

Unlocking DMSO's Potential – Revolutionary Combination Therapies for Pain, Infections, and More

Analysis by [A Midwestern Doctor](#)

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STORY AT-A-GLANCE

- › DMSO is an "umbrella remedy" capable of treating a wide range of challenging ailments due to its combination of therapeutic properties (e.g., reducing inflammation, improving circulation, and reviving dying cells)
- › One of DMSO's unique properties is its ability to enter through the skin and carry anything it dissolves with it as it rapidly travels throughout the body, greatly enhancing the potency and viability of many pharmaceutical drugs
- › Because of this, numerous pharmaceutical preparations over the years have combined DMSO with a commonly used drug, and in many cases, demonstrated significant safety and efficacy of the combination to drug regulators
- › These DMSO combination therapies are able to treat challenging illnesses, such as significant musculoskeletal injuries, antibiotic resistant infections, persistent fungal and viral infections, chemotherapy resistant cancers, and chronic pain
- › Many of the most promising uses of DMSO result from combining it with another natural or conventional therapy, as in many cases, a combination can do what DMSO cannot do alone for someone. This article examines the clinical evidence for specific DMSO combination therapies

DMSO is a remarkable naturally occurring substance that (provided it's used correctly)¹ safely and rapidly improves a variety of conditions medicine struggles with – particularly chronic pain. For example, thousands of studies show DMSO treats a wide

range of:

- Injuries such as sprains, concussions, burns, surgical incisions, and spinal cord injuries (discussed [here](#)).
- Strokes, paralysis, many neurological disorders (e.g., Down syndrome and dementia), and numerous circulatory disorders (e.g., Raynaud's, varicose veins, or hemorrhoids), which were discussed [here](#).
- Chronic pain (e.g., from a bad disc, bursitis, arthritis, or complex regional pain syndrome), which was discussed [here](#).
- Many autoimmune, protein, and contractile disorders, such as scleroderma, amyloidosis, and interstitial cystitis (discussed [here](#)).
- Head conditions, such as tinnitus, vision loss, dental problems, and sinusitis (discussed [here](#)).
- Internal organ diseases such as pancreatitis, infertility, liver cirrhosis, and endometriosis (discussed [here](#)).
- A wide range of skin conditions, such as burns, varicose veins, acne, hair loss, ulcers, skin cancer, and many autoimmune dermatologic diseases (discussed [here](#)).
- Many challenging infections, such as shingles, herpes, chronic ear or dental infections, and osteomyelitis (discussed [here](#)).
- Cancers and many complications from the illness and its treatments (discussed [here](#)).
- Lung disorders such as COPD, asthma, pulmonary fibrosis, smoke injuries, and pneumonia (discussed [here](#)).

In turn, since I started this series, it has struck a chord. I have received **over 2,000 reports** of remarkable responses to DMSO, with many readers experiencing relief from a variety of "incurable conditions."² For example, this man was contemplating suicide from his disability from COPD, and **after nebulizing it**, immediately regained his lung function and stamina (something other readers have also reported).

[Video Link](#)

This begs an obvious question – if a substance capable of doing all of that exists, why does almost no one know about it? Simply put, like many other promising unpatentable therapies, it fell victim to a pernicious campaign by the FDA, which kept it away from America despite decades of scientific research, congressional protest, and thousands of people pleading for the FDA to reconsider its actions.³

Combination DMSO Therapies

DMSO is a unique solvent that can rapidly travel throughout the body (e.g., within an hour of being applied to the skin, it can be found within the bones and teeth), and will bring whatever is dissolved with it.⁴ Because of this, in addition to its many curative properties, DMSO also enhances the function of many other substances, such as:

- It allows drugs and nutraceuticals that would normally require injection to be given topically.
- Allows them to enter regions of the body they would normally have difficulty entering, thereby making it possible to treat resistant infections and cancers.
- Significantly increases the potency of the medication, allowing much lower and safer doses to be used (e.g., topical DMSO mixed with a natural anticancer agent **can treat cancers and metastases below it in that region**).

As such, many natural healers over the years have discovered a number of remarkable natural DMSO combinations that can be used to treat a myriad of diseases **far more effectively than the natural remedy alone**. Likewise, most of the interest in the medical field has been on using DMSO in combination with other patentable drugs, and numerous approved formulations exist; what many do not know is that DMSO is now widely used for that purpose.

