



PHTY801

Foundation Sciences for Physiotherapy B

S2 Day 2015

Department of Health Professions

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General Information

Unit convenor and teaching staff

Unit Convenor

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Tutor

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Credit points

4

Prerequisites

Admission to DPT

Corequisites

Co-badged status

Unit description

This is the second of two units which will examine of the application of foundation sciences underpinning physiotherapy research and practice. Building on students' pre-requisite and assumed knowledge, the main focus of this unit will be on movement science, with emphasis on understanding the biomechanical and anatomical characteristics of performance of everyday activities in healthy persons and those with musculoskeletal, neurological and cardiorespiratory pathologies. Motor development, learning and performance will also be examined and students will acquire skills in clinical observation and measurement of human performance and strategies to promote skill acquisition across the lifespan.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

Explain the biomechanical characteristics of breathing and performance of everyday

activities such as rolling, getting out of bed, sitting, standing up, standing, walking, reaching actions and manipulation in healthy persons across the lifespan.

Demonstrate proficient knowledge of anatomy and use of surface anatomy to accurately describe and analyse breathing and everyday activities.

Observe and identify adaptive behaviours during the performance of everyday activities in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.

Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.

Generate hypotheses about the likely impairments causing adaptive behaviours during everyday activities in persons with pathological conditions.

Design a program to enhance motor learning and performance that is specifically tailored to the person's goals and health status.

Explain the relationship between movement and the somatosensory nervous system for those with pain.

Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

General Assessment Information

Assessment/Standards

Macquarie University uses the following grades in coursework units of study:

HD	High Distinction	85-100
D	Distinction	75-84
CR	Credit	65-74
P	Pass	50-64
F	Fail	0-49

Grade descriptors and other information concerning grading are contained in the Macquarie University Grading Policy, which is available at: <http://www.mq.edu.au/policy/docs/grading/policy.html>

To pass this unit, students must demonstrate sufficient evidence of achievement of the learning outcomes and complete all assessment tasks.

Further details for each assessment task will be available on iLearn, including marking rubrics.

All final grades in the department of Health Professions are determined by a grading committee and are not the sole responsibility of the Unit Convenor.

Students will be awarded one of these grades plus a Standardised Numerical Grade (SNG). The SNG is not necessarily a summation of the individual assessment components. The final grade and SNG that are awarded reflect the corresponding grade descriptor in the Grading Policy.

Extensions for Assessment Tasks

Applications for assessment task extensions must be submitted via www.ask.mq.edu.au. For further details please refer to the Disruption to Studies Policy available at http://mq.edu.au/policy/docs/disruption_studies/policy.html

Late Submission of Work

All assignments which are officially received after the due date, and where no extension has been granted by the course convenor or tutor, will incur a deduction of 10% for the first day, and 10% for each subsequent day including the actual day on which the work is received. Weekends and public holidays are included. For example:

Due Date	Received	Days Late	Deduction	Raw Mark	Final Mark
Friday, 14th	Monday, 17th	3	30%	75%	45%

Assessment Tasks

Name	Weighting	Due
Quiz	15%	Week 6
Practical/Viva Examination	45%	Week 14/15/16
Written Examination 1	20%	Week 14/15/16
Written Examination 2	20%	Week 14/15/16
Mastery of Clinical Skills	0%	Continuous

Quiz

Due: **Week 6**

Weighting: **15%**

Students will be required to answer questions about the characteristics of optimal performance of everyday activities and analyse photos, describing observations and common adaptive behaviours.

On successful completion you will be able to:

- Demonstrate proficient knowledge of anatomy and use of surface anatomy to accurately describe and analyse breathing and everyday activities.
- Observe and identify adaptive behaviours during the performance of everyday activities in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.
- Generate hypotheses about the likely impairments causing adaptive behaviours during everyday activities in persons with pathological conditions.

Practical/Viva Examination

Due: **Week14/15/16**

Weighting: **45%**

The practical/viva exam has three components. You will be asked to complete each of the following components in approximately 15 minutes:

1. Practical - demonstration of part practice training or cardiorespiratory assessment
2. Practical - demonstration of whole practice training or cardiorespiratory treatment
3. Viva – observation and analysis of a photograph of an activity or a client with cardiorespiratory problems

On successful completion you will be able to:

- Explain the biomechanical characteristics of breathing and performance of everyday activities such as rolling, getting out of bed, sitting, standing up, standing, walking, reaching actions and manipulation in healthy persons across the lifespan.
- Demonstrate proficient knowledge of anatomy and use of surface anatomy to accurately describe and analyse breathing and everyday activities.
- Observe and identify adaptive behaviours during the performance of everyday activities in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.
- Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.
- Generate hypotheses about the likely impairments causing adaptive behaviours during everyday activities in persons with pathological conditions.
- Design a program to enhance motor learning and performance that is specifically tailored to the person's goals and health status.

- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

Written Examination 1

Due: **Week 14/15/16**

Weighting: **20%**

This 3 hour examination is an integrated examination for PHTY 800, PHTY 801 and PHTY 802. The purpose of this approach is to help students to see how the content of the 3 units integrate together to achieve the broad aims of semester A. The PHTY 801 component is worth 20% and questions contributing to the PHTY 801 component of the examination will be clearly labelled. The questions will test students' understanding of all content delivered in this unit of study. The focus of this exam will be the understanding and application of basic knowledge and principles.

On successful completion you will be able to:

- Explain the biomechanical characteristics of breathing and performance of everyday activities such as rolling, getting out of bed, sitting, standing up, standing, walking, reaching actions and manipulation in healthy persons across the lifespan.
- Demonstrate proficient knowledge of anatomy and use of surface anatomy to accurately describe and analyse breathing and everyday activities.
- Observe and identify adaptive behaviours during the performance of everyday activities in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.
- Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.
- Generate hypotheses about the likely impairments causing adaptive behaviours during everyday activities in persons with pathological conditions.
- Design a program to enhance motor learning and performance that is specifically tailored to the person's goals and health status.
- Explain the relationship between movement and the somatosensory nervous system for those with pain.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

Written Examination 2

Due: **Week 14/15/16**

Weighting: **20%**

This 3 hour examination is also an integrated examination for PHTY 800, PHTY 801 and PHTY 802. The purpose of this approach is to help students to see how the content of the 3 units integrate together to achieve the broad aims of semester A. The PHTY 801 component is worth 20% and the questions related to this component will be clearly labelled. This exam will test students' understanding of all content delivered in this unit of study. It will rely heavily on case studies and the application of knowledge to simple cases.

On successful completion you will be able to:

- Explain the biomechanical characteristics of breathing and performance of everyday activities such as rolling, getting out of bed, sitting, standing up, standing, walking, reaching actions and manipulation in healthy persons across the lifespan.
- Demonstrate proficient knowledge of anatomy and use of surface anatomy to accurately describe and analyse breathing and everyday activities.
- Observe and identify adaptive behaviours during the performance of everyday activities in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.
- Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.
- Generate hypotheses about the likely impairments causing adaptive behaviours during everyday activities in persons with pathological conditions.
- Design a program to enhance motor learning and performance that is specifically tailored to the person's goals and health status.
- Explain the relationship between movement and the somatosensory nervous system for those with pain.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

Mastery of Clinical Skills

Due: **Continuous**

Weighting: **0%**

Students will be required to demonstrate mastery of 10 specified key clinical skills. Students will be responsible for ensuring that their tutor assesses their competence on the 10 skills during the semester. When students demonstrate competency in a skill the tutor will sign their mastery registry. The Master Registry will form part of students' professional portfolio which they will assemble over the program.

On successful completion you will be able to:

- Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.
- Design a program to enhance motor learning and performance that is specifically tailored to the person's goals and health status.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

Delivery and Resources

Unit Organisation

This is a four credit point unit run over a 13 week session. Each week there is a two hour lecture and a two hour tutorial. Further information is available via the PHTY801 iLearn site <http://ilearn.n.mq.edu.au>

Assumed knowledge

This unit assumes that you have comprehensive knowledge of anatomy and physiology. You should compare your knowledge against the 3 independent learning modules for functional anatomy (these were sent to you via email with the Induction Manual and are also available on the generic iLearn site). If you do not have adequate knowledge in this area you should work through these independent learning modules as a high priority. The learning modules suggest helpful resources.

Teaching and Learning Strategy

This unit will have a 2 hour lecture and 2 hour tutorial every week. Lectures will provide foundation knowledge and also use large group demonstrations and discussion, enabling students to use tutorial time efficiently to practice observation, assessment and prescription of programs to improve performance of everyday activities and breathing. The teaching approach will be based on students developing a deep understanding of principles and the ability to independently solve problems, with the expectation that students can then translate this knowledge to different scenarios (e.g. patients with similar activity limitations but different diagnoses).

Textbooks & Readings

Essential

This unit does not have any textbooks that are essential for you to purchase.

Recommended

The following texts will be useful resources and available in the library reserve.

Recommendations about specific readings from these and other resources (such as research papers, books, websites and videos) will be listed on iLearn.

- Carr JH and Shepherd RB (2010) *Neurological rehabilitation: Optimizing motor*

performance (2nd ed). Elsevier Health Sciences

- Carr JH and Shepherd RB (2003) *Stroke rehabilitation: Guidelines for exercise and training to optimize motor skill. Oxford: Butterworth Heinemann.*
- Magill RA (2011) *Motor Learning and Control: Concepts and Applications (9th ed). New York: McGraw Hill*
- Oatis CA (2009) *Kinesiology: The mechanics & Pathomechanics of Human Movement (2nd Ed). Baltimore: Lippincott Williams and Wilkins*
- Pryor JA and Prasad SA (2008) *Physiotherapy for Respiratory and Cardiac Problems (4th ed). London: Churchill Livingstone Elsevier.*

Attendance

All lectures and tutorials are scheduled in your individual timetable. You may make a request to your tutor to attend a different tutorial on a one-off basis for extenuating circumstances. In most cases lectures are recorded however, attendance is expected at both lectures and tutorials, as this is where the majority of learning occurs. Failure to attend may impact your final results. It is the responsibility of the student to contact their tutor by email to inform tutors if they are going to be absent. The timetable for classes can be found on the University web site at: <http://www.timetables.mq.edu.au/>

Technology and Equipment

On-campus

Teaching rooms are equipped with state of art audio-visual and ICT equipment including iPads, internet connection, high quality video cameras and multiple LCD screens. Students will use a range of physiotherapy specific equipment typically used in the assessment and management of people with a range of health conditions.

