Dep. of KINESIOLOGY and PHYSICAL EDUCATION
McGill University

EDKP-449 Pathophysiology II (3 credits)

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Office Hours (Dr GENTIL): at the end of class
From https://mcgill.zoom.us/j/6268950613

Course Outline
Winter 2021

Lectures:
Tuesdays and Thursdays
2:35-3:55 pm

I. COURSE DESCRIPTION

This course reviews the pathophysiology of selected clinical disorders involving skeletal muscle dysfunction, with a particular focus on the integrative physiological response to acute and chronic exercise. The scientific basis of how the disease process impacts the ability to exercise is reviewed. In addition, we will address whether exercise training can positively impact the disease process itself and/or whether exercise training can reverse some of the effects of physical inactivity that is associated with chronic conditions. Special emphasis will also be put on novel exercise-based interventions and their scientific rationale.

II. OBJECTIVES

1) To acknowledge and understand the essential elements of pathophysiology of selected disorders affecting skeletal muscle function in humans
2) For each disorder, to acknowledge and understand the impact of the pathological condition on the acute response to dynamic and resistance exercise
3) For each disorder, to acknowledge and understand the positive and potentially negative effects of chronic exercise (training) on the disease process
4) For each disorder, to apply the knowledge of the exercise response and limitations into the design and implementation of exercise programs for therapeutic purposes

III. RECOMMENDED READINGS

•Skeletal muscle structure, function and plasticity – the physiological basis of rehabilitation. Richard L. Lieber, 3rd edition. 2010: Lippincott Williams & Wilkins (Chapters 1,2,4,5 and 6)

- Clinical Exercise Physiology (3e) Ehrman, Gordon, Visich, Keteyian. 2013: Human Kinetics
- ACSM Exercise Management for Persons with Chronic Diseases and Disabilities (3e) 2009: Human Kinetics
- Journal articles: TBA

IV. COURSE REQUIREMENTS

1) **Midterm** (as a quiz on MyCourses) 25%
2) **Research topic** 30% (20% for Research Paper, 10% for Infographic)

3) **Practical cases** 10 % will be assessed by an assignment consisting of answering a short answer question related to the course. The test will be available on MyCourses. Identified as QUIZ
4) **Final Exam** (during exam period) 35%
   Consists in a MCQ exam covering all the material of this course. The test will be available on MyCourses.

If you cannot attend a class to hand in a report, please email Dr. GENTIL (benoit.gentil@mcgill.ca) prior to the lab. Reports received after class will be considered late. Late assignments will incur a penalty: 1 day late = -10%, 2 days late = -30%. Papers received > 2 days after the specified due date will be marked as a zero (0). Unjustified absence will incur a penalty of 10% on all lab reports.

Research Topic:
Students, in teams of 3 to 4 per group, will work collectively to prepare a presentation on the topic of an exercise treatment for a disease condition associated with skeletal muscle dysfunction. Through a review of the literature, combined with theoretical knowledge learned throughout this course (and perhaps others), you will propose a unique treatment strategy based on exercise or exercise-related adaptation for one of the neuromuscular conditions covered in class or a condition related to that covered in class. This treatment strategy can NOT be conventional endurance or resistance training, or exactly the same as a strategy covered in one of the class lectures; but it can be a variant of what has been discussed, or it can be an exercise mimetic that affects a cellular signalling pathway involved in exercise adaptation. You will prepare a summary of your intervention (10 pages) and an infographic presentation (poster with a 3-minute talk format).

Your topic (disease condition and strategy) is due on Jan 29th, 2021; after which you will receive feedback and/or approval from the course instructor during the following week.

