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*(Reminder: Review the Dietary Analysis Part II grading rubric before you submit this document to the Assignment folder.)*

**Dietary Analysis Project: Tables and Analysis Questions**

**Tables 1 & 2 (25 points)**

**Table 1: Energy and Macronutrients**

|  |  |  |
| --- | --- | --- |
|  | **Average Consumed** | **AMDRs/Recommended** |
| **Energy** | 1406 calories | 2000\* |
| **Percent (%) of Calories from Carbohydrates** | 49% | 45 to 65 % |
| **Percent (%) of Calories from Fat** | 33% | 20 to 35 % |
| **Percent (%) of Calories from Protein** | 18% | 10 to 35 % |
| **Dietary Fiber (grams)** | 9 grams | 25 – 38 grams |
| **Protein (grams)** | 61 grams | 50 – 218 grams |

**\*No data entry needed for this cell.**

**Table 2: Micronutrients**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Vitamin** | **Average Consumed** | **RDA/AI** | **Mineral** | **Average Consumed** | **RDA/AI** |
| **Thiamine** | 1.0 mg | 1.2 mg | **Calcium** | 895 mg | 1000 mg |
| **Riboflavin** | 1.4 mg | 1.3 mg | **Copper\*** | .4 mg | 900 mg |
| **Niacin** | 10.1 mg | 16 mg | **Iron** | 9.1 mg | 8 mg |
| **Pantothenic Acid** | 2.5 mg | 5 mg | **Magnesium** | 124 mg | 400 - 420mg |
| **Vitamin B6** | .8 mg | 1.3-2.0mg | **Manganese** | 2.0 mg | 2.3 mg |
| **Vitamin B12** | 2.2 µg | 2.4 µg | **Phosphorus** | 812 mg | 700 mg |
| **Folate** | 274 µg | 400 µg | **Potassium** | 861 mg | 3400 mg |
| **Vitamin A** | 466 µg | 900 µg | **Selenium** | 69 µg | 55 µg |
| **Vitamin C** | 2.4 mg | 90 mg | **Sodium** | 3202 mg | 1500 mg |
| **Vitamin D\*** | 203 IU | 600 – 800 IU | **Zinc** | 4.7 mg | 11 mg |
| **Vitamin E** | 2.4 mg | 15 mg |  |  |  |
| **Vitamin K** | 13.3 µg | 120 µg |  |  |  |

\*For vitamin D RDA/AI, see Dietary Analysis Part II assignment instructions. For copper RDA/AI, convert micrograms (µg) to milligrams (mg) by dividing micrograms (µg) by 1000.

**ANALYSIS**

***Energy Balance***

1. (10 points) Answer the following questions using the table below.

1. Cronometer provides your estimated “Calories Burned” based on the information you provide in your account. Enter your “Calories Burned” and “Calories Consumed” into the table below.
2. In the third row of the table below, discuss whether you are in positive or negative energy balance **and** its significance for you (e.g., weight changes, overall energy level, etc.).

|  |  |
| --- | --- |
| **Calories Burned** | 2711 kcal |
| **Calories Consumed** | 1406 kcal |
| **Are you in positive or negative energy balance *and* what does this mean for you?** | I am in a negative energy balance, and it could be what contributes to my low energy at times. I find myself reaching for a liquid IV energy boost drink or coffee at times throughout the day but maybe I should try to consume more calories. Though my weight stays within 10 pounds, I do fluxuate. |

2. (10 points) This question has three parts. Please show your math steps in all three parts below to receive credit.

i. Using your data from Question 1 above, what is the difference in calories between your “Calories Burned” and your “Calories Consumed”?

Burned – Consumed = Total Net

2711 – 1406 = 1305

ii. If you were to maintain that difference in calories every single day for one year (365 days), what would be the total calorie deficit or surplus you would have for that year?

Total net \* 365 = Total Year

1305 \* 365 = 476,325 - deficit

iii. Our textbook explains that a surplus or deficit of 3,500 calories will lead to a 1-pound change in body weight. If you were to have a surplus or deficit of the total calories you determined above, what would be your change in weight for that year?

Total deficit / 3500 = total pounds

476,325 / 3500 = 136 pounds

3. (10 points) Scenario: Your doctor is recommending that you lose 10 lbs. Our textbook describes safe weight loss of 1-2 lbs per week. Using your “Calories Burned” from your Cronometer report, determine how many calories per day you would need to eat to lose 1-2 lbs per week. Show your math steps to receive credit.

Burned - Consumed \* 7 <= 7000

2711 – 1800 \* 7 <= 7000

6377 < = 7000 (1800 calories consumed would be close to 2 pounds per week with 2711 kcals burned)

***Macronutrients***

1. (10 points) AMDRs
2. Using entries from Table 1, enter your Average Consumed (Intake) percentage (%) of calories for carbohydrates, total fat, and protein into the table below. Please remember that your intake percentages should sum up to 100%. (*Make sure you review the instructions for obtaining the macronutrient Average Consumed % numbers if yours do not sum to 100%.)* Your AMDRs are from your textbook.
3. In the Comparison column of the table below, discuss how each of your Average Consumed % numbers compares with the AMDRs.

|  |  |  |  |
| --- | --- | --- | --- |
| **Macronutrient** | **Average Consumed %** | **AMDR** | **Comparison** |
| Carbohydrates | 49% | 45-65 % | In range |
| Fats | 33% | 20-35 % | In Range |
| Protein | 18% | 10-35 % | In Range |
| Sum of Macronutrient Average Consumed % = | 100% |  |  |

5. (10 points) Protein

i. Calculate your RDA for protein **in grams** per day using information provided in Unit 6: Proteins in Foods and Dietary Recommendations of the NUTR 100 course textbook. If you believe the RDA is not appropriate for you because you are an active individual, are pregnant, or are breastfeeding, use alternate recommendations found in the Today’s Dietitian article of the Recommended Readings in Week 3 Learning Resources. *Be sure to show your math steps to receive credit.*

**Body weight \* RDA/pound = RDA total**

**182 \* 1.2 = 218 grams / day**

ii. How does your average intake from protein **in grams** in Table 1 compare with your protein needs that you calculated? *Be sure to show your math steps to receive credit.*

Total intake – RDA = Net Total

61g – 218g = -157 g

I am at a deficit of 157 grams of protein compared to my RDA.

