

PHTH 561 INTEGRATED NEUROLOGICAL REHABILITATION

Credits: 5

Prerequisites: Successful completion of PHTH 551 Physical Therapy - Neurological Rehabilitation, given in the Fall semester.

Instructors/Course co-coordinators:

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Other instructors: Anouk Lamontagne, PT, PhD; Jadranka Spahija, PT, PhD; Stefanie Blain Moraes PhD.; Elizabeth Dannenbaum, PT, MSc.; Maria Dritsa, PhD (clinical psychologist); Dominique Gilbert, PT; Allison Jacobson, MSc PT; Tammy Abramovitch-Ostroff, PT; Louise Mallet, Pharm D. Clinical pharmacologist; Michel Danakas, PT; Kathleen Chasse PT. Adriana Venturini, PT, MSc.

All instructors are available through their McGill email accounts, unless otherwise specified in class.

Course Description: This five-credit course pursues the integration of the principles of neurological rehabilitation as applied to complex neurological conditions. Emphasis is on evidence-informed practice, interdisciplinary and client-centered care as well as health promotion and prevention of secondary conditions pertaining to neurological conditions across the lifespan. This practical and problem-based course fosters clinical reasoning skills for the PT assessment and treatment of complex problems and multiple handicaps encountered by adult patients with neurological conditions.

Course Structure: The course includes three classes each week of 3-hour duration. Classes are divided between lectures, clinical reasoning workshops and laboratories. Clinical site visits are included within this time frame.

Learning Objectives: Following attendance and active participation in lectures, labs, CRW's and clinical site visits, the student will be able to achieve the following core

competencies for physiotherapists¹ in the context of physical therapy neurorehabilitation practice for sensorimotor dysfunctions as discussed in this course.

Expert:

1. Recognize key principles of different neurological rehabilitation models and how these are applied to an evidence-informed physiotherapy assessment and treatment of complex neurological conditions across the lifespan. Complex neurological conditions may include multiple handicaps and secondary conditions.
2. Appraise how the motor, cognitive and social domains interact with each in motor learning and throughout the ageing process.
3. Explain the essential pathophysiology and basis for movement dysfunction in conditions such as stroke, head injuries (TBI), movement disorders (Parkinson's disease), vestibular dysfunction, and chronic pain.
4. Demonstrate the components of an evidence-informed, physiotherapy neurological assessment for the conditions listed under objective 3, as well as for the assessment of complex neurological cases.
5. Formulate treatment goals which are objectively measurable, client-centered, functional and demonstrate clinical reasoning based on an integration of assessment findings to reach an appropriate clinical impression using the International Classification of Functioning.
6. Elaborate and justify an evidence-informed treatment plan integrating manual techniques, exercises, rehabilitation technology and biophysical agents (TENS, FES) as well as patient and family education for cases presenting the neurological conditions listed under objective 3.
7. Demonstrate skill and competence in carrying out a treatment for the neurological conditions described under objective 3.
8. Evaluate the effectiveness of a treatment, recognize the need to modify treatment parameters and readjust goals in order to maximize rehabilitation outcomes, and situations that require appropriate referrals, as well as the appropriate timing for ending treatment.
9. Describe the cardiovascular and respiratory pathophysiological alterations that may occur in neurological conditions as well as demonstrate skill and competence in the cardiorespiratory assessment and treatment of complex neurological conditions.

Communicator:

¹ Essential Competency Profile for Physiotherapists in Canada, October 2009.

10. Develop skills in communicating effectively with practicing PTs during clinical site visits by transmitting neuro-assessment results (impairments, activity limitations & participation restrictions), analysis of results, clinical impression/prognosis, treatment goals and intervention plans with skill and competency, using the SOAPIE² framework.
11. Perform neurological assessment and treatments using effective communication tools, information and communication technologies;

Collaborator:

12. Appraise the importance of inter-disciplinary teams in the intervention of multiple handicaps resulting from complex neurological problems.
13. Reflect on how attending to cultural safety contributes to collaborative goal setting and health outcomes.
14. Demonstrate the ability to work collaboratively and effectively to promote inter-professional practice and achieve optimal client care by negotiating and setting goals in collaboration with clients and/or their families, and to prevent, manage and resolve conflicts by respecting the beliefs, perspectives and values of each person.

Manager:

15. Demonstrate the capacity to manage time, resources, and priorities, safely, in both individual and overall practice in neurorehabilitation.
16. Appraise innovative rehabilitation technologies and promote leading edge approaches in neurorehabilitation.

Advocate:

17. Describe and apply principles of health promotion and prevention of secondary conditions as key aspects of neurorehabilitation.

Scholarly Practitioner:

18. Comprehend the latest evidence-informed concepts and philosophies of individualized care including prevention, restoration, remediation, compensation, maintenance, health promotion and self-management.

Professional:

20. Develop and refine professional behaviours that contribute to becoming a physical therapist. eg: conducts self within legal and ethical standards within the class and during clinical site visits, accepts responsibility and is accountable for own actions, respects dignity and autonomy of clients as well as the health care environment.

Course Content:

² S = subjective, O = objective, A = assessment/analysis, P = plan, I = Intervention, E = evaluation of effectiveness

Refer to MyCourses for details of weekly schedule and content. Below is an outline of major topics discussed.

