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Nutrition 302L

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Albumin Assessment Lab (NCP)

Nutrition Assessment (3 pts)
- Diagnosis: Bladder Cancer
- Nutrition-related PMH, treatments, surgeries: Chemotherapy, appetite affected
- Age, gender: 55 year old female
- Dietary intake: N/A
- Food preferences, allergies, intolerances: N/A
- Exercise habits: N/A
- Knowledge, readiness for change: Seeks aid in keeping down food due to chemotherapy
- Functional/behavioral factors: chemotherapy patient, bladder cancer
- Resources for obtaining, preparing food: N/A
- Symptoms: nausea, vomiting, lack of appetite
- Ht/wt: 5’5”/112lbs BMI: 18.6, IBW: 125lbs, %IBW: 89.6%, UBW: 123lbs, %UBW: 91.1%, %wt change: 8.9%, Weight Status: Mild depletion (Underweight), Degree of malnutrition/depletion: Mild
- Energy Needs: 1996-2304 kcal/day
- Protein Needs: 88.9-101.60 gm pro/d (based upon suggested protein for patient with a tumor and therapy)
- Fluid Needs: 30ml/kg/day
- Labs/tests – Glucose: 83 mg/dl, BUN: 15mg/dl, Hgb: 12.2g/dl, Hct: 37%, Total Protein: 5.5g/dl, Albumin: 2.8 g/dl
- Medications/supplements: Chemotherapy
- Skin integrity: N/A
- Fluid intake/output (I/O): N/A
- Bowel movements (BM): N/A

Nutrition Diagnosis (3 pts)
Inadequate energy intake and limited food acceptance R/T poor appetite due to chemotherapy AEB 8.9% weight loss, BMI 18.6

Nutrition Intervention (3 pts)
1. Meals and snacks – texture/fluid modified foods
2. Nutrition-related medication management
   REC appetite stimulant
Goals
1. Dietary intake to meet >75% estimated energy needs.
2. Weight gain of 1#/week until pt reaches UBW/IBW.

Nutrition Monitoring and Evaluation
Patient will consume a nutrient dense diet comprised of texture/fluid modified foods and drink plenty of fluids. Monitoring will include weekly weight measurements and nutrient intake analysis. If nutrition status is not improving, the patient’s needs will be reassessed and new goals will be made for further intervention.
Nutrition Assessment (3 pts)

- Diagnosis: Type 1 Diabetes
- Nutrition-related PMH: takes insulin injections
- Age, gender: 24 years old, male
- Dietary intake: infrequent meals with snacks in between, poor nutrition choices, high caloric meals, generally unhealthful diet
- Food preferences, allergies, intolerances: N/A
- Exercise habits: physically inactive
- Knowledge, readiness for change: not knowledgeable in nutrition choices, does not monitor glucose intake, not ready for diet/lifestyle change
- Functional/behavioral factors: does not monitor blood glucose well
- Resources for obtaining, preparing food: N/A
- Symptoms: frequent urination, excessive thirst and hunger
- Ht/wt: 5’10”(70”), 165lbs (74.84kg) BMI: 23.7 (normal) IBW: 166lbs (ideal), %IBW: 99.40% (ideal), UBW: 165lbs, %UBW: 100%, %wt change : 0%
- Energy Needs: Abbreviated version for persons of normal height and weight
  - REE (male): 74.84kg x 1 kcal/kg x 24hr= 1796.16 kcal
  - Total energy needs: 1796.16 kcal x 1.3= 2335 kcal (ambulatory, non-stressed state)
- Protein Needs: Non-stressed state (0.8-1.0 gm protein/Kg)
  - Weight in Kg x gm protein/Kg=protein needs/d
  - 74.84kg x 0.8 gm protein/kg= 59.872 gm protein
  - 74.84Kg x 1.0 gm protein/kg= 74.84 gm protein
  - Range: 59.872-74.84 gm protein (non-stressed state)
- Fluid Needs:
  - Adolescent: 40-60mL/kg/day x actual body weight (kg)= ml/day
  - 2993.6-4490.4 ml/day (as an adolescent male)
- Labs/tests: Glycosylated hemoglobin: 9.4%
- Medications/supplements: insulin injections
- Skin integrity: N/A
- Fluid intake/output (I/O): N/A
- Bowel movements (BM): N/A

Nutrition Diagnosis (3 pts)

Behavioral-Environmental: Lack of nutritional knowledge, self-monitoring deficit R/T excessive thirst, CHO and fat intake AEB glycosylated hemoglobin of 9.4% (should not be above 6.5-7.0%, this is a marker for long term poor blood glucose control).