1. (5 points) Fiber

Compare your fiber intake from Table 1 with the daily fiber intake recommendation from the textbook. Include the numeric values of both your intake and the recommendation as part of your answer.

I average 9g of fiber taken in and the RDA for an individual like me would be 25 – 38 g.

***Micronutrients***

7. (5 points) Examine your average micronutrient intake of the listed vitamins and minerals with the recommended intake on the Cronometer report for those micronutrients. In the table below, list which vitamins and minerals are lacking in your current intake (Deficient intake: <40% of recommended intake on Cronometer report) and which vitamins and minerals you get in more than adequate amounts (More than adequate intake: >80% of recommended intake on Cronometer report). Add more rows if necessary.

|  |  |
| --- | --- |
| **Deficient intake of these Vitamins/Minerals** | **More than adequate intake of these Vitamins/Minerals** |
| Vitamin C, D, E, K | Sodium |
| Copper | Selenium |
| Magnesium | Phosphorus |
| Potassium | Iron |
|  | Calcium |
|  | B12, 2 |
|  |  |

8. (10 points) Use the table below to answer parts i-iv. Add more rows to the table if needed.

1. Using your Cronometer report, list all vitamins and minerals that are currently over 200% recommended intake in the first column. Add more rows if needed.
2. In the “Current Intake” column, enter your current intake of those nutrients with the correct unit of measurement (mg, μg, IU).
3. Use the Tolerable Upper Limit (UL) file (*link to TUL file available in the LEO Part II assignment instructions*) to locate the UL for the vitamins and minerals you listed in the table below. Enter the UL for each listed vitamin and mineral in the “Tolerable Upper Limit” column in the table below.
4. Compare your intake to the Tolerable Upper Limit. Based on the data, should you be concerned about the risk of toxicity? Answer Yes or No in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Vitamins/Minerals >200% Recommended Intake** | **Current Intake** | **Tolerable Upper Limit** | **Are You at Risk? (Yes or No)** |
| Sodium | 3202.8 mg | 2300 mg | Yes |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**DISCUSSION**

9. (50 points) Please note the high point value of this final question! I am looking for a very detailed response. Describe specific dietary intake changes you would need to make to better align with the recommendations for these **three categories**: Energy (calories), Macronutrients, and Micronutrients. Be very specific! If you are lacking a nutrient, what could you do to increase your intake of that nutrient? If you are getting too much of a nutrient and that could be bad for you, what can you do to reduce your intake of that nutrient? Even if you feel your diet is perfect, make sure to address all **three categories** in your response. Use supporting data from your Cronometer report to back up your thoughts in each category.

**Energy/Calories: My total energy intake from the documented days is considered to be low because on average I consume 1406 kcal and burn 2711 kcal, leaving a 1305 kcal deficit. This may be an acceptable range if I were looking to lose weight, but I am trying to maintain my current weight. To balance it out better, I should eat more nutrient dense foods throughout my day. Adding yogurt to my breakfast and healthy snacks such as protein shakes or bars throughout the day should help to boost my overall energy consumed. I notice that many of my calories come from my dinner in a given day, if I can spread those calories out to other meals, I can make more use of the energy during my day.**

**Macronutrients: My balance of macronutrients seems to be in acceptable ranges (Carbs 49%, Fats 33%, Protein 18%), but still could use some tweaks to improve it. I could stand to have less fat and more protein in my diet. One idea could be to replace my pork bacon in the morning with turkey bacon. Comparing two slices of pork bacon (10 g fat, 3 g protein) to two slices of turkey bacon (4g fat, 3g protein), I see that it would help to reduce the amount of fat in my day while maintaining the protein. It’s a starting point, but not quite there yet. Adding in protein shake, my favorite is Shamrock Farm’s protein shake, would help to fill this gap. Just one shake would add 4g fat, 12g carbs, and 30g of protein. With my overall protein deficit, this would be much needed.**

**Micronutrient: This may be the category that deserves the most focus in regard to my nutrition. I am deficient in numerous vitamins and minerals (Vitamin D, C, E, K, Copper, Magnesium, and Potassium) while also having too high of an intake of Sodium. First, lowering my Sodium intake will be a worthy change, replacing my bacon with low sodium turkey bacon is a great start. From there I can continue to eliminate high sodium foods, starting with pizza. For instance, one large pepperoni pizza from Dominos is roughly 3500 mg of Sodium. If I eat two slices that’s approximately 875 mg of Sodium, as you can see that is extremely high for just one meal. Second, to improve my vitamin intake I need to increase my fruit and vegetable intake. I can incorporate strawberries (Vitamin C), cooked spinach (Vitamin E, Magnesium), kale (Vitamin K), and bananas (Potassium).**

**References**

Callahan, A., Leonard, H., &amp; Powell, T. (2022a, August 7). Protein in foods and dietary recommendations. Nutrition Science and Everyday Application. https://openoregon.pressbooks.pub/nutritionscience2e/chapter/6c-protein-in-foods-and-dietary-recommendations/