

# How to do an Ascorbate (Vitamin C) Calibration Protocol (“C Flush”) to determine individual, functional need for ascorbate

## Which Ascorbate Is Best to Use

It is preferable to use a 100% l-ascorbate, fully reduced, buffered mineral ascorbate form of vitamin C that contains a proper balance of the major essential buffering minerals: 1) potassium, 2) magnesium, 3) calcium, and 4) zinc. No dl-ascorbate or d-ascorbate should be used as the d-ascorbate form is not absorbed by humans; people take up only the l-ascorbate. Per gram of ascorbate, we find best outcomes, patient compliance, and satisfaction from a balanced mineral content of potassium (66 mg), calcium (27 mg), magnesium (11 mg), and zinc (400 mcg).

- This means that if you were taking a half-teaspoon of buffered ascorbate that has no masking or “inert” agents in it, you would have 1.5 grams of ascorbate containing potassium, 99 mg; calcium, 40 mg; magnesium, 16 mg; and zinc, 600 mcg. If there is less than 1.5 grams per half-teaspoon, there is likely to be a hidden or masking agent that may cause digestive or immune problems.

## How to do Ascorbate Calibration “C Flush”

When possible, it is best to start (especially the first use of this protocol) on an empty stomach, first thing in the morning. Allow yourself that day to finish the “flush”. Most people saturate their ascorbate need within a few hours. Occasionally, the need is much greater, and it may take a number of hours to complete the initial calibration “flush”.

Dissolve each half-teaspoon (1.5 grams) of fully reduced, buffered mineral l-ascorbate powder in 2 or more ounces of water or diluted juice (juice diluted 1:1 with water). Plan to count and record each dosage. After dissolving the l-ascorbate and allowing any effervescence to abate (typically dissolves within two minutes), drink the beverage. The amount of l-ascorbate needed depends on how quickly your body uses it up. Below are suggestions for how to best determine your needs based on how healthy you are:

- A **healthy person** begins with a level half-teaspoon dissolved in 1-2 ounces of water or diluted juice every 15 minutes.
- A **moderately healthy person** begins with 1 teaspoon every 15 minutes.
- A **person in ill health** begins with 2 teaspoons every 15 minutes.
- If after four doses there is no gurgling or rumbling in the gut, you should double the initial dosage and continue every 15 minutes.

Continue with these instructions at the proper time intervals until you reach a watery stool or an enema-like evacuation of liquid from the rectum. This is as if a quart or so of liquid is expressed from the rectum.

**CAUTION:** Do not stop at loose stool. You want to energize the body to “flush out” toxins and reduce the risk that they may recirculate and induce problems. At this time, stop consuming the buffered ascorbate for the day. **HOWEVER**, if your calibration dosage is more than 50 grams of vitamin C, you should consume a dosage of vitamin C of at least 10% of the total l-ascorbate need to induce the l-ascorbate calibration “flush” in the later afternoon or evening. Many people find that preparing a “batch” of ascorbate allows for easier, more timely consumption of the beverage rather than making up a new batch at each interval. **Example:** 30 grams (10 teaspoons) may be dissolved in 10-20 ounces of liquid. If this method is chosen, we recommend using a capped, dark bottle to avoid air or light (photo-) oxidation of the ascorbate. Dissolved ascorbate is stable for a day if kept cool or cold and tightly sealed.

## **Changing Ascorbate Need**

As you become healthier, the ascorbate is used more efficiently and is better conserved in your body and less ascorbate will be needed to achieve the desired effect. As your need for ascorbate decreases, you may notice loosening of the stool indicating that your body is consuming ascorbate more efficiently and your need has decreased. That is the time to taper ascorbate intake. As you become familiar with your body's responses, your need for and best timing of ascorbate is likely to become clear through direct experience with this protocol.

