RESEARCH HANDBOOK

College of Health Professions

Grand Valley State University

Physical Therapy Clinical Doctoral Program

Department of
Physical Therapy

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GRAND VALLEY STATE UNIVERSITY
COLLEGE OF HEALTH PROFESSIONS

Contents

INTRODUCTION

Physical Therapy research involves examination of the relationships among clinical phenomena and between clinical and theoretical perspectives. Physical Therapists have long been aware that much research is needed to establish valid and reliable data that will justify clinical practice.

This manual will provide you with an overview of the research requirements for the Doctorate in Physical Therapy at Grand Valley State University. It will serve as a guide for your research activities throughout the respective programs and will complement the reference materials required for your classes. Specifically, you should use this manual in conjunction with:

- the appropriate research text as recommended by your research mentor
- the appropriate style manual -- American Medical Association (AMA) or American Psychological Association (APA) as recommended by your research mentor
- the appropriate procedures to follow regarding the specific format of your research

Please familiarize yourselves with these pages. Your faculty will expect you to be responsible for their contents throughout the program. Please direct any questions to a faculty member who will be happy to help you find the information you need.

Please keep in mind that this handbook should be used as your primary reference.

Part I: FOUNDATIONS

During the first phase of the Doctorate in Physical Therapy (DPT) program, students establish a foundation for engaging in a research project. The final portion of the program is devoted to the research requirement in which students perform their own studies.

RESEARCH REQUIREMENTS

Research begins with identifying the sources of our existing knowledge base, an understanding of the research process, and a comparison of different types of research and of the philosophical base for each. Next, students must gain an appreciation of the role of theory in clinical research and of the ethical issues that the process raises.

Literature Reviews

The ability to distill important information from a large quantity of material gives the researcher the means to quickly identify material relevant to their subject and to determine what material will apply to their own work. In **PT 510** students begin to summarize and analyze the work of others by reviewing articles on a subject. Students will conduct more extensive literature reviews later in the program starting in the fall semester of the second year in **PT 610** and will continue as they perform and complete their research in **PT 790** and **PT 793**.

Writing Abstracts and Critical Review

Writing abstracts also refines the ability to distill and summarize important information. In many courses in the three curricula, students will practice summarizing specific research studies with a written abstract of the literature. Because the faculty believes that this skill is extremely important, students will continue to write abstracts throughout the program, and learn to critique the work of others. Students learn to write abstracts and critically evaluate the importance of research studies to the field of knowledge.

Research Proposals

To write a research proposal, practitioners must have a solid understanding of basic facts and theories in their area of interest and use their understanding and curiosity to generate testable or theory generating questions (hypotheses). Clinicians also must have a working knowledge of measurement theory and concepts and be able to apply design principles and statistical tests for quantitative studies, as well as measures of trustworthiness for qualitative studies, as appropriate. Students will be able to practice developing these skills during their respective programs.

ETHICS IN RESEARCH

Scientists subscribe to a code of ethics for the research process (Portney and Watkins, 2009). Ethics become important in planning a project, in implementing it, and in protecting human dignity and rights throughout the process.

The Code of Ethics for the Physical Therapist and its interpretive Guide for Professional Conduct are both well-known to all physical therapists. You can read the APTA Task Force revised Code of Ethics through the link below:

The Revised APTA Code of Ethics for the Physical Therapist and Standards of Ethical Conduct for the Physical Therapist Assistant: Theory, Purpose, Process, and Significance

Ethical Conduct – Earning the public's trust

The American Physical Therapy Association (APTA) is a great resource for physical therapists.

Responsible Conduct of Research

At GVSU, the Responsible Conduct of Research (RCR) refers to the shared principles of honesty, accuracy, efficiency and objectivity that guide research. The **Office of Research Compliance and Integrity (ORCI)** at GVSU is the entity that oversees compliance for RCR. In **PT 610** students are required to complete **CITI – RCR Training** which is a requirement of GVSU Institutional Review Board (IRB) for any student or faculty member to engage in research at this university. The CITI training modules provide the researcher important guidelines for ethical research and the responsibilities of the researcher to protect rights of all research participants.

Planning Your Research

The IRB, an entity of the ORCI, ensures that the basic rights and welfare of research participants are fostered and protected. The IRB supports researchers through its coordinated activities in education, regulatory compliance oversight, and post approval-monitoring. All research involving human subjects performed at GVSU by GVSU students, staff, or faculty must be reviewed and authorized by the IRB prior to the beginning of the research.

GVSU IRB Policies, Procedures & Guidance

- Policy on Ethical and Legal Principles
- Compliance with Applicable Laws and Regulations
- Informed Consent: General
- Informed Assent and Parental Permission

INTEGRITY IN PRACTICE

According to the APTA Center for Integrity in Practice, "*the principles of altruism, excellence, caring, ethics, respect, communication, and accountability when working with other professionals are important for achieving optimal health and wellness in individuals and communities*." The APTA Center for Integrity in Practice provides invaluable information including:

- Upholding Integrity
- Reducing Risk
- Best Practices

APTA Integrity in Physical Therapy Research

Preamble

The American Physical Therapy Association (APTA) and its physical therapist members are committed to encouraging and improving research in physical therapy. This commitment is grounded in the Association's Object and Functions, as set out in its Bylaws. The Association and the promoting professional ethics in physical therapy, and this commitment is grounded in the Code of Ethics which is binding on all physical therapist members of the APTA.

A concern for integrity in research follows quite naturally from the dual commitment to research and professional ethics. Integrity in research requires that the research be humane and both professionally and scientifically acceptable. Essentials to integrity in physical therapy research are certain considerations addressed in this document.

The number of physical therapists who design, conduct, and report, or otherwise engage in research is growing. Many of these physical therapists, as well as the students who are learning to research and their mentors, may not have ready access to guidance or advice on the consideration that are essential to integrity in physical therapy research.

This document was developed to satisfy that need.

The Association's Committee on Research consulted and reviewed several published and unpublished resources, including laws, regulations, consent forms, and guides, during the period 1981 to 1985 when the work on the document was done. The work was assisted by extensive written comments received in response to a first draft circulated in 1983, by oral comments received at a hearing on a second draft in 1984, and through a continuing exchange of ideas with the Association's Judicial Committee.

Purpose and Use

The statements in this document are offered as considerations for physical therapists that design, conduct, and report, or otherwise engage in research. Individual and collective attention to these considerations will help assure integrity in physical therapy research.

The statements are not to be considered inclusive of all the situations to which they might apply. Developments within and outside physical therapy, including societal trends and changes in law and regulation, will require that the statements be continuously reviewed and modified as warranted. Additional statements will be developed as needed to address situations not now addressed in this document.

No attempt was made to include or append detailed information from, or examples of, the materials which were reviewed in developing this document. The uses of and responses to this document will be reviewed to determine later the need for including or appending detailed information and examples.

The statements in this document are not intended to codify, explain, modify, or replace, in whole or in

part, any of the ethical principles in the Association's Code of Ethics of any of the interpretations in the Guide for Professional Conduct issued by the Association's Judicial Committee.

THE RIGHT, PRIVACY, AND WELL-BEING OF RESEARCHSUBJECTS

Rights of Subjects

Physical therapists (PTs) should ensure that the participation of human subjects in research is voluntary, free of coercion and deception, and based on an understanding by the subjects, or their legally authorized representatives, of the nature of the research and its expected benefits and risks.

- Legally effective informed consent should be obtained in writing from human subjects, or their legally authorized representatives, before the subjects participate in research.

- Human subjects, or their legally authorized representatives, should be assured in writing of the right to withdraw consent or to discontinue participation in research at any time without prejudice of any kind to the subjects.

- Human subjects, or their legally authorized representatives, should not be made to waive or appear to waive any of the subject's legal rights, or to release or appear to release the investigator, the sponsoring or funding agency, or the institution or any of its agents for liability for negligence.

- Human subjects, or their legally authorized representatives, should be informed as to whether any compensation or treatment is available to the subjects if any physical injury results from the research.

PTs should ensure that animal subjects used in research are treated humanely and, if sacrifice is necessary, are killed in a humane manner.

Confidentiality and Privacy

PTs should ensure that data and observations obtained on human subjects who participate in research are recorded, stored, and reported in ways that protect the individual and personal identity of the subjects.

- The information furnished to human subjects, or their legally authorized representatives, at the time that informed consent is obtained should include statement of the extent to which the confidentiality of data and observations on individual subjects will be maintained.

- In situations where patients participate as human subjects in research, consideration may be given to releasing data and observations which reveal the identity of individual subjects to specified persons for purposes of real or potential benefit to the subjects. The subjects, or their legally authorized representatives, should be informed of and consent to such release before any release is made.

- Signed release for the publication or exhibition, or other scientific or educational use, of photographic or other recorded images of human subjects from the subjects or their legally authorized representatives.

In situations where research procedures require the simultaneous presence of more than one human subject, or one or more groups of human subjects, PTs should ensure that the individual subjects have the maximum possible privacy during their participation.

Risk to Subjects

PTs should identify and reduce, as far as is possible, the risk of physical, psychological, or social harm to research subjects.

- Proposals of research requiring the application of experimental procedures or the imposition of experimental conditions should be submitted to institutional review boards or similar review bodies for independent assessment of the expected risk of physical, psychological, or social harm to research subjects.

- The use of experimental procedures or conditions should be suspended if research subjects incur physical, psychological, or social harm to an extent or in a form that exceeds or deviates from the expected risk of harm. A full report on the procedures that reconditions used, and the resultant harm observed, should be submitted for study by the appropriate review body. The use of the procedures or conditions should be resumed only if the appropriate review body approves the resumption.

Well-being of Subjects

PTs should always be guided by concern for the physical, psychological, and social well-being of research subjects.

Research conducted by PTs on live animals should be done only in facilities that comply with the Code of Federal Regulations, Title 9, Subchapter A – Animal Welfare, and that either are accredited by the American Association for Accreditation of Laboratory Animal Care or have institutional committees which review animal facilities and practices for compliance with the National Institutes of Health Guide for the care and use of laboratory animals, and that comply with pertinent local laws and regulations governing the housing, care, and feeding of animals.

OBSERVANCE OF THE LAWS AND REGULATIONS GOVERNING RESEARCH

Laws and Regulations

PTs who engage in research on human subjects who are patients should comply with the laws and regulations governing the practice of physical therapy in the jurisdiction in which the research is done on those subjects.

Institutional Requirements

PTs should comply with the requirements governing the approval and conduct of research within the institutional or organizational settings in which they engage in research. If there are no requirements governing the approval and conduct of research within the institutional or organizational setting, the PT should make every effort to assist in developing and implementing such requirements.

State Practice Acts

PTs must practice within the scope of physical therapy practice defined by these state licensure laws (physical therapy practice acts). The entire practice act, including accompanying rules, constitutes the law governing PT practice within a state.

Physical Therapy Practice Acts by State

Michigan Legislature: Public Health Code: Physical Therapy

The Federation of State Boards of Physical Therapy (FSBPT)

MAINTENANCE AND PROMOTION OF PROFESSIONAL AND SCIENTIFIC ACCEPTABILITY IN RESEARCH

Honesty

PTs should ensure that truthful statements and descriptions of the required information are contained in research proposals submitted to institutional review boards, funding agencies, and others for approval.

PTs should adhere to the purposes and methods of approved research projects.

- Deviations from the purposes and methods of approved research projects should be avoided except when made in accordance with the policies and procedures of the approving bodies or persons.

PTs should ensure that research reports provide truthful statements on the work done and the findings obtained in their research.

- The deliberate misrepresentation or falsification of results, the suppression of findings, and the presentation of another's work as one's own should be avoided.

- Every effort should be made to avoid the bias that can occur in the interpretation of research results when financial support of any kind, before, during, or after the research is done, is received by any party that may stand to gain financially from the results of the research.

Openness

- PTs should make every effort to report their research and research results to the appropriate professional or scientific community.

- PTs should make every effort to honor the requests of their professional and scientific colleagues for access to the data obtained in research. The purposes of such requests and the uses to which the data will be put should be mutually agreed in writing. The individual and personal identity of human subjects should be fully protected when access to data is provided.

- PTs should identify publicly any potential conflict of interest that might compromise, or might be perceived as compromising, the interpretation of their research and research results.

Credibility

- PTs should recognize that ensuring the credibility of research and research findings is an obligation to be assumed in exchange for the trust and cooperation of research subjects, the support of involved institutions and agencies, and the expected attention and consideration of the professional and scientific community.

- PTs should base their studies on a thorough knowledge and consideration of pertinent professional and scientific literature.

- PTs should make every effort to ensure the legitimate and logically correct choice or research design and data analysis, the avoidance of bias in selection or assignment of subjects, and the professionally skillful performance of appropriate treatment methods and reliable measurement procedures for their studies.

    - While designing their studies and preparing research protocols and proposals, PTs should seek the constructive criticism of their professional and scientific colleagues.

    - The advice of a competent consultant should be sought if there is any question or doubt about the choice of research design and data analysis for a study. This advice should extend to the presentation and interpretation of results when the study is completed.

Accuracy

PTs should make every effort to ensure that research reports contain description, findings, and references that are free from error.

Thoroughness

PTs should make every effort to ensure that research reports contain enough information to enable constructive criticism and replication of the research and to demonstrate absence of bias in the research. Written reports of research should contain brief descriptions of the steps taken to assure the protection of rights, confidentiality, privacy, and well-being of research subjects.

Acknowledgement

- PTs should publicly acknowledge, in the appropriate form, both the fact and the source of any financial support, consultation, or assistance received for research that is reported.

- PTs should publicly identify, in the appropriate form, the institutions or facilities where reported research was done and the affiliations of the authors of the research reports. The identities of

institutions, agencies, or organizations which serve as the objects of study should be confidential unless written authorized officials in those institutions, agencies, or organizations.

- When the acknowledgement of degrees held by authors of research reports is required or permitted, PTs should confine this acknowledgement to only their earned academic degree(s).

UNETHICAL, INCOMPETENT, OR ILLEGAL ACTS IN RESEARCH

Intervention

PTs should intervene directly in the conduct or reporting of research, for which they are responsible or in which they participate, to prevent or correct any acts that are unethical, incompetent, or illegal.

PTs should dissociate themselves from the conduct of any research or form the preparation of any research report in which unethical, incompetent, or illegal acts occur or may occur and have not been, or are unlikely to be, prevented or corrected by direct intervention.

Reporting

PTs should report to the appropriate institution or facility the facts regarding any acts in the conduct of research which appear to be unethical or illegal, or the facts regarding any acts in the conduct of research which appears to be incompetent and of actual or potential harm which exceeds or deviates from the expected risk of harm to research projects.

PTs should report to the appropriate institution or facility the facts regarding any published or oral report of research that appears to be fraudulent.

Investigation

PTs under investigation because of alleged unethical, incompetent, or illegal acts in the conduct or reporting of research should cooperate in the investigation and accept the investigation, without recrimination or reprisal, as part of the process of the search for the truth.

PTs appointed to investigate alleged unethical, incompetent, or illegal acts in objective in exercising judgement within the scope of the inquiry, should possess the special competencies necessary to understand the research in question, and should not be associated with the person or persons under investigation.

Criticism

PTs should comment critically, objectively, constructively, and openly on any reports of research which they consider to be professionally or scientifically unacceptable.

- Constructive criticism of research should be well founded and should include suggestions for enhancing the acceptability of the research.

PTs whose reports of research are criticized as representing research which is professionally or scientifically unacceptable should respond objectively to the criticism, and without recrimination or reprisal, as part of the process of the search for the truth.

THE LITERATURE REVIEW

The review of literature involves a comprehensive, critical examination of relevant research and theory in a specific content area. The literature review identifies what knowledge is accepted professionally, what is controversial, and what assumptions in the field remain yet unsubstantiated.

Literature reviews serve several functions (Portney and Watkins, 2009):

- To provide a source of research questions
- To establish a theoretical base for study
- To understand what research has already been performed
- To provide a researcher with methods and instrumentation for study
- To examine validity and reliability of instrumentation
- To determine the potential for successful outcomes
- To provide the basis for examining assumptions and establishing limitations of a study

Information on searching the literature for research study is available through the library. Guided tours and informational classes on computer searches are also available. It is your responsibility to investigate the appropriate processes/services needed to complete your research and class assignments. Researchers should be knowledgeable about copyright policies and U.S. law when accessing hard copy and electronic resources.

U.S. COPYRIGHT LAW

The Copyright Law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted material.

COPYRIGHT LAW OF THE UNITED STATES

Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the copy is not to be "**used for any purpose other than provide study, scholarship, or research.**" If a user makes a request for, or later uses a photocopy or reproduction for purposes more than "fair use," that user may be liable for copyright infringement.

This institution reserves the right to refuse to accept a copy order if, in its judgment, fulfillment of the order would involve violation of the copyright law.

Students must request permission to reproduce paragraphs, charts, graphs, tables, photographs, etc. to include in their research reports. Please direct your requests to the publisher of the article, journal or book. The library staff may be able to assist you with telephone numbers or addresses.

WRITING ABSTRACTS

The following link contains American Physical Therapy Association (APTA) instructions for writing abstracts for the journal Physical Therapy. It provides a detailed overview of what is involved in writing scientific abstracts.

The journal of the APTA and most medical journals are written in the writing style of the American Medical Association (AMA). Please consider this information when you write assignments for class, so you know which style your research mentor wants it written in, as well as which style would be most appropriate considering your content and the journal in which you may want to submit your research for publication.

Both the AMA Manual of Style and APA Style Manual refer to journal writing. There will be some differences when writing a thesis or thesis proposal. See **Appendix A** of this handbook for more information on formatting the research project.

Specific formatting guidelines for abstracts when submitting for publication are based on journal-specific requirements. Likewise, if an abstract is written for submission for conference presentation, specific guidelines are provided by supporting professional organization.

For abstracts of reports of research, the essential four parts to note are:

1. *purpose* of the study (why did the author do it?)
2. *method* used (how did the author design and carry out the procedures?)
3. *results* of the proceedings (what happened?)
4. *conclusions* of the author (what was learned by all this?)

The abstracter's job is to give a brief account of the important information in each of these sections. Additionally, for research articles it is not necessary to include at the beginning of the abstract a *statement of the problem* because the purpose usually defines the scope of the study.

One problem with writing abstracts on research articles occurs when the article to be abstracted is not put together properly. For example, if the author of the article did not clearly state his purpose, it is impossible to figure it out for the abstract. If any of these four sections is missing, look for another article to abstract.

For abstracts of all types of articles, it is essential to note the *purpose of the article*, the *pertinent data* related to the type of paper presented, the *important conclusions*, and the *clinical relevance* discussed by the author.

Tense: Always write the abstract in the *past* tense for reporting work done in the past. Using the present tense is not only grammatically incorrect but can cause confusion over what the original article stated. "The study results do not have clinical relevance" could be taken as the opinion of the abstracter rather than what was reported by the author. To clarify, use past tense and identify the maker of the statement: "The authors said they found no clinically relevant results."

Most abstracts report work that was done in the past, so it is logical to say, "the authors found" or "the results showed." However, some abstracts dealing with material such as theories and concepts, may need to include both *past* and *present* tenses, such as "the author stated he believes all men are created equal."

Content: The abstract should give the reader a good idea of what to find in the article, not an abbreviated version of all the information it contains. Include only pertinent data germane to the central point and stay within 150 to 300 words depending on journal type and/or conference submission. For the purposes of the DPT final written research manuscript and for DPT research day, abstracts should follow MPTA guidelines (see **Appendix L**). Including too many facts results in an imbalanced description of the article and will probably make the abstract too long. The abstract must be able to stand alone as a digest of the significant information found in the article, but the abstract is not intended to substitute for the article.

Include only information reported by the author in the article. Do not use related information and facts that the article did not contain. Do not inject your own general information. Take any needed background information from the original article and identify it as such. For example, rather than "Hand surgery is risky," state "The authors emphasized that because hand surgery is risky, the patients must be..." Make certain you include only those conclusions or opinions presented by the author. Whether you agree with a study, the methods, or the validity of any of the results, the abstract must not reflect the opinions. Also indicate differences between the author's facts and opinions. For example, say either "The study showed the discrepancy resulted from…" or "The author believed the discrepancy resulted from..."

Clarity and Simplicity: Attempt to make the abstract understandable to as many people as possible, including PTs (researchers, therapists, assistants, and students), allied health professionals, and interested nonprofessionals. The key is to simplify. Examine three-syllable (and more) words closely. If a shorter word can say the same thing, use it. Here are some examples of swaps that work: "repeat" for replication, "use" for usage or utilization, and "many" for manifold.

When simplifying, however, avoid slang. Anatomical terms should be complete (quadriceps are " quadriceps femoris muscles"), disease processes should be exact (strokes are "cerebrovascular accidents"), and individuals usually should not be defined by their dysfunction (cystic fibrosis children are "children with cystic fibrosis").

Statistics and Abbreviations: One way to achieve clarity and simplicity is to include only essential statistics and abbreviations. Use statistics to register the significance of results, and only list key results. Use standard abbreviations. Use special abbreviations sparingly.

EXAMPLES OF ABSTRACTS

The following examples use the format required for DPT written product submission and for abstract submission on DPT Research Day:

DPT Research Day Abstract: Research Project

THE EFFECTS OF SPEED-DEPENDENT TREADMILL TRAINING AND RYTHMIC AUDITORY-CUED OVERGROUND WALKING ON GAIT FUNCTION, BALANCE FUNCTION, FALL RISK, AND FALL INCIDENCE IN INDIVIDUALS WITH IDIOPATHIC PARKINSON'S DISEASE: A RANDOMIZED CONTROLLED TRIAL. Karl KL, Tomassi EM, VanHaitsma RJ, Harro CC, Shoemaker MJ; Grand Valley State University, Grand Rapids, MI.

Introduction: Externally-cued locomotor training paradigms such as speed-dependent treadmill training (SDTT) and rhythmic auditory-cued (RAC) over ground walking have been shown to improve gait deficits in individuals with Parkinson's Disease (PD), but the effects on balance function and fall risk are inadequately studied. The purpose of this single-blinded, randomized controlled study was to examine and compare the immediate and retention effects of progressive SDTT and RAC training on gait function, balance function, and fall risk in individuals with PD. **METHODS:** Twenty participants (mean age 66.1 years) with idiopathic PD were randomized into either SDTT (n=10) or RAC (n=10) locomotor training. Training consisted of 30-minute sessions, 3x/week for 6 weeks. The SDTT protocol involved progressive-speed, interval-based treadmill training. The RAC protocol involved interval-based auditory-cued over ground walking using a progressive beats per minute music playlist. Dependent measures examined immediate and retention effects on gait function [comfortable and fast gait speed (CGS, FGS), Functional Gait Assessment (FGA), and 6-Minute Walk Test (6MWT)] as well as on balance function and fall risk [FGA, Berg Balance Scale (BBS), Rapid Step-Up Test (RST), Activities-Specific Balance Confidence Scale, and NeuroCom Sensory Organization Test (SOT), Motor Control Test (MCT), & Limits of Stability (LOS)]. Fall incidence was assessed prospectively based on six monthly self-report fall calendars. Dependent paired t-tests were used to examine within-group training effects, and independent t-tests examined between-group training effects (alpha level $p < .05$).