Grading

Grades	Grade Points	Numerical Scale
A	4.0	85 – 100%
A-	3.7	80 – 84%
B+	3.3	75 – 79%
B	3.0	70 – 74%
B-	2.7	65 – 69%
C+	2.3	60 – 64%
C	2.0	55 – 59%
D	1.0	50 – 54%
F (Fail)	0	0 – 49%

V. INSTRUCTIONAL METHODS

Lecture: Didactic lectures with assigned readings and PowerPoint presentations available through MyCourses.
Research articles: Case-based workshops where problem-solving skills are practiced. Several laboratories require previous preparation.
Right to write 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 - see also the section in this document on Assignments and evaluation.)* Knowledge of a language is not an object of this course. However, spelling will be considered as well as quality of your writing and may influence your grade.

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VI. Course Content: *Calendar (subject to minor changes)*

	lectures		*Review/questions*	
wk	**date**	**Tu 2:35pm to 4:00 pm**	**date**	**Th 2:35pm to 4:00 pm**
1	1/12	Introduction	1/14	Review (optional)
2	1/19	Genetics and epigenetic (Dr Gentil BJ)	1/21	Information session for Research Paper (live)
3	1/26	Myasthenia Gravis (Dr Gentil BJ)	1/28	Review (optional) Deadline for Research Topic
4	2/2	Guillain-Barré (Dr Gentil BJ)	2/4	Review (optional)
5	2/9	Amyotrophic Lateral Sclerosis (Dr Gentil BJ)	2/11	Review (optional)
6	2/16	Charcot-Marie-Tooth disease (Dr Gentil BJ)	2/18	QUIZ
7	2/23	Multiple Sclerosis (Jamie Lov)	2/25	Midterm (48h window)
8	3/2	**Study Week (No Class)**		
9	3/9	PCOS (Dr Usselman C)	3/11	Information session for Infographic (live)
10	3/16	'The strongman syndrome' (Dr Gentil BJ)	3/18	Review (optional)
11	3/23	Muscular Dystrophy (Dr Gentil BJ)	3/25	Review (optional)
12	3/30	Skeletal muscle biology (Dr Gentil BJ)	4/1	Research Topic: 3 min. glory (due date and presentation)
12	4/6	Inflammation and skeletal muscle (Dr Gentil BJ)	4/8	Review (optional)
13	4/13	Muscle damage (Jamie Lov)	4/15	QUIZ
14		Timed Final exam (48h window)		

VII. Academic integrity

McGill University values academic integrity. http://www.mcgill.ca/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. http://www.mcgill.ca/integrity *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/*

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

For religious holidays, please consult McGill policy. http://www.mcgill.ca/importantdates/holy-days-0/policy-holy-days

"Additional policies governing academic issues which affect students can be found in the McGill Charter of Students' Rights (The Handbook on Student Rights and Responsibilities is available at www.mcgill.ca/files/secretariat/Handbook-on-Student-Rights-and-Responsibilities-2010.pdf)."

VIII. Remote delivery.

This course will use a remote delivery format for the fall semester. The remote learning context presents new challenges for all involved, and student engagement is of particular concern. This course is designed to consider the challenges that students may be experiencing due to the pandemic and is committed to providing a supportive learning environment. Please visit the following links related the remote delivery of this course: Student-specific Guidelines for Remote Teaching and Learning and Remote Learning Resources.

Students' consent to being recorded: Please read the Guidelines on Remote Teaching and Learning [https://www.mcgill.ca/tls/instructors/class-disruption/strategies/guidelines-remote] and the course outline for this course in myCourses. You will be notified through a 'pop-up' box in Zoom if a lecture or portion of a class is being recorded. By remaining in sessions that are recorded, you agree to the recording, and you understand that your image, voice, and name may be disclosed to classmates. You also understand that recordings will be made available in myCourses to students registered in the course.

Please note that this format for the delivery of this course is unusual. It is explained by our current extraordinary circumstances, and aims to allow you, as students, to complete this term with the requisite knowledge for this course, and to succeed in your assessments. I ask for everyone's collaboration and cooperation in ensuring that the videos and associated material are not reproduced or placed in the public domain. This means that each of you can use it for your own personal purposes, but you cannot allow others to use it, by putting it up on the internet or by giving it or selling it to others who will copy it and make it available. Thank you very much for your help with this.