DMSO Revolutionizes Skin Care and Dermatology

Exploring how skin health goes hand in hand with whole body health

A MIDWESTERN DOCTOR
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Story at a Glance:

•DMSO has a variety of unique therapeutic properties that allow it to address the root causes of many different illnesses—including those of the skin.

•DMSO effectively protects the skin from damage (e.g., radiation, chemotherapy, freezing, blood loss) and rapidly heals skin injuries (e.g., burns, chronic wounds or surgical incisions).

•DMSO addresses many circulatory disorders such as hemorrhoids, varicose veins, venous and diabetic ulcers, and Raynaud's.

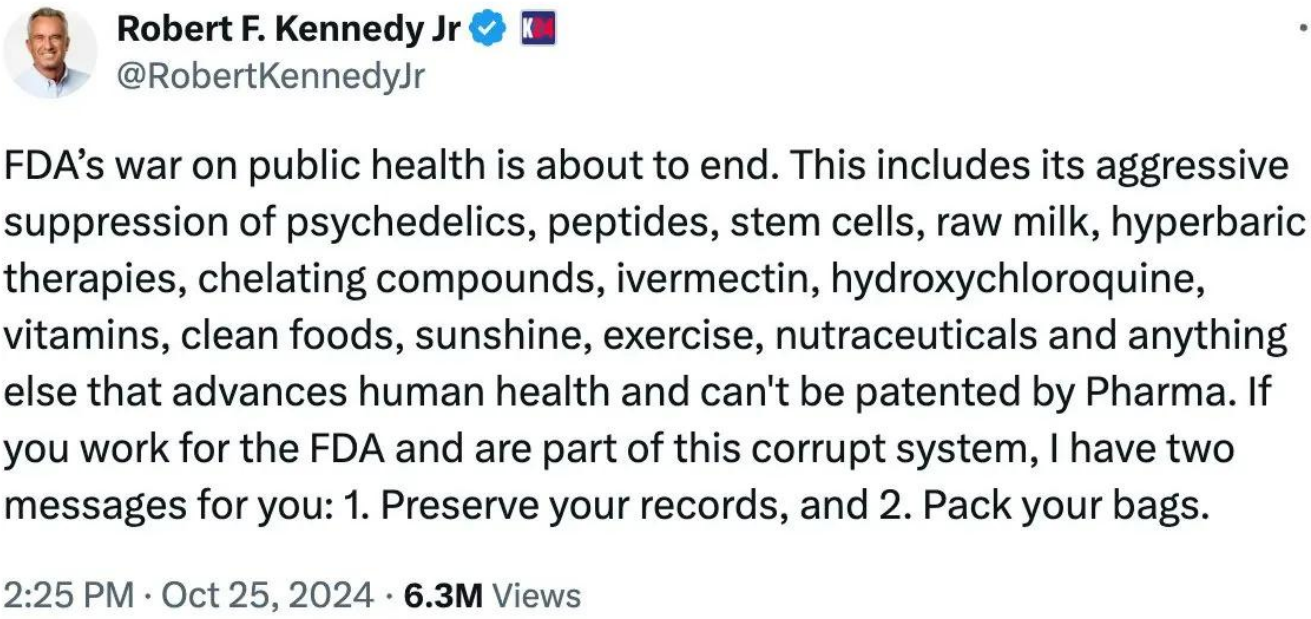
•DMSO also effectively addresses many common (but often challenging) dermatological conditions such as hair loss, psoriasis, shingles, herpes, skin cancer, skin infections, nail issues, acne, eczema, pruritus, mastitis, insect and animal bites, sunburns and skin growths.

•This article will review DMSO treatment protocols for those conditions (along with non-DMSO approaches we utilize for them) and provide general DMSO information for those looking to use DMSO for their own health.

The American medical industry has accomplished a remarkable feat; each year it consumes a greater portion of the national budget (currently over 17.3% of GDP) yet it continues to have some of the worst outcomes in the developed world (despite spending 2-4 times as much on healthcare). This is made possible by a vast medical monopoly that

prevents economical therapies from out-competing the medical industry's cash cows and systemic corruption that makes the government unwilling to confront the sources of illness in our society (e.g., processed food companies or vaccine manufacturers).

In the months leading up to the election, I decided the most helpful thing I could do would be to bring attention to suppressed medical therapies that could directly impact people's health (so people could begin to grasp just how much these predatory tactics had directly harmed them), and to conclude this process by drawing a lot of attention to an easily accessible therapy that provided immediate and dramatic benefits. As it so happened, RFK Jr. had a similar thought process and shared this very controversial message shortly before the election:



The natural therapy I decided to focus on, dimethyl sulfoxide (DMSO), was an ideal choice for this task, as it's very safe (provided you use it correctly) and rapidly improves a variety of conditions medicine struggles with—particularly chronic pain (discussed here). As such, I've received many reports of life-changing benefits from it that left even the reader in disbelief:

> I have been dealing with chronic neck and lower back pain for over 10 years and tried so many treatments with little success. I tried DMSO and it stopped about 90% of the

> pain in less than a half hour...I literally started laughing because I couldn't believe it!"

> ...finally one night he dared me to rub it on his head. I did so and all of a sudden he got real quiet and a funny look appeared on his face. His mom told him it tingles, but that would go away. He got up and left the room. Ten minutes later he came back and asked how long ago since I rubbed it on him. Then he said, "I taste it in my mouth, but my bad headache and neck pain is GONE! I am so relaxed and mellow right now." He was laughing in relief.
>
> He has near constant neck/head pain and his migraines have been getting so bad he broke down recently and very reluctantly started taking a pill. I had no idea this would work as well as it has for him.

However, while profound, DMSO's remarkable ability to treat pain is just one small facet of what this substance can do, and in this series I've thus far shown how it:

•Treats strokes, traumatic brain injuries, spinal cord injuries, and many circulatory disorders (discussed here).

•Treats a variety of acute and chronic tissue injuries (discussed here).

•Treats a variety of "incurable" autoimmune and connective tissue disorders (discussed here).

•Treats a variety of challenging (and often incurable) eye, ear, sinus, and dental conditions such as tinnitus and blindness (discussed here).

•Treats a variety of difficult internal organ disorders (discussed here).

Many of those remarkable results (which in many cases exceed anything conventional medicine has to offer) stem from DMSO being uniquely suited to address common root causes of illnesses (e.g., inflammation, microclotting, cells getting trapped in the cell danger response), and those myriad of diseases in turn simply being unique manifestations of those same processes gone awry.

DMSO and the Skin

One of DMSO's unique properties is that it (and anything mixed with it) rapidly spreads throughout the entire body regardless of the route of administration. Since DMSO is uniquely suited to address the root causes of illness, that means individuals who take it for one issue will frequently observe other issues fix themselves as well (e.g., I deliberately avoided mentioning that DMSO improves sleep in the hope unbiased readers would voluntarily share it was causing them to have more vivid dreams—which a few did—and far more shared once I alerted them to this effect).

As DMSO is frequently applied directly to the skin (so it can be absorbed systemically), it should thus come as no surprise, DMSO users rapidly noticed DMSO's positive effects on the skin. For example, one reader recently shared:

> We got DMSO about three weeks ago for my wife's swelling. She has had swelling since she had a c-section almost two years ago. Her feet were so swollen she could hardly walk and were painful every single day. One day of DMSO and the swelling reduced by 90-100%. It came with a few "side effects", such as clearer skin, more energy and improved mental clarity. She then used it on the c-section scar, and it improved immensely. It was a giant knot of pain and hardness that she had tried to treat with message and essential oils for over a year with no improvement. After only few days of DMSO it lost inches of bulk. I tried it on an old injury on my finger and noticed improvement the first day with being able to extend my finger more than I had been able to in years.

Likewise, the DMSO field soon noticed DMSO helped a lot of skin conditions, to the point some doctors began using DMSO as their default treatment for challenging skin lesions when they weren't sure what else to do (as it often worked and posed no risk to their patients).

In turn, I've received a large number of reports from readers that DMSO greatly helped a variety of skin conditions such as:

•DMSO causing aging skin to be rejuvenated and look much younger and healthier (e.g., it happened in a few days to a 101 year old grandmother, another reader reported

incredibly smooth skin, and another reported smoother skin on her face despite not applying it there and another reported it improved crepey skin on the neck and sun damaged skin on the chest).

•A dramatic improvement of chronic hemorrhoids (e.g., this reader, this reader and this reader).

•A dramatic improvement of varicose veins (e.g., this reader, this reader, this reader, this reader, this reader, this reader, this reader, this reader, this reader).

•Severe burns healing (e.g., a reader astonished by the complete recovery of a ten year old third-degree finger pad burn, a reader who had it rapidly treat blistering burns on the thighs, and a reader whose father recovered from a severe electrical fire burn). This reader, this reader, this reader, this reader, this reader, this reader, this reader, and this reader also reported that applying DMSO after a burn (e.g., from cooking) takes away the pain and promotes rapid healing.

•Using it for sunburns (something DMSO has long been recognized to help provided any toxic sunscreen has been cleared away before applying DMSO).

•DMSO consistently treating herpes type 1 and type 2 viral eruptions.

•DMSO treating mastitis.

•DMSO treating psoriasis.

•Hidradenitis suppurativa (a challenging skin condition that lacks safe or effective treatment options) responding to DMSO.

•Using it to treat the skin issues (e.g., oozing cysts) that developed on an aging Golden Retriever.

•It accelerating the healing of bruises (also reported by this reader who's done that for years, this reader who used it for bruising from IV lines, this reader who had a traumatic fall shortly after reading a DMSO article here, and this reader whose elderly mother fell on her face and fractured parts of it) along with it dissipating capillary bleeds under the skin (also reported by this reader).

•DMSO accelerating the healing of an ear surgery and significant leg rash (that followed a traumatic impact).

•It treating poison ivy.

•It treating a “miserable autoimmune skin condition which NOTHING else has worked on, including the "standard of care" prescription steroids.”

•In a week, it permanently eliminating blackish plaques on her mom’s legs multiple dermatologists were unable to treat.

•It treating recurrent facial seborrheic dermatitis flare-ups (also reported by this reader).

•A chronic skin eruption completely disappearing.

•This reader, this reader and this reader reporting it treating bacterial and fungal skin infections.

