

How DMSO Protects and Heals the Internal Organs

The evidence behind DMSO's utility for a myriad of challenging diseases



A MIDWESTERN DOCTOR

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Story at a Glance:

- The therapeutic actions of DMSO make it well suited to treat challenging conditions throughout the body, including many of the internal organs.
- In this article, we will examine how DMSO protects organs from injury (e.g., poisoning or blood loss) and some of the specific diseases DMSO has been proven to treat.
- These include: heart attacks, liver cirrhosis, gallstones, ARDS, lung damage from inhaling smoke, pulmonary fibrosis, pancreatitis, diabetes, nephritis, kidney stones, polycystic kidney disease, cystitis, epididymitis, genital pain, prostatitis, urethral syndrome, enlarged prostates, tubal infertility, endometrial inflammation, and fibrosis.
- 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.

Note: when this article was emailed out, the research in the section “Kidney Function” was accidentally replaced with another part. This has been fixed.

Dimethyl sulfoxide (DMSO) is [a remarkably safe compound](#) that can treat a variety of challenging conditions. Since DMSO is remarkably effective for [treating chronic pain, arthritis, and injuries like sprains or burns](#) (discussed further [here](#)), it quickly spread across America as a miracle drug. Thousands of studies were conducted to confirm its value, and before long, hundreds of thousands of people considered it to be the most important therapeutic ever discovered.

Unfortunately, [due to various negative political factors](#), the FDA went from embracing DMSO to going to war against it, and eventually, the pharmaceutical industry reluctantly followed suit. Sadder still, [the FDA refused to relent](#) even once:

- DMSO was shown to effectively treat strokes, traumatic brain injuries, spinal cord injuries, and many circulatory disorders (discussed [here](#)).
- DMSO was shown to cure a variety of “incurable” autoimmune and connective tissue disorders (discussed [here](#)).
- DMSO was shown to treat a variety of challenging (and often incurable) eye, ear, sinus, and dental conditions such as tinnitus and blindness (discussed [here](#)).

Since publishing those articles, I’ve received roughly a thousand reports from people about the remarkable effects DMSO has had on them (which can be read [here](#)), which, while unbelievable, **are almost identical** to what people experienced in the 1960s before [the FDA erased DMSO from the public’s memory](#).

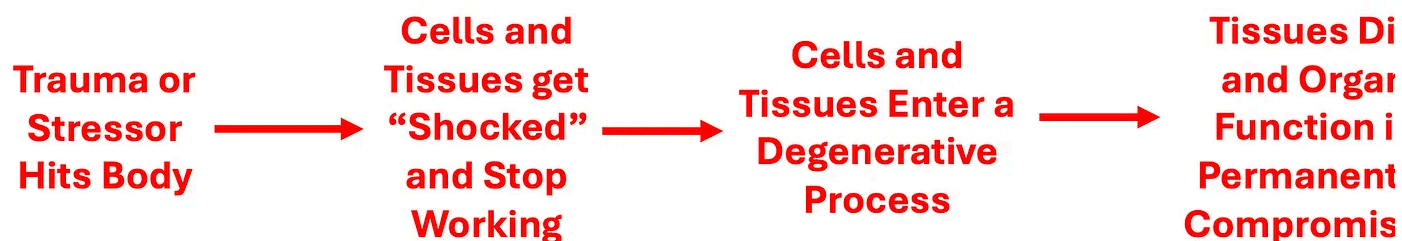
Likewise, I’ve received almost as many questions (which is why I am trying to make these articles as thorough as possible). One of the most common questions I’ve received is if DMSO can help with various disorders of the internal organs.

How DMSO Heals the Organs

[As highlighted in the first part of the series](#), DMSO is able to protect tissues from otherwise lethal stressors (e.g., cold, radiation, heat or having their blood supply cut off for a prolonged period). While some of these could potentially be explained by DMSO restoring a compromised blood supply, or its ability to protect against the ischemia-reperfusion injuries that follow a lost blood supply being restored ([something which has been demonstrated in many different organs](#)), that alone is not sufficient to explain what transpires. As such, it's important to review two other critical properties of DMSO.

Shocked Cells

Frequently when cells receive a potentially lethal stressor, they will shut down their normal functions to survive and repair themselves. In many cases, this process is essential for survival, but in some cases, it instead becomes the root cause of disease because cells get stuck within the non-functioning state (a pathologic [Cell Danger Response](#)) or transition from being non-functional to dead (with these “penumbras” that later die being extremely common after strokes).



There are a few key points about this model:

- In many cases, due to past injuries, tissues will have certain cells stuck in the cell danger response, resulting in their functionality being greatly diminished.
- Typically, more potent stressors make it progress faster (e.g., strokes rapidly kill brain cells). In contrast, weaker and more chronic stressors make it progress slower (e.g.,

previously discussed [how the cell danger response](#) underlies many “inexplicable” chronic diseases).

- The further down this progression a tissue is, the harder it is to reverse (but with the correct therapy it can almost always be done).

- [Many regenerative therapies](#) essentially work by getting “shocked” cells to come back to life and start working again, which in many cases is critical for overall health since those tissues not working can disrupt the entire body.

- DMSO can reverse this process (discussed further in [the first part of this series](#)), but it is typically more helpful for the rapidly progressing instances coming from a significant stressor (e.g., a stroke or a severe injury or ingesting a poison). This in turn explains why DMSO can sometimes give motor function back to people who were paralyzed by strokes years ago, but it is dramatically more effective if given shortly after a [stroke, traumatic head impact or spinal cord injury](#), and likewise why individuals on DMSO suddenly “notice” things in their body that had stopped working come back.

Note: caspase proteins play a central role in programmed cell death. DMSO, in turn, [has been shown](#) to protect heart, liver, and airway cells from caspase proteins.

- For slower and more chronic versions of this process which have already progressed, one typically needs a systemic regenerative therapy (discussed further [here](#)).

Stem Cell Differentiation

Initially, human cells have the potential to become any human cell, but as time goes on, their range of possibilities becomes more restricted until they settle on the cell type they are supposed to be in each part of the body (a process known as differentiation). Because of this they can be extremely useful in healing injuries or repairing damaged tissue because the stem cells can differentiate into the missing cells and then replace the ones that were lost (allowing the organ to regain function).

Conversely in cancer the reverse happens, and with cancer cells being much less differentiated than typical cells and hence less able function in harmony with the body. DMSO, in turn, belongs to a narrow set of agents which cause cells to differentiate (e.g., [causing cancer cells to become benign heart cells](#)), which is [how it able to cure wide ranger of cancers](#).

Likewise, since DMSO [is a potent differentiation agent](#), it is frequently used in stem cell research to induce their differentiation into target cell types—which often requires DMSO in conjunction with an agent that already occurs in the tissue (as stem cells need something to guide them into transforming into the cell type each tissue needs). As so many paper have explored and validated this concept, rather than cite each of them, I'll use an AI generate table to summarize some of the cell types DMSO has been observed to trigger differentiation in:

Cell Type	Stem Cell Type	Other Conditions Required	Typical Concentration DMSO
Cardiomyocytes (Heart Cells)	ESCs, iPSCs	- BMP4, Activin A, CHIR99021 (GSK3 inhibitor), Wnt inhibitors (e.g., IWR1), bFGF	0.1–1%
Adipocytes (Fat Cells)	MSCs	- Indomethacin, Insulin, Hydrocortisone, Isobutylmethylxanthine (IBMX)	0.1–1%
Osteocytes (Bone Cells)	MSCs	- BMP2, Dexamethasone, β -Glycerophosphate, L-ascorbic acid	0.1–1%
Chondrocytes (Cartilage Cells)	MSCs	- TGF- β , BMP6, Insulin, Sodium pyruvate, Dexamethasone	0.1–1%
Neurons (Nerve Cells)	ESCs, iPSCs, NSCs	- Retinoic acid, BDNF (Brain-Derived Neurotrophic Factor), Noggin, SHH (Sonic Hedgehog), Fibroblast Growth Factor (FGF)	0.1–0.5%
Endothelial Cells (Blood Vessel Cells)	ESCs, iPSCs	- VEGF (Vascular Endothelial Growth Factor), FGF, EGF (Epidermal Growth Factor), TGF- β	0.1–0.5%
Hepatocytes (Liver Cells)	ESCs, iPSCs	- Activin A, HGF (Hepatocyte Growth Factor), FGF, Dexamethasone, Oncostatin M	0.1–1%
Pancreatic Cells	ESCs, iPSCs	- Activin A, Wnt inhibitors, Noggin, RA (Retinoic Acid), FGF10	0.1–1%
Myocytes (Muscle Cells)	ESCs, iPSCs	- FGF2, BMP4, Retinoic acid, Pax3, MYOD	0.1–1%

Note: many of these cofactors (e.g., BDNF) are present within the tissues and provide signal the cells to differentiate into. Likewise, many organ specific peptide products also signal stem cells to differentiate into that tissue, and in some cases have been observed to differentiate synergistically with DMSO.

In turn, I believe that a key reason why DMSO is able to regenerate organs is because it induces stem cells already within the body (e.g., bone marrow MSCs) to differentiate into the missing tissue and hence repair the damaged organ.

Note: the clinicians I know who get the best results with peptide therapies use organ specific peptides concurrently. However, I am not familiar with anyone who has combined all three (excluding those who use DMSO preserved stem cells).

Let's now look at what DMSO does for each organ.

Heart

Like the brain, if the heart's blood supply is cut off (e.g., during a heart attack), heart cells rapidly die. DMSO has been repeatedly shown to prevent this.

[In a 2012 study](#), rat hearts had their blood supply cut off for 30 minutes and then were reperfused for 120 minutes. DMSO being given beforehand was found to preserve coronary blood flow and reduce the resulting tissue necrosis (death) by 57.6% and left ventricular dysfunction, particularly if it was given for a few days beforehand, rather than just immediately preceding the blood supply being cut off.