## **Daily Consumption of Ascorbate after Calibration (C Flush )**

Between calibrations, consume 75% of the total ascorbate you need to induce the flush. You may use ascorbate as a liquid, tablet, or a capsule taking two to four or more doses per day. The usual sufficiency need for a person in a state of good health is 2-10 grams/day.

## **Hints for Calculating Daily Therapeutic Ascorbate Requirement**

- Total the amount of ascorbate consumed.
- Total the number of 1/2 level tsp. = 1.5 grams or 1 level tsp. = 3 grams.
- Multiply number of 1/2 tsps. times the number of doses for the total.
- Then calculate 75% or three-quarters of the total. This is the current daily sufficiency need for ascorbate.

<b>Range amounts of level 1/2 tsps.= 1.5 gms.</b>	<b>Number of level tsps.= 3 gms.</b>	<b>Total grams of l-ascorbate consumed for calibration</b>	<b>Daily (75%) therapeutic level of l-ascorbate (level 1/2 tsps.)</b>	<b>Daily (75%) therapeutic level of l-ascorbate(gms.) [rounded to nearest unit for clinical use]</b>
6	3	9	4.5	7
10	5	15	7.5	12
25	12.5	37.5	19	28
90	45	135	67.5	101

## **Outcome of Ascorbate Flush**

Many people report a subjective sense of improved well-being after the completion of an ascorbate calibration. This may be of short duration, initially, but is a promising sign for long-term improvement. As toxins are eliminated from the body and as it is energized through the action of the ascorbate, you should feel progressively better for longer periods of time.

## **Repeat of Ascorbate Calibration**

For most rapid progress, once per week is recommended. You select the frequency that meets your needs. Repair deficits increase ascorbate needs over time until a consistent dose of vitamin C is maintained. Discuss with your practitioner the right frequency for you.

## **Potential Reservations Regarding Ascorbate Calibration Process**

Be sure to consume adequate water with each ascorbate dose. The approach described above will help you in this regard. Any concern about fluid or electrolyte loss from the stool is thus minimized. Some people report gas or fullness while doing the ascorbate calibration “flush”, but that is almost always due to dissolving the vitamin C in too little water or rushing the procedure. Room temperature liquid is best for absorption. Cramps may occur, though rarely, and it is usually because too little fluid is used to dissolve the ascorbate.

## **Helpful Hints and Insights**

- Most people find that the flush is easy to do. Since the amount of time can vary quite a bit, it is best to do your first ascorbate calibration on a day when you can stay home for most of the day. Once you have done an ascorbate calibration/flush, you will have a better idea of how much time is needed.
- For most people, it takes somewhere between 3-8 teaspoons of ascorbate to flush. It could differ for others: 15, 20, or more than 50 grams depending on your health status and how quickly your body uses up ascorbate.
- Sometimes people remain bloated for the rest of the day of calibration. Occasionally, people have loose stools for a day or so after doing the ascorbate flush.
- Some people have reported **hot** stools that seem to burn the anus after several evacuations. If so, you can use a natural salve, such as calendula ointment, to soothe the area. This tends to cease after the first few times you do the calibration.
- People with hemorrhoids, irritable bowel disease, or inflammatory bowel disease may find that the ascorbate activates their tissues in the healing process. They may need to increase ascorbate and bioflavonoids slowly over time before doing an ascorbate calibration.
- Usually, people find that they feel better than they have in a very long time after the first ascorbate flush. Some report a greater sense of well-being after the second or third. The overall consensus is that as time goes on doing these calibrations helps people feel increasingly better.

## **Supporting Supplementation**

When introducing higher dosages of vitamin C your cellular machinery works harder and more efficiently. The following supplements may be helpful to allow your repair to go most smoothly.