Heparin Combinations – Revolutionizing Musculoskeletal Treatment

Heparin is one of the oldest anticoagulants, and I believe it works in part by **improving zeta potential**, as due to its numerous sulfate and carboxylate groups, it has the most negative charge density of any known biomolecule, making it a **strong zeta potential restoring** (and hence circulating improving) agent. Unfortunately, heparin cannot be absorbed orally, so it's typically reserved for hospital settings where it can be injected, making DMSO's ability to bypass this limitation invaluable.

***Note:** The **one study** I'm aware of that clearly compared DMSO alone to DMSO plus heparin found significant benefits from the combination in rheumatoid arthritis.⁵*

- **The Dolobene Success Story** – In Germany, roughly fifty years ago, researchers developed Dolobene, a gel containing 10% to 15% DMSO, 2.5% dexpanthenol (a water-soluble vitamin that breaks down into pantothenic acid, essential for cellular metabolism), and 50,000 IU of heparin. This combination promotes moisturizing, hydrating, and wound healing while reducing inflammation.

In the 1980s,⁶ Dolobene became one of the leading topical medications for sports injuries and arthritis. Numerous studies from that period corroborated its value for these conditions and complications of varicose veins (another condition with strong response to DMSO):

- **Athletic injury studies** – A study of 78 patients (mostly athletes) with overstrained tendons received Dolobene for 2 to 3 weeks three times daily, with over 50% showing significant symptom improvement: 94% improvement in pain, 55% improvement in swelling, 95% improvement in redness, and 92% improvement in warmth.⁷

Another study gave Dolobene gel to 30 athletes with soft tissue injuries twice daily for 4 weeks. Results showed 10 excellent responses, 5 excellent to good responses, 10 good responses, and 5 moderate responses across various injury types including shoulder contusions, knee joint distortions, and ankle sprains.⁸

- **Trauma and recovery studies** – A controlled study compared Dolobene gel plus ultrasound to placebo in 15 subjects with blunt-tissue trauma to the lower extremity within 24 hours. The treatment group showed faster pain relief, edema reduction, and mobility recovery compared to 15 controls.⁹
- **Vascular condition studies** – A comprehensive study treated 44 patients with various vascular conditions including spontaneous and postoperative phlebitis, chronic edema, and traumatic injuries related to varicose veins. Researchers evaluated multiple parameters including leg pain, heaviness, pain intensity, and swelling, with 75% of patients showing noteworthy improvement in over half the parameters evaluated.¹⁰

Most remarkably, a study of 41 patients who had undergone varicose vein surgery or had acute thrombophlebitis received Dolobene gel for up to 31 days. Of the 34 evaluable patients, all experienced good or very good results.¹¹

- **Global Expansion of Heparin-DMSO Combinations** – The success of Dolobene led to numerous similar products worldwide:

European Products:

- Sinedol¹² and Roll-Bene¹³ (heparin and dexpanthenol)

- Histalgan Mite¹⁴ (hydroxyethyl salicylate – HES, related to aspirin)
- Sportusal Emgel and Gel¹⁵ (heparin and HES)
- Venugel¹⁶ (complex combination with essential oils)

American and Russian Products:

- Dendracin Neurodendraxcin¹⁷ (methyl salicylate, menthol, and capsaicin)
 - Капсикам¹⁸ (capsIKAM) (camphor, turpentine, benzyl nicotinate, and Nonivamide)
- **Clinical Applications in Bladder Treatment** – In America, DMSO's only clinically approved indication is the intravesical treatment for interstitial cystitis (painful bladder inflammation). While effective, it doesn't work in every case. According to Stanley Jacob:¹⁹

“When IC is refractory to DMSO instillation, DMSO bladder cocktails have been tried with some success. These cocktails entail mixing DMSO with heparin, steroids [methylprednisolone], hyaluronic acid, analgesics, and other substances.”

Clinical studies support this approach.²⁰ In one study, IC patients who didn't respond to single agents (DMSO, silver nitrate, or chloropactin) responded to heparin-containing combinations, while another showed effectiveness in previously untreated IC patients.

NSAID Combinations – Safer Pain Management

NSAIDs are among the most widely used medications for pain and injury, despite often having limited efficacy and significant systemic toxicity. They cause gastric bleeding, heart attacks, and kidney damage that collectively **kill tens of thousands of Americans annually**.