Similar results in rats and pigs were reported in [2015](#), [2010](#), [in 2001](#), [in 1987](#), and [in 1982](#), when a heart attack was simulated (e.g., [one study found](#) DMSO reduced the damaged portion of the heart by 76.18%, [another found](#) it significantly reduced intramyocardial hemorrhage and gross pathological changes and [a third found](#) it prevented contracture bands from forming in heart tissue). Additionally, [a rabbit study](#) found that if hydrogen peroxide (H₂O₂) was given concurrently with DMSO immediately after cutting off the blood supply to the heart, the damage the heart experienced was further reduced, presumably due to H₂O₂ providing oxygen to the heart tissue.

Numerous studies also show DMSO preserve heart function during this time (e.g., [cardiac output and brain perfusion in dogs](#), [heart contractile strength](#) in rabbits or [mitochondrial function in rabbits](#)). Likewise, when a common cellular enzyme which typically breaks down ATP (extracted from cow hearts) was mixed with DMSO, [it](#)

[instead synthesized ATP](#), suggesting DMSO is able to create a unique cellular environment which facilitates the creation of energy (particularly when the normal conditions cells rely upon for energy generation are not present).

DMSO has also been shown to protect the heart from other stressors which cause comparable damage to the heart's blood supply being cut off (e.g., [reperfusion injury from calcium ion containing solutions](#), [endotoxin-induced myocardial injury](#), [IV potassium at the same dose used for lethal injections](#), [toxic doses of H₂O₂](#) and isoproterenol-induced heart attacks,^{1,2,3,4,5}) with improvements such as reduced [oxidative stress](#), [tissue necrosis](#), [ventricular aneurisms](#), [ventricular ruptures](#), and [subsequent myocardial fibrosis](#) frequently being reported.

Note: [DMSO also protected older rat hearts](#) from the stress caused by prolonged immobility and from [dietary copper deficiencies](#).

- One mechanism to explain the damage that occurs in heart cells after a shock or stressful conditions (e.g., heart failure) is that the t-tubules within the heart cells will seal and remodel. [In one study](#), 1% DMSO (but not 10% DMSO) was found to prevent this from occurring and this process was hence hypothesized to at least in part explain DMSO's ability to protect heart cells from significant stressors.

Additionally:

- In patients who survive heart attacks (and are brought back to life) they frequently have a variety of complications. [In one study](#) of 42 severely ill patients who had severe complications of postresuscitation disease, IV DMSO was an effective therapy, even in cases where sepsis came from antibiotic resistant bacteria.

- A key component of regenerative medicine is using stem cells (which have the potential to differentiate into many different cells) to replace damaged tissues (particularly those within critical organs). DMSO (especially with another medication) [was shown to cause](#) stem cells to differentiate into heart cells.

- [When heart cells](#) were exposed to low concentrations of DMSO (less than 0.5%), the respiratory control ratio and cellular viability relative to the control cells were enhanced (whereas at 3.7%, DMSO became harmful to them).

- DMSO can also increase or decrease the force of heart contractions and membrane potential^{1,2,3} (e.g., a 70 mM DMSO concentration or less has a positive inotropic effect [while a higher one can do the opposite](#) or create [a mild hyperpolarization that prolongs the action potential](#)) in a [manner independent of beta-adrenergic receptor](#) and [does not alter cardiac rhythm](#). Conversely, DMSO also increases parasympathetic function (through inhibiting acetylcholine esterase), in one study being found to have no effect alone but [to potentiate acetylcholine slowing the heart rate](#) and [in another study](#), to cause a dose dependent relaxation of thoracic aorta (blood vessel) strips precontracted with phenylephrine or KCl, indicating DMSO can significantly facilitate vasodilation.

When stem cells are mixed with DMSO alone (rather than including another differentiating agent), the cells are most typically reported to differentiate into heart tissue.^{1,2,3,4,5,6,7,8,9} (including in MSCs^{1,2,3})—suggesting DMSO has significant value in heart stem cell protocols. Additionally certain agents, [such as oxytocin](#) (the bonding hormone) potentiate DMSO's ability to differentiate stem cells into heart cells, as do proteins present in cancer cells ([which have been shown](#) to boost the regeneration of new heart muscle).

Stomach

DMSO has been repeatedly shown to heal the stomach and modulate its function, particularly when injuries follow excess acidity:

- [A study of 138 patients](#) with duodenal ulcers (mostly in remission), one gastric ulcer or chronic gastritis found that 50% DMSO applications to the epigastric area often reduced gastric juice volume and acidity in those with duodenal ulcers and hypersecretion, and enhanced antral mucosa neutralization in some with acidic

conditions. In chronic gastritis with preserved secretion, DMSO effects varied (no change, reduced, or slightly increased secretion/acidity). In secretory insufficiency, DMSO had no stimulating effect, either unchanged or slightly reduced secretion. In short, DMSO generally normalized hypersecretion.

- [In lab tests](#), 9% DMSO increased pepsin enzyme activity by 83.4%, lowered the K_m value to 1.50 mg/mL, and altered pepsin's molecular conformation without inhibiting aromatic amino acid absorption—hence making pepsin more effective at digesting protein.

- [In 115 hospitalized patients](#) with pelvic fractures or hypovolemic shock at risk for stress-induced gastric ulcers, 22% of 58 controls developed ulcers, compared to only 4% of 57 receiving DMSO and 3% of 62 receiving allopurinol. Notably, none of the DMSO-treated patients deteriorated or required emergency surgery, whereas 8 controls and 1 allopurinol recipient did, with 3 control patients dying.

- [In 101 patients](#) with hematemesis (coughing up blood) due to erosive gastritis, oral DMSO and allopurinol (administered every 6 hours for 5 days) resulted in 8% having further hematemesis episodes, and 9% having endoscopies showing hemorrhagic inflammation, whereas in contrast 29% of untreated controls had further hematemesis episodes, and 44% showed hemorrhagic inflammation. No treated patients required surgery, while three controls did, with one death.

- [In 58 patients with NSAID](#)-induced erosive gastritis, DMSO reduced re-bleeding, stabilized hemodynamics, and promoted gastric erosion healing (7% had erosions at 10 hours) compared to placebo (50% of 59 patients), with fewer patients requiring transfusions or surgery.

- [In 40 patients](#) with multiple fractures and hemorrhagic shock, DMSO reduced stress-induced acute gastric mucosal injury incidence to 2.5% (1/40) compared to 23.8% (10/42) with placebo, with fewer requiring surgery.

- [In rats with corrosive esophageal burns](#), intraperitoneal DMSO reduced stricture formation by decreasing malondialdehyde, nitric oxide, tumor necrosis factor-alpha and interleukin-6 levels, lowering the stenosis index and histopathologic damage scores compared to controls.
- [In rats](#), DMSO significantly accelerated healing of reserpine- and 5-hydroxytryptamine-induced acute ischemic gastric mucosal injury, reducing injury severity over 4 days compared to placebo.
- [In rats](#), DMSO (1%, 2%, or 5%) reduced reserpine and serotonin induced ischemic gastric mucosal injury after 2 days of pretreatment, with 1% reducing injury area, 2% protecting 60% (reserpine) and 80% (serotonin) of rats, and 5% preventing injury entirely, compared to placebo, without altering H⁺ output.
- [In rats](#), DMSO (1%, 2%, or 5%) reduced ethanol-induced gastric mucosal injury after 24 hours (2% and 5% solutions) and 48 hours (1% reduced injury in 70% of rats, 2% and 5% eliminated injury entirely), with healing confirmed by regeneration, compared to placebo.
- [In rats](#), DMSO (1%, 2%, or 5% solutions) reduced reserpine-induced chronic gastric ulceration after 4 weeks, with 1% reducing ulceration incidence to 60%, 2% to 20%, and 5% providing complete protection, compared to 100% in placebo, without altering H⁺ output.
- [DMSO \(2 or 5% solutions\)](#) completely protected rats against aspirin-induced gastric mucosal injury (0% incidence vs. 30% without pyloric ligation and 80% with ligation placebo) and ethanol-induced injury (0% incidence vs. 100% in placebo), without affecting H⁺ output.
- [In rats subjected to water-immersion stress](#), DMSO inhibited gastric ulcer formation. Similarly, [in rats with cold-restraint stress](#), DMSO, allopurinol, or their combination significantly reduced lipid peroxidation and stress-induced gastric and lung injuries.

compared to saline controls.

Note: [other studies have also shown DMSO](#) protects against gastric stress ulceration.

Other data also corroborates DMSO's ability to heal severe gastric conditions and support recovery in challenging cases:

- [A 1968 patent application](#) reported oral DMSO effectively treated gastrointestinal conditions: 28 patients with acute gastritis resumed work within 5–8 days, free of nausea, vomiting, and pain, with 21 remaining symptom-free after one year; 13 patients with chronic gastritis improved after 1–2 months and stayed relapse-free for a year with periodic retreatment; 5 patients with recent peptic ulcers were cured without recurrence over a year; 6 patients with enterocolitis improved after 8 days and returned to work within 2 months; and 3 patients with mucomembranous colitis were cured after 3 weeks.

- [In patients](#) with refractory gastric and duodenal ulcers unresponsive to three months of cimetidine and one month of bismuth chelate, oral DMSO achieved complete healing within four weeks with no significant side effects, compared to placebo.

- [In 126 patients](#) with healed duodenal ulcers and *Helicobacter pylori* infection, oral DMSO reduced one-year ulcer relapse to 6%, compared to 47% with placebo and 24% with cimetidine, showing superior efficacy. No comparison between DMSO alone and DMSO with allopurinol was reported.

- [In 12 patients](#) with refractory peptic ulcers (eight duodenal, four gastric), oral DMSO achieved complete healing within four weeks, compared to placebo.

Likewise, in a feline case of viral enteritis (likely from panleukopenia), DMSO created a clinical improvement, again indicating protective effects on gastric and intestinal lining.^{[1,2](#)}

Finally, DMSO has also been shown to alter other characteristics of the stomach (e. [it made the stomach more transparent](#), increasing light transmittance by 29%, [it increased the stomach's sensitivity to vagal stimulation](#), and above a 50% concentration, [it decreased stomach acid secretion in a dose dependent manner](#)).