•It being miraculous for fire ant bites (also reported by this reader), and another reader using it for a black widow bite.

As I will show in this article, those same effects have also been reported throughout the medical literature—yet remarkably, the dermatologic profession remains unaware of it.

Note: some of the reports I’ve received are instead quoted throughout the article. The complete list of reports I’ve received (now over a thousand) can be viewed (and added to) here.

How DMSO Treats the Skin

One of the most significant challenges of being a dermatologist is being able to recognize a large number of skin diseases (over 3,000). In parallel to this, dermatologists also learn how many specific skin lesions can represent unique diseases within the body, and hence can diagnose illnesses other physicians fail to identify.

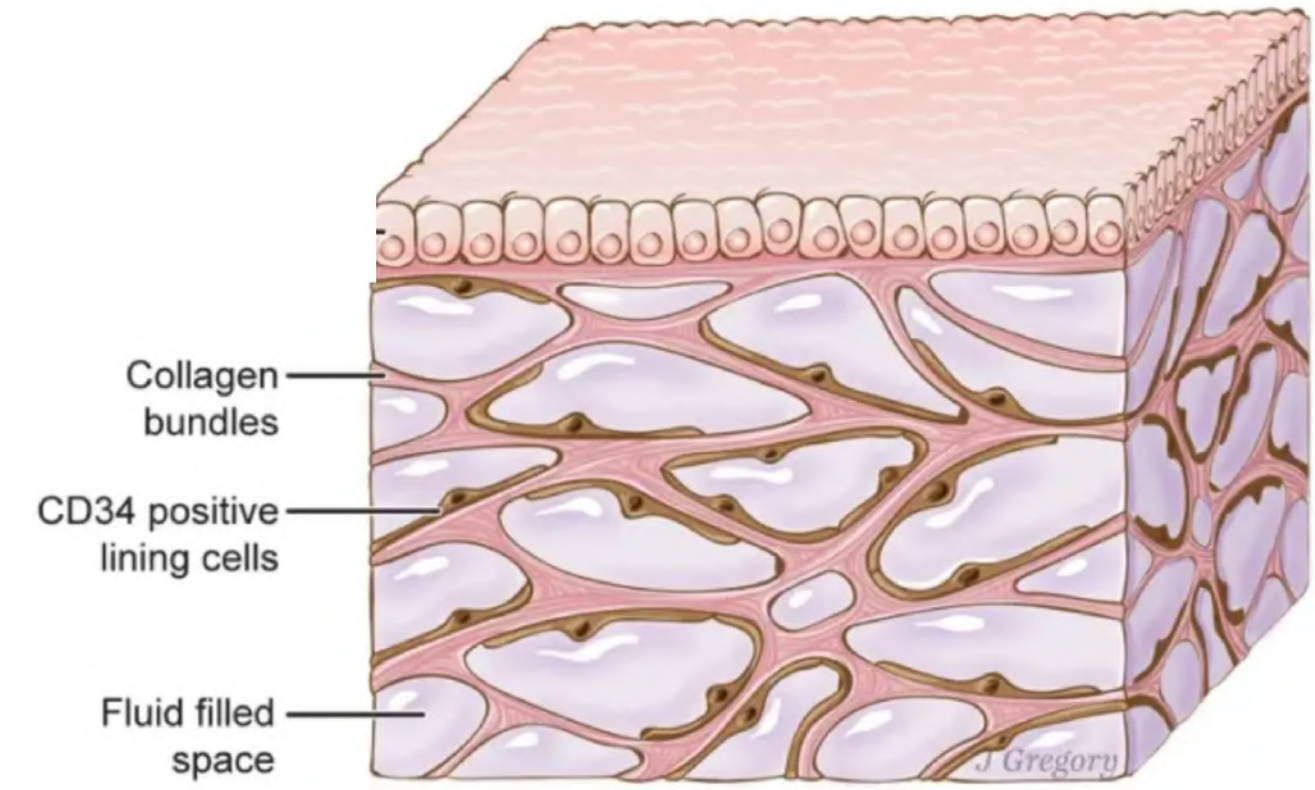
While I very much agree the skin can tell us an immense amount about the body, I believe that rather than associating a specific skin lesion with a specific disease, it's ideal to have a broader view that tries to grasp what type of underlying problem could cause the skin issue currently being observed and then deduce what might be causing that underlying issue or what other diseases it might be creating in the body.
Note: Chinese medicine often does this.

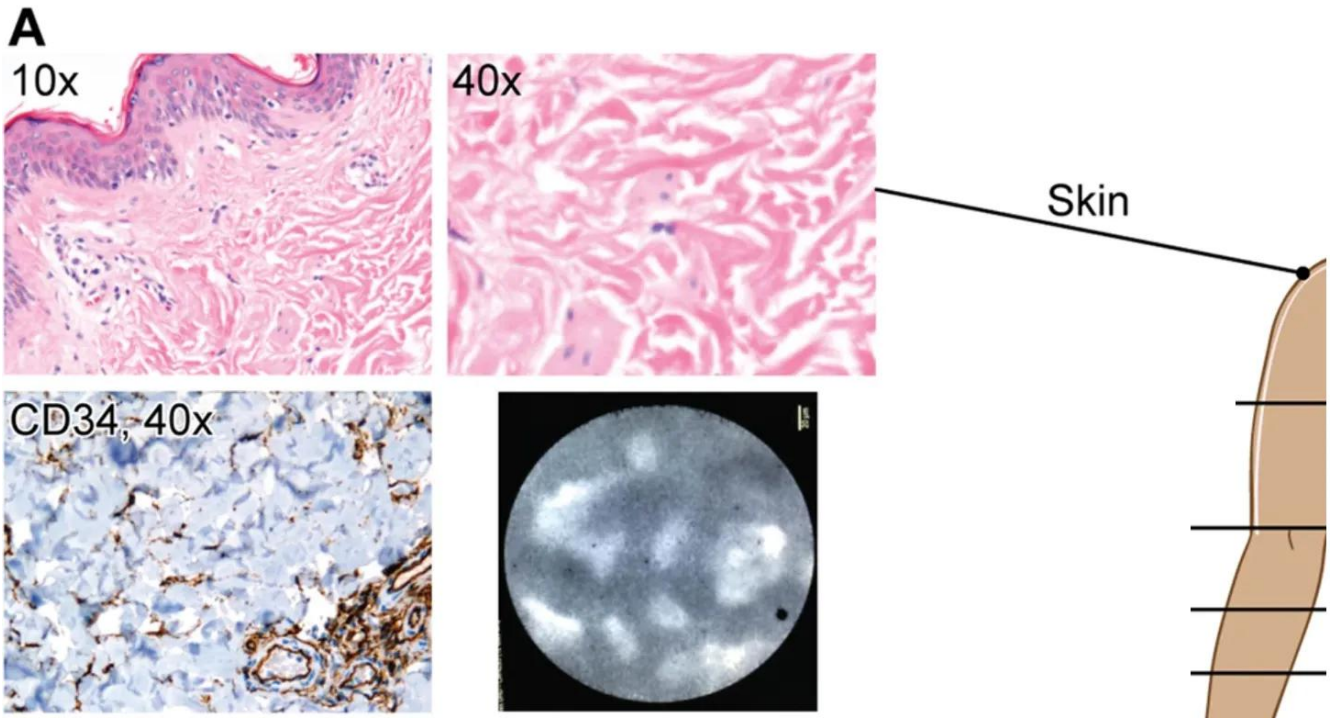
This framework also helps explain how DMSO is able to help a wide variety of skin issues as DMSO's potent mechanisms of action (e.g., being anti-inflammatory, improving circulation, rescuing cells trapped in the cell danger response, and stabilizing proteins) underlie many dermatologic conditions.

One of the things I have always marveled at with the body is how much is hiding in plain sight in front of us, and how as the years go by, profound discoveries continue to be made about it that rewrite our understanding of physiology. In 2018, one such discovery made a lot of observations I'd made about the skin come together.

Briefly, researchers (using advanced imaging technology) noticed when they placed a dye into the bile duct, it diffused out in a spider web-like pattern, suggesting it was traveling within an unknown vessel system (they termed the interstitium). Eventually, the researchers discovered that a delicate web of collagen strands travel throughout the body and form vessels the interstitial fluid travels in—something which was missed because those strands initially appear to be disorganized inconsequential debris on pathology slides.

While this network travels throughout the body, what immediately caught my attention was that it was consistently found in the dermis.





Note: the above picture shows how the interstitium's conduits are right under the skin, that they match the reticular pattern and the CD34 stain observed in it throughout the

body, and the usage of a specialized imaging technique (confocal microscopy), which shows these structures indeed function as a conduit with a reticular pattern.

This led me to theorize that many dermatologic diseases result from congestion within the interstitium. For example, a primary function of the interstitium is to dissipate energy the skin absorbs (e.g., sunlight) and transfer it into the body. When this cannot happen, the body becomes malnourished. Likewise, if the transfer is impaired, the skin becomes easily overloaded (e.g., more sensitive to sunburns). Likewise, various approaches (besides sunscreen) have been discovered that make the body much more able to tolerate prolonged sunlight exposure—many of which coincidentally also improve movement within the interstitium.

Note: systemically or locally, improving the physiologic zeta potential can often benefit a wide range of skin conditions. I believe this is in part due to the structure of the interstitium (e.g., the vessels are small and it has no external pump), making it highly susceptible to becoming obstructed by an impaired zeta potential.

In turn, I believe that beyond DMSO protecting the skin's blood supply and reducing inflammation, a major reason why it can help so many different skin conditions is because it removes obstruction from within the interstitium.

Note: one of the significant questions in Traditional Chinese Medicine has been what its 12th organ, the Triple Burner represents in the body. I would argue that it is likely the interstitium, as the two share many unique characteristics (and oddly, many of DMSO's therapeutic properties counteract pathologies associated with Triple Burner dysfunction).

Additionally, DMSO has been shown to increase light's ability to penetrate the skin. This was done to improve the ability of optical systems to diagnose the skin. Still, it likely could also enhance the body's ability to absorb natural light (a critical nutrient that typically can't enter through the skin).

