000 in Student Loans in Under 3 Years”
 - 09/25/2023: Abby Listin, SPT, Mira Seekins, SPT, and Yasmeen Riggs, SPTA – “Learn about Advocacy Day from three students who attended in Capitol Hill”
 - 04/27/2023: John Davis – “How to Interview”
 - 03/22/2023: Ephraim Makuve, PT, DPT – “Starting a Business in PT”
 - 02/28/2023: Physio Trivia Night

Awards and Honors

- UNLV Physical Therapy Department Scholarship 2024
- UNLV Physical Therapy Department Scholarship 2023
- Dean’s List 2016-2020

Membership in Professional Organizations

- American Physical Therapy Association member (2021 – present); Member #: 953639

- Pediatric Physical Therapy SIG member (2022 – present)

Nicole Horn

Contact Information

Nicolehorn.21@gmail.com

Education

- Doctorate of Physical Therapy, University of Nevada, Las Vegas (June 2021 - May 2024)
- Bachelor of Science in Kinesiology, Emphasis in Pre-Allied Health Science, Boise State University (August 2017 - May 2021)
 - Graduated Magna Cum Laude

Clinical Experience

- Silver State Pediatrics Skilled Nursing Facility (January 2024 – March 2024)
 - Completed a 10-week clinical rotation in a pediatric skilled nursing facility treating patients with various conditions such as developmental delay, genetic disorders, scoliosis, non-accidental trauma, and respiratory distress.
- First Physical Therapy (September 2023 – December 2023)
 - Completed a 10-week clinical rotation in the outpatient orthopedic setting with a primary focus in pelvic health, as well as breast cancer and lymphedema.
- St. Luke's Hospital – Boise Medical Center (July 2023 – September 2023)
 - Completed a 10-week clinical rotation in the adult acute care setting primarily treating those on the neuro floor, oncology floor, MICU, SICU, CVCU, and CCU. Further gained exposure in the PICU, NICU, ER, and step-down units.
- Therapeutic Associates Physical Therapy – SE Boise (June 2022 – July 2022)
 - Completed a 5-week clinical rotation in the outpatient orthopedic setting treating post-operative musculoskeletal conditions and pelvic health.

Employment

- Group Fitness Instructor, Boise State University Campus Recreation (August 2019 – May 2021)
 - Designed and instructed group fitness classes such as Power Flow Yoga, Sunrise Yoga, Restorative Yoga, Cycle Core Challenge, Cycle 45, and Cycle 30. Each class aimed to improve participant mental and physical health through exercise routines of various intensities and positive encouragement and motivation. I instructed patients to perform movements with proper form, offered modifications to account for every body type and fitness level, and individually corrected participants as needed, so ensure safe practice for everyone.
- Certified Personal Trainer, Boise State University Campus Recreation (November 2018 – May 2021)
 - Developed individualized and comprehensive one-on-one training programs for diverse clientele of young, middle-aged, and older adults. Each program aimed at improving functional movement, nutrition, and exercise related attitude. Additionally, I worked closely with my mentor to develop program-specific projects designed to create a safe and inclusive gym environment and improve the knowledge of exercise techniques to gym patrons with diverse fitness backgrounds.

- Physical Therapy Aide, Therapeutic Associates Physical Therapy (June 2020 - April 2021)
 - Assisted one PT by guiding their patients through corrective exercises under their individualized treatment plan. I kept the building clean and organized by flipping rooms and sanitizing equipment after patient use, and made sure equipment was neatly put away. I demonstrated a high level of customer service by answering phone calls in a timely manner, interacted with patients face to face, and promoted an attitude of positivity and inclusivity. I demonstrated technological and organizational capabilities by working with various software programs including Day Force, Athena, Med Bridge, and Care Connections.
- Tech Intern, Rock and Armor Physical Therapy (June 2020 – September 2020)
 - Observed multiple PT's treat patients of all ages with a variety of injuries. Assisted PT's by applying and removing e-stim pads, ice/heat packs, and recovery pump boots to their patients. Under supervision of a PT or PTA, I scraped, cupped, plunged, and applied percussion therapy to patients.