Off-campus

Should you choose to work off campus you will need to have access to a reliable internet connection in order to retrieve unit information & at times to submit assessment tasks via iLearn.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The*

Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Explain the biomechanical characteristics of breathing and performance of everyday activities such as rolling, getting out of bed, sitting, standing up, standing, walking, reaching actions and manipulation in healthy persons across the lifespan.
- Observe and identify adaptive behaviours during the performance of everyday activities in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.
- Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.
- Generate hypotheses about the likely impairments causing adaptive behaviours during everyday activities in persons with pathological conditions.
- Design a program to enhance motor learning and performance that is specifically tailored to the person's goals and health status.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

Assessment tasks

- Practical/Viva Examination
- Written Examination 1
- Written Examination 2
- Mastery of Clinical Skills

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Explain the biomechanical characteristics of breathing and performance of everyday activities such as rolling, getting out of bed, sitting, standing up, standing, walking, reaching actions and manipulation in healthy persons across the lifespan.
- Demonstrate proficient knowledge of anatomy and use of surface anatomy to accurately describe and analyse breathing and everyday activities.
- Observe and identify adaptive behaviours during the performance of everyday activities in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.
- Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.
- Generate hypotheses about the likely impairments causing adaptive behaviours during everyday activities in persons with pathological conditions.
- Design a program to enhance motor learning and performance that is specifically tailored to the person's goals and health status.
- Explain the relationship between movement and the somatosensory nervous system for those with pain.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

Assessment tasks

- Quiz
- Practical/Viva Examination
- Written Examination 1
- Written Examination 2
- Mastery of Clinical Skills

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Explain the biomechanical characteristics of breathing and performance of everyday activities such as rolling, getting out of bed, sitting, standing up, standing, walking, reaching actions and manipulation in healthy persons across the lifespan.
- Demonstrate proficient knowledge of anatomy and use of surface anatomy to accurately describe and analyse breathing and everyday activities.
- Observe and identify adaptive behaviours during the performance of everyday activities in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.
- Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.
- Generate hypotheses about the likely impairments causing adaptive behaviours during everyday activities in persons with pathological conditions.
- Design a program to enhance motor learning and performance that is specifically tailored to the person's goals and health status.
- Explain the relationship between movement and the somatosensory nervous system for those with pain.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

Assessment tasks

- Quiz
- Practical/Viva Examination
- Written Examination 1
- Written Examination 2
- Mastery of Clinical Skills

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

- Explain the biomechanical characteristics of breathing and performance of everyday

activities such as rolling, getting out of bed, sitting, standing up, standing, walking, reaching actions and manipulation in healthy persons across the lifespan.

- Demonstrate proficient knowledge of anatomy and use of surface anatomy to accurately describe and analyse breathing and everyday activities.
- Observe and identify adaptive behaviours during the performance of everyday activities in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.
- Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.
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- Explain the relationship between movement and the somatosensory nervous system for those with pain.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

Assessment tasks

- Quiz
- Practical/Viva Examination
- Written Examination 1
- Written Examination 2

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcomes

- Explain the biomechanical characteristics of breathing and performance of everyday activities such as rolling, getting out of bed, sitting, standing up, standing, walking, reaching actions and manipulation in healthy persons across the lifespan.
- Observe and identify adaptive behaviours during the performance of everyday activities

in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.

- Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.
- Generate hypotheses about the likely impairments causing adaptive behaviours during everyday activities in persons with pathological conditions.
- Design a program to enhance motor learning and performance that is specifically tailored to the person's goals and health status.
- Explain the relationship between movement and the somatosensory nervous system for those with pain.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

Assessment tasks

- Practical/Viva Examination
- Written Examination 1
- Written Examination 2
- Mastery of Clinical Skills

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcomes

- Observe and identify adaptive behaviours during the performance of everyday activities in those with common musculoskeletal, neurological and cardiorespiratory pathologies by using the characteristics of optimal performance as a model.
- Demonstrate competency in the appropriate selection of measurement tools and measurement of human performance including strategies to enhance the reliability and validity of specific measurement procedures.
- Generate hypotheses about the likely impairments causing adaptive behaviours during everyday activities in persons with pathological conditions.
- Design a program to enhance motor learning and performance that is specifically tailored

to the person's goals and health status.

- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

Assessment tasks

- Practical/Viva Examination
- Written Examination 1
- Written Examination 2
- Mastery of Clinical Skills

Changes from Previous Offering

No substantial changes are planned for this unit in 2015.