Note: [Numerous key human studies](#) cited in this section and the next (where DMSO was of administered orally with a nasogastric tube) were conducted by a DMSO researcher in Iraq between 1990–1994, during a period when its medical system was robust before economic sanctions and conflicts disrupted healthcare infrastructure, a pattern [also observed in Libya post-NATO intervention](#).

Intestines

Numerous studies have explored DMSO's interactions with the small and large intestines. For example, [autoradiography in mice showed](#) that radiolabeled DMSO selectively accumulates in the large intestinal mucosa, which may help explain its notable effectiveness in treating bowel inflammation. Additionally:

- Despite being an acetylcholinesterase inhibitor (and hence parasympathetic activator), [DMSO \(0.2-1.4%\) contacting the intestines does not promote peristalsis](#) (which is fortunate as otherwise diarrhea would be a frequent side effect of oral DM use). Conversely, another study (of pig intestines) found it was [nonspecific antagoni](#) of carbachol, histamine, and nicotine on isolated guinea pig ileum (all of trigger peristalsis).
- DMSO at low concentration (e.g., between 0.16%-5%) typically did not affect intest permeability or the gut absorption of other substances.^{[1,2,3,4](#)} However, in certain circumstances it did (e.g., if high amounts of glucose or galactose were present [DM increased their absorption](#) by allowing them to directly diffuse through the intestine and at DMSO concentrations above 0.3M it reduced intestinal absorption of amino acids with completion seen at 1M).

Note: assuming a DMSO mixture gets diluted by 50% once it is mixed with the stomach and intestinal fluids, the typically recommend oral dose results in an intestinal DMSO concentration roughly half the 0.3M threshold identified in that study (although I suspect it is actually lower since the DMSO will diffuse directly into the body as it travels through the digestive tract).

DMSO's protective properties shield the bowels from a variety of serious injuries. For example, cutting off the blood supply to the small intestine will rapidly cause the tissue there to die and often rupture (leading to fatal peritonitis). DMSO has been repeatedly shown to prevent this:

- [In rats](#), giving IV DMSO to rats after 30-60 minutes of their entire intestinal blood supply being cut off (or 150 minutes of one section's blood supply being cut off), resulted in 28 out of 29 not developing gangrene, and within 24 hours, there was no evidence of ischemic damage to the intestines. Similar results were obtained in [a 19 study](#) (which also noted significantly reduced inflammation and adhesions) and [a 20 study](#) which showed greater tissue protection with higher DMSO doses (along with stabilizing blood pressure and improving metabolic status)..
- In horses, DMSO has been shown to prevent intestinal ischemia-reperfusion injury (particularly within the jejunum or ascending colon) and to reduce intestinal microvascular permeability, edema, inflammation and bowel to bowel adhesions. [1,2,3,4,5,6](#)
- Similar results have also been seen in other animals such as dogs or calves (e.g., [on study](#) found DMSO significantly improved pH, PCO₂, PO₂, O₂ saturation, and peritoneal fluid lactic acid levels). [1,2,3,4](#)

Additionally:

- [In rats](#), oral DMSO (1%, 5%, or 10% solutions) provided dose-dependent protection against acute and chronic duodenal ulceration, reducing incidence to 80%, 30%, and

30% (acute) and 40%, 20%, and 20% (chronic) compared to 100% in placebo groups, without altering hyperchlorhydria (stomach acid levels).

- [In rats](#), DMSO and allopurinol reduced acute duodenal ulceration incidence to 70% at 2 days, 30% at 5 days, and 0% at 7 days (vs. 100%, 80%, and 50% with placebo) and chronic duodenal ulceration to 80% at 5 days, 30% at 10 days, and 10% at 15 days (vs. 100%, 90%, and 80% with placebo) without altering hyperchlorhydria.

- DMSO has been observed to reduce intestinal cell death in jaundiced rats ([following bile duct ligation](#)).

DMSO's protective properties has also been shown to protect the intestines from other lethal stressors:

- [In rats](#) with 20% third-degree burns, compared to placebo, DMSO solution applied to the mesentery reduced white blood cell adhesion in microveins, improved microcirculation and preserving immune-active white cells.

Note: blood sludging is a common consequence of severe burns that likely triggers many of the systemic complications they create.

- In dogs, [oral DMSO](#) improved survival by 75% against 12.5 Gy (a lethal dose) of abdominal radiation and prevented radiation-induced intestinal damage.

- [In mice exposed](#) to lethal radiation doses (9.0–9.5 Gy doses), oral DMSO given 15 minutes to 4 hours before irradiation achieved 100% survival along with, increased bone marrow and intestinal stem cell regeneration, reduced blood cell loss and intestinal damage, and extended survival up to 500 days by alleviating radiation-induced injuries to lungs, kidneys, liver, and heart.

Note: [this review paper](#) discussed DMSO's use in preventing nuclear radiation damage to organs and tissues.

- DMSO (a widely used cryopreservant) [has been shown](#) to protect intestinal segment in dogs from necrosis following cryoinjury (dying after being frozen).

In addition to protecting intestinal tissue from injury, DMSO has also been shown to heal them:

- [A study](#) randomized 302 consecutive patients with previous symptomatic duodenal ulceration that was shown to have healed, and who were smokers and social drinkers to receive four different treatments. Of the 220 available for evaluation, 65% who received a placebo had a recurrence of the ulcer, 30% of those who received cimetidine, 12% of those who received allopurinol, and 13% of those who received oral DMSO.

- [Another author](#) reported on a doctor who had 5 patients with recurrent duodenal ulcers and were social drinkers he gave DMSO to. They were examined once a month for a year, and all 5 had no recurrence of ulcer symptoms (along with having better health than expected and excellent attendance at work). He also highlighted the case of a 55 year old woman with severe digestive tract issues (e.g., internal bleeding leading to her being anemic with a hemoglobin of 5.0), weakness, fainting and shortness of breath. After receiving an emergent blood transfusion and being diagnosed with [angiodysplasia](#) in her GI tract, she was started on IV iron (which is not pleasant and did not help her causing her to progress to being terminal). She was then started on injected DMSO and B-12, recovered, and over the six years of follow-up, did not require any subsequent blood transfusions.

- [In a patient with](#) refractory duodenal ulceration unresponsive to three months of cimetidine and one month of bismuth chelate, oral DMSO achieved complete ulcer healing within four weeks, compared to no improvement with placebo

Note: this type of chronic internal bleeding is quite challenging to treat (e.g., the only other approach I know of that consistently helps here is a Chinese herbal formula).

- [A randomized double-blind study](#) of 363 consecutive patients whose duodenal ulcers that did not heal despite 3 months of treatment with cimetidine (and who were cigarette smokers or social drinkers), were given either cimetidine twice a day alone with DMSO or allopurinol. In 315 patients who were evaluable for analysis, at 8 weeks 60% of those who had cimetidine recovered, whereas 100% of those who received DMSO or allopurinol recovered. Additionally, the one year relapse rate was 29% for cimetidine alone, 8% for those who took allopurinol, and 7% in those who took DMSO. *Note: another study used DMSO in combination with electrophoresis (to direct DMSO to the ulcer) to [treat peptic and duodenal ulcers](#).*

- A randomized double-blind study took 238 patients with symptomatic acute duodenal ulceration who were smokers and social drinkers were randomized to receive for 8 weeks cimetidine or 8 weeks of a half dose of cimetidine plus oral DMSO (400mg twice a day) or allopurinol. After 8 weeks, 69 of the 87 (79%) who only received cimetidine recovered, whereas 100% of the 85 who received DMSO did. Additionally, 67% of those who received cimetidine over the next year relapsed, compared to 6% of those who also took DMSO.^{[1,2](#)}

- [In rats](#) where part of the colon had been removed (requiring each remaining end to be joined together), a DMSO quercetin mixture given intraperitoneally post surgery significantly improved healing (e.g., bursting pressure along with hydroxyproline, malondialdehyde, superoxide dismutase and catalase levels had a 1.4-3.9 fold improvement).

Note: many studies show DMSO significantly [improves healing from surgery](#) and [heals chronic wounds](#).

- A Russian suppository containing [\(50%\) DMSO and hyaluronic acid](#) (along with vitamin C, collagen, and coenzyme Q10) was developed to treat rectal fissures.

Note: the gastrointestinal tract appears to be more sensitive to DMSO than most parts of the body and in some of the studies I reviewed, DMSO could injure its gastrointestinal lining. If injuries like those suggested by the studies are never reported in practice, I believe those res

were due to significantly higher concentrations of DMSO contacting the gastrointestinal lining than are seen following typical oral consumption (much in the same way, as mentioned above, DMSO can inhibit the absorption of amino acids, but in practice parents around the world have found the combination of two is profoundly transformative for developmental delays (Down Syndrome). In my eyes, all of this strongly argues for avoiding higher oral DMSO doses than those widely used by the DMSO community.

DMSO's anti-inflammatory properties ([and histamine receptor antagonism](#)) have all been repeatedly shown to treat inflammatory bowel diseases:

- [A double-blind, randomized study](#) evaluated patients with recurrent attacks of proctosigmoidal ulcerative colitis that were not being prevented by their prophylactic medical regimen, three different combinations of standard therapies, or a standard therapy with DMSO (46) or allopurinol (45). After two weeks, 51% recovered from a standard regimen (sulfasalazine or prednisolone), while 84% of those using DMSO or allopurinol recovered. Over the next year, those treatments were continued and it was observed that the standard treatment (sulfasalazine) had a 25% relapse rate, whereas that rate was only 5% of those taking DMSO or allopurinol.

- [In mice with](#) encapsulating peritoneal sclerosis (EPS), a severe complication of peritoneal dialysis which leads to intestinal obstruction with or without peritonitis, DMSO treatment reduced parietal and visceral peritoneum thickening by 30% compared to controls. It also decreased CD4, CD8, and IFN- γ -producing T cells and Ascites cytokines (IFN- γ , IL-17a, TNF- α , IL-23) while increasing IL-4, IL-10, CD69 cells, and Treg cell differentiation—all of which reduces inflammation. Finally, these results were corroborated by using DMSO to differentiate Treg cells in a test tube and once those cells were implanted in mice, they also prevented EPS.

