Research and apply evidence to practice
CHCPOL003

Learner Guide
ELEMENTS OF COMPETENCY AND PERFORMANCE CRITERIA:

National Code: CHCPOL003 RESEARCH AND APPLY EVIDENCE TO PRACTICE

Element: 1. Plan information gathering activities
Performance Criteria:
1.1 Identify situations where research may be required to support and improve own work practice
1.2 Evaluate current trends in own area of practice
1.3 Establish and define research objectives
1.4 Identify and access credible sources of date and evidence

Element: 2. Gather information
Performance Criteria:
2.1 Evaluate and select methods of gathering information
2.2 Gather information using a systematic approach
2.3 Establish relevance of information according to objectives and work requirements
2.4 Facilitate analysis by organising information in a way that supports its analysis and future use

Element: 3. Analyse information
Performance Criteria:
3.1 Prioritise information based on the information needed
3.2 Compare and contrast different sources of information
3.3 Assess the strength, relevance, reliability and currency of the information in the context of own work
3.4 Assess the feasibility, benefits and risks associated with the information
3.5 Make and document conclusions based on findings

Element: 4. Use information in practice
Performance Criteria:
4.1 Assess ways in which different aspects of information may be used
4.2 Use information and learning from research to identify potential areas for change in current practice
4.3 Identify issues that require further research and evaluation
4.4 Develop actions to address outcomes of research

Performance Evidence
The candidate must show evidence of the ability to complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the job role. There must be evidence that the candidate has:
- Completed research activities and developed actions based on research outcomes for at least 2 different issues within own field of practice

Knowledge Evidence
The candidate must be able to demonstrate essential knowledge required to effectively complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the work role. This includes knowledge of:
- Different reasons for undertaking research:
  - Comparison, hypothesis testing, trend identification, own knowledge extension, strengthen quality of own practice
- Sources of information, including established information sources and current research within own area of practice
- Principles and models of evidence-based practice, including:
  - Rules of evidence, duty of care requirements associated with evidence-based practice, differences between evidence-based practice, continuous quality improvement and research
- Ways to evaluate the validity of information sources
- Research processes and how to use them
- Cultural and ethical considerations for research
- Processes that support analysis of information and how to use them, including:
  - Comparing, contrasting, challenging, reflecting, distinguishing relevant from irrelevant, drawing interdisciplinary connections

Assessment Conditions
Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions. The following conditions must be met for this unit:
- Use of suitable facilities, equipment and resources, including current research, evidence-based studies and industry intelligence.
**METHOD OF DELIVERY:**

Each session is of 3 hours duration and is a combination of theory and practical hands on work. There are 5 sessions in total. Hand out notes and session review sheets are provided and students are advised that some note taking is recommended. Two ways sharing of information and experience is encouraged in all classes.

<table>
<thead>
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<th>SESSION DATES:</th>
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**METHODS OF ASSESSMENT**

Assessment of this unit will be conducted in two parts.

1. **Written Assessment:** 5,000 word minimum research assignment on chosen research topic.

   Your typed research assignment needs to be in by the due date. Include a cover page showing your title, (subtitle if relevant), your name, institution, your degree and date of completion. See notes in SESSION 1 if not sure. Remember to keep a hard copy for yourself. You will have 5-6 months to complete this assessment.

   Due date: ____________________________

2. **Oral Assessment:** 15-30min research assignment presentation to class and staff.

   You are to present your research assignment to your classmates and staff during a 15-30min presentation. You will have access to a computer, software (PowerPoint) and projector if required. If you need other equipment that is not already in the classroom (whiteboard, models etc) please ask the school prior to your presentation. You are able to use your own computer if required.

   Presentation date: ____________________________

All units being assessed are competency based and your assessment will be defined as:

C – Competent  Or  NYC – Not Yet Competent
CONTENT

Session 1: Research assignment preparation

Session 2: Professional Development 1
  • Literature reviews

Session 3: Professional Development 2
  • Assignment review
  • Career Advancement
  • Stress: A group discussion

Session 4: How to present your research assignment

Session 5: Assessment: Oral presentations
What is a research assignment?

A research assignment consists of an argument or a series of arguments combined with the description and discussion of research you have undertaken. You are expected to review critically the available publications in the field and attempt to add an element of original research to it. This may simply mean that you adapt someone else’s research plan for the situation you want to investigate; in this way you extend the knowledge about an area. Or you may decide to create an original research project.

What are your interests?

Getting started, choosing a topic:

1. Think outside the box, try and be creative. Don’t eliminate your ideas too quickly
2. Write down all your ideas
3. Select a topic or research area that interests you most, or something you have a passion for
4. Consider it a learning experience for you, not an assessment requirement
5. Be realistic about the time that you’re willing to commit to your research project.
6. If necessary conduct a very small preliminary research study

Brain Storming
To help you confirm your research topic, it is advisable to prepare a proposal.

