

Viagra: Performance, Side Effects and Safe Alternatives

by
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On March 27, 1998, the FDA approved the drug Viagra (sildenafil citrate) as a treatment for male impotence. Aside from the recent gyrations in the stock market, little else has generated as much excitement as the response to the availability of this new drug designed to deal with the common but embarrassing male problem of erectile dysfunction.

Is That A Bottle In Your Pocket.?

Viagra was originally investigated as a potential anti-angina medication, based on its ability to release nitric oxide and increase blood flow to the heart. Although Viagra failed as a heart medication, researchers in London became excited when many of the men in the clinical trials reported the frequent occurrence of unaccustomed erections and improved sexual performance. Following this serendipitous finding (and five years of clinical trials), Viagra was finally granted approval as a treatment for men suffering from difficulty in achieving erections due to conditions such as diabetes, vascular disease, spinal cord injury, and radical prostatectomy.

Viagra is a drug that lives up to all the hype, lifting the hopes and self-esteem of up to 80 percent of men suffering from non-organic impotence. Others with mild to moderate organic impotence also respond to Viagra. Additionally, Viagra also seems to enhance sexual performance and enjoyment and reduce the "latent period" between erections even in men who have no dysfunction.

In the two months following its release, over one million prescriptions were issued, making it one of the most successful drugs ever introduced. As expected, the success of Viagra also raised Pfizer's profits and drove stock prices through the roof. .

Or Are You Just Happy to See Me?

Viagra is also quickly gaining a reputation with women. This makes sense when one considers that the clitoris, structurally similar to the penis, becomes engorged with blood during sexual arousal. Viagra may provide similar benefits, enhancing the sexual sensation and orgasmic enjoyment of women. In response to this growing demand (and very lucrative market) Pfizer is now conducting clinical trials of Viagra as a pill for sexual enhancement in women.

Rising to the Challenge

Vascular smooth muscle (VSM) cells surround arteries and arterioles, contracting and relaxing the arteries to regulate blood pressure. The given state of smooth muscle cells, and their effect on blood pressure, understandably have a profound effect on the male sexual organ. Let's examine how this process works.

Normally, in the presence of sexual stimulation, blood flow is directed into "pockets" known as the corpus cavernosum, contained within the shaft of the penis. The resulting inflow of blood leads to the enlargement and stiffening of the penis.

This engorgement is triggered by nitric oxide (NO), a short-lived neurotransmitter. Nitric oxide, synthesized from the oxidation of the amino acid arginine, activates an enzyme that manufactures cyclic guanosine monophosphate (cGMP), a biochemical signaling enzyme. Under normal circumstances, cGMP, directs the smooth muscle cells to relax, leading to the dilation of penile arteries.

However, immediately following release of NO and production of cGMP; another enzyme, cGMP phosphodiesterase type 5 (PDE-5), is activated.

PDE-5's main activity is to destroy cGMP almost as fast as it is formed. The result of this breakdown of cGMP by PDE-5 is a rapid decrease in smooth muscle relaxation and a loss of blood flow to the penis. Subsequently, the penis returns to its flaccid state.

How Viagra Works

Unfortunately, as we age, cellular concentrations of cGMP decrease. Viagra works to achieve and maintain erections by (1) enhancing the effects of nitric oxide, and (2) maintaining higher levels of cGMP, the two key players in penile erection. The way Viagra does this is to selectively inhibit the cGMP-destroying actions of PDE-5. By blocking the actions of this enzyme system, cGMP is no longer broken down. This leads to elevated cGMP levels in the corpus cavernosum. This in turn prevents relaxation of the smooth muscle in the corpus cavernosum, increases blood flow to the genitals, and leads to stronger erections and intensified sensation.

Viagra: Side Effects

The most common side effects of Viagra include headaches, facial flushing, and indigestion. The FDA also noted that three percent of men taking the little blue pill reported temporary changes in their vision, including light sensitivity and a bluish tinge in their vision.

In early May, the American Academy of Ophthalmology, meeting in San Francisco, urged that the problem be taken more seriously. "FDA clinical trials show that taking the medication, especially at higher doses, can cause some retinal dysfunction, and affect the way we see for a number of hours," association spokesman Dr. Michael F. Marmor said in a statement.

Marmor, a professor of ophthalmology at Stanford University, said a clinical study showed that electrical measures of retinal function dropped by 30 to 50 percent and lasted for at least five hours after taking a large dose of Viagra.

He suggested that people with retinal eye conditions such as macular degeneration or retinitis pigmentosa use the drug with caution, staying with the lowest dose possible.

The recommended dose level for most patients is 50 milligrams, according to the FDA.

Viagra and Nitrates

In addition to eye problems, both the FDA and Pfizer have warned against taking Viagra with any nitrate-based cardiac medications (i.e., sublingual nitroglycerin tablets, nitroglycerin patches, etc.). Pfizer warned that heart patients should not be treated with nitroglycerin if the patient has used Viagra in the previous 24 hours. Pfizer says there have been cases where patients who received both drugs have died after developing irreversible hypotension (a severe drop in blood pressure).

This is due to the drug's action of enhancing the smooth muscle relaxing effects of nitric oxide. Thus, a combination of Viagra and a vasodilating drug like nitroglycerin might result in a significant and potentially dangerous drop in blood pressure.

Natural, Safe and Affordable Alternatives to Viagra

Perhaps the biggest drawback to using Viagra (aside from side effects) is the high cost, which can range upwards of \$10 per pill (or more)! As noted earlier, Viagra works to increase both the levels and activity of nitric oxide, leading to increased cGMP, increased blood flow to the genitals, and more intense sensations. Fortunately, there is a less expensive way to naturally

increase the amount of nitric oxide released during sexual stimulation. The key is supplemental L-arginine, the direct precursor of nitric oxide.

