
SIBELIUS™: LACTOMATO

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Men's Health and Sibelius™: LactoMato

The average male seems to not care about health until it is too late. It's no shock that men seem to have more serious health issues than women (generally speaking, of course). Venturing a guess as to why? Maybe it is because men never seem to go to the doctor unless there is something serious. Women, on the other hand, go to the doctor yearly for their exams, and therefore other health issues such as high blood pressure, diabetes, weight issues can be caught in the earlier (easier to treat) stages. Don't you think it is time for men to take charge of their lives and be pro-active about their health?

When speaking of "Men's Health" two primary areas rise to the top; *genitourinary* (reproductive organs and urinary system) and *cardiovascular health*. The genitourinary system, in particular, receives a lot of press with the abundance of commercial advertisements around prostate health and ED (erectile dysfunction). Cardiovascular diseases, on the other hand, are the number 1 cause of death globally, taking an estimated 17.9 million lives each yearⁱ. Cardiovascular health also receives an abundance of attention in the media with commercials regarding cholesterol, atrial fibrillation, and blood thinners. Considering these two broad areas are of significant impact in men's health, it seems appropriate to discuss a **new** form of an existing ingredient that provides benefits in both of these areas: **New Form = Sibelius™: LactoMato, Existing Ingredient = Lycopene.**

Genitourinary health issues affecting men usually revolve around these four areas: Prostate cancer, BPH (Benign enlargement of the prostate gland), Prostatitis (prostate inflammation), and Infertility. According to the WHO, prostate cancer is the second most common form of cancer in men, with over 1.28 million diagnosed worldwide in 2018.ⁱⁱ BPH and its symptoms impact an estimated 30-million men worldwide.ⁱⁱⁱ In the U.S., it is estimated that 50% or more of men 50 or over have this benign enlargement with the numbers reaching 80% in those 70 and older.^{iv}

Of the four conditions, prostatitis is unique in that it impacts men of all ages. Prostatitis is a benign yet painful condition that involves inflammation of the prostate and sometimes the areas around the prostate. Prostatitis is the most common urinary tract problem for men younger than age 50 and the third most common urinary tract problem for men older than age 50.^v Prostatitis accounts for about two million visits to health care providers in the United States each year.^{vi}

Regarding infertility, according to a study published in *Reproductive Biology and Endocrinology*, "Infertility affects an estimated 15% of couples globally, amounting to 48.5 million couples. Men are found to contribute to 50% of cases overall."^{vii}

Prostate 101

It is shocking how many men don't know much about their prostate until they have a problem. The prostate gland is a small walnut-shaped organ that lies just below a man's bladder. It surrounds the urethra, the tube that carries urine from the bladder out of the body through the penis. The prostate gland's primary function is to secrete prostate fluid (one of the components of semen). The muscles of the prostate gland also help propel this seminal fluid into the urethra during ejaculation. Inflammation of the prostate results in issues with frequent urination, disturbed sleep due to frequent night-time trips to the bathroom, difficulty in getting a urine stream going, or discomfort. Quality of life is a principal complaint. Before seeking relief from these benign conditions, it is recommended to get a thorough exam to rule out anything more serious than BPH or Prostatitis.



Even though prostate health is a male problem, it should also be considered a couple's problem. Taking a look at what the symptoms can be with prostate cancer, BPH and prostatitis, we can see how these symptoms^{viii} may impact our significant other a couple's quality of life:

- Frequent urge to urinate.
 - Impacts social life
- Need to get up many times during the night to urinate.
 - Impact on all parties' sleep quality
- Pain or burning urination.
 - Steady discomfort may impact other areas of daily life
- Painful ejaculation.
 - Possible decrease in libido or desire for intercourse
- Frequent pain or stiffness in lower back, hips, pelvic or rectal area, or upper thighs.
- Dribbling of urine.
 - Embarrassing situation either in public or home environment

Luckily, there are several nutraceuticals that should play an essential role in prostate health, in general and aid with specific concerns. The research that follows will examine some single ingredients and combinations of several natural ingredients which are an excellent option for men (or their partners) with prostate health concerns.