Preparing the proposal

A good proposal should consist of these 3 things:

1. Your research topic – what do you want to find out?
2. A review of the literature relating to your topic – collect as much information as possible
3. How you are going to perform your research – What are your methods?

TIPS to get started:

- Get reading! Read through someone else's research proposal or look at the abstract of research assignments
- Keep any information you see about your topic – print and photocopy all relevant material
- Focus your research specifically, don’t loose track!
- Make sure that you will be benefitting those who are participating in the research.
- Choose your methodology wisely
- Deciding on how you will recruit your subjects and where you will conduct the research is important
- What if you have the opportunity for conducting your research in conjunction with another agency or project that is working in related areas. Should you do it?

The purpose of the proposal is to help you to focus and define your research plans. These plans are not binding, in that they may well change substantially as you progress in the research. However, they are an indication of your direction and discipline as a researcher.

Guide to reviewing literature

- Start your research work as soon as possible.
- It is important to give preference to the most recent works and studies over those done previously.
- Stay focused. Do not be misled into other interesting topics for it is easy to get distracted when there is a lot to read and examine.
- Make sure you understand and extract the main points from what you read.
- It sure is convenient to examine texts that are written in your preferred language, but in order to expand your horizons you might also want to examine journals or articles primarily written in other languages.
- Seek permission from your employer if conducting research at work

Locating literature:

- Books, journals, magazines, periodicals, pamphlets – skim to find relevant information
- Internet – be careful and make sure its from a credible source
- Research papers
- Videos – online or library
- Talk to other health care practitioners or organisations
- Professional associations
After you have collected all your data:

- Review all the information you have
  - Do you have enough information? Too much information?
  - Is the information relevant?
  - Is the information current?

**Guide to how to perform your own research – what are your methods to collect data?**

- Where can you get subjects from?
  - Other students, staff
  - Work colleges
  - Professional associations
  - Family and friends
  - Student clinic
- What information will you collect?
- Will you compare this information between a control and test group?
- Will you compare massage to other treatment, or no treatment?
- Am I doing a 1hr massage on many people? or many massages over time on fewer people?
- How will you collect the information? Questionnaires? Physical assessment tools?
- What equipment will you need?
- How much time will you need?
- Where will you conduct your research?

**Consider ethical issues**

- Is treatment contraindicated
- Do not refuse appropriate treatment to control group if treatment needed for health and well being
- Do not cause harm
- If in doubt, refer to other health care practitioners
- Always use appropriate clinical procedures
Writing your research assignment (in detail)

Research assignment structure

Title Page
Abstract
Table of Contents
Introduction
Methods
Results
Discussion
Conclusions
Recommendations
Acknowledgments
References
Appendices

Title Page
Title (including subtitle if relevant), author, institution, degree, date of delivery

THE EFFECTS OF MASSAGE ON HAMSTRING FLEXIBILITY IN TRIATHLETES

A Research assignment presented to
The Faculty and Students studying Diploma of Remedial Massage
Massage Schools of Queensland

Diploma of Remedial Massage

By
Joe Smith
March, 2017
Abstract

A good abstract explains in one line why the paper is important. It then goes on to give a summary of your major results. The final sentences explain the major implications of your work. A good abstract is concise, readable, and quantitative.

Key points:
- Length should be ~ 1-2 paragraphs.
- Abstracts generally do not have citations
- Information in title should not be repeated

Answers to these questions should be found in the abstract:
- What did you do?
- Why did you do it? What question were you trying to answer?
- How did you do it? State methods
- What did you learn? State major results
- Why does it matter? Point out at least one significant implication

ABSTRACT

Hamstring injuries are extremely debilitating and affect many athletes who participate in high speed, high-intensity exercise. The purpose of this study was to examine the effects of two massage sessions per week for 3 weeks on hamstring flexibility. Among 10 subjects ages 18-32 (M = 4, F = 6), all participants were apparently healthy college students who were Kinesiology majors and had no history of lower limb injuries that would have impaired mobility.

Hamstring flexibility was measured using an Active Straight Leg Raise protocol; measurements were made using a goniometer before and after the first, fourth, and sixth massage with a follow-up measurement 7 days after the final massage. A 5 min massage protocol using a combination of effleurage, petrissage, and friction was applied to the hamstring muscle of one leg on each subject; the opposing leg served as the control. Sessions requiring measurements lasted less than 15 min.

