

A stylized, light-colored illustration of a plant with several leaves and a cluster of small, round buds or flowers, positioned on the left side of the slide against a dark brown background.

**NUTRITIONAL  
MANAGEMENT OF THE  
WLS PATIENT  
-THE IMPORTANCE OF AN RDN-**

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COMMiT Program**

# A Seedling to a Tree

## -Recommendations to a Program-



# **Pre-Surgery**

**I meet with all patients before surgery for 30 minutes to review our pre-surgery diet and to recommend new habits that they can start practicing right away.**

# Pre-Surgery

## Pre-surgery Diet

- Purpose:**
- 1) To shrink the liver to decrease the risk of damage during surgery.**
  - 2) To decrease weight to decrease surgery risk.**

**A high protein, low carbohydrate and low fat liquid diet using meal replacement shakes and some raw vegetables (for crunch) for 2, sometimes 4, weeks will accomplish this.**

**I identified 16 acceptable meal replacement from which pts could choose and provided details for all of them.**

**Taste is often an issue with meal replacement or high protein shakes. Pts are give a variety from which to choose...milky, fruit and coffee flavored, HP pudding and HP soup.**



# Pre-Surgery

## New habits to start:

- **A MVI with minerals qd and, in addition for women, calcium BID.**
- **Waiting 30 minutes after eating to drink.**
  - **Can cause weight loss.**
- **Eat 3 times qd instead of their current once or twice.**
- **Stop drinking sugared and carbonated beverages.**
  - **Cessation of sugared beverage consumption can cause weight loss.**
  - **Some pts don't like the taste of artificial sweeteners.**
    - **They can choose stevia-sweetened beverages or water.**
- **Start to reduce sweets and fried food in their diet to once per week.**
- **Reduce their alcohol consumption, if needed.**



**Set goals for 1 year post-op.**

# Pre-Surgery

## 1.5 hour nutrition seminar. Diet booklet provided:

- **Diet post-op through the pureed stage.**
  - What to eat and how to eat it.
- **Acceptable beverages, the amount needed and the drinking rules.**
- **The importance of exercise and what we recommend.**
- **What supplements are needed and how much.**
- **Changes in bowel habits and what to do for a problem.**
- **Changes in taste and smell post-op.**
- **Recommended products.**
  - Cookbook, apps, appliances, measuring devices, etc.
- **Reading nutrition labels.**
- **Follow-up appointments**



# **POST-OP DIET**

# Post-Op Diet

## In-hospital:

- **Clear liquid diet, 1-2 ounces q 20 minutes.**
  - Pedialyte/G2, broth, diet gelatin, decaf tea

## 1<sup>st</sup> Week Post Discharge:

- **Full liquid diet plus SF pudding and FF or light yogurt without bits of fruit.**
  - Water and non-sugared beverages.
  - 2 high protein shakes, each with  $\geq 25$  grams of protein qd.
  - 1 to 2 ounces q 20 minutes.



## 2<sup>nd</sup> and 3<sup>rd</sup> Week Post Discharge:

- **Pureed food with an emphasis on those that are high in protein.**
  - 1 high protein shake qd with  $\geq 25$  g protein.
  - $\leq 2$  ozs. pureed, high protein food q 3 hours.
    - $\leq 1/2$  cup smooth FF or light yogurt or blended soup.
  - $\geq 60$  g protein for SG and GB pts  $\geq 80$  g protein for DS and DGB pts...FOR LIFE!
  - Use of baby spoon or espresso spoon recommended.





# Post-Op Diet

## 4<sup>th</sup> and Possibly 5<sup>th</sup> Week Post Discharge:

- **Soft solid food with an emphasis on those high in protein.**
  - **1-2 ozs. q 3 hours.**
    - $\leq$  1/2 cup smooth FF or light yogurt or blended soup.
  - **1 high protein shake is usually still needed at this time.**



## 5<sup>th</sup> or 6<sup>th</sup> Week Post Discharge:

- **Regular food with an emphasis on those high in protein.**
  - **1-2 ozs. q 3 hours.**
    - $\leq$  1/2 cup smooth FF or light yogurt or blended soup.
  - **1 high protein shake is usually still needed at this time.**



**No solid beef, rice or pasta for 3 months post-op.**

# Post-Op Diet

## Long-term diet:

- **No more than  $\frac{3}{4}$  cup of food at one time.**
  - The objective is to maintain the small size of the stomach pouch to maximize weight loss and to maintain lost weight.
- **Meals should consist of a lean protein and a non-starchy vegetable.**
- **Eat high protein food first, then the non-starchy vegetable. Can sometimes substitute a starchy side dish like whole wheat pasta or quinoa or a starchy vegetable like mashed potatoes.**
- **Continue to eat q 3 hours, but at least 4 times qd.**





