

# Sex and Skin



## Top 10

### Integrative and Regenerative Strategies for Optimal Sexual Function and Skin Health

I bet you've never considered that skin health and sexual health have anything in common. Dermatologists don't talk about vaginal health and urologists rarely discuss acne. Right?

But, the truth is, our skin and our sexual organs act as windows that allow us to see what's going on inside our bodies. They give us a sneak peak of how well we're taking care of ourselves in a way that few other organ systems can. If we're listening, both skin health and sexual function can broadcast information about our inner workings, including any mental, emotional, spiritual, or physical struggles in which we may be entangled. Skin and sex are linked in many ways and strategies to optimize skin are often effective in improving sex. And vice versa.

Once these strategies are implemented and progress towards health is made, people often feel a boost in confidence they didn't even know they were missing. Feeling healthy "in the skin you're in" also means feeling healthy in the body you're in and feeling content with the

functioning of all of your body parts and organs, including your sexual organs. So, I'm out to re-frame the discussions around both skin health and sexual health by talking about how these two incredible organ systems can be powerful allies and how winning them over is often simpler than you ever imagined.

Below is my TOP TEN Integrative and Regenerative Strategies for Optimal Sexual Function and Skin Health. I call it my "Sex and Skin - Top Ten". Enjoy!

- Amy Killen, MD



# NOURISH

The bad guy in the skin and sex world is sugar (in all its tasty and dangerous forms). Sugar leads to atherosclerosis, which restricts blood flow to sexual organs (and those guys really like blood flow!). Sugar also creates advanced glycation endproducts (AGE's) which are known to destroy the collagen matrix in your skin. Collagen is the scaffolding of your skin - it gives your skin structure and keeps your face from succumbing to gravity as you age. AGE's get inside the scaffolding and tear it to bits. So, sugar is bad. Very, very bad.

What is good? High quality fats like omega 3 fatty acids are great. These types of fats are anti-inflammatory, which is important for everything from decreasing your chances of acne to reducing atherosclerosis risk (and maintaining that necessary blood flow!). Good fats are also needed to make cholesterol, which is necessary for making your sex hormones.

Another game-changer is nitric oxide. Foods high in nitrates (ex: dark leafy greens, beets) get converted to nitric oxide. Nitric oxide is the chemical messenger that tells your blood vessels to open up. Erections require nitric oxide. Blood flow is also much appreciated by the skin. Remember the last time someone told you that



your skin was glowing? It "glowed" because the blood flowed. So, eat your beets and be ready for some serious compliments.

Foods high in anti-oxidants can be beneficial as well because they decrease inflammation. Inflammation, as a reminder, sets you up for atherosclerosis but it also puts your body at war with itself, leading to any number of skin ailments and chronic diseases. Foods rich in Vitamins D, E, and C can all reduce inflammation. Finally, trace minerals, such as selenium and zinc, as well as collagen and probiotics, round out some of the "must-haves" for optimal skin and sex.

# TOXINS

Did you know that many of the chemicals you put on your skin everyday are associated with deleterious effects on your reproductive and sexual systems? If you didn't think skin and sex were intertwined before, just wait!

Parabens have estrogen-mimicking properties and are associated with an increased risk of breast cancer. Phthalates are associated with reproductive birth defects in males. Chemicals in sunscreens, such as benzophenone, are powerful endocrine disruptors, which means they can mess up the body's ability to make hormones. The list goes on but the significance can't be overstated. What you put on your skin directly affects all parts of the body, especially the endocrine and reproductive systems.

Similarly, other toxins should be avoided. Cigarette smoking not only gives you wrinkles well before your time, it is also a major cause of erectile dysfunction. Alcohol abuse, another common cause for sexual dysfunction, can wreak all kinds of havoc on skin as well.



## MAKE LOVE NOT WAR (ON YOUR BODY)

Finally, many other environmental toxins are slowly, insidiously affecting both our reproductive/sexual health and our skin health. Environmental factors have been blamed for everything from declining sperm motility and infertility to premature aging and inflammatory skin lesions. Like the people we surround ourselves with, the chemicals we keep close to us end up having more of an affect on who we are and how healthy we live than many of us ever dreamed possible.



# SUN

## THE DOSE MAKES THE POISON

When it comes to the sun, the key is to find the sweet spot. Too much sun is the number one cause of skin aging and increases the risk for skin cancer. Too little sun exposure increases one's all-cause mortality risk to a degree similar to cigarette smoking! So, with the sun it's a bit of a tight rope act.