Results: Findings revealed immediate within-group training effects for gait measures including statistically significant gains in CGS, 6MWT, and FGA for the RAC group and in FGS, 6MWT, and FGA for the SDTT group. All gains were retained for the RAC group, and FGS and FGA gains were retained for the SDTT group. Significant gains in balance measures were observed post-training in BBS, RST, and SOT for the RAC group and in RST, SOT, and LOS for the SDTT group. Gains were retained in all measures for the RAC group, but only RST gains were retained for the SDTT group. No significant differences in training effects on gait and balance function were found between groups from baseline to post-training or from post-training to the three-month follow-up. No clear trend in reduction in fall frequency or fall classification was evident based on fall report data.

Discussion: This was the first study to demonstrate both immediate and retention training effects of cued locomotor paradigms on balance, mobility, and fall risk reduction in the PD cohort.

Conclusion: These results provide evidence that an externally-cued locomotor training program with progressive speed challenges, either over ground with RAC or on a treadmill, produce significant improvements in walking speed, endurance, and dynamic balance function. These changes are clinically relevant as locomotor training is one critical component in a multi-factorial approach to fall risk reduction in PD.

Acknowledgements: To our collaborators at Mercy Health Hauenstein Neuroscience Center.

DPT Research Day Abstract: Case Report

APPLICATION AND EFFECTIVENESS OF TARGETED INTERVENTIONS FOR REMEDIATION OF PUSHER SYNDROME IN AN INDIVIDUAL POST-STROKE: A CASE REPORT Hudson K, Harro C; Grand Valley State University, Grand Rapids, MI.

Introduction: Pusher Syndrome (PS) is a unique, postural control impairment seen in 10% of persons

post-stroke, which is characterized by a patient's misperception of postural orientation in relation to gravity. Diagnostic criteria for PS include (1) tilted spontaneous body posture, (2) active pushing towards hemi-paretic side, and (3) resistance to passive correction. PS adversely affects functional skills and slows the rate of recovery during rehabilitation. The etiology underlying PS is unknown and there is little evidence regarding effective intervention strategies for this clinical population.

Purpose: The purpose of this case report is to describe the application of targeted intervention strategies to remediate PS and examine the effectiveness of these strategies on functional recovery in a patient with sub-acute stroke in the inpatient rehabilitation (IPR) setting.

Case Description: **Subject:** The patient, DS, was a 68-year old female who suffered a large, left hemorrhagic stroke with subsequent midline shift. Following a complicated acute medical course, DS was admitted to IPR four weeks post-stroke for intensive multi-disciplinary training. Physical Therapy (PT) initial evaluation revealed that DS had severe right-sided hemiparesis, expressive and receptive aphasia, markedly impaired postural control in sitting and standing with evidence of PS and required maximal to total assistance for all functional skills. **Intervention:** Physical Therapy interventions emphasized postural control re-training and functional skill training with application of three key intervention principles to remediate the PS, including: (1) recalibration of impaired internal reference of vertical through the use of external sensory and environmental cues, (2) forced-use of early upright postural demands and balance training, and (3) forced-use of postural control demands in the context of task specific training and dual tasks. Systematic withdrawal of external cues and progression of task demands were demonstrated in this case report. Outcome measures implemented to monitor recovery in IPR were: a) The Scale for Contraversive Pushing (SCP) to assess change in pushing behavior, b) The Function in Sitting Test (FIST) to assess sitting balance recovery, and c) Functional Independence Measure (FIM) to assess level of functional independence.

Outcomes: The patient demonstrated notable improvements in postural control, sitting/standing function, and functional mobility skills following an eight week stay in IPR. A significant reduction in pushing behavior was evident based on SCP, with a 70% improvement at discharge (d/c) (adm= 5.75, d/c= 1.5/6 pts). DS had a 34% improvement in the FIST (adm= 28, d/c= 47/56 pts), reflecting significant gains in sitting balance. Most notably, she had a FIM gain of 44 points (adm=23, d/c= 67/126 pts), requiring only minimal assist for majority of functional skills except locomotion and dressing.

Discussion: Patients with PS are responsive to intensive rehabilitation including use of external environmental cues, postural control re-training, and task specific practice. PS needs to be objectively diagnosed and measured throughout rehabilitation to determine effectiveness of intervention strategies. It is important for therapists to advocate for patients with this clinical problem, as PS may contribute to delayed functional gains, but these patients have potential for functional recovery.

DPT Research Day Abstract: Systematic Review

THE EFFECTIVENESS OF CURRENT NON-PHARMACOLOGICAL INTERVENTIONS IN THE TREATMENT OF ANTERIOR CANAL BENIGN PAROXYSMAL POSITIONAL VERTIGO: A SYSTEMATIC REVIEW. Crouch N, Strace C, Kinne B; Grand Valley State University, Grand Rapids, MI

Introduction: Benign paroxysmal positional vertigo (BPPV) is a peripheral vestibular dysfunction that

causes bouts of vertigo and nystagmus elicited by particular head movements. One type of BPPV, anterior canal BPPV (AC-BPPV), was initially described in 1987. AC-BPPV, which accounts for an estimated frequency of 1% to 11% of all cases, is characterized by a latency period, a short duration, fatigability, and downbeating-torsional nystagmus. The purpose of this systematic review was to evaluate the effectiveness of current non-pharmacological interventions in alleviating the vertigo and/or nystagmus associated with AC-BPPV.

Methods: A literature search in the Cumulative Index to Nursing and Allied Health Literature (CINAHL) Plus with Full-Text, MEDLINE, and ProQuest Medical Library databases was conducted using the search terms "positional vertigo" or "positional nystagmus" or "positioning vertigo" or "positioning nystagmus" and "anterior canal" or "superior canal." Inclusion criteria for the systematic review were as follows: (1) individuals diagnosed with AC-BPPV, (2) unilateral canal involvement, (3) non-pharmacological interventions specifically designed for AC-BPPV, and (4) all studies except those that used mechanism-based reasoning. The evidence level for each included study was evaluated using the 2011 Oxford Centre for Evidenced-Based Medicine Guide. The methodological rigor of each included study was evaluated using a scale adapted from Medlicott and Harris.

Results: Three hundred forty-two records were identified through an electronic database search. Seven of these articles met the inclusion criteria and were included in the qualitative synthesis. Five out of the seven included studies used the resolution of vertigo and nystagmus as their desired outcome response. Two of these studies reported a resolution rate of 100% after two treatments. Two out of the seven included studies used the resolution of vertigo only as their desired outcome response. One of these studies reported a resolution rate of 98% after two treatments. This result was significant, because this study had the largest number of subjects in the qualitative synthesis.

Discussion: Of the seven included studies, the interventions by Yacovino et al., Korres et al., and Rahko appeared to be the best methods for alleviating the vertigo and/or nystagmus associated with AC-BPPV. Each of these studies demonstrated high resolution rates, could be easily replicated, and did not require the use of any specialized equipment.

Conclusion: Finding interventions for AC-BPPV is important, because BPPV can be a severe disabling problem that may lead patients to purposely avoid specific head movements. Additionally, patients with BPPV often experience loneliness, depression, a greater incidence of falls, and the inability to complete activities of daily living. This systematic review revealed seven particle repositioning maneuvers that were specifically developed for the treatment of AC-BPPV. Three of these maneuvers appeared to successfully alleviate the vertigo and/or nystagmus associated with AC-BPPV.

WRITING TIPS

If writing has been a problem for you, you may choose independent reading (see references) or writing assistance is available at the **GVSU Fred Meijer Center for Writing and Michigan Authors**, with writing center consultation sites at both the Allendale campus (Mary Idema Pew Library) and the DeVos campus (Steelcase Library), as well as the Student Study Center in CHS 100. The tutors can assist with anything from brainstorming and organizing through the final paper. All students are welcome to assistance with their assignments for any class.

Part II: RESEARCH DESIGN

RESEARCH OPTIONS AND SEQUENCE THE PHYSICAL THERAPY PROGRAM

All students are required to complete the research course sequence in the DPT curriculum, which includes **PT 512, STA 610, PT 610, PT 790 (Winter and S/S),** and **PT 793**. Timing of these courses in the curriculum and the research skills gained from these four courses are outlined in the box below. For the requirements of **PT 790** and **PT 793**, students may select to engage in one of three research options:

Option 1: Research Project – student groups of three, with faculty mentor guidance, will participate in the planning, execution, analysis, and/or reporting of a research project. The aspects of the project a student group is required to complete is at the discretion of the faculty principal investigator. Not all projects will be started de novo and completed by a single student group. Some projects span several years and incorporate several student groups. However, regardless of which aspect of a project in which a student group is involved, each student group will be required to thoroughly review the literature and demonstrate a strong knowledge and understanding of the theoretical and empirical underpinnings of the project. All students will be required to complete a final written product and a final defense of the project, as well as disseminate the research findings at Annual DPT Research Day in July of their last semester of the DPT program.

Option 2: Case Report – Individual students choosing this option will follow the guidelines as described in research handbook. For the final defense the case report must be written in a journal-specific format, i.e., ready for submission. Students will receive guidance from their faculty (case report) mentor as to the selection of the most appropriate journal format. All students are required to disseminate case report in oral or poster presentation at Annual DPT Research Day in July of their last semester of the DPT program.

Option 3: Systematic Review – student groups of three, with faculty mentor guidance, will complete a systematic review of the literature to answer a specific research question. All students are required to disseminate systematic review findings in oral or poster presentation at Annual DPT Research Day in July of their last semester of the DPT program.

Sequence: YEAR 1

Fall	Winter	Spring/Summer
PT 512: Introduction to Health Professions Research (1 credit)		**STA 610: Applied Statistics for Health Professions**
Students learn how to critique and synthesize the literature in the form of concise literature reviews; in their other courses they should continue to refine their skills in writing abstracts (abstract writing activities will be continued throughout the rest of	Students are required to write several abstracts of current literature related to orthopedic physical therapy to introduce them to being consumers of the literature, learn scientific writing skills, etc.	Project-oriented overview of major statistical techniques commonly used in problems encountered in rehabilitation. Students will learn to use SPSS as a research tool for data analysis and graphical representation of research findings.

the curriculum). The concept of evidence-based practice will be reviewed with an emphasis on understanding the link between practice and clinical research. The PICO process will be introduced and used to learn how to ask and answer clinically relevant questions.		

Sequence: YEAR II

Fall	Winter	Spring/Summer
PT 610: Research in Health Professions (2 credits)	**PT 790: Physical Therapy Research I (1 credit)**	**PT 790: Physical Therapy Research I (1 credit)**
All students learn all aspects of research design, including single case design, case report design, qualitative research, etc. Students will learn to critically review published research studies with varied research design, case reports and systematic review across clinical practice areas. Students electing to do a research project will begin to form their research groups, formulate research ideas in collaboration with faculty mentor and begin the process of working with a faculty mentor on faculty-directed project. Students will complete a systematic literature review. Students who elect a case report option will be required to do a preliminary case report as part of the January clinical rotation (PT 656) and will need to make some initial preparation for this as part of fall semester. The expected outcome for PT 610 will be a literature review related to clinical questions that might be investigated during the January clinical rotation. Students electing to do a systematic review will form their work groups and begin to work with their faculty mentor on a	Student groups, who began to formulate research questions in the fall for a systematic review or research project will continue to refine and develop their proposal under the direction of their research mentor. Students participating in a research project already underway will complete the literature review and prepare to actively participate in the appropriate phase of the research project. Students electing the case option will have collected data during their second clinical rotation (January) and will be required to write a manuscript placed on the preliminary case report by the end of the term. Students electing the case report option will work in small groups, with faculty guidance, discussing cases and providing peer review.	Students who elected a systematic review or de novo research project will finish proposal, defend proposal, submit to the Institutional Review Board (IRB) (if appropriate) and begin data collection. Students participating in a research project already underway will defend their literature review and demonstrate knowledge and competence of all aspects of the project in which they will be participating. Students electing the case report option will orally present their preliminary case report to faculty and students. Following satisfactory completion of the case report (written and oral portions) students will formulate another clinical question, begin literature review, contact clinical sites in advance to identify possibilities for their final case, etc. Students will be encouraged to contact both clinical sites for potential cases that they will be interested in pursuing.

focused clinical research topic and literature review.		

Sequence: YEAR III

Fall	Winter	Spring/Summer
	PT 793: Physical Therapy Research II (2 credits)	**PT 793: Physical Therapy Research II**
Students who elected a systematic review or research project will be in different stages of project development or data collection. Students who elected a case report will be collecting data, finalizing literature review and begin to write their manuscript. Students will need to be in close communication with their faculty advisor during this period.	Students who elected a systematic review or research project will finish data collection, complete the final written product and do a final oral defense. Students participating in a research project already underway will complete the project, final oral defense, and final written product. Students who are initiating a project that will be ongoing will complete a preliminary analysis of findings or appropriate written product as directed by the faculty principle investigator. Students who elected the case report option will write the manuscript in final journal-ready publication format and do a final oral defense.	All students will prepare and deliver a platform or poster presentation during the GVSU DPT Research Day. All students will be encouraged to submit abstracts for platform or poster presentations to MPTA for fall annual conference (see **Appendix L** for guidelines), or other state, regional, national conferences.

RESEARCH BID PROCESS

Research engagement is a collaborative process between PT faculty members and students. Student research groups are matched with faculty research advisors during the Fall semester of their 2nd year. The process begins with an all class meeting where faculty present their research agenda. Student groups will then have a two-week discovery period to meet individually with faculty members to discuss specific research questions, project options, and specific phases of ongoing faculty research. Student groups submit their top three choices in ranked order along with a brief rationale to the DPT research committee at the end of the discovery period. This marks the beginning of the first round of bidding during which time faculty will meet to collectively discuss student groups and notify students of their selections. The second round of bidding will then be open for students who were not matched with a faculty research advisor during the first round of bidding. In the second round of bidding, students will have the opportunity to switch from a group project to a case report or vice versa. Generally, all students are matched with faculty advisors within two rounds, but additional rounds are possible if necessary.

RESEARCH PROCESS GUIDELINES

Research Project

(Note: the research project may be modified by faculty mentor if students picking up project already in process)

- By the end of the S/S semester of the second year, the student(s) complete the introduction, literature review, and methods.
- By the end of the spring/summer semester of the second year, the student(s) complete the written product, as well as first oral presentation (proposal defense) as required for **PT 790**.
- Faculty mentor, who is the primary investigator on the research project, along with the students will submit their proposal to GVSU IRB committee for review and approval under the appropriate level of review (Exempt, Expedited, Full Board Review). Once the study is approved by IRB then participant recruitment and data collection may begin. {NOTE: Research proposal must go through oral defense and research mentor/s approval, as well as IRB approval of study prior to beginning data collection.}
- During spring/summer semester of the second year, the student(s) begin (and sometimes complete) data collection and begin data analysis.
- By the end of the winter semester or spring/summer semester of the third year, the student(s) complete the data analysis, results, discussion, and conclusion; and then complete second oral presentation (called the "Final Defense") with final written product as required for **PT 793** (see **Appendix D**).

Case Report

- During **PT 656** in the winter semester of the second year, the student collects appropriate information and data for first case report.
- By the end of the spring/summer semester of the second year, the student completes the written and oral presentation of first case report as required for **PT 790** (see **Appendix D**).
- During either **PT 675** or **PT 677** in the fall semester of the third year, the student collects appropriate information for second case report as well as completes a literature review to support the case report.
- By the end of the winter semester or spring/summer semester of the third year, the student completes the final written and oral presentation of second case report as required for **PT 793** (see **Appendix D**).

Systematic Review

- By the end of the winter semester of the second year, the student(s) make significant progress on or complete the introduction and literature background.
- By the end of the spring/summer semester of the second year, the student(s) complete the methods and the first oral presentation with written product as required for **PT 790**.
- By the end of the winter semester or spring/summer semester of the third year, the student(s) complete the results, discussion, and conclusion; and then complete second oral presentation with final written product as required for **PT 793** (see **Appendix D**).

For All Three Options

- Students submit research project/case report/systematic review abstracts to the PT research committee by early June during the final semester of their third year.
- Student(s) disseminate research in the form of a professional presentation (platform or poster) at DPT Research Day in July (final semester).
- Refer to **Appendix G** for scholarship and funding opportunities for research activities and poster printing (PT Department policy).

ROLES AND RESPONSIBILITIES

The research curriculum in the DPT program at GVSU provides students several options. The **systematic review** and **research project** options are faculty-led projects that are guided by the faculty mentor's knowledge, experience, and familiarity with the literature. While a single faculty member may lead a systematic review or research project, there may be a team of faculty members (within and external to the PT Department) and/or community clinicians who bring additional expertise to the research team. However, the primary/lead faculty mentor must be a faculty member in the PT Department.

The PT faculty will present the available research study, systematic review, and case study options to students during the fall of the second year. Students will then have an opportunity to form groups if necessary and explore available options. Students will then complete a bidding process whereby students and faculty are matched with one another. There are several important roles and responsibilities:

Student Responsibilities

1. Identify specific timelines by semester as described by programs.
2. Submit all drafts of written products to the primary faculty mentor for review (allow 10 days for review and feedback) and coordinate with collaborating faculty and clinicians as appropriate.
3. Schedule all research team meetings (time, room, equipment), allowing 10 days for feedback and ample time for corrections before scheduling proposal and final defense times/dates.
4. Following research proposal defense and approval from faculty research team, submit for approval from the Institutional Review Board (IRB) before collecting any data if appropriate.
5. Remember to ascertain approval requirements from external involved institutions.
6. Follow the schedule for completion of the systematic review, research project, or case report.
7. Plan minimum submission of three drafts and 10-day turn-around time for each submission when planning proposal defense, final defense and graduation.
8. Provide copies of final written product as approved by faculty research mentor to faculty mentor and research committee team members.

Faculty Mentor Responsibilities

For PT 790

1. Provide primary guidance to student in completion of proposal.
2. Facilitate selection of research team members if appropriate.
3. Clearly establish expectations of additional student roles and responsibilities specific to the

systematic review, research project, or case study.

4. Clearly establish expectations for the oral and written products required for successful completion of **PT 790** and **PT 793**. This is especially important for ongoing research projects.
5. Provide primary guidance in completion of systematic review, research project, or case study.
6. Provide feedback to student(s) within 10 days of receiving a written draft.
7. Guide students' preparation for proposal defense or first case study public presentation.
8. Review and discuss authorship guidelines. See guidelines provided by the Center for Creative and Scholarly Excellence (CSCE) as early as possible in the proposal process.
9. Serve as primary investigator of record for all IRB submissions.
10. Use appropriate evaluation form for grading PT 790 (see **Appendix D**). For grading the written manuscript and oral defense when the proposal is complete (sometimes Winter PT 790, otherwise in S/S PT 790. If proposal not complete by the end of Winter PT 790, grade students using the Progress Grading Rubric. It is the chair's responsibility to distribute a copy of the grading criteria to faculty/clinician research team (if applicable) and students.
11. Submit research grade for **PT 790** on GVSU Banner System.

For PT 793

1. Advertise the scheduled defense for a minimum of one (1) week before the defense date. Include the title of the project, names of the students, the time and location.
2. Guide students' preparation for final oral defense.
3. Facilitate discussion following oral presentation among research team/collaborators and students.
4. Facilitate discussion of students' evaluation, using the evaluation form provided in the research handbook for grading the written and oral defense (use Grading Criteria for **PT 793**). It is the chair's responsibility to distribute a copy of the grading criteria to the faculty/clinician research team (if applicable) and students.
5. Proofread and edit final manuscript for content and format changes prior to signing and allowing students to make final copies for distribution.
6. Provide guidance on DPT Research Day presentation and feedback on platform or poster presentation.
7. Submit final research grade for **PT 793** on GVSU Banner System and to PT Department chair as evidence of satisfactory completion of the DPT curricular research requirements.
8. Review and discuss authorship agreement for possible submission of abstracts to state and national professional meetings or journal submission.

Faculty/Clinician Research Team/Collaborator Responsibilities

1. Provide guidance to verbal questions as posed by student(s) related to concepts and/or methods, etc.
2. Provide feedback to student(s) within 10 days of receiving a request for input written drafts.
3. Participate in review the oral defense of the proposal and final paper and provide written feedback.
4. Participate in the evaluation of the proposal by attending the initial proposal approval meeting and final defense.

DESIGNING THE STUDY

PT 610, **STA 610**, and research text references (Portney and Watkins) should provide you with a basic

background to design a research project.

In addition, GVSU faculty outside the PT Department, continue to show great enthusiasm for helping graduate students with research design, including statistics. However, while students will not be expected to perform complex statistical analysis, faculty expect students to take responsibility for the design of their project, to understand the statistical methods used and results obtained, and to be able to defend them.

Students should work as a collaborative team with their faculty mentor across all stages of the research design and data analysis process.

SUGGESTED READINGS

Quantitative Methodological References

Barlow, D.H. and Hersen, M. Single Case Experimental Designs: Strategies for Studying Behavior Change. 2nd ed. New York: Pergamon Press, 1984

Daniel, W.W. Biostatistics: A Foundation for Analysis in the Health Sciences. 9th ed. New York: John Wiley & Sons; 2008

Domholdt, E. Rehabilitation Research: Principles and Applications. 3rd ed. St. Louis, MO: Elseveir Saunders; 2005

Hurley, W.L., Denegar, C.R.; and Hertel, J. Research Methods: A Framework for Evidence-Based Clinical Practice. Baltimore, MD: Lippincott Williams and Wilkins 2011

Johnson, M.V.; Ottenbacher, K.J.; and Reichardt, C.S. Strong quasi-experimental designs for research on the effectiveness of rehabilitation. Am J Phys Med Rehabil 1995; 74: 383-92

Keppel, G. and Wickens, R.D. Design and Analysis: A Researchers' Handbook. 4th ed. Upper Saddle River, NJ: Prentice-Hall; 2004

Munro, B.H. Statistical Methods for Health Care Research. 4th ed. Philadelphia, PA: Lippincott Williams & Wilkins, 2001

Portney, L.G. and Watkins, M.P. (eds): Foundations for Clinical Research: Application to Practice. 4th ed. 2009; Prentice Hall

Rothstein, J. and Echternach, J. (1993). Primer on Measurement: An Introductory Guide to Measurement Issues. Alexandria: APTA

Sackett, D.L. and Wennberg, J.E. Choosing the best research design for each question. BMJ 1997; 315: 1636

Qualitative Methodological References

Bogdan, R.C. and Biklen, S.K. (1992). Qualitative Research for Education: An Introduction to Theory and Methods. Boston: Allyn & Bacon

Creswell, J.H. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. 2nd ed. Thousand Oaks, CA: Sage Publications, Inc; 2003

Creswell, J.W. Qualitative Inquiry and Research Design. Choosing Among Five Traditions. Thousand Oaks, CA: Sage Publications; 1998

Dengin, N.K. and Lincoln, Y. (1995) Handbook of Qualitative Research. Newbury Park, CA: Sage

DiCicco-Bloom, B. and Crabtree, B. The qualitative research interview. Medical Education. 2006; 40: 314-321

Henderson, R. and Rheault, W. Appraising and incorporating qualitative research in evidence-based practice. J Phys Ther Educ. 2004; 18;(3): 35-40

Hesse-Biber, S. and Leavy, P. (2011) The practice of qualitative research. Los Angeles, CA: Sage Publications

Hurley, W.L.; Denegar, C.R.; and Hertel, J. Research Methods: A Framework for Evidence-Based Clinical Practice. Lippincott Williams and Wilkins 2011, Baltimore, MD

Merriam, Sharon B. (1991). Case Study Research in Education: A Qualitative Approach. Newbury Park, CA: Sage

McDowell, I.; Newell, C. Measuring Health: A Guide to Rating Scales and Questionnaires. 2nd ed. New York: Oxford University Press; 1996

Morgan, D.L. (Ed.). (1993). Successful Focus Groups. Newbury Park, CA: Sage

Starks, H; Trinidad, S.B. (2007). Choose your method: a comparison of phenomenology, discourse analysis, and grounded theory. Qualitative Health Research, 17, 1272

Yin, R.K. Case Study Research: Design and Methods. 2nd ed. Thousand Oaks, CA: Sage Publications; 1994

RESEARCH PROJECT PROPOSAL CONTENT - PT 790

See Portney and Watkins (2009), Chapter 32 for general information about the research proposal.