Community

- Texas Hold'em Wheelchair Rugby Tournament, Student Volunteer (November 2022, March 2023)
 - Learned about adaptive sports, equipment, and helped facilitate their tournament by running shot clock.
- UNLVPT Interview Day, Mingler and Anatomy Lab Tour Guide (November 2022)
 - Mingled with interviewees, answered questions, helped calm nerves, walked them to interview rooms, facilitated UNLV PT department tours.
- Annual Charity Golf Tournament for Shelby Estocado, Student Volunteer (October 2022)
 - Learned about adaptive equipment for patients with SCI and volunteered where needed on the course to raise money for a local resident with a SCI.
- Global PT Day of Service, Student Volunteer and Organizer (October 2022)
 - Organized, supervised, and participated in three different volunteer events (NV Senior Games, Rock Steady Boxing, and Wetlands Park Clean Up) for UNLVPT students and faculty.
- UNLVPT Student Panel, Student Volunteer (September 2022)
 - Answered questions about the UNLVPT program to prospective students.
- Rock Steady Boxing, Student Volunteer (September 2022 – April 2023)
 - Set up equipment, taught exercises, encouraged, and supported participants.
- Sun City Summerlin Balance and Memory Screening, Test Administrator (September 2022)
 - Screened older adults at Desert Vista Community Center in Las Vegas, for fall risk using the STEADI algorithm and dementia using the Mini-Cog. Guided participants to discuss their test results with licensed health professionals at the screening, so they could be provided with the resources necessary to improve their health and wellbeing.
- UNLVPT Interview Day, Interview Escort, Mingler, and Department Tour Guide (January 2022)
 - Mingled with interviewees, answered questions, helped calm nerves, walked them to interview rooms, facilitated UNLV PT department tours.

- Global PT Day of Service, Student Volunteer (October 2021)
 - Made motivational/cheer posters for kids receiving bikes from AMBUCS and wrote letters to seniors across the globe for Letters Against Isolation (LAI).

Leadership

- UNLVPT Social Media Advisor (May 2022-July 2023)
 - Create weekly postings to connect with students, employees, alumni, fans, and the University; promote the UNLVPT program; and encourage student involvement.
- UNLVPT Class of 2024 - Social Officer (October 2021-May 2024)
 - Organize social events for the cohort and PT department (Goal of an event every month)

Research Activity

- Service-Learning Project: Introduction of the Anatomy Academy Program to Children in a Rural Elementary School (Taylor, L, Varnado, B, Ciccotelli, J) (November 2022-May 2024)
- Poster Presenter: American Physical Therapy Association Pediatrics Conference (October 27, 2023 - October 29, 2023)

Continuing Education

Physical Therapy Continuing Education

- APTA - Core Values Self-Assessment (06/15/2023, 09/01/2022); 1 hour
- Herman & Wallace Pelvic Rehabilitation Institute, Pelvic Floor Level 1: Introduction to Pelvic Floor Function, Dysfunction, and Treatment, Las Vegas, NV (January 21-22, 2023); 23.75 hours
- The OTAGO Exercise Program: Falls Prevention Training, Webinar (October 9, 2022); 3 hours
- American Physical Therapy Association Professionalism Module 3: Ethical Compass, Webinar (October 9, 2022); 3 hours
- American Physical Therapy Association Professionalism Module 2: History of Professionalism in Physical Therapy, Webinar (October 9, 2022); 2 hours
- American Physical Therapy Association Professionalism Module 1: Introduction to Professionalism, Webinar (October 9, 2022); 2 hours
- STEADI: Empowering Healthcare Providers to Reduce Fall Risk, Webinar (September 10, 2022); 1 hour
- American Physical Therapy Association NV SSIG: "Travel PT – A Life on Your Terms" with Yonas Tekeste, Webinar (August 29, 2022); 1 hour
- American Physical Therapy Association Pelvic Health: SSIG + EPIG Webinar: Pathways to Pelvic Health (April 20, 2022); 1.5 hours
- Lokahi Physical Therapy and Well-Rounded Momma, Postpartum Expectations Course, Las Vegas, NV (March 16, 2022); 2 hours
- American Physical Therapy Association Combined Sections Meeting, San Antonio, TX (February 3-5, 2022); 20 hours