  Goal: Monitor blood glucose levels to reduce glycosylated hemoglobin levels.

Nutrition Intervention (3 pts)

Food and Nutrient Delivery

  REC multivitamin
  Goals:
  1. To lessen appetite and thirst
  2. To supplement for inadequate vitamin/healthful nutrient intake in diet.

Nutrition Education
REC nutrition education classes and dietary log to be taken for four weeks
Goals:
1. Improve eating habits and begin a general/healthful diet.
2. Reduce fluid loss, CHO, and fat intake.
3. Enforce healthy eating habits

Coordination of Nutrition Care
REC consultation with exercise physiologist for further evaluation of lab tests and overall physical activity habits
Goals:
1. Further evaluation of nutritional/physical status.
2. To provide second opinion of suggested lifestyle changes

Nutrition Monitoring and Evaluation

Patient levels should be reassessed in 4 weeks, to monitor dietary changes (diet log), glycosylated hemoglobin, blood glucose, and ability to change lifestyle habits. If glycosylated hemoglobin levels are lowered or within the acceptable range of 6.5-7.0%, I can be identified that progress has been made and self-monitoring of diet should continue.
Nutrition Assessment (3 pts)

- **Diagnosis:** Apparently healthy, breastfeeding mother
- **Nutrition-related PMH:** stopped taking vitamin/mineral supplement prescribed by doctor, vegetarian, fatigue, Hgb: 9.5g/dL, Hematocrit: 30%
- **Age, gender:** 22 year old, female
- **Dietary intake:** vegetarian, no meat
- **Food preferences, allergies, intolerances:** no meat
- **Exercise habits:** N/A
- **Knowledge, readiness for change:** not knowledgeable in nutrition choices, stopped taking vitamins prescribed by doctor, not ready for diet/lifestyle change
- **Functional/behavioral factors:** stopped taking vitamins prescribed by doctor
- **Resources for obtaining, preparing food:** N/A
- **Symptoms:** fatigue, “worn out”
- **Ht/wt:** 5’4” (162.56cm), 108lbs (48.99kg) BMI: 18.5 (normal) IBW: 120lbs, %IBW: 90% (mild malnutrition), UBW: 108lbs, %UBW: 100%, %wt change : 0%

**Energy Needs:** Harris benedict formula to determine REE
- REE (female): 655+ (9.6 x 48.99kg) + (1.8 x 162.56cm)- (4.7 x 22 years old)= 1329.91kcal
- Total energy needs: 1329.91 kcal x 1.3 (ambulatory) x (no injury factor)+ 500kcal (lactation)=2228.89kcal (ambulatory, non-stressed state)

**Protein Needs:** Non-stressed state (0.8-1.0 gm protein/Kg)
- Weight in Kg x gm protein/Kg + 15 gm pro/d (lactation first 6 months)=protein needs/d
- 48.99kg x 0.8 gm protein/kg + 15 gm pro/d= 54.19 gm protein
- 48.99Kg x 1.0 gm protein/kg + 15 gm pro/d= 63.99 gm protein
- Range: 54.19-63.99 gm protein (non-stressed state, lactating)

**Fluid Needs:**
- Adolescent: 40-60mL/kg/day x actual body weight (kg)= ml/day
- 1959.6-2939.4 ml/day (as an adolescent female)

**Labs/tests:** Hgb: 9.5g/dL, Hematocrit: 30%

**Medications/supplements:** none

**Skin integrity:** N/A

**Bowel movements (BM):** N/A

Nutrition Diagnosis (3 pts)

**Intake**
- Increased nutrient/iron needs R/T discontinuation of taking vitamin/mineral supplements, vegetarianism AEB fatigue and tiredness of being a new mother, mild malnutrition, low hemoglobin and hematocrit levels (Hgb: 9.5 g/dL, hematocrit: 30%).

