

Q: When should I take my **Calcium Magnesium Plus?**

A: There seems to be a lot of concern, and even confusion, on the proper way to take one's calcium complex supplement. Proper absorption is a concern for all health-conscious people, but especially so for many people working to maintain bone health. That's the reason why we have chosen to use **ossein microcrystalline hydroxyapatite (MCHA) complex in Calcium Magnesium Plus**: studies show this calcium form is superior to others in supporting bone health.

The fact is, any way of taking your calcium is better than not taking it at all. If worrying about whether you're doing a perfect job of popping your pills will keep you from sticking with your bone health program, forget about it! Still, recent scientific reports do suggest that some dosing regimens are more effective than others at helping you get the most out of your supplements. Here are a few simple rules.

Rule #1: Spread them out. If you take more than one of *any* given pill in a day, it's best to spread them out rather than taking them all at once. This is a long-known fact with water-soluble vitamins, such as **vitamin C** or **B-complex vitamins**, because such nutrients come into the body with water ... and leave it with water, too. The **b o d y**'s levels of such vitamins typically return to a "normal" baseline (as opposed to "megadose") levels every four hours. So replenishing them by taking them regularly — say, with each meal — is important.

You're much better off taking two "B-50" pills, one with breakfast and one with dinner, than taking one "B-100."

Calcium, unlike niacin, is not a readily-excreted water-soluble vitamin. But that doesn't mean this rule doesn't apply to your **Calcium Magnesium Plus!** The body tends to absorb supplements better a little bit at a time: smaller doses taken at one time mean that the GI tract is exposed to a higher *percentage* of the dose at a given moment, because of the surface area of the intestines. A recent study¹ showed how important this is for calcium.

A group of scientists headed by Dr. Robert P. Heaney, perhaps the world's greatest expert on calcium metabolism, gave volunteers 1000 mg (elemental) of calcium in one of two different dosing schedules, to see how spreading out the dose would affect the absorption of the

supplement. On the first schedule, volunteers took the full amount in one dose; on the second, it was divided up into several doses, all spread out with small meals taken every half-hour to give the stomach some time to begin emptying. Blood was drawn at the initial dosing, and then 1, 3, 5, 7, 12, and 24 hours afterward, to see how much of the specially-"labelled" calcium was being absorbed into the body.

For the first five hours or so — about as long as most people will go between eating a meal or snack — the absorption of calcium was the same on either dosing regimen. This is actually already a pretty

remarkable result, since those on the divided dose had actually only swallowed about two-thirds as much calcium as had those on the once-only schedule (since they had not yet finished their total daily supplement intake). What this tells us is that the divided-dose group had *absorbed* about the same amount of calcium, while only *swallowing* two-thirds as much!

Thus, at the five hour mark, the calcium levels of those on a once-only schedule began to return to baseline, with no new calcium coming in from their GI tracts, while those on the divided dose continued absorbing the additional calcium from the rest of their supplements. By the end of the day, **the multiple-dose plan had led to a total calcium absorption that was 80-100% higher** than the single-dose regimen!

Rule #2: Take 'em with food. This is partly an extension of the logic behind rule one. Almost all nutrients absorb better if allowed to pass slowly through the GI with food. And this isn't just a "likely story:" studies do show that calcium is better taken up when taken with a meal.² In fact, even the antacid **calcium carbonate** is absorbed nearly as well in people who *already* produce nearly no stomach acid because of disease² or drugs⁴ as in folks with normal stomach acidity — *if* they take it with food.

Taking supplements with food also makes them less likely to cause stomach upset, nausea, or diarrhea. This isn't an unique problem with calcium (or even magnesium) supplements: **any nutrient or botanical you can name gives somebody digestive trouble.** It doesn't matter *what* the supplement is: there's someone out there who just won't have a happy tummy when s/he takes it. This is even true of sugar pills! Studies using placebos consistently report that a few people in the trial will have their stomach upset by the dummy pill, whether or not the "real thing" affects many people in the trial. The lesson: don't automatically wonder if there's something wrong with the pill if you can't stomach it. Try it with food, try spreading out the dose — and if worst comes to worst, just try another brand or



type.

Rule #3: Take More at Dinner. The evidence on this point is actually only preliminary, and what evidence does exist is somewhat contradictory, but there does seem to be a good possibility that taking the bulk of one's calcium with the last meal or snack of the day may lead to greater suppression of the tearing down (**resorption**) of the body's bone mass. In 1994, a group of scientists at England's University of Sheffield⁵ measured two markers of resorption in eighteen premenopausal women. The researchers found that **the body's bone-destroying activity peaks in the middle of the night,** between 3 and 7 AM.



The researchers reasoned that, since taking calcium supplements tends to reduce resorption, and since more resorption was taking place at night than during the day, then taking a higher dose in the evening might do a better job of supporting bone health than taking the same dose in the morning. To test their idea, they gave the same high dose of calcium (1000 mg) to women at two different times of day (8 AM or 11 PM), and then monitored bone breakdown.

In the women who took their calcium in the morning, no change was seen in the nightly rhythm of pillaged bone. But **in the women who took their supplement in the late evening, the tearing down of bone was markedly suppressed.** As a result, the **total daily bone-resorbing activity was cut by about one fifth,** as measured by these markers.

This appears to have been a very important result. However, a later trial,⁶ designed to test the English scientists' findings, was a flop. While the measurement technique was not as precise, these researchers found the same nighttime increase in resorption that was reported in the previous trial. But when these researchers tried to concentrate the women's dietary calcium into a single daily meal, they found that it didn't make any difference whether that meal was given in the morning or in the evening. So what's up with that?

Most likely, it's a simple dosage problem. In the first trial, the women got a full 1000 mg from a supplement — *on top of* whatever they were getting out of their food, which they would get throughout the day. The women in the second trial were getting little more than 600 mg per day, total — and all at once, which (as we've seen) will limit their total calcium absorption. It's a reasonable guess that dosage and timing were the reasons for the second trial's failure.

Any calcium is better than none. Don't obsess if your lifestyle doesn't allow you to follow these guidelines to the letter. But to the extent that you can incorporate these rules into your regimen, you may be a better general in the fight for your bone health.

References

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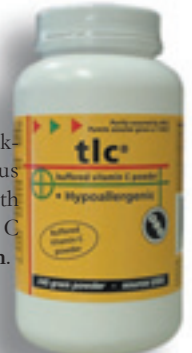


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