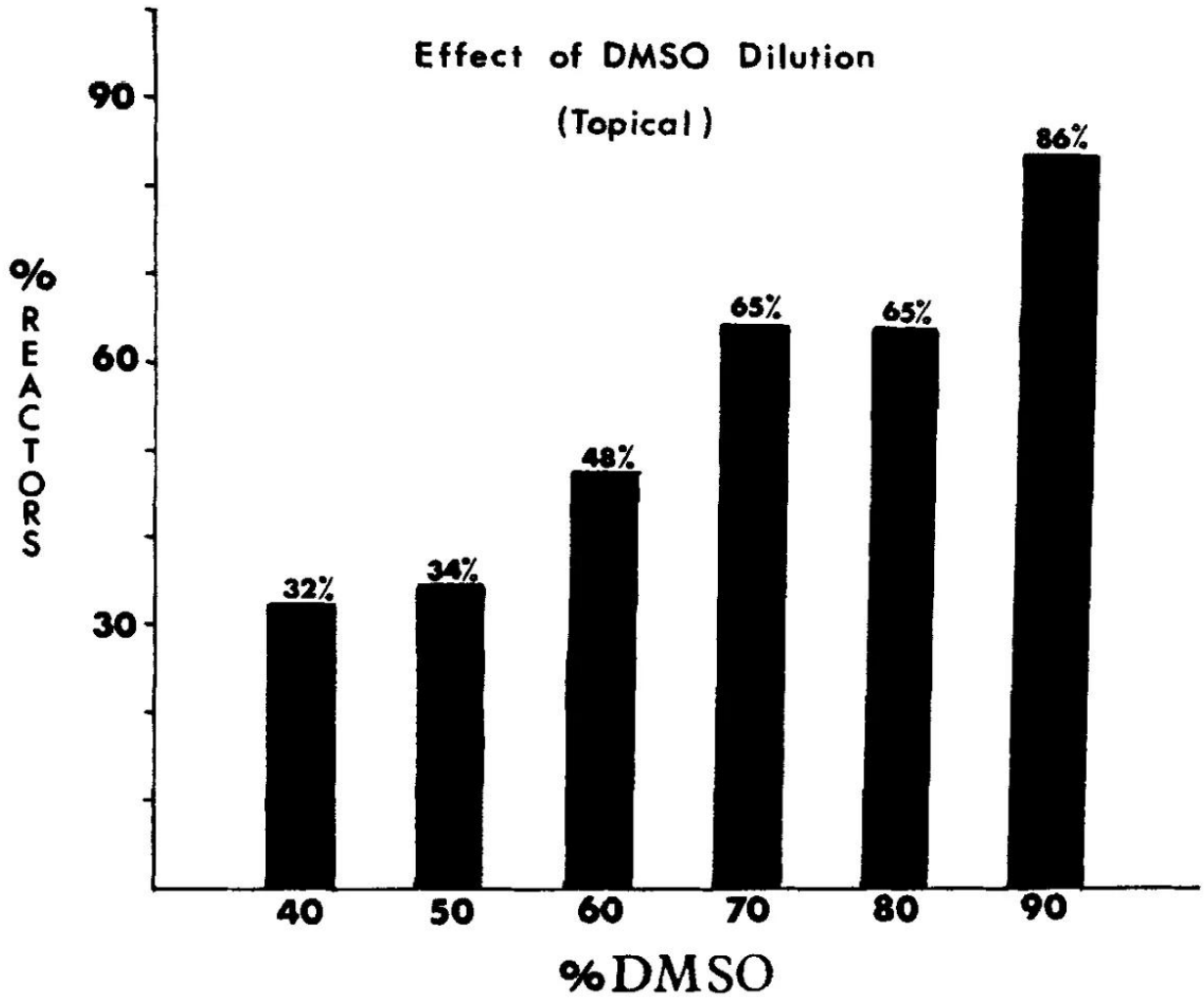
Note: DMSO in combination with sodium chloride,has also been shown to reduce skin electrical conductance and in combination with lactated ringers, to decrease the electrical potential across the skin.

Topical DMSO Safety

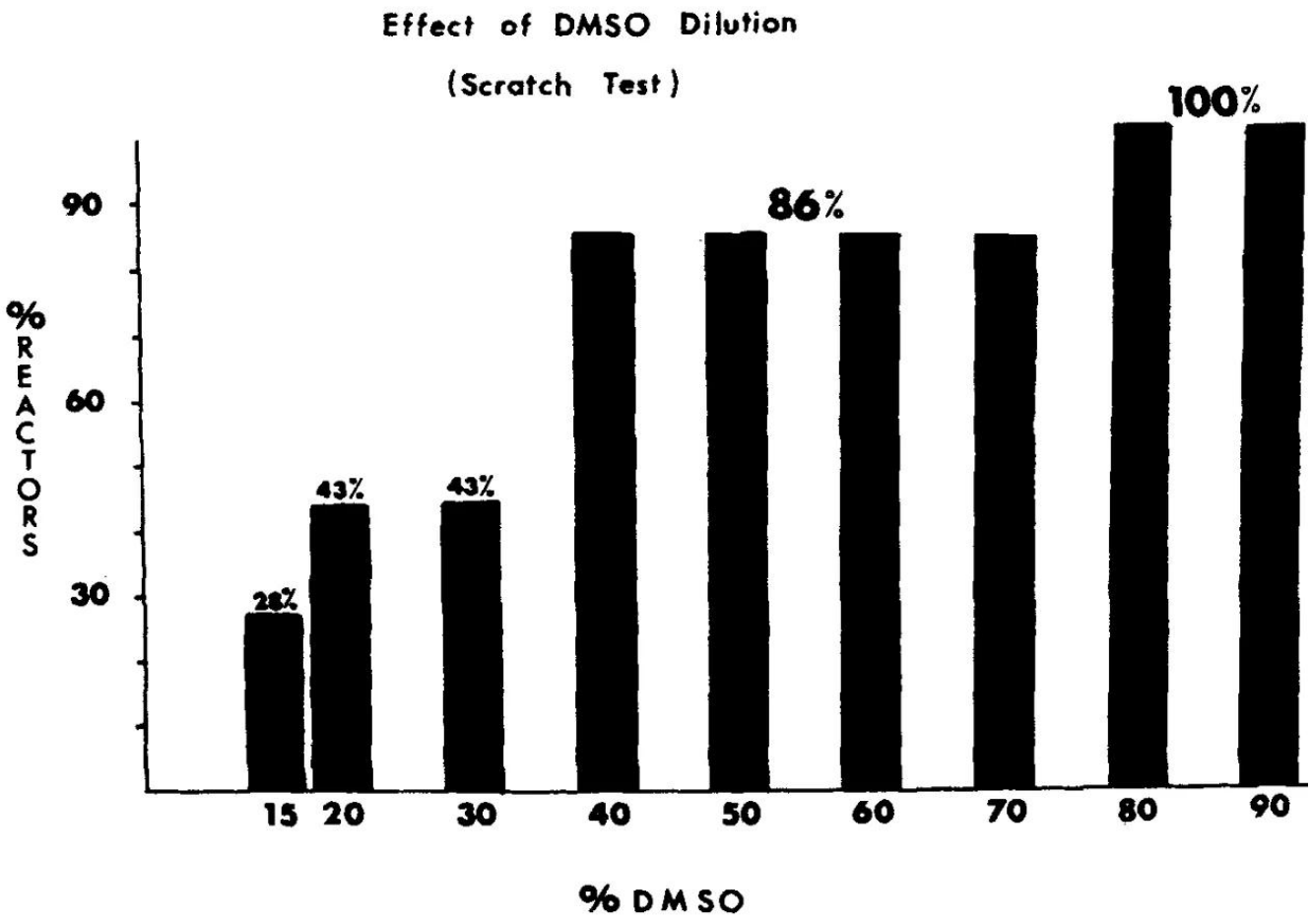
Generally speaking, DMSO is a very safe substance (e.g., the most common side effects, skin irritation and an unpleasant odor, are not dangerous). These two primary concerns with it, and not applying it to skin that has a toxin on it (as DMSO will drag it (absorb) into the body), are rarely an issue for users. Also, avoid it if you are allergic (which affects roughly 1 in 2000 people **and must be ruled out before taking too much DMSO**).

In turn, virtually every published study emphasizes that DMSO was safe for the participants, and a large body of evidence (compiled here) shows DMSO is safe for skin applications. For example, one dermatologist who treated 613 patients successfully with 50% topical DMSO combined with the steroid triamcinolone acetonide reported that out of 363, no systemic reactions occurred except for one patient who felt "jittery," after use over a large area, along with two cases of contact dermatitis and temporary complaints of burning. Likewise, another team of dermatologists reported that in more than 1,315 cases, no systemic toxicity arose from topical DMSO.

