

Course description

A carefully prescribed exercise program has emerged as an important modality employed in the treatment of a variety of diseases and chronic conditions. There is currently an expanding scientific base of objective data on the methods and outcomes of exercise therapy for a variety of cardiovascular, respiratory, metabolic and immunological diseases/disorders. This course will provide an opportunity to survey the theoretical basis and empirical evidence supporting, or refuting, chronic exercise therapy for common cardiovascular, respiratory, metabolic and immunological diseases. The physiological adaptations to the cardiorespiratory, neuroendocrine and musculoskeletal systems in a variety of pathological conditions will be the focus of this course. Students will be required to actively participate in a seminar format style and to critically discuss the selected research topics.

Guidelines for presentation:

Each student will be asked to help facilitate (lead) 4 presentations with a partner (all “team” work).

Each facilitation session (done via PowerPoint or Prezi) will take up ½ of each class (i.e. ~60 minutes). Then we will have a 15 minute break for the next group to get organized, etc.

For each presentation, group A will provide:

- 1) An introduction to condition (descriptions, definitions, terms, potential case study, etc.)
- 2) The epidemiology of the disease/condition (a few slides, any age or gender or racial differences, etc.)
- 3) The pathophysiology (10-15 minutes, no more than 10 slides)
- 4) Proposed mechanisms for how exercise might be beneficial (without showing any RCTs)- (10-15 minutes, no more than 10 slides)

Note: A debate, a problem based question, a game or some other group learning experience (10-15 minutes) will get things lively and get you extra praise...

For the second part of the course, group B will focus on observational studies and RCTs in which exercise was shown to help with the disease or condition. This serves two basic purposes. Learning about study designs and strengths and weaknesses of the research area. And helps to demonstrate scientifically the efficacy of exercise on the disease/condition and any other interesting outcomes (risks, benefits, etc.). Group B must

provide M Riddell with the pdf of the one selected research paper that the class should read (and that paper should be a primary focus of the presentation).

Important:

Research papers will be uploaded to Moodle. Do not select a review paper. It is Ok if the exercise intervention did not work. We can always debate why it did or did not work.

Grades will be awarded based on presentation style, information detail and your ability to get the audience involved.

Each group presentation will be given one grade out of 100% (all members of the group will get the same grade).

4 group presentation grades at 20% each =80%
One overall participation grade= 20%

Expectations for the participants in the class:

- 1) Attend the class
- 2) Read the one research paper provided for each topic
- 3) Research on their own time enough to understand the disease pathophysiology (~20-30 minutes)
- 4) Ask probing questions or debate challenging issues.

Examples:

- 1) “I don’t think exercise is a reasonable approach to obesity since the evidence suggests that it does little to lower body weight according to a recent meta analysis that I found.”
- 2) “Why is it that exercise lowers resting blood pressure in persons with hypertension, when exercise itself raises blood pressure? “
- 3)” Does exercise influence the beta cell mass of the pancreas directly or indirectly in persons with gestational diabetes?”

Also remember to get involved and volunteer to answer problem based questions posed by the presenters.