Note: [DMSO has also been used](#) to treat ascites in hamsters with melanoma.

- Amyloidosis (the deposition of irregular proteins which clump together) is frequently seen alongside autoimmune disorders. As DMSO stabilizes and solubilizes proteins, it effectively treats amyloidosis, and due to the lack of effective treatments for

amyloidosis, many studies have conducted demonstrated DMSO's utility for amyloidosis (listed [here](#)). These include cases where amyloid deposition had been causing severe gastrointestinal issue which fully resolved following DMSO,^{[1,2,3](#)} including [cases which would have otherwise been fatal](#).

- [In one report](#), daily oral DMSO successfully treated 10 out of 15 patients with AA amyloidosis linked to autoimmune disease; notably, all 4 cases related to Crohn's disease achieved full remission. Among the 6 patients presenting with gastrointestinal symptoms, all experienced resolution of diarrhea and protein-losing gastroenteropathy—with no serious adverse effects reported.

Note: [in another report](#), a 1.2 by 1.2 cm and a 1.0 by 1.2 cm gastric lesion from localized amyloidosis completely resolved following oral DMSO taken three times a day.

- Intraperitoneal injections of zymosan trigger are used to trigger systemic inflammation akin to sepsis. In two separate rat studies, compared to placebo, DMSO was shown to reduce inflammation, preserve intestinal blood flow and prevent damage to the gut and intestinal lining (a major issue in both chronic and subtle inflammatory bowel disorders).^{[1,2](#)}

- In [a third similar study](#), subcutaneous DMSO given one hour after zymosan increased 24-hour survival from 55% to 90%, reduced liver, kidney, and intestinal swelling by 120%, lowered inflammatory markers (TNF- α , IL-6) by 20-30%, and improved organ blood flow and tissue damage

Likewise, in numerous animals, intraperitoneal DMSO has also been repeatedly found to improve peritonitis, including [purulent](#) or [diffused](#) cases,^{[1,2,3,4,5,6,7](#)} As DMSO potentiates antibiotics, some of those studies used a combination (e.g., DMSO and kanamycin) to successfully treat peritonitis,^{[1,2](#)} while others found DMSO altered abdominal antibiotic absorption, caused antibiotics to concentrate in the peritoneum and increased bacterial sensitivity to them.^{[1,2,3](#)}

Note: with standard hospital care, peritonitis [kills 13.16% for patients under 50 years and 33.33% of patients over 50 years](#)—making the improvements seen with DMSO quite profound

Finally, DMSO [has also been combined with antibiotics to treat abdominal abscess](#), and at concentrations comparable to those oral DMSO will reach in the intestine, inhibit the growth of many common gastrointestinal pathogens (e.g., *Escherichia coli*, *Shigella dysenteriae*, *Candida albicans*).[1,2](#)

Liver and Gallbladder

DMSO has also shown great promise for protecting the liver and addressing issues with the biliary (bile) tract

Liver Injury and Protection:

- In rats exposed to chloroform or bromobenzene, DMSO administered 24 hours post exposure was found by multiple studies to significantly reduce plasma ALT levels, limited centrilobular liver lesions, restore sinusoidal perfusion, reduce leukocyte adhesion and modified Kupffer cell phagocytic activity (mitigating the hepatic inflammatory response), and prevent chloroform-induced kidney necrosis. Delaying treatment beyond 24 hours led to a loss of protection, with progression to bridging necrosis and elevated ALT, emphasizing DMSO's dose- and time-sensitive hepatoprotective effects.[1,2,3,4](#)

- [In F344 rats subjected to warm ischemia](#) as non-heart-beating donors, DMSO (2–6 ml/kg, ip) preserved liver and kidney viability, maintaining potassium and LDH levels comparable to non-ischemic controls.

- [A study found](#) giving DMSO to rats 10 hours after they were exposed to halothane inhaled anesthetic [that was phased out of the richer nations due to its toxicity profile](#) chloroform, or bromobenzene and was found to prevent liver and kidney damage that toxicants typically cause. [A followup study](#) instead gave DMSO 24 hours later found DMSO reduced the resulting liver damage 4-fold (which without treatment within 4

hours would have occupied 40-50% of the liver) and ALT levels 8-16 fold.

Note: this study also found DMS (a DMSO metabolite) offered no protective effects.

- [In rats](#) exposed to thioacetamide, DMSO reduced liver and brain oxidative stress, lowered liver enzymes (AST, ALT, LDH), decreased hyperammonemia, and increase BUN levels, mitigating lipid peroxidation and preserving glutathione and catalase activity. Similar results were found in [another study](#).

- [In rats](#), daily oral DMSO for 4 weeks was seen to prevent dimethylnitrosamine induced liver damage without any major side effects. Specifically, it prevented body and liver weight loss and the induction of hepatic fibrosis and the expression of mRNA for type-1 collagen in the liver. Additionally, DMSO was also found to inhibit LPS induced TNF-alpha and nitric oxide production (e.g., TNF-alpha mRNA levels were reduced).

- In rabbits subjected to portal vein or hepatic artery clamping, DMSO, in a dose-dependent manner has been repeatedly found to reduce ischemic and ischemia-reperfusion liver damage and oxidative stress. [1,2,3,4,5,6,7](#)

- [A Brazilian study](#) found that DMSO reduced the oxidative stress that followed par the liver being surgically removed.

- [In primary cultured rat hepatocytes exposed](#) to Tylenol, DMSO reduced toxicity by preserving plasma membrane integrity, restoring glutathione to ~63% of normal level and preventing cytosolic free calcium elevation. [A second](#) also found DMSO prevented this liver damage, [while a third](#) also found DMSO prevented liver damage, but in the presence of natural killers, could instead increase it.

- [DMSO administered](#) to Syrian golden hamsters reduced the incidence and severity acetaminophen-induced hepatocellular injury, attenuating increases in serum glutamic-pyruvic transaminase and alkaline phosphatase activities, indicating a

protective effect against liver toxicity potentially through a free radical-mediated mechanism.

- [A rat study](#) found DMSO inhibited liver necrosis and oxidative stress triggered by injecting D-Galactosamine and restored liver vitamin C levels.

- [In galactosamine-sensitized mice](#), DMSO (10 mL/kg) inhibited endotoxin-induced hepatic NF- κ B activation, reduced plasma TNF- α by 86%, suppressed ICAM-1 mRNA decreased neutrophil accumulation by 79%, and reduced liver injury by 80%.

- [In rats exposed to carbon monoxide](#), DMSO reduced brain and cardiac ischemic injury, lowering cerebral neuronal alteration, degenerative neuron rates, and cardiac injury scores after one day. Combined with ethyl pyruvate, DMSO reduced hepatic injury scores and further reduced cardiac.

- [DMSO was shown to protect](#) liver, heart, and airway cells by inhibiting caspase proteins (reducing cell death).

- DMSO was found to inhibit the NF-kappa B activation, ICAM-1 gene transcription and TNF- α formation which following endotoxin exposure, thereby preventing liver injury.^{1,2}

- [A rat study](#) found DMSO inhibited lipid peroxidation in hepatocytes triggered by carbon tetrachloride and improved the antioxidant system's state. Likewise, [a rabbit study](#) found that DMSO and tocopherol prevented the liver damage caused by injecting carbon tetrachloride. Finally, [a third liver study](#) found DMSO and alpha-tocopherol counteracted the oxidative damage caused by chemical injury.

- [In primary cultured rat hepatocytes](#), 2% DMSO with collagen-coated dishes extended cell survival to 96 hours (vs. 48 hours for controls), maintained 86% cell viability at 96 hours and 78% at 120 hours, preserved cell shape, doubled glycogen content, and retained 50–60% cytochrome P450 content.

- DMSO was repeatedly shown to cause mesenchymal stem cells to differentiate into liver cells, potentially explaining how DMSO is able to regenerate the liver.^{[1](#)[2](#)}
- [In isolated rat hepatocytes](#), DMSO and 2% and 8% DMSO caused a biphasic inhibition of sympathetic stimulation of liver cells. Likewise, DMSO was observed to permeate [isolated rat hepatocytes](#), but for it to become less able to at higher concentrations.
- [In primary cultured rat hepatocytes](#), DMSO with collagen-coated dishes extended survival, maintained high cell viability, preserved cell shape, doubled glycogen content, and retained cytochrome P450 content
- [In Chang liver cells](#), 0.1% DMSO increased CYP3A4 mRNA and protein expression while 0.01%–0.05% DMSO increased CYP3A4 protein only; combined with testosterone or rifampicin, DMSO enhanced CYP3A4 and CYP2C9 protein expression

Liver Failure

- [This author](#) reported on a study with 12 patients who had terminal liver cirrhosis and agreed to stop drinking all alcohol for the duration of the program were put on daily oral DMSO and aloe vera. Of the 8 who chose to continue the program for 6 months, all had improved health, significantly reduced vomiting, and improved liver function tests, and rather than all being dead within one year as expected, they were in better condition than they had been at the start of the study.

Note: if using DMSO for cirrhosis, it is critical to stop consuming alcohol, as DMSO can slow the metabolism of alcohol.

Gallbladder and Biliary System

- A rat study created obstructive jaundice by ligating the common bile ducts and found that DMSO mitigated pathologic effects (e.g., normalized laboratory values). Another rat study found DMSO protected intestinal cells from dying after bile duct ligation.^{[1](#)[2](#)}

- [Injecting 90% DMSO mixed](#) with 5% hexametaphosphate into the biliary tract was found to effectively dissolved gallstones within the liver and be safe for patients.
- [In rabbits](#), D-limonene (from citrus peels) synergistically combined with DMSO to dissolve implanted human gallstone.
- MTBE is sometimes infused into the gallbladder to dissolve cholesterol gallstones (comprising 80-90% of gallstones) but cannot dissolve the rarer pigment (bilirubin) gallstones. A series of Chinese studies demonstrated that once dissolved in DMSO, MTBE can (e.g., outside the body it dissolved 79.12% of the stones within 48 hours **significantly outperforming other agents, and likewise in dogs, 76.83% of their stones** were dissolved after 63 hours). Finally, a third formulation that also included cyclohexane diamine tetraacetic acid showed an even greater ability to dissolve the gallstones. [1,2,3,4](#)

Note: these studies repeatedly emphasized these formulations were safe and showed no toxicity. I am skeptical of this, as MTBE alone is quite toxic (e.g., due to side effects, it was largely withdrawn from medical use about 10 years ago), and it is quite possible combining with DMSO would increase rather than neutralize its toxicity.