The format for the research project proposal is at the discretion of the faculty research advisor, but generally contains the information outlined below. The difference between a "chapter" format (outlined below) and "journal-ready" format is length and depth of information presented. The format preference of the research advisor will depend on the nature, phase, and dissemination objectives of the project.

The research proposal may include one or more of the following sections and headings, including chapter headings and secondary headings. Additional subheadings, 3rd level, 4th level, etc. may or may not be needed. See **Appendix A** for additional information on formatting headings.

Title Page

Definition of Terminology

Chapter 1 | INTRODUCTION

- *Background to Problem* or context *Problem Statement*
- *Purpose/Aims*
- *Significance of the Problem* – to your profession and/or the health care system
- *Hypothesis*/research questions/objectives or research questions

Chapter 2 | REVIEW OF LITERATURE AND CONCEPTUAL FRAMEWORK

- *Review of literature:* Evaluation and synthesis of the literature including strengths and weaknesses of existing literature and gaps or omissions.
- *Reliability/Validity* or *trustworthiness* of their specific *procedures/tests* or *measurement procedures* that relate directly to the investigation of this problem when:
  1) they are not widely used or accepted,
  2) their reliability and/or validity is in question and it may impact the data collection and analysis,
  3) the instrument is not widely used or accepted, or
  4) different tests or measurement techniques are available and the inter and intratester reliability and validity of each varies then the pros and cons of each need to be presented.
- *Summary and Implications for the Study*

Chapter 3 | METHODOLOGY

- *Study Design* and sequence of the investigation. Describe in detail. Indicate any problems that you anticipate and how you plan to deal with them. **Briefly** discuss the advantages of the methodology which you have selected.
- *Study site and subjects* – include agency approval, description of, intended characteristics of the sample, including any inclusion and/or exclusion criteria. Any form used to assess inclusion and/or exclusion criteria should appear in the appendix. Describe the study site and facilities available for the study. Explain how subject confidentiality will be protected.
- *Population* – Describe in detail the population and sample and the selection method.
- *Equipment and Instruments* – All instruments and equipment used in the study need to be described in detail. Identify the measurement tools*, their origin, psychometric properties, and how they will be used in the study. Examples of questionnaire type instruments should be included as an appendix. Include a sample of all instruments used.
- *Validity/Reliability* of specific procedures/tests*.
- *Trustworthiness* is addressed here for qualitative research.
- *Procedures* – Describe the data collection procedures including types of data to be collected: when, how, and by whom. Place copy (ies) of data collection forms in the appendix. Describe the intervention, if applicable. Provide details of protection of subjects and any potential hazards. Include a copy of the consent form and the exact description of instruction for subjects in the appendix.
- *Data Analysis* – describe the plan for preparation and analysis of data.
- *Limitations* – describe the limitations that you foresee arising from your study design, procedure, sample population, etc.

References

Appendices:

1. Informed Consent Form (if applicable)
2. Data Collection Forms, questionnaires, detailed apparatus description, inclusion and/or exclusion criteria forms, recruitment materials etc.
3. Proposal Summary for IRB Committee (if applicable)
4. Budget Summary (if appropriate)

*Measurement instruments and/or procedures/tests that are widely accepted and used and that have proven to be reliable and valid need only a brief comment with reference as to their intra and/or inter-tester reliability and validity and do not need to be discussed in Chapter 2. If one measurement instrument or piece of equipment was selected from among several possible alternatives your rationale should briefly be included. Various alternatives and their pros and cons should be described in Chapter 2.

FINAL RESEARCH PRODUCT-PT 793

See Portney and Watkins (2009), Chapter 33, for general information about reporting research results.

The format for the research project proposal is at the discretion of the faculty research advisor, but generally contains the information outlined below (see **Appendix A**). The difference between a "chapter" format (outlined below) and "journal-ready" format is length and depth of information presented. The format preference of the research advisor will depend on the nature, phase, and dissemination objectives of the project.

The final document may include one of more of the following sections and headings including chapter headings and secondary headings. Additional subheadings, 3rd level, 4th level, etc., may or may not be needed (see **Appendix A**). Faculty may negotiate with students to format final manuscript in journal-ready form.

Title Page
Abstract Acknowledgments
Preface - Definition of Terms (optional)
Table of Contents
List of Tables
List of Figures
List of Appendixes
Definition of Terminology

Chapter 1 | INTRODUCTION

- *Background to Problem* or context *Problem Statement*
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- *Significance of the Problem* – to your profession and/or the health care system

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- *Reliability/Validity* or *trustworthiness* of their specific *procedures/tests* or *measurement procedures* that relate directly to the investigation of this problem when:
  1) they are not widely used or accepted,
  2) their reliability and/or validity is in question and it may impact the data collection and analysis,
  3) the instrument is not widely used or accepted, or
  4) different tests or measurement techniques are available and the inter and intratester reliability and validity of each varies then the pros and cons of each need to be presented.
- *Summary and Implications for the Study*

Chapter 3 | METHODOLOGY

- *Study Design* and sequence of the investigation. Describe in detail. Indicate any problems that you anticipate and how you plan to deal with them. **Briefly** discuss the advantages of the methodology which you have selected.
- *Study site and subjects* – include agency approval, description of, intended characteristics of the

sample, including any inclusion and/or exclusion criteria. Any form used to assess inclusion and/or exclusion criteria should appear in the appendix. Describe the study site and facilities available for the study. Explain how subject confidentiality will be protected.

- *Population* – Describe in detail the population and sample and the selection method.
- *Equipment and Instruments* – All instruments and equipment used in the study need to be described in detail. Identify the measurement tools*, their origin, psychometric properties, and how they will be used in the study. Examples of questionnaire type instruments should be included as an appendix. Include a sample of all instruments used.
- *Validity/Reliability* of specific procedures/tests*.
- *Trustworthiness* is addressed here for qualitative research.
- *Procedures* – Describe the data collection procedures including types of data to be collected: when, how, and by whom. Place copy (ies) of data collection forms in the appendix. Describe the intervention, if applicable. Provide details of protection of subjects and any potential hazards. Include a copy of the consent form and the exact description of instruction for subjects in the appendix.
- *Data Analysis* – describe the plan for preparation and analysis of data.
- *Limitations* – describe the limitations that you foresee arising from your study design, procedure, sample population, etc.

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Chapter 1 INTRODUCTION

Background to Problem or context Problem Statement
Purpose/Aims
Significance of the Problem – to your profession and/or the health care system

Chapter 2 REVIEW OF LITERATURE AND CONCEPTUAL FRAMEWORK

Review of literature: Evaluation and synthesis of the literature including strengths and weakness of existing literature and gaps or omissions. Reliability/Validity or Trustworthiness of their specific procedures/tests or measurement procedures that relate directly to the investigation of this problem when 1) they are not widely used or accepted, 2) their reliability and/or validity is in question and it may impact the data collection and analysis, 3) the instrument is not widely used or accepted or 4) different tests or measurement techniques are available and the inter and intratester reliability and validity of each varies then the pros and cons of each need to be presented.

Summary and Implications for the Study

Chapter 3 METHODOLOGY

Study Design and sequence of the investigation. Describe in detail. **Briefly** discuss the advantages of the methodology which you have selected.

Study Site and Population – location of study, description of the characteristics of the sample, including any inclusion and/or exclusion criteria. Any form used to assess inclusion and/or exclusion criteria should appear in the appendix. Describe characteristics of the population and sample. Describe selection methods.

Equipment and Instruments – All instruments and equipment used in the study need to be mentioned. Identify the measurement tools*, their origin, reliability and validity and how they will be used in the study. Examples of questionnaire type instruments should be included as an appendix.

Validity/Reliability***** of specific procedures/tests. Trustworthiness is addressed here for qualitative research.

Procedure - Indicate how subjects were recruited. Describe the data collection procedure including types of data collected: when, how, and by whom. Place copy (ies) of data collection forms in the appendix. Describe the intervention, if applicable. Provide details of protection of subjects and any potential hazards. Include a copy of the consent form and the exact description of instruction for subjects in the appendix.

Chapter 4 RESULTS/DATA ANALYSIS

Techniques of data analysis

Characteristics of subjects*

Report results under appropriate subheadings

Other findings of interest

Chapter 5 DISCUSSION AND CONCLUSIONS

Discussion of findings – restate purpose and/or hypothesis for readers benefit

Application of practice/administration/education

Limitations

Suggestions for further research/modifications

Conclusion/Summary – include relevance to your profession

References

Appendices

1. Informed Consent Form (if applicable)
2. Data Collection Forms, questionnaires, detailed apparatus description, inclusion and/or exclusion criteria forms, etc.

*****Validity/Reliability: Measurement instruments and/or procedures/tests that are widely accepted and used and that have proven to be reliable and valid need only a brief comment with reference as to their intra and/or intratester reliability and validity and do not need to be discussed in Chapter 2. If one measurement instrument or piece of equipment was selected from among several possible alternatives your rationale should briefly be included. Various alternatives and their pros and cons should be described in Chapter 2.

*****Placement of data related to subjects might be included in either Chapter 3 or 4. This should be determined in discussion with your committee. Generally, it is appropriate to include it in Chapter 3 unless the demographics are directly related to hypothesis testing, in which case they should be included in Chapter 4.

Final copies should delete future tense and go to past tense.

****The Physical Therapy department requires use of one of the following titles for your final written project on cover page with Title of project/SR/Case report and author's names: **Doctor of Physical Therapy Case Report**, **Doctor of Physical Therapy Systematic Review**, or **Doctor of Physical Therapy Research Project**. An electronic copy of projects should be submitted to department prior to graduation and may be used in the university repository of faculty and student work.

PROPOSAL APPROVAL PROCESS

The Approval Process involves an Oral Proposal Defense that consists of two parts: 1) a brief presentation of your study, and 2) questioning by your research mentor and collaborators.

Oral Presentation of Proposed Project

In the first part, the Approval Process provides you with the opportunity to orally summarize your research project for your committee. ***This presentation must be scheduled when all research team members can attend.*** You should prepare a 20 to 30-minute overview presentation of your project.

Defense/Questioning

In the second part, your research mentor will guide a session for questions that are intended to probe your comprehension of the material that you presented. The faculty and/or clinician research team will expect you to understand and explain all the aspects associated with your responsibility in the study.

Grading

There will likely be additional revisions to the final paper following the defense to ensure it is of enough quality prior to submission to research advisor and committee members. **A grade for PT 793 will not be issued until the required revisions are completed following the final defense and the Final Written project is submitted to research advisor**.

THE FINAL DEFENSE

The Final Defense process consists of two parts: 1) a brief presentation of your study, and 2) questioning by your committee.

Oral Presentation

In the first part, the Defense provides you with the opportunity to orally summarize your research project for your committee. ***This Defense must be scheduled when faculty mentor and all research team members can attend.*** You will be expected to provide a presentation (20 to 45-minutes, at the discretion of faculty mentor) of the project.

Questioning

In the second part, the research mentor and advisory team will guide a session for questions that are intended to probe your comprehension of the material that you presented. Student researchers will be expected to understand and explain all the aspects associated with your responsibility in the study. You will also be asked to clarify specific points in the written text as needed and make recommendations for further research.

Grading

Your grade for the final defense phase (**PT 793**) will be based upon the oral presentation and the paper submitted at the time of the defense. See **Appendix D** for details about grading and the associated scoring rubrics. There will likely be additional revisions to the final paper following the defense to ensure it is of enough quality prior to submission to the library. **A grade for PT 793 will not be issued until the required revisions are completed following the final defense and the Final Written project is submitted to research advisor. PT 793 is graded with a "pass", pass with distinction", or "fail".**

PLEASE NOTE: For both the oral defense and final defense, students must schedule a time and location where the defense will take place when your research mentor feels your research project is ready to defend. Be sure that all research team members (faculty/clinicians) have a minimum of one week to read your research project before your defense date. Students are responsible for assembling the committee. All research team members must be able to attend the scheduled defense.

CHS classrooms or conference rooms: please contact the PT Department office coordinator, Sarah Kozminski 331-5675, kozminsa@gvsu.edu

PRESENTATION OF RESEARCH

Each year the graduating class presents their research, systematic review or case report to the GVSU and West Michigan community at the DPT Research Day. The purpose for this event is two-fold: (1) to provide a forum to acquaint the named audiences with the work being done by DPT students, and (2) to facilitate the student's ability to present a research project to a critical audience. We believe this will prepare the students to present at conferences and professional meetings. See **Appendix I** for guidelines on presentations.

GVSU DPT Research Day (required)

The DPT Research Day is held in July during the week prior to the DPT graduation ceremony. Students present their work to their fellow students, faculty, and others from the GVSU and clinical community.

During these platform and poster presentations and any other subsequent presentation of your work, you should give due recognition to your faculty mentor (they should have authorship on the presentation. See the **PT Program Dissemination Policy** on the next page as well as guidelines posted on Center for Creative and Scholarly Excellence (CSCE) website. This will not only give recognition to our faculty and DPT program, but also help raise the stature of our programs and the degree that you earned at GVSU.

For DPT Research Day Abstracts: *Authorship order should be students' names first followed by faculty mentor(s) names.*

If dissemination occurs outside of the research day presentation (at state or national level), *the author order will be at the faculty mentor's discretion and will follow acceptable guidelines for authorship.*

Students are encouraged and mentored by faculty mentor to submit their abstract of research project, systematic review or case report to APTA-MI for poster or platform presentation at the annual conference.

PREPARING FOR PUBLICATION

Students should strive for a quality in their work suitable for publication. The faculty encourage students to submit a summary of their work for publication for a variety of reasons:

1) one of the purposes of research is to address pertinent educational and clinical questions and share the answers with the rest of the world;
2) publication is the ultimate culmination of the effort put forth by the researcher(s); and
3) it could provide an avenue for faculty to collaborate with students on publications.

The first step in preparing to submit for publication is to select the most appropriate journal for your manuscript. Peer-reviewed journals should be considered first. The editor of a peer-reviewed journal will send your manuscript to one or two experts in the area you have researched. For sure, your submission will receive a critical review. Your first submission may even be rejected. But the comments you will receive should permit you to produce a superior product. You will always be encouraged to re-submit. Peer-reviewed journals generally publish the higher quality work. Next, you want a journal that tends to publish papers related to the type of research you have completed. For example, it would not make sense to submit a paper on clinical education issues to **The Journal of Orthopedic and Sports Physical Therapy**. Finally, you should consider a journal that would most likely publish a manuscript summarizing your research. In other words, be realistic about the journal you submit to.

After you have selected a journal for submission, you will need to tailor your manuscript according to the general editorial style adopted by that journal. For researchers in psychology, the **Publication Manual of the American Psychological Association (APA Style)** provides the guidelines for publication. Many other journals also use the APA format. Submissions to journals within the American Physical Therapy Association (including the section journals or quarterlies) must subscribe to the

guidelines published by the **American Medical Association (AMA Style)**. However, each journal will have a section titled "Instructions to Authors" which should be consulted for specific guidelines. Be sure to read the instructions carefully and follow them exactly.

By now you have all had numerous opportunities to read and review journal articles. Essentially, your proposed journal manuscripts will be a scaled-down version of your final written product submitted for **PT 793**. Journal articles, preceded by an abstract, include an introduction and purpose, followed by a brief review of the literature, description of methods, results, and a discussion and conclusion section. Yes, it would entail another re-write, but all the hard work has already been done and your faculty mentor may offer to assist you at this stage.

The process, as you know, is long, but the outcome will be worth the effort.

PHYSICAL THERAPY PROGRAM DISSEMINATION POLICY

Research activity and other scholarly work is expected of faculty in the College of Health Professions at GVSU. Faculty members are expected to responsibly conduct their activities with the highest degree of integrity. Professional competence and expertise, as well as decisions regarding contract renewal, salary, tenure, and promotion, are partially based on scholarly/research productivity and subsequent publication of scholarly work. Scholarly activity may be pursued independently or in collaboration with peers and/or students. In collaborative research endeavors, authorship credit and order are important matters.

I. Data Ownership

Since individual DPT faculty members generate the original research question and guide the research process, ownership and storage of research data will be the responsibility of the DPT faculty member who is chair of the research project – since, that project is his/her intellectual property. This is especially true in instances where IRB approval was obtained with the faculty mentor as the principal investigator. Exceptions to this policy may especially occur when the final product is a systematic review or case report, where the students may have generated the specific idea for the research inquiry. In all instances, exceptions to the general guideline can be requested and approved on an individual basis and in consultation with the IRB when appropriate.

II. Authorship

In making authorship decisions, faculty, colleagues, and students should consider the following steps:

1. Early in the collaborative effort, colleagues discuss how authorship decisions are made, the nature of professional contributions to professional publications, the meaning of authorship credit and order, and the importance of parties agreeing on what contributions will be expected of each collaborator for a given level of authorship credit.

2. Collaborators should assess the abilities of all parties, the tasks required to complete the scholarly publication, the extent of supervision required (if appropriate), and appropriate expectations for what each collaborator can reasonably contribute to the project.

3. Based on #2, parties should discuss and agree on what tasks, contributions, and efforts are required of all parties to warrant authorship and to determine the order of authorship. An arbitrator may be sought if parties are unable to agree.

4. Agreements regarding authorship credit and order may need to be renegotiated prior to final manuscript submission. As faculty mentor and/or primary investigator, faculty are responsible for initiating this dialogue among collaborators and exercising their judgment regarding whether graduate student collaborators meet the expectations of significant contributions to the project to warrant authorship.

5. The order of authors' names on a publication or presentation should reflect the relative strength of their contributions to the project. If there were equal contributions names should be listed alphabetically (the rationale for this should be stated so in a footnote; for student research projects the footnote will be placed on the acknowledgment page of the final manuscript).

The policy of the College of Health Professions regarding authorship will follow what was published by the International Committee of Medical Journal Editors (ICMJE) (*JAMA*, 1997;277:927-934), and used by the Editorial Office of *Physical Therapy*:

> All people listed as authors should have participated sufficiently in the work to take public responsibility for the content. Authorship credit should be based on substantial contributions to: (1) conception and design, or analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; and on (3) final approval of the version to be published. Conditions (1), (2), and (3) must **all** be met.

In the event of differences in opinion regarding authorship or dissemination, the graduate students can appeal to the Physical Therapy Research Committee for further review on this decision.

With regards to collaborative efforts that do not meet the above criteria, acknowledgment may be appropriate when the following activities occur:

1. Providing an initial research idea without any of the subsequent development of the project.
2. Provision of technical support for the project such as typing, data collection, data entry, construction of devices designed by someone else, etc.
3. Provision of resources such as space, money, equipment or supplies.
4. Having supervisory responsibility over an investigator who is an employee or student.

III. Dissemination

The faculty mentor of scholarly project, where graduate students are engaged as collaborators, has the primary responsibility to initiate dialogue and facilitate consensus with the collaborators regarding dissemination decisions of scholarly work (e.g. target conference or journal).

The faculty should explicitly discuss time frame for scholarly work dissemination. If students chose not to

stay engaged in the scholarly writing for manuscript publication or dissemination for more than a year after completion of the DPT program requirements, then the faculty research mentor has the full ownership to publish as primary author and can determine appropriateness of whether students or graduates meet requirements for authorship as secondary authors.

The DPT program adheres to University Policy 4.1.10.2 **Rights in published material, invention and secret processes.**

APPENDIX A | Formatting the Project

FORMATTING REQUIREMENTS

There are three sources of requirements that students may follow: 1) GVSU chapter format requirements, or 2) American Psychological Association (APA) or American Medical Association (AMA) requirements for journal-ready manuscripts.

Grammatical style, references, footnotes, bibliography, tables, etc. for the DPT research project, systematic reviews, and case reports are acceptable in either AMA or APA style, however, students must have their choice approved by their research mentor. Students can purchase the APA or AMA Publication Manual at the GVSU Bookstore; or online resources available through GVSU library.

Under the direction of research mentor, the research team may elect to follow a specific journal format requirement and submit to GVSU library in manuscript-ready format.

Students may elect to have their final written product bound for copies to research advisor or committee members and team members, based on a collaborative decision with research advisor. Students may obtain the guidelines for binding and suggested companies that provide binding services from the GVSU library Frey Learning Center at CHS.

Please note margin requirements before you begin to type your manuscript. Margin requirements are very specific, to accommodate the required binding process at Mini Print. GVSU format adheres to those requirements.

The research mentor will ascertain that the manuscript is edited for spelling, grammar, organization, stylistic consistency, and correct sequence of pages. The faculty research mentor and PT Department Chair make the final determination of whether to accept the final manuscript.

The following pages provide guidance on the chapter format guidelines.

ORGANIZATION

The research manuscript falls into three main parts or divisions: the preliminary pages, the text, and the reference material. Parts of some of these sections are optional, but the order, regardless of what parts may be left out, is as follows:

ORDER	PAGINATION	
Title/Signature page (see Appendix G for formatting)	none	
Abstract	i	
Dedication, acknowledgments, preface (optional)		} Lower
Table of Contents (see sample)		
Case		
List of Tables		
Roman Numerals		
List of Figures		
List of Appendices (optional)	vii	
Text of paper, (1st. page of Chpt. 1 to last page of Chapter 5)	1	} Arabic
References or Bibliography		
Numerals		
Appendix/ces (optional)	76	

OTHER NOTES:

CHAPTER # and TITLE, all in capital letters, go at the beginning of each chapter. The first page of each of the five chapters has a top margin of 1.5 inches and pagination at bottom center.

Pagination

Preliminary pages: do not type a page number on the title page or the copyright page (if included). The abstract, dedication, acknowledgments, or preface page (if included) are numbered starting with ii at the bottom center of the page, and all following pages of preliminary material are numbered consecutively in lower case Roman numerals also at the bottom center of each page.

Text: page numbers are to be typed in the upper right corner or the top center of the page. In either case the number must be placed below the one-inch top margin line. No punctuation marks should appear before or after these numbers. The page number is placed at the bottom center on the first page of each chapter, the first page of the reference list and the first page of each appendix section.

Use Arabic number beginning with number 1 on the first page of the text and continuing throughout the rest of the manuscript, including the reference material and the appendix.

THE PRELIMINARY PAGES

(See Examples in **Appendix K**)

Title Page

The candidate's full name(s) must appear as it does on all records and transcripts. The year shown must be the year in which the degree is conferred. The major must be precisely that which is shown on the student's transcript. See sample title page in **Appendix K**.