L-Arginine

In the 1990's, scientists discovered that L-arginine, a non-essential amino acid commonly found in the diet, is an oxidative precursor of nitric oxide (NO). As mentioned previously, nitric oxide is required for achieving and maintaining penile erection. Under conditions in which nitric oxide is produced for a specific physiologic purpose, the concentration of L-arginine (from which it is formed) can be a limiting factor.

Researchers at New York University School of Medicine gave L-arginine to a group of impotent men, and found that six out of 15 men receiving the amino acid claimed an improved ability to achieve erections, while none of the 15 men in the placebo group reported any benefit.

Choline and Vitamin B-5

Sexual arousal occurs not just in the genitals but in the whole body and, especially, in the brain. For men, it actually begins when the brain sends impulses down the spinal cord and out to the nerves that serve the penis. These impulses trigger the production of nitric oxide (NO), which causes penile arteries to dilate and the spongy core of the penis to relax and become engorged with blood. The neurotransmitter that carries the sexual message is acetylcholine (ACh). ACh also seems to control sexual behavior through its activity in the brain. For women, ACh is also a very important part of sexual function.

Numerous studies confirm a key role for cholinergic nerve transmission in sexual responses. Simply speaking, with too little ACh, sexual activity goes down. Increase ACh levels, and sexual activity goes up. ACh is involved in the build-up toward orgasm and the urethral and vaginal contractions that occur during orgasm as well as the subjective perception of orgasm intensity and duration.

In addition to its direct role in the sexual response, ACh is also the primary chemical the body uses to transmit signals from nerves to skeletal muscles, the muscles that move the body. You need this chemical for muscular control and proper muscle tone. There is reason to believe that enhancing cholinergic neuromuscular transmission will enhance your energy and stamina by raising your ACh levels and that this can provide indirect sexual benefits by allowing you to perform longer and with more energy.

While drugs can enhance the body's cholinergic activity, these drugs not only have unpleasant or even dangerous side effects, but are available only by prescription. One way to safely and effectively enhance ACh levels is to take supplements of choline, along with vitamin B-5, so that the body will manufacture more ACh.

Vitamin B-5, also known as pantothenic acid or calcium pantothenate, actually seems to enhance endurance by two routes. The first is its already-mentioned role in creating ACh from choline. Second, is its role in the energy-producing Krebs Cycle, which is vital for all living cells. An early indication that vitamin B-5 might increase physical endurance came from a study in which rats were placed into a tank filled with cool (64°F) water and forced to swim until they became exhausted. Prior to their swim, the rats' diets had included either high, adequate, or deficient levels of vitamin B-5. The high dose rats lasted more than four times as long as those whose diet had been B-5 deficient. In another experiment, pieces of frog muscle were stimulated electrically to make them twitch. The stimulation continued until the muscle became exhausted. Muscle tissue that was bathed in vitamin B-5 had double the work output as the control muscle. [Ralli, 1953].

What are the sexual effects of choline and vitamin B-5?

As these results suggest, the primary sexual effect of treatment with choline and vitamin B-5 or B-5 alone is reported to be increased endurance. "I can generally have sex for about twice as long as I can without it," said a man in his 30s, who takes vitamin B-5 by itself.

One woman, who uses choline plus vitamin B-5, says they help her feel more relaxed during sex. "There's no muscle tightness," she said. "It makes your body feel smoother, especially if you tend to tense up while having an orgasm."

Dosage and timing

Experienced users recommend taking choline plus vitamin B-5 or B-5 by itself about 20 to 30 minutes before sex in order to get the full effect right from the start. But, notes one user, "Don't worry if you start too soon, it'll kick in as you're going." He adds that, "Not everybody will notice it, but if you set a clock, you'll notice that you have the energy to go longer. Pretty much everyone I've told about B-5 has had that effect."

Combinations that many people have found effective include three times as much choline as B-5 (for example, 500 - 1,000 mg of B-5 in combination with 1,500 - 3,000 mg of choline). It is probably wise to begin with lower doses in this same ratio, and gradually increase the dose as tolerated.

Tyrosine and Phenylalanine

Several lines of evidence link activity of the neurotransmitter dopamine in the brain with sexual behavior. Generally, it appears that higher levels of dopamine are associated with more sexual interest and vice versa. Increased brain dopamine activity caused by taking the drug L-dopa is believed to be the cause of a "hypersexuality" syndrome in people who take the drug for Parkinson's disease. L-dopa is a chemical precursor of dopamine (which in turn is a precursor of norepinephrine). In other words, the body uses L-dopa to make dopamine. L-dopa is available only by prescription, but you can also increase your brain dopamine levels by taking the nonprescription amino acids that the body uses to make L-dopa: tyrosine and phenylalanine. People who have lost interest in sex because they are depressed may benefit from taking doses of 100 to 500 milligrams of L-phenylalanine or L-tyrosine for two weeks. Supplements of vitamin B-6, vitamin C, folic acid and copper in addition to the tyrosine or phenylalanine, should help maximize the conversion of L-dopa to dopamine.

ProSexual Plus

Enhances sex function, primarily, by enhancing levels of nitric oxide (NO) in the body. NO is the subject of thousands of scientific studies and has been conclusively proven to be the key neurotransmitter facilitating erection. But ProSexual Plus has also been noted to enhance libido in both men and women. Arginine and ginkgo biloba have both been shown to enhance NO levels and probably work synergistically with each other.

DoctorG says ProSexual Plus works very well with Vigorex Forte and Vigorex Femme.

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