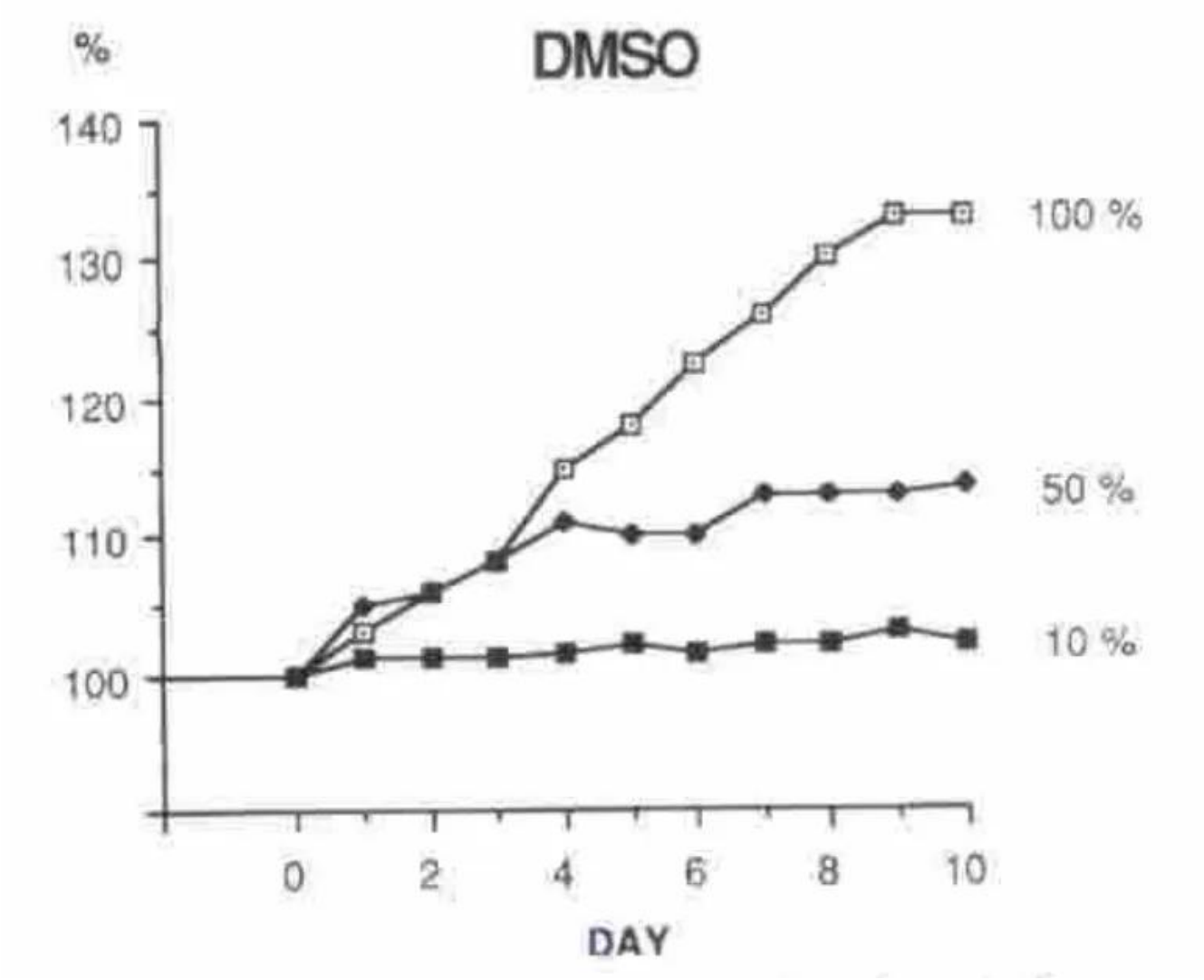
As such, the primary effect to discuss is skin irritation, which becomes more common as higher strengths are used (and which typically decreases with prolonged use, but in some cases can also result in changes to the skin). The best illustration I've seen of this concentration dependent irritation came from this study of 64 healthy male volunteers:



Furthermore, when DMSO was applied under the skin (e.g., through a scratch), this sensitivity to an immediate reactions significantly increased:



Likewise, [this guinea pig study] exposed their skin daily to various irritants and then assessed if the skin became thicker (as that is a sign of inflammation and edema). While these results do not exactly match what's seen in humans (as many individuals can tolerate 70% DMSO without any skin changes, and in many cases skin tolerance increases with time), they do generally demonstrate what's observed:



Note: when concentrated DMSO is diluted with water, it will heat up (this is a normal process). In some cases, this results in the DMSO applied to the skin being quite warm (but does not increase skin irritation).

Additionally:

•DMSO has not been shown to create allergic tendencies. For example, when it was mixed with a variety of common allergens (e.g., dust mites or pollens) and applied to the skin, it didn't create sensitivities or reactions (whereas a serious issue with certain childhood vaccines is that they can create allergies to other things the child is simultaneously exposed to like ragweed pollen). However, when DMSO was mixed with a potent allergen (e.g., penicillin in someone with a penicillin allergy or the castor bean

allergen), a more severe reaction occurred when DMSO was mixed with the substance and applied to the skin, than when DMSO was applied alone.

•Individuals with eczema are not more sensitive to DMSO (unless the skin is already irritated).

•The face is more sensitive than the rest of the body. As such, a significantly lower concentration should be applied there.

•For those who react to topical DMSO, repeated applications of DMSO (but not always) decrease their reactivity.

•DMSO is often used as a vehicle to bring other drugs into the body. Propylene glycol can also be combined with topical steroids to bring them into the body, but while less irritating, it is also much less effective.

Protecting the Skin

DMSO's therapeutic properties come from its ability to protect tissues (e.g., the brain and the internal organs) from danger and death. Numerous studies in turn, corroborate DMSO's ability to protect the skin:

•Many chemotherapy drugs are destructive to tissue, so when they leak out of blood vessels into the wrong place, they will cause challenging-to-treat ulcers. Many studies (which I compiled here) have found that DMSO will treat this tissue damage.

•DMSO has been found to be a protective agent during the freezing and thawing of mouse skin (e.g., see this study and this study). Likewise, there have been cases of DMSO saving the fingers of individuals with severe frostbite that would otherwise require amputation. DMSO has also been shown to protect cells from freezing damage, and to protect rabbit ears and thighs from frostbite induced by immersion in a -42°C bath.

•A variety of studies (which will be covered in a later article) have found DMSO protects the skin from being damaged by chemotherapy drugs. One unusual use for chemotherapy drugs is to inject one into the muscles of an excessively spasming eyelid

(as they destroy the muscle), but this approach has the side effect of also killing skin in the vicinity of the injection. In one study, mixing DMSO with the chemotherapy drug protected the eyelid from tissue death.

•A significant body of evidence shows DMSO protects cells from radiation damage. In turn, DMSO was shown to protect skin cells from dying after exposure to gamma radiation, and numerous studies have reviewed DMSO's ability to protect the skin from radiation (e.g., this one, this one, this one, this one, this one).

•Pulsed Ruby lasers are often used in dermatology to remove unwanted things from the skin but can irritate the skin. One investigator found that DMSO (or DMSO with a low dose of a topical steroid) significantly reduced the reactivity that was created.

•Surgically created skin flaps are at an increased risk of dying due to poor blood perfusion. Numerous studies (e.g., this one, this one, this one, this one, this one, this one, this one, this one, this one, and this one) have shown DMSO protects vulnerable skin flaps (including in a rat model of smokers), which makes it a shame it is not used in fields that could greatly benefit from this innovation (e.g., plastic surgery).

•Likewise, skin grafts, even from the same person, often fail. Fortunately, DMSO happens to address the common causes of skin graft failures. To illustrate, a Ukrainian plastic surgeon documented that in over 500 transplants dressings moistened with 30% DMSO solution for 3-5 days enabled grafts to take and survive in badly burned patients and victims of elephantiasis (e.g., there was no skin necrosis, no inflammatory changes, no keloids, and no hypertrophic scars). Similarly, a study of 120 rabbits demonstrated the DMSO significantly improved the viability of a skin or cartilage graft.

Note: in rabbits, DMSO was shown to reduce tissue carbon dioxide levels, and when mixed with hydrogen peroxide, increase oxygen levels, but this effect was not seen in rats or pigs.

•Studies have found skin flaps treated with DMSO had increased glucose utilization and increased oxygen utilization, suggesting DMSO increases mitochondrial function (and may in part explain how DMSO can protect cells with an impaired blood supply as

numerous studies such as this one and this one have also found DMSO can maintain mitochondrial function in these stressful situations).

Burns

The protective mechanism of DMSO which most commonly applies to the skin is its remarkable utility for burns (e.g., consider the 12 reports I shared above from readers).

DMSO in turn has been shown to treat a variety of burns (e.g., superficial burns or partial thickness burn wounds) without being prone to producing infections (e.g., a 1985 study by Russian burn specialists, in adolescents, found DMSO was superior to the other treatment options [nitrofurazone, trimecaine, and monomycin] while another study also found DMSO prevents burns from becoming infected).

This includes severe acid skin burns (along with preventing their progress), and both acidic and alkaline burns that erode the esophagus (e.g., by inhibiting the destructive inflammatory response following those esophageal burns) or alkali burns to the eye.

There are also countless cases of severe burns that within minutes of DMSO stopped hurting (a major problem with burns), didn't blister, and subsequently fully recovered (e.g., no skin contractures)—many of which can be found in the reader reports I shared.

One of the most extraordinary ones (reported by William Campbell Douglass) involved six year old girl who'd slipped her index finger in a light socket for a prolonged period, after which it was cooked through and burned ash white at the tip. Within 30 minutes Douglass got the finger into a full-strength DMSO bath, and after 20 minutes, the searing pain had disappeared, the next day the finger turned pink, and then rather than be lost, fully recovered.

Note: DMSO has also been shown to be very helpful for sunburns.

Venous Disorders

Presently, I believe many venous disorders arise from a combination of weakened blood vessels which is often due to inadequate nutrition (discussed further here) and an impaired physiologic zeta potential which creates congestion in the veins (that becomes much more problematic if the blood vessels are weakened—a very common issue in individuals with hypermobility due to them also having looser blood vessel walls).

> I have been following your zeta potential protocol for the past month, and I am using liquid DMSO for a slight neck tremor and for an allergic, itchy skin rash and spider veins. The skin rash is largely healed with the exception of some pealing of the skin around my nose and the palms of my hands. However, what is absolutely remarkable and unexpected is that the two clusters of unsightly spider veins on my right calf and thigh are almost completely gone. If things keep going like they have been my legs should look flawless within a month's time. Fingers crossed. I wanted to share this with you because spider veins are a woman's worst enemy they are expensive to have blocked and they always come back within the year of having the procedure, and I have been told by a vascular surgeon that it is dangerous to do repeatedly.

In turn, like the above reader, we've found a variety of venous disorders (e.g., hemorrhoids, varicose veins, and venous stasis dermatitis) respond quite well to addressing those two issues.

Note: in this article, I will list numerous studies showing DMSO's utility for varicose veins. However, while Stanley Jacob (the pioneer of DMSO) treated hemorrhoids with DMSO, another author uses DMSO to treat them, and Merck reported it improved recovery after their surgical removal. I am not aware of any studies that directly assessed DMSO's use for hemorrhoids.

Since DMSO is venotropic (enhances venous function), anti-inflammatory, and eliminates pain, a group of investigators tested if it could enter and penetrate diseased tissue (which typical agents have difficulty doing), finding that DMSO could also bring other substances with it.