Men's Health: Benefits of Lycopene, Sibelius™: LactoMato

Just do a PubMed search, and you will find hundreds of studies with lycopene and prostate health. Lycopene is a carotenoid that is commonly found in tomatoes and

other fruits. Consumption of tomato products, including pasta sauce, ketchup, tomato juice, etc. are the more common ways this nutrient is consumed. It is one of the most potent antioxidants among dietary carotenoids. Although the antioxidant properties of lycopene are thought to be primarily responsible for its beneficial effects, the evidence is accumulating to suggest that other mechanisms may also be involved.^{ix} Lycopene has also shown multiple health benefits in other non-gender specific conditions such as eye health^x, oral health (gingivitis)^{xi}(leukoplakia)^{xii}, and sunburn^{xiii}. Taking into consideration that lycopene is thought to be one of the most potent carotenoids antioxidants and that antioxidants are beneficial for reducing oxidative stress, we can extrapolate that there are most likely many other areas in which Sibelius™: LactoMato can provide health benefits.^{xiv}

Enlargement

Studies with lycopene have shown positive results in all aspects of prostate health. A study published in the *Journal of Nutrition* showed lycopene may inhibit the progression in patients with benign enlargement of the prostate and reduced PSA levels.^{xv} PSA levels tend to rise in men with benign prostatic hyperplasia (BPH) and are a useful marker for prostate volume. PSA levels are usually elevated in men with acute bacterial prostatitis.^{xvi}

Prostate Inflammation

An excellent example regarding combining lycopene with other prostate health ingredients is a study done with men suffering with chronic prostatitis/chronic pelvic pain syndrome. The combined effect of saw palmetto, selenium, and lycopene (Profluss®) was compared to taking saw palmetto alone. The combination showed a significant improvement in the National Institutes of Health-Chronic Prostatitis Symptom Index scores by over 50-percent.^{xvii}

Reproduction

Lycopene is found in high concentrations in the testes and seminal plasma, and decreased levels have been observed in men who have infertility.^{xviii} There are many possible causes of infertility in men.^{xix} Luckily, lycopene has shown to benefit reproductive issues in men in a few promising ways. One is in its ability to decrease oxidative stress i.e., act as an antioxidant.^{xx} Excessive amounts of free radicals leads to decreased sperm viability and motility and are a significant cause of idiopathic (unknown cause) male infertility.^{xxi} A review of various lycopene supplementation studies have shown promising results by increasing sperm count, viability, general immunity and pregnancy rates with supplementation of just 4 to 8 mg of lycopene daily for 3-12 months.^{xxii}

Other Prostate and Reproductive Supplements

Other than lycopene, there are several well studied dietary ingredients that support genitourinary health. Herbs such as saw palmetto, pygeum, beta-sitosterol, and ryegrass pollen are four that should be considered in combination with lycopene. The herb saw palmetto seems to have received the most attention for prostate health in the areas of support for BPH^{xxiii} and prostatitis.^{xxiv} The herbal extract pygeum has been extensively studied concerning BPH with the results being positive yet inconsistent^{xxv}. Beta-sitosterol, similar to pygeum, shows an impact on BPH, however its impact is mostly on the symptoms and does not impact the prostate size.^{xxvi} ^{xxvii}^{xxviii} Ryegrass pollen extract seems to improve symptoms such as frequency, nocturia, urgency, flow rate, dribbling, and pain in patients with mild to moderate BPH.^{xxix} One study demonstrated ryegrass pollen relieved some symptoms of chronic prostatitis and associated pelvic pain.^{xxx} It is clear that these herbs support different areas of genitourinary health, but none have the impact across the board like that of lycopene.