Statistical analysis utilized a 3 X 2 X 2 (Sessions X Tests X Legs) completely repeated measures ANOVA. The Sessions main effect was significant with improvement from Session 1 to 2, and 1 to 3 but no significant change from Session 2 to 3. The significant disordinal interaction of Tests X Legs indicated that the significant improvement in hamstring flexion of the massaged leg was due in large part to the reduced flexibility of the non-massaged leg. Paired t-tests compared the initial and final measurements for each of the legs. The results indicated a significant increase (p < 0.05) in hamstring flexibility in the massaged leg, but there was no significant difference in the non-massaged hamstring.
Table of Contents

Remember to list all headings and subheadings with page numbers. It might look something like this:

<table>
<thead>
<tr>
<th>TABLE OF CONTENTS</th>
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<tbody>
<tr>
<td><strong>ABSTRACT</strong></td>
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<tr>
<td><strong>TABLE OF CONTENTS</strong></td>
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<tr>
<td><strong>CHAPTER</strong></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
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<td>Subheadings?</td>
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<tr>
<td>3. RESULTS</td>
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<td>Subheadings?</td>
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1. **Introduction**

You can’t write a good introduction until you know what the body of the paper says. Consider writing the introductory section(s) after you have completed the rest of the paper, rather than before. Be sure to include a hook at the beginning of the introduction. This is a statement of something sufficiently interesting to motivate your reader to read the rest of the paper, it is an important/interesting scientific problem that your paper either solves or addresses. You should draw the reader in and make them want to read the rest of the paper.
The next paragraphs in the introduction should cite previous research in this area. It should cite those who had the idea or ideas first, and should also cite those who have done the most recent and relevant work. You should then go on to explain why more work was necessary (your work, of course.)

Key points:
- Goal of the paper: why the study was undertaken, or why the paper was written.
- Sufficient background information to allow the reader to understand the context and significance of the question you are trying to address.
- Proper acknowledgement of the previous work on which you are building. Sufficient references such that a reader could achieve a sophisticated understanding of the context and significance of the question.
- The introduction should be focused on the research assignment question(s). All cited work should be directly relevant to the goals of the research assignment. Be careful: This is not a place to summarize everything you have ever read on a subject.
- Explain the scope of your work, what will and will not be included.

It may be easier to break up the introduction section into logical segments by using subheadings.

CHAPTER I
INTRODUCTION

Debilitating hamstring injuries affect many athletes, especially sprinters (Lysholm & Wiklander, 1987), football players (Ekstrand & Gillquist, 1982; Marieb, Mallatt, & Wilhelm, 2005; Orchard, Marsden, Lord, & Garlick, 1997), and any other athletes who utilize running, jumping, and/or kicking while participating in sport (Unger & Unger, 1997; Worrell & Perrin, 1992), resulting in lost playing time (from a few days to several months or more) and an increased susceptibility to re-injury (Slavotinek, Verrall, & Fon, 2002; Woods, Hawkins, Maltby, Hulse, Thomas, & Hodson, 2004; Worrell & Perrin, 1992). Because hamstring injuries can be devastating to an athlete’s competitive season and career, it is important to be able to identify preventative actions that can be taken to reduce the incidence of this injury, as well as successful interventions to reduce the risk of re-injury.

Hamstring injuries are associated with sports requiring rapid acceleration (Gabbe, Finch, Bennell, & Wajswelner, 2005), as well as high-speed and high-intensity exercises (Agre, 1985; Garrett, Califf, & Bassett, 1984). In Australian Rules Football, hamstring injuries accounted for between 16% (Gabbe, et al., 2005; Orchard, et al., 1997) and 20% (Verrall, Slavotinek, Barnes, Fon, & Spriggins, 2001) of all missed games. Gabbe et al. also found that 76.9% of these injuries were sustained during competition and resulted from rapid acceleration.

Cont.
2. Methods

What belongs in the "methods" section of a scientific paper?

- Information to allow the reader to assess the believability of your results
- Information needed by another researcher to replicate your experiment
- Description of your materials, procedure, theory
- Calculations, technique, procedure, equipment, and calibration plots
- Limitations and assumptions
- Description of your methods

The methods section should answer the following questions:

- Could one accurately replicate the study?
- Could another researcher accurately find and reoccupy the sampling stations?
- Is there enough information provided about any instruments used so that a functionally equivalent instrument could be used to repeat the experiment?
- If the data is in the public domain, could another researcher access the identical data set?
- Could one replicate any laboratory and/or statistical analyses that were used?
- Could another researcher approximately replicate the key algorithms of any computer software?

Citations in this section should be limited to data sources and references of where to find more complete descriptions of procedures. **Do not include descriptions of results.**

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**CHAPTER II**

**METHODS**

**Participant Selection**

Participants were required to meet the following criteria to be considered for this study: 1) currently a Kinesiology major or minor and/or an intercollegiate athlete not currently “in-season” or training for an intercollegiate competition that would take place before April 30, 2005, 2) not a football punter/kicker, a long jumper, triple jumper or a hurdler in track and field, 3) be in apparent good overall health, 4) not have suffered an injury to the hip, thigh, or knee joints or related musculature influencing range of motion in those joints for more than 3 weeks during the last 2 years, and 5) not had surgery to repair any injury to the hip, thigh, or knee. Fliers containing this information (Appendix A) were posted in the Health and Kinesiology building at the state university. Coaches were also contacted and agreed to allow their eligible athletes to participate in the study.