The case against lathering up with baby oil and basking in the noon-day heat is pretty strong. For one thing, the oxidative damage caused by UV radiation will result in your face (and neck, chest, etc) aging much faster than your pale, shade-sitting friends. The UV rays (mostly UVA) dive deep into your dermis and damage the collagen fibers. They also cause enzyme malfunctions that prevent you from repairing that damage, so your skin begins to lose its lovely smooth structure and bounce-back over time. To add insult to

injury, those same UV rays can create long-term damage to the DNA in our skin cells, which can ultimately lead to skin cancer.

So, sun is bad, right? Not so fast. Although sunburns are associated with a doubling of the risk of melanoma, non-burning sun exposure is associated with a reduced risk of melanoma. A large Swedish study found that women with active sun exposure habits had lower risks for cardiovascular disease and their all-cause mortality rate was half that of the sun-avoiders. Lack of sun exposure has also been associated with an increased risk of colorectal cancer, breast cancer, type 2 diabetes and several other diseases. Some of the sun's benefits are thought to be due to the increased production of Vitamin D after skin makes contact with the sun, but it's unclear if all of sun's benefits come from the skin's production of Vitamin D or if there are other factors at work.

From a sexual health standpoint, Vitamin D (made in the skin after exposure to the sun) is necessary for the production of estrogen in women and testosterone in men. These are two key sex hormones that do everything from keeping your libido high to keeping the sexual organs working as advertised. Research has shown that as little as 30 minutes in the sun over a two week period can increase sex drive in men.

Whether it's the Vitamin D alone or there's a secret sauce that only comes from the sun itself, I recommend a responsible "the dose makes the poison" approach to sun exposure. In general, mineral sunblocks are better than chemical sunscreens. Hats and shade trees may be the best defense of all!



# STRESS

## THE GREAT DESTROYER

Imagine, if you will, that you are from the caveman days and you are being chased by a saber-toothed tiger. You are stressed out! Your cortisol and other stress hormones are sky high. Blood has been stolen from non-essential body parts and sent to your muscles and heart so you can run fast and sugar has been released into your blood so you have instant energy. What you're not doing, as you're running from the tiger, is thinking about your next sexual encounter. Or, for that matter, how luscious and youthful your skin looks.



These days, many of us feel like we're being chased by a tiger all of the time. And, as a result, cortisol levels are high much of the time. This leads to all kinds of trouble for skin and sex.

Cortisol is important, but too much cortisol (for too long) can be thought of as being "the great destroyer". Persistently high cortisol can wipe out your the immune system, dissolve parts of your brain, cause you to gain weight, and increase your risk for diabetes, heart disease, and cancer.

But that's not all. High stress (and the resultant high cortisol) can also directly affect your skin and sex. Prolonged high cortisol causes thinning and wrinkling of skin due to its effect on blood sugar and the resulting glycation. High cortisol also dries out the skin by reducing its ability to make hyaluronic acid.

Finally, high cortisol and adrenaline both cause constriction of blood vessels in non-essential body parts, including the skin. This means less blood to carry away toxins and potential infections, which can lead to everything from acne to cellulite.

Hopefully, by now you've also guessed that this diminished blood flow to non-essential organs means that things like erections and vaginal lubrication will also suffer (both are blood flow sensitive). But stress does more than that! Elevated cortisol disrupts the body's ability to make many of the necessary sex hormones, such as estrogen, progesterone and testosterone. Without these hormones, women may experience irregular cycles as well as lack of interest in sex and men may experience erectile dysfunction in addition to low libido.

So, what can be done? Stress reduction is all about how you perceive the events around you. Certain adaptogenic herbs can help, but I am most in favor of changing what the mind sees as "stress". Mindfulness, deep breathing, yoga, gratitude journals, and spending time with family and friends can go a long ways to keeping stress at bay.