Nutrition Intervention (3 pts)

**Food and Nutrient Delivery**
- REC foods heavier in iron/not susceptible to phytochemicals that block iron absorption.
- Examples of such foods include dark leafy greens, eggs, dried fruit, beans/legumes, artichokes, iron-enriched cereals and grains.
- Goals:
3. Reach ideal body weight
4. Increase lab values to healthy levels (Hemoglobin: 12-16 g/dL, Hematocrit: 37-47%)
   REC Supplementation of iron, vitamin B12, and folate.
5. Reach ideal body weight
6. To begin taking recommended vitamin and mineral supplements again
7. To supplement for inadequate vitamin/healthful nutrient intake in diet.

Nutrition Education
   REC nutrition education classes through WIC to be taken for four weeks
   Goals:
   1. Improve eating habits and begin a general/healthful diet.
   2. Gain knowledge about the importance of eating a healthful diet when lactating as a new mother
   3. Gain confidence in being a new mother to overcome worn out feelings

Coordination of Nutrition Care
   REC Albumin and total protein lab tests
   1. To find out the status of protein needs/deficiency
   2. Determine if additional protein is necessary in the diet

Nutrition Monitoring and Evaluation

   Patient levels should be reassessed in four weeks, to monitor Hemoglobin and Hematocrit levels have increased to normal, measure overall fatigue/ tiredness level, assess diet and iron levels. Outcomes will be evaluated based on new findings. Should hematocrit and hemoglobin levels be in the proper ranges (Hemoglobin: 12-16 g/dL, Hematocrit: 37-47%) it can be evaluated that dietary changes were successful and should be continued to be followed. If fatigue continues, referral to alternative specialists may be necessary.
**Nutrition Assessment (3 pts)**

- **Diagnosis:** Type II Diabetes Mellitus
- **Nutrition-related PMH:** Albumin: 4.2 g/dL, Hgb: 13.4 g/dL, Hct: 41%, Glucose: 145 mg/dL, Triglycerides: 205 mg/dL, Type II Diabetes Mellitus
- **Age, gender:** 37 year old, female
- **Dietary intake:** N/A
- **Food preferences, allergies, intolerances:** N/A
- **Exercise habits:** N/A
- **Knowledge, readiness for change:** N/A
- **Functional/behavioral factors:** N/A
- **Resources for obtaining, preparing food:** N/A
- **Symptoms:** elevated glucose levels (above the normal range of 70-110 mg/dL), elevated triglycerides (above the recommended <150 mg/dL)
- **Ht/wt:** 5’1” (154.94 cm), 152 lbs (69.09 kg) BMI: 28.7 (overweight) IBW: 105 lbs, %IBW: 144.8%, UBW: 152 lbs, %UBW: 100%, %wt change: 0%
- **Energy Needs:** Harris Benedict formula to determine REE
  - REE (female): 655+ (9.6 x 69.09 kg) + (1.8 x 154.94 cm) - (4.7 x 37 years old)= 1423.26 kcal
  - Total energy needs: 1423.26 kcal x 1.3 (ambulatory) x (no injury factor)=1850.23 kcal (ambulatory, non-stressed state)
- **Protein Needs:** Non-stressed state (0.8-1.0 gm protein/Kg)
  - Weight in Kg x gm protein/Kg=protein needs/d
  - 69.09 kg x 0.8 gm protein/kg= 55.27 gm protein
  - 69.09 kg x 1.0 gm protein/kg= 69.09 gm protein
  - Range: 55.27-69.09 gm protein (non-stressed state)
- **Fluid Needs:**
  - Adult (25-55 years): 35 ml/kg/day x actual body weight (kg)= ml/day
  - 2418.15 ml/day (as an adult female)
- **Labs/tests:** Albumin: 4.2 g/dL, Hgb: 13.4 g/dL, Hct: 41%, Glucose: 145 mg/dL, Triglycerides: 205 mg/dL
- **Medications/supplements:** N/A
- **Skin integrity:** N/A
- **Fluid intake/output (I/O):** N/A
- **Bowel movements (BM):** N/A

**Nutrition Diagnosis (3 pts)**

**Behavioral-Environmental**

Self-monitoring deficit R/T apparent excessive fat and nutrient intake affecting Type II Diabetes Mellitus

**Nutrition Intervention (3 pts)**

**Nutrition Education**

REC participation in nutrition courses related to Type II Diabetes Mellitus for further dietary changes.
Goals:
8. To reduce dietary energy and fat intake (approximately 30% of total energy)
9. Frequent participation to produce long term weight loss of at least 5-7% usual body weight.
10. To achieve normal or near normal levels of blood glucose (70-110mg/dL).

