



## Försättsblad Prov Original

Kurskod	Provkod	Tentamensdatum
I V 0 5 6 G	3 0 0 0	2 0 1 9 - 0 3 - 2 9
Kursnamn	Idrottsvetenskap GR (B), Nutrition med inriktning mot idrott	
Provnamn	Moment 3 Tentamen	
Ort	Östersund	
Termin		
Ämne		



**Mittuniversitetet**

MID SWEDEN UNIVERSITY

Kodnr: \_\_\_\_\_

# **EXAM, 4HP**

**VT19**

## **IDROTTSVETENSKAP GR (B) NUTRITION WITH A FOCUS ON SPORTS IV056G**

**Date:** 2019-03-29

**Time:** 5 hours

**Permitted items:** English dictionary (English-Swedish and/or English-German)

**Maximum points:** 60

*You must score at least 50% on each section in order to pass the whole exam.*

A – Outstanding (90%)	54 p
B – Very good (80%)	48 p
C – Good (70%)	42 p
D – Satisfactory (65%)	39 p
E – Pass (60%)	36 p
Fx – Fail; oral re-exam (57-60%)	34-36 p
F – Fail (< 57%)	< 34 p

### **Instructions to students:**

- Answer ALL questions
- Use a separate sheet of paper for each new topic (e.g. 'Digestion', 'Macronutrients' and the long question)
- Remember to write your student number on every piece of paper that you use
- Write legibly and concisely
- Take your time and think about each question carefully

**Course Leader:** Helen Hanstock, 073 060 22 02 / 010 142 8124

**GOOD LUCK!**

# SECTION 1 – SHORT QUESTIONS

## ANSWER ALL QUESTIONS

### DIGESTION (10p)

ANSWER IN ENGLISH OR SWEDISH

1. Name and define two major functions of the gastrointestinal system. (2p)
2. Describe briefly how carbohydrates are broken down and taken up by the body – and in which organs does each stage of the process occur? (3p)
3. Describe the major functions of the large intestine (colon). (2p)
4. What is the function of the enzyme family called **pepsins**? (1p)
5. Dietary fibre contains plant cellulose that resists digestion. What happens to the dietary fibre that we eat and why is it important that we include fibre in our diet? (2p)

## MACRONUTRIENTS (10p)

### ANSWER IN ENGLISH OR SWEDISH

6. **a)** What is the definition of the metabolic syndrome (2 p)  
*Vad är definitionen av det metabola syndromet*
- b)** Explain why an overconsumption of sugar (sucrose) is problematic if you have low insulin sensitivity and are close to having diabetes type 2. (1 p)  
*Förklara varför en överkonsumtion av socker (sackaros) är problematiskt om du har en låg insulinkänslighet och är nära till att ha diabetes typ 2.*
7. **a)** Specify the exercise intensity (% of  $VO_{2max}$ ) that usually elicits the highest absolute rate of fat-oxidation in an untrained individual? (1 p)  
*Ungefär vid vilken arbetsintensitet (% av  $VO_{2max}$ ) har en otränad individ den högsta fettförbränningshastigheten?*
- b)** How does an intensified period with an increased amount of endurance training influence the relationship between absolute fat oxidation and exercise intensity (% of  $VO_{2max}$ )? (1 p)  
*Hur påverkas förhållandet mellan fettförbränning och arbetsintensitet (% av  $VO_{2max}$ ) efter en period med ökad uthållighetsträning?*
8. Which chemical element differentiates protein from carbohydrates and fat? (1 p)  
*Vilket kemiskt grundämne särskiljer protein från kolhydrater och fett?*
9. What is the difference between the fatty acid compositions in butter versus olive oil? (1 p)  
*Vad är skillnaden på fettsyrasammansättningen i smör gentemot olivolja?*
10. **a)** What does the word "essential" mean when talking about fatty acids? (1 p)  
*Vad betyder ordet "essentiella" när man pratar om fettsyror?*
- b)** Which fatty acids are essential? (1 p)  
*Vilka fettsyror är essentiella?*
11. Explain why it is important to combine different protein containing foods if you are on a vegan diet compared to a diet containing animal protein sources. (1 p)

*Förklara varför det är viktigt att kombinera olika sorters mat som innehåller protein om du är på vegankost gentemot en kost innehållande animala proteinkällor.*

## VITAMINS, MINERALS & SUPPLEMENTS (10p)

ANSWER IN ENGLISH OR SWEDISH

12. Name one supplement that is considered as a 'class A' supplement according to the Australian Institute of Sports. (1p)
13. For **one** mineral of your choice:
- a. Describe its major role in the body. (1p)
  - b. Describe the potential effects/consequences of a deficiency as well as circumstances where an athlete may be at risk of deficiency. (2p)
14. For **one** of the fat-soluble vitamins:
- a. Name the vitamin and describe its major role(s) in the body. (2p)
  - b. Identify at least one food source and/or other methods by which the vitamin can be obtained. (1p)
  - c. Motivate whether an athlete should/should not consider supplementation with this vitamin; include details of circumstances in which supplementation may/may not be appropriate. (3p)

## HYDRATION (10 p)

ANSWER IN ENGLISH OR SWEDISH

15. Identify **three** sources of water intake for the body. (1p)
16. Describe **two ways** in which we can assess hydration status and briefly discuss the advantages and disadvantages of each. (4p)
17. Briefly describe the **function** and **mechanism of action** of the hormone ADH. What effect does it have on plasma volume and urine volume? (2p)
18. Define **hyponatremia**. What are the symptoms and the risk factors for hyponatremia to occur? (3p)

## SECTION 2 – LONG QUESTION

ANSWER IN SWEDISH OR ENGLISH

19. **Discuss** how an athlete might end up in a state of low energy availability. **Compare and contrast** the prevalence and physiological/medical consequences of low energy availability in **male and female athletes**. Use evidence from the research literature to support your answer. (20 p)