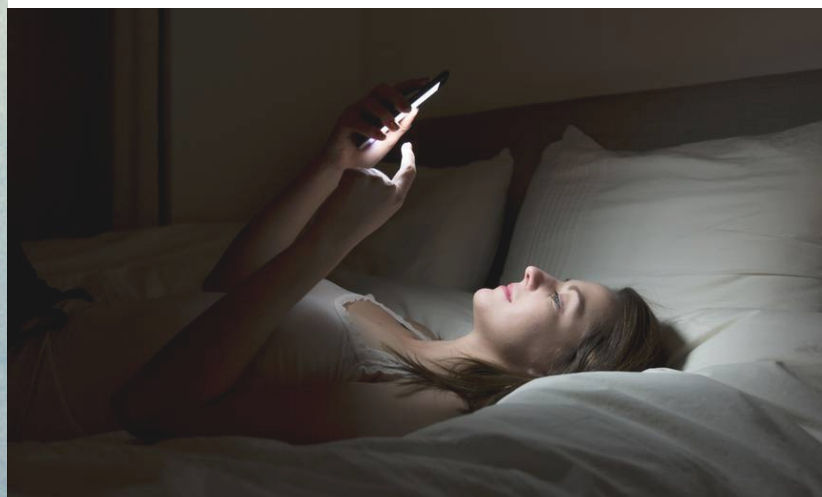
# SLEEP

## THE GREAT RESTORER

If cortisol is "the great destroyer" then sleep is "the great restorer". For winning skin and stellar sex, a good night's sleep stands head and shoulders above the rest.

Lack of sleep causes an increase in cortisol, which we know now causes our body to break down. But it's much more than that. Many of your key hormones are made at night, including human growth hormone, melatonin, and testosterone.

Human growth hormone (HGH) is an anabolic hormone, which means it builds up your body. In skin, HGH is a super-friend of both collagen and elastin production, meaning less wrinkling and sagging. Because it's improving the health and strength of the skin, HGH promotes skin healing, which becomes even more important with age. HGH is also vital for sexual health. HGH and testosterone, both made primarily at night, are important for maintaining interest in sex as well as normal male erections.



Women, who also need both HGH and testosterone, can suffer from sexual dysfunction and fatigue if these hormones are too low.

Other reasons to reach for the pillow: Melatonin, produced while sleeping, is a powerful antioxidant that's known to protect skin. Sleep also increases blood flow to the skin so lack of sleep can cause skin to look ashen and drab.

A few favorite tricks for better sleep: a solid sleep routine, blue light blockers, melatonin and L-theonine, supplementation, very dark, cool room and a bit of daily meditation..

Have you heard about nitric oxide? If not, I'm about to make it your newest health obsession.

Nitric oxide is a chemical that is most known for its role in vasodilation, or opening up blood vessels, so more blood can flow through. When it comes to sexual health, nitric oxide is king (and queen). It's also important for skin health (and general health) but let's start with how it works in sex.

When your brain is turned on, it sets off a series of events that ultimately leads to nitric oxide release in the genitalia. Nitric oxide causes the nearby blood vessels to vasodilate, letting in a rush of blood. Thus... erections. Women also need that blood flow for things like clitoral engorgement and vaginal lubrication. Nitric oxide makes it all happen.

Sadly, as we age, we make less and less nitric oxide because it's made by our blood vessels, which become filled with atherosclerosis. Every year, after about age 40, our nitric oxide production declines further. This is one reason blood pressure goes up as we age. And it's one reason erections go down. Lack of nitric oxide is a huge contributor to sexual dysfunction!

Interestingly, drugs like Viagra and Cialis work by keeping your own body's nitric oxide around longer. But, you still have to have nitric oxide on board or those drugs are a flop.

Nitric oxide's role in the skin is equally important, although discussed less often. Nearly every cell in the skin can make nitric oxide, which is necessary for maintaining blood flow, but also for forming a protective barrier, aiding in microbial defense,, responding appropriately to UV light, and healing wounds.

How do you increase levels of this super chemical? Eating foods high in nitrates (such as arugula, beets, spinach), taking in antioxidants (such as Vit C, Vit E, polyphenols, and glutathione)



and supplementing with nitric oxide precursors, (like L-Arginine and L-Citrulline) can help. Limiting use of mouthwashes that kill bacteria in the mouth and medications that kill bacteria in the stomach (such as acid blockers) can also be useful since we need those bacteria to convert nitrates to nitric oxide. And my favorite nitric oxide booster - exercise!

## BEETS FOR BLOOD FLOW?

# NITRIC OXIDE



# PEOPLE WHO FEEL BETTER ABOUT HOW THEY LOOK NAKED TEND TO BE MORE EXCITED ABOUT TAKING OFF THEIR CLOTHES

# EXERCISE



Yes, exercise is great for you. It firms your belly and gets your blood flowing in a way that little else can. But, how is a dash on the treadmill going to result in better skin and sex?

Exercise is one of the very best ways to increase nitric oxide, which we now know is absolutely necessary for blood flow all over the body. In the skin, exercise and its associated vasodilation of tiny arteries, allows better blood delivery and provides the nutrients necessary to repair damage from the sun and environmental poisons. Working up a sweat is also awesome for getting rid of old dirt and oil that becomes trapped in pores, leaving skin less likely to develop acne.