- [In 50 patients post-emergency surgery](#) for appendicitis or cholecystitis, 50% DMSO reduced postoperative wound complications to 4%, compared to 14% with 30% DMSO and 24% with traditional methods.
 - [One study](#) injected DMSO directly into the biliary tree of mice (as sludging of bile in this region can lead to challenging gallstones). That study found that 50% DMSO caused no irritation, but 65% did (e.g., liver enzymes were elevated and necrosis, inflammation and fibrosis were observed). However, the irritation caused by 65% was transient and the rest of the bowel was not affected. Given that direct injections of 50% DMSO caused no issues and typically much lower concentrations of DMSO will contact the bile tract, this suggests DMSO is safe to administer to the biliary tract.
- Note: the purpose of this study was to determine if they were harmless agents which could be*

used to develop treatments for biliary disease (something which can often be quite challenging to deal with).

[IV DMSO saved](#) my gallbladder and reduced my inflammation to almost nothing 2013. Soon after, my alt GI doc no longer had access to it. She was getting it from Switzerland at the time.

Lungs

DMSO protects the lungs from injuries, [treats acute respiratory diseases](#) (e.g., [acute stenosing laryngotracheobronchitis in children](#)), and also helps with a few challenging conditions.

Lung Injuries

- [DMSO was found](#) to prevent ischemia-reperfusion injuries to the lungs.
- In rats, DMSO [was found to prevent](#) lung injury from hemorrhagic shock (significant blood loss) and transfusing lost fluids back into the circulation.
- Giving DMSO before alloxan (a toxin) [was found](#) to prevent the inflammation, cell damage, and edema alloxan causes in the lungs.

Note: [this study](#) also found DMSO prevents acute pulmonary edema.

- [DMSO was found to prevent](#) the oxygen deprivation and inability to exchange gases through the lungs which results from an Ehrlichia ruminantium infection (which is typically fatal).
- In rats, [DMSO was found to prevent](#) the significant inflammation and tissue injury which follows a significant traumatic impact to the lung.

- After sheep experienced a lung injury from inhaling smoke, nebulized DMSO (with heparin) [was found to](#) reduce the damage to their lungs significantly.

Note: as I have shown in this section, studies exist that show that nebulizing DMSO can be quite beneficial to the lungs. In contrast, [a rabbit study](#) found that inhaling 25-50 ml/hr of DMSO for an hour each day for 8 weeks caused pathologic changes in the liver and lungs. While this was a high dose, nebulizing DMSO has nonetheless been advised against in the DMSO field (which I believe was due to that rabbit study). The best conclusion I can draw from these conflicting data points is that DMSO should only be used for acute injuries in the lungs but not chronically nebulized.

Acute Respiratory Distress Syndrome (ARDS)

ARDS is quite challenging to treat (and a common reason people end up on ventilators), so DMSO's potential to help the condition is quite noteworthy:

- [In hamsters](#), an inflammatory peptide was put into the airway to trigger ARDS (a severe lung condition that often results in ventilation). When DMSO was subsequently given, it was found to reduce the inflammation and fluid in the lungs significantly.
- [A similar mouse ARDS study](#) that used bacterial LPS to injure the lungs also found DMSO reduced lung inflammation and fluid leak along with damage to the lining of the lungs.
- [A third](#) mouse study found that DMSO prevented LPS damage to the lungs, kept a treated mice from dying (whereas 58% of controls died), and maintained the ability of the lungs to produce ATP.

Note: [a few studies](#) have found that DMSO makes a part of the mitochondria able to synthesize ATP (the source of cellular energy) without the rest of the mitochondria being present. This, in turn, hints at the possibility DMSO can allow compromised cells to continue producing ATP (and thereby play a role in preventing cell death).

In [the one human study](#) where DMSO was used for ARDS (given intravenously at concentrations under 10%) it was found to produce a dramatic improvement in all three patients who received it (e.g., one patient's lungs were completely normal after week) and prior to receiving DMSO all three were near death. Additionally, in the case when DMSO was nebulized, the improvement occurred in 1 hour.

TABLE 1

Patient		pH	paCO ₂	paO ₂	HCO ₃ ⁻	% O ₂ Sa
1	pre-DMSO	7.37	50	60	29	89.0
	1 h post-DMSO	7.35	43*	91*	26	95.0*
2	pre-DMSO	7.36	51	58	29	87.6
	8-h post-DMSO	7.33	52	86*	27	94.5*
	5 days into therapy	7.37	34*	84*	19	94.5*
3	pre-DMSO	7.32	48	66	24	89.9
	8-h post-DMSO	7.27	45	95*	20	94.9*

*Asterisks used for emphasis.

Note: another study found that DMSO [reduced immune cell infiltration](#) of a lung infection which can both be beneficial (as it explains how DMSO prevents the immune system from attacking the lungs), but also problematic as it loses the ability to fight off a significant infection. That study, hence suggests that DMSO should never be used alone as a treatment for bacterial pneumonia (whereas later in this series I will discuss how DMSO can increase the potency of antibiotics).

Chronic Lung Diseases

[DMSO was found](#) to reduce chronic pulmonary fibrosis, and this beneficial effect was increased when it was mixed with zinc.

For older patients with chronic respiratory insufficiency (leading to chronically low blood oxygen levels, elevated carbon dioxide levels and an abnormal acid base balance especially during exercises) due to issues in the lungs or bronchi, daily intramuscular

[DMSO was found](#) to bring about a recovery without the need for hospitalization in 35/43 (81%).

Note: [DMSO has also been shown to treat asthma](#) and [chronic non-specific lung diseases](#).

Pancreas

DMSO (7-16%) [has been shown](#) to rapidly permeate the pancreas and shows promise for diabetes and pancreatitis.

Diabetes

Some Type 1 and Type 2 diabetics [have reported](#) that DMSO reduces (but does not eliminate) their need for insulin and that DMSO is particularly helpful for the condition since it can also alleviate the pain from diabetic peripheral neuropathy. Studies in this area include:

- Alloxan is toxic to the insulin producing cells of the pancreas and can be used to induce diabetes. [A 1977 study](#) found that if DMSO was injected prior to administering alloxan, they did not develop diabetes (although a higher dose of alloxan caused the dose of DMSO only to provide partial protection against diabetes).
- Type 1 diabetes results from the immune system attacking the insulin secreting cells of the pancreas. One strategy for treating type 1 diabetes is to transplant healthy insulin secreting cells into the pancreas. Unfortunately, this strategy often fails because the immune system will attack the transplanted cells too. However, [in a mouse study](#), DMSO was found to protect those transplanted cells by decreasing IFN expression and the number of dendritic, CD8, and Th1 immune cells while increasing Treg cell differentiation—all of which showed DMSO prevents suppresses spontaneous diabetes and autoimmune recurrence of type 1 diabetes.

- In both rabbit and rat bone marrow stem cells, DMSO combined with high glucose boosted key insulin promoting genes (e.g., Pdx-1), within 3 days transformed these cells within 3 days into clusters of insulin-producing islet-like cells. Furthermore, in the rat cells, by day 10, insulin, glucagon, and somatostatin were produced (with insulin secretion increasing from 5.56 to 24.5 $\mu\text{U/mL}$ under high glucose conditions).[1,2,3](#)

Note: while diabetes due to a loss of insulin producing cells is typically associated with type 1 diabetes, this loss also contributes to type 2 diabetes (particularly as it becomes more severe). As such, DMSO potentially facilitating the body to replace them is quite noteworthy.

- GLP-1 is a key hormone the body uses to regulate satiety and blood sugar (and which diabetes drugs like Ozempic mimic). [One study found](#) that 0.5-2.5% DMSO increase GLP-1's production of insulin by 2-2.5 times. The study's findings suggest DMSO could help treat diabetes or allow GLP-1 users to use a lower dose of the medication.

- [Exposing insulin secreting cells to DMSO](#) was found to enhance glucose-induced tolbutamide-stimulated insulin secretion without significant effects on basal secretion or potassium responsiveness. Conversely, another study found that [at high doses, DMSO would inhibit insulin secretion](#) (however that inhibitory dose is much higher than a DMSO user's pancreas would ever be exposed to).

Pancreatitis

Pancreatitis is often [quite challenging and dangerous](#) (as there are no conventional treatments for it outside of cases where an obstruction causes it—rather hospitals can only support the patient until they recover). Fortunately, DMSO (and [ultraviolet blue irradiation](#)) have been shown to be quite effective for treating it. For example:

- After inducing pancreatitis in rats, [DMSO was found to](#) improve pancreatic microcirculation and reduce ICAM-1 expression ([a key part of the disease process](#)) ; subsequent leukocyte adhesion.