### **When energy disturbances, cramps, and magnesium deficits are likely:**

- **Choline Citrate:** (1 teaspoon = **1,300 mg.**) - 1 teaspoon **twice daily** in juice or water
- **Magnesium: 100 mg. elemental twice daily**
- **L-Glutamine: 1,500 mg. L-Glutamine + 500 mg. PAK** (the PAK recycles / potentiates Glutamine so less is needed) or the equivalent = 15 grams of L-Glutamine free-form amino acid, **twice daily.**

### **When digestive problems and inflammation are significant:**

- **Probiotics: 2-4 capsules** of multiple cultured human strains of lactobacillus/bifidobacterium bacteria **with each meal.**
- **Flavonoid/flavanol repair combination: 2-10 tablets** of 500 mg. quercetin dihydrate plus 5 mg. Proanthocyanidins/soluble OPC **twice daily.**

## **Scientifically shown homeostatic benefits ascorbate promotes or enhances:**

- \* Scurvy resistance: improved blood vessel and cardiovascular integrity ✓
- \* Enhances hormone healthy and reduces hormone unhealthy actions ✓
- \* Enhances neurotransmitter functions healthy and reduces unhealthy actions ✓
- \* Promotes immune system healthy and reduces unhealthy actions ✓
- \* Enhances nitrous oxide (NO) functions ✓
- \* Enhances and repairs detoxification functions ✓
- \* Enhances ATP energy compound production ✓
- \* Enhances healthy bone formation ✓
- \* Enhances and rebuilds glutathione functions ✓
- \* Promotes iron *balance* [uptake and release] ✓
- \* Reduces bioaccumulation of toxins ✓
- \* Improves transit time ✓
- \* Protects DNA from oxidative damage ✓
- \* Reduces toxic minerals in body ✓
- \* Enhances natural anti-cancer surveillance ✓
- \* Direct tumor cytolytic effects ✓

## **Scientifically disproven effects that ascorbate promotes or enhances:**

- \* Immortality
- \* Fenton reactions *in vivo*
- \* B-12 remains active *in vivo*
- \* DNA replication error theory not confirmed *in vivo*

## **I-Ascorbate: Its scientific significance for human health**

Vitamin C (ascorbic acid or l-ascorbate) is nature's most potent, safer antioxidant cofactor. Ascorbate has gotten a fair amount of attention from the media in the last few years, including whether it is helpful, neutral, or harmful in limiting the number of colds, their symptoms, and their duration.

1. Ascorbate aids in the maintenance of cellular membranes, cellular respiration, the peroxidase cleansing system, the restoration of vitamin E /selenomethionine complexes, and sulfhydryl enzymes such as glutathione synthetase, thereby helping to detoxify various drugs and chemicals.
2. Ascorbate is also involved in hormone biosynthesis and maintaining the integrity of connective tissue, cartilage, capillaries, bones, and teeth. Vitamin C is, therefore, important in wound repair and tissue healing.
3. Ascorbate has been shown to increase cellular resistance to many common viral infections (most probably due to its interferon-like activity) and enhance specific parameters of immune function.

All of these actions of ascorbate are related to its antioxidant or reducing or electron donating abilities. The use of ascorbate in health and disease is complex and sometimes misunderstood, although much less so when one considers the following facts and supportive background information.

While almost all animals and plants synthesize their own vitamin C, exceptions are guinea pigs, monkeys, and **humans**. The first two of those eat mostly fresh vitamin C-rich foods: fruits and vegetation. Non-human animals, when adjusted for size and weight, make the equivalent of 5 to 15 grams of vitamin C a day, mostly in their livers and when stress free. Production can more than double when the animal is distressed. Our genetic ancestors once had the ability to synthesize vitamin C but appear to have lost it years ago. One enzyme is missing in a 6-enzyme process converting glucose to vitamin C. Scientists estimate that without this mutation, when healthy we would be making 10-30 grams of vitamin C a day throughout our lives and more when we are unwell or distressed.

## **Ascorbate Need**

Many of us eat only small amounts of vitamin C-rich foods. Also, our food supply contains less and less vitamin C because of premature food harvesting, artificial ripening, and food processing. Studies of the effects of vitamin C seem to be confusing.