Personal Training Continuing Education

- American Council on Exercise: Senior Fitness Specialist Program, Webinar (November 29, 2020); 3 hours
- American Council on Exercise IFT Model: Personal Training Program Design, Webinar (November 11, 2020); 3 hours

Consume and Share

- 02/15/2023: Jason Ciccotelli, PT, DPT, “Lumbopelvic Biomechanics and Muscle Performance in Individuals with Unilateral Transfemoral Amputation: Implications for Lower Back Pain”
- 12/20/2022: Catrina Fabian, PT, DPT, Pelvic Health PT, “Pelvic floor specialist In-Service”
- UNLVPT Brown Bag:
 - 11/18/2022: Marissa Shahani, MS, RD, “Sports Nutrition”
 - 04/22/2022: Tyler Billings, PT, DPT (Cert. MDT) & Spencer Townsend, PT, DPT, “Developing your Clinical Leadership Toolkit and Real-World Strategies to put the Quadruple Aim into Practice.”
 - 04/08/2022: Mark Thomson, PT, DPT, OCS, FAAOMPT, CMP, MCTA, “Mulligan Manual Therapy Concept”
- UNLVPT Sports Medicine Club
 - 02/15/2023: Vladimir Sinkov, MD, “Approaches to Lumbar Spine”
 - 11/15/2022: Tiffany Barrett, PT, DPT, OCS, “Manual Therapy Lab”
 - 04/11/2022: Ashley Campbell, “Golf and Cash PT”
 - 03/24/2022: Keoni Kins, PT, DPT, LAT, ATC, “Taping Lab 2”
 - KT tape technique for fibula posterior glide, wrist hyperextension, and thumb spica for sprain
 - 03/21/2022: Sarah Hixon, PT, DPT, SCS, STC, “Division 1 Athletics Physical Therapy”
- UNLV Multidisciplinary Sports Didactics
 - 01/24/2022: Sukanta Maitra, MD, FAAOS, “Managing the Spine in Sports”

Honors and Awards

- UNLV Physical Therapy Department Scholarship (2022-2024)
- UNLV Graduate College, Graduate Access Grant (January 2024)
- UNLV Graduate College, Graduate Access Scholarship (August 2023)
- Boise State University, Western Undergraduate Exchange Scholarship (August 2017-May 2021)

Membership in Professional Organization

- American Physical Therapy Association (July 2021-Present); Member #: 962005
 - Academy of Pelvic Health (August 2022 – Present)
 - Pregnancy & Postpartum Physical Therapy SIG
 - Student SIG
 - Hand and Upper Extremity Section (July 2021 – Present)
 - Research Section (July 2021 – Present)
 - Idaho American Physical Therapy Association (July 2021 – Present)
 - Nevada American Physical Therapy Association (July 2021 – Present)

Gianni Terrana

Contact Information

gianni.terrana3@gmail.com

Education

- Doctor of Physical Therapy, University of Nevada- Las Vegas (June 2021 - May 2024)
- B.S. Kinesiology, Honors College, Magna Cum Laude, University of Nevada- Las Vegas (August 2017 - May 2021)

Employment

- Graduate Teaching Assistant, University of Nevada-Las Vegas (June 2022 - July 2023)
 - Worked as a graduate teaching assist under Jason Ciccotelli, PT, DPT
 - Served first-year physical therapy students by running review sessions before quizzes and exams for classes such as anatomy, pathophysiology, and functional training
 - Attended cadaver lab to assist with different lab sections, as well as prepared the lab, set-up and clean up, for the different classes
- Lead Peer Mentor Lead Peer Mentor (October 2019 – May 2021)
 - Organized and lead meetings for the peer mentors
 - Designed the HUB resource on canvas for mentees
 - Built healthy relationships with assigned mentees by leading one-on-one meetings
- UNLV FITNESS4FINALS Art Therapy Director (October 2019 – May 2021)
 - Organized art therapy event for fall and spring semesters
 - Created an inviting environment for all students and staff
- Red Rock Casino Pool and Grill Lifeguard (June 2018 - November 2019)
 - Supervised pool activities and ensured patron safety
 - Performed bag checks at entrances
 - Guest check in and towel delivery

