

PHTH 641 TOPICS IN CARDIORESPIRATORY REHABILITATION

Credits: 3

Prerequisites: PHTH 552 Cardiorespiratory Rehabilitation

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Guest lecturers: To be announced

Time of Lectures: Fridays 8:30-11:30 am

Course Structure: This course consists of one three (3) hour class per week over a 13 week semester, comprising lecture, seminar or on-site seminar.

Course Description: Exploration of new research concepts related to cardiorespiratory rehabilitation outcome measures and treatment techniques used in the management of patients with various medical, surgical, neurological and cardiorespiratory conditions.

This three-credit course, open to Physical Therapy students in the MSc (Applied) in PT and MSc. (Rehab.Sc.) programs, will build on previous theoretical and practical knowledge with enhanced emphasis on clinical reasoning and appraisal skills of current clinical practice in cardiorespiratory rehabilitation.

Online Course Evaluations: Students are strongly encouraged to complete the online course evaluations at the end of the term. Data obtained from these evaluations are used to provide instructors with feedback as well as for identifying situations where a course or instructor needs assistance. The feedback and suggestions contained in the responses are highly valued and helpful in ensuring that instructors make appropriate changes to courses as needed in order to facilitate student learning.

Learning Outcomes: On completion of this course, the students will be able to:

1. Evaluate from a clinical and research perspective the practical aspects and metric properties of selective cardiorespiratory outcome measures used to assess and re-

evaluate on an on-going basis patients with acute and chronic medical and surgical disorders.

2. Explain the principles and procedures of respiratory muscle strength and endurance testing as well as training in patients with medical, surgical, neurological and cardiorespiratory disorders using knowledge of evidence-based practice.
3. Evaluate the use and effectiveness of various treatment techniques and mechanical devices for secretion clearance in patients with various conditions based on clinical reasoning and recent research findings.
4. Discuss current physiotherapy treatment approaches and the role of the physiotherapist as a team member in providing client-centered care to patients with specific conditions in the critical care setting.
5. Evaluate the use of specific adjunct therapies used during exercise training in pulmonary rehabilitation programs.
6. Develop cardiopulmonary rehabilitation programs with specific, measurable, and realistic goals for patients with various complex conditions using clinical reasoning and evidence-informed practice.
7. Apply skills in literature searching, information retrieval, and critical appraisal to (i) update knowledge of clinical conditions/procedures and (ii) evaluate the effectiveness of physiotherapy treatment techniques.

Course Content: List of topics to be covered

1. Cardiorespiratory outcome measures:
 - Baseline and activity related dyspnea
 - Respiratory and cardiac disease specific health-related quality of life measures.
 - Functional and physical activity measures
 - Secretion clearance: cough, sputum volume/weight, pulmonary function measures, exacerbations
 - Direct and indirect measurement of chest wall motion and diaphragm excursion: respiratory inductance plethysmography, fluoroscopy, ultrasound, optoelectronic plethysmography

- Breathing pattern and dynamic end-expiratory lung volume assessment: pneumotachograph
- Respiratory mechanics: transdiaphragmatic, abdominal and intrathoracic pressures.
- Maximum inspiratory and expiratory mouth pressures, assessment of respiratory muscle endurance, magnetic stimulation of the respiratory muscles
- Electromyography of the respiratory muscles

2. Advanced topics in acute cardiopulmonary physiotherapy

- Manual hyperinflation, suctioning
- Positioning
- Early mobilization, limb exercises
- Novel modes of mechanical ventilation, patient-ventilator interaction

3. Cardiopulmonary rehabilitation

- Inspiratory muscle training in patients with COPD, neurological (spinal cord injury, ALS, MS) and cardiac conditions.
- Adjunct modalities for exercise training: supplemental oxygen, bronchodilators, heliox, non-invasive mechanical ventilation.
- Aging: exercise responses and modification of the training program
- Complex conditions: advanced COPD, pulmonary fibrosis, cancer, osteoporosis.

Instructional Methods:

Lecture: didactic lecture with power point presentations uploaded on WebCT

Seminars: case-based learning for refinement of clinical reasoning and problem-solving skills and hands-on practical sessions at various research/clinical venues.

Course Materials: Links to assigned readings will be posted on WebCT and/or placed on reserve in the McIntyre medical library. Students are expected to have read the assigned readings prior to class and to be prepared to participate in class discussions.

Student Assignment and Evaluation:

- Written assignment: 30% (individual written 5-6 page critical review of an assigned pulmonary physiotherapy technique)
- Case presentation: 15% (small group written assignment related to a case-based context)

- Oral presentation: 15% (small group oral presentation of a specific cardiorespiratory outcome measure)
- Written exam: 35% (Individual evaluation implemented during the final exam period)
- Participation in class/CRW: 5% (individual evaluation based on preparation of readings, class discussion and participation at on-site visits)

Special Requirements for Course Completion and Program Continuation:

In order to pass the course, a grade of at least B- (65%) must be obtained as a total course mark. Please refer to Section 3.6 Examinations, of the 2011-2012 [McGill University Health Sciences Calendar](#) for information on University regulations regarding final examinations and supplementals.

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to

Plagiarism/Academic Integrity: "McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/students/srr/honest/ for more information.)

"L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site www.mcgill.ca/students/srr/honest/).

Dress Code: Professionalism with respect to dressing is encouraged throughout the course of the semester in class and during site visits.

Right to submit in English or French written work that is to be graded: In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

“Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant

être noté (sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue)."

Consequences of Not Completing Assignments as Requested: An individual who does not complete a required assignment and who does not have a university-recognized reason for deferral of that assignment will receive a 0 for that portion of the course. Assignments submitted late will be graded but will receive a deduction of 2% per day, including week-ends.

Disability: If you have a disability please contact the instructor to arrange a time to discuss your situation. It would be helpful if you contact the Office for Students with Disabilities at 398-6009 before you do this.