

MASTER I IDRETTSMEDISIN 2025/2027

MASTER I IDRETTSFYSIOTERAPI 2025/2027

INDIVIDUAL HOME EXAM

IN

MA 453- PHYSICAL ACTIVITY AND HEALTH

Information

Start of exam: Monday March 9. 2026 at 12.00 p.m

Final deadline: Monday March 23. 2026 at 2.00 p.m. in WISEflow

The submission must be in pdf format.

Aids: When using AI tools

According to APA-7 in the chapter on AI-generated text, you should briefly describe how you have used the tool. In addition, you should attach a screenshot of your chat as an attachment.

From Evidence to Guideline: The Basis for Sedentary Behavior Recommendations

Assignment 1

Unlike the specific FITT (Frequency, Intensity, Time, Type) principles for physical activity, the recommendations for sedentary behavior are often less specific, simply advising to "reduce" and "break up" sitting time.

Task: Critically analyze the evidence base that underpins the current public health guidelines for sedentary behavior. Review and synthesize the key experimental and epidemiological studies that have established sedentary time as an independent risk factor for cardiometabolic diseases, separate from a lack of physical activity, and justify your selection of these papers. Discuss why the guidelines are currently less prescriptive than those for physical activity and discuss the methodological quality, including the strengths and weaknesses, of the evidence used to formulate them. What key research gaps need to be filled to potentially create more specific, dose-response based guidelines for sedentary time in the future?

From evidence to Guideline: Is Total (or overall) physical Activity beneficial?

Assignment 2

The first (unspecific) recommendation from the WHO states that “*all adults should be physically active*” popularized as “*every move counts*”.

Task: Critically analyze the evidence that underpins the evidence that total physical activity is beneficial for health. Review and synthesize the epidemiological studies that have examined the prospective dose-response associations between total physical activity and risk for non-communicable diseases (i.e. cardio-vascular disease, and cancer) and all-cause mortality.

Based on your literature base, discuss factors that may modify or confound the associations between total physical activity and risk for cardio-vascular disease, cancer and all-cause mortality. Critically evaluate and discuss the methodological quality, including the strengths and weaknesses, and the potential biases of the studies you include in your answer.

Female athlete triad REDS

Assignment 3

Eating disorders and disordered eating represent significant health risks for athletes and may negatively affect both health and performance. Describe evidence-based strategies for the prevention of eating disorders in sport, including both primary and secondary prevention approaches. Critically evaluate and discuss the effectiveness and methodological quality of the prevention studies you include.

Female athlete triad REDS

Assignment 4

Low Energy Availability (LEA) and Relative Energy Deficiency in Sport (REDs) appear to occur relatively frequently in certain sports. Explain the relationship between LEA and REDs, and provide an overview of studies that have investigated the prevalence of symptoms of LEA and/or REDs. Critically discuss the methodological quality of the studies you include.

Physical activity and musculoskeletal health

Assignment 5

Briefly describe the evidence base for physical activity and exercise for individuals with low back pain. Document a literature search in which you identify one systematic review and one article categorized as a Clinical Practice Guideline that constitutes an important part of the evidence base and justify your selection of these papers.

Use (1) a reporting checklist and (2) a quality appraisal checklist for the systematic review and the clinical practice guideline identified in your search, respectively. Describe the strengths and weaknesses of the articles based on these checklists, and discuss their methodological quality, including their classification according to level of evidence.

Based on this evidence, describe a case involving a person with low back pain and explain how you would implement physical activity and exercise interventions for this individual.

Physical activity and musculoskeletal health

Assignment 6

Briefly describe the evidence base for exercise for individuals with osteoporosis. Document a literature search in which you identify at least one systematic review that constitutes an important part of the evidence base regarding the effect of exercise on bone health in middle-aged or older individuals with osteoporosis. and justify your selection of this/these paper(s).

Use (1) a reporting checklist and (2) a quality appraisal checklist and describe the strengths and weaknesses of the articles based on these checklists. Further, discuss the methodological quality of the evidence, including the level of evidence for exercise interventions in individuals with osteoporosis.

Based on this evidence, describe a case involving a person with osteoporosis and explain how you would implement exercise interventions for this individual.

Physical activity and lung function

Assignment 7

Understanding and managing dysfunctional breathing patterns

Exercise-induced dysfunctional breathing patterns is common in athletes, but causes are often complex and multifactorial.