Abstract

The abstract is a succinct account of the dissertation containing a statement of the problem, procedure or methods, and conclusions. The abstract must be typewritten, double-spaced and formatting should follow the guidelines from Michigan Physical Therapy Association for abstract submission to Annual Fall Conference. See **Appendix L** for more details on MPTA abstract guidelines.

Dedication, Acknowledgements, Preface, or Foreword

These items are optional and, if included, should appear on separate pages in the order shown. The dedication, as its name suggests, is a personal dedication of one's work. An acknowledgment is a brief note of appreciation for assistance given to the candidate in the research and preparation of the manuscript. A preface or foreword may contain the author's statement of the purpose of the study or special notes to the reader, such as definition of terms, list of abbreviations, etc. See examples in **Appendix K**.

Table of Contents

Each manuscript is to have a table of contents which shows the principle divisions of the work and the pages on which each may be found. List all the preliminary pages you included except the title, copyright, and contents page(s). See example in **Appendix K**.

Lists of Tables, Figures, or Illustrations

When tables, figures, or charts have been placed in the body of the manuscript (not in the Appendix), separate lists must be included and should follow the Table of Contents page in the order indicated. Each entry on the list should carry the same caption or title as is shown on the corresponding figure in the text. See examples in **Appendix K**.

THE TEXT

The text is the main body of the manuscript. The manuscript states the problem, the methods described, the results of the investigation are presented, analyzed and discussed, and the findings are summarized and interpreted. The detailed organization of the text will vary from subject to subject, but regardless of organization, the mode of presentation should be consistent throughout.

Only major divisions or chapters should begin with a new page, and typists should make every effort to avoid having partially filled pages except at the end of a chapter. Even the last page of a chapter should have more than one line of textual material.

In many cases the main body of a manuscript will include materials other than ordinary text, such as illustrations, tables, figures, and formulae. In such cases, the following guidelines should be observed:

Supporting Materials

All supporting materials in the main text should, wherever possible, appear on the same page, immediately after the paragraph in which they are referenced, if space allows, or on next available page.

Illustrations

All illustrations used in the manuscript must appear in all copies. Illustrative material may be drawings, charts, maps, diagrams, photographs or photostats. Illustrations may be inserted wherever appropriate. However, as a rule, they should appear after they have been mentioned in the text on the same page or next immediate page as space allows. Illustrations must be consecutively numbered throughout.

Large drawings, figures or photographs should be prepared on paper of the same size and weight as the rest of the manuscript and, ideally, should be designed so that the designated number and caption can be placed on the same page within the prescribed margins. If this is not possible, a page may be inserted between the text and the illustration and the caption typed on the blank page facing the illustration. In such a case, the page number must be placed in the upper left corner or top center of the page on which the caption appears. The page carrying such a caption should be left blank on the reverse side. Lettering and line-drawing which cannot be typewritten on illustrations should be inserted with India ink or a black carbon-base ink.

Lines on graphs or other differentiations should be identified by labels or symbols rather than colors. Similarly, shaded areas-such as countries on a map have better contrast if cross-hatching is used instead of color. Glossy prints do not microfilm well, so it is better to insert the photographs into the document or xerox copy them. Color photos should not be used in a thesis.

Illustrations larger than page size may be folded and mounted on another sheet (see example in Figure 1 below) or xerographically reduced. Illustrations smaller than page size should be mounted on the same paper that is used for the rest of the thesis or between lines of text and photocopied for inclusion into thesis. Page sized photographic reproductions may not be used; such reproductions must be mounted on regular paper with a 1½" margin on the left side and photocopied.

Tables and Figures

It is essential that tables and figures be fully legible. Tables and figures larger than a half page should be placed on a separate page from the main text. Half-page or shorter tables/figures are placed on the same page immediately following the end of the paragraph in which it is first mentioned if there is enough

room on the page. If there is insufficient space remaining on the page to insert the table or figure, then it is placed on the very next page between paragraphs. The descriptive title for a table is placed above the table. For figures, the descriptive title is placed below the figure. Very large tables/figures may be foldouts as described for large illustrations or reduced via photocopy reduction to fit on one page. All tables/figures should be numbered consecutively throughout the manuscript. The type face and font size used in the tables may be different from that of the text.

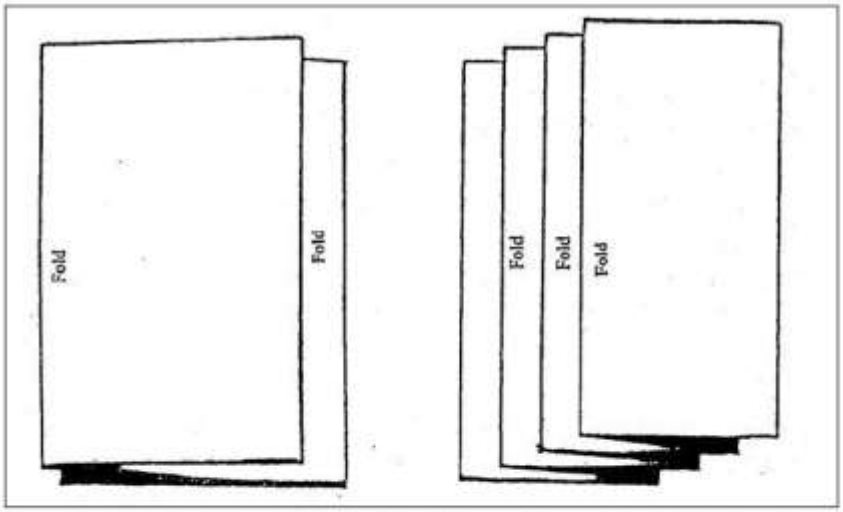

Figure 1: A horizontal graph or chart that is too wide may be folded, fan-wise, and mounted on a thesis page. The left edge should have a 1 ½" margin, and folds must clear the right margin.

Formula

Mathematical and chemical formulae may be typed, hand lettered or both. Complex formulae of two or more lines should not be included in text lines but should be centered between lines of text. The lines in structural chemical formulae and hand lettered mathematical formulae must be drawn with India ink or other black carbon-base ink.

Footnotes

Notes documenting the text and corresponding to reference numbers in the text are called "footnotes" when they are printed at the foot of the pages, and "notes" when they are printed at the back of the manuscript or at the end of a chapter. Both are single-spaced, with a double space between each listing. If placed at the bottom of each page, the footnotes must be separated from the text by a partial line one space above the first line of footnotes. Arabic numbers should be used for footnotes and notes except in tabular or mathematical matter, in which case, to avoid confusion, asterisks or small letters should be used. If all the references are given at the end of a thesis, see information under "The Reference Material."

REFERENCES

NOTES, TEXTUAL REFERENCES, AND BIBLIOGRAPHIC SYSTEMS: Please consult the APA Manual or AMA Manual.

Appendices

In most research projects it is desirable to include certain materials, e.g. test forms, survey questionnaires, subject consent forms, data collection forms, detailed apparatus descriptions, tables of raw data, etc., which are not immediately essential to an understanding of the text. Such materials should be included in the Appendix. The Appendix may be divided into Appendix A, Appendix B, etc., depending on the kinds and amounts of material included. Each appendix may have its own cover sheet that should be included in the consecutive pagination.

Appendix material should have adequate left-hand margins for binding. Sheets larger than page size must be folded in the manner described for illustrations or reduced. Computer printouts and mimeographed materials are acceptable. If maps or other bulky materials are to be included in the Appendix they should be inserted in a 6½" x 9½" envelope which will be glued to the back cover by the bindery.

FINAL COPY SUBMISSION

Final written manuscript copies should be made for GVSU faculty research mentor and for each of your research collaborators or committee members. Determination of whether final written product submission is in electronic versus hard copy format is up to the discretion of the faculty research mentor. If bound copies are requested, then the paper may be bound using project wire or comb bound with black plastic front and back cover and should include a format Title page. Guidelines for hard copies are provided below.

The research project, systematic review, or case report must be deposited on white 20-pound bond paper in one of the following forms:

1. High quality xerographic reproduction (glossy reproductions are not acceptable) or
2. Computer generated black (gray) and white. Do not use color printing.

Students who are uncertain as to the acceptability of the duplicating process being considered are advised to submit sample pages in advance to the department for an opinion.

Typing Mechanics

The research project, systematic review or case report must be typewritten in **Times New Roman** font, **size 12pt** or **Calibri 11pt** for all textual pages. All copies must be clean and all characters clearly legible. Inking must be uniform and of a relatively even blackness throughout the manuscript. There should be no smudges, no letters filled in or fallen out, and no smeared, shadowed or fuzzy type. All graphs or tables must be printed in black and white. If your original graph is in color, select colors that will remain distinct when photocopied in black and white.

Paper

For the final copies, the document must be printed on a consistent weight of not less than 20-pound bond 8½" x 11" paper. Material included in the appendixes need not conform (except in size) to these requirements.

Margins

The following margins must be maintained to facilitate binding or microfilming:
1.5 inches on the left, and 1.0 inch on the other three margins. **Narrower or wider margins are not acceptable** because they will interfere with the binding process. Other elements separated from the text, e.g. tables and graphs, must conform to the left margin and as closely as possible to the other margins but some variation is permissible. The first page of each chapter has a top margin of 1.5 inches and pagination at bottom center. No text, figures or tables are permitted to extend beyond these margins.

Headings

The primary heading should be centered in capitalized 14-point bold type with a top margin of 1.5" down.

Chapter 1

Introduction

Secondary header: centered in upper/lower case underlined in 12-point type (same as text).

3rd. Level: centered in upper/lower case in 12-point type (same as text).

4th. Level: left justified in upper/lower case and underlined in 12-point type (same as text).

5th. Level: Left justified in upper/lower case.

Line Spacing

The body of the text must be double-spaced. The reference or bibliography section is single-spaced within each reference and double-spaced between references. Quotations in the text exceeding four lines are single-spaced indented captions for both tables and figures. When text appears before or after a table or figure, a triple space should be used. See examples in **Appendix K** for line spacing in the Table of Contents, List of Tables, List of Figures, and List of Appendices.

Proofreading

Someone other than the author of the manuscript should carefully proofread the document for grammar and sequence of pages and table of contents. All corrections should be made before it is delivered to the PT faculty research mentor.

APPENDIX B | Human Subjects Review

INTRODUCTION

Many of you will be undertaking research studies involving the use of human subjects. This entails several requirements of you as a researcher:

To become familiar with institutional policies regarding research involving human subjects. See the following link: https://www.gvsu.edu/irb/

1. Any human subjects research project conducted by GVSU students or faculty, including research, is required to be reviewed and approved by the Institutional Review Board (IRB) at GVSU. IRB approval is required prior to any subject recruitment or data collection.

2. All researchers (students and mentoring faculty) must demonstrate competency in the CITI (Responsible Conduct of Research (RCR) and Human Subjects Research (HSR) courses: IRB Training Requirements. More details will be given in **PT 610**. Written documentation of competency for all researchers involved in the project is required for new protocol submissions.

3. Access and submit all the required forms and documentation regarding the research project using the Office of Research Compliance and Integrity's (ORCI's) electronic database management system (IRB Manager). Instructions to access and use this system can be found on the IRB website. Students are ***strongly advised*** to use this website on an on-going basis to access the most recent forms and explanations regarding project submission for approval; such use will minimize delays and better ensure efficiency and timeliness in the approval process.

4. New protocol submissions should clearly outline your qualifications as a GVSU student to conduct human subjects research. Suggested language is as follows
   "The added_____(research assistant/graduate student, etc.) is currently a student is the_____program. The student has completed the required IRB training in HSR and RCR (CITI certificates attached). The PI of the study will provide orientation to the _____(research assistant/graduate student, etc.) on the protocol, emphasizing the principles of RCR"
   It is also helpful to outline your responsibilities in the Study Personnel section. If the PI is required to be physically present during the interaction with a research participant, it should be stated (e.g. The PI will be physically present during all human subject interactions.)

NOTE: While GVSU IRB approval is not required for case reports, you must follow the guidelines for completion of forms for case report option in Appendix E to meet CHP requirements for informed consent process.

For systematic review options, IRB human subject review and approval process is not required.

MANDATE OF THE COMMITTEE

A. Nuremberg Code[8]

1. The voluntary consent of the human subject is absolutely essential. This means that the person involved should have legal capacity to give consent; should be able to exercise free power of choice, without the intervention of any element of force, fraud, deceit, duress, overreaching, or other ulterior form of constraint or coercion: and should have sufficient knowledge and comprehension of the elements of the subject matter involved as to enable him to make an understanding and enlightened decision. This latter element requires that before the acceptance of an affirmative decision by the experimental subject there should be made known to him the mature, duration, and purpose of the experiment; the method and means by which it is to be conducted; the method hazards reasonably to be expected; and the effects upon his health or person which may possibly come from his participation in the experiment.

   The duty and the responsibility for ascertaining the quality of the consent rests upon each individual who initiates, directs or engages in the experiment. It is a personal duty and responsibility which may not be delegated to another with impunity.

2. The research project must be good science and benefit either the subject or the general health and wellness of society.

3. The experiment should be so designed and based on the results of animal experimentation and a knowledge of the natural history of the disease or other problem under study that the anticipated results will justify the performance of the experiment.

4. The experiment should be so conducted as to avoid all unnecessary physical and mental suffering and injury.

5. No experiment should be so conducted where in a priori reason, to believe that death or disabling injury will occur; except, perhaps, in those experiments where the experimental physicians also serve as subjects.

6. The degree of risk to be taken should never exceed that determined by the humanitarian importance of the problem to be solved be the experiment.

7. Proper preparation should be made, and adequate facilities provided to protect the experimental subject against even remote possibilities of injury, disability, or death.

8. The experiment should be conducted only by scientifically qualified persons. The highest degree of skill and care should be required through all stages of the experiment of those who conduct or engage in the experiment.

9. During the course of the experiment, the human subject should be at liberty to withdraw at any time without penalty, unless withdrawal would pose a risk to subjects.

10. During the course of the experiment the scientist in charge must be prepared to terminate the experiment at any stage, if he has probable cause to believe, in the exercise of the good faith, superior skill and careful judgment required of him that a continuation of the experiment is likely to result in injury, disability, or death to the experimental subject.

[8]Trials of war criminals before the Nuremberg Military Tribunals under Control Council No. 10, The medical Case 181 (U.S. Government Printing Office, 1949)

APPLICATION CATEGORIES FOR HUMAN SUBJECTS REVIEW

There are three categories – exempt, expedited, and full board – for review of research projects by the IRB. Explanations and criteria necessary to meet each level can be found on the IRB website at http://www.gvsu.edu/irb.

1. Projects meeting criteria for exempt review are reviewed for approval by the ORCIand/or IRB Chair on an on-going basis.
2. Projects meeting criteria for expedited review are reviewed by the Chair, plus two members of the Committee, on an on-goingbasis.
3. Projects requiring Full Board Review are reviewed by the entire membership of the IRB at a convened meeting (once a month). Projects requiring review in this category must arrive before the deadline for that meeting's agenda and the IRB may elect to review required changes to a project submission at subsequent monthly meetings. {Refer to IRB website for monthly meeting dates and submissiondeadlines}
4. The federal government definitions and explanations of criteria for all review levels can be found on the IRB website.

EXEMPT CATEGORY CRITERIA

(These proposals still must be submitted to and approved by the Institutional Review Board).

(a) Except as provided in paragraph (b) below, this subpart applies to all research involving human subjects conducted by the Department of Health and Human Services or funded in whole or in part by a department grant, contract, cooperative agreement or fellowship.

(b) Research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from these regulations unless the research is covered by other subparts of this part:

(1) Research conducted in established or commonly accepted educational settings, involving normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education instructional strategies and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

(2) Research that only includes interactions involving the use of educational tests (cognitive,

diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording), if at least one of the following criteria are met: (i) information obtained is recorded in such a manner that the identity of the human subjects cannot be identified, directly or through identifiers linked to the subjects; ii) any disclosure of the subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) the information is recorded in such a manner that the identity of the human subjects can readily be ascertained, directly or through indentifiers linked to the subjects, and an IRB conducts a limited IRB review to ensure adequate provisions are in place to protect the privacy of subjects and to maintain confidentiality of data.

(3) Research involving benign behavioral interventions in conjunction with the collection of information from an adult subject through verbal or written responses (including data entry) or audiovisual recording if the subject prospectively agrees to the intervention and information collected, if at least one of the following criteria are met: (i) information obtained is recorded in such a manner that the identity of the human subjects cannot be identified, directly or through identifiers linked to the subjects; (ii) any disclosure of the subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) the information is recorded in such a manner that the identity of the human subjects can readily be ascertained, directly or through indentifiers linked to the subjects, and an IRB conducts a limited IRB review to ensure adequate provisions are in place to protect the privacy of subjects and to maintain confidentiality of data.

(4) Secondary research for which consent is not required are uses of identifiable private information or identifiable biospecimens, if at least one of the following criteria is met: (i) the identifiable private information or identifiable biospecimens are publicly available; (ii) information, which may include information about biospecimens, is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects, the investigator does not contact the subjects, and the investigator will not re-identify the subjects; (iii) the research involves only information collection and analysis when use of the data is regulated under HIPAA for the purposes of "health care operations," "research," or "public health activities and purposes;" or (iv) research is conducted by, or on behalf of, a Federal department or agency using government-generated or government-collected information obtained for non-research purposes.

SOURCE: Federal Register, Vol. 82, No. 12 (January 19, 2017), p.7261.

EXPEDITED CATEGORY CRITERIA

Applicability

(A) Research activities that (a) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the following categories, may be reviewed by the IRB through the expedited review procedure authorized by 45 CFR 46.110 and 21 CFR 56.110. The activities listed should not be deemed to be of minimal risk simply because they are included on this list. Inclusion on this list merely means that the activities is eligible for review through the

expedited review procedure when the specific circumstances of the proposed research involve no more than minimal risk to human subjects.

(B) The categories in this list apply regardless of the age of subjects, except as noted.

(C) The expedited review procedure may not be used where identification of the subjects and/or their responses would reasonably place them at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, insurability, reputation, or be stigmatizing, unless reasonable and appropriate protections will be implemented so that risks related to invasion of privacy and a breach of confidentiality are no greater than minimal.

(D) The expedited review procedure may not be used for classified research involving human subjects.

(E) Researchers are reminded that the standard requirements for informed consent (or its waiver, alteration, or exception) apply regardless of the type of review–expedited or convened—utilized by the IRB.

(F) Research categories (below) one (1) through seven (7) pertain to both initial and continuing IRB review.

Research categories

(1) Clinical studies of drugs and medical devices only when condition (a) or (b) is met.

- (a) Research on drugs for which an investigational new drug application (21 CFR Part 312) is not required. (Note: Research on marketed drugs that significantly increases the risks or decreases the acceptability of the risks associated with the use of the product is not eligible for expedited review.)
- (b) Research on medical devices for which (i) an investigational device exemption application (21 CFR Part 812) is not required; or (ii) the medical device is cleared/approved for marketing and the medical device is being used in accordance with its cleared/approved labeling.

(2) Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture as follows:

- (a) From healthy, nonpregnant adults who weight at least 110 pounds. For these subjects, the amounts drawn may not exceed 550 ml in an 8-week period and collection may not occur more frequently than 2 times per week; or
- (b) From other adults and children, considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency with which it will be collected. For these subjects, the amount drawn may not exceed the lesser of 50 ml or 3 ml or 3 ml per kg in an 8-week period and collection may not occur more frequently than 2 times per week.

(3) Prospective collection of biological specimens for research purposes by noninvasive means. Examples: (a) hair and nail clippings in a non-disfiguring manner; (b) deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction; (c) permanent teeth if routine

patient care indicates a need for extraction: (d) excreta and external secretions (including sweat); (e) uncannulated saliva collected either in an unstimulated fashion or stimulated by chewing gumbase or wax or by applying a dilute citric solution to the tongue; (f) placenta removed at delivery; (g) amniotic fluid obtained at the time of rupture of the membrane prior to or during labor; (h) supra- and subgingival dental plaque and calculus, provided the collection procedure is not more invasive than routine prophylactic scaling of the teeth and the process is accomplished in accordance with accepted prophylactic techniques; (i) mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings; (j) sputum collected after saline mist nebulization.

(4) Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications.) Examples: (a) physical sensors that are applied either to the surface of the body or at a distance and do not involve input of significant amounts of energy into the subject or an invasion of the subject‘s primacy: (b) weighing or testing sensory acuity; (c) magnetic resonance imaging; (d) electrocardiography, electroencephalography, thermography, detection of naturally occurring radioactivity, electroretinography, ultrasound, diagnostic infrared imaging, doppler blood flow, and echocardiography; (e) moderate exercise, muscular strength testing, body composition assessment, and flexibility testing where appropriate given the age, weight, and health of the individual.

(5) Research involving materials (data, documents, records, or specimens) that have been collected or will be collected solely for non-research purposes (such as medical treatment or diagnosis). (NOTE: Some research in this category maybe exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(4). This listing refers only to research that is not exempt.)

(6) Research involving materials (data, documents, records, or specimens) that have been collected or will be collected solely for non-research purposes (such as medical treatment or diagnosis). (NOTE: Some research in this category maybe exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(4). This listing refers only to research that is not exempt.

(7) Collection of data from voice, video, digital, or image recordings made for research purposes.

(8) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identify, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)

(9) Continuing review of research previously approved by the convened IRB as follows:

(a) where (i) the research is permanently closed to the enrollment of new subjects: (ii) all subjects have completed all research-related interventions; and (iii) the research remains active only for long-term follow-up of subjects; or

(b) where no subjects have been enrolled and no additional risks have been identified; or
(c) where the remaining research activities are limited to data analysis continuing review of research, not conducted under an investigational new drug application or investigational device exemption where categories two (2) through eight (8) do not apply but the IRB has determined and documented at a convened meeting that the research involved no greater than minimal risk and no additional risks have been identified. Dated: November 1998

[1] An expedited review procedure consists of a review of research involving human subjects by the IRB chairperson or by one or more experienced reviewers designated by the chairperson from among members of the IRB in accordance with the requirements set forth in 45 CFR 46.110.

[2] Children are defined in the HHS regulations as —persons who have not attained the legal age for consent to treatments or procedures involved in the research, under the applicable law of the jurisdiction in which the research will be conducted. 45 CFR 46.402(a).

Researchers and/or their faculty mentors are encouraged to contact CHP Associate Dean of Research, Dr. Theresa Bacon-Baguley and/or GVSU IRB Chair regarding any questions about which category to submit their research study for IRB review.

All research submissions for new protocols to GVSU IRB must first be reviewed and approved by CHP Associate Dean of Research (in addition to your DPT faculty mentor/collaborator).

INFORMED CONSENT

The informed consent form is prepared by the investigator to suit the research design. The title of the project is entered at the top of page followed by a brief explanation of the study. A copy of this included with the proposal when presented for approval to the Institutional Review Board (IRB).

The basic elements of information necessary to such consent includes:

1. Name of principal investigator.
2. A statement that the study involves research and an explanation of the purposes of the research.
3. A fair explanation of the procedure to be followed and their purpose, including identification of any procedures which are experimental, and expected duration of involvement.
4. A description of any attendant discomforts and risks reasonably to be expected.
5. A description of any benefits reasonably expected.
6. A disclosure of any appropriate alternative procedures that might be advantageous to the subject.
7. An offer to answer any inquiries concerning the procedure.
8. An instruction that the person is free to withdraw his consent and to discontinue participation

in the project at any time without prejudice to the subject.