Nutrition Monitoring and Evaluation

Patient levels should be reassessed in 4 weeks, to reevaluate lab tests of glucose and triglycerides and determine if progress has been made. If triglycerides show a decrease from 205 mg/dL, dietary changes should remain and nutrition counseling will be continued until near normal levels are reached (<150mg/dL). Blood glucose levels will be monitored continuously to ensure that they decline from the elevated state. Nutrition behavioral modifications will likely need to remain in place indefinitely in order to manage Type II Diabetes mellitus in patient.
Case Study 5: Diet Plan

Results of 24hr. recall: computation (DRIs/Diet Analysis Plus).

Calories: 1871.92 (2346 kcals/d).

Macronutrients:

- CHO: 236.5g (258.0-273.0)
- Fiber: 29.85g (25g)
- Sugar: 79.52g (no recommendation)
- Protein: 84.79g (61.69g)
- Fat: 70.54g (51.0-89.0g)
- Saturated fat: 29.75g (<23.0g)
- Trans fat: 0.3g (no recommendation)

Vitamins:

- A: 1023.53ug (700ug)
- C: 67.64 mg (75mg)
- D: 1.36ug (15ug)
- Iron: 42.2mg (18mg)
- Calcium: 625.54mg (1,000mg)
- Potassium: 1369.96mg (4,700mg)
- Sodium: 2088.72mg (1500mg)

In order to analyze my 24-hour food recall, all data was input into the Diet Analysis Plus program. According to Diet Analysis Plus, it was calculated that a person of my height and weight should be
consuming 2346kcals/d. My caloric intake during the 24 hour recall was about 80% of this amount (1871.92 kcals). Total fat was within the recommended range established by the DRI’s. Carbohydrate intake was less than the recommended intake and protein exceeded the recommended amount. Vitamin intake for this particular recall was not ideal. Vitamin A, iron, and sodium appeared to exceed the recommended values, however, my diet was lacking in sufficient Vitamin C, D, calcium, and potassium.

The MyPlate Analysis provided through Diet Analysis Plus gave recommendations for nutrient intake goals in among the different food group categories. The goal for grain consumption was 8.0 oz, of which I met 90.2% of that goal by consuming 7.2 oz. Vegetable intake on this particular day was more than twice the recommended amount of 3 cups. Consumption of fruits and dairy for this day was seriously lacking however. It was recommended that I consume 2 cups of fruits daily and during the period of this recall 0.2 cups were consumed. Another interesting addition to the data provided demonstrated that 717.3 kcals for this day were a result of empty calories, providing no nutritional benefit to my diet, this number far exceeded the recommended allotment of 330 kcal/day.

Overall the recommendations and calculated nutrient content for the foods I ate appear to be accurate; there are a few areas that could be improved when using this method of analysis however. The database did not have all of the exact foods that I ate during that day, so I was forced to find different ingredients of similar content but still not containing the same nutritional value. Also, it is difficult to measure the nutritional content of a meal if it is eaten out because portions are not always measured the same and added ingredients are unknown. These meals are also not likely to be found exactly as they come in real life when searching for them in the Diet Analysis database. In addition, this was not a normal day of eating for me, so it would not be considered an accurate estimation of the foods that I consume and the changes that need to be made.