Another perk of exercise is improved muscle tone, which minimizes the appearance of loose skin and cellulite. Speaking of cellulite - although some of this is hereditary (thanks, Mom), exercises that burn fat and strengthen muscles can go a long way toward reducing the appearance of this benign (but bothersome) skin foe.

Exercise also reduces cortisol, which means less breakdown of collagen and elastin in the skin. The result of all of that time in the gym: fewer wrinkles, improved skin texture, clearer pores and less cellulite. Not too shabby!

What about sex? Exercise is tied to improved sexual performance and better sexual experiences in both men and women. Getting fit results in boosts in Human Growth Hormone and Testosterone, both of which are directly associated with improved sexual function. In one study, men who ran more than 40 miles a week were compared with sedentary men and were found to have 25% more testosterone and four times more HGH. Exercises that work big muscle groups can be especially helpful in increasing testosterone levels.

Because of its anti-inflammatory effects, exercise is also a key to reducing the risk of chronic diseases, including atherosclerosis, diabetes and hypertension, all of which are major cause of erectile dysfunction.

In both men and women, regular exercise also reduces stress, improves sleep, decreases depression and anxiety and improves self esteem. Exercise boosts feel-good endorphins, thus the phrase "exercise high". And, of course, people who feel better about how they look naked tend to be more excited about taking off their clothes. A regular exercise routine is a great way to get there!



# HORMONES

## THE MESSENGERS

Hormones are your body's messengers. They tell your body parts what to do, when to do it, how much to do, and when to stop. Hormones are produced by different endocrine glands dispersed throughout the body and control everything from metabolism and heart rate to growth and development. Oh, and (surprise!) hormones play a big role in the health and functioning of your skin and sexual organ systems.

Thyroid hormone, made by your thyroid gland, is one of the big players. Thyroid hormone is a direct regulator of skin homeostasis, controlling things like



how much moisture is in your skin and whether there are unsightly calcifications cropping up. Too little thyroid is associated with dry, flaky, yellowing skin as well as hair loss, while too much thyroid can cause thinning of the skin, inflammation and rashes.

Thyroid hormones also directly affect how other hormones, such as estrogen and testosterone, function in the body. Low thyroid, for example, is a known cause of low testosterone in men, which leads to low libido and erectile dysfunction.

The sex hormones, such as estrogen and testosterone, are also hugely important in both skin and sex. Estrogen, known by many as the "female hormone" (although also present in men) is necessary for optimal vaginal health and wellness, but it's also necessary for optimal skin health. Just as estrogen

stimulates healthy collagen production in the vaginal wall, it does so as well in the skin of the face and body. After menopause, thinning of the skin and the associated appearance of rapid aging are commonly seen due to lack of estrogen.

Testosterone is well-known to facilitate an increased interest in sex (or libido) in both men and women and has skin implications if levels in the body are out of balance. For example, too much testosterone can cause acne and hair loss in both sexes while too little testosterone is associated with skin thinning and worsening of chronic skin conditions in men.

Finally, Vitamin D (which is actually a hormone, not a vitamin) has numerous roles in skin and sexual function. In the skin, Vitamin D is needed to maintain skin barrier function as well as to suppress tumor cell formation. In sexual health, Vitamin D is necessary for production of testosterone. Low levels of Vitamin D have been associated with an increased risk of erectile dysfunction.

All of the above hormones, as well as many others, change with age and can also be affected by stress, sleep, diet, exercise, and toxin exposure. Balancing these hormones during the many stages of our lives is an art and skill unto itself and is best left to a medical professional well-versed in such things. My recommendation is to seek out one such physician to talk about how your hormones may be affecting your skin and sex (and really, the rest of your body).



# LIGHT, HEAT, SOUND

When it comes to repairing damage and rejuvenating tissues of the skin and sexual organs, light, heat, and sound are a tried and true trilogy.

In dermatology, light and heat, in the form of lasers and radiofrequency devices, have been in common practice for many years. Most often, they work by inflicting some degree of damage to the underlying tissue and then relying on the body to repair the damage in a way that creates more youthful skin. For example, ablative lasers, such as CO2 and erbium lasers, use light to remove the outer layer of skin, resulting in increased collagen formation and improvement in wrinkles and skin tone. This same idea has been applied to vaginal health. Ablative vaginal lasers work by resurfacing the vaginal wall and allowing the body to repair itself. Vaginal lasers have been shown to improve vaginal lubrication, tone, and tightness as well as decrease symptoms of stress urinary incontinence.