Four male and six female students were selected based on the criteria for participation and willingness to volunteer for the study. All 10 were right leg dominate. Ninety percent of participants acknowledged exercising on a regular basis. Four participants engaged in a regular stretching routine 1-2 days per week, three stretched 3-4 days per week, two stretched 5-6 days per week, and one participant did not answer the question.

Cont.
3. Results

The results are actual statements of observations, including statistics, tables and graphs.

- What are your results?
- Mention negative results as well as positive. Do not interpret results - save that for the discussion.
- Lay out the case as for a jury. Present sufficient details so that others can draw their own inferences and construct their own explanations.
- Use S.I. units (m, s, kg, W, etc.) throughout the research assignment.
- Break up your results into logical segments by using subheadings

Key results should be stated in clear sentences at the beginning of paragraphs. It is far better to say "X had significant positive relationship with Y" then to start with a less informative like "There is a significant relationship between X and Y". Describe the nature of the findings; do not just tell the reader whether or not they are significant.

Note: Results vs. Discussion Sections

<table>
<thead>
<tr>
<th>RESULTS = Observations</th>
<th>DISCUSSION = Interpretations</th>
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</table>

Quarantine your observations from your interpretations. The writer must make it crystal clear to the reader which statements are observation and which are interpretation. In most circumstances, this is best accomplished by physically separating statements about new observations from statements about the meaning or significance of those observations. Alternatively, this goal can be accomplished by careful use of phrases such as "I infer ..." vast bodies of geological literature became obsolete with the advent of plate tectonics; the papers that survived are those in which observations were presented in stand-alone fashion, unmuddled by whatever ideas the author might have had about the processes that caused the observed phenomena.

How do you do this?
1. Physical separation into different sections or paragraphs
2. Don't overlay interpretation on top of data in figures
3. Careful use of phrases such as "We infer that"
4. Don't worry if "results" seem short
CHAPTER III

RESULTS

Data were analyzed using a 3 X 2 X 2 (sessions X tests X legs) ANOVA with repeated measures on all factors using the SPSS 12.0 (Apache Software Foundation, Chicago, IL) statistical program. The level of significance for all analyses was established as p < 0.05. According to Table 1, the only significant effects were Sessions, and Tests X Legs. Pre-test scores did not differ significantly from post-test scores as no main effect or interaction coupled with sessions was significant.

This suggested that when subjects’ measures were pooled across legs, they entered and left the sessions with an equivalent degree of hamstring flexion. When hip flexion scores were evaluated across sessions, Newman-Keuls post-hoc tests indicated that there was no significant difference between Sessions 2 and 3 (t N-K = .37); however, significant improvement was shown from Session 1 to 3 (t N-K = 3.72) and 1 to 2 (t N-K=3.36). The means and standard deviations for Sessions are shown in Table 2. Since none of the interactions which included Sessions as one of the factors was significant, a possibility is that the flexion scores for one of the legs were increasing, while the other was decreasing.

Cont.

4. Discussion

Start with a few sentences that summarise the most important results. The discussion section should be a brief essay in itself, answering the following questions:

- What are the major patterns in the observations?
- What are the relationships, trends and generalisations among the results?
- What are the exceptions to these patterns or generalisations?
- What are the likely causes (mechanisms) underlying these patterns resulting predictions?
- Is there agreement or disagreement with previous work?
- Interpret results in terms of background laid out in the introduction - what is the relationship of the present results to the original question?
- What is the implication of the present results for other unanswered
- Consider multiple hypotheses: There are usually several possible explanations for results. Be careful to consider all of these rather than simply pushing your favourite one. If you can eliminate all but one, that is great, but often that is not possible with the data in hand. In that case you should give even treatment to the remaining possibilities, and try to indicate ways in which future work may lead to their discrimination.
- Avoid bandwagons: A special case of the above. Avoid jumping a currently fashionable point of view unless your results really do strongly support them.
- What are the things we now know or understand that we didn’t know or understand before the present work?
- Include the evidence or line of reasoning supporting each interpretation.
- What is the significance of the present results: why should we care?
This section should be rich in references to similar work and background needed to interpret results. However, interpretation/discussion section(s) are often too long and verbose. Is there material that does not contribute to one of the elements listed above? If so, this may be material that you will want to consider deleting or moving. Break up the section into logical segments by using subheads.

CHAPTER IV

DISCUSSION

These results contradict the findings of Crosman, et al. (1984) on the long-term effects of massage on hamstring flexibility. Several factors could contribute to these differing results. The present study utilized Biotone™ Deep Tissue Massage Lotion, which, based upon the researcher’s experience, allows for better grip and more friction between the massage therapist’s hand and the skin versus massage oil. While the present study used the same type of massage strokes in the same order as Crosman, et al. (1984), the number of strokes for both circular and transverse friction was reduced by one-half in the present study. The number of strokes was reduced to shorten the protocol to make it more applicable to preparations for athletic participation. The positive results seen with the reduction in the number of strokes contradicts logic; more massage strokes should have a facilitating effect on the amount of relaxation. However, this did not appear to be the case in this study. The amount of pressure applied in this study’s protocol may have been significantly greater than the pressure applied in the former study. Increased compression may have allowed the release of trigger points (Travell & Simons, 1983, p. 9), or “knots,” that may have been present in the muscle. Release of trigger points returns the muscle to a relaxed, non-contracted state, with a consequent increase in muscle length and flexibility.