- [Another mouse study found](#) DMSO significantly reduced the pancreatic edema resulting from dietary induced pancreatitis.
- [In rats](#), DMSO treated acute hemorrhagic necrotizing pancreatitis (a condition which typically has a mortality rate between 25-40%).
- [A rat study found](#) DMSO protected the pancreas from cerulein induced pancreatitis (e.g., through inhibiting lipid peroxidation in pancreatic tissue, reducing pancreatic edema, reducing how many digestive enzymes leave the pancreas and reducing the pathologic vacuolization of the pancreas's acinar cells).
- [A randomized double-blind trial](#) took 78 patients with chronic recurring pancreatitis (and no other confounding gastrointestinal disorders) who presented within 2 hours with signs of pancreatitis but did not have signs of generalized peritonitis. Of them, 10% received 10% DMSO rectally, and at least 57% were free of pain after 12 hours (compared to 17% of controls), and all were free of pain after 24 hours (whereas 48% of controls were still in pain). As a result, all DMSO subjects were discharged within 3 days, whereas only 22% of controls were discharged after 5 days of hospitalization.
- In patients with recurrent pancreatitis, DMSO combined with allopurinol enhanced the efficacy of narcotic analgesics, significantly reducing pain, white cell counts, and serum lactate dehydrogenase levels (indicative of reduced pancreatic and peripancreatic inflammation and necrosis) compared to controls.^{[1](#),[2](#)}
- [In three patients](#) with chronic alcohol-induced pancreatitis, rectal DMSO achieved complete pain relief within 12 hours and resolved epigastric tenderness by day four compared to persistent pain with placebo (pethidine, hyoscine, metoclopramide). No comparison between DMSO alone and DMSO with allopurinol was reported.
- [DMSO with fluorouracil](#) effectively prevented and treated acute postoperative pancreatitis.

Note: [one German author](#) advocates combining IV DMSO with chlorine dioxide (given at a much slower drop rate) for pancreatitis.

Kidneys

Many different facets of DMSO's interactions with the kidneys have been researched.

Safety

- [A rabbit study](#) found that rabbit kidneys perfused for 60 min with DMSO was unaffected by 1.4M (10.8%) DMSO, but higher concentrations (2.1 and 2.8 M) produced appreciable toxic effects to the kidneys.

[A study](#) of paraplegics found that IV DMSO caused no alteration of urinary function or urinary sediment (other than a transient increase in blood cells if osmotic hemolysis occurred from too high of an IV DMSO concentration).

- [This study](#) of 7 people found 10-40% IV DMSO caused no acute toxicity to the kidneys.

- [A dog study](#) found that in dogs with chronic kidney disease, unless they had stage CKD, DMSO had no adverse effects, and in less severe cases, some improvements were observed.

Note: DMSO often functions as a potent diuretic (although the effects [are highly concentration dependent](#)). For example, [one dog study](#) found after 1 hour 40% IV DMSO caused a fivefold increase in urination, [a rat study found](#) giving it topically five times a day increased urine volume 10-fold, and [human study](#) also found 40% IV DMSO caused significant urination. Conversely, this diuretic function is often extremely helpful (e.g., it will take excessive fluid outside of regions it has leaked into) and accounts for some of the significant benefits seen from DMSO.

Ischemia-Reperfusion Injuries

- [In rats](#), renal ischemia was induced by cutting off the blood supply to the kidney for one hour, after which, DMSO or saline was given intravenously. All the saline treated rats had significantly worsened kidney function and died within seven days, while all the DMSO treated rats survived and had near normal kidney function (with somewhat greater protection seen if DMSO was given beforehand).
- [In a nearly identical experiment](#), equivalent protection was observed, along with urine flow being observed to resume within 15 minutes of the DMSO infusion. Protection was also observed [in another rat study](#) and [in one where DMSO was given concurrently with vitamin E](#) (resulting in significantly reduced oxidative stress and largely preserved perfusion). Finally, [a rat NMR](#) study showed that DMSO significantly reduced the damaging sodium spike seen in kidneys after their blood supply was cut off.
- A similar experiment in dogs found DMSO again preserved a near normal kidney function (whereas in the saline treated dogs, 1 died and 4 had transient renal failure).
- [In rabbits](#), DMSO administered post-ischemia reduced renal damage and apoptosis in an ischemia-reperfusion model compared to saline. Serum creatinine increased less (245% vs. 318%, $p=0.003$), and histopathology showed milder tubular damage (5% vs. 22% severe lesions, $p<0.05$) with reduced apoptosis and necrosis, suggesting DMSO's protective role against acute kidney injury.
- [A nuclear magnetic resonance imaging study](#) of rat kidneys (a method which makes possible to detect minute and otherwise invisible changes) found that DMSO protected the kidneys from the damage that occurred when their access to oxygen was cut off but it did not prevent the transient drop in kidney function which occurred during reperfusion period.

Toxic and Dietary Injuries

- [In rats with kidney injury](#) caused by zymosan, intraperitoneal DMSO preserved blood flow and kidney function while reducing kidney swelling and markers of oxidative stress (e.g., there was a 15-24% improvement in blood flow, a 40.5% reduction in plasma creatinine, and a 4.4-5.4% reduction in kidney edema).
- [A mouse study](#) found if DMSO was given within 3 hours of injecting mercury subcutaneously, it prevented the kidney damage which typically resulted over the next two days (however at 5 hours it was too late). Additionally, the results suggested this protection was not due to DMSO chelating mercury but rather it neutralizing oxidative damage.
- [A rat study](#) found DMSO prevented the kidney damage caused by gentamycin, and that ([like the previous mouse study](#)) it also restored the levels of GSH and SOD enzyme activity to near normal.
- Intraperitoneal DMSO given to rats prior to 6 Gy of radiation (a near lethal dose) protected rat kidneys from radiation induced kidney damage, with significantly lower markers of oxidative stress found in kidney tissue 24 weeks post-irradiation compared to untreated controls.^{[1,2](#)}
- [In rats](#), DMSO was found to counteract many of the complications of a dietary copper deficiency (e.g., enlarged hearts, or reduced gamma-glutamyl transferase function).

Kidney Function

- [When kidney tissues were frozen](#), DMSO was found to greatly increase the conductivity of the tissue.
- [DMSO was found](#) to increase rabbit kidney's flow rate and changed the GFR, but did not change Na^+ reabsorption or fractional water excretion, leading the investigators to conclude DMSO may shift the regulation of urine flow rate from tubular reabsorption

- Many studies and case reports (listed in [this article](#)) have found that DMSO improves renal function in patients with amyloidosis. For example, [this study](#) of 15 patients with amyloid A amyloidosis resulting from autoimmune conditions improved the kidney function in 5 out of 10 renal amyloidosis patients but could not help severe cases, while [this study](#) of two people with renal failure found both had a dramatic improvement from DMSO.

- DMSO [was also found](#) to inhibit the kidney's $\text{Na}^+\text{-K}^+\text{-ATPase}$ pump in a comparable degree to Ouabain or atrial natriuretic peptides (ANP), but did so in a manner independent from how either functioned.

Note: Ouabain or its derivatives are often used in integrative cardiology, while ANP is a naturally occurring hormone [that protects both the heart and kidneys](#).

[A rabbit study](#) found DMSO caused an increase in filtration fraction, and at high concentrations, a decrease in renal blood flow and urine volume.

[In one rat study](#), DMSO was shown to act as a diuretic by selectively decreasing the osmotic permeability of the region of the kidneys which reabsorb water (causing it instead be urinated out). [In another](#), 5% oral DMSO significantly increased urinary output by directly acting upon the kidneys (and possibly by altering ADH secretion).

- Exposing kidney cells to 10-20% DMSO [was found to increase their metabolism](#), while higher concentrations (which are never used in humans) was found to be toxic to the kidneys.

Note: [one dog study](#) found that DMSO was contraindicated in dogs with stage IV kidney disease.

Autoimmune Diseases

- Many kidney autoimmune diseases result from immune deposits in the kidneys (one of which is Heymann nephritis, [an experimentally induced form of nephritis](#) where antibodies that target the kidneys are injected causing immune deposits on the

glomerular walls). [In a rat study](#) of Heymann nephritis, DMSO was found to reduce protein leaking into the urine, suggesting it prevents autoimmune kidney damage. [Another rat study](#) (which was more detailed) also had similar results, as did [a third study](#).

- [A 1985](#), [another 1985](#), and a [1987 study](#) of DMSO treated rats (and controls) with lupus nephritis found that those who received DMSO had nearly normal kidneys, whereas the controls had significant damage to their kidneys. For example, [one study](#) found a 25.2% reduction in proteinuria after 5 months, a significantly reduced urine protein to creatinine ratio, and at 7 months, 83% of DMSO treated rats had normal kidneys whereas 75% of untreated rats had focal proliferative glomerulonephritis, crescents, and glomerular obsolescence (which correlate to serious kidney damage).

Kidney Stones

- [A study](#) of 6 patients with kidney stones (5 of which were confirmed by ultrasound found [IV DMSO](#) resolved the condition in 2-3 treatments (although one patient had complete resolution after a single infusion).

Note: I located [a rat study](#) which I believe found similar results, but I could not find the actual study to verify this.

[A 1967 study](#) fed rats a diet designed to create kidney stones, and found that after twelve months, 40 of the 45 water-drinking rats had developed stones in the kidney, bladder or ureter, while only 11 of the 46 DMSO group did.

Note: the author of that study later conducted [another study](#) that strongly suggested DMSO eliminated kidney stones by improving their colloidal dispersion ([zeta potential](#)). We in turn have had a great deal of success treating kidney stones by improving [the physiologic zeta potential](#).

Urinary Tract

The majority of urinary tract research has been for interstitial cystitis (the one condition which DMSO has FDA approval to treat), and is detailed [here](#). However, DMSO has been used to treat many conditions throughout the urinary tract. For example:

- [A 1967 study](#) found DMSO treats a wide range of genitourinary disorders:

TABLE 1
TOPICAL THERAPY WITH DMSO IN VARIOUS GENITOURINARY DISORDERS

Disease Entity	No Pts Treated	No Pts Improved
Peyronie's disease	13	6
Interstitial cystitis	15	2*
Epididymitis	12	7
Herpes progenitalis	5	2
Polycystic kidneys	2	2
Incisional pain, flank	3	3
Vague genital pain	14	1

***Intravesical instillation of definite value in some pts, not responding to topical therapy.**

Interstitial cystitis requires oral or intravesical DMSO administration.

Note: this publication was preceded [a preliminary report](#) which had less data, but specified type of pain (e.g., suprapubic, genital, renal colic—of which kidney stone and surgical pain syndromes had the best response).

