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Your Guide to Understanding Micronutrients

This guide has been prepared to assist you and your family with understanding what micronutrients are, how your body uses them and why it's important to take your vitamin supplements.

WHAT ARE MICRONUTRIENTS?

Simply put, the term *micronutrients* refers to the vitamins and minerals your body needs to function properly. This type of nutrients doesn't provide energy in the form of calories, but it does help your body perform all sorts of necessary processes, such as digestion, waste removal, wound healing, tissue growth and muscle movement.

VITAMINS AFTER SURGERY

Vitamin supplements are necessary after surgery for a few different reasons. Primarily, the vitamins you were previously able to get from your food may not be as easily absorbed after surgery; this is due to the shortened length of your small intestine, as well as the fact that there is less stomach acid to breakdown and digest vitamins before they pass through the digestive tract.

The majority of vitamins and minerals that your body needs will still be absorbed just fine, but there are a few that will need to be supplemented. The most commonly supplemented vitamins include: vitamin B12, iron, calcium and vitamin D. In some cases, vitamin B1 (thiamine) may need supplemented, especially in cases of frequent vomiting.

VITAMIN B12

Vitamin B12 has multiple functions in the body, including protecting nerve function, aiding in blood cell production and regulating your metabolism.

Vitamin B12 can only be absorbed by the small intestine after binding with a special protein in the stomach. After bariatric surgery, however, there isn't as much of this protein available – which explains why B12 deficiency is so commonly seen.

In order to correct the lower-than-normal levels of B12, a dose of *350-500 mcg (micrograms) per day* is needed. This dose is 100 times the normally recommended amount, and only specific bariatric surgery vitamins will provide the supplementation.

IRON

Iron helps the body transport oxygen in the blood and boosts energy levels and immune system function. Typically, it is absorbed by the first part of the intestine, which is bypassed – or skipped over – after surgery.

The mineral is absorbed in the other parts of the intestine, too, but not as effectively. To make up for this loss, supplemental iron is recommended at a dose of *35-100mg per day*.



CALCIUM

Calcium is particularly important for bone health, but it also helps with blood clotting and muscle function. Much like iron, it's best absorbed in the first portion of the intestine. The recommended supplement amount is *1,500-2,000mg per day*.

There are a few notes about calcium that you should note:

- Calcium and iron supplements should not be taken at the same time. If they are, neither will be absorbed as fully as they need to be.
- Your body can only absorb approximately 500mg of calcium at any one time, so the supplement will need to be taken several times throughout the day.
- Calcium supplements come in two forms: calcium citrate and calcium gluconate.
 - Because it's absorbed better, calcium citrate is the best choice.
- Your body has a lot of calcium stored in your bones, and it will use these stores to make up for the deficiency if it has to. Without taking a calcium supplement, however, these stores will eventually run out. If this happens, your bones can become weak and more fragile.

VITAMIN D

Vitamin D's most important function is related to regulating calcium absorption. This deficiency actually has very little to do with bariatric surgery: did you know that nearly 70% of all Americans have vitamin D levels below the recommended amount? Supplementation of *2,000 IU per day* is recommended.

VITAMIN B1 (THIAMINE)

Like vitamin D, thiamine is actually absorbed fine after bariatric surgery – but it can be quickly depleted by frequent vomiting. For this reason, most bariatric vitamin formulations include extra doses to ensure that the body has enough to continue functioning optimally.

BARIATRIC-SPECIFIC SUPPLEMENTS

While there are over-the-counter versions of all of these supplements available, they do not typically come in the recommended doses. In order to get the right amount of supplemented vitamins and minerals, you must purchase **bariatric-specific supplements**. You should take these multivitamins for the remainder of your life; this will help ensure adequate nutrition for years to come.

On the following page, you will find information about recommended brands and dosing schedule.



RECOMMENDED SUPPLEMENTS

There are two brands of bariatric multivitamins that we recommend: Celebrate (Multi-Complete) and Opurity (Bypass Optimized Multi). These will need to be taken once to twice daily (depending on the brand), and an additional calcium supplement will need to be added in.

Each brand sells a related calcium supplement. And remember, your body can only absorb 500mg of calcium at one time, so doses will need to be separated over the course of the day.

RECOMMENDED DAILY SCHEDULE OF SUPPLEMENTS

Celebrate Brand
(1) Celebrate Multi-Complete Chewable
Wait two hours (minimum)
(1) Celebrate Calcium Plus 500 Chewable
Wait two hours (minimum)
(1) Celebrate Multi-Complete Chewable
Wait two hours (minimum)
(1) Celebrate Calcium Plus 500 Chewable
Wait two hours (minimum)
(1) Celebrate Calcium Plus 500 Chewable

Opurity Brand
(1) Opurity Bypass Optimized Multivitamin
Wait two hours (minimum)
(2) Opurity Calcium Citrate Plus
Wait two hours (minimum)
(2) Opurity Calcium Citrate Plus

Approximate Expected Cost for Celebrate Supplements

- Celebrate Multi-Complete Chewable
 - 30 day supply: \$19.95
 - Yearly cost: \$239.40
 - 90 day supply: \$49.95
 - Yearly cost: \$200
 - » Flavors: Forest berry & orange, mango-peach
- Celebrate Calcium Plus 500 Chewable
 - 30 day supply: \$19.95
 - Yearly cost: \$239.40
 - 90 day supply: \$42.95
 - Yearly cost: \$171.80
 - » Flavors: Berries & cream, cherry tart or orange burst

Approximate Expected Cost for Opurity Supplements

- Opurity Bypass Optimized Multivitamin
 - 90 day supply: \$29.95
 - Yearly cost: \$119.80
 - » Flavors: Orange-berry
- Opurity Calcium Citrate Plus
 - 30 day supply: \$13.95/bottle
 - Yearly cost: \$167
 - » Flavors: Orange

Please note that the approximated values and available flavors are subject to change.

Tip: set alarms on your phone to remind you when to take your supplements throughout the day.