Cont.

5. Conclusions

- What is the strongest and most important statement that you can make from your observations?
- If you met the reader at a meeting six months from now, what do you want them to remember about your paper?
- Refer back to problem posed, and describe the conclusions that you reached from carrying out this investigation, summarise new observations, new interpretations, and new insights that have resulted from the present work
- Include the broader implications of your results.

Do not repeat word for word the abstract, introduction or discussion.

CHAPTER V

CONCLUSIONS

1. Subjects improved from Sessions 1 to 2 and 1 to 3, but not 2 to 3.

2. No significant differences in pre-test and post-test scores were identified because no main effect or interaction with Sessions was significant. This contradicted one of the proposed
hypotheses.

3. Post-hoc comparisons for the significant interaction of Tests X Legs indicated the significant increase in hamstring flexibility was due more to reduced flexibility in the non-massaged leg than to an increase in flexibility of the massaged leg.

4. A significant increase in hamstring flexibility was observed for the massaged leg from the initial to the final session. There was no significant difference in the massaged leg.

Cont.
6. Recommendations

- Include when appropriate (most of the time)
- Remedial action to solve the problem.
- Further research to fill in gaps in our understanding.
- Directions for future investigations on this or related topics.

## CHAPTER VI

### RECOMMENDATIONS

1. Greater control over outside variables including the exercise regimen, individual stretching programs, and adherence to the scheduled massage sessions might have been achieved if the study had taken place during a time of year when participants would have been more compliant.

2. Based on feedback given to the researcher, it is suggested that future studies use participants who are familiar with massage as it would allow them to relax more during the protocol.

3. The study should be replicated with the following changes:
   a. Vary the length of the protocol since conflicting results occurred regarding long-term effects of massage on hamstring flexibility (Crosman, et al., 1984).
   b. Utilize a larger sample size and expand the field of criteria by looking at groups other than collegiate-aged athletes and former athletes for participation in the study.

Cont.

7. Acknowledgments

Advisor(s) and anyone who helped you:

1. technically (including materials, supplies)
2. intellectually (assistance, advice)
3. financially (for example, departmental support, travel grants)
References

- cite all ideas, concepts, text, data that are not your own
- if you make a statement, back it up with your own data or a reference
- all references cited in the text must be listed
- cite single-author references by the surname of the author (followed by date of the publication in parenthesis)
  - ... according to Hays (1994)
  - ... population growth is one of the greatest environmental concerns facing future generations (Hays, 1994).
- cite double-author references by the surnames of both authors (followed by date of the publication in parenthesis)
  - e.g. Simpson and Hays (1994)
- cite more than double-author references by the surname of the first author followed by et al. and then the date of the publication
  - e.g. Pfirman, Simpson and Hays would be:
  - Pfirman et al. (1994)
- do not use footnotes
- list all references cited in the text in alphabetical order using the following format for different types of material:
  - New York Times (1/15/00) PCBs in the Hudson still an issue, A2.
- it is acceptable to put the initials of the individual authors behind their last names, e.g. Pfirman, S.L., Stute, M., Simpson, H.J., and Hays, J (1996) Undergraduate research at ......

REFERENCES


8. Appendices

- Include all your data in the appendix.
- Reference data/materials not easily available
- Tables (where more than 1-2 pages).
- Calculations (where more than 1-2 pages).
- If you consulted a large number of references but did not cite all of them, you might want to include a list of additional resource material, etc.
- List of equipment used for an experiment or details of complicated procedures.

Note: Figures and tables, including captions, should be embedded in the text and not in an appendix, unless they are more than 1-2 pages and are not critical to your argument.

OTHER INFORMATION

Figures and Tables

The actual figures and tables should be embedded/inserted in the text, generally on the page following the page where the figure/table is first cited in the text. All figures and tables should be numbered and cited consecutively in the text as figure 1, figure 2, table 1, table 2, etc.

Include a caption for each figure and table, citing how it was constructed (reference citations, data sources, etc.) and highlighting the key findings.

You are encouraged to make your own figures, including cartoons, schematics or sketches that illustrate the processes that you discuss.

Examine your figures with these questions in mind:

- Is the figure self-explanatory?
- Are your axes labelled and are the units indicated?
- Show the uncertainty in your data with error bars.
- If the data are fit by a curve, indicate the goodness of fit.
- Could chart junk, non-data ink and/or redundant data ink be eliminated?
- Could data density be increased by eliminating non-data bearing space?
- Is this a sparse data set that could better be expressed as a table?
- Does the figure distort the data in any way?
- Are the data presented in context?
- Does the figure caption guide the reader's eye to the "take-home lesson" of the figure?

NOW WHAT?

