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ESSENTIALS

# VITAMIN C 1000mg

Antioxidant activity to protect against oxidative stress and support the function of the immune system

## Nutritional Information

One Tablet provides:

		*%NRV
Vitamin C	1000 mg	1250
Citrus Bioflavonoids Complex	100 mg	

\*NRV = Nutrient Reference Values

Take one to three tablets daily with food. Swallow with water.



## SUMMARY

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- High potency 6 hour timed release formula.
- With citrus bioflavonoids to increase the absorption of vitamin C.

## DESCRIPTION

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Vitamin C is an essential water-soluble vitamin and antioxidant that should be consumed daily. Vitamin C has a short half-life<sup>1</sup> which is where the advantage of a timed release tablet comes in. A steady supply of vitamin C to the body tissues is beneficial in some situations. Citrus bioflavonoids work with vitamin C to increase the body's antioxidant defences against free radicals and increase the absorption of vitamin C synergistically<sup>2</sup>.

Vitamin C is needed for the immune system to function effectively. It is required for the activation of Natural Killer cells, and without it their function is impaired. Vitamin C also contributes towards antioxidant protection due to its action as a free radical scavenger. Vitamin C is required for the adrenal glands to function optimally<sup>3</sup>, and quickly becomes used up in periods of stress, decreasing immune system capacity and increasing the incidences of infections. Low levels of vitamin C are associated with increased risk of cardiovascular disease due to its antioxidant properties, and its necessity for collagen which maintains elasticity in the blood vessel wall. Vitamin C contributes to collagen production and is needed for the main structural tissues in the body such as skin, gums, bones, teeth and cartilage found in joints. Vitamin C helps with the absorption of iron, needed for haemoglobin and oxygen transportation around the body. The current recommendation of vitamin C intake is the minimum amount needed to prevent deficiency symptoms in a healthy adult. This does not take into account chronic stress states, increased demand in times of illness or heart disease.

## STRESS

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Vitamin C is needed in times of stress. Some vitamin C is stored in the adrenal glands and is released as part of the stress response<sup>3</sup>. In times of chronic stress, these stores may quickly become depleted, and need to be replaced.

**Decreasing cortisol:** Chronically elevated cortisol suppresses the function of the immune system which decreases resistance to infections. Vitamin C decreases symptoms associated with stress. In one placebo controlled trial subjects who took vitamin C had quicker saliva cortisol recovery compared to the placebo group<sup>12</sup>. Vitamin C should be considered essential in the management of stress.

## IMMUNITY, DETOX & CELL PROTECTION

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**Immune cells:** Vitamin C is required for the proper function of Natural Killer T and B cells. One study showed that vitamin C was able to increase Natural Killer T and B cell function by 10 fold in patients who had their immune cells suppressed by toxins. Vitamin C completely restored immune function<sup>5</sup>. Immune cells accumulate vitamin C, with phagocytes storing the most vitamin C. Vitamin C is also a powerful antioxidant that protects the DNA of immune cells.

**Antioxidant:** Another mode of action of vitamin C is its electron donation and powerful antioxidant status<sup>7</sup>. It is essential for the immune system that our oxidants are kept in check to prevent an excessive amount of reactive oxygen species (ROS) from damaging the immune cells<sup>8</sup>. One study reported that vitamin C enhances glutathione recovery after an oxidative challenge<sup>9</sup>, protecting the body from oxidative damage even further.

## CARDIOVASCULAR HEALTH

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**Atherosclerosis:** Vitamin C works in multiple ways to help protect cardiovascular health. Its powerful antioxidant action helps to prevent the oxidation of cholesterol and moderately lowers cholesterol, helping to prevent and slow the progression of atherosclerosis<sup>10</sup> and improving endothelial function.<sup>6,7,8,9</sup>

**Blood pressure:** Vitamin C is required for the maintenance of collagen, a large structural part of the blood vessel walls. Collagen is required to maintain the flexibility of blood vessels which is essential for normal blood pressure. Some short-term trials have concluded that vitamin C supplementation reduced both systolic and diastolic blood pressure.<sup>10,11</sup>

## COLLAGEN

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Vitamin C is required to hydroxylate proline and lysine which creates procollagen. Procollagen is converted into collagen by 3 enzymes. Collagen is the main structural component in the body. Collagen is particularly important for the health of the bones, teeth, skin, gums and blood vessels.

**Bones and teeth:** Vitamin C helps to maintain structure and flexibility in bones and teeth. Collagen holds the minerals in place creating strength and resistance to breaking.

**Dental health:** Vitamin C deficiency is a major contributor to bleeding and inflamed gums and can eventually lead to tooth loss. One of the symptoms of scurvy is bleeding gums. This is due to the loss of collagen.

**Skin:** Collagen creates elasticity in the skin and protects against wrinkling and sagging. Decreased intakes of vitamin C lead to premature wrinkling.

## WHY ARE THERE CITRUS BIOFLAVONOIDS IN VITAMIN C 1000mg?

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Citrus bioflavonoids (natural pigments of citrus fruits) increase the absorption of vitamin C within the body. One study compared different forms of vitamin C with and without bioflavonoids, or a placebo and studied the absorption rates. Ascorbic acid with bioflavonoids had the greatest absorption rates<sup>2</sup>.

## HOW SHOULD VITAMIN C 1000mg BE TAKEN?

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Take one to three tablets daily with food. Swallow with water.

## ARE THERE ANY PRECAUTIONS BEFORE OR WHILE TAKING VITAMIN C 1000mg?

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Vitamin C 1000mg is intended for adults and is not suitable for:

- Children;
- Individuals with kidney disease.

Consult your doctor before taking vitamin C in combination with any prescription medication.

## FEATURES

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- High potency 1000mg per tablet.
- Timed release for maximum absorption.
- With citrus bioflavonoids.

## HEALTH NEEDS

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HEART AND  
CIRCULATION



IMMUNITY



STRESS AND A  
HECTIC LIFESTYLE



DETOX & CELL  
PROTECTION

## SCIENTIFIC REFERENCES

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