Combining other ingredients such as L-carnitine, CoQ10, and Omega-3s with the powerful proven benefits of lycopene (Sibelius™: LactoMato) may also support male reproductive issues. L-carnitine can significantly increase sperm count and sperm motility.^{xxxi} ^{xxxii}^{xxxiii}^{xxxiv} CoQ10 supplementation has also shown to increase sperm motility^{xxxv} and improve sperm density and motility.^{xxxvi} While omega-3s have great promise by improvements in sperm motility^{xxxvii}, enhanced sperm count and sperm morphology^{xxxviii}.

The combination of ingredients would be an excellent advancement for men's health in general and even more so with the genitourinary system.

Cardiovascular Health and Lycopene

With cardiovascular disease being the number one cause of death globally and with one in every four male deaths in the U.S.^{xxxix} being caused by this disease, we can see why taking an active role in men's health is essential. As with prostate health mentioned above, lycopene also plays a vital role in cardiovascular health. Areas of cardiovascular health in which consuming lycopene has shown a significant benefit are; blood pressure^{xl}, general reduction in risk of cardiovascular ailment^{xli}^{xlii}^{xliii} and elevated cholesterol^{xliv}.



Lycopene versus Sibelius™: LactoMato

What is Sibelius™: LactoMato?

Sibelius™: LactoMato is a unique formulation in which *tomato extract, standardised to lycopene, is embedded in a whey protein matrix*. This process results in a reduction of lycopene particle size,^{xlvi} and is believed to be the reason Sibelius™: LactoMato has **improved bioavailability** when compared to other sources of lycopene. This is discussed in detail below.

Bioavailability

To better understand the superiority of Sibelius™: LactoMato, it is important to understand the complexity of lycopene's bioavailability. Concerning lycopene, several areas play a role in its bioavailability. First, lycopene absorption from tomatoes increases when they are cooked, and when they are ingested with fat.^{xlvii} The process of absorbing lycopene involves many steps including the release from the food matrix, transfer to the intestinal wall, absorption, transportation to the lymphatic system, and then it is released into the blood^{xlviii}.

Sibelius™: LactoMato absorption and bioavailability studies show impressive results. In Figure 1, notice the comparison between Sibelius™: LactoMato, tomato paste (one of the better accepted dietary forms of lycopene) and a placebo (whey protein).

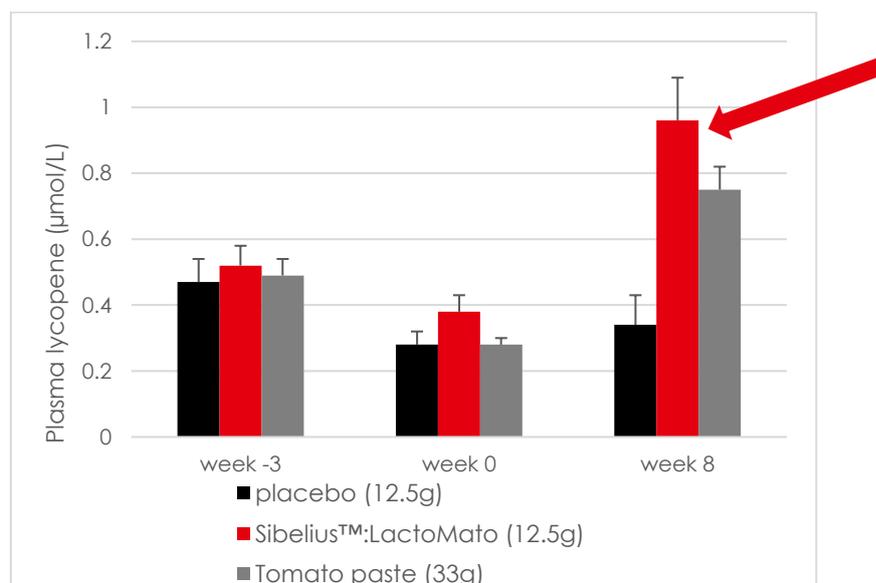


Figure 1: Changes in concentration of Lycopene ($\mu\text{mol/L}$) in human plasma throughout the course of the study representing a 3-weeks deprivation period of dietary Lycopene followed by 8 weeks daily supplementation of 25 mg Lycopene from tomato paste or the Sibelius™:LactoMato formulation or no Lycopene from the placebo (adapted from Richelle M et al.).

