



## Men's Fertility and Coconut Water: A Review

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### Abstract

The clear liquid within young coconuts is called coconut water. Young coconuts are green; coconut water is occasionally called "green coconut water." Coconut milk and coconut water are two different things. The grated meat of a mature coconut is emulsified to create coconut milk. Coconut water is frequently consumed as a beverage and as a remedy for dehydration brought on by exercise or diarrhea. Additionally, it is tested for excessive blood pressure. Both carbohydrates and electrolytes like potassium, salt, and magnesium are abundant in coconut water. It is necessary for improvement of male's fertility. There is a lot of interest in utilizing coconut water to treat and prevent dehydration due to its electrolyte content.

**Keywords:** Men, Fertility, Coconut Water

## INTRODUCTION

Coconut water is a fertility booster for men. The coconut, which is known as *Cocos nucifera* L., is the sole species of the genus *Cocos* and is classified as a part of the *Arecaceae* family. It is simple to find coconut trees in Southeast Asian nations like Indonesia, Malaysia, and the Philippines because the production of coconut trees is concentrated in Asia and the islands between the Indian and Pacific Oceans. In Nigeria, coconut can be found in different part of south East and south western Nigeria. In Umuamusa, and Amucha, in Njaba Local Government, coconut can be found. Coconuts are referred to as one of nature's gifts to mankind, as well as the tree of life, the tree of a thousand uses, and the milk bottle on the doorstep of mankind. This is because every part of the coconut tree can be used to make a variety of goods<sup>[1]</sup>.

It consists of an inner endocarp, an outer epicarp, and a mesocarp. The fruit's mesocarp, which is thick, fibrous, and brown when it is dry, differs from the fruit's epicarp, which is its outer layer. The endocarp is the toughest part, containing both solid and liquid albumen. Both green and ripe fruits' watery liquid can be swallowed and is nourishing and cooling. The endosperm, which is the fleshy portion of the seed, can be dried, shredded, or cooked<sup>[2]</sup>.

The grated endosperm can be used to make coconut milk, a common drink.

The endosperm is processed to create coconut oil, soap, and other goods in its dried form, or copra. The fruit's endocarp has been used to create tools, containers, miniature drums, crafts, and fuel<sup>[3]</sup>.

### Coconut Water's Chemical Composition

Coconut water is a healthy, calorie-free beverage. It is high in vitamins and critical electrolytes while being low in sugar and calories. Everyone can safely drink coconut straight from the nut, earning it the moniker "fluid of life." Coconut water is "dew from the heavens," as the Hawaiians put it<sup>[4]</sup>.

Coconut water starts to lose its flavors and nutrients as soon as the coconut is cracked open. This is in part because coconut water contains naturally occurring enzymes. Oxygen-induced interactions between peroxidase (POD) and lipoxygenase (PPO) result in nutritional and flavor losses<sup>[2]</sup>.

## The Health Benefits of Coconut Water

In all nations that produce coconuts, coconut water is the most nutrient-dense beverage. After its introduction to the scientific world, it has undergone substantial research. It is a popular beverage in its natural state because of its energizing and nutritive qualities, some of which are based on cultural or traditional beliefs. Additionally, it is thought that patients in isolated areas may benefit from using coconut water as a significant option for IV hydration as well as oral rehydration. Cytokinins, a class of phytohormones with notable anti-aging, anti-carcinogenic, and anti-thrombotic actions, are some of the most important and beneficial components in coconut water<sup>[4]</sup>

The micronutrients in coconut water, such as the inorganic ions and vitamins, are essential for supporting the body's antioxidant system.

## Coconut Water and Fertility

In the scientific world, it has been indicated that coconut water improves fertility. Nnodim et al<sup>[1]</sup>, in his research, stated that rats that consumed coconut water had higher levels of the hormones luteinizing hormone (LH), follicle stimulating hormone (FSH), and testosterone in comparison to rats that did not consume coconut water. As FSH and LH stimulate the creation of androgen and testosterone in Leydig cells, which in turn act on Sertoli cells and seminiferous tubules to start spermatogenesis in the male, these hormones are crucial to the process. Therefore, coconut water may be able to boost male fertility.

## Components in Coconut Water that 'Boost'

It was revealed that rats given nicotine intoxication had considerably higher sperm counts, motility (movement), morphology, and plasma testosterone levels when given tender and mature coconut water. The positive impact of coconut water components on sperm counts and sperm motility has been demonstrated in numerous research. Men who used L-arginine supplements saw a considerable improvement in sperm motility with no negative side effects. The dietary amino acid L-arginine is necessary for spermatogenesis. Men who received dietary L-arginine supplements had higher sperm counts and better sperm motility. Infertile men who received ascorbic acid treatment had higher sperm counts and significantly fewer agglutinated sperm. As a result, ascorbic acid supplementation shields sperm against inborn oxidative DNA damage that reduces the number of defective sperm<sup>[5]</sup>.

Furthermore, it has been revealed that whereas mature coconut water contained roughly 150mg% of L-arginine, juvenile coconut water only contained 30mg%. Due to its antioxidant property, L-arginine has so far demonstrated a notable improvement in sperm motility, sperm morphology, and sperm count. In the end, ingesting this amino acid in the right proportion could have a positive impact on semen antioxidant ability against free radicals that decreased semen quality. Decreases in sperm that have been agglutinated that are considerable in infertile men. As a result, ascorbic acid supplementation shields sperm against inborn oxidative DNA damage that reduces the number of defective sperm<sup>[6]</sup>.

Selenium is a different bioactive substance that promotes sperm motility. According to a study, selenium supplementation increased the motility of sperm in subfertile men with low selenium levels. Selenium is a well-known inorganic ion contained in coconut water that is essential for maintaining the body's antioxidant system. Due to its importance for sperm function and male fertility, dietary selenium deficiency can result in immotility, deformity, and infertility. An excessive amount of reactive oxygen or free radicals could harm human cells and disrupt the body's system. Luckily, with the aid of antioxidant systems, by providing free radicals with electron donations or by indirectly participating in metalloenzymes that catalyze the removal of oxidizing species, they can mitigate the most harmful effects of these oxidizing species. It's noteworthy to notice that selenium supplementation over a lengthy period of time in healthy men did not reduce the quality of their sperm<sup>[7]</sup>.

## CONCLUSION

The immune system-booster found in coconuts is a powerful antioxidant capable of neutralizing highly reactive molecules and lowering oxidative stress. The antioxidant defense system and reproductive system of the human body depend on the micronutrients in coconut water. L-arginine and ascorbic acid, which are abundant in coconut water, greatly lower the formation of free radicals and lower lipid peroxidation. As a result, coconut water has the potential to increase male fertility and may eventually be utilized as a different form of treatment for male infertility.

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