1. Review of PHTH551 final OSCE to enhance clinical reasoning (CRW)
2. Motor Control and Theoretical frameworks in neurorehabilitation (lecture)
3. Stroke rehabilitation: general principles & approaches (lectures) and Stroke assessment & treatment (labs)
4. Self-management of chronic diseases & health promotion (CRW)
5. Assessment and management of movement disorders such as Parkinson's disease
6. Advanced balance & mobility (lab)
7. Advanced sensory & UE functional tests (lab)
8. Traumatic brain injury: assessment and treatment
9. Neurological physiotherapy intervention in acute care, intensive functional rehabilitation & complex neurological cases – eg: TBI(three clinical site visits)
10. Integration of PT rehabilitation concepts for cardiorespiratory/ neurotrauma cases - case analysis (CRW) and SCI cardiorespiratory techniques for secretion clearance (lecture/lab)
11. Acute neuro/ICU mobilizing, positioning (lab/Simulation Centre)
12. Assessment and management of chronic pain conditions (lecture & CRW)
13. Principles of functional electrical stimulation and sensory electrical stimulation (TENS) and applications of (functional) muscle electrical stimulation and TENS (Labs)
14. Vestibular rehabilitation (two sessions lecture & lab)
15. Assistive technologies in rehabilitation (lecture & assignment)
16. Cognitive rehabilitation (lecture)
17. Geriatric rehabilitation/Pharmacology (lecture & CRW)
18. Advanced Spinal Cord Injury (CRW & lab)
19. OSCE preparation (Mock OSCE & lab)

Instructional Methods:

Lecture: Didactic lectures with assigned readings and power point presentations available through MyCourses.

Labs: Hands-on practical skill laboratories for clinical assessment and some basic treatment techniques. Preparatory work/reading is required. Attendance is compulsory.

Clinical reasoning workshops (CRW): Generally case-based workshops where problem-solving skills are practiced. Preparatory work/reading is required. Attendance is compulsory.

Clinical site visits: Students visit an acute care centre (McGill University Health Centre) and a rehabilitation centre (Jewish Rehabilitation Hospital, Institut de Réadaptation Gingras-Lindsay de Montreal (IRGLM), Centre de Readaptation Constance Lethbridge,

Villa Medica, Richardson Hospital or Centre de Readaptation Lucie Bruneau to participate in the assessment and treatment of stroke, TBI, and other adult neurological conditions. The visits are facilitated in small groups by practicing physical therapists. Students prepare a clinical report based on the visit.

The course IPEA 501 called Communication in Interprofessional Teams takes place within PHTH 561 class-time. Each student will attend one session.

Open labs: The opportunities for optional open labs take place after spring break and are dependent on the class schedule. When they occur students will be able to practice learned hands-on skills in the presence of clinical instructors or teaching assistants.

Course Materials:

Required textbooks: Can be purchased through the McGill bookstore. The first textbook is also required for PHTH 551.

- Shumway-Cook, A. and Woollacott, M. (2016). *Motor Control: Translating Research into Clinical Practice*. (5th ed.) William & Wilkins
- Lennon, Sheila, Stokes Maria (2009) *Pocketbook of neurological physiotherapy*. Churchill Livingstone Elsevier
- Coursepack available at the McGill bookstore.

Recommended

- Umphred, D.A. (2007) (Ed.) *Neurological Rehabilitation* (5th ed) St. Louis: Mosby Elsevier.

For your interest: Manual describing the Chedoke-McMaster Stroke Assessment. Available at the McGill bookstore.

Copyright of course materials: Instructor generated course materials (e.g., handouts, notes, summaries, exam questions, etc.) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.

Student Assignment and Evaluation (final version to be presented the first day of class)

Assignment/evaluation	%
Final OSCE	50
Group written assignment	10
Test 1	12.5
Test 2	12.5
Reading assessment tests/ PEP (4@2.5%)	10
Site visits – clinical reports (two of three reports graded)	5

Special Requirements for Course Completion and Program Continuation: For U3 students, in order to pass the course, a grade of at least C+ (60%) must be obtained as a total course mark. For QY students, in order to pass the course, a grade of at least B- (65%) must be obtained as a total course mark. Please refer to the appropriate sections in both undergraduate and graduate calendars on University regulations regarding final and supplemental examinations.

This course falls under the regulations concerning theoretical and practical evaluation as well as individual and group evaluation. Please refer to the section on marks in the Rules and Regulations for Student Evaluation and Promotion.

PHTH 551 and PHTH 561 need to be successfully completed before attending a **clinical placement**.

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](#).

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](#)

Dress Code: Students are expected to demonstrate professional behavior and wear appropriate attire at all times. During lab sessions students are expected to be dressed appropriately for practicing and demonstrating clinical skills.

Attendance: Students who have missed more than 15% of laboratory sessions, clinical reasoning workshops or clinical site visits without a university-sanctioned reason for their absence, will see their final course mark reduced by 10%. Please refer to the section on attendance in the Rules and Regulations guide.

Right to Submit in (English or in) French: 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. (approved by Senate on 21 January 2009)

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

Learning environment: As instructors of this course we endeavor to provide an inclusive learning environment. However, if you experience barriers to learning in this course,

do not hesitate to discuss them with us and the [*Office for Students with Disabilities*](#), 514-398-6009. Please contact the course coordinators to discuss your situation.

Professional Conduct: Professionalism and accountability are expected throughout the course of the semester. This includes the on-going respectful nature of teacher-student as well as student-student interactions. Please refer to **Code of Professional Conduct for Physical Therapy Students** <http://www.mcgill.ca/spot/programs/pt/bsc-rehabilitation-science> under Student Information

Technology in class: Refrain from using your instructional electronic tools (eg: laptop, tablets or cellphone) for social purposes in class. Be respectful of the clinical environment during clinical sites visits and do not use cellphones, tablets, laptops during a site visit.

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