- **The Development of Topical NSAID-DMSO Combinations** – One strategy to reduce NSAID toxicity involves topical application (like diclofenac in Voltaren gel) to minimize systemic absorption and toxicity, which numerous studies have corroborated.^{21,22,23,24} However, combining NSAIDs with DMSO dramatically increases absorption and effectiveness.
- **Pennsaid: The FDA-Approved DMSO-NSAID Combination** – In the United States, the only FDA-approved topical DMSO combination is Pennsaid (45% DMSO with diclofenac).²⁵ The approval process reveals important insights about DMSO's effectiveness.

In a 2004 randomized controlled trial for approval, researchers found minimal systemic toxicity (the primary issue was topical skin irritation, greater in the combination group).²⁶ Remarkably, DMSO alone (the "placebo") improved symptoms by 28.5% on average, while DMSO plus diclofenac improved symptoms by 39.925%.

This data is particularly significant because it demonstrates DMSO's standalone effectiveness while showing additional benefits from the combination. Given the pharmaceutical industry's tendency to minimize placebo effects, the actual benefit from DMSO alone was likely greater than reported.

- **Supporting Clinical Evidence** – Multiple studies corroborate these findings: A meta-analysis²⁷ of clinician trials from 2004²⁸ and 2005²⁹ showed that DMSO alone created improvement, with greater improvement from DMSO plus diclofenac combinations.

When topical DMSO-diclofenac was compared to oral diclofenac, it proved equally effective for pain reduction but much less likely to cause systemic side effects. Another trial confirmed these findings and showed that combining topical and oral forms didn't increase oral diclofenac toxicity.³⁰

The FDA analysis of seven unpublished clinical studies found only 1% to 4% increases in various non-severe side effects when comparing DMSO-diclofenac to DMSO alone.³¹

- **Commercial Success and Limitations** – Pennsaid was approved in 2009,³² with a formulation approved in 2014.³³ The company also developed foam-based ibuprofen DMSO formulations,³⁴ but disappeared through corporate acquisitions.^{35,36,37} After patent expiration, other companies began producing generic versions.^{38,39}

Steroid Combinations – Enhanced Anti-Inflammatory Power

Corticosteroids **have significant side effects** that increase with higher doses and prolonged use. However, early research revealed that DMSO dramatically increased steroid potency, allowing for much lower therapeutic doses. For example:

- DMSO increased steroid potency⁴⁰ 10 to 1,000 times in stabilizing lysozymes, and greatly enhanced steroids' ability to reduce fibroblast proliferation.⁴¹
- Investigators found that 0.025% fluocinolone in DMSO was more effective than 0.025% fluocinolone alone for various conditions, with equivalent efficacy to 0.2% fluocinolone, suggesting DMSO made the steroid ten times more potent.⁴²

Clinical Applications in Dermatology

Most DMSO-steroid combination trials focused on dermatologic or musculoskeletal conditions:

- **Distribution and safety studies** – Researchers found that various dyes thoroughly stained the skin's surface layer but rarely penetrated deeper, with similar penetration patterns for hydrocortisone and other compounds.⁴³

A 1967 study found 90% DMSO caused a fourfold increase in topical corticosteroid absorption and excretion,⁴⁴ while a 1968 study of 224 patients found 70% DMSO gel with triamcinolone acetonide produced results comparable to cumbersome occlusive dressings.⁴⁵

- **Skin condition treatments** – A 1967 study demonstrated that topical DMSO with 0.025% fluocinolone effectively treated numerous conditions.⁴⁶
- **Psoriasis treatment** – A 1976 clinical trial found that DMSO combined with topical corticosteroids was very effective for steroid-resistant plaque-type psoriasis, achieving complete resolution in 3 to 4 weeks.⁴⁷ The steroids synergistically counteract irritation sometimes seen with higher DMSO concentrations.

A 2009 study confirmed DMSO combined with topical corticosteroids was highly effective for resistant plaque-type psoriasis, completely clearing it in 3 to 4 weeks.⁴⁸

Rheumatoid Arthritis Applications

Multiple studies demonstrated effectiveness for rheumatoid arthritis:

- A 1968 study found that DMSO, combined with hydrocortisone or procaine, was more effective than DMSO alone, with improvements seen within one week in 5 out of 8 rheumatoid patients, 17 out of 20 patients with inflamed nerve roots, and 8 out of 10 with disc pain.⁴⁹
- A large 1979 study treated 343 arthritic patients (320 with RA) with DMSO or DMSO combinations. The DMSO-only group showed 64% significant improvement, but adding heparin, sodium salicylate, or hydrocortisone increased efficacy with quicker pain decrease and improved joint function.⁵⁰

Antiviral Combinations – Forgotten Breakthrough Treatments

- **5-Iodo-2'-Deoxyuridine (5-IDU): A Rediscovered Antiviral** – 5-IDU was a nucleotide analog with potent antiviral activity against herpes simplex virus and varicella-zoster virus, the causative agents of herpes and shingles, respectively. Unfortunately, it had difficulty penetrating the skin, limiting use primarily to eye infections.