Later, they found they got the best results when using three other therapeutics together (rather than just one), a standard spray containing 20% DMSO, 5% diphenylbutazone,

0.2% sodium-rutin sulfate, and 0.5% prednisolone was tested over the course of three years, finding:

TREATMENT OF ACUTE OR CHRONIC VENOUS DISORDERS OF THE EXTREMITIES

Group	Condition	Results Good	Fair	Poor
1	Spontaneous superficial phlebitis (varicophlebitis, thrombophlebitis)	14	3	4
2	Phlebitis after infusion treatment	16	3	8
3	Subjective complaints due to chronic venous disorders (mostly varicose veins)	29	10	8
4	Postphlebitic leg with dermatosclerosis, indurations, hyperkeratosis, etc., and subjective complaints	17	6	9
5	So-called additive factors in chronic venous insufficiency (tendo-periostitis, myogelosis, arthropathy of the knee joint, static insufficiency)	6	2	4
	Total numbers (overall total 139)	82 (59%)	24 (17%)	33 (24%)

TABLE 2

DOUBLE-BLIND TREATMENT OF ASEPTIC SUPERFICIAL CUBITAL PHLEBITIS AFTER INFUSION THERAPY

Treatment	Results Good	Poor	Total
DMSO-compound spray	16	7	23
Placebo spray	10	14	24

Other physicians have also used this spray successfully. In one double-blind study, it improved subjective complaints and subcutaneous indurations in patients who had recovered from deep vein thromboses (which can cause lasting damage to the veins). Another team found it decreased the visible hyperpigmentation and indurations in post-thrombotic patients and that after veins have been operated on (e.g., stripping or ligating them), it caused the wound healing to be smoother and have almost no pigmentation (discussed further here).

> My 80 year old mother...has been using DMSO on her legs for several weeks now and has noticed a huge reduction in pain, discomfort, swelling, and discoloration of the skin.

Lastly, I was recently sent a picture showing someone's leg before DMSO and then 24 hours after:

Wound Healing

> I dropped the edge of a washing machine on my wife's finger, it went behind her fingernail down to the bone. She soaked it in DMSO on for 3 min. It healed completely in 1 week, on bruise or scar & no nail loss.

As shown in this article and with the data I've presented here, DMSO is remarkably effective at healing tissue throughout the body (e.g., surgical incisions).

For example:

•A veterinary school reported that painting DMSO onto open wounds of horses stimulated "fantastic" healthy granulation during the first few days, reduced excessive granulation to normal in a month, and disinfected badly contaminated wounds (without pus formation) with a protective film forming over the wound surface.
Note: this paper included before and after pictures of the wounds.

•DMSO was found to accelerate wound healing in both diabetic and non-diabetic mice. Also it has been found to increase the biomarkers of tissue regeneration in burned skin.

Note: DMSO has the unique property of accelerating the speed at which newts regenerate lost limbs by approximately 2-3 days (see this paper and this dissertation).

•Authors of a 1998 Russian paper stated that they routinely apply DMSO to surgical wounds as it accelerates healing and provides general infection control. This is congruent with the studies mentioned earlier in this article that show DMSO improves the healing of surgical wounds.

•At low concentrations, DMSO has been shown to increase the proliferation of skin fibroblasts (which repair damaged tissue), but at high concentrations to inhibit it, results consistent with DMSO being able to accelerate wound healing and prevent adhesions and eliminate scars.

•A large number of studies (which I compiled here) also show that DMSO can prevent surgical incisions from developing adhesions or keloid scars, and in many cases reduce or eliminate scars.

Note: similarly, many studies (which I compiled here) show DMSO can reduce excessive collagen deposition that causes challenging contractile disorders such as Scleroderma, Peyronie's disease, and Dupuytren's contracture. Lastly, there are also case reports showing DMSO treats one of the most challenging diseases in medicine, fibrodysplasia ossificans progressiva (a very rare disease where the connective tissue of the body turns into bone).

Ulcers

DMSO's ability to both heal tissue and restore tissue blood supply (e.g., it frequently treats Raynaud's disease) makes it uniquely suited to treat chronic non-healing ulcers (an issue many physicians struggle with). As such, many physicians used DMSO to treat chronic ulcers, and a significant body of evidence exists supporting that approach:

•A study evaluated the use of local DMSO for 20 diabetics with peripheral neuropathy and perforating foot ulcers (a challenging condition to treat). Complete healing occurred in 14 (70%) patients after 4-15 weeks of daily treatment, whereas in controls receiving conventional treatment, only 2 out of 20 recovered.
Note: DMSO also frequently helps diabetic peripheral neuropathy.

•A study (discussed below) also reported on 67 patients with chronic varicose ulcers, who had a remarkable response to DMSO.

•A study reported on the 1371 Chilean dermatologic patients they treated over 22 months who received a DMSO spray also containing the anti-inflammatory agents y-ketophenylbutazone, p-hydroxy phenylbutazone, and hydrocortisone, the antimicrobial agents moroxydine hydrochloride and dequalinium hydrochloride and the hemostatic n-butanol.

TABLE 1

TYPES OF SKIN AFFECTIONS TREATED AND NUMBER OF CASES RECORDED

Condition	Number of Cases
Ulcerations of legs, feet, and/or upper extremities	401
Infected wounds of diverse localizations (including 7 due to urticaria and 8 from mosquito bites)	747
Infected dermatomycosis on feet and/or hands	50
Second- or third-degree burns on hands, feet, and/or legs (most were infected)	173
Total number of cases treated	1371

Of those patients, 1,313 (95.04%) were completely restored or cured, and the patients were enabled to return to their usual activities—a dramatic effect that could not be obtained by any other available therapy. The other 4.96%, for various reasons,

prematurely suspended treatment, and hence were no longer possible to observe and assess.

The average number of applications of the DMSO spray needed for the various conditions were as follows:
•9.41 were needed for a complete cure of infected ulcers
•6 applications were needed for a complete recovery of infected wounds
•19 applications were needed for infected mycosis
•7 applications were needed for the healing of burns.
Note: in chronic alcoholics and chain smokers, the therapeutic results, although favorable, were less rapid.

With diabetic ulcers, remarkable improvements were seen (e.g., one who'd had ulcers develop over 15 years was completely healed after 20 days of DMSO).
Note: DMSO has also been used in combination with antibiotics to treat bed sores with tissue necrosis.

With varicose ulcers, rapid healing (and immediate cessation of pain) occurred in ulcers that had not responded to years of conventional treatments. Additionally, some patients who suffered from intense joint pains from other causes reported the pain rapidly disappeared following DMSO application (an effect commonly reported by DMSO users).
Note: rapid healing was also observed in ulcers from fungal infections, which have persisted for over three years despite conventional care.

Of the burn patients, 100% recovered, with none having the deforming scars typically seen after severe burns.

No adverse reactions were noted except for temporary severe pain when DMSO was applied to deep wounds (which did not interfere with the treatment), something that was likely due to them using a lower DMSO concentration in all applications.

Note: this study also included three cases of patients with severe and debilitating illnesses who had rapid and dramatic improvements from DMSO.

•A study found that 80-90% DMSO combined with 0.025% fluocinolone (a topical steroid) caused no toxicity when put over the entire body (although around 27% discontinued it due to skin irritation—typically from higher DMSO concentrations) and performed equivalently to 0.2% fluocinolone in treating the following conditions:

TABLE 2
LESIONS STUDIED WITH DMSO-FLUOCINOLONE

Disease	Duration of Therapy	Average Daily Dose (ml)
Scleroderma	months	20–30
Psoriasis	months	3–40
Atopic dermatitis	months	10–20
Dyshidrosis	weeks	5–12
Granuloma annulare	weeks	1– 2
Necrobiosis lipoidica	weeks	1– 5
Balanitis xerotica obliterans	months	1– 2
Lichen sclerosus et atrophicus	months	2–10

Note: this study also found that 1% hexopyrronium bromide in 90% DMSO was of value in the treatment of dyshidrosis (blistering eczema) and hyperhidrosis (excessive sweating).

•Finally, a systematic review examined the efficacy of topical DMSO on wound healing and noted that decubitus ulcers were the most frequently studied condition. Overall, the review found that DMSO was beneficial for wound healing and analgesia (and had low toxicity).

Note: this analysis included a 1985 study where 20 older diabetic patients with chronic (treatment-resistant) perforating ulcers received DMSO, and 14 had a complete recovery in 4-15 weeks of treatment (whereas in contrast, only 2 of the 20 controls who received conventional treatment did), a double-blind trial where DMSO was used as adjunctive therapy for refractory duodenal ulcers and was found to increase the cure rate from 60% to 100%, and an unpublished trial where 39 elderly patients with first stage pressure

ulcers received 5% DMSO for 36 months and had a very positive response to the treatment.

General Dermatology Studies

Since many of the published dermatologic DMSO studies evaluated a variety of conditions, I could not place some of them under a specific category. Those three studies (along with an animal one) are as follows:

1. A study reported on 152 patients with a wide range of dermatologic conditions who received a topical DMSO spray (with no side effects except temporary intense pain in two of the recipients). These included:

•Varicose ulcers (67)—many had taken years to develop, and had received numerous (ultimately unsuccessful) surgical treatments. DMSO caused a rapid healing of the microbial infections, significant edema, pain, and patient's inability to conduct their daily activities. Typically, the scars shrunk between 3 and 4 mm per week and patients experienced a recovery far faster than any existing treatment.
•Shingles (7)—all 7 had dramatic results within 48 hours (often completely disappearing).
•Herpes simplex (4 on the penis, 4 on the lips, 2 on the cheeks)—all 10 had dramatic results within 48 hours (often completely disappearing).
•Impetigo (8)—Improvement took up to 48 hours (impetigo is a skin infection).
•Pityriasis versicolor (42)—disappeared within a week (compared to it typically taking at least 2 months to recover).
•Ingrown toenails and infected nails (6 caused by candida, 3 caused by trichophyton)—significant improvement occurred, but it only lasted for 24 hours after the application of the spray.
•Pityriasis rosea (2)—both permanently resolved in a week (whereas this issue typically recurs).
•First and second degree burns (3)—none of the patients developed the typically expected keloids.
•Skin grafts (4)—DMSO significantly improved the final outcome.

Note: in addition to treating herpes, DMSO has also been observed to be an effective treatment for other small ulcers within the mucus membranes of the mouth and genitals.