9. Informed consent should be written in ordinary language not exceeding 8th grade reading level.

Refer to the IRB website for further instructions and specific guidelines for consent forms and submission process.

Once the research proposal is approved by the IRB, researchers are expected to notify the IRB of any proposed changes to methods and any unforeseen risks or adverse events.

APPENDIX C | Other Forms

RESEARCH PROJECT CONTRACT

I,_____, having read Part II of the Research Handbook and the corresponding Appendices, do agree that I will be an active participant in the completion of the total project as required to complete **PT 790** and **PT 793**. I further recognize that the final grade for such a project is dependent upon total cooperation among the team members and their combined equal efforts.

If at any time, during the development and completion of this project, it is determined by my fellow team member(s) and my research mentor, that my contribution is less than agreed to, I understand that I will be called upon to make a formal explanation. My research mentor and the project team will review this explanation.

It is understood that such a review will determine my ability to continue with the project. Should it be determined that it is not appropriate for me to continue, I realize that I will have to initiate and complete another acceptable research activity to complete the requirement for the degree.

Please sign below:

_____ _____

Student Date

_____ _____

Faculty Research Mentor Date

STANDARD RELEASE FORM

I,_____, hereby give permission to the Grand Valley State University, Physical Therapy Program:

_____1). To utilize photographs, films, video or audio taped segments of self for educational purposes.

_____2). To copy or reproduce the following material(s) for educational purposes by faculty and/or students within said institution:

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_____3). _____

Date:_____ Signature: _____

Name Printed: _____

Institution/Agency: _____

Address: _____

City: _____

State:_____Zip: _____

Witness: _____

Date:_____

APPENDIX D | Grading Criteria

GRADING CRITERIA PT 790: Research Project Proposal Progress

Student(s): _____ *SEMESTER/YEAR:* _____

This grading rubric is to be used for research projects that were not able to have a fully developed proposal by the completion of the Winter Semester (Semester 5).

Indicate achievement of criteria by circling the appropriate rating on the scale below with regard to agreed upon expectations and timelines.

1. Literature review
   Fully met 5 4 3 2 1 Not met N/A

2. Development of a problem statement
   Fully met 5 4 3 2 1 Not met N/A

3. Development of research question(s)
   Fully met 5 4 3 2 1 Not met N/A

4. Formulation of hypothesis(es)
   Fully met 5 4 3 2 1 Not met N/A

5. Development of protocol
   Fully met 5 4 3 2 1 Not met N/A

6. Identification of sample and related inclusion/exclusion criteria
   Fully met 5 4 3 2 1 Not met N/A

7. Identification of variables to be measured/collected
   Fully met 5 4 3 2 1 Not met N/A

8. Identification of statistical analysis(es) to be utilized
   Fully met 5 4 3 2 1 Not met N/A

9. Other tasks as assigned/agreed upon: _____
   Fully met 5 4 3 2 1 Not met N/A

Comments:

RESEARCH PROPOSAL DEVELOPMENT PROGRESS GRADE: _____

_____ _____

Signature of Faculty Mentor **Date**

GRADING CRITERIA PT 790: Research Project Proposal

Student(s):_____SEMESTER/YEAR: _____

Indicate achievement of criteria by circling the appropriate indicator on the scale below. The written paper submitted at the time of the proposal defense is the product on which the scoring is based.

Introduction (10%)

1. Problem is clearly stated
   Fully met 5 4 3 2 1 Not met

2. Significance of problem is clear
   Fully met 5 4 3 2 1 Not met

3. Purpose of study is clearly state
   Fully met 5 4 3 2 1 Not met

Literature Review (25%)

1. All relevant topic areas are presented
   Fully met 5 4 3 2 1 Not met

2. Research reports clearly presented., i.e., what was studied, on whom, how studied, results, relationship to other studies, relationship to proposed study
   Fully met 5 4 3 2 1 Not met

3. Literature review is summarized with implications for proposed study
   Fully met 5 4 3 2 1 Not met

4. Research questions and hypothesis(es) are clearly stated
   Fully met 5 4 3 2 1 Not met

5. Important terms are defined
   Fully met 5 4 3 2 1 Not met

Methodology (25%)

1. Research design is fully described
   Fully met 5 4 3 2 1 Not met

2. Research design is appropriate to solution of problem
   Fully met 5 4 3 2 1 Not met

3. Research design is free of specific weaknesses
   Fully met 5 4 3 2 1 Not met

4. Population and sample are described
   Fully met 5 4 3 2 1 Not met

5. Method of sampling is appropriate
   Fully met 5 4 3 2 1 Not met

6. Instruments used are described
   Fully met 5 4 3 2 1 Not met

7. Validity and reliability of measurements and measurement instrumentation or trustworthiness in qualitative studies are described or established and maintained
   Fully met 5 4 3 2 1 Not met

8. Data-gathering methods or procedures are described
   Fully met 5 4 3 2 1 Not met

9. Data-gathering methods or procedures are appropriate to solution of problem
   Fully met 5 4 3 2 1 Not met

10. Limitations of design and method are discussed
    Fully met 5 4 3 2 1 Not met

11. Appropriate forms are included, i.e., informed consent, instructions to subjects, data collection forms, etc.
    Fully met 5 4 3 2 1 Not met

12. Plan for data analysis is presented
    Fully met 5 4 3 2 1 Not met

13. Data analysis plan is appropriate
    Fully met 5 4 3 2 1 Not met

Style (15%)

1. Correct grammar (including spelling, punctuation, constant tense, word choice, etc.)
   Fully met 5 4 3 2 1 Not met

2. Thoughts are presented clearly and progress logically with appropriate transitions
   Fully met 5 4 3 2 1 Not met

3. Style used is consistent with the School of Health Professions and APA/AMA Manuals
   Fully met 5 4 3 2 1 Not met

4. Reference are cited correctly
   Fully met 5 4 3 2 1 Not met

5. Recommended revisions were made in a timely manner
   Fully met 5 4 3 2 1 Not met

<u>Oral Defense</u> (10%)

1. Summarized research hypothesis(es) or question(s)
   Fully met 5 4 3 2 1 Not met

2. Summarized previous research reported in the literature
   Fully met 5 4 3 2 1 Not met

3. Summarized methodology and analysis used
   Fully met 5 4 3 2 1 Not met

4. Summarized research limitation
   Fully met 5 4 3 2 1 Not met

5. Demonstrated understanding and synthesis of previous literature relative to students' research
   Fully met 5 4 3 2 1 Not met

6. Defended methodology and analytic approach or statistics utilized
   Fully met 5 4 3 2 1 Not met

<u>Active participation and adherence to contract (if applicable) and deadlines</u> (15%)

Fully met 5 4 3 2 1 Not met

<u>Comments</u>:

RESEARCH PROPOSAL GRADE: _____

_____ _____

Signature of Faculty Mentor **Date**

GRADING CRITERIA PT 793: Research Project- Chapter Format

Student(s):_____SEMESTER/YEAR: _____

Provide comments evaluating the student's ability to discuss the following criteria that indicate the ability to critically analyze and synthesize knowledge in the subject of the research project and its implications for the profession:

_____

_____

Indicate achievement of criteria by circling the appropriate indicator on the scale below. The written paper submitted at the time of the proposal defense is the product on which the scoring is based.

Implementation (10%)

1. Data gathering methods or procedures were utilized correctly, i.e. appropriate to the question
   Fully met 5 4 3 2 1 Not met

2. Validity and reliability of the selected instruments and data were identified
   Fully met 5 4 3 2 1 Not met

3. Methods utilized in analyzing data were applied correctly
   Fully met 5 4 3 2 1 Not met

4. Committee members were utilized effectively and appropriately
   Fully met 5 4 3 2 1 Not met

Written Thesis (35%) Results

1. Results of analysis were presented clearly in an organized manner
   Fully met 5 4 3 2 1 Not met

2. Tables and figures were used effectively to enhance presentation of results
   Fully met 5 4 3 2 1 Not met

Discussion and Conclusions

1. Interpretation of data analysis was accurate
   Fully met 5 4 3 2 1 Not met

2. Discussion/conclusions related to conceptual framework and research question(s)
   Fully met 5 4 3 2 1 Not met

3. Discussion was complete and in-depth; findings of study were related to previous research as presented in review of the literature
   Fully met 5 4 3 2 1 Not met

4. Conclusions were substantiated by evidence presented
   Fully met 5 4 3 2 1 Not met

5. Generalizations were confined to the population from which the sample was drawn
   Fully met 5 4 3 2 1 Not met

6. Implications for further research were discussed and based on outcomes of the study
   Fully met 5 4 3 2 1 Not met

7. Implications and significance of research findings for the profession were clearly discussed
   Fully met 5 4 3 2 1 Not met

Style (10%)

1. Correct grammar was used (including spelling, punctuation, tense, word choice)
   Fully met 5 4 3 2 1 Not met

2. Thoughts were clearly presented and progressed logically with appropriate transitions
   Fully met 5 4 3 2 1 Not met

3. Style used was consistent with School of Health Professions and APA/AMA requirements
   Fully met 5 4 3 2 1 Not met

4. References were correctly cited
   Fully met 5 4 3 2 1 Not met

5. Tone of the report displayed a neutral attitude
   Fully met 5 4 3 2 1 Not met

6. Recommended revisions were made in a timely manner without repeated feedback
   Fully met 5 4 3 2 1 Not met

Oral Defense

Oral Presentation (20%)

1. Evidence of preparation and appropriate use of AV (or other) equipment
   Fully met 5 4 3 2 1 Not met

2. Summarized research questions
   Fully met 5 4 3 2 1 Not met

3. Summarized previous research reported in the literature
   Fully met 5 4 3 2 1 Not met

4. Summarized methodology and analysis
   Fully met 5 4 3 2 1 Not met

5. Summarized results
   Fully met 5 4 3 2 1 Not met

6. Summarized results relative to previous research
   Fully met 5 4 3 2 1 Not met

7. Stated conclusions, implications, applications and direction for future research
   Fully met 5 4 3 2 1 Not met

8. Summarized research limitations
   Fully met 5 4 3 2 1 Not met

Defense - i.e., ability to answer questions from committee members (20%)

1. Demonstrated understanding and synthesis of previous literature relative to students' research
   Fully met 5 4 3 2 1 Not met

2. Defended the methodology and analysis used
   Fully met 5 4 3 2 1 Not met

3. Justified conclusions
   Fully met 5 4 3 2 1 Not met

Active Participation and Adherence to contract (if applicable) and deadlines (5%)

Fully met 5 4 3 2 1 Not met

Comments:

RESEARCH PROPOSAL GRADE: _____

_____ _____

Signature of Faculty Mentor **Date**

_____ _____

Signature of Department Chair **Date**

GRADING CRITERIA PT 793: Research Project-Journal Format Manuscript

Student(s):_____SEMESTER/YEAR: _____

Provide comments evaluating the student's ability to discuss the following criteria that indicate the ability to critically analyze and synthesize knowledge in the subject of the research project and its implications for the profession:

_____
_____
_____

Indicate achievement of criteria by circling the appropriate indicator on the scale below. The written paper submitted at the time of the proposal defense is the product on which the scoring is based.

Implementation (10%)

1. Data gathering methods or procedures were utilized correctly, i.e. appropriate to the question
   Fully met 5 4 3 2 1 Not met

2. Validity and reliability of the selected instruments and data were identified
   Fully met 5 4 3 2 1 Not met

3. Methods utilized in analyzing data were applied correctly
   Fully met 5 4 3 2 1 Not met

4. Committee members were utilized effectively and appropriately
   Fully met 5 4 3 2 1 Not met

Written Manuscript (35%) Results

1. Results of analysis were presented clearly in an organized manner
   Fully met 5 4 3 2 1 Not met

2. Tables and figures were used effectively to enhance presentation of results
   Fully met 5 4 3 2 1 Not met

Discussion and Conclusions

1. Interpretation of data analysis was accurate
   Fully met 5 4 3 2 1 Not met

2. Discussion/conclusions related to conceptual framework and research question(s)
   Fully met 5 4 3 2 1 Not met

3. Discussion was concise; findings of study were related to previous research, as presented in review of the literature
   Fully met 5 4 3 2 1 Not met

4. Conclusions were substantiated by evidence presented
   Fully met 5 4 3 2 1 Not met

5. Generalizations were confined to the population from which the sample was drawn
   Fully met 5 4 3 2 1 Not met

6. Implications for further research were discussed and based on outcomes of the study
   Fully met 5 4 3 2 1 Not met

7. Implications and significance of research findings for the profession were clearly discussed
   Fully met 5 4 3 2 1 Not met

Style (10%)

1. Correct grammar was used (including spelling, punctuation, tense, word choice)
   Fully met 5 4 3 2 1 Not met

2. Thoughts were clearly presented and progressed logically with appropriate transitions
   Fully met 5 4 3 2 1 Not met

3. Style used was consistent with the appropriate journal requirements
   Fully met 5 4 3 2 1 Not met

4. References were correctly cited
   Fully met 5 4 3 2 1 Not met

5. Tone of the report displayed a neutral attitude
   Fully met 5 4 3 2 1 Not met

6. Recommended revisions were made in a timely manner without repeated feedback
   Fully met 5 4 3 2 1 Not met

Oral Defense

Oral Presentation (20%)

1. Evidence of preparation and appropriate use of AV (or other) equipment
   Fully met 5 4 3 2 1 Not met

2. Summarized research questions
   Fully met 5 4 3 2 1 Not met

3. Summarized previous research reported in the literature
   Fully met 5 4 3 2 1 Not met

4. Summarized methodology and analysis
   Fully met 5 4 3 2 1 Not met

5. Summarized results
   Fully met 5 4 3 2 1 Not met

6. Summarized results relative to previous research
   Fully met 5 4 3 2 1 Not met

7. Stated conclusions, implications, applications and direction for future research
   Fully met 5 4 3 2 1 Not met

8. Summarized research limitations.
   Fully met 5 4 3 2 1 Not met

Defense – i.e., ability to answer questions from committee members (20%)

1. Demonstrated understanding and synthesis of previous literature relative to students' research
   Fully met 5 4 3 2 1 Not met

2. Defended the methodology and analysis used
   Fully met 5 4 3 2 1 Not met

3. Justified and defended conclusions and clinical implications
   Fully met 5 4 3 2 1 Not met

Active Participation and Adherence to contract and deadlines (5%)
Fully met 5 4 3 2 1 Not met

Comments:

RESEARCH PROPOSAL GRADE: _____

_____ _____
Signature of Faculty Mentor **Date**

_____ _____
Signature of Department Chair **Date**

GRADING CRITERIA PT 790: Case Report Development Progress

Student(s): _____ *SEMESTER/YEAR:* _____

This grading rubric is to be used for research projects that were not able to have a fully developed proposal by the completion of the Winter Semester (Semester 5).

Indicate achievement of criteria by circling the appropriate rating on the scale below with regard to agreed upon expectations and timelines.

1. Literature review
   Fully met 5 4 3 2 1 Not met N/A

2. Development of a problem statement
   Fully met 5 4 3 2 1 Not met N/A

3. Identification of gap(s) in literature to be addressed by the case report
   Fully met 5 4 3 2 1 Not met N/A

4. Identifies and outlines available historical, examination, and outcome data
   Fully met 5 4 3 2 1 Not met N/A

5. Identifies and outlines information related to the interventions provided through the episode of care
   Fully met 5 4 3 2 1 Not met N/A

6. Develops an outline of the written case report
   Fully met 5 4 3 2 1 Not met N/A

7. Other tasks as assigned/agreed upon: _____
   Fully met 5 4 3 2 1 Not met N/A

Comments:

CASE STUDY DEVELOPMENT PROGRESS GRADE: _____

_____ _____

Signature of Faculty Mentor **Date**

GRADING CRITERIA PT 790: Case Report

Case Report Title:_____SEMESTER/YEAR: _____

Student(s): _____

Indicate achievement of criteria by circling the appropriate indicator on the scale below.

Written Manuscript

Introduction (15%)

1. Identifies purpose and describes the focus of the case
   Fully met 5 4 3 2 1 Not met

2. Provides rationale for the importance of topic/focus
   Fully met 5 4 3 2 1 Not met

3. Provides background information from the literature related to the purpose to facilitate understanding of the problem and intervention
   Fully met 5 4 3 2 1 Not met

Patient Description (15%)

1. Provides sufficient information to allow identification of similar cases
   Fully met 5 4 3 2 1 Not met

2. Includes relevant history, medical, psychosocial and demographic data
   Fully met 5 4 3 2 1 Not met

3. Includes description of tests used and cites references
   Fully met 5 4 3 2 1 Not met

4. Validity and reliability of tests and measures are described and referenced
   Fully met 5 4 3 2 1 Not met

5. Terms used are operationally defined
   Fully met 5 4 3 2 1 Not met

6. Tables, figures and illustrations complement text
   Fully met 5 4 3 2 1 Not met

Intervention (15%)

1. Examination, evaluation, diagnosis, and prognosis are clearly explained and supported by the data presented
   Fully met 5 4 3 2 1 Not met

2. Provides plan of care, including physical therapy goals and expected outcome is provided
   Fully met 5 4 3 2 1 Not met

3. Describes clinical decision-making process and rationale for intervention is provided, explained and referenced
   Fully met 5 4 3 2 1 Not met

4. Interventions are described in detail and referenced
   Fully met 5 4 3 2 1 Not met

5. Frequency, intensity and duration of treatment are described and referenced
   Fully met 5 4 3 2 1 Not met

6. Tables, figures and illustrations effectively designed and used to summarize interventions
   Fully met 5 4 3 2 1 Not met

Outcome (15%)

1. Objective data are provided as consistent with the purpose of the case
   Fully met 5 4 3 2 1 Not met

2. Includes objective data regarding changes in functional abilities
   Fully met 5 4 3 2 1 Not met

3. Results relate to purpose, diagnosis, treatment and prognosis
   Fully met 5 4 3 2 1 Not met

4. Tables, figures and illustrations effectively designed to reflect outcomes, where appropriate
   Fully met 5 4 3 2 1 Not met

Discussion (20%)

1. Links case to purpose and reviewed evidence/literature
   Fully met 5 4 3 2 1 Not met

2. Discusses theoretical basis for intervention and clinical decisions
   Fully met 5 4 3 2 1 Not met

3. Reflects on case management and outcomes
   Fully met 5 4 3 2 1 Not met

4. Discussed potential factors influencing outcomes
   Fully met 5 4 3 2 1 Not met

5. Strengths and weaknesses of case management discussed
   Fully met 5 4 3 2 1 Not met

6. Discusses learning that came about as a result of this case and relevance for future
   Fully met 5 4 3 2 1 Not met

7. Poses research questions
   Fully met 5 4 3 2 1 Not met

8. Cites references to support explanations
   Fully met 5 4 3 2 1 Not met

Style and Revisions (10%)

1. Correct grammar (including spelling, punctuation, constant tense, word choice, etc.) and uses person-first language
   Fully met 5 4 3 2 1 Not met

2. Thoughts are presented clearly and progress logically with appropriate transitions
   Fully met 5 4 3 2 1 Not met

3. Style used is consistent with that proposed by the American Physical Therapy Association
   Fully met 5 4 3 2 1 Not met

4. References are cited correctly
   Fully met 5 4 3 2 1 Not met

5. Recommended revisions were made in a timely manner
   Fully met 5 4 3 2 1 Not met

Oral Defense (10%)

1. Demonstrates understanding of background, theory or framework for the case report, addresses the gaps in the research, and provides supporting literature for case management
   Fully met 5 4 3 2 1 Not met

2. Cleary states purpose and focus of the case report
   Fully met 5 4 3 2 1 Not met

3. Concisely and clearly presents case history and examination findings, including justification and reliability/validity & MDC for selected tests and measures
   Fully met 5 4 3 2 1 Not met

4. Discusses evaluation and interpretation of findings, diagnosis, and prognosis that guided PT plan of care
   Fully met 5 4 3 2 1 Not met

5. Clearly describes selected interventions with rationale for their use
   Fully met 5 4 3 2 1 Not met

6. Explains clinical decision-making regarding progression and modifications of selected interventions
   Fully met 5 4 3 2 1 Not met

7. Discusses patient outcomes and their relationship to stated purpose of case report
   Fully met 5 4 3 2 1 Not met

8. Reflects on case management and patient outcomes
   Fully met 5 4 3 2 1 Not met

9. Discusses clinical findings relative to previous literature
   Fully met 5 4 3 2 1 Not met

10. Justifies conclusions and clinical implications of case report, including limitations and recommendations for future research
   Fully met 5 4 3 2 1 Not met

Comments:

RESEARCH PROPOSAL GRADE: _____

_____ _____

Signature of Faculty Mentor **Date**

GRADING CRITERIA PT 793: Case Report

Case Report Title:_____SEMESTER/YEAR: _____

Student(s): _____

Indicate achievement of criteria by circling the appropriate indicator on the scale below.