However, early DMSO researchers realized DMSO overcame this limitation and conducted numerous clinical trials showing effective treatment for herpes and shingles,⁵¹ resulting in products like Zostrium⁵² (90% DMSO, 1% IDU for shingles) and Virunguent⁵³ (1.8% DMSO, 0.2% IDU for herpes) in European and New Zealand markets during the 1980s.

Unfortunately, as decades passed, this excellent therapy was forgotten. The comprehensive research data includes:

- **Early clinical trials** – A 1965 study of 7 patients with severe cutaneous herpes simplex infection showed significant improvement in all cases.⁵⁴

A groundbreaking 1966 blinded trial of 21 patients with recurrent herpes found IDU alone ineffective, DMSO alone halved flareup duration, and DMSO-IDU reduced duration to one-third while preventing recurrences.⁵⁵

- **Herpes simplex research** – A 1990 randomized controlled trial treated 301 patients with recurrent genital herpes using 80% DMSO mixed with 15% IDU, reducing mean pain duration by 1.3 days and healing time by 1.7 days. For classic herpes lesions specifically, pain duration decreased by 2.6 days and healing time by 2.3 days.⁵⁶
- **Shingles (Herpes Zoster) studies** – Two randomized controlled trials from 1970 showed that both 5% and 40% IDU in DMSO were effective over 4 days of repeated applications, with 40% IDU being more effective in reducing shingles pain and shortening healing time.⁵⁷

The patients were delighted, for the pain disappeared within a median of two days. A comprehensive 1974 trial of 118 patients found 100% DMSO with 5% IDU applied every 4 hours for 4 days significantly shortened the vesicular phase, healing time, and pain duration while improving post-herpetic neuralgia.⁵⁸

- **Comparative effectiveness** – Most remarkably, a 1992 randomized controlled trial of 171 patients with non-severe shingles (present less than 4 days) found that compared to acyclovir, 40% topical DMSO mixed with IDU was superior for vesicle drying speed, pain duration, medication requirements, vesicle formation prevention, and post-herpetic neuralgia prevention.⁵⁹
- **Modern Antiviral Applications** – A 1983 study found DMSO effectively transported acyclovir into the skin, moderately reducing herpes lesions alone and dramatically reducing them when combined with acyclovir.⁶⁰

5-Fluorouracil Combinations – Skin Cancer Treatment

5-FU is a chemotherapy drug used for various cancers and skin conditions. Actikerall,⁶¹ a 5-FU and salicylic acid combination approved in Europe and Australia for actinic keratosis, contains DMSO, though this is often not mentioned or listed as "inert."⁶² 5-FU with DMSO has demonstrated effectiveness for:

- **Skin cancer treatment** – A 1967 study found DMSO significantly increased 5-FU potency, making 5% concentrations effective for locally treating keratoacanthoma, superficial basal cell carcinoma, and early-stage squamous cell carcinoma without adverse effects.⁶³
- **Other skin conditions** – Research showed effectiveness for seborrheic keratosis⁶⁴ and common warts.⁶⁵
- **Nail psoriasis** – DMSO combined with 5-FU (in 70% ethanol) proved effective for nail psoriasis in a 20-patient series, with the best results for pitted nails, leukonychia, and oil spots, while showing marginal results for onychodystrophy and crumbly nails.⁶⁶

Infection Combination Treatments – Overcoming Resistance

DMSO exhibits significant antimicrobial activity that's dramatically enhanced when combined with antimicrobial agents. Key applications include:

- **Antibiotic resistance reversal** – DMSO's most remarkable property may be its ability to cause antimicrobial-resistant organisms to lose their resistance, making it possible to eliminate superbugs. This has been most conclusively demonstrated with tuberculosis – an infection whose widespread antibiotic resistance has become a global health problem.
- **Enhanced penetration** – Potent topical medications that normally cannot penetrate the skin can do so with DMSO, allowing antimicrobial activity in previously inaccessible locations. Infections deep within the skin that typically resist elimination can be addressed when topical antimicrobials are mixed with DMSO.
- **Bacterial infections** – **DMSO's antibiotic potentiation is well-recognized in scientific literature.** For example, a 1966 study found that 5% DMSO increased bacterial antibiotic sensitivity in both sensitive and resistant strains. All four colistin-resistant *Pseudomonas* strains became sensitive, although the resistant *E. coli* didn't become penicillin-sensitive.⁶⁷