The paper also included photographs of some of these results:

A case of Herpes 48 hours before and after DMSO

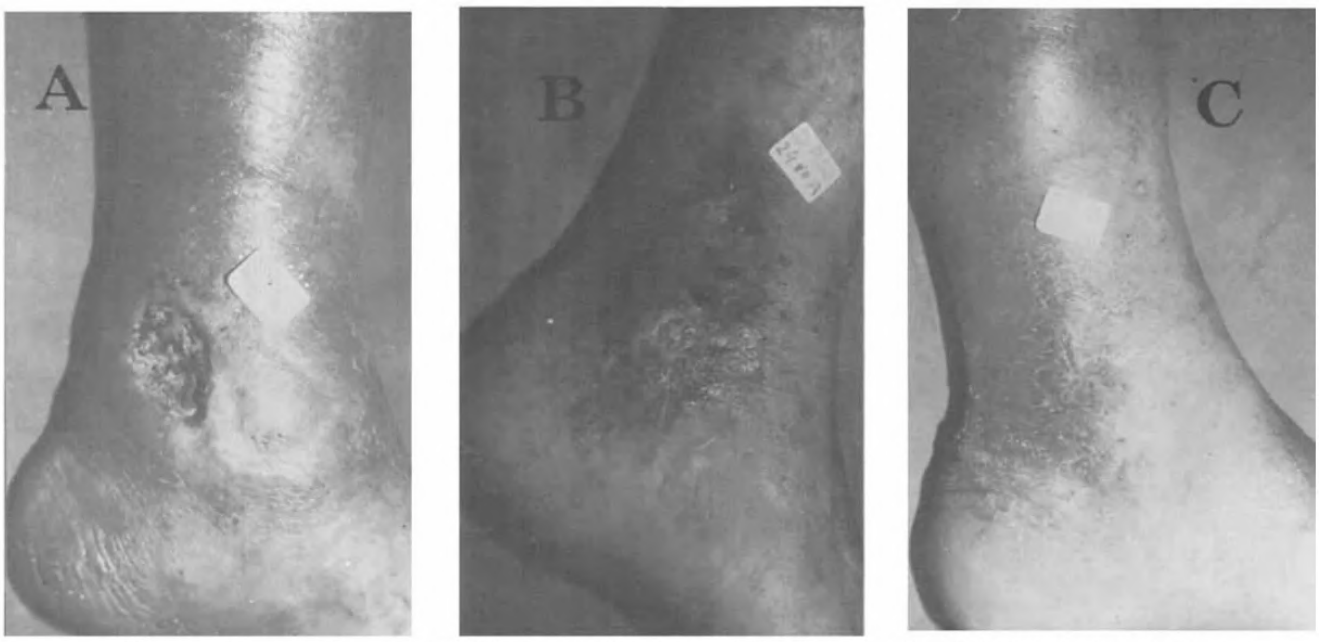


FIGURE 3. A varicose ulcer (case no. 35). A shows the ulcer at the beginning of treatment (June 9, 1973), B the ulcer after 15 days' treatment, and C the cicatrized ulcer after 60 days.

Significantly more graphic ulcers that improved are also included in the study.

2. A German study reported that DMSO yielded positive results for 75 of 106 dermatology patients. Specifically it helped:

•16 of 23 keloid and hypertrophic scars

•1 out of 3 Peyronie's disease cases

•6 of 9 of Dupuytren's contracture cases

•3 of 4 scleroderma cases

•4 of 7 sclerodermic changes in post-thrombotic syndrome

•17 of 21 eczema tyloticum (palmoplantar keratoderma—a challenging and incurable condition where thick plaques form on the palms and bottom of the feet) cases.

•6 of 9 infiltrative processes of the lower limbs

•3 of 5 granuloma anulare

•3 of 4 hypertrophic lichen planus

•2 of 4 verrucae vulgaris (common warts)

•4 of 4 combustion (lesions from burns)

•10 of 11 shingles and post shingles neuralgia cases

•2 fibromas

3. A group of Russian clinicians reported that DMSO had become the standard of care at their hospital for trauma and orthopedic conditions. They then published a report detailing the skin conditions they had treated with DMSO:

CONDITIONS TREATED WITH DMSO, ALONE OR IN ANTIBACTERIAL COMBINATIONS

Condition	Number of Patients Treated
Suppurative wounds	153
Trophic ulcers of the leg	97
Abscesses	48
Carbuncles and furuncles	43
Paronychia	33
Osteomyelitis	31
Phlegmonous ulcers	22
Thrombophlebitis	21
Lower extremity gangrene	16
Mastitis	15
Erysipelas	8
Burns	7
Parotitis	2
Epididymitis	2
Sepsis	2
Total	510

Unfortunately, other than specifying that 11 patients had side effects (8 had dermatitis and 3 had nausea and vomiting), very little data was provided, so it was unclear what percent of these cases responded to DMSO (although, based on comparable data from other studies it was likely the majority of them).

4. A veterinary practice using 90% DMSO reported that:

•In 25 dogs with mammary gland engorgement (which commonly leads to mastitis), applying DMSO three times daily to the affected area generally resulted in cessation of lactation and significant reduction of enlargement within three days (wheres standard treatments took 5-7 days).

•Interdigital cysts are a common issue in certain breeds of dogs but are challenging to treat (especially since they recur). In six cases, DMSO and nitrofurazone (an antibiotic) were applied daily, with prompt improvement occurring within 3 days, with four having

a complete recovery in 3 weeks, one improving but plateauing, and one not being able to complete the program due to inconsistency on the part of the owner.

•DMSO was found to treat chronic local inflammatory reactions to vaccines (causing a significant reduction in one week and a complete resolution in two compared to the slow disappearance typically seen over several weeks).

•In 20 cases where a dog or cat had an allergy to flea bites, giving DMSO and something to eliminate the fleas resulted in prompt reduction in inflammation and healing of the animal's lesions.

•In 9 cases of severe dermatitis involving the feet and nail beds (where both pathogenic fungi and bacteria were cultured), a combination of equal parts of DMSO, nitrofurazone, and nystatin was applied to the area three times a day), with prompt improvement occurred in all cases. Eight made complete recoveries, and one (particularly sick) remains under treatment for one foot, which the animal persists in chewing. In many cases, these conditions become chronic because the animals will chew or lick them (as they itch), something DMSO fortunately reduces.

Note: another author reported on a feline with severe skin problems (e.g., the hair on a large part of her body was falling out, and the skin was raw and bleeding). Nothing veterinarians provided helped, but after a DMSO lotion was tried, pain seemed to be reduced within minutes, the cat quit scratching herself, everything healed, and two months later, she was a beautiful healthy cat.

Common Conditions

DMSO has also been shown to help a variety of other common skin conditions.

Note: the other data for DMSO's use in herpes and shingles will be discussed in a later part of this series that focuses on DMSO's utility in infectious diseases.

Hair loss

Hair loss is a pressing concern for many (especially now that it's a common COVID-19 vaccine injury). Unfortunately, the existing pharmaceutical options leave much to be desired. For example, one of the most commonly prescribed hair loss drugs, finasteride (which blocks the conversion of testosterone into another form of the hormone the body utilizes) is fairly toxic and there are a significant number of people who have been permanently disabled by it.

Note: DMSO has also been combined with finasteride, so that finasteride could be administered locally to regions of hair loss (and thus reduce its systemic toxicity). When this was done in rats, it was found to significantly increase hair density in the treated regions.

For over 40 years, DMSO has proven to be a potent hair loss treatment, something likely due to it improving the microcirculation and rescuing hair producing cells from the cell danger response.

Initially, this began with Stanley Jacob having a patient incidentally regrow their hair after receiving DMSO for another head condition. At that point, he tried giving it to 5 other balding men. This in turn, caused a fine fuzz to appear on the heads in the areas where they'd last had hair, and over time, then caused hair growth to begin in areas that had stopped producing hair earlier on (a pattern others subsequently observed). Because of this, the best results are typically seen when DMSO is used earlier in the hair loss process.

Additionally:

•Individuals who took DMSO for another reason sometimes report dramatic improvements in their hair (e.g., this author cited a case of someone who was saved from severe frostbite with DMSO who then had her hair grow back richer and darker than before).

•DMSO is often beneficial for the hair loss experienced from chemotherapy (although it's not our default treatment for this issue).

•There are many reports of animals (e.g., cats) regaining lost hair from DMSO.

Unfortunately, I have only been able to locate one published paper on DMSO and hair loss—a Japanese case report that described a 67-year-old male patient with rapid progression of whitening and loss of hair in the past 2 months, who after being worked up, was discovered to be suffering from amyloidosis. After starting DMSO, the scalp hair and beard grew and turned to black gradually several months after dimethyl sulfoxide (DMSO) treatment.

Acne and Eczema

Note: much like the common treatment for hair loss (finasteride) is quite dangerous, the common acne treatment (Accutane) is extremely dangerous, and in most cases, the "benefits" it creates are outweighed by the long-term harm it causes.

Many individuals have reported DMSO treats acne (or reduces the scarring from chronic acne). However, to the best of my knowledge, no published studies exist on the subject. Instead, the only reference on it was found within the guidance Merck gave their clinical investigators for DMSO, which stated that for acne "There have been some encouraging results. Long-term administration has been necessary."

Additionally:

•An early (unpublished) study by Stanley Jacob found that when 9 cases of dermatitis were treated with DMSO, all improved.

•DMSO has also been used to successfully treat suppurative diseases of the skin (conditions that cause painful bumps, boils, or abscesses that drain pus).

•Studies do exist on the usage of DMSO for acute pustular diseases.

Psoriasis

•A 1967 study of 45 patients given 40-80% topical DMSO 2-3 times each day (either by immersion or with a cotton applicator) found that the 18 with psoriasis had a marked improvement over the first week, but then after 7-10 days either did not improve or significantly worsened (which was attributed to excessive administration of too high a concentration of DMSO). That study also found those with scleroderma greatly

improved, and a variety of other skin conditions, including traumatic and burn keloids, hypertrophic scars, atopic eczema, and lichen amyloidosis, improved in varying degrees.

Note: the key point of this study is that if you use DMSO for psoriasis, it needs to be done at a lower concentration and stopped if the condition worsens.