Written Manuscript

Introduction (10%)

1. Identifies purpose and describes the focus of the case
   Fully met 5 4 3 2 1 Not met

2. Provides rationale for the importance of topic/focus
   Fully met 5 4 3 2 1 Not met

3. Provides background information from the literature related to the purpose to facilitate understanding of the problem and intervention
   Fully met 5 4 3 2 1 Not met

Patient Description (15%)

1. Provides sufficient information to allow identification of similar cases
   Fully met 5 4 3 2 1 Not met

2. Includes relevant history, medical, psychosocial and demographic data
   Fully met 5 4 3 2 1 Not met

3. Includes description of tests used and cites references
   Fully met 5 4 3 2 1 Not met

4. Validity and reliability of tests and measures are described and referenced
   Fully met 5 4 3 2 1 Not met

5. Terms used are operationally defined
   Fully met 5 4 3 2 1 Not met

6. Tables, figures and illustrations complement text
   Fully met 5 4 3 2 1 Not met

Intervention (15%)

1. Examination, evaluation, diagnosis, and prognosis are clearly explained and supported by the data presented
   Fully met 5 4 3 2 1 Not met

2. Provides plan of care, including physical therapy goals and expected outcome is provided
   Fully met 5 4 3 2 1 Not met

3. Describes clinical decision-making process and rationale for intervention is provided, explained and referenced
   Fully met 5 4 3 2 1 Not met

4. Interventions are described in detail and referenced
   Fully met 5 4 3 2 1 Not met

5. Frequency, intensity and duration of treatment are described and referenced
   Fully met 5 4 3 2 1 Not met

6. Tables, figures and illustrations effectively used to summarize interventions
   Fully met 5 4 3 2 1 Not met

Outcome (10%)

1. Objective data are provided as consistent with the purpose of the case
   Fully met 5 4 3 2 1 Not met

2. Includes objective data regarding changes in functional abilities
   Fully met 5 4 3 2 1 Not met

3. Results relate to purpose, diagnosis, treatment and prognosis
   Fully met 5 4 3 2 1 Not met

4. Tables, figures and illustrations effectively designed to summarize outcomes where appropriate
   Fully met 5 4 3 2 1 Not met

Discussion (20%)

1. Links case to purpose and reviewed evidence/literature
   Fully met 5 4 3 2 1 Not met

2. Discusses theoretical basis for intervention and clinical decisions
   Fully met 5 4 3 2 1 Not met

3. Reflects on case management and outcomes
   Fully met 5 4 3 2 1 Not met

4. Discussed potential factors influencing outcomes
   Fully me 5 4 3 2 1 Not met

5. Strengths and weaknesses of case management discussed
   Fully met 5 4 3 2 1 Not met

6. Discusses learning that came about as a result of this case and relevance for future
   Fully met 5 4 3 2 1 Not met

7. Poses future research questions
   Fully met 5 4 3 2 1 Not met

8. Cites References to support explanations.
   Fully met 5 4 3 2 1 Not met

Style and Revisions (10%)

1. Correct grammar (including spelling, punctuation, constant tense, word choice, etc.) and uses people-first language
   Fully met 5 4 3 2 1 Not met

2. Thoughts are presented clearly and progress logically with appropriate transitions
   Fully met 5 4 3 2 1 Not met

3. Style used is consistent with that proposed by the American Physical Therapy Association
   Fully met 5 4 3 2 1 Not met

4. References are correctly sited
   Fully met 5 4 3 2 1 Not met

5. Recommended revisions were made in a timely manner
   Fully met 5 4 3 2 1 Not met

Oral Defense (20%)

1. Demonstrates understanding of background, theory or framework for the case report, addresses the gaps in the research, and provides supporting literature for case management
   Fully met 5 4 3 2 1 Not met

2. Cleary states purpose and focus of the case report
   Fully met 5 4 3 2 1 Not met

3. Concisely and clearly presents case history and examination findings, including justification and reliability/validity & MDC for selected tests and measures
   Fully met 5 4 3 2 1 Not met

4. Discusses evaluation and interpretation of findings, diagnosis, and prognosis that guided PT plan of care
   Fully met 5 4 3 2 1 Not met

5. Clearly describes selected interventions with rationale for their use
   Fully met 5 4 3 2 1 Not met

6. Explains clinical decision-making regarding progression and modifications of selected interventions
   Fully met 5 4 3 2 1 Not met

7. Discusses patient outcomes and their relationship to stated purpose of case report
   Fully met 5 4 3 2 1 Not met

8. Reflects on case management and patient outcomes
   Fully met 5 4 3 2 1 Not met

9. Discusses clinical findings relative to previous literature
   Fully met 5 4 3 2 1 Not met

10. Justifies conclusions and clinical implications of case report, including limitations and recommendations for future research
    Fully met 5 4 3 2 1 Not met

Comments:

RESEARCH PROPOSAL GRADE: _____

_____ _____
Signature of Faculty Mentor **Date**

_____ _____
Signature of Department Chair **Date**

GRADING CRITERIA PT 790: Systematic Review Proposal Progress

Student(s): _____ *SEMESTER/YEAR:* _____

This grading rubric is to be used for research projects that were not able to have a fully developed proposal by the completion of the Winter Semester (Semester 5).

Indicate achievement of criteria by circling the appropriate rating on the scale below with regard to agreed upon expectations and timelines.

1. Literature review
   Fully met 5 4 3 2 1 Not met N/A

2. Development of a problem statement
   Fully met 5 4 3 2 1 Not met N/A

3. Development of research question(s)
   Fully met 5 4 3 2 1 Not met N/A

4. Development of search strategy, including search terms and databases
   Fully met 5 4 3 2 1 Not met N/A

5. Determination of relevant article inclusion/exclusion criteria
   Fully met 5 4 3 2 1 Not met N/A

6. Identification of instrument(s) to assess methodological rigor of included articles
   Fully met 5 4 3 2 1 Not met N/A

7. Identification of data to be extracted
   Fully met 5 4 3 2 1 Not met N/A

8. Determination of plan to interpret and synthesize included articles
   Fully met 5 4 3 2 1 Not met N/A

9. Other tasks as assigned/agreed upon: _____
   Fully met 5 4 3 2 1 Not met N/A

Comments:

SYSTEMATIC REVIEW PROPOSAL DEVELOPMENT PROGRESS GRADE: _____

_____ _____

Signature of Faculty Mentor **Date**

GRADING CRITERIA PT 790: Systematic Review Proposal

Title:_____SEMESTER/YEAR: _____

Student(s): _____

The written paper submitted at the time of the proposal defense is the product on which the scoring is based.

Background on the Research Question (10%)

1. Clinical question is clearly stated
   Fully Met 5 4 3 2 1 Not met

2. Clinical significance of question is clear
   Fully Met 5 4 3 2 1 Not met

3. Purpose of and need for literature review is clearly stated
   Fully Met 5 4 3 2 1 Not met

Literature Review (25%)

1. All relevant topic areas are presented
   Fully met 5 4 3 2 1 Not met

2. Literature review is summarized with implications for proposed review
   Fully met 5 4 3 2 1 Not met

3. A summary of facts, problems or controversies found in the literature is provided
   Fully Met 5 4 3 2 1 Not met

Methodology (25%)

1. Research design is fully described
   Fully met 5 4 3 2 1 Not met

2. Research design is appropriate to solution of problem
   Fully met 5 4 3 2 1 Not met

3. Inclusion and exclusion criteria are described
   Fully met 5 4 3 2 1 Not met

4. Method for assessing level of evidence and methodological rigor is described
   Fully met 5 4 3 2 1 Not met

5. Search terms and databases for literature search are described
   Fully met 5 4 3 2 1 Not met

6. Appropriate forms are included, i.e., investigator scoring sheets for level of evidence and rigor
   Fully met 5 4 3 2 1 Not met

Style (15%)

1. Correct grammar (including spelling, punctuation, constant tense, word choice, etc.)
   Fully met 5 4 3 2 1 Not met

2. Thoughts are presented clearly and progress logically with appropriate transitions
   Fully met 5 4 3 2 1 Not met

3. Style used is consistent with the School of Health Professions and APA/AMA Manuals
   Fully met 5 4 3 2 1 Not met

4. References are correctly cited
   Fully met 5 4 3 2 1 Not met

5. Recommended revisions were made in a timely manner
   Fully met 5 4 3 2 1 Not met

Oral Defense (10%)

1. Summarized research hypothesis(es) or question(s)
   Fully met 5 4 3 2 1 Not met

2. Summarized previous research reported in the literature
   Fully met 5 4 3 2 1 Not met

3. Summarized methodology and analysis used
   Fully met 5 4 3 2 1 Not met

4. Summarized limitations of review
   Fully met 5 4 3 2 1 Not met

5. Demonstrated understanding and synthesis of previous literature relative to students' research
   Fully met 5 4 3 2 1 Not met

6. Defended methodology and analytic approach or statistics utilized
   Fully met 5 4 3 2 1 Not met

Active participation and adherence to contract (if applicable) and deadlines (15%)

Fully met 5 4 3 2 1 Not met

Comments:

RESEARCH PROPOSAL GRADE: _____

_____ _____

Signature of Faculty Mentor **Date**

GRADING CRITERIA PT 793: Systematic Review

Title:_____SEMESTER/YEAR: _____

Student(s): _____

Provide comments evaluating the student's ability to discuss the following criteria that indicate the ability to critically analyze and synthesize knowledge in the subject of the thesis and its implications for the profession:

_____

_____

_____

(Indicate achievement of criteria by circling the appropriate indicator on the scale below.) The written paper submitted at the time of the proposal defense is the product on which the scoring is based.

Implementation (10%)

1. Data gathering methods or procedures were utilized correctly, i.e. appropriate to the question
   Fully met 5 4 3 2 1 Not met

2. Methods utilized in analyzing the literature were applied correctly
   Fully met 5 4 3 2 1 Not met

3. Committee members were utilized effectively and appropriately
   Fully met 5 4 3 2 1 Not met

Written Manuscript (35%) Results

1. States results of search, and provides number and description of studies included and excluded (including reason for exclusion)
   Fully met 5 4 3 2 1 Not met

2. Succinctly summarizes included studies with regard to level of evidence and methodological rigor
   Fully met 5 4 3 2 1 Not met

3. Accurately summarizes findings of review with regard to the research question
   Fully met 5 4 3 2 1 Not met

4. Uses tables and figures effectively to assist with presentation of results of level of evidence, rigor, or summary of included studies
   Fully met 5 4 3 2 1 Not met

Discussion and Conclusions

1. Interpretation of literature review was accurate
   Fully met 5 4 3 2 1 Not met

2. Discussion/conclusions related to conceptual framework and research question(s)
   Fully met 5 4 3 2 1 Not met

3. Discussion was concise; findings of study were related to previous research, as presented in review of the literature
   Fully met 5 4 3 2 1 Not met

4. Generalizations were confined to the population from which the sample was drawn
   Fully met 5 4 3 2 1 Not met

5. Implications for further research were discussed and based on outcomes of the study
   Fully met 5 4 3 2 1 Not met

6. Conclusions were substantiated by evidence presented
   Fully met 5 4 3 2 1 Not met

Style (10%)

1. Correct grammar was used (including spelling, punctuation, tense, word choice)
   Fully met 5 4 3 2 1 Not met

2. Thoughts were clearly presented and progressed logically with appropriate transitions
   Fully met 5 4 3 2 1 Not met

3. Style used was consistent with the appropriate journal requirements
   Fully met 5 4 3 2 1 Not met

4. References were correctly cited
   Fully met 5 4 3 2 1 Not met

5. Tone of the report displayed a neutral attitude
   Fully met 5 4 3 2 1 Not met

6. Recommended revisions were made in a timely manner without repeated feedback
   Fully met 5 4 3 2 1 Not met

Oral Defense

Oral Presentation (20%)

1. Evidence of preparation and appropriate use of AV (or other) equipment
   Fully met 5 4 3 2 1 Not met

2. Summarized need and rationale for present review
   Fully met 5 4 3 2 1 Not met

3. Summarized research questions
   Fully met 5 4 3 2 1 Not met

4. Summarized methodology and analysis
   Fully met 5 4 3 2 1 Not met

5. Summarized results.
   Fully met 5 4 3 2 1 Not met

6. Summarized results relative to previous research
   Fully met 5 4 3 2 1 Not met

7. Stated conclusions, implications, applications and direction for future research
   Fully met 5 4 3 2 1 Not met

8. Summarized research limitations
   Fully met 5 4 3 2 1 Not met

Defense – i.e., ability to answer questions from committee members (20%)

1. Demonstrated understanding and synthesis of previous literature relative to students' research
   Fully met 5 4 3 2 1 Not met

2. Defended the methodology and analysis used
   Fully met 5 4 3 2 1 Not met

3. Justified and defended conclusions and clinical implications
   Fully met 5 4 3 2 1 Not met

Active participation and adherence to contract (if applicable) and deadlines (5%)
Fully met 5 4 3 2 1 Not met

Comments:

RESEARCH PROPOSAL GRADE: _____

_____ _____
Signature of Faculty Mentor **Date**

_____ _____
Signature of Department Chair **Date**

APPENDIX E | Information on the Case Report Option

PHYSICAL THERAPY CASE REPORT

Introduction

Although there presently are major initiatives in the Physical Therapy profession to promote and conduct well-controlled bench and clinical research, the need for case reports has also been advocated (McEwen, 2001). According to Jules Rothstein, Editor of *Physical Therapy*,

> The vagaries of patient care are too important to be left to random communications, jargon-laden continuing education courses or accidental dialogues. We should agree and disagree in public and grow through that discourse. We should talk to each other about what we do and do so using clear language. We should write so that we refine our descriptions, agree on terms and definitions, and evolve a common language of practice... That is, we should write case reports (McEwen, 2001)!

Recently, Rothstein proclaimed that there was a need to conduct and submit case reports to *Physical Therapy*. Other well-recognized physical therapy and medical journals, such as *Journal of Orthopedic and Sports Physical Therapy*, *New England Journal of Medicine*, and *Spine*, to name a few, routinely include case reports. Thus, it is well accepted that case reports are more than just shoptalk but are an essential part of the physical therapy and medical literature and they are reviewed with the same scrutiny as experimental research. Case reports do not replace research reports, but complement traditional research, and can provide researchers with the background they need to design future research and clinical trials.

The purposes of this proposal are twofold: 1) to define what we mean by case report and describe the need for case reports, and 2) outline a specific plan for how graduate physical therapy students will complete a case report (should they elect that option) to satisfy program requirements.

Why perform case reports?

Case reports are not the same as case studies or single-subject designs, which refer to research methodologies that have procedures and standards of their own. Case reports simply describe practice, but succinctly describe practice in detail so that readers have a clear understanding of the procedures used. The credibility of case reports is often enhanced by attempting to control, rule out or acknowledge alternative explanations for outcomes, but case reports do not impose the controls required to identify cause-and-effect relationships among variables. Case reports may focus on a single patient or group of patients (most common), or alternatively, on institutions, facilities, education programs or other definable units. The variety of issues examined in case reports may include patient management, ethical dilemmas, use of equipment or devices, or administrative or educational concerns.

Case reports have an important place in the professional physical therapy literature and serve several purposes:

1. Evidence-based medicine (practice) is a phrase heard in all circles of medicine and advocated as the best way to practice in this new century. Evidence-based practice is defined as—the integration of best research evidence with clinical expertise and patient values… When these three elements are integrated, clinicians and patients form a diagnostic and therapeutic alliance which optimizes

clinical outcomes and quality of life. (Sackett, Straus, Richardson, et al., 2000). Evidence-based practice uses the best available evidence to decide, and case reports are an ideal mechanism for students to learn how to integrate best research evidence, clinical experience, and patient values.

2. Because of the nature of randomized-controlled or cohort research designs day-to-day clinical questions are often left unanswered. In contrast, case reports detail the content that would be necessary for another clinician to implement the approach discussed in the report, or to answer day-to-day clinical questions. Furthermore, reported clinical outcomes for individual patients, which are rarely considered in clinical trials, textbooks, and continuing education courses, are readily available and useful. Case reports published in peer-reviewed journals represent the consensus of the primary author and other clinical experts. Thus, while case reports cannot give definitive answers to clinical questions, they do provide readers access to the reflective experiences and knowledge of experts.

3. In traditional research investigators can only examine a limited number of variables under controlled conditions. In case reports, research details of the case have the potential to become a variable for future research that could eventually lead to definitive answers to clinical questions. Thus, student and faculty case reports can provide a broad base of descriptive information that can be used by other researchers in future empirical studies.

4. Case reports have been used extensively in professional academic programs, such as business and law, to assist students develop critical-thinking and problem-solving skills. Additionally, the process of writing case reports helps students develop skills in surveying the literature and becoming involved with peer-reviewed processes. Finally, as students write about the patient, examination and intervention procedures and outcomes they are continually refining their scientific writing skills.

5. Theory has been described as a body of knowledge that serves as a framework for organizing complex and diverse information. (McEwen, 2001). Good science dictates that theory be continually expanded. Thus, case reports can serve to support theory by providing details to a theoretical skeleton. Moreover, theory can be expanded or may be placed in doubt secondary to information from case reports that describe experiences that go beyond current theory or are not consistent with current theory.

6. Finally, information from case reports may be used to persuade clinicians or administrators to re-examine traditional practice patterns or management policies. Although case reports cannot provide definitive answers about treatment effectiveness, case reports can be a springboard for the development of practice guidelines, critical pathways, and other patient management approaches.

Case reports have an important place in the professional physical therapy literature and serve several purposes:

7. Evidence-based medicine (practice) is a phrase heard in all circles of medicine and advocated as the best way to practice in this new century. Evidence-based practice is defined as—the integration of best research evidence with clinical expertise and patient values… When these three elements are

integrated, clinicians and patients form a diagnostic and therapeutic alliance which optimizes clinical outcomes and quality of life. (Sackett, Straus, Richardson, et al., 2000). Evidence-based practice uses the best available evidence to decide, and case reports are an ideal mechanism for students to learn how to integrate best research evidence, clinical experience, and patient values.

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12. Finally, information from case reports may be used to persuade clinicians or administrators to re-examine traditional practice patterns or management policies. Although case reports cannot provide definitive answers about treatment effectiveness, case reports can be a springboard for the development of practice guidelines, critical pathways, and other patient management approaches.

Having provided a rationale for case reports what follows will be a description of the protocol that GVSU PT students will follow.

Preparation of students

Case report is one of the options open to students to fulfill their graduate requirements (**PT 790**-*Physical Therapy Research I* and **PT 793**-*Physical Therapy Research II*), therefore not all students will

be involved in this activity. Students who elect this option will be required to conduct two (2) case report projects. Prior to the first case report, all students will have successfully completed one five-week full time clinical experience (1st professional year).

Additionally, they would have successfully completed three research courses: 1) **PT 512** (*Evidence Based Practice in Physical Therapy*) develops student's skills in scientific writing, reviewing and critiquing clinical research and introduces research design (completed in the Fall semester of 1st professional year), 2) **STA 610** (*Applied Statistics for the Health Professions*) where students learn about statistical tests and data analysis related to research design (completed in Spring/Summer of 1st professional year) and 3) **PT 610** (*Research in the Physical Therapy*) where students engage in an in-depth study of research design (including case report) (completed in the Fall semester of their 2nd professional year). Second-year students will collect data for the first case report during a six-week clinical experience that occurs in the 2nd professional year. Students will write up this first case to fulfill requirements for **PT 790** (completed by end of 2nd professional year). The first case report will provide students with experience in the definition of a clinical question and selection of case, data collection, documentation, review of literature, and refinement of scientific writing skills, thus preparing them for the completion of their second case report. In the Fall semester of the 3rd professional year, students complete two 9-week full-time clinical experiences. During one of these experiences they will collect data for a second case report, which will subsequently be completed in their final academic semester on campus as a requirement for **PT 793** (*Physical Therapy Research II*).

Guidance for students

Students will be advised of their research options beginning in **PT 512** and continuing in **PT 610**. During participation in **PT 610**, students who select the case report option will receive guidance by the course faculty, as well as by physical therapy faculty mentor with case report and clinical experience. For both case report projects students will receive advice from their clinical instructor, who will be informed about the projects, the Director of Clinical Education (DCE) and a specific faculty member with relevant clinical expertise.

Responsibilities of students when conducting case report at clinical sights

A case report will be conducted in affiliated physical therapy clinical sites locally and regionally in the State of Michigan, as well as sites in other regions of the United States. GVSU has established legal contracts with all affiliation sites. At the appropriate time, sites will be informed that a specific student will be completing case report during 2nd and 3rd year clinical experience. When students arrive at the institution/clinical site they will complete the following before they can begin data collection:

1. Affirm with the clinical instructor (institutional sponsor) their intent to conduct case report.
2. Provide the clinical instructor with a copy of signed assurance form (*see student assurance form in this appendix*).
3. Select an appropriate case within two weeks.
4. Inform the patient's referring physician (*see Physician Notification form in this appendix*) if appropriate to the clinical organization.
5. Secure informed consent from the patient and/or parent/guardian (*see informed consent forms in this appendix*).

6. Complete any required form from the clinical organization.

Case report

With the assistance of their clinical instructor, students will be responsible for selecting their case within the first two (2) weeks of the clinical experience, and evaluation and treatment sequences used for the patient.

Participants

Participants will be patients who have been referred for physical therapy services at the clinical site where students are affiliating. They will be patients who are followed by the student and their clinical instructor. Generally, participants are selected on the basis of the need to report on the specific, and sometimes unique, literature and evaluation and treatment sequences used for that particular patient. Potential participants will be asked if they would be willing to be a participant for a case report. If the patient agrees verbally, the purpose of a case report will be explained to them and they will be given an opportunity to ask questions and sign informed consent. The student will also obtain signed HIPAA release from the patient/guardian and clearly inform the patient regarding what medical record data will be collected for the case report consent. Students will then be allowed access to this information that is necessary to their understanding and development of the case report.

Instruments

Since case reports reflect standard practice in physical therapy the instruments used for physical examination and intervention are tools that are routinely used in clinical practice. Such tools include goniometers, tape measures, reflex hammers, and functional ability physical assessments and questionnaires, to name a few. Students have received instruction and have demonstrated competency for the use of these standard tools. Should students be introduced to new methods of examination and measurement at their clinical site they must demonstrate competency in the use of these instruments prior to their use as part of the case report (responsibility of the clinical instructor). In an effort to have a more complete data set, students may elect to collect follow-up data (via phone questionnaire) after the patient has been discharged.

Routinely, videotapes, photographs or other visual images may be taken as part of data collection and outcome measurement. If it is likely that these materials will be used to illustrate patient presentation and treatment in written or oral presentations, students will follow existing procedures at the institution/clinical site for obtaining consent for the collection, use, or reproduction of this data. In addition, there is a section in the consent form where the patient and/or parent/guardian can indicate willingness (or unwillingness) for photographic or videotape data to be used in case presentations or publications.

Treatment procedures

Frequency and duration of treatment procedures will vary from patient to patient, as in routine clinical care, depending on the nature of the clinical problem. Patients involved in case report will not receive special or experimental treatments, nor will care be withheld as part of some type of control. All procedures will follow standard physical therapy practice.

Any adverse effects from routine physical therapy intervention will be managed according to standard practice procedures or as dictated by clinical site policies and procedures. For example, consultation with, or referral to, the referring physician or other health care practitioner may be necessary to initiate new therapies or modify present therapies, dependent on patient response to intervention. Likewise, incident reports acknowledging unusual events, e.g. patient fall during therapy, will be completed as dictated by clinical site procedures.

Benefits

Since standard physical therapy care is being provided for the patient, benefits are those associated with full participation in the physical therapy program. Benefits will also be gained by the professional community should case report experiences and results be presented at local, regional or national meetings, or be published. Future patients with similar problems may benefit if case report results in critical evaluation and change in practice patterns.

Risks

Most risks are those associated with participation in the physical therapy program, which are minimal since standard physical therapy practice will be provided. No experimental examination or treatment procedures will be given to patients. Additional risks could be loss of confidentiality if the collected information is lost, stolen or inappropriately accessed.

Confidentiality

Raw data from physical examination or medical records will be shared only with the student's clinical instructor or supervising PT or other health care professionals associated with the patient in the clinical setting (those who would normally have access to these data). All patient information will be kept confidential in any written manuscripts or oral presentation of the case report. In such reports, name or any other identifier that could be directly linked to the participant will not identify patients. The institution/clinical site name and geographic location where the patient was seen will also not be identified. The student's academic faculty advisor will be responsible for maintaining a file of the record following completion of the case report project, including consent forms.

Student assurance

Student will complete and sign an assurance form (*see student assurance form in this appendix*) that will be submitted to GVSU's case report faculty advisor (with copy to institution/clinical site clinical instructor). This form provides assurances that the student understands and agrees to abide by the terms and procedures of the GVSU Department of Physical Therapy case report program.

Informed consent

After an appropriate patient for the case report is identified, they will be asked if they would be willing to be participant for the clinical case report. The patient will be provided with a consent form that will be reviewed with them. If the patient consents to participation in a case report, they will be asked to sign the consent form. The patient will be given a copy of their signed informed consent.

If the patient is a minor (age 7 to 17 years old), assent will be sought from the patient and consent from the parent or guardian, respectively; if the patient is less than 7 years only parental/legal guardian

consent will be sought. In age appropriate language the purpose of the case report will be explained to the minor, as well as to the parent or legal guardian; the student PT may read the assent/consent form to the child or parent/guardian. Should a minor or adult patient be unable to give informed consent for cognitive reasons, only the parent/legal guardian informed consent will be signed. Copies of signed informed consent will be provided to the minor and the parent or legal guardian.

The original signed assent and consent forms will be provided to student's faculty research advisor and a copy given to the student's clinical instructor. Copies of all signed records (assurance, physician approval, assent and consent forms) will be kept on file by the student's faculty research advisor with the case report records for a period of at least 8 years.