Based on this 24 hour recall, a diet plan is able to be made for future consumption. It is clear that there is a lack of essential recommended Vitamins in my diet. These vitamins could easily be taken in supplemental form or through eating proper foods. Considering I was deficient in recommended fruits, I would be wise to attempt to eat the recommended 2 cups to gain the beneficial vitamins, minerals and carbohydrates that fruits provide. Dairy intake also should be increased to meet the recommended 3 cups. This could easily be done through drinking milk with a meal or snacking on cheese instead of the other sources of empty calories that were found to be in my diet.
Nutrition Assessment (3 pts)
- Diagnosis: Coronary Artery Bypass graft, female patient
- Nutrition-related PMH: coronary artery bypass graft surgery, heart complications, family history of heart disease
- Age, gender: 54 year old female
- Dietary intake: smokes 2 packs of cigarettes a day, no other dietary information
- Food preferences, allergies, intolerances: smoker
- Exercise habits: N/A
- Knowledge, readiness for change: lack of knowledge of healthful practices, continues to smoke after enduring major surgery
- Functional/behavioral factors: smoker
- Resources for obtaining, preparing food: N/A
- Symptoms: AST: 76 U/L, ALT: 31 U/L, LDH: 322 U/L, CPK: 268 U/L, Bilirubin (total): 0.5 mg/dl, Bilirubin (direct): 0.1 mg/dl, Triglycerides: 188 mg/dl (abnormal: high), Total Cholesterol: 216 mg/dl (abnormal: high), HDL: 37 mg/dl (abnormal: low), LDL: 141 mg/dl (abnormal: high)
- Ht/wt: 5’4” (162.56 cm), 148 lbs (67.13 kg) BMI: 25.4 (overweight) IBW: 120 lbs, %IBW: 123.33%, obese
- Energy Needs: Harris Benedict formula to determine REE
  - REE (female): 655+ (9.6 x 67.13 kg) + (1.8 x 162.56 cm) - (4.7 x 54 years old) = 1338.26 kcal
  - Total energy needs: 1338.26 kcal x 1.3 (ambulatory) x 1.75-2.0 (surgery) = 3044.54-3479.48 kcal (ambulatory, post surgery)
- Protein Needs: Major surgery (1.25-1.5 gm protein/Kg)
  - Weight in Kg x gm protein/Kg = protein needs/d
  - 67.13 kg x 1.25 gm protein/Kg = 83.91 gm protein
  - 67.13 kg x 1.5 gm protein/Kg = 100.70 gm protein
  - Range: 83.91-100.70 gm protein (non-stressed state)
- Fluid Needs:
  - Adult (25-55 years): 35 ml/kg/day x actual body weight (kg) = ml/day
  - 2349.55 ml/day (as an adult female)
- Labs/tests: Albumin: AST: 76 U/L, ALT: 31 U/L, LDH: 322 U/L, CPK: 268 U/L, Bilirubin (total): 0.5 mg/dl, Bilirubin (direct): 0.1 mg/dl, Triglycerides: 188 mg/dl, Total Cholesterol: 216 mg/dl, HDL: 37 mg/dl, LDL: 141 mg/dl
- Medications/supplements: N/A
- Skin integrity: N/A
- Fluid intake/output (I/O): N/A
- Bowel movements (BM): N/A

Nutrition Diagnosis (3 pts)
Behavioral-Environmental

Self-monitoring deficit R/T less than optimal intake of healthy fats (MUFA’s and PUFA’s) AEB elevated total cholesterol levels of 216 mg/dL (above the recommended <200 mg/dL), low levels of HDL cholesterol at 37 mg/dL (recommended: >40 mg/dL), high levels of LDL cholesterol at 141 mg/dL (recommended <130 mg/dL) and BMI of 25.4 (overweight).
Nutrition Intervention (3 pts)

Meals and Snacks for a fat and fiber modified diet. Replace saturated fats with polyunsaturated fats and monounsaturated fats: fish, avocado, fruits, vegetables, walnuts, flax, beans, whole grains etc. Supplementation of omega 3, niacin, CoQ10 to aid in lowering LDL and increasing HDL.

Goals:
11. To reduce dietary energy and fat intake (approximately 30% of total energy)
12. To reduce LDL cholesterol and triglycerides and increase HDL cholesterol.
13. Limit saturated fat intake to <7% of energy and trans fat <1%.

Refer to a nutrition professional for recommendation of new diet, exercise, and health plan. Smoking should be eliminated from daily life, and exercise should be incorporated to promote HDL cholesterol production.

Goals:
1. Healthy recovery from coronary artery bypass graft surgery
2. Overall healthful lifestyle behaviors
3. Weight loss to decrease overweight BMI and alleviate arterial stress/damage.