•A 1973 study of 33 patients with severe psoriasis (25 with psoriasis vulgaris 7 with psoriasis guttate 1 with psoriasis pustulosa) found that an extract of camptotheca nuts dissolved in 70% DMSO was a "quick, effective and convenient treatment," as a year later, 21 had a complete resolution of the disease, while the remaining 12 had greatly improved (but a few eruptions still could be found along with discolored patches of skin, especially on the lower legs where lesions had previously been reported).

Typically, within five minutes, the patient usually felt an itching, stinging, or burning pain, which subsided in another five or ten minutes, then within three days, the slight rash at the application site subsided. The pimples began to shrivel up and disappear, with most skin eruptions being gone in two or three weeks.

Finally, in some cases, the ointment was only applied to one side of the body, and in those cases, only that side improved.

•A 1989 study of 35 male patients with psoriasis plaques (that had persisted for 2-5 years and did not respond to routine therapy) found giving an ointment of heparin and 15% DMSO under an occlusive dressing yielded positive results after being applied for 41.2 +/- 5.9 days. Complete resolution of the rash was observed in 19 (54.3%) patients, partial regression in 14 (40%), and no effect in 2 (5.7%) patients.
Note: due to its negative charges, heparin is an excellent agent for restoring the physiologic zeta potential.

•A 2009 study found DMSO, combined with topical corticosteroids, was very effective in treatment-resistant plaque-type psoriasis and could completely clear it in 3–4 weeks.

Additionally, at the time Merck was conducting large scale tests of DMSO (before the FDA unjustly banned all DMSO research), they sent all of their investigators an advisory memorandum on what they had learned about DMSO's uses which included:

> psoriasis—Pilot studies are underway. Results may be better with DMSO/Decadron than with DMSO alone. Long-term therapy is necessary.

Lichen planus and lichen sclerosis

There is also limited evidence that DMSO can be used to treat the inflammatory disorders lichen planus and lichen scelorosis:

•The previously cited German study which found DMSO helped 3 out of 4 patients with this condition.

•A case study discussed a patient with lichen sclerosis that had developed over the last year and affected the chest nose face and forehead and allopecia that had now caused her to lose all her hair. She was given topical 90% DMSO mixed with 0.25% fluocinolone to apply topically, and after 6 months, much of her had begun regrowing and most of the lichen sclerosis lesion dissappeared.

•A study where photodynamic therapy successfully treated lichen sclerosis used a 2% gel as a vehicle to bring the active agent into the body, raising the possibility DMSO contributed to the therapeutic outcome.

Severe Itching (pruritus)

Many have reported DMSO significantly improves itching. Unfortunately, this area remains relatively unstudied. However:

•Amyloidosis can frequently cause very itchy deposits in the skin (known as macular [MA] and papular [PA] amyloidosis) that are resistant to treatment and worsen once scratched (making the condition quite challenging to treat. One study found daily DMSO provided significant relief for MA and PA patients (with pruritus resolving in an average of 4.1 weeks). A separate randomized controlled trial of MA patients found that DMSO decreased the pigmentation and significantly decreased the pruritus, even by the first follow up appointment.

Note: numerous studies (compiled here) have shown DMSO is an effective treatment for amyloidosis (an otherwise fairly challenging disorder to treat).

•The pioneer of DMSO research reported that 70% DMSO had a 90% success rate in treating pruritis ani (extremely uncomfortable anal itching) when applied to the itching areas.

Mastitis

A few of my colleagues use topically applied DMSO to treat mastitis in lactating women.

This use is supported by a double-blind study that applied topical DMSO to women with chronic cystic mastitis for one month. In it, DMSO was found to cause a statistically significant improvement (in terms of cyst size and mammography results).

A variety of bovine studies have also shown that DMSO helps mastitis such as:

•This one where DMSO plus antibiotics helped cows with chronic mastitis due to a *Staphylococcus aureus* infection.

•This one where 37 affected quarters of 26 infected cows were given DMSO plus an antibiotic. After 10 ten days, bacteria were no longer present in 10 of the 13 quarters infected with *Staphylococcus aureus,* 10 of the 13 infected with *Staphylococcus epidermidis,* 5 of the 6 infected with *Streptococcus agalactiae,* and all 5 infected with *Streptococcus lactis* or *Streptococcus faecalis.*

•This one where antibiotics, 90% DMSO, and 0.005% flumetasone together were found to treat 87% of acute mastitis cases.

•This one where 136 acute parenchymatous mastitis (from E. coli) received 0.25-0.5 mg flumethasone dissolved in 90% DMSO, with the addition of an appropriate antibiotic and 95% recovered (with the best results seen if treatment was initiated early). When it was caused by a streptococcal infection, there was a 90% recovery rate in acute cases, whereas in chronic cases, 46% of lactating quarters recovered and 24% of non-lactating ones did.

•This one where DMSO plus antibiotics was found to eliminate *Staph. aureus from the milk of* 42 of 49 lactating cows and 9 of 14 dry cows with chronic mastitis (with much

lower success rates when alternatives to DMSO were combined with the antibiotics).

•This one where DMSO and EDTA were found to significantly lower how much antibiotics (gentamicin, ciprofloxacin, and norfloxacin) were needed to eliminate pseudomonas aeruginosa strains isolated from bovine mastitis.

Bites:

One author has found DMSO frequently quite helpful for insect and dog bites, and as mentioned above, multiple readers have seen the same.

According to this paper, DMSO has also been helpful in the treatment of snake bites in animals.

Note: this reader reported that "DMSO absolutely prevents the sloughing that typically accompanies pit viper bites. I even had a 13 pound terrier struck by a copperhead in the throat, who required critical care for the overwhelming venom, but as first aid I made sure the poultice was applied and she recovered with no sloughing or scarring."

Skin Growths and Cancers

Many like these readers have also observed DMSO can eliminate unwanted skin growths:

> I use the horse DMSO gel on my face after washing. Within days I noticed how smooth my skin was. Then I started applying it all over my body after my shower. All little lumps bumps skin tags disappeared after a month or so.

> I am a physician ophthalmologist…I created my own DMSO solution that contains green tea extract (EGCG), turmeric (curcumin), and some other natural goodies. I have used it topically on myself and my children safely. I applied it daily to a couple of my benign skin lesions (seborrheic keratosis-type lesions) which regressed completely after approximately two months.

Likewise, according to one author, studies showed that DMSO cleared up benign skin growths of the eyelids and neck by dissolving the oil fats that caused them.

Furthermore, another author shared that rubbing DMSO on mole like growths on their neck reduced their size by 2/3rds (while a newer one was completely eliminated).

Similarly, as mentioned before, applying DMSO to keloid scars can flatten them and cause some discoloration to disappear.

Note: DMSO has significant value in the treatment of skin cancer. This will be discussed later in this series (in the upcoming article about DMSO and cancer).

Treating the Skin with DMSO

In the final part of this article, I will review how DMSO is used to treat the conditions listed throughout this article (e.g., for acne, hair loss, hemorrhoids, sunburns and varicose veins), along with a few other integrative approaches we use for those conditions (e.g., for hair loss, acne, and mitigating the effects of chemotherapy). Additionally, I will also provide a set of simplified instructions for DMSO product sourcing and the general (safe) use of DMSO.

DMSO Protocols

Note: when utilizing these approaches, it is important to make sure you use the correct concentration (especially in a sensitive area). Additionally, if a spray is used rather than direct application (e.g., with a natural fiber paintbrush), the skin can typically better tolerate DMSO. Since the face is sensitive, particularly to gels, you do not want to apply a strong amount (e.g., 70%) to the face. Instead, it's better to start at 30% with a liquid and gradually increase it. Finally, if you apply to the head or scalp, you must ensure the areas are clean (e.g., no makeup or hair products).

For most of these conditions, the approach is reasonably straightforward—topically apply DMSO you can tolerate to the area 1-3 times a day and watch how it improves in the next few days or weeks. However, there are a few nuances that can help you get the best possible outcome.

Acne: this often responds to being dabbed with DMSO (typically starting at 50% and gradually raising to 75% as tolerated), and if done as spots emerge, it can cause them to

regress. Additionally, applying hydrogen peroxide solutions to the area can help as well.

Eczema: in most cases, the ideal solution for eczema is to identify the offending allergen (e.g., a detergent) and eliminate exposure to it. However, in many cases, that's not possible. Typically, with DMSO, if a 40-65% solution is applied (ideally sprayed and, if not then dabbed on), it can cause a rapid soothing of the skin.

Hair loss: While DMSO can be applied anywhere for hair loss, it gives the best effects if applied directly to the scalp (which requires the scalp to be free of cosmetic residues—and preferably only to use natural hair products while undergoing this protocol). When this is done, 40-50% is typically used (depending on how sensitive the individual is). Initially, the rate at which hair falls out will slow (before it improves, becoming thicker having more luster). Additionally, many people report improved mood and cognition (presumably due to some of the DMSO from the scalp reaching the brain).

Hemorrhoids: typically, you get the best results if you apply DMSO directly onto the hemorrhoid, but when it's put onto the skin in the area or taken orally (e.g., 1 teaspoon a day), it also can often help. When applied directly to the hemorrhoid, 40% DMSO is typically advised.

Sunburns: these often respond best to being sprayed with a 30-60% DMSO solution every 3 to 5 hours as needed (but at the same time, any tolerable regimen can work), and as the skin heals higher concentrations (e.g., 70%) can be used. When this is done, it is important to make sure the skin is clean (e.g., no remaining sunscreen) so those chemicals are not pulled inside the body.

Varicose Veins: while topical DMSO works, if it can be done, IV DMSO (especially to a vein that feeds the affected area), tends to be the most effective treatment option.

Integrative Protocols

Acne: we find acne is frequently dietary in nature, although precisely what it is often varies (so in many cases, you will need to do an elimination diet). Various (similar) food lists (e.g., this one) exist that can help you identify which foods to prioritize cutting out. Additionally, many people I know have successfully used topical flagyl (metronidazole) to treat acne, which is used under the theory that acne is an allergic reaction to facial

mites (which flagyl eliminates). I don't know if this is actually why this approach works (as often the mechanism proposed for treatment is incorrect), but as research demonstrates, it is much safer than taking Accutane.