- Describe key physiological and clinical mechanisms that may lead to dysfunctional breathing patterns during exercise.
- Describe different symptom-based evaluations and discuss objective diagnostic approaches that can assist in identification of underlying causes and discuss the level of evidence.
- Reflect on consequences of misdiagnosis for treatment, performance, and athlete health.

You must explain how the literature was identified and selected, highlight the most important studies, justify their relevance, and critically assess strengths and limitations in current research. The literature should support your reflections.

Physical activity and lung function

Assignment 8

Overlapping respiratory conditions in exercise

Athletes or physical active people may present with overlapping conditions such as asthma, EIB, EILO, and dysfunctional breathing.

- Describe the similarities and differences of these conditions.
- Describe how these conditions may coexist and interact during exercise. How you objectively can differentiate by testing and discuss the level of evidence.
- Discuss implications of a single diagnosis versus a multidimensional perspective for diagnosis and management.

You must explain how the literature was identified and selected, highlight the most important studies, justify their relevance, and critically assess strengths and limitations in current research. Suggest how future studies can better address this complex field. The literature should support your reflections.

Physical activity, exercise and pregnancy

Assignment 9

Critically evaluate whether the current research literature is sufficiently robust to support clear recommendations regarding higher-intensity exercise and/or heavy resistance training during pregnancy. Discuss the documented effects of such exercise for both the pregnant individual and the fetus/child, including short- and long-term maternal health outcomes, fetal and neonatal outcomes, and any reported adverse events or complications.

Critically discuss the methodological quality of key studies, with particular attention to study design, risk of bias, how exercise intensity and load are defined and measured, the reporting and systematic registration of adverse events, and the external validity and transferability of findings to diverse pregnant populations. Based on this evaluation, discuss the strength of the available evidence, identify important knowledge gaps, and outline implications for clinical recommendations, practice, and future research.

Physical activity, exercise and pregnancy

Assignment 10

Conduct a critical epidemiological analysis of pregnancy-related complaints reported among elite and recreational athletes including a summary and comparison of the reported prevalence estimates between elite and recreational athletes, and analyse differences where data are available. Evaluate whether the existing literature provides sufficient evidence to identify patterns in prevalence across different types of sport. Discuss potential risk factors, including associations with training volume, load, and sport-specific demands. Critically discuss the methodological quality of the included studies, with particular attention to study design, representativeness, definitions and measurement of complaints, precision of prevalence estimates, and risk of bias. Based on this assessment, discuss the extent to which the current evidence base provides a reliable and valid picture of actual prevalence and potential differences in risk.

Physical activity and cancer

Assignment 11

Cancer treatment can be aggressive and long-lasting, and a central consequence is reduced cardiorespiratory fitness. Provide a structured literature review of randomized controlled trials that have examined the effects of exercise on $\text{VO}_2\text{peak}/\text{VO}_2\text{max}$ (measured by CPET) in adult cancer patients undergoing active treatment. Briefly describe the search strategy and inclusion/exclusion criteria. Review and synthesize key studies that constitute an important part of the evidence base, justify your selection of these papers, and critically discuss their methodological quality. Discuss which training principles appear to best counteract declines in $\text{VO}_2\text{peak}/\text{VO}_2\text{max}$ (type, intensity, volume, supervision/follow-up, and timing within the treatment trajectory), as well as feasibility and safety (adverse events/contraindications). Summarize what the overall body of evidence suggests and identify 2–3 clear knowledge gaps and research needs.

Physical activity and cancer

Assignment 12

Cancer surgery entails significant physiological stress, and low physical capacity and reduced muscle strength are associated with increased risk of postoperative complications and delayed functional recovery. Provide a structured literature review of randomized controlled trials that have examined the effects of physical prehabilitation prior to planned cancer surgery in adult patients. Briefly describe the search strategy and inclusion and exclusion criteria. Review and synthesize key studies that constitute an important part of the evidence base, justify your selection of these papers, and critically discuss their methodological quality. Discuss which prehabilitation components appear to have the greatest impact on physiological and functional outcomes, such as $\text{VO}_2\text{peak}/\text{VO}_2\text{max}$, walking tests, or muscle strength, as well as on postoperative clinical outcomes such as complications and length of hospital stay. Discuss the importance of exercise dose, follow-up (personal trainer vs. group-based), and timing within the treatment pathway. Conclude by summarizing what the overall evidence suggests regarding exercise effects and identify 2–3 key knowledge gaps and research needs.