

School of Kinesiology
Faculty of Health Sciences
Western University

KIN 4420B - Impact of Exercise During Pregnancy on Chronic Disease Risk
Winter 2024

Instructor: Dr. Michelle Mottola, Director
R Samuel McLaughlin Foundation
Exercise & Pregnancy Lab
place due to COVID we will move to live online
activities.

Learning Objectives: Upon completion of this course students will:

- 1) Gain knowledge and understanding of different theories of fetal origins of adult diseases.
- 2) Gain knowledge and understanding of current research in the area of exercise during pregnancy for a low-risk pregnant population.
- 3) Gain knowledge and understanding of current research in the area of how exercise during pregnancy can prevent or be used to treat different disease states.
- 4) Engage in seminar discussions, present orally on a research paper to the class and to evaluate the research literature critically.
- 5) Create and implement an exercise and lifestyle intervention for active low risk pregnant individuals and pregnant individuals with disease risk.

Topics for Discussion :

- 1) Developmental Origins of Adult Diseases
- 2) Developmental Origins of Adult Diseases
- 3) DOHaD and adult diseases that may have origin from fetal life.

Group Presentations to the Class :

Each student will work with their group of 3 to choose one research paper from the literature (on approval of Professor) and present it to the class for 10 minutes, followed by 5 minutes of questions. The professor and GTA will evaluate the presentation. Each group of 3 students will pick a time to present on one of the following 2 days:

March 25th and April 1st, will be designated as Student presentation days .

Course Evaluation:

Assignments are due as stated in the course syllabus and will not be accepted late, except under medical or other compassionate circumstances. Submitting a late assignment without appropriate documentation will result in a zero (0) grade. Missing a group presentation without reason will result in a zero (0) grade to the individual who missed. If an academic accommodation/consideration has been granted for an individual who missed their group presentation, an alternative can be discussed with the professor. Acceptable reasons might include hospital stays, serious illness, family emergencies (like serious accidents, illness or death) or similar circumstances.

Mandatory Readings (*Preliminary List*): All required readings will be posted on OWL

Jan. 8, 2024 Topic Introduction

Jan. 15, 2024 Topic -
Reading(s):

- 1) Ackerman J. 2006. The downside of upright. National Geographic. 210(1):126-145.
- 2) Mitteroecker P, et al. 2016. Cliff-edge model of obstetric selection in humans. Proc Natl Acad Sci 113(51):14680-14685.
- 3) Grossman, R. 2017. Are human heads getting larger? Proc Natl Acad Sci 114(8):E1304. (Comment to Mitteroecker et al. 2016)
- 4) Mitteroecker P, et al. 2017 The role of natural selection for the increase of Caesarean section rates. f 1 0 0 1 164.9 495.19 Tm 0 g 0 G [-00B1>] TJ ET Q q 0.0f 1 1 10.56

Feb. 5, 2024 Topic

Readings :

13) Martin-Gronert M, Ozanne SE. 2013. Early life programming of obesity. Dev Period

Mar. 11, 2024

restricted to recreational to the elite athlete and

from activity

using exercise and lifestyle interventions to

Readings :

- 29) Palacio M, Mottola MF. 2023. Activity restriction and hospitalization in pregnancy: Can bed-rest exercise prevent deconditioning? A narrative review. *Int J Environ Res Public Health* 20:1454-1464.
- 30) Anderson J, Pudwell J, McAuslan C, et al. 2021 Acute fetal response to high-intensity interval training in the second and third trimesters of pregnancy. *Appl Physiol Nutr Metab* 46:1552-1558.
- 31) Mottola, MF 2015. Pregnancy, physical activity and weight control to prevent obesity and future chronic disease risk in both mother and child. *Curr Wom Health Rev* 11:31-40.
- 32) Bø K, Artal R, Barakat R et al. 2018. Exercise and pregnancy in recreational and elite athletes: 2016/2017 evidence summary from the IOC expert group meeting,

B) Re-submission of Previously Graded Material

Without the explicit written permission of the instructor, you may not submit any academic work for which credit has been obtained previously, or for which credit is being sought, in another course or program of study in the University or elsewhere.

C) Use of Statistical Pattern Recognition on Multiple Choice Exams

Computer marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

3. Electronic Device Usage:

During Exams - Unless you have medical accommodations that require you to do so, or explicit permission from the instructor of the course, you may not use any electronic device during tests, quizzes, midterms, examinations, or other in-class evaluations.

During Lectures and Tutorials: Although you are welcome to use a computer during lecture and tutorial periods, you are expected to use the computer for scholastic purposes only, and refrain from engaging in any activities that may distract other students from learning. From time to time, your professor may ask the class to turn off all computers, to facilitate learning or discussion of the material presented in a particular class. Unless explicitly noted otherwise, you may not make audio or video recordings of lectures nor may you edit, re-use, distribute, or re-broadcast any of the material posted to the course website.

4. Academic Considerations and Absences from Lectures and Assessments

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request (in writing) any necessary academic considerations at least two weeks prior to the holiday to the academic counsellors in their Home Department. Additional information is provided in the [Western Multicultural Calendar](#).

Academic Accommodation

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. Students with ongoing accommodation needs within this course are also encouraged to contact [Accessible Education](#), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found [here](#).

Academic Consideration

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on occasion, be impaired by extenuating circumstances that are medical or compassionate in nature. These extenuating circumstances may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. In all cases, students are advised to consult with the academic counsellors in their home units, at their earliest opportunity. Academic counsellors may refer students to [Accessible Education](#) for ongoing academic accommodations.

Most forms of academic consideration require documentation, and this documentation is to be submitted to academic counsellors within five (5) business days of their return to academic

UHVSQRVLELOLWLHV \$Q\ VXFGRFXPHQWV ZLOO EH UHWDLQHG LQ FRQILGHQFH LQ DFFRUGDQFH [Official Student Record & Information Privacy Policy](#).

Once the petition and supporting documents have been received and assessed, appropriate academic considerations shall be determined by academic counseling, in consultation with the VWXGHQW\ V LQVWUXFWRU V \$FDGHPLF FRQVLGHUDWLRQV PDL\ LQF attendance requirements for classes/labs/tutorials, arranging Special Exams or Incompletes, re-