DMSO appears to enhance antibiotics targeting intracellular components (presumably by facilitating their transport into cells) while not improving those targeting cell walls, such as penicillin. A 2002 study of bacteria causing lung infections found that DMSO potentiated the effects of kanamycin, amikacin, streptomycin, and chloramphenicol, but not those of cell wall-targeting antibiotics.⁶⁸

This has best been demonstrated with tuberculosis, the most deadly infection in the world, particularly due to its ever increasing antibiotic resistance. Many lab studies⁶⁹ have shown DMSO directly inhibits the bacteria's growth⁷⁰ and increases its sensitivity to the antibiotics used to treat the infection by 3 to 200 times,^{71,72} including in bacterial extracts from tuberculosis patients.^{73,74}

Likewise, in guinea pigs with isoniazid resistant tuberculosis, all died despite isoniazid treatment, whereas if DMSO was given prior to it, they all survived.⁷⁵

As such, many studies have found that DMSO dramatically improves outcomes for tuberculosis (e.g., in patients with destructive pulmonary and endobronchial tuberculosis who received nebulized antibiotics mixed in DMSO,⁷⁶ in children to heal destructive cavities from tuberculosis,⁷⁷ and in children who contracted tuberculosis from contaminated vaccines).⁷⁸

- **Fungal infections** – When DMSO is combined with antifungal medications, it increases their potency⁷⁹ and enhances their ability to penetrate into the skin,⁸⁰ effectively treating infections in the area^{81,82,83,84,85,86,87,88,89,90,91,92,93} (or in the brain),⁹⁴ and it frequently becomes possible to treat chronic infections that do not respond to other treatments (e.g., **many have reported it treating toe nail fungus** such as DMSO with ivermectin rapidly treating one infection years of other therapies had not touched).⁹⁵

Note: *Some commercial DMSO antifungal formulations exist.*^{96,97,98}

- **Viral infections** – Both clinical trials and user reports **show DMSO greatly helps shingles and herpes** and that its effects are enhanced when it is combined with acyclovir.⁹⁹ Likewise, one potent antiviral therapy, 5-IDU can't be used to treat shingles or herpes because it cannot penetrate the skin. However, once combined with DMSO it can, and many clinical trials have shown it is a highly effective treatment for shingles,^{100,101,102,103,104,105,106,107,108,109,110,111} and multiple approved formulations of it exist.^{112,113}

Conclusion

The DMSO combination story illustrates another remarkable aspect of medicine. Alone (despite a mountain of evidence to the contrary),¹¹⁴ DMSO (which can't be patented) is viewed as dangerous and ineffective, however once combined with a patentable therapy, it magically becomes "safe and effective."

Fortunately, the unprecedented political climate created by the immense betrayal we witnessed throughout the COVID-19 pandemic, as well as the ascendancy of MAHA and RFK Jr. to the H.H.S. Secretary position is at last making it possible to change this dysfunctional paradigm. Many are now rediscovering the Forgotten Sides of Medicine. This is an exciting time to be alive, I never imagined would happen in my lifetime, and I am incredibly grateful to be on this journey with you.

Author's Note: *This is an abridged version of [a longer article](#) about DMSO combination therapies, which provides greater detail on the points mentioned here, covers many other combinations not discussed (e.g., for tinnitus or vision loss), and offers guidance on preparing the combination therapies. That article, along with resources and protocols for obtaining and using DMSO can be read [here](#). Additionally a companion article on how DMSO treats pain and musculoskeletal injuries can be read [here](#).*

A Note from Dr. Mercola About the Author

A Midwestern Doctor (AMD) is a board-certified physician from the Midwest and a longtime reader of Mercola.com. I appreciate AMD's exceptional insight on a wide range of topics and am grateful to share it. I also respect AMD's desire to remain anonymous since AMD is still on the front lines treating patients. To discover more of AMD's work, be sure to check out "[The Forgotten Side of Medicine](#)" on Substack.

Sources and References

- ¹ [See all references](#)