- A 1978 study found DMSO frequently treats inflammatory conditions of the urinary tract: [1,2,3](#)

Condition (No. of Patients)	Good–Excellent Response	Fair	Poor	Relapse	Objective Improvement
Chronic Interstitial Cystitis – Female (79)	54%	6%	29%	11%	85% endoscopic, 60% ↑ bladder capacity
Chronic Interstitial Cystitis – Male (14)	64%	7%	0%	30%	Not quantified
Radiation Cystitis (12)	50%	–	50%	–	50% endoscopic, all ↑ >200 cc
Chronic Prostatitis (35)	75%	–	25%	–	90% endoscopic; ↑ bladder cap in few
Atypical Chronic Cystitis – Female (31)	74%	13%	13%	–	>90% endoscopic; ~20% ↑ bladder capacity
Atypical Inflammatory Bladder – Male (3)	67%	33%	0%	–	Not specified
Chronic Inflammatory Trigonitis – Pediatric Female (3)	100%	–	–	–	Not specified

Note: [another study of 26 patients](#) with radiation-induced hemorrhagic cystitis, intravesical DMSO instillation combined with green laser hemostasis significantly reduced hematuria, pelvic pain, and frequent urination by 6 months, with effects comparable to hyperbaric oxygen, though some experienced recurrent hematuria by 12 months.

- [A 1980 study](#) gave DMSO to 8 patients with inflammatory conditions of the urinary tract (e.g., interstitial cystitis, urethral syndrome, encrustation of the prostatic cell, actinic cystitis and chronic prostatitis), all of whom had a positive response and no side effects.

- [A 1985 study](#) gave 4 men with chronic excessive (and untreatable) urination due to either chronic prostatitis, chronic cystitis, tuberculous contracted bladder and interstitial cystitis DMSO. Three of the four had an excellent response to treatment with the one non-responder having an unclear disease process (the doctors' best guess was that it was chronic cystitis).

- [A 1987 study](#) found urethral syndrome (chronic irritation of the urethra without signs of an infection) responds to DMSO.

DMSO has also been shown to increase bladder wall absorption of intravesical agents with minimal systemic absorption:

- [A 2019 safety study](#) found six healthy adult Japanese males retaining DMSO for 15 minutes had no side effects (besides four having a mild-like breath) and that DMSO generally stayed within the bladder (e.g., it only was found in the bloodstream of one of the six and overall 83.7% of DMSO being recovered from the bladder).
- [A 2023 rat study found](#) DMSO increased the absorption of [epirubicin](#) (an intravesical chemotherapy) into the bladder wall and reduced the bladder damage (e.g., fibrosis) typically seen with the therapy. Likewise, [a 1982 dog study](#) showed DMSO increased the bladder wall absorption of cisplatin, likely in a dose related manner.

One cause of incontinence is overactivity of the bladder muscle, which is sometimes treated by intravesical injecting Botox into the bladder wall, a procedure which while effective has side effects. Because of this, researchers have explored instead delivering intravesical botox with DMSO:

- In rats, intravesical 25% DMSO and Botox was shown to synergistically enhance Botox absorption, resulting in 56.8% of SNAP-25 protein (Botox's target) being cleared within 7 days. It also increased expression of CGRP mRNA four-fold 1-2 weeks later which resulted in a suppression of CGRP release and hence reduced inflammation and contractile impairment (e.g., that triggered by acetic acid).^{[1,2](#)}
- In a phase 1/2 trial, 25 women with medication-resistant idiopathic detrusor overactivity received intravesical instillation of 300 units of botulinum toxin A mixed with 50 ml of 50% dimethyl sulfoxide (DMSO), resulting in no serious adverse effect or significant increases in postvoid residual. Among the 21 women who completed phase 2, median incontinent episodes decreased from 4 to 2 at 1 month, with improved scores on the Incontinence Impact Questionnaire (13 to 7) and Urogenital Distress Inventory (10 to 5), and severe urgency reduced from 52% to 5% at 1 month and 14% at 3 months.^{[1,2](#)}

Note: studies also show DMSO affects bladder emptying with the effects varying by concentration. [In one](#), it enhanced rat bladder permeability, enhancing the effects of intravesical ions, osmolality, and pH on the bladder's volume-pressure response, potentially being of benefit in conditions with renal insufficiency or excessive urinary retention. [In another](#), 0.5-5% DMSO enhanced acetylcholine (ACh)-induced rat urinary bladder smooth muscle contractions by inhibiting acetylcholinesterase while suppressing carbachol and potassium induced contractions. Finally, [in a third](#), 40% DMSO abolished the ability of electrical fields to simulate bladder contractions, whereas 30% DMSO reduced contraction reduced their force by 40% (wearing off in 30 minutes) and 25% had no effect. Additionally, DMSO also reduced acetyl choline and potassium induced contractions (roughly halving it)

Male Reproductive Tract

[The previously cited study](#) is the most detailed assessment I have located on the effect of DMSO upon the reproductive tract, however can also help many other parts of the urinary tract:

TABLE 1
TOPICAL THERAPY WITH DMSO IN VARIOUS GENITOURINARY DISORDERS

Disease Entity	No Pts Treated	No Pts Improved
Peyronie's disease	13	6
Interstitial cystitis	15	2*
Epididymitis	12	7
Herpes progenitalis	5	2
Polycystic kidneys	2	2
Incisional pain, flank	3	3
Vague genital pain	14	1

***Intravesical instillation of definite value in some pts, not responding to topical therapy.**

Interstitial cystitis requires oral or intravesical DMSO administration.

Many studies other studies have corroborated these results.

Prostate

The DMSO community routinely uses DMSO to treat prostate issues (frequently with combination DMSO suppositories or enemas, as that gets DMSO the closest to the prostate). A few datasets validate this:

- A study (which can be viewed [here](#)) of inflammatory conditions of the urinary tract found: [1,2](#)

- Of the 12 patients with radiation cystitis (e.g., from prostate cancer therapy) 50% had a positive response to it (3 “excellent,” 2 “good” and 1 “fair”).
- Of the 35 patients with chronic prostatitis, 75% benefited significantly, with 12 having a “excellent” response, 14 a “good” response, and in 90% of cases, inflammation of the prostatic urethra improved.
- [One study](#) used DMSO mixed with therapeutic enzymes to treat infertility in men with chronic bacterial prostatitis while another [did so with conventional pharmaceuticals](#).

There are also many other reports of DMSO greatly helping prostate conditions. For example:

- Stanley Jacob MD (the pioneer of DMSO) would recommend DMSO for enlarged prostates that were making it difficult to urinate ([which as one man shares allowed him to be able to sleep through the night](#))
- [Jacob shared](#) with an author that a physician in Texas some years earlier had reported injecting DMSO plus progesterone into enlarged prostates and that biopsies, examined under the microscope, indicated a return toward normal (which seems

plausible as like DMSO, progesterone has been reported to shrink enlarged prostates^{[1,2](#)}).

- A physician in Ecuador (I've extensively corresponded with), after consulting Stan Jacob, successfully treated 44 out of 45 cases of microbiologically confirmed chronic bacterial prostatitis using DMSO combined with antibiotics that were applied directly into the bladder (much in the same DMSO is FDA approved to treat interstitial cystitis) who then tested negative for any infection 15-20 days following treatment (with no subsequent recurrences), demonstrating DMSO's ability [to counteract bacterial resistance](#).

- Pierre Kory recently shared a case of it curing a patient's prostatitis, [this reader found](#) it helped prostate pain, and [this reader found](#) it helped difficulty urinating from an enlarged prostate). Likewise, many other readers have also reported dramatic improvement in prostate issues, particularly enlarged prostates.^{[1,2,3,4,5,6,7,8](#)}

However, [the most compelling account](#) I heard came from this physician with extensive experience using DMSO:

Dmso is indeed marvelous. We gave 50 grams of Dmso i.v. daily for five months to a person who severed her lumbar spinal column. No organ damage noted from the Dmso and she can now drive and walk albeit slowly. Approximately forty (out of forty) patients with confirmed bacterial prostatitis have eliminated the bacteria in their prostate with a single dose of antibiotic dissolved in Dmso administered via catheter three times a week for 4 weeks. No recurrences.

Testicles

DMSO has also been shown to protect the testicles and preserve fertility:

- [Intraperitoneal DMSO](#) was given to rats prior to testicular torsions. Compared to saline controls, DMSO-treated rats showed significantly lower testicular MDA levels.

and higher GSH levels at the end of 3-hour ischemia (T-0) and after 3 hours of reperfusion (T-3).

- [DMSO has been used](#) in the treatment of orchiepididymitis.

DMSO has also been shown to protect the testicles from radiation (which is a major concern in certain cancer treatments):

- [A 1977 study found](#) a mixture of DMSO, reduced glutathione, and mercaptoethylamine (MEA) administered to mice before exposure to gamma rays significantly reduced radiation-induced testicular lesions (e.g., by protecting the spermatogenic epithelium by attenuating structural and functional disturbances, chromosomal aberrations, and germ cell destruction) and was more effective than single-agent radioprotective treatments.

[A 2022 mouse study](#) found DMSO giving DMSO prior to irradiation protected mice testicles (e.g., testicular weight and hormonal function was preserved) and fertility (spermatozoa remained alive and did not accumulate DNA damage as DMSO facilitated DNA repair).

Lastly, DMSO had [no significant effect](#) on the average motility speed of sperm incubated at 37°C for 15 minutes and many studies show DMSO preserves frozen sperm viability (e.g., motility, mitochondrial function and fertilization) when it is frozen.^{[1,2,3,4,5,6,7](#)} Likewise, [one study](#) examining the effect of DMSO on the testicles found that at freezing temperatures, DMSO did not affect testosterone synthesis, but at high concentrations (5-10%), reduced its secretion out of the testosterone producing cells.

Penile Conditions

- Peyroine's disease is a challenging disease where scar tissue builds up within the penis and gradually bends it, make intercourse uncomfortable for both parties (and due to reluctance by males to report it, estimates on its prevalence range from [0.3%](#)

[16%](#)). Due to the challenging nature of the condition (e.g., it's a difficult area to open, and surgery will create more scarring) and the need for a treatment, the DMSO field immediately realized [DMSO's scar dissolving properties](#) could be extremely helpful here. As such, numerous studies were conducted (detailed [here](#)) that showed DMSO offered remarkable benefits for about 50% of patients with the condition.^{[1,2](#)}.