1. Generally, when small doses are used (1 gram or less), little to no significant effects were reported. When larger doses are given (20-200 grams/day), significant positive changes are typically reported.
2. Almost all conditions, acute or chronic, can have shortened courses and patients respond favorably. Vitamin C (in the pure, buffered, l-ascorbate) has virtually no side effects. Vitamin C has been given up to 300 grams per day, taken intravenously, without reported side effects.

This approach to determining your need for ascorbate is of the next generation and builds upon the experience gained with "bowel tolerance" determination of ascorbate need. Our livers would be making vitamin C steadily, with increases commensurate with distress, if we had not lost that key enzyme. Thus, for best health, it is important to take ascorbate regularly and steadily. Often gas, cramps, and diarrhea occur at rather low doses of ascorbate (below 10 grams). There are many possibilities for this that are addressed above in the additional supplements recommended as helpful in selected cases.

If one wishes to or must stop ascorbate for any reason, it is quite important to taper gradually. Sudden cessation of ascorbate does not allow the body time to accommodate to the change, and the body will continue to metabolize/excrete large amounts. You must reduce your ascorbate level by several grams/day over a sufficient period (depending on how much you were taking) to prevent this from occurring. Using the C Flush is important. Many helpful things happen at the ascorbate saturation level that will not happen otherwise. Doses from 50 grams to 200 grams or more a day are usual for immune dysfunction states like cancer, chronic viral and bacterial infections, and other serious inflammatory or autoimmune diseases. We recommend appropriate doses throughout life and see l-ascorbate used effectively to charge up the cellular electron pool, promoting cellular healing and metabolism, purging the body of foreign invaders, and providing a base on which to build health. Over a period of ascorbate use, the amount of ascorbate necessary to achieve bowel tolerance changes and fluctuates. During stress or illness, many times more can be taken (and is appropriate to take) than at other times. We ask each person to begin to see ascorbate as a useful tool. As healing occurs and health becomes more balanced, the amounts of ascorbate should also change accordingly. Vitamin C can be useful to you. Use it wisely and you will be well rewarded.