Clinical Experience

- Physical Therapist Intern, Sunrise Hospital and Medical Center- Pediatrics (January 2024 - March 2024)
 - I participated in managing 100% daily caseload of patients in the pediatric acute care setting under the supervision of a licensed physical therapist, specifically in the cardiac intensive care unit, neonatal intensive care unit, and pediatric intensive care unit. I collaborated closely with other medical staffing such as nurses, occupational therapists, speech pathologists, doctors, and surgeons.
- Physical Therapist Intern, Lou Ruvo Cleveland Clinic (October 2023 - December 2023)
 - I participated in managing 75% daily caseload of patients with cognitive disorders such as Alzheimer's, MCI, CTE, MS, and Parkinson's Disease under the supervision of a licensed physical therapist. I participated in Cleveland Clinic's clinical research program to help advance the evidence on brain health. I collaborated with other health care professionals to create individualized plans of care for each patient and used a patient first approach. The patient first approach

was designed by Cleveland Clinic that addresses every aspect of the patient such as their physical comfort, educational, emotional, and spiritual needs.

- Physical Therapist Intern, Silver State Pediatric Skilled Nursing Facility (July 2023 - September 2023)
 - I participated in managing 100% daily caseload of patients with neurological pediatric under the supervision of a licensed physical therapist. I educated family members and caregivers regarding diagnosis, therapeutic treatments, and safety measures. I performed evaluations and co-treatments with occupational therapists, respiratory therapists, and speech pathologists.
- Physical Therapist Intern, FYZICAL Therapy & Balance Centers (June 2022 - July 2022)
 - I participated in managing 25% daily caseload of patients with neurological/orthopedic under the supervision of a licensed physical therapist. I performed assessments and evaluations on a diverse population, as well as contributed to creating plans of care. I participated in administering tests such as the sensory organization test and BPPV testing such as the Dix-Hallpike test.

Community

- Silver State Pediatrics Skilled Nursing Facility Volunteer and Cuddle Club Member (September 2023 – Current)
- Rhythmic Rehabilitation Music Therapy Volunteer with Julie Renato Cleveland Clinic (October 2023)
- UNLVPT Neuroanatomy Lab Assistant under Michael Gevertzman, PT, DPT, NCS (October 2023)
- Neurologist Shadowing Experience at Lou Ruvo Cleveland Clinic (September 2023-October 2023)
- 2022 Texas Hold'em Wheelchair Rugby Tournament (November 2022)
- Department Tour Guide, UNLVPT Interview Day for Class of 2026 (November 2022)
- Shelby Estocado Annual Charity Golf Tournament (October 2022)
- Test Administrator, Balance and Memory Screening at Desert Vista Community Center (September 2022)
- Class Volunteer, Rock Steady Boxing (August 2022 - May 2023)
- Coordinator, UNLVPT Welcome Picnic for Class of 2025 (June 2022)
- Campus Tour Guide, UNLVPT Interview Day for Class of 2025 (January 2022)
- Poster Maker, National AMBUCS PT Day of Service Event (October 2021)
- Test Administrator, Bishop Gorman High School Football Baseline Concussion Testing (July 2021)

Leadership

- UNLVPT Social Media Class Officer, University of Nevada- Las Vegas (June 2022 - May 2024)

Research Activity

- Co-Investigator and author of *“Physical Therapists and Physical Therapy Students Implement Anatomy Academy Program Aimed at Health and Fitness Promotion to Children in a Rural Area,”* (September 2021 - May 2024)
- Poster Presenter: American Physical Therapy Association Pediatrics Conference (October 27, 2023 - October 29, 2023)

