Why are Vitamins Important?
Part 2

Vitamin A, D, E, and K
The Fat Soluble Vitamins
Why Are Vitamin and Mineral Supplements Important Before and After Surgery.

- We will review basic information on fat soluble vitamins.

- Vitamin and mineral supplementation will replace a dietary source. This is the reason why it is essential that you take the vitamins and minerals as prescribed.
Many of the “best food sources” are NOT part of the liver reduction diet and your meal plan after surgery.

WE DO NOT expect you to be able to obtain all vitamin and mineral needs from food NOW or in the future.

You will be required to take vitamin and mineral supplements the rest of your life.
What are Fat Soluble Vitamins

- Fat soluble vitamins are:
  1. Vitamin A
  2. Vitamin D
  3. Vitamin E
  4. Vitamin K

- This type of vitamin requires fat in order to be absorbed or used by your body.

- Any extra fat soluble vitamins are stored in body fat.
Fat soluble vitamins can build up in your body and become toxic. This happens because your body will continue to store the excess.

- This is very rare and typically isn't a problem after bariatric surgery.

Fat soluble vitamin deficiency or not enough is more common after bariatric surgery because your diet will be very low in fat.
Vitamin A

- Function: Light receptor in your eye, need for growth and helps cell determine if the cell should be for nervous system, bone growth and maintenance, immune function, etc.

- Deficiency symptoms or too low that causes health problems
  1. Vision problems
     - Poor night vision
     - Cornea damage
  2. Growth problems
  3. Decrease bone development and increased risk osteoporosis.

- Low blood protein can affect transport of vitamin A in body. Another reason Protein will be important after surgery.
Vitamin D

Vitamin D is called the sunshine vitamin because ultraviolet light from the sun helps our body make vitamin D.

Research has shown that 60-70% of the adult US population is deficient in Vitamin D due to low sunlight exposure and use of sunscreen which block UV rays from the skin.

The darker your skin color the greater the risk of developing vitamin D deficiency.

We have you take 2000 IU of Vitamin D during Supervised Weight Loss (SWL) to build your vitamin D levels up.
Vitamin D (continued)

Function:
1. Bone Health by regulating calcium and phosphorous.
2. Prevent cancer
3. Treating diabetes and high blood pressure

Best Food Sources:
Fortified Milk, fatty fish (sardines, salmon, mackeral,) and fortified cereals, juices, and yogurt.

Types of Vitamin D
1. D2 – Inactive form. Activated to vitamin D3 when skin is exposed to sunlight.
2. D3 or previtamin D – best supplement type.
Deficiency symptoms/health problems

1. Rickets - softening of the bones.
2. Osteomalacia - This is the adult form of rickets and can cause muscle and bone weakness and pain.
3. Increased risk of heart disease
4. Cancer
5. Thought or mental impairment as you age.
6. Some research suggest you are at greater risk of developing diabetes, high blood pressure, glucose intolerance, and MS.
Vitamin E

Function:
1. Antioxidant
2. Anticoagulant: vitamin E is needed to prevent your blood from clotting.

Best Food Sources:
Vegetable oil, nuts, seeds, leafy vegetables, avocado, and fortified cereals.

Deficiency
Rare to have deficiency in vitamin E, but symptoms are muscle weakness and spasms. Cell membrane weakness.
Vitamin K

• Function:
  1. Essential for blood clotting
  2. Bone health. We all know about calcium and vitamin D is important for bone health. Add Vitamin K to the list for bone health.

Best Food Sources:
  1. Dark green vegetables—spinach, kale, mustard greens.
  2. “Cruciferous” or cabbage family—broccoli, cauliflower, cabbage.
  3. Vegetable oil and margarine.

Naturally occurring bacteria in your intestines makes vitamin K
Deficiency are rare since naturally occurring bacteria in your colon makes Vitamin K.

Follow your doctor’s advice if you using the “blood thinner” Coumadin.
How will I get my fat soluble vitamins?

- Supervised Weight Loss – 1 multivitamin per day
- After Surgery – 2 multivitamins per day.
- Vitamin and mineral supplements will be taken daily for the remainder of your life!
Post Test

• What is the sunshine vitamin? ____________________
• Vitamin A deficiency will NOT effect your vision? True or False
• Vitamin K helps your blood clot? True or False
• Vitamin E is a antioxidant? True or False

Look for
“Why are Vitamins Important? Part 3: B-Vitamins”