Editing Your Research assignment

1. Proof read your research assignment a few times. Even a rough draft should be edited
2. Check your spelling. Spellcheckers are useful for initial checking, but don't catch homonyms (e.g. hear, here), so you need to do the final check by eye.
3. Make sure that you use complete sentences
4. Check your grammar: punctuation, sentence structure, subject-verb agreement (plural or singular), tense consistency, etc.
5. Give it to others to read and comment.
Research assignment length

Write for brevity rather than length. The goal is the shortest possible paper that contains all information necessary to describe the work and support the interpretation. Avoid unnecessary repetition and irrelevant tangents. Necessary repetition: the main theme should be developed in the introduction as a motivation or working hypothesis. It is then developed in the main body of the paper, and mentioned again in the discussion section (and, of course, in the abstract and conclusions).

Some suggestions on how to shorten your paper:

1. Use tables for repetitive information.
2. Include only sufficient background material to permit the reader to understand your story, not every paper ever written on the subject.
3. Use figure captions effectively.
4. Don't describe the contents of the figures and/or tables in the text item-by-item. Instead, use the text to point out the most significant patterns, items or trends in the figures and tables.
5. Delete "observations" or "results" that are mentioned in the text for which you have not shown data.
6. Delete "conclusions" that are not directly supported by your observations or results.
7. Delete "interpretation" or "discussion" sections that are inconclusive.
8. Delete "interpretation" or "discussion" sections that are only peripherally related to your new results or observations.

REVIEW YOUR RESEARCH ASSIGNMENT

1. Proof read you assignment
2. Check spelling and grammar
3. Did you support your topic with enough information
4. Could you improve your assignment
5. Have you acknowledged all your sources
6. Get feedback from friends, classmates or lecturer

For the next session, try and fill out the table in Session 2 as much as possible:

1. Your topic
2. Review literature
3. Your methods
### NOTES: Research assignment proposal

<table>
<thead>
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<th>Your topic:</th>
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<tbody>
<tr>
<td>Review of literature:</td>
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<td>(what does the research conclude about your topic if relevant)</td>
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<tr>
<td>Your methods:</td>
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<tr>
<td>(how are you going to get your subjects, get your data, etc)</td>
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</table>
Literature Reviews:

<table>
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Abstract

Previous reviews of massage therapy for chronic, non-malignant pain have focused on discrete pain conditions. This article aims to provide a broad overview of the literature on the effectiveness of massage for a variety of chronic, non-malignant pain complaints to identify gaps in the research and to inform future clinical trials. Computerized databases were searched for relevant studies including prior reviews and primary trials of massage therapy for chronic, non-malignant pain. Existing research provides fairly robust support for the analgesic effects of massage for non-specific low back pain, but only moderate support for such effects on shoulder pain and headache pain. There is only modest, preliminary support for massage in the treatment of fibromyalgia, mixed chronic pain conditions, neck pain and carpal tunnel syndrome. Thus, research to date provides varying levels of evidence for the benefits of massage therapy for different chronic pain conditions. Future studies should employ rigorous study designs and include follow-up assessments for additional quantification of the longer-term effects of massage on chronic pain.

Future Directions: Critical Issues for Studies on Massage Therapy for Chronic Pain

This review highlights the need for continued rigorous research on the effectiveness of massage therapy for chronic, non-malignant pain conditions. Somewhat surprisingly, this review indicated that very few studies to date have focused on massage for pain related to chronic/recurrent headaches and chronic neck pain. Given that massage promotes relaxation, it would appear to be a particularly appropriate therapy for tension-type headaches as well as migraine related to increased stress. Moreover, at pointed out above, massage therapy may alter the mechanical stress caused by myofascial tissue disorders which have been implicated in tension-type headaches. In light of the contradictory findings noted above, future work may also continue to examine massage therapy effects on pain related to fibromyalgia which involves widespread, diffuse pain that is often not responsive to traditional approaches.

Numerous methodological problems were noted in the studies reviewed including small sample sizes, lack of equivalence across treatment and control groups, and inadequate blinding of assessors. However, one of the most notable limitations of the literature as a whole is that very few studies included follow-up assessments. As indicated by Moyer et al. in their meta-analysis, the beneficial effects of massage therapy on pain are predominately evidenced after the end of active treatment. They concluded that such delayed effects on pain were substantial, with patients who were evaluated several days/weeks after treatment cessation exhibiting on average 62% less pain than controls and one study on LBP revealed significant benefits from massage persisting 1 year after the cessation of active treatment. It should be noted however, that the conclusions by Moyer et al. were based on only 5 studies, suggesting that future trials of massage therapy should include follow-up assessments in order to further quantify such delayed effects. Moreover, additional studies may focus on examining the optimal time periods for the scheduling of ‘booster’ sessions to maintain treatment gains. Previous work has suggested that psychological treatment delivered according to a schedule with increasing time intervals between sessions (e.g. 1, 4, 10 intervening days) is more effective over the long-term compared to a uniform schedule (e.g. 5, 5, 5 intervening days) of treatment delivery. Thus, future research may also examine the optimal treatment schedule for delivery of massage therapy with a view to enhancing longer-term analgesic effects.