A similar technology uses radiofrequency to heat up underlying areas of skin, also resulting in collagen production and tightening. Whether applied to the face, arms, vagina or labia, radiofrequency's use of heat as a mechanism for repair and rejuvenation is generally very well tolerated.

Lest the men feel left out, one of the most exciting therapies currently available for improving male sexual function involves sound waves. Low intensity extracorporeal shockwave therapy (ex: GAINSWave in the U.S.) is a non-invasive treatment that causes micro-damage to the penis. This micro-damage sets off a series of biologic events and results in increased blood flow and tissue regeneration. Unlike prescription medications, these therapies can offer longer term repair of sexual organs and are especially effective when paired with other regenerative therapies such as platelet rich plasma or stem cells.



## SOUND WAVES CAN RESTORE ERECTIONS IN MEN

Finally, one of my favorite light based therapies for both skin and sex is low level light therapy (LLLT) or LED therapy. A LLLT session involves exposing skin to a specific frequency of visible light for a period of time. The light causes increased ATP production in mitochondria, resulting in increased energy for cells. These amazing little lights can promote collagen production to reduce wrinkles, improve healing, reduce acne flare ups, reduce inflammation, and increase nitric oxide production. So, after a series of LLLT sessions, your skin looks fabulous and your sex... well, remember what nitric oxide does for blood flow?

Most of these light, heat and sound therapies are performed by physicians or their staff in a medical office. A consultation with an appropriate health care provider is a great way to see if any of these options may be helpful for pumping up your skin (and sex!).

## ACTIVATE YOUR MASTER CELLS

Stem cells are the master cells of your body. They are found in every tissue and organ and are responsible for the upkeep and repair of your body. If you cut your arm, stem cells get called in to begin dividing and signaling, directing the repair of the nearby structures. The stem cells can turn into other types of cells if needed and they can also send out chemical messages to direct nearby cells to jump into action to repair the wound.

As we get older, our supply of stem cells can diminish in certain parts of our bodies. And, sometimes the cells that are there begin to get a little lazy - they don't work quite as well as they previously did.

Regenerative medicine, which includes the use of stem cells, is an emerging medicine that relies on the healing powers of each person's own stem cells. This new medicine has the potential to change the way we treat disease and aging.

One of the most common regenerative therapies currently available is called platelet rich plasma (PRP). PRP is made by taking a sample of a patient's own blood and centrifuging it to concentrate the platelets. Platelets contain growth factors that can be injected into a variety of tissues, where they communicate with the resident cells to promote regeneration and repair. In skin, for example, PRP can be injected or microneedled and applied topically. PRP then activates the skin cells to increase production of collagen and elastin, resulting in improvements in skin color, texture, tone, tightness and fine lines. PRP has also been studied and used extensively for wound healing and can also be a useful tool to diminish the appearance of scars and hyperpigmentation.

PRP has also been effective in both men and women in improving sexual health and pleasure. In men, PRP can be injected into the penis to improve erection firmness, staying-power and



sensitivity because of its ability to encourage blood vessel formation and blood flow. Similarly, in women PRP can be injected into the vaginal wall, labia and clitoris. Most of the studies in women have looked at using PRP or similar therapies to decrease inflammation and scarring in disorders like lichen sclerosis and to improve the symptoms of stress urinary incontinence.

Finally, we're now starting to use not just PRP, but actual stem cells, for some of these same skin and sex procedures. Stem cells from the patient's fat or bone marrow, stem cells from umbilical cords or birth tissue and stem cell components (such as exosomes) are all being explored for their potential to repair and regenerate skin, (hair) and sexual organs.

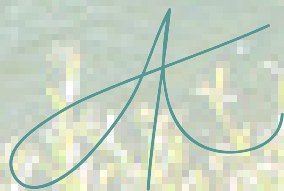
Regenerative medicine is the medicine of tomorrow, and in some places, it's the medicine of today.

# STEM CELLS

# ABOUT DR AMY KILLEN

Amy Killen, MD is an anti-aging and regenerative physician specializing in sexual optimization and aesthetics. She is an international speaker, teacher, author, and clinical practice owner residing in Salt Lake City, Utah.

Dr. Killen is an outspoken advocate for empowering patients to look and feel better by merging lifestyle modification, hormone optimization, personalized medicine, and regenerative therapies.



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