- [One author also shared](#) that DMSO made it possible for men to resume sexual intercourse where previously pain or urethral blockage made it impossible.

- In certain situations, the penis can become engorged for long periods due to the blockage within it being unable to leave (which can become a medical emergency as this can cause permanent damage to the penis), which due to the sensitive nature of the penis is challenging to treat. DMSO's ability to improve stagnated blood flow suggests its utility here, and in [a 1966 case report](#), DMSO, started on day 11, rapidly improved and in a week fully treated a postinfectious, local circulatory priapism in a 11 year old.

Additionally, [a 2008 randomized trial](#) found DMSO being used in place of lidocaine as a lubricating gel for a cystoscopy (which requires having a probe pass through the penis to reach the bladder) halved the pain score reported following the procedure.

Female Reproductive Tract

Numerous studies have shown DMSO heals each part of the female reproductive tract and restores fertility.

Ovaries

DMSO has repeatedly been shown to protect the ovaries from lethal stressors:

- [When rats](#) had the blood supply to one ovary cut off for 3 hours (by simulating an ovarian torsion), DMSO given 30 minutes prior to reperfusion significantly reduced the resulting oxidative stress and tissue damage.

- Ovarian cells (from Chinese hamsters), were protected from lethal hyper-osmotic injuries by 5 and 10% DMSO. Some of these protective effects were a result of DMSO reducing an otherwise lethal sodium and potassium ion fluxes and (shown via electron microscopy) preventing the surface changes in their membranes which preceded death.^{[1,2,3](#)}

- DMSO [reduced the sensitivity](#) of Chinese hamster ovary cells to ethidium bromide (DNA mutagen) by decreasing intracellular of it by reducing its ability to enter the cell (which is quite noteworthy as typically DMSO increases the uptake of chemicals).

Note: [When DMSO was microinjected](#) directly into the ovarian bursa of cyclic female rats, toxicity or adverse effects on ovulation were observed. DMSO, in turn, has been used as a vehicle to deliver medications to the ovaries and [to successfully replace missing sexual hormones in rats who could not produce them](#).

Additionally, [in a rat model](#) of polycystic ovarian syndrome (PCOS), DMSO improved metabolic markers of the disease (e.g., fasting hyperglycemia and 2-hour glucose level) and reduced the associated oxidative stress.

Fallopian Tubes

- [A 1975 Chilean study](#) at a Navy hospital took 69 women who were infertile due to obstruction in their fallopian tubes and injected a DMSO mixture into their fallopian tubes via ascendent hydrotubation (the specific mixture was 5ml of DMSO, dexamethasone, and chlorpheniramine diluted in 20 ml of distilled water). A series of DMSO hydrotubations was given (every 3 days) followed by temporary breaks of varying lengths, and then an evaluation to determine if the tubes had opened. Once the tubes were opened, the patient was instructed to lead a normal sex life, and then repeat the hydrotubations if they had not gotten pregnant.^{[1,2](#)}

The authors reported carrying out a total of 426 DMSO hydrotubations in 69 patients of whom 47 were available for analysis at the time the article was published. Of those

47, 27 (57.4%) subsequently became pregnant, including one who got pregnant twice (without any further assistance). Of the 27 pregnancies, 12 resulted in successful deliveries, 7 had a normal pregnancy at the time of publication, 4 patients chose to have abortions, and 3 had spontaneous abortions, and 1 had an abnormal pregnancy requiring a surgical intervention, and 0 had ectopic pregnancies (one of the risks of surgically opening the fallopian tubes). Additionally, in the 426 DMSO hydrotubatic 4 experienced discomfort and fatigue during the procedure, and 2 had psychiatric changes (in one case a sensation of anguish with difficulty breathing and in the other hypothyroidism and psychomotor agitation). These rare side effects (occurring in 1.5% of intubations) did not require suspending the treatment, and did not increase overtin

Note: [25-35%](#) of infertility is due to tubal obstructions (typically from inflammation there). The current surgical approach for opening a tubal obstruction and restoring fertility (which bears some risks) has a [10-30%](#) success rate (figures on this vary widely, but are almost always under 50%).

- In a Russian study, [DMSO with Trichopol](#) effectively treated inflammatory tubo-ovarian formations (e.g., abscesses and cysts).

Uterus

- [This horse study](#) and [this horse study](#) found that applying DMSO directly into the uterus does not harm its lining (the endometrium) or trigger fibrosis.

Note: there are many studies showing DMSO preserves the function and structure of tissues that get frozen (e.g., [this one](#) of a horse's uterine lining).

- [In 43 mares](#) with clinical or subclinical endometritis, compared to saline, intrauterine 30% DMSO was found to reduce inflammation, alter or eliminate uterine microbial load, improve fertility. Additionally, DMSO reduced the excessive uterine vascularization provoked by this inflammation—suggesting a potential utility in the treatment of endometriosis.

- [One study](#) administered 10-30% DMSO into the uteruses of horses that could not get pregnant. It found no harm occurred to the lining of the uterus and that 18 out of 27 horses showed significant improvement to the lining of their uterus (compared to 2 out of 18 who received a saline placebo), such as a reduction of chronic inflammatory cell infiltration and reduction of periglandular fibrosis. Additionally, there were signs their fertility improved, but the trial's design made it impossible to be sure this improvement occurred.

Note: these results suggest administering DMSO directly into the uterus could help a few challenging gynecologic conditions, but I do not know of any researchers who have tried this approach. However, I did receive [this comment](#) from a reader.

I have been suffering from endometriosis pain since I was 13. I am now 43 and I have tried everything other than surgery. Including a progestin IUD from my gynecologist that almost killed me (seriously). After giving up on mainstream medicine 3 years ago, I started using bio identical progesterone after reading Dr. Mercola's article. The progesterone did help with some of the pre menstrual pain but I was still struggling with mid cycle pain, menstrual pain and horrendous inflammation of endometrial tissue. I started using DMSO 70% topically and then a couple doses orally (1tsp) spaced a week apart. I quickly noticed the reduction in inflammation, cramping and pain. I had no mid cycle pain or PMS for the first time since I was last pregnant. Also, for the first time in years, I did not have to take any medication during my cycle for pain or inflammation. The cramping/inflammation I usually experienced was debilitating but the cramping I had was painless and more like warm pressure. Truly incredible. I will continue my regimen but I am curious to if this is a cure or an ongoing treatment I will need to maintain. Thank you Midwestern Doctor for your research and voice.

P.S. Added positive side effects I have experienced: less joint pain and quicker recovery after exercise. No blister or pain after applying DMSO to a small burn from cooking.

Note: [DMSO is used by protcologists and gynecologists in Russia.](#)

Cervix

- [In women](#) with habitual miscarriage and chlamydia cervicitis, cervical electrophoresis with DMSO and chymotrypsin, combined with magnetic laser therapy and vibroaspiration, enhanced immunity and increased successful pregnancy outcomes by 16.3% compared to standard treatment.
- [A Russian study](#) found DMSO could be used to treat erosion of the cervix.
- [In sheep](#), DMSO was found to enhance the activity of enzymes which ripen the cervix, thereby facilitating artificial insemination.

Vaginal Canal

- [A study gave 75 women](#) with chronic genital inflammation or neurogynecological conditions, [intravaginal tampons](#) with DMSO and 6% novocaine. In those with inflammatory conditions, this significantly alleviated pain and inflammation and normalized pelvic diaphragm muscle bioelectric activity, reducing its amplitude by 36% (whereas no significant improvement was seen in the neurogynecological group)—indicating this combination could be extremely helpful for the muscle spasms associated with these conditions.

A New Therapeutic Principle

When DMSO was discovered, Stanley Jacob quickly realized that it represented a new therapeutic principle since it made so many things which had previously seemed impossible in medicine suddenly possible—and even more remarkably, 60 years later many of the things DMSO can address still remain a perpetual challenge for the current medical paradigm. As such, I find it remarkable that in the brief time DMSO

was in widespread use and being researched worldwide, so many different uses for that are still just as applicable today were discovered.

For example, much in the same way I recently showed how DMSO [could significantly improve surgical outcomes](#), the data here makes good case that DMSO should be a mainstay therapy whenever someone is at risk of organ failure from being poisoned (e.g., due to a drug overdose). Likewise, the data here shows how numerous immensely challenging diseases that require a hospital or intensive care admission could be dramatically improved with DMSO.

However, while this stonewalling is immensely unfortunate, I am extremely hopeful that we will soon see a paradigm shift on this issues as:

- Much of the public (and much of the medical profession) has lost faith in the medical orthodoxy's verdict on what does and does not work.
- Twitter (X) now allows the rapid diffusion of information, making it impossible to censor the medical truths the public is craving.
- The incoming administration (particularly RFK Jr.) are strongly committed to this issue.



Robert F. Kennedy Jr  
@RobertKennedyJr

FDA's war on public health is about to end. This includes its aggressive suppression of psychedelics, peptides, stem cells, raw milk, hyperbaric therapies, chelating compounds, ivermectin, hydroxychloroquine, vitamins, clean foods, sunshine, exercise, nutraceuticals and anything else that advances human health and can't be patented by Pharma. If you work for the FDA and are part of this corrupt system, I have two messages for you: 1. Preserve your records, and 2. Pack your bags.

2:25 PM · Oct 25, 2024 · **6.6M** Views

As such, my goal is now transitioning to trying to support this paradigm shift.

Protocols

In the final part of this article, I will discuss how DMSO can be used to treat the conditions listed throughout this article (e.g., cirrhosis, prostate enlargement, GI ulcers, ulcerative colitis), along with a few other integrative approaches we use for those conditions (e.g., for ARDS, heart attacks, gallstones, gastric bleeds, and smoke inhalation). Additionally, I will also provide a revised set of simplified instructions for the product sourcing and general use of DMSO (as I've received a lot of useful feedback over the last few weeks that has provided some important hints for ensuring safety).

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