Margaret Plews-Ogan, MD; Justine E. Owens, PhD; Matthew Goodman, MD; Pamela Wolfe, BS; John Schorling, MD: A Pilot Study Evaluating Mindfulness-Based Stress Reduction and Massage for the Management of Chronic Pain. 2005 Blackwell Publishing
Abstract

**Background:** Mindfulness-based stress reduction (MBSR) and massage may be useful adjunctive therapies for chronic musculoskeletal pain.

**Objective:** To evaluate the feasibility of studying MBSR and massage for the management of chronic pain and estimate their effects on pain and mood.

**Design:** Randomized trial comparing MBSR or massage with standard care.

**Participants:** Thirty patients with chronic musculoskeletal pain.

**Measurements:** Pain was assessed with 0 to 10 numeric rating scales. Physical and mental health status was measured with the SF-12.

**Results:** The study completion rate was 76.7%. At week 8, the massage group had average difference scores for pain unpleasantness of 2.9 and mental health status of 13.6 compared with 0.13 (P<.05) and 3.9 (P<.04), respectively, for the standard care group. These differences were no longer significant at week 12. There were no significant differences in the pain outcomes for the MBSR group. At week 12, the mean change in mental health status for the MBSR group was 10.2 compared with −1.7 in the standard care group (P<.04).

**Conclusions:** It is feasible to study MBSR and massage in patients with chronic musculoskeletal pain. Mindfulness-based stress reduction may be more effective and longer-lasting for mood improvement while massage may be more effective for reducing pain.

![Figure 1](source: J Gen Intern Med © 2005 Blackwell Publishing)

**Figure 1.** Average pain unpleasantness scores with standard errors for mindfulness-based stress reduction, massage and standard care groups from baseline through 12 weeks for participants who completed the study (n=23).
Discussion

There were several limitations of this study, including the small sample size and that more patients dropped out of the MBSR arm. Other limitations include a limited duration follow-up and that the massage therapists used no music or massage oils which may not mimic actual practice. Finally, differences in contact time between the therapies may be a confounder.

In conclusion, MBSR and massage appear promising for the treatment of chronic musculoskeletal pain and even socioeconomically disadvantaged patients will participate in trials of these modalities. In addition, massage therapy can have a positive impact on pain unpleasantness, but this impact attenuates over time. Mindfulness-based stress reduction may have a positive impact on mental health in these patients, an effect that seems to persist after the classes are completed. Together, these findings provide support for conducting larger studies to more definitively establish the optimal role of massage and MBSR in the treatment of chronic musculoskeletal pain. In the meantime, it is both feasible and promising to offer these therapies to chronic pain patients in the ambulatory setting.

Abstract

Objective: To test the hypothesis that dry needle stimulation of a myofascial trigger point (sensitive locus) evokes segmental anti-nociceptive effects.

Design: Double-blinded randomised controlled trial

Subjects: Forty subjects (21 males, 19 females)

Methods: Test subjects received intramuscular dry needle puncture to a right supraspinatus trigger point; controls received sham intramuscular dry needle puncture. Pain pressure threshold (PPT) readings were recorded from right infraspinatus and right gluteus medius trigger points at 0 (pre-needling baseline), 1, 3, 5, 10, and 15min post-needling and normalised to baseline values. The supraspinatus and infraspinatus trigger points are neurologically linked at C5; the supraspinatus and gluteus medius are segmentally unrelated. The difference between the infraspinatus and gluteus medius PPT values (PPT seg) represents a direct measure of the segmental anti-nociceptive effects acting at the supraspinatus trigger point.

Results: Significant increases in PPT seg were observed in test subjects at 3 (p=0.002) and 5 (p=0.015) min post-needling, compared with controls.

Conclusion: One intervention of dry needle stimulation to a single trigger point (sensitive locus) evokes short-term segmental anti-nociceptive effects. These results suggest that trigger point (sensitive locus) stimulation may evoke anti-nociceptive effects by modulating segmental mechanisms, which may be important consideration in the management of myofascial pain.
Abstract

**Objective:** To investigate the changes in pressure pain threshold of the secondary (satellite) myofascial trigger points (MTrPs) after dry needling of a primary (key) active MTrP.

**Design:** Single blinded within-subject design, with the same subjects serving as their own controls (randomised). Fourteen patients with bilateral shoulder pain and active MTrPs in bilateral infraspinatus muscles were involved. A MTrP in the supraspinatus muscle on a randomly selected side was dry needled, and the MTrP in the contralateral side was not (control). Shoulder pain intensity, range of motion (ROM) of shoulder internal rotation, and pressure pain threshold of the MTrPs in the infraspinatus, anterior deltoid, and extensor carpi radialis longus muscles were measured in both sides before and immediately after dry needling.