References

1. McEwen, I. R. (Ed.). (2009). *Writing Case Reports, A How-To Manual for Clinicians* (3rd edition), American Physical Therapy Association: Alexandria, VA.

2. Sackett, D.L., Straus, S. E., Richardson, W. S., et al. (2000). *Evidence-Based Medicine, How to Practice and Teach EBM* (2nd edition), Churchill Livingstone: Edinburgh.

3. Portney, L. G. and Watkins, M. P. (2000). *Foundations of Clinical Research, Applications to Practice* (2nd edition), Prentice Hall Health: Upper Saddle River, NJ.

4. Mostrom, E. (1995). Proposal, Physical Therapy Case Reports, Graduate Program in Physical Therapy, Central Michigan University: Mount Pleasant, MI

Procedures to Initiate Case Report

When students arrive at the institution/clinical site, they will complete the following procedure before they can begin data collection:

1. Affirm with the Clinical Instructor (CI) their intent to complete a case report.
2. Provide the CI or CCCE with a copy of the signed assurance form.
3. Select an appropriate case within two weeks.
4. Inform the patient's referring physician (after patient has agreed to participate and allow physician to be notified) regarding the intent to complete case report (see physician notification form).
5. Secure signed patient informed consent (using forms approved by GVSU IRB) and any other consent forms appropriate to the clinical organization.
6. Complete any required form from clinical organization (IRB/administration).

Guidelines for Clinical Instructors (CI) Supervising Case Report

Your GVSU study has selected writing of a case report to fulfill the research requirement for the DPT degree. This document defines case report project requirements, GVSU student preparation and important information regarding informed consent. In addition to this information we encourage you to consider the following suggestions as you anticipate working with a GVSU PT student on a case report project. If you want to learn more about writing case reports you might consider obtaining an APTA publication titled, *Writing Case Reports* (3rd edition, 2009), by Irene McEwen.

The completion of a case report is one of the research options for GVSU PT students. One objective of this type of scholarly product is to give the student an experience in the application of evidence-based practice. Many students and clinicians perceive clinical research as challenging, but we believe that the completion of a case report does not have to be, and we hope that your experience with our students will prove that to be true. You will have some influence on what case may be selected so this case report project can also be used by you to investigate an area of interest, e.g., a particular treatment technique or use of a particular outcome measurement.

Clinical instructors will serve as primary content experts during the completion of a case report. Therefore, patient selection is critical to the success of this project. You should consider your area of specialization, special equipment and techniques that are available, your area(s) of interest, as well as the student's prior experiences and interests. **Patient (case) selection should occur within the first two weeks of the student's clinical experience.** The CI can facilitate the selection process by arranging their schedule to include patients with a diagnosis that the student and CI are considering for the case report. Alternatively, the CI might consider taking over evaluation and management of an appropriate patient from another therapist. **In any event, early patient selection is critical.**

The CI is the primary mentor during case selection and the evaluation and treatment stages. The CI needs to assist students in clinical decision-making that includes examination and evaluation (selection of valid/reliable tests and measures, performing and interpreting tests and measures accurately and reliably) and selection of appropriate evidence-based interventions and treatment progressions. Finally, if the student completes the clinical experience prior to the case report participant discharge, the CI can

assist students in further assessment of patients by providing information on status at discharge or any changes in status (students will be encouraged to conduct a one-month post-discharge follow-up).

We encourage the CI and department staff to take advantage of the case report work by having students do one or all of the following:

- present their literature review of the case they are working on as an in-service,
- present the case report as an in-service in its entirety, or
- have the participating CI collaborate with the student and submit the case report for publication.

Essential Components and Guidelines for Writing a Case Report

Introduction

- Provide background on the topic of case
- State why it is important and how it will add to body of literature
- Cite the literature supporting management of case
- Provide theory for framework for the case
- Clearly state purpose and focus of the case

Case Description

- Provide organized information on the case (patient/client/situation)
- Use models to present case (such as Disablement Model or Patient/client management model)
- Provide chronology or time-frame for patient condition, sign/symptoms
- Explain why you chose this case
- Discuss focused examination findings and clinical reasoning for the tests
- Support tests with operational definitions, reliability and validity when available
- Generate hypothesis regarding cause/underlying problem based on findings
- Reflect clinical decision-making
- Provide evaluation, prognosis and plan of care for case
- Support with references when available
- Use figures and/or tables to supplement presentation of examination findings

Intervention

- Describe intervention with rationale for its selection
- Provide references supporting selected interventions
- Discuss frequency, intensity, duration and how intervention applied (replicable)
- Discuss patient participation (adherence) with intervention or HEP
- Explain clinical decision-making regarding progression of intervention or modification of selected intervention
- Use table and/or figures to present intervention and progression

Outcomes

- Provide objective data on patient status post intervention

- Provide chronology or time frame for outcomes and any follow-up measures
- Link measurements impairment, functional limitations and disability
- Relate outcomes to goals set and expected outcomes
- Relate outcomes to purpose of case
- Use tables and/or graphs to summarize outcomes

Discussion

- Link case to purpose and relate to literature/evidence reviewed
- Discuss theoretical basis for clinical decisions and case management
- Reflect on interventions and outcomes
- Discuss possible explanations for outcomes and factors that may have influenced outcomes
- Discuss positive and negative aspects of case management
- What was learned from the case and how will it add to the literature?
- Pose research questions and suggestions for future research based on this case

References

McEwen I: *Writing Case Reports*, 3rd ed. American Physical Therapy Association, 2009 Alexandria, VA

Childs JD: *Case Reports: Can We Improve?* J Orthop Sports Physical Therapy, 2004; 34: 44-46

ASSURANCE FORM

for Students Completing Physical
Therapy Case Reports

Student's Name: _____

Title of Case Report: _____

_____

I have read, understand, and agree to the terms and procedures for preparing clinical case reports as described in the Grand Valley State University IRB proposal "Physical Therapy Case Reports."

I assure that the examination, diagnostic and intervention procedures used and reported in this case are considered standard of care (are not experimental) clinical procedures provided under the direction of my clinical instructor. Patient interventions will not be altered in connection with the decision to write the case report. I assure that all information will be kept confidential and in compliance with HIPPA, as described in the patient participation consent form.

Student's Signature: _____

Date: _____

Clinical Instructor Signature: _____

Clinical Coordinator
of Clinical Education Signature: _____

PHYSICIAN NOTIFICATION

Physical Therapy Case Report

Physician's Name: _____

Student Physical Therapist's Name: _____

Clinical Instructor's Name: _____

This is a courtesy notice to inform you that I will be conducting clinical case report on the following patient:

Patient's Name: _____

The examination, diagnostic and intervention procedures used and reported in this case report are considered standard of care (are not experimental) clinical procedures provided under the guidance/direction of a licensed physical therapist (student's clinical instructor). Physical therapy interventions and the physician's plan of care will not be altered in connection with the decision to write the case report. All information will be kept confidential, as described in the patient participation consent form that has been approved for use by Grand Valley State University IRB.

Student Physical Therapist's Signature: _____

Date: _____

MINOR PATIENT ASSENT

for Participation as a Participant in a Clinical Case Report

Student Physical Therapist's Name: _____
(Student Physical Therapist)

Name of Supervising Physical Therapist: _____
(Clinical Instructor)

Purpose. The purpose of case reports is to document and share information with health care practitioners about the examination, evaluation, diagnosis, treatment and prognosis of a variety of patients seen in clinical practice. Case reports add to the body of knowledge in the medical field, contribute to the development of practice theory and lay the groundwork for large-scale research endeavors. As part of the Doctorate program in Physical Therapy at Grand Valley State University, I am required to complete a case report that includes reporting about a patient, their unique clinical presentation, their course of treatment in physical therapy and the outcomes of their therapy program. Therefore, you are invited to be a participant in a clinical case report.

Procedures. If you consent to be a participant, you will be given a physical examination that will include a series of appropriate tests and measures. Your examination data will be evaluated, and your treatment program will be designed based on a physical therapy diagnosis, and related prognosis. Your physical therapy treatment will follow standard clinical practice guidelines. Since I am a graduate student in physical therapy, my Clinical Instructor will supervise all examination and treatment procedures. No procedures or treatments will be performed that are experimental or not part of regular physical therapy practice. Your course of care in physical therapy will be carefully documented so that the information can be shared with others. Additional data in your medical records that are relevant will be collected and reviewed. At no time will your medical record and other raw data be released to the public or anyone not involved with you medical or rehabilitation care at the clinic/facility in which you are being seen. You will not receive compensation for your participation in this project.

Timetable. Your time commitment for participating in this case report will be the same as it would be for receiving standard physical therapy care for your condition.

Risks and Benefits. Risks associated with participation in a case report are the same as they would be for receiving standard care for your condition. A benefit from the dissemination of information about your case could be that other physical therapists and health care practitioners might gain knowledge about your condition and clinical presentation, your course of treatment and the outcomes of that treatment. Such knowledge may benefit other patients with conditions like yours that are being treated by physical therapists.

Confidentiality. Any information collected from you or about you is for the sole purpose of this case study and will be kept confidential to the fullest extent allowed by law. In very rare circumstances, specially authorized university or government officials may be given access to our case report records for purpose of protecting your rights and welfare or to make sure the case report was done properly. All written reports and oral presentations generated based on your

case will use pseudonyms or other identifiers (e.g., numbers) and will not identify the location or name of the clinical facility in which you received your care.

In some cases, photographic, videotape or audiotape data may be used in written or oral presentations of case reports. Identifying information in these mediums will be protected by blurring facial images or changing voices. Please indicate if you are willing to have such data presented publicly by initialing below:

Participant's Initials: _____

Right to Refuse. You may refuse to participate and still receive the care you would receive if you were not a participant in this case report.

Questions. If you have any questions at this time, please ask them. If you have additional questions later, I will be happy to answer them. I can be reached at:

Physical Therapy Student's Name: _____

Address: _____

Phone Number(s): _____

Email Address: _____

If you have any questions about your rights as a participant, you can contact the Office of Research Compliance and Integrity at Grand Valley State University at (616) 331-3197 or rci@gvsu.edu.

You and your parents/legal guardian will be given a signed and dated copy of this form to keep. Your signature below indicates that you have voluntarily agreed to be a participant in a clinical case report and that you have read and understood the information provided above.

_____ _____
Participant's Signature Date

_____
Participant's Printed Name

_____ _____
Parent/Legal Guardian Signature Date

Physical Therapy student assurance statement and signature: In my judgment, the participant is voluntarily and knowingly giving informed consent to participate in this clinical case report.

_____ _____
Physical Therapy Student Signature **Date**

CHILD PATIENT ASSENT

for Participation as a Participant in a Clinical Case Report

Student Physical Therapist's Name: _____
(Student Physical Therapist)

Name of Supervising Physical Therapist: _____
(Clinical Instructor)

What is a case report?
A Case report is something like a science project you might do in school. The therapists doing the case report want to learn from their experience working with you. When the report is over, they will write a paper about what happened.

What if I don't want to be in the case report?
You do not have to be a part of the case report if you do not want to be. If you do not want to be in the case report, even if you said you would, you do not have to be in it. So, you can change your mind anytime you want to.

What do I have to do in the case report?
The therapist in charge of the case report must tell you what will happen to you during the study. You can ask questions about what you have to do, and they will be answered.

- ✓ I have been told what this case report is about and what may happen while I am taking part in this case report.
- ✓ I know I may ask questions at any time and get them answered.
- ✓ No one has told me I have to take part in this case report if I do not want to. I want to be a part ofthis case report.

_____
Printed Name of Child

_____ _____
Child's Signature (printing is OK) Date

_____ _____
Witness' Signature Date

_____ _____
Physical Therapy Student's Signature Date

PATIENT/GUARDIAN CONSENT

for Participation of a Minor as a Participant in a Clinical Case Report

Student Physical Therapist's Name: _____
(Student Physical Therapist)

Name of Supervising Physical Therapist: _____
(Clinical Instructor)

Purpose. The purpose of a case report is to document and share information with health care practitioners about the examination, evaluation, diagnosis, treatment and prognosis of a variety of patients seen in clinical practice. Case reports add to the body of knowledge in the medical field, contribute to the development of practice theory and lay the groundwork for large-scale research endeavors. As part of the Doctorate program in Physical Therapy at Grand Valley State University, I am required to complete a case report that includes reporting about a patient, their unique clinical presentation, their course of treatment in physical therapy and the outcomes of their therapy program. Therefore, your minor child is being invited to be a participant for this clinical case report.

Procedures. If you consent for your minor child to be a participant, they will be given a physical examination that will include a series of appropriate tests and measures. Their examination data will be evaluated, and their treatment program will be designed based on a physical therapy diagnosis and related prognosis. Their physical therapy treatment will follow standard care and clinical practice guidelines. Since I am a graduate student in physical therapy, my Clinical Instructor will supervise all examination and treatment procedures. No procedures or treatments will be performed that are experimental or not part of regular physical therapy practice. The course of care in physical therapy will be carefully documented so that the information can be shared with others. Additional data from medical records that are relevant will be collected and reviewed. At no time will the medical record and other raw data be released to the public or anyone not involved with your minor child's medical or rehabilitation care at the clinic/facility in which they are being seen. You will not receive compensation.

Timetable. The time commitment for your minor child's participation in this case report will be the same as it would be for receiving standard physical therapy care for their condition.

Risks and Benefits. Risks associated with participation as a participant in a case report are the same as they would be for receiving standard care for your minor child's condition. A benefit from the dissemination of information about this case could be that other physical therapists and health care practitioners might gain knowledge about this condition and clinical presentation, course of treatment and the outcomes of that treatment. Such knowledge may benefit other patients with conditions like your minor child's that are being treated by physical therapists.

Confidentiality. Any information collected from you or about you is for the sole purpose of this case study and will be kept confidential to the fullest extent allowed by law. In very rare circumstances, specially authorized university or government officials may be given access to our case report records for purpose of protecting your rights and welfare or to make sure the case report was done properly. All written reports and oral presentations generated based on your

case will use pseudonyms or other identifiers (e.g., numbers) and will not identify the location or name of the clinical facility in which you received your care.

In some cases, photographic, videotape or audiotape data may be used in written or oral presentations of case reports. Identifying information in these mediums will be protected by blurring facial images or changing voices. Please indicate if you are willing to have such data presented publicly by initialing below:

Participant's Initials:_____

Right to Refuse. You may refuse to allow your minor child to participate and they will still receive the same care they would receive if they were not a participant in this case report.

Questions. If you have any questions at this time, please ask them. If you have additional questions later, I will be happy to answer them. I can be reached at:

Physical Therapy Student's Name:_____

Address: _____

Phone Number(s): _____

If you have any questions about your rights as a participant, you can contact the Office of Research Compliance and Integrity at Grand Valley State University at (616) 331-3197 or rci@gvsu.edu.

You will be given a signed and dated copy of this form to keep. Your signature below indicates that you have voluntarily agreed for your minor child to be a participant in a clinical case report and that you have read and understood the information provided above.

_____ _____
Parent/Guardian Signature Date

_____
Parent/Guardian Printed Name

Student Physical Therapist's assurance statement and signature: In my judgment, the parent/guardian is voluntarily and knowingly giving informed consent for their minor child to be a participant in this clinical case report.

_____ _____
Physical Therapy Student's Signature Date

PATIENT CONSENT

for Participation as a Participant in a Clinical Case Report

Student Physical Therapist's Name: _____
(Student Physical Therapist)

Name of Supervising Physical Therapist: _____
(Clinical Instructor)

Purpose. The purpose of a case report is to document and share information with health care practitioners about the examination, evaluation, diagnosis, treatment and prognosis of a variety of patients seen in clinical practice. Case reports add to the body of knowledge in the medical field, contribute to the development of practice theory and lay the groundwork for large-scale research endeavors. As part of the Doctorate program in Physical Therapy at Grand Valley State University, I am required to complete a case report that includes reporting about a patient, their unique clinical presentation, their course of treatment in physical therapy and the outcomes of their therapy program. Therefore, you are being invited to be a participant for this clinical case report.

Procedures. If you consent to be a participant, you will be given a physical examination that will include a series of appropriate tests and measures. Your examination data will be evaluated, and your treatment program will be designed based on a physical therapy diagnosis, and related prognosis. Your physical therapy treatment will follow standard clinical practice guidelines. Since I am a graduate student in physical therapy, my Clinical Instructor will supervise all examination and treatment procedures. No procedures or treatments will be performed that are experimental or not part of regular physical therapy practice. Your course of care in physical therapy will be carefully documented so that the information can be shared with others. Additional data in your medical records that are relevant will be collected and reviewed. At no time will your medical record and other raw data be released to the public or anyone not involved with you medical or rehabilitation care at the clinic/facility in which you are being seen. You will not receive compensation.

Timetable. Your time commitment for participating in this case report will be the same as it would be for receiving standard physical therapy care for your condition.

Risks and Benefits. Risks associated with participating in this case report are the same as they would be for receiving standard care for your condition. A benefit from the dissemination of information about your case could be that other physical therapists and health care practitioners might gain knowledge about your condition and clinical presentation, your course of treatment and the outcomes of that treatment. Such knowledge may benefit other patients with conditions like yours that are being treated by physical therapists.

Confidentiality. Any information obtained which could identify you will be kept strictly confidential. All written reports and oral presentations generated based on your case will use pseudonyms or other identifiers (e.g., numbers) and will not identify the location or name of the clinical facility in which you received your care.

In some cases, photographic, videotape or audiotape data may be used in written or oral presentations of case

reports. Identifying information in these mediums will be protected by blurring facial images or changing voices. Please indicate if you are willing to have such data presented publicly by initialing below:

Participant's Initials:_____

Right to Refuse. You may refuse to participate and still receive the care you would receive if you were not a participant in this case report.

Questions. If you have any questions at this time, please ask them. If you have additional questions later, I will be happy to answer them. I can be reached at:

Physical Therapy Student's Name:_____

Address:_____Phone

Number(s): _____

If you have any questions about your rights as a participant, you can contact the Office of Research Compliance and Integrity at Grand Valley State University at (616) 331-3197 or rci@gvsu.edu.

You will be given a signed and dated copy of this form to keep. Your signature below indicates that you have voluntarily agreed to be a participant in a clinical case report and that you have read and understood the information provided above.

_____ _____

Participant's Signature **Date**

_____

Participant's Printed Name

Student Physical Therapist's assurance statement and signature: In my judgment, the patient is voluntarily and knowingly giving informed consent to be a participant in this clinical case report.

_____ _____

Physical Therapy Student's Signature **Date**

APPENDIX F | Systemic Review Option

Essential Components and Guidelines for a Systematic Review

Introduction

- Provides focused overview of the conceptual framework of the topic and its relevance to practice
- Supports the need for a systematic review (conflicting results in the literature, no previous review, deficiencies in prior review)
- Clearly states specific research question

Methods

- States search terms and databases searched
- States inclusion and exclusion criteria and relates them to the conceptual framework
- Describes method for evaluating level of evidence and methodological rigor

Results

- States results of search, and provides number and description of studies included and excluded (including reason for exclusion)
- Succinctly summarizes included studies with regard to level of evidence and methodological rigor
- Accurately summarizes findings of review with regard to the research question
- Uses tables and figures effectively to assist with presentation of results of level of evidence, rigor, or summary of included studies
  Information from each study should include:
  - Author and year of publication
  - Description of included subjects (age, diagnosis (es), disease severity, relevant baseline characteristics)
  - Means and standard deviations of outcome measures

Discussion

- Provides interpretation and level of confidence in results with respect to the research question, including:
  - Analysis and interpretation of included studies with conflicting results
  - Comparison and interpretation of present review with previous reviews (if applicable)
  - Impact of level of evidence and rigor on confidence of results
  - Provides insight (citing relevant research) about the state of the current published research on the topic
- States limitation of the review and its methodology
- Provides specific recommendations for clinical practice
- Provides specific recommendations for future research
- Provides succinct and accurate conclusions of the review results and clinical implications

APPENDIX G | Research Funding

MPTA INSTITUTE SMALL RESEARCH GRANT PROGRAM & APPLICATION

As part of its role in supporting and encouraging research in the State of Michigan, the MPTA Institute for Education and Research has a small research grant program that is intended to provide out-of-pocket expenses/seed money for either basic or clinical research related to physical therapy and to encourage the development of new projects.

Funding: Two to five grants of $100 to $250 each will be awarded annually. Additional grants may be awarded if funding is available. All of the money must be directly used for the research study (it cannot be used for future costs associated with a presentation such as conference registration, travel expenses, poster printing, etc.).

Eligibility: Professional membership in the MPTA is required for the primary investigator. The primary investigator must also be a licensed physical therapist/physical therapist assistant or a PT/PTA student (with an established faculty advisor) within the state of Michigan.

Deadline: Application deadline is August 1st of each year.

Submission: Applications must be submitted electronically to mpta@mpta.com. In the Subject Box, write: **Institute Small Research Grant Application**.

Commitment: Grant recipients agree to submit an abstract to the MPTA Fall Conference Research Committee (after completion of the study) according to established procedures and should acknowledge the Institute as a source of funding. If the abstract is selected, grant recipients are expected to present their findings at the MPTA Fall Conference.

To apply, please provide a cover letter and an abstract as follows:

The cover letter should contain:

Primary Investigator = include the primary investigator's name, employer (school for students), address, telephone number, e-mail, & APTA/MPTA membership number.
Co-Investigators = include each co-investigator's name.
Projected initiation & completion dates.
Institutional Review Board status.
Budget = include an itemized table of all expenses and the anticipated monetary amount for each expense (also include all other sources of financial support for the proposed project).

The abstract should be a brief description of the proposed project including the title, purpose, methods, and potential relevance of the study to physical therapy. It should be no longer than one single-spaced page.

CENTER FOR SCHOLARLY AND CREATIVE EXCELLENCE (CSCE)

Students are encouraged to pursue funding through GVSU's Center for Scholarly and Creative Excellence -- which offers grants to support the research endeavors of graduate students. For more information on current opportunities, please visit their website: **Center for Creative and Scholarly Excellence (CSCE)**.

SCHOLARSHIP FUNDS

- Presidential Research Grants
- Academic Conference Fund
- Academic and Professional Enrichment Fund

RESEARCH POSTER PRINTING FUNDS

Department of Physical Therapy Policy for Scholarship Funding for Research Poster Printing

The PT Department will award funding support for the cost of poster printing (not to exceed the cost of printing a poster at the GVSU promotions office) for those students who submit an abstract and are accepted for State or National conferences to disseminate their research project, systematic review, or case report. Awards will be based on the availability of funds in the Physical Therapy Departmental budget for that fiscal year. To apply for these funds, students must submit their research abstract and evidence of acceptance to the PT Research Committee.

APPENDIX H | Data Analysis

DATA ANALYSIS ASSISTANCE

Statistical Consulting Center (SCC)
Department of Math and Statistics
Phone: 331-2444
MAK A-1-178 – Allendale campus

Make an appointment!

Data analysis assistance is available through the SCC during the winter semester through the **Math 319, Statistics Project.** This service will include handling your data on the computer, performing the appropriate statistical analysis, and interpreting the results of the study.