Table 1 shows the average increase of lycopene concentration recorded by multiple studies in response to the daily consumption of lycopene in a variety of forms.

Table 1: Comparison of increase of lycopene levels in human plasma after daily consumption of lycopene.

Food source	Average increase in plasma lycopene (µmol/L)	% increase from raw lycopene
Raw tomato (fresh, juice)	0.17	-
Oleoresin	0.24	40%
Tomato paste	0.47	176%
Sibelius™: LactoMato	0.58	240%

Additional Sibelius™: LactoMato Studies

Sibelius™: LactoMato and Infertility Study

A recent study showed that Sibelius™: LactoMato improves sperm motility and morphology in healthy men in just 12 weeks.!

Cardiovascular Health: Lipoprotein oxidation

The oxidation of low-density lipoprotein (LDL) is thought to contribute to atherosclerosis and cardiovascular disease^{li}. A study using Sibelius™: LactoMato led to a significant reduction in lipoprotein oxidation activity in just 2-weeks (over 70-percent reduction)(Figure 2).

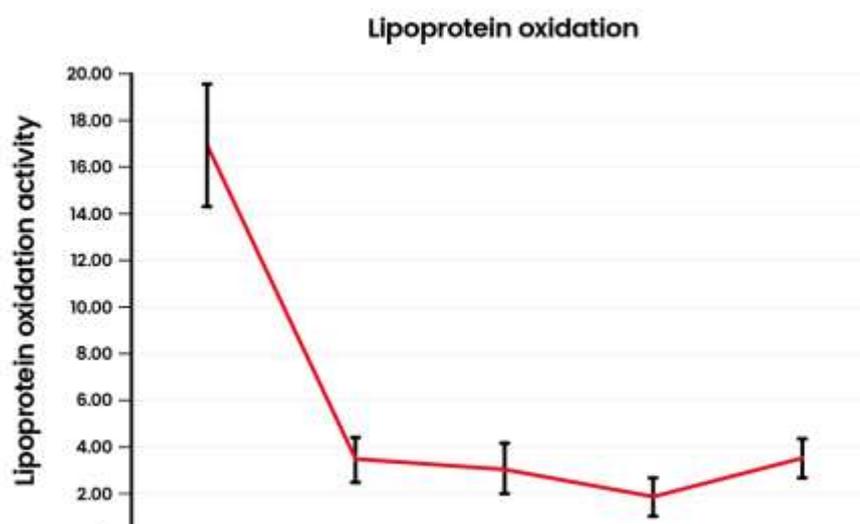


Figure 2: Changes in lipoprotein oxidation activity observed in the volunteers in the study, following 8 weeks daily supplementation with 350mg of Sibelius™:LactoMato formulation (providing 7mg lycopene). Data shows average +/- SD.

Conclusion

Considering the average male seems to not care about health until it is too late, finding areas to easily incorporate into men's lifestyles that support their health concerns is imperative. One of those areas would be through adding dietary supplements that address the top health concerns of men: cardiovascular and prostate health. **Sibelius™:LactoMato** allows the industry to address these, making it easier for men to consume something which addresses both of these areas.

The information shared above drives home the impact that lycopene can have on men's health. The enhanced absorption and bioavailability of Sibelius™: LactoMato make it the preferred form of lycopene either as a stand-alone ingredient or in combination with other cardiovascular or prostate health ingredients.

Sibelius™: LactoMato doesn't make lycopene, it makes lycopene better!



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