## References

1. Anderson R. Ascorbic acid and immune functions. In Vitamin C: Ascorbic Acid, ed. J.N. Counsel, D.H.Homed, London: *Applied Science* 1984:249-72.
2. Anderson R. The immuno-stimulatory, anti-inflammatory and anti-allergic properties of ascorbic acid. *Annals Rev Nutr* 1984; 6:19-45.
3. Delafuente JC and Panush RS. Modulation of certain immunologic responses by vitamin C. *Int J Vitam Nutr Res* 1980;50:44-51.
4. Seib PA, Delbert BM, eds. *Ascorbic Acid: Chemistry, Metabolism and Uses*, Advanced Chem User, Washington DC: *Am Chem Soc* 1982; 604.
5. Thomas WR and Holt PG. Vitamin C and immunity: An assessment of the evidence. *Clin Exp Immunol* 1978; 32:370-79.
6. Banhegyi G, Braun L, Csala M, Puskas F and Mandl J. Ascorbate metabolism and its regulation in animals. *Free Radical Biology & Medicine* 1997; 23 (5):793-803.
7. Meister A. Glutathione-ascorbic acid antioxidant system in animals. *J Biol Chem* 1994; 269: 9397-9400.
8. Winkler BS, Orselli SM, Rex TS. The redox couple between dilatation and ascorbic acid: a chemical and physiological perspective. *Free Radic Biol Med* 1994; 17: 333-349.
9. Smimoff N and Pallanca JE. Ascorbate metabolism in relation to oxidative stress. *Biochem Soc Trans* 1994; 24: 472-478.
10. Bode AM, Yavarow CR, Fry DA, Vargas, T. Enzymatic basis for altered ascorbic acid and dehydroascorbic acid levels in diabetes. *Biochem Biophys Res Commun* 1993; 191:1347-1353.
11. Frei B, England L, and Ames BN. Ascorbate is an outstanding-antioxidant in human blood plasma. *Proc National Academy Science*. USA. 1989; 86: 6377-6381.
12. Chattedee IB. Ascorbic acid metabolism. *World Rev Nutr Diet* 1978; 30:69-87.
13. Johnson FC. The antioxidant vitamins. *CRC Crit Rev Food Sci Nutr* 1979; 11:217-309.
14. Levine M and Morita K. Ascorbic acid in endocrine systems. *Vitam Horm* 1985; 42:1-64.
15. Lewin S. *Vitamin C: Its Molecular Biology and Medical Potential*. New York/London: Academic 1976.
16. May JM, Qu ZC, Whitesell RR. Ascorbic acid recycling enhances the antioxidant reserve of human erythrocytes. *Biochemistry* 1995; 34:12721-12728.
17. Jaffe R and Deykin D. Evidence for the Structural Requirement for the Aggregation of Platelets by Collagen. *J Clin Invest* 1974; 53:875-883.
18. Jaffe R, Kasten B, MacLowry K, Young D. False Negative Occult Blood Tests Caused by Ascorbic Acid. *Ann Int Med* 1975; 83:824-826.
19. Jaffe R. Platelet Interaction with Connective Tissue. In *Physiological Reaction of Blood Platelets* (Gordon, Ed.) *Elsevier* 1976, 261-292.
20. Jaffe R. *The Science of Wellness Medicine*. Proceedings 2nd International Symposium on Human Functioning. Biosynergetics Institute. Wichita, Kansas, 1978.
21. Jaffe R and Zierdt W. An Occult Blood Test Procedure not Subject to Inhibition by Reducing Substances. *J Lab Clin Med* 1975; 93: 879-886.
22. Pitas R, Nelson C, Jaffe R, Mahley R. 15,18-Tetracosadienoic Acid Content of Sphingolipids from Platelets and Erythrocytes of Animals Fed Diets High in Saturated or Polyunsaturated Fats. *Lipids* 1978; 13: 551-556.
23. Jaffe R, Lawrence L, Schmid A, MacLowry K. Inhibition by Ascorbic Acid (Vitamin C) of Chemical Detection in Urine. *Am J Clin Path* 1979; 42: 468-470.
24. Jaffe R. *Delayed Hypersensitivity in Chronic Illness and Health*. Health Studies Collegium, Vienna, VA, 1985; 44.
25. Jaffe R. *Delayed Allergy and Inflammation: Link to Autoimmunity*. Health Studies Collegium, Vienna, VA, 1985; 33.
26. Jaffe R. Immune Defense and Repair Systems: Clinical Approaches to Immune Function Testing and Enhancement. *Townsend Letter for Doctors* Part 1: #79/80, 88-92; Part 2: #81/82, 38-44; Part 3: #83/84, 59-64, 1989.
27. Deuster PA and Jaffe R. A Novel Treatment for Fibromyalgia Improves Clinical Outcomes in a Community-Based Study. *J Musculo Pain* 1998; 6:133-149.
28. Jaffe R. Autoimmunity: Clinical Relevance of Biological Response Modifiers in Diagnosis, Treatment, and Testing, Part I. *Intl J Integrative Med* 2000; 2 (2):16-22.
29. Jaffe R. Autoimmunity: Clinical Relevance of Biological Response Modifiers in Diagnosis, Treatment, and Cofactor Replacement, Part II. *Intl J Integrative Med* 2000; 2 (4): 58-65.
30. Jaffe R and Brown S. Acid-Alkaline Balance and Its Effect on Bone Health. *Intl J Integrative Med* 2000; 2 (6): 7-18.

**For additional information, questions, and clinical comments on this Ascorbate Calibration protocol, please contact:**

PERQUE LLC

Client Services Department

14 Pidgeon Hill Drive, Suite 180, Sterling, VA 20165

Tel: 800.525.7372 • Fax: 703.450.2995 • Email: [perque@perque.com](mailto:perque@perque.com)