Continuing Education Attended

- Lou Ruvo Cleveland Clinic Clinical Research Program
 - PD Grand Rounds: Clinical Trials in Parkinson’s Disease (October 28, 2023); 1 hour
 - Dr. Dylan Wint, MD “Lecanemab: A New Treatment for Alzheimer’s Disease,” (October 27, 2023); 1 hour
 - Madisen Mendez, MOT, OTR/L “Cognitive Assessment & Interventions for MS,” (October 27, 2023); 1 hour
 - Tiarra Atkinson, LCSW “Behavioral Medicine,” (October 27, 2023); 1 hour
 - Kameron Jacobson, PT, DPT “Functional Neurologic Disorders & MS,” (October 26, 2023); 1 hour
 - Dr. Le Hua, MD, FAAN “Disease Modifying Therapies and Medical Management of MS,” (October 23, 2023); 1 hour
 - Dr. Carrie Hersh, DO, MSc, FAAN “Introduction to MS and MS pathophysiology,” (October 23, 2023); 1 hour
 - Julie Renato, MM, LPMT, MT-BC “Music Therapy for Individuals with Neurodegenerative Disorders,” (September 26, 2023); 1 hour
- Quantum Health Professionals “How to Interview,” (April 27, 2023); 1 hour
- Adriann Louw, “Teaching People about Pain: Pain Neuroscience Education,” (April 21, 2023); 7 hours
- Vladimir Sinkov, MD “Approaches to Lumbar Spine and Post-Op Rehabilitation,” (February 15, 2023); 1 hour
- Dissertation Defense: Jason Ciccotelli, PT, DPT “Lumbopelvic Biomechanics and Muscle Performance in Individuals with Unilateral Transfemoral Amputation: Implications for Lower Back Pain,” (February 15, 2023); 1 hour
- Dr. Julie Fritz “Evidence-Based Physical Therapy for Patients with Low Back Pain: Past, Present, Future,” (November 19, 2022); 2.5 hours
- Dr. Julie Fritz “Pain Management in a Time of Dueling Pandemics,” (November 18, 2022); 1.5 hours
- Professionalism Module 3: Ethical Compass, APTA E-Learning Course (October 7, 2022); 2 hours
- Professionalism Module 2: History of Professionalism in Physical Therapy, APTA E-Learning Course (October 7, 2022); 2 hours
- Professionalism Module 1: Introduction to Professionalism, APTA E-Learning Course (October 7, 2022); 2 hours
- Divya Raghavan, PT, DPT, OCS “Corporate Physical Therapy: Do you want to be part of this revolution,” (September 26, 2022); 1 hour

- STEADI: Empowering Healthcare Providers to Reduce Fall Risk (September 1, 2022); 1 hour
- 2022 Combined Sections Meeting of the American Physical Therapy Association (February 3 – February 5, 2022)
- Well-Being: Your Career Depends on It, APTA E-Learning Course (September 28, 2021); 1 hour
- Defensible Documentation: A Framework for Physical Therapy Documentation, APTA E-Learning Course (September 21, 2021); 2 hours

Scholarship Awards

- UNLVPT Recognition of Achievement Award, University of Nevada- Las Vegas (January 2024)
- UNLVPT Department Scholarship, University of Nevada- Las Vegas (January 2023)
- Graduate Access Scholarship, University of Nevada- Las Vegas Graduate College (August 2022)
- UNLVPT Department Scholarship, University of Nevada- Las Vegas (January 2022)
- UNLV Dean's List (August 2017 – May 2021)

Membership in Professional/Scientific Organizations

- American Physical Therapy Association (APTA) (July 2021 - Present)
- Academy of Geriatrics of the American Physical Therapy Association (August 2022 - Present)
- Nevada Physical Therapy Association (July 2021 - Present)
- Academy of Pediatrics of the American Physical Therapy Association (July 2021 - Present)
- Academy of Hand and Upper Extremity of the American Physical Therapy Association (July 2021 – Present)
- Research Section of the American Physical Therapy Association (July 2021 – Present)