What is Math 319? Successful college graduates are those who are strong in oral and written communication, have excellent consulting and interpersonal skills, and have the ability to communicate statistical results clearly to general audiences. Math 319 is a course designed to meet this increasing requirement of business and industry for qualified personnel who can provide leadership by making management decisions that are based on disciplined data collection and statistical analysis.

Any member of the GVSU community wishing to obtain assistance from the SCC needs to prepare a short statement of the research program (one or two paragraphs). The statement should briefly describe the overall project, the data, the research hypotheses of interest, and where you are at in the project.

There is no charge for services, but students are limited to 10 hours of assistance per semester. Exceptions to the 10-hour policy may be made for projects in which joint publications are being pursued or for those with potential for future collaborative research.

Consulting Sessions

The initial consulting session will take place with a faculty member from the Department of Mathematics and Statistics. This session may often be purely expository, with the researcher explaining his or her research problem and the type of assistance that is needed. The faculty member will then decide how the SCC can best help. In some cases, this may mean consulting with another member of the department and possibly having them contact the researcher for a future meeting. In this way, we can best match researchers with the statistician that is more knowledgeable with the area of their research. **Note: SCC services are *not* available for the spring/summer semesters.**

Acknowledgement and Co-author

The SCC should be acknowledged in any paper for which the SCC consultant gives advice. If a major amount of work is done on any research project, the consultant should be named as a co-author per authorship guidelines outlined by **Center for Scholarly and Creative Excellence (CSCE)**.

Are you are planning a survey or working on a research project? Would you like a professionally supervised statistical data analysis? If so, please return the following request for assistance form to the SCC:

REQUEST FOR ASSISTANCE FORM

GVSU STATISTICAL CONSULTING CENTER

Name:_____ Date: _____

Address:_____ Phone: _____

A brief summary of your research project:

I would like assistance with (check all that apply):

[ ] choosing a research design	[ ] analyzing data
[ ] reporting/interpreting results	[ ] manipulating data
[ ] stating/testing hypotheses	[ ] selecting samples
[ ] choosing statistical models	[ ] estimation/prediction
[ ] designing questionnaires	[ ] other

I plan to complete this stage of my research by: _____

_____

APPENDIX I | Presentation Information

PRESENTATION GUIDELINES

These guidelines apply to any presentation that you may give to any audience within and outside this program: class presentations, clinical in-services, and research presentations.

1. Most people find it difficult to grasp complex, technical concepts from verbal explanations alone. For that reason, you must use **audio-visual (A/V)** materials when you present research.

2. **Handouts** for the audience and/or abstracting your study findings may be helpful as well.

3. Whether you use PowerPoint slides, film, or video; you should strive to **highlight the essential ideas** of your material in the simplest form possible. Visual images and sound leave lasting impressions that reinforce the points you wish to make. The net effect is a more involved, satisfied, and attentive audience.

4. **Choose your aids to reach the intended audience**, and to accommodate the size of the arena in which you will present. For example, if the room is small and your audience is knowledgeable about your material (e.g. during the defense of your research project) you may wish to use slides or a video presentation and a lot of technical information. However, when you address a large audience that includes lay people and takes place in an auditorium, (e.g. DPT Research day or MERC Research Forum) you may choose to use simple PowerPoint slides that outline and illustrate your main ideas, and you may address your audience with less technical information, keeping jargon to a minimum.

5. Try to **create a professional impression** with the materials you use for formal presentations (e.g. your Defense, the Research Forum, poster presentation at conferences). Please direct your questions to the faculty in your program for assistance with this on campus.

   A research seminar on tips for designing platform and poster presentations will be given during the winter of your third year in DPT program by DPT Faculty Research Committee.

6. Finally, you should **always test your A/V** in the room that you will be presenting in as far in advance as possible, and also test your equipment again on the day of your presentation.

7. Additional resources for designing effective presentations follow in this appendix and are available in the GVSU library-Frey learning Center.

PHYSICAL THERAPY FORUM

YOU CAN SPEAK PUBLICLY...AND ENJOY IT!!

Beth E. Salo, P.T. Contributing Editor/Consultant

At some point in their career, most therapists will be required to participate in some form of public speaking. Possibilities include in-services, addressing civic groups, presenting research, or even teaching classes. Many people understandably feel nervous in those situations. There are, however, some basic guidelines that, if followed, can make the experience successful, rewarding, and maybe even fun! These guidelines are just that -- guidelines. As you become more experienced, you will find you own ways of preparing and speaking.

There are two main aspects to giving a public speech that need to be included: *Preparation and Presentation*. These two areas are equally important in giving a successful speech. Neglect one of these areas, and your speech may be a disaster. I have found, through much experience, that if I have both of these areas under control, I can relax and enjoy myself. (Below is a summary of Beth's article):

Preparation

TOPIC | RESEARCH | WRITE | PRACTICE

If you are not ready to give the speech, there is no way you will present it well. Several areas are included in preparation.

Pick an interesting topic. If the topic has been chosen for you, find a unique approach to it. One way or another, you need to be interested in your topic so that you can make it interesting to someone else. If the topic is one that seems worn out, find a new approach to it.

Do your research. You need to know enough about the subject to tell your audience something new or give them a new perspective. You also need to be able to answer questions or refer them to the proper source to have their questions answered. Who knows, you may find some obscure fact in your research that makes the speech exceptional.

Write out your speech. If you are inexperienced in public speaking, write your speech out word for word. Make sure that you use appropriate anecdotes, but unless you are good at humor, don't overdo it. In addition, keep in mind that you need some subtopics if you are going to speak for more than 20 minutes, which is considered a good length for a person's attention span for one subject. Once you have written the speech, go back and reread it, then rewrite it. If it doesn't look good on paper, it won't sound good either.

Practice, practice, practice! Practice may not make it perfect, but it will come close. The only way you will know how the speech is going to sound is to practice out loud. You can practice in a mirror, in an empty room, or with a close friend. As you practice, you can edit the speech also. The better you know your speech, the more confidence you will have when you present it. When you feel like you

know the speech better, practice some more. You may take an outline with you when you are going to give the speech, if necessary, but it is best to be able to your speech without one. Knowing your speech well, will also allow you to be more spontaneous while presenting. You will be able to change the order of your subtopics, if needed. It will also enable you to deal with the unexpected.

Presentation

ATTIRE | EYE CONTACT | AUDIENCE | VOICE

Dress nicely – your clothes should be neat and conservative. Make sure your clothes are neatly pressed.

Don't fidget and use natural gestures. Don't add a gesture just to gesture; the audience will recognize the reason behind it immediately. This idea relates back to knowing your speech. You are less apt to act nervous if you are confident in what you're saying.

Maintain eye contact. This may be the hardest part of presenting a speech, but it is one of the most important areas. If you are looking at them, the audience will feel included and pay more attention to what you are saying. Eye contact will also give you invaluable clues as to how your audience is responding. If they all look bored, perhaps now would be a good time to have a subtopic introduced or to give an anecdote. Again, this relates back to knowing your speech well to allow for spontaneity. You also can maintain eye contact better if you don't require notes while giving your speech. Also, don't turn your back on your audience while you are speaking.

Use varied tones of voice and pace yourself. Vary the tone of your voice with what you are talking about for emphasis. Using your voice to its full advantage will capture your audience's attention and keep it. Pacing is also important. If you talk too slow, you will lose them and if you talk too slow, you will put them to sleep.

Use appropriate visual aids. Don't overdo, but visual aids can give an added dimension to your speech. Visual aids include slides, overheads, posters, demonstrations, etc.

Some Do's & Don'ts for a Successful Podium Presentation

Dr. Gregory S. Rash, Chair, Communications Committee & Editor of the GCMAS Newsletter

If you are going to give a podium presentation at the GCMAS meeting (or any other professional meeting) you may want to look over this material. While most of the presentations at GCMAS conferences are excellent, many individuals ignore, or simply don't know the "rules of good presentations" when they prepare their PowerPoint slides for the conference. In an attempt to expose presenters to some of those "rules" I am drawing on similar advice given by several sources in regard to giving presentations at professional meetings: Richard Nelson (Sports Medicine Bulletin, 1990), Keith Williams (ASB Newsletter, 1990), Kit Vaughan (ASB Newsletter, 1993), Michael Whittle (ISB Newsletter, 1994) and ACSM Instructor for Presentations (1994).

Do's for Making Slides

- DO test slides in a room of similar size to the room you will be presenting. If you can't test in a similar room, follow the 10 times the width of the monitor rule. (i.e. if your computer monitor is 11 inches wide (not diagonal) then view the monitor from 110 inches back to see what it will look like when projected in a typical meeting room).
- DO check for spelling and other errors.
- DO use block fonts such as Helvetica or Arial and **bold for easier reading.**
- DO use a dark background color with a light color lettering.
- DO make sure all similar graphs have same scales when possible.
- DO avoid spurious accuracy, use same decimal places throughout presentation.
- DO use several simple slides rather than a single complicated slide to make your point.

Don'ts for Making Slides

- DON'T use *script* or fancy type fonts, they may look nice on the computer, but the audience may have difficulty reading them.
- DON'T use shadowing, again, they may look nice on the computer, but the audience may have difficulty reading them.
- DON'T try to use all 16,000,000 available colors, a few wisely chosen colors are more effective. Also, remember that up to 10% of the audience will have some degree of color blindness.
- DON'T go overboard with fancy backgrounds. If you include the multiple colors and graphics, you may find it difficult to find a contrasting color which allows your text to be easily read.
- DON'T use more than 7 words in width (42-character spaces) or more than 7 lines in height (14 single spaced lines). Follow the 10 times the width of the slide rule.
- DON'T use large tables of numeric information (recommended 6 lines X 5 columns is largest). Sources say not to use more than 2-3 rows/columns and others say to <u>never</u> use tables.
- DON'T try to put all graphs on single figure slide (recommended 3 graphs (lines) per figure is largest).
- DON'T put something on a slide if you don't plan to refer to it.
- DON'T just copy a drawing or illustration from your manuscript, have it redone for the presentation. Typically, it contains too much detail (is in a vertical alignment) and needs to be redone to be effective in a presentation.

Do's for Giving PowerPoint Presentations

- DO practice your presentation as many times as it takes you to become fluid and under the time limit. No one will ever complain if your presentation is under the time limit, but it is common to hear complaints when you run over. Many say a good average is 1 slide per minute. I've had as many as 1.5 slides per minute, but that was pushing the limit. Some societies limit the number of slides you can have in a ten-minute presentation to 6 slides.
- DO arrive at the room you will be presenting in early to introduce yourself to the moderator and to see how the A/V equipment (projectors, mic, video/computer projection, pointer, etc.) works.
- DO contact the conference staff well in advance if you are using a laptop, video or any other

nonstandard A/V equipment to make sure it will be available.

- DO have someone else review your presentation before you give it at the meeting.
- DO use the pointer to point out relevant items on the slides as this keeps the audience in touch with your presentation. This is difficult to do if you are reading a script.
- DO have a clear ending to your presentation (i.e. Thank you for your attention…).

Don'ts for Giving PowerPoint Presentations

- DON'T read your presentation and don't just read the slide. Use the slides as a guide to prompt you through your presentation. Additionally, many podiums don't have enough light to allow you to see any written material to read.
- DON'T go overboard with fancy transitions and effects when making computer presentations – they are distracting and take away from the presentation.
- DON'T use figures with multiple graphs and only talk about a couple of graphs in the figure. If you don't talk about it, don't put it on a slide.
- DON'T use a table and only talk about a few numbers in the table.
- DON'T wander away from the podium unless you have a wireless mic.
- DON'T apologize for the audience not being able to see your slides (see Do's & Don'ts for making slides).
- DON'T let the light pointer wander around the walls or ceiling.
- DON'T combine overheads and slides or slides and computer projection in the same presentation.
- DON'T have slides in the presentation if you don't plan to use them. It is very frustrating to listen to a presentation when the presenter clicks through several slides either because time is running out or they now decide they no longer need the information on the slides. Either way, the audience is left wondering if they missed something important and it gives the impression that the presenter did not take the time to adequately prepare.
- DON'T overdo the humor. Sometimes a relevant cartoon can be the best way to get your point across, but irrelevant cartoons, pictures, etc. can distract or offend.
- DON'T assume that everyone else in the audience is an expert in your field. GCMAS is a diverse group and not all MDs, PTs, kinesiologists and engineers know everything about all disciplines. Make it clear so all can understand.
- DON'T talk to the screen or your notes, look up and out to the audience.

Effective Poster Presentations

When planningaposterpresentation, it is useful to keepinmindthe advantages or a posteroverapodium presentation. Postersareavailable for viewing throughoutthemeetingandinterestedviewershavescheduled time for discussion, not just a few minutes. Your poster presentation should be clear, effective, and readable by viewers five feet away. The following guidelines have been prepared to help improve the effectiveness of poster communication.

Planning. Plan your poster early. Focus on a few key points with a style of data presentation to achieve clarity and simplicity. Does the use of color help? What needs to be expressed inwords? Suggestheadlines and text topics.

Rough Layout. Enlarge your best initial sketch, keeping the dimensions in proportion to the final poster (see diagram). The rough layout should be full size. Print the title and headlines and draw rough graphs and tables to give an idea of proportion and balance.

Final Layout. When the artwork is finished, and text and tables are typed, plan the final layout to ensure that the message is clear. Do the important points stand out? Is there balance between words and illustrations? Is there spatial balance?

Balance. The figures and tables should cover slightly more than 50% of the poster area. If you have only a few illustrations, make them large. Keep text brief. The poster should be understandable without oral explanation.

Typography. Avoid abbreviations and jargon. Use a consistent type style with large type such as Arial. An 8-1/2 x 11 sheet of paper enlarged by 50% makes the text legible from five feet.

Eye Movement. The pathway of the eye over the poster should be down the columns. Arrows, pointers, numbers or letters can help to clarify the sequence.

Simplicity. Resist the temptation to overload the poster. More material often means less communication.

Poster Printing and GVSU Promotions Office Information

There are several different options for printing your research poster. These will be discussed in detail at the Research Seminar provided during your 3rd year winter semester. These printing options include: 1) GVSU Promotion Office; 2) Online printing companies with use of their poster templates, and 3) Kinkos. Students often select to print through GVSU Promotion Office as this option is cost effective. Information is provided below regarding placing a printing order through this office. Additionally, tips for enhancing the quality of a poster are provided below in this Appendix.

GVSU Promotions Office
0008 Kirkof Center
Phone: 616-331-2340
Email: promotions@gvsu.edu
Price Sheet

Billing: Pay at time of pick-up {note, bring poster tube when picking up to preserve/store poster as these are not available at Kirkof or in the Allendale book store.

Format: Save poster as a PDF to preserve formatting and specify size of poster in your order.

Tips for Enhancing Quality of Poster

1. Save photos at 300 dpi or higher

2. Insert graphics/figures directly from excel, SPSS or other program to preserve details in high resolution (do not cut/paste)

3. Recommend that you save scanned objects as bmp (not jpeg) for better resolution

4. Leave a margin of approximate ¾" on all sides

5. For use of GVSU logo: go to Institutional Marketing home page, search for logo instructions, download the high-resolution logos (noted "for printing")

6. View proof of section of poster in 8 ½ x 11 to assess format and quality

Guidelines for Content of Platform Presentations

1. See "Some Do's & Don'ts for a Successful Podium Presentation" in your research handbook for general guidelines. Also see "Critiquing and Preparing a Platform Presentation," an APTA video production located in the CHP Frey library.

2. Your slides should include the following items:

    - Concise background/review of literature
    - Statement of problem and purpose statement (hypothesis statement not necessary)
    - Methodology and data analysis
    - Results
    - Concise discussion/conclusion, including clinical relevance
    - One or two recommendations for future research (not a shopping list)

Note: A public professional presentation is not an oral defense, so you need to be concise and unhurried; in other words, you should not present all your data but only the most important results. It is not appropriate to present the limitations of your work, but you need to be prepared to answer questions regarding them.

APPENDIX J

EVALUATION OF FACULTY RESEARCH MENTOR

(adapted from work by C. Grapczyinski)

Use the following scale to rate your major research advisor/mentor in three major categories listed below.

Use the "comments" section to substantiate/support your ratings.

SCALE:	5	Strongly agree
	4	Agree
	3	Neither agree or disagree
	2	Disagree
	1	Strongly disagree
	N/A	Not applicable

KNOWLEDGE

_____ Provided clear and accurate information about project or thesis requirements
_____ Provided guidance for the student through the research process
_____ Demonstrated content knowledge
_____ Demonstrated knowledge in research design
_____ Demonstrated knowledge in scientific writing
_____ Demonstrated knowledge in quantitative or qualitative data analysis

Comments: _____

_____

_____

_____

PROFESSIONALISM

_____ Demonstrated respect for students' ideas about the research project/thesis
_____ Responded to requests in a timely manner
_____ Provided feedback that was useful for enhancing the quality of students' work
_____ Demonstrated an attitude of collaboration and/or facilitated collaboration among group members
_____ Exhibited appropriate use of time during research advisement
_____ Demonstrated professional communication skills in meetings with students
_____ Required high standards for writing and scholarship
_____ Presented self as role model of a researcher in the field

Comments: _____

_____

_____

_____

COMMITMENT TO STUDENT PROJECT/THESIS

_____ Arranged time for student meetings appropriately when needed
_____ Provided critical questioning to help enhance the logic, accuracy, relevance, depth, breadth, precision and clarify of students' work (universal standards)
_____ Offered suggestions and recommendations to encourage high quality work
_____ Provided additional support or assistance, when requested, to ensure completion of the work (manuscript writing; data collection and analysis) in the timeliest manner
_____ Provided resources or recommendations for resources if needed
_____ Provided mentoring and clear expectations for research proposal and final defense
_____ Provided feedback on the results of defense in a timely manner
_____ When presentation of the project or thesis occurs, he/she provided review and feedback
_____ Discussed project regarding authorship and possibility of publication

Comments:

_____

_____

_____

Overall rating and any additional comments:

_____

_____

Title of Research Project/Systematic Review/Case Report:

_____

_____

Faculty mentor:_____**Year of Graduation:** _____

Research Evaluation Overall Mean Score = _____

APPENDIX K | Manuscript Preliminary Pages Examples

TRAINING FOR TRUST IN PUTTING PERFORMANCE OF SKILLED GOLFERS:
A RANDOMIZED CONTROLLED TRIAL

By

Matthew T. Hoffman Travis
R. Jager
Erika J.S. VanEngen

DOCTOR OF PHYSICAL THERAPY RESEARCH PROJECT

Submitted to the Physical Therapy Program
Grand Valley State University
Grand Rapids, Michigan
in partial fulfillment of the requirements for the
degree of

DOCTOR OF PHYSICAL THERAPY 2007

FACULTY RESEARCH MENTOR/S' APPROVAL

Faculty mentor: John Stevenson, PT, PhD, CEA	Date
Faculty Collaborator: Mary Green, PT, JD	Date
Faculty Collaborator: Paul Stephenson, PhD	Date

INTERPRETING MEANINGFUL CHANGE IN THE SIX-MINUTE WALK TEST IN PATIENTS WITH HEART FAILURE: A SYSTEMATIC REVIEW

By

Jennifer L. Kluting
Kacey L. Scheurer

DOCTOR OF PHYSICAL THERAPY SYSTEMATIC REVIEW

Submitted to the Physical Therapy Program
Grand Valley State University
Grand Rapids, Michigan
in partial fulfillment of the requirements for the degree
of

DOCTOR OF PHYSICAL THERAPY 2009

FACULTY RESEARCH MENTOR APPROVAL

_____ _____
Faculty Mentor: Michael J. Shoemaker, PT, DPT, GCS Date

TITLE HERE

By

Student Name

DOCTOR OF PHYSICAL THERAPY
CLINICAL CASE REPORT

Submitted to the Physical Therapy Program
Grand Valley State University
Grand Rapids, Michigan
in partial fulfillment of the requirements for the degree
of

DOCTOR OF PHYSICAL THERAPY 2019

FACULTY RESEARCH MENTOR APPROVAL

_____

Faculty Mentor: Date

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ABBREVIATION LIST

PD: Parkinson's Disease
QOL: Quality of Life
TT: Treadmill Training
RAC: Rhythmic Auditory Cued
SDTT: Speed Dependent Treadmill Training
10 MWT: 10 Meter Walk Test
DGI: Dynamic Gait Index

ACKNOWLEDGEMENTS

Thank you to Judy Overmyer, PT and Shana Holda, DPT and Hauenstein Neuroscience Center at Saint Mary's Health Care for their dedication and participation in the study; as well as Paul Stephenson, PhD for his statistical expertise. A special thank you to faculty advisors Cathy Harro, PT, MS, NCS and Michael Shoemaker, PT, DPT, PhD, GCS for their guidance, expertise, and dedication to the study.

APPENDIX L

MPTA ABSTRACT GUIDELINES

The Michigan Physical Therapy Association (MPTA) encourages DPT students to share their research findings at their annual MPTA Fall Conference. Along with, Physical Therapists, Physical Therapist Assistants, DPT students are invited to present their research findings either as a poster or as a platform presentation. As an example, you can view conference abstract instructions here: MPTA CALL FOR ABSTRACTS.

Abstract Submission Instructions

- All abstracts must be typewritten, single-spaced with one-inch margins, a 12-point font (Times Roman)
- Do not center the title
- Limit the abstract to one page (8.5 x 11 inches). If graphs or charts are included with the abstract all must fit within the margins.

- **STUDENT RESEARCH ABSTRACT** - The content must follow the form and sequence outlined below:

  - **TITLE OF STUDY IN BOLD AND CAPITAL LETTERS**
  - Author 1 (last name, initials), author 2, author 3, etc.; Facility/University, City, State, leave a line as space. Underline the name of the one author who will present the poster or platform. Do not include titles or degrees.
  - Immediately after the author name(s), place a semicolon, and then type in the name of the facility or university in which the work being reported was conducted, and the city and state where the facility or university is located.
  - Leave one blank line between this identifying information and the text of your abstract.
  - **INTRODUCTION**: Introductory sentence(s) of why this research question is important for clinical practice followed by an explicit purpose or hypothesis statement(s). **METHODS:** Specify research design. Subjects: Describe the number and relevant characteristics of sample. Methods/Procedures: including instruments used in data collection. Statistical Analysis: statistical tests used and alpha level. **RESULTS:** Briefly summarize the results that relate to the purpose(s) of the study. Provide relevant statistics supporting your results. **DISCUSSION:** Briefly discuss the results that relate to the purpose(s) of the study. **CONCLUSIONS:** Summarize important results and state the conclusions from your results indicating the clinical relevance of the findings. **ACKNOWLEDGMENTS.** List funding sources only.

- **CASE REPORT ABSTRACT**

  - **TITLE OF STUDY IN BOLD AND CAPITAL LETTERS**
  - Author 1 (last name, initials), author 2, author 3, etc.; Facility/University, City, State, leave a line as space. Underline the name of the one author who will present the poster. Do not include titles or degrees.
  - Immediately after the author name(s), place a semicolon, and then type in the name of the facility or university in which the work being reported was conducted, and the city and state where the facility or university is located. Leave one blank line between this identifying information and the text of your abstract.
  - **BACKGROUND AND PURPOSE:** Introductory sentence(s) of why this research question is important for clinical practice followed by an explicit purpose. **CASE DESCRIPTION**: Brief patient history and systems review, examination, clinical impression, approach/intervention. **OUTCOMES. DISCUSSION. ACKNOWLEDGEMENTS.**