# **BEVERAGES**

# Beverages

- **Water, any non-sugared beverage, caffeinated tea and coffee, broth.**
- **Diet gelatin and sugar free/no-sugar-added frozen fruit pops are considered beverages.**

## Drinking Rules:

- **Stop drinking 15 minutes before eating and do not drink again till 30 minutes after finishing.**
- **Consume at least 40 oz. fluids qd.....48 ozs better.**
- **No juice, smoothies and carbonated beverages post-op.**
- **No alcoholic beverages for one month post-op. Then in moderation with a warning of the dangers.**



# **SUPPLEMENTS**

# Supplements



|                            | <u>Band</u>  | <u>Sleeve<br/>Gastrectomy</u>                 | <u>Gastric<br/>Bypass</u>                     | <u>Duodenal<br/>Switch/Distal<br/>GB</u>      |
|----------------------------|--------------|---|---|---|
| MVI                        | qd           | qd  | qd  | High in ADEK's<br>TID or MVI +<br>ADEK        |
| Calcium                    | BID<br>(DRI) | BID<br>(DRI)                                  | Citrate TID<br>(1.5 DRI)                      | Citrate<br>QID<br>(2 DRI)                     |
| Vitamin<br>B <sub>12</sub> |              | 500 mcg<br>sublingual qd<br><u>or</u> IM q mo | 500 mcg<br>sublingual qd<br><u>or</u> IM q mo | 500 mcg<br>sublingual qd<br><u>or</u> IM q mo |

# Supplements



|                      | <u>Band</u>       | <u>Sleeve<br/>Gastrectomy</u> | <u>Gastric<br/>Bypass</u>                        | <u>Duodenal<br/>Switch/Dista<br/>1 GB</u>        |
|----------------------|-------------------|-------------------------------|--|--|
| <b>Iron</b>          |                   |                               | <b>150 mg qd</b>                                 | <b>150 mg qd</b>                                 |
| <b>Vitamin<br/>D</b> | <b>1000 IU qd</b> | <b>1000 IU qd</b>             | <b>50,000 IU<br/><u>dry</u><br/>q wk (D3-50)</b> | <b>50,000 IU<br/><u>dry</u><br/>q wk (D3-50)</b> |



# MY INPUT



# My Input


## Post-op:

- I meet with pts to help them make adjustments to the new way of eating and drinking.
- I review their food diaries for problem areas and help them to identify possible corrections.
- I make sure that they are staying on track with their protein intake and, if not, work with them to identify ways to increase their protein intake.
- I develop menus with pts based on their own food preferences.
- I recommend acceptable supplements and make sure that they are taking them properly and in the correct amount.
- If they are regaining weight, I help them to identify the causes (if they don't already know why) and identify solutions.
  - If requested, I will identify a weight loss calorie goal for them, complete with % or gram targets for protein, fat and CHO.

# My Input

- I've developed many handouts to help pts. These include:

|   |   |   |
|---|---|---|
| <b>Diets for all surgeries and procedures</b>   | <b>Supplement recommendations for all surgeries</b> | <b>Schedules for taking supplements for all surgeries</b>     |
| <b>Constipation Remedies</b>                    | <b>Gas Remedies</b>                                 | <b>Target heart rate zone</b>                                 |
| <b>Lists of high protein foods and starches</b> | <b>Nutritional Care for Gout</b>                    | <b>Weight loss plateaus</b>                                   |
| <b>Hair Loss remedies</b>                       | <b>High protein Supplements</b>                     | <b>Essentials for weight loss and weight loss maintenance</b> |
| <b>Low fat cheese</b>                           | <b>No-Cook meals</b>                                | <b>Mindful eating</b>   |
| <b>NYC Gyms</b>                                 | <b>Pregnancy Information</b>                        | <b>Weight loss plateaus</b>                                   |
| <b>Prescription drug that cause weight gain</b> | <b>Reflux remedies</b>                              | <b>Weight regain</b>  |
| <b>Snacks</b>                                   | <b>Sweet cravings</b>                               | <b>Reading nutrition labels</b>                               |

A stylized, monochromatic illustration of a plant with several large, pointed leaves and a cluster of small, round buds or flowers on a thin stem, set against a dark brown background on the left side of the slide.