**Results:** Both active and passive ROM of the shoulder internal rotation, and the pressure pain threshold of MTrPs on the treated side, were significantly increased (P<0.01), and the pain intensity of the treated shoulder was significantly reduced (P<0.001) after dry needling. However, there was no significant changes in all parameters in the control (untreated) side. Percent changes in the data after needling were also analysis. For every parameter, the percentage change was significantly higher in the treated side than in the control side.

**Conclusions:** The study provides evidence that dry needle evoked inactivation of a primary (key) MTrP inhibits the activity in the satellite MTrPs situated in its zone of pain referral. This supports the concept that activity in a primary MTrP leads to the development of activity in satellite MTrP and the suggested spinal cord mechanism responsible for this phenomenon.

Limitations of study: small sample size, no sham dry needling to control side (placebo effect), not designed to examine the therapeutic effectiveness of dry needling – only changes in pressure pain threshold.
Professional Development

Professional development refers to skills and knowledge for both personal development and advancement in career. It encompasses all types of facilitated learning, including college degrees, formal coursework, informal learning opportunities, workshops and conferences. Professional development may occur during a variety of approaches including business or personal coaching, life coaching, lesson studies, mentoring and supervision, research and/or technical assistance.

Why do we perform professional development?
- Interest in learning
- Sense of moral obligation
- Maintain and improve competence
- Keep up to date with new practice (including techniques and technology)
- Comply with professional regulation (Continuing education points – AAMT)
- Career advancement

Career advancement

- Get treatments from different therapists and different modalities
  - observe techniques
  - observe business practices
  - environment
  - What was good? What was bad?
- Continuing education courses – what areas of massage interest you most
- Talk to other therapists about their qualifications and professional experience
- Build your business network – to whom will you refer to?
- Research information about massage on the internet – conditions, disease, new treatments, advancement in massage technique
- Experiment or conduct small research on your existing clients (with consent)
- Get experience: volunteer your massage to sporting teams, friends, family, other students

Any other ideas

Stress: A group discussion
What is stress?

Types of stress in the workplace

How does stress affect us (as massage therapists?)

How can we managing our own stress?
Supporting others to reduce and control their stress
SESSION 4: How to present your research assignment

You are required to present your research assignment to your class during a 15-30min presentation. This is an opportunity for you to not only talk about your research topic, but an opportunity to listen to other student’s research topics which may prove useful to you as a massage therapist in the future. You will have access to a computer and projector, a whiteboard, models and massage tables. If you need anything else, please arrange it with the school before you are to present your assignment.

As well as presenting your information from your assignment, you may choose to talk about WHY you picked this topic. We already have all the information in your written assignment; avoid standing up and reading it to the class. Focus on the key information and think of ways to make it interesting to your audience and thus making it more enjoyable for you to present.

Some tips for presenting your research assignment:

- Dress appropriate – semi-formal is best (dress as though you are presenting your research at a National conference: dress pants/shirt, collared shirt/blouse, tie, black shoes etc)
- Don’t just read your presentation – talk about WHY you selected this topic, was it your passion? Did you enjoy the experience? How can this relate to other massage therapist?
- Use materials that may include PowerPoint, slides, charts, photos, handouts, overheads – make it interactive if you want
- Practice your presentation – present your assignment to other students for feedback
- Bring everything you need
- Arrive early and prepare
- Keep to a basic format
- Speak clearly with variety and emphasis
- Do not read directly from your notes
- Keep to the time limit
- Try to involve and include your audience
- Monitor feedback from your audience and adapt as appropriate
- Ask your audience if they have any questions (typically at the end)

Most of all

- Be calm and enjoy yourself
Get into small groups of about 2-3 people. As a group, you are going to present a 5-10min talk to the rest of the class. You can choose a topic of your choice, as long as it has something to do with the massage industry. Try and be creative in the way you present your topic and make sure you use all the people in your group. You are welcome to make up any information, and present it any way you wish. It can formal or inform, it’s up to your group to decide.

You will have only 10mins to prepare your presentation. So start thinking!
SESSION 5: Assessment – Oral presentations

ASSESSMENT CRITERIA

Assessment of this unit will be conducted in two parts.

1. **Written Assessment:** 5,000 word minimum research assignment on chosen research topic.

   Your typed research assignment needs to be in by the due date. Include a cover page showing your title, (subtitle if relevant), your name, institution, your degree and date of completion. See notes in SESSION 1 if not sure. Remember to keep a hard copy for yourself.

   Due date: ____________________________

2. **Oral Assessment:** 15-30min research assignment presentation to class and staff.

   You are to present your research assignment to your classmates and staff during a 15-30min presentation. You will have access to a computer, software (powerpoint) and projector if required. If you need other equipment that is not already in the classroom (whiteboard, models etc) please ask the school prior to your presentation. You are able to use your own computer if required.

   Presentation date: ____________________________

All units being assessed are competency based and your assessment will be defined as:
C – Competent Or NYC – Not Yet Competent