

**NATIONAL UNIVERSITY OF LESOTHO**

**FACULTY OF HEALTH SCIENCES**

**DEPARTMENT OF NUTRITION**

**SPORTS NUTRITION- NUT4308**

**SEMESTER II EXAMINATIONS**

**JUNE 2023**

**TIME: 3 HRS**

**MARKS: 100**

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**Instruction:**

Answer all questions

### QUESTION 1

Lieketseng is a 45-year-old female who wants to start an exercise program. Over the years, she has been busy raising her three children and has not had a regular exercise routine. In her 20s and early 30s, she ran and danced on a regular basis.

- a) Describe **any (5)** health benefits that Lieketseng may get from exercise. [10 marks]
- b) What would you suggest Lieketseng do first before starting an exercise regimen? [5 marks]
- c) List any **(5) five** guidelines and recommendations for Lieketseng to get her going on her desire to establish a regular exercise routine. [5 marks]

### QUESTION 2

A 20-year-old female athlete who weighs 60 kg and is 1.58m tall, comes to you for consultation. She does recreational endurance sports for 3 hours 5 times a week. She lives with her parents and consumes a total of 1800 kcal/day. This client has difficulty determining what to eat before games. One of her friends has a brother on the football team, and she suggested that she should have something high in protein, such as eggs or a protein drink, approximately 2 hours before a game. When she tried this, she found she ran out of energy before halftime. Another friend suggested a large serving of pasta about an hour before the game. When this client tried this, she had more energy, but she felt slow because her stomach was so full. A third friend told her to eat fruit right before the game to give her some quick energy. When she tried this, she ran out of energy after 15 or 20 minutes.

- a) What recommendations would you give this client for her pregame meal? Include types, amounts, and examples of food and timing for the meal. [10 marks]
- b) Calculate her daily macronutrient needs based on weight. [4 marks]
- c) Calculate her daily macronutrient needs based on Calories. [4 marks]
- d) What are her present daily total energy needs (TEE) in kilocalories according to the Mifflin-St. Jeor equation? [2 marks]

### QUESTION 3

Thapelo does a lot of endurance exercise during his summer holidays. One day he forgets to bring his bottle of water. He starts to feel dizzy and feels very tired. Thapelo also weighed himself before and after exercise. Before exercise, he weighed 67.8 kg and after exercise, he weighed 66.1 kg. Just before exercise he only drank 200 ml of water (after weighing).

- a) What will be the color of his urine after this exercise? [2 marks]
- b) Describe his possible current hydration status. [3 marks]
- c) List any **two (2)** factors that may affect his urine color. [2 marks]
- d) Calculate his sweat loss (in ml). [3 marks]
- e) Calculate what percentage of body weight was lost due to his sweating. Round off to two decimals. Based on this, determine whether he is truly dehydrated. [5 marks]
- f) Describe the beverages you would recommend for Thapelo to support his fluid retention after exercise? [5 marks]

#### QUESTION 4

- a) A group of competitive runners is at the starting line of a 1,500-meter race. Describe the use of each of the major energy systems from the time the gun goes off to start the race until they cross the finish line approximately 4 minutes later. **[8 marks]**
- b) Describe how ATP is replenished by ADP **[2 marks]**
- c) Mention and describe the **three (3)** determinants of energy sources and amount of nutrients needed by the body during exercise. **[6 marks]**
- d) Mention any **two (2)** muscle fiber types and give an example of an activity each muscle fiber is used for **[4 marks]**

#### QUESTION 5

- a) Describe any **three (3)** eating disorders common among athletes. **[6 marks]**
- b) Mention the appropriate intervention if disordered eating is suspected. **[1 mark]**
- c) Name the **three (3)** components of the Female Athlete Triad and explain how each is independent of and related to the other components. **[9 marks]**
- d) Identify and define any **two (2)** ergogenic aids with proven benefits. **[4 marks]**

#### Additional Examination Material

Equations:

- Men:  $RMR (kcal/d) = (9.99 \times wt) + (6.25 \times ht) - (4.92 \times age) + 5$
- Women:  $RMR (kcal/d) = (9.99 \times wt) + (6.25 \times ht) - (4.92 \times age) - 161$
- Males:  $REE = 66.5 + [13.8 \text{ weight (kg)}] + [5 \text{ height (cm)}] - [6.8 \text{ age (y)}]$
- Females:  $REE = 655.1 + [9.6 \text{ weight (kg)}] + [1.8 \text{ height (cm)}] - [4.7 \text{ age (y)}]$

Physical Activity Factors for Various Levels of Activity for Adults of Average Size 19 Years or Older

Very Light ~1.2–1.3

Low Active ~1.5–1.6

Active~ 1.6–1.7

Heavy~ 1.9–2.1

Recommended Protein Intakes

Sedentary (adult)~0.8g/kg

Strength athletes ~1.2–1.7 g/kg

Endurance athletes ~1.2–1.4 g/kg

Recommended Carbohydrate intakes

General sports activity~5-6 g per kg

Moderate training~6-8 g per kg

Heavy training~7-10 g per kg

Endurance training (>120 minutes of intense training per day)~8-10 g per kg