Nutrition Monitoring and Evaluation

Patient levels should be reassessed in 3 weeks, to reevaluate cholesterol and triglyceride levels to determine if progress has been made. If total cholesterol level shows a decrease from 216 mg/dL, dietary changes should remain until normal levels are reached (<200mg/dL). HDL and LDL levels should be reassessed to determine if dietary changes are effectual. If levels remain the same, more severe dietary restrictions will be implemented. Other lab tests and BMI will be reevaluated as well to assess the overall change in health. Nutrition behavioral modifications will likely need to remain in place in order to maintain weight loss and promote recovery from previous arterial damage.
Calcium Assessment Lab (NCP)

Nutrition Assessment (3 pts)

- Diagnosis: Excessive calcium intake
- Nutrition-related PMH, treatments, surgeries: N/A
- Age, gender: 67 year old male
- Dietary intake: N/A
- Food preferences, allergies, intolerances: N/A
- Exercise habits: N/A
- Knowledge, readiness for change: concern for general health, no specific issue with lifestyle
- Functional/behavioral factors: N/A
- Resources for obtaining, preparing food: N/A
- Symptoms: Serum Calcium: 9.5 mg/dl (low, normal: 9.5-10.5mg/dl), urinary Calcium: 300mg/dl (high, normal: 100-240mg/dl)
- Ht/wt: 5’8”/166lbs BMI:25.2 (overweight) , IBW: 154lbs, %IBW: 107.79%, Weight Status: Overweight
- Energy Needs: Harris benedict formula to determine REE
  - REE (male): 66+ (13.7 x 75.3kg) + (5 x 167.64cm) - (6.8 x 67 years old)= 1480.21
  - Total energy needs: 1480.21 kcal x 1.3 (ambulatory) x (no injury factor)= 1924.27 kcal
- Protein Needs: Non-stressed state (0.8-1.0 gm protein/Kg)
  - Weight in Kg x gm protein/Kg=protein needs/d
  - 75.3kg x 0.8 gm protein/kg= 60.24gm protein
  - 75.3Kg x 1.0 gm protein/kg= 75.3gm protein
  - Range: 60.24-75.3 gm protein (non-stressed state)
- Fluid Needs:
  - Adult (>65years): 25mL/kg/day x actual body weight (kg)= ml/day
  - 1882.5 ml/day (as an adult male)
- Labs/tests: Albumin: 3.8g/dl, Glucose: 112 mg/dl, Triglycerides: 89mg/dl, Cholesterol:188 mg/dl, Serum Calcium: 9.5 mg/dl
- Medications/supplements: N/A
- Skin integrity: N/A
- Fluid intake/output (I/O): N/A
- Bowel movements (BM): N/A

Nutrition Diagnosis (3 pts)

Behavioral-Environmental

Self-monitoring deficit R/T excessive intake of Calcium AEB elevated urinary Calcium levels of 300mg/dL (above the recommended 100-240mg/dL).

Nutrition Intervention (3 pts)

Meals and Snacks for a Calcium modified diet. Limit consumption of Calcium rich food intake: milk, cheese, salmon, cereals, broccoli, and almonds).

Goals:
14. To reduce dietary Calcium intake to recommended DRI of 1,000 mg/day.
15. To ensure that Calcium intake does not exceed Upper Level intake recommendations of 2,500mg/day.
16. Maintain consumption of food containing Calcium but decrease portion sizes.
17. To decrease Urinary Calcium levels to normal range (100-240mg/dL).

Increase fluid intake to meet fluid needs (1882.5 ml/day or 64 oz/day).

Goals:
1. Increase urine production to at least 2 L per day.
2. Prevent production of kidney stones due to excessive Calcium intake.

**Nutrition Monitoring and Evaluation**

Patient levels should be reassessed in 3 weeks, to reevaluate Serum Calcium and Urinary Calcium levels. A 24 hour recall should be utilized to ensure that patient is implementing the advised nutritional intervention. If a change is not seen, referral to a specialized dietitian may be necessary for an additional opinion of the necessary actions to be taken in order to decrease Calcium levels. Bone density should be measured using DEXA or Ultrasound densitometry.