Hair loss: besides DMSO, I have found three treatments that are particularly helpful for hair loss. The first (and most effective but also most expensive) option is to inject exosomes (ideally derived from amniotic fluid) into the scalp where you wish to bring the hair growth back. The second is to use one of the blue light pads made by this company (which is not as effective as the other options). The third is to use the correct Chinese herbal formulas (which can be challenging, e.g., I've heard of many successes and failures over the years, but I know of one that consistently worked, and I unfortunately have not yet been able to locate a source for it—although I feel hopeful I will).

Chemotherapy mitigation: as discussed here, getting chemotherapy shocks cells (which in turn will cause them to die in the future). Two of the few agents that can reverse this are DMSO and ultraviolet blood irradiation (of which I believe UVBI is more effective in this instance). In turn (as discussed in this article), we find that giving it 1-2 days after chemotherapy significantly reduces the side effects of it.

In addition to it increasing the likelihood that a cancer treatment (e.g., chemo) will work, our own experience has been that one of the things UVBI is the most helpful for is mitigating the side effects of chemotherapy (which to a lesser extent I have also seen ozone therapy do for patients on chemo). We believe this is in part due to chemotherapy triggering the cell danger response and putting cells into a dormant state (which eventually becomes fatal for them), which UVBI instead awakens them from. Because part of the toxicity of chemotherapy is due to the blood stasis, it creates throughout the body (which UVBI also antidotes). Because of this, we find that giving it 1-2 days after chemotherapy often significantly reduces its side effects (which concurs with Dr. Douglass's previously mentioned case).

Sourcing DMSO:

There are a lot of options when purchasing DMSO. Of them, I've long believed these are the three best brands (which I've included Amazon links to purchase them):

•Jacob Lab (e.g., this gel or this liquid)—which is 99.98% pure.
•Nature's Gift (e.g., this gel or this liquid)—which is 99.9% pure.
•The DMSO Store (e.g., this gel or this liquid)—which is 99.995% pure.

Note: unless you feel confident you can dilute them correctly, get the 70% ones, since that concentration typically works for people.

When buying liquid DMSO, I believe it should always be sold in a glass container unless the plastic container is DMSO resistant (which many are not—hence why I only recommended buying glass bottles) and likewise have a DMSO resistant cap. If you buy gel, it's fine if it's sold in plastic.
Note: many people have used liquid DMSO from plastic containers without issue, but I have personally always avoided doing so because glass DMSO has always been affordable and easily available so less thinking is involved to ensure it's sold in a DMSO resistant plastic.

The unexpected problem I ran into was that many of the people who ordered glass DMSO from the links I recommended then informed me they had been shipped in plastic (which is likely either because those parties were resellers or because everyone ran out of glass bottles and the DMSO market is currently trying to rebuild that inventory).

Of the currently existing options, I believe the best choice is to either:

•Buy DMSO directly from the DMSO store (DMSOstore.com).
Note: the website DMSO.store is for a completely different company.

•Buy it directly from Jacob lab (which readers have informed me is also shipping DMSO in plastic they claim is DMSO resistant—which it likely is since Stanley Jacob worked with them for years).

DMSO dosing:

One of the things that's very challenging about using DMSO is that there is a significant amount of variation in what each individual will best respond to. Because of this, in the first and second parts of this series, I attempted to provide a very detailed explanation

that could try to account for each possibility which may have been too complicated (but I would still advise reading).

So the primary consideration is how strong of a dose you want to use. This is because if you use too high a dose, you risk the chance of having a bad reaction, which will make you not want to use DMSO anymore, whereas if you use too low of a dose, the effect will be much less than desired. In turn, I've had many people here who:

•Applied 100% DMSO topically and had trouble believing anyone couldn't tolerate that.

•Applied 70% DMSO topically, had a bit of irritation but thought it was manageable.

•Applies 30% topically and felt it was too strong.

Similarly with oral dosing, I've had people who:

•Thought 1 teaspoon was decent but quickly took more for a greater effect.

•Found a few drops was the optimal dose for them (and greatly benefitted) whereas 1 teaspoon while initially good, ended up feeling like it was too much for them.

Note: in most cases, skin conditions are treated with topical DMSO.

Because of this, you essentially have two options, and have to decide which is right for you:

•Be patient and start with a low dose you build up.

•Start a strong dose and agree not to hold it against me or DMSO if you don't tolerate it.

In the previous articles, I advocated for the former. Still, many understandably started with a high dose as they did not want to wait for the results, a few of whom then shared they'd had a skin reaction that made them hesitant to continue using DMSO.

Similarly, when using DMSO, there are two common routes of application, orally and topically. Orally, it is much stronger, but likewise, the GI tract is more sensitive to higher concentrations of DMSO. For this reason, I typically suggest starting with topical DMSO before doing oral DMSO. Likewise, there is a very small risk (1 in 1-2000) of an allergic reaction, so it's generally advised to begin by patch testing DMSO on the skin before taking it orally.

> **So, What is Patch Testing?**
> Patch testing is a method used to determine how the application reacts to a product. It's a smart way to test a small area first before applying the product to larger areas, which helps to identify any adverse reactions.

> **How to Patch Test:**
>
> • **Select a Small Area:** Choose a discreet spot.
> • **Apply a Tiny Amount:** Use a small quantity of the product.
> • **Wait and Observe:** Leave it on for 24 hours unless you notice irritation sooner.
> • **Proceed if All's Good:** If there's no reaction, feel confident to use the product as intended!

> ***If in contact with the skin: Some experience itching and tingling sensations, which are** normal. If there's any redness or swelling, wash the area immediately and discontinue use.

That said for general DMSO use (without going into all the nuances and additional details), I advise the following:

1. Start with 30-50% DMSO and see how you tolerate it. If applying to the face, make sure all makeup has been washed off (and ideally that you are only using natural cosmetic products).
2. If you have no issue, raise it to 70%.
3. Only raise it past 70% if you are certain you are one of those people who is fine with 100% or you are using it for a specific application that can justify a higher concentration (e.g., a collagen contracture, a scar, an internal adhesion or an acute stroke).

4. Until you are comfortable with topical applications, don't do oral applications, and only if you think you need them.
5. For oral dosing, start with a teaspoon of 70% or 100% DMSO mixed into a glass of water (you may also want juice or milk to eliminate DMSO's taste).
6. If you have issues with that, lower the dose to half a teaspoon and then to a quarter teaspoon.
7. Otherwise, stay at a teaspoon for at least three days, and then if you think you need a stronger effect, go to 2 teaspoons.
8. More than 3 teaspoons in a glass of water is excessive, and at that point, you are better off dividing the dose throughout the day.
9. With both topical and oral DMSO, people generally find that as time goes on, their tolerance to it improves. Conversely, if it's used too frequently, a tolerance can develop, so it's generally advised to not have it 1-2 days a week.

Note: more detailed instructions on oral (and IV) DMSO use can be found here, while more detailed instructions on topical uses can be found here.

Regarding the concentrations used, I generally advise buying 70% DMSO because people rarely react to it (e.g., the DMSO felt it was the concentration that had the best balance between safety and efficacy). It doesn't require any significant calculations to dose appropriately (e.g., you can apply it topically as it is, or mix it with equal parts of purified water to get it to roughly 35%). However, you can also do all of that with 100% DMSO (e.g., dilute it to roughly 50% rather than 35% by mixing it with equal parts of purified water or to roughly 33% by mixing it with two parts of purified water). Finally, certain parts of the body, **particularly the face**, tend to be more sensitive to higher concentrations of DMSO, so you should start at lower strengths in those areas

If you are putting DMSO on the face, start at 30% and **do not start with a stronger one** as this can significant skin irritation to the face. For example, I had one reader who started with a 70% gel on the face contact me about a reaction they had (although after the surface layer of skin peeled off her face underneath did look much younger).

Additionally, the one tricky thing about dosing DMSO is that it weighs slightly more than water (1ml of DMSO is 1.1004 grams). Since there is a fairly wide range of tolerability to DMSO, I've bypassed that issue here by treating it as having the same density as water and suggesting a slightly lower oral dose.

Note: when DMSO is taken by mouth, the total concentration should always be kept to 20% or less, and ideally, it should be taken slowly after eating a meal.

When applying DMSO topically, there are two options. The first is to use a liquid that you directly apply (e.g., I like to use paintbrushes made from natural hairs to dab it on, but sometimes when needed I just dip my finger in it and then rub it onto the target area, whereas the DMSO field often used sprays for sensitive skin conditions). The second is to use a gel which is rubbed into the skin.

When applying DMSO to the body, it is important to clean the area it will be applied to beforehand, and to ensure DMSO dries before putting anything in contact with it. This is because DMSO will pull things from the surface of the skin into the body, and if a toxic chemical is on the skin, it will hence be dragged into the body. This is very rare, but there are known instances of this happening and harming the individual.

I personally prefer the liquids because it's easier to control the total dose with them, more gets into the body, and liquid DMSO tends to be less irritating. That said, gels hold the advantage of continually releasing DMSO into the body over a prolonged period and are much easier to apply. Because of this, whichever one you use is largely a question of personal preference.

In most cases, if an area bothers you, you are better off applying DMSO to that area (provided there is no open wound), but if the issue feels systemic, you may also need to take oral DMSO.

Note: for many of the conditions described here (e.g., interstitial cystitis) even though DMSO was primarily given through catheters that emptied it into the bladder, many clinicians have found it works just as effectively when taken orally (and did not subject the patient who were already so irritated they could not tolerate a catheter going in).

Conclusion

When I started the DMSO project, I was a bit reluctant to do it (as I knew how much work it would require), but despite that, I am incredibly grateful I did, as it's helped a lot more people than I could have imagined.

Now more than ever, that is important because if a sufficient amount of attention can be brought to the forgotten sides of medicine, a once in a lifetime window exists to bring them into the public consciousness. For that reason, if you are able to share this article with anyone you know (who could benefit from it) or able to share your own stories of how DMSO has benefitted you (ideally at this thread so I don't have to copy them over to it), that would be deeply appreciated as I believe there is a very real chance to reintroduce DMSO to medicine.

Truthfully, I never imagined something like this could be possible, and I am profoundly grateful to each of you for your support and for giving me the voice to get that message out.

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A Midwestern Doctor 1d *Edited*

Pinned

I forgot to discuss Lichen Scelorosis and DMSO. That has been updated in the article.

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3 replies by A Midwestern Doctor and others

1112 1d

I get so excited when you drop a dmso article!

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