# **NUTRITIONAL DEFICIENCIES AND BLOOD TESTS**

# Potential Nutritional Deficiencies

## More Common

Protein

Vitamin A

Vitamin B<sub>1</sub>

Vitamin B<sub>6</sub>

Vitamin D

Calcium

Iron

Vitamin B<sub>12</sub>

Zinc

Vitamin E

Vitamin K

For Duodenal

Switch and Distal

GB

## Less Common

Folate

Copper

Magnesium

Selenium

# Required Blood Tests

## Standard

**Complete Blood Count with  
Differential/Platelets**

**Comprehensive Metabolic  
Panel**

**Lipid Panel**

**25-Hydroxy-Vitamin D**

**Hemoglobin A1C, for those  
with DM**

**TSH or full Thyroid Panel for  
those with Thyroid Disease**

## Added Before WLS

**C-Peptide for pts with DM**

**Insulin for pts with DM**

# Required Blood Tests

## Added Before & After All WLS's

Parathyroid Hormone Intact  
Iron Panel including Transferrin Saturation  
Ferritin  
Vitamin A  
Vitamin B1 (Thiamine) – Whole Blood  
Vitamin B6  
Vitamin B12/Methylmalonic Acid  
RBC Folate  
Zinc

## Added Before & After Distal Gastric Bypass and Duodenal Switch

Vitamin E  
PT/PTT (for Vitamin K)

## Added After GB, DS and DGB

Copper  
Sometimes: Magnesium  
Selenium

# Required Blood Tests

## Frequency of blood tests for GB and SG:

- Pre-surgery
- 3 mos. post-op
- 6 mos. post-op
- 1 year post-op
- Yearly after 1<sup>st</sup> year post-op

## Frequency of blood tests for DS and DGB:

- Pre-surgery
- 3 mos. post-op
- 6 mos. post-op
- 1 year post-op
- Every 6 mos. Pre-surgery


## Frequency of blood tests for Adjustable Band:

- Yearly

# Required Blood Tests

| <b>Blood test frequency</b> | <b>Reviewer</b>       |
|-----------------------------|-----------------------|
| <b>Pre-op</b>               | <b>NP/surgeon</b>     |
| <b>3 months post-op</b>     | <b>RDN</b>            |
| <b>6 months post-op</b>     | <b>NP</b>             |
| <b>1 year and yearly</b>    | <b>NP/surgeon/RDN</b> |





**PROBLEMS  
ASSOCIATED WITH  
THESE  
DEFICIENCIES**

# The Most Upsetting to Patients-- Hair Loss!

**Hair loss can be caused by a deficiency in any of the following:**

- **Iron**
- **Vitamin A**
- **Zinc**
- **Protein (low albumin)**



**Also, hypothyroidism can cause hair loss as well as weight loss.**

## **Recommended supplements to reverse deficiencies:**

- **65mg/150 mg Fe qd or Fe infusion if already taking 150 mg Fe qd)**
- **25,000 IU Vitamin A + beta carotene qd**
- **100 mg Zn with  $\geq$  4 mg Cu**
- **Add a high protein shake; increase high protein foods; add a probiotic.**

# Other Common Problems Caused by Deficiencies

| <u>Problem</u>                        | <u>Possible Cause</u>                       | <u>Potential Fix</u>   |
|---------------------------------------|---|--|
| <b>Slow weight loss, fatigue</b>      | <b>Low intake of protein</b>                | <b>Increase high protein foods, add high protein shake</b>   |
| <b>Bone pain</b>                      | <b>Low Vitamin D and/or low Ca</b>          | <b>50,000 IU Vitamin D 1/2/3 times/week<br/>Recommended amount of Ca; change type of Ca; change timing of Ca</b> |
| <b>Numbness/pain in extremities</b>   | <b>One or more of the B vitamins is low</b> | <b>1000+ mcg SL Vitamin B12<br/>100 mg Vitamin B1 TID<br/>100 mg Vitamin B6 qd<br/>800 mcg folic acid qd</b>     |
| <b>Fatigue, craves ice, hair loss</b> | <b>Low Fe</b>                               | <b>65mg/150 mg Fe qd or Fe infusion</b>  |

# Supplementing Other Deficiencies

| <b>Deficiency</b> | <b>Supplementation</b>   |
|-------------------|--|
| <b>Vitamin E</b>  | <b>400-800 IU qd depending on degree of deficiency</b>                           |
| <b>Vitamin K</b>  | <b>1000 mcg qd<br/>New guideline for <u>chronic</u> malabsorption: 1-2 mg qd</b> |
| <b>Copper</b>     | <b>3-8 mg qd depending on degree of deficiency</b>                               |
| <b>Magnesium</b>  | <b>400 mg qd</b>   |
| <b>Selenium</b>   | <b>200 mcg qd</b>  |



# QUESTIONS

