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DMSO Is a Miraculous Therapy for Pain and Tissue Injury

Analysis by A Midwestern Doctor | October 25, 2024

STORY AT-A-GLANCE

- The standard approach for managing pain and musculoskeletal injuries often involves NSAIDs (e.g., ibuprofen), which are linked to serious risks, including tens of thousands of deaths annually
- DMSO is a highly effective, natural pain reliever that has helped individuals disabled by chronic pain (e.g., from failed spinal surgery or severe arthritis) regain their quality of life. It also addresses conditions that other therapies struggle to alleviate like complex regional pain syndrome
- DMSO is effective in promoting wound healing and healthy scar formation, making it remarkable for surgical recovery and burns
- DMSO has an 80% to 90% success rate for treating a wide range of musculoskeletal conditions, including arthritis, back and neck strains, sprains, bursitis, and traumatic injuries. Its rapid and dramatic effects have made it popular among professional athletes for quick recovery

Modern medicine often sidelines "miracle" drugs that work too well. Despite decades of evidence showing that the naturally occurring chemical Dimethyl Sulfoxide (DMSO) is a remarkably safe and versatile treatment for a range of challenging conditions — such as strokes, head trauma, spinal cord injuries, dementia, and even Down Syndrome — it has been largely overlooked.

This sidelining is particularly remarkable as DMSO is also one of the most effective treatments for acute and chronic pain, musculoskeletal injuries, and chronic

degenerative conditions (e.g., arthritis).

DMSO, Nature's Healer

DMSO is a powerful, natural compound with several unique properties that make it an incredibly versatile healing agent:

Rapid absorption — When applied to the skin or ingested, DMSO quickly spreads throughout the body.

Cellular protection — It shields cells from lethal stressors like burns, frostbite, blood loss, radiation, and shockwaves, and can rescue already damaged cells on the verge of dying.

Safety profile — DMSO is extremely safe,[1] and in almost all cases, its only side effects are temporary skin irritation or creating a garlic-like odor. In contrast, the standard of care (NSAIDs) kill tens of thousands of Americans each year and are the leading cause of drug induced hospital admissions.

Conduction blocking — DMSO selectively blocks pain signals from small nerve fibers (e.g., C fibers)[2,3,4] which are often involved in chronic pain (e.g., DMSO is one of the most effective treatments for complex regional pain syndrome). This blocking effect is reversible and doesn't cause tolerance.

Choline esterase inhibition — By inhibiting acetylcholinesterase,[5,6,7,8] DMSO boosts acetylcholine levels, enhancing parasympathetic function and reducing pain.

Anti-inflammatory action[9] **—** DMSO is incredibly effective at rapidly reducing inflammation (e.g., it lowers inflammatory cytokines, scavenges free radicals, and drains edema that would otherwise compress tissues).

Muscle relaxation — DMSO rapidly relaxes skeletal muscles, easing pain from tension and spasms.[10,11,12]

DMSO and Tissue Healing

DMSO greatly improves wound healing (e.g., from burns or surgeries). For example:

- A study of 1371 chronic skin wounds that had often remained unhealed for years (e.g., infected ulcers or severe burns) found 95.04% had a rapid and complete recovery (e.g., no burn scars).[13] Likewise, a systematic review found DMSO effectively treated ulcers.[14]
- Numerous studies show that DMSO accelerates limb regeneration in animals[15] and surgical wound healing in humans.[16] It also enhances the viability of skin grafts and flaps, offering benefits for plastic and reconstructive surgery.[17,18,19,20,21,22]
- Animal studies have shown DMSO increases the tensile strength of surgical scars[23,24] (which significantly improves surgical outcomes), decreases experimentally induced intestinal adhesions[25] (a common complication of abdominal surgeries) by 80%, prevents hypertrophic (excessive) scar formation.[26]
- Human studies show DMSO can flatten and loosen keloid scars[27] and gradually eliminate subcutaneous fibrosis induced by radiation.[28]
- Finally, DMSO is also sometimes used to repair keloid scars. For example, in one study of ten people with keloids, applying 50% to 80% DMSO a couple of times a day induced scar flattening with the loosening of the collagen surrounding the fibrous bundles.[29] Similarly, another study found DMSO eliminated (through a gradual softening and reduction of it).[30]

DMSO and Musculoskeletal Injuries

Many of the early adopters of DMSO went from skeptics to believers because of the rapid and dramatic improvements they saw from it healing acute injuries (e.g., as they had patients with debilitating bursitis in the shoulder recovering within minutes of receiving DMSO).

As it was far safer and more effective than any other way to treat musculoskeletal injuries, joint disorders or chronic pain, DMSO was rapidly adopted by doctors and pharmaceutical companies across the country (e.g., millions were invested to bring DMSO products to market and hundreds of thousands of Americans had life-changing benefits from it).

Video Link

Unfortunately, as DMSO's use was skyrocketing, on November 10, 1965, the FDA decided to globally ban all research on it by falsely claiming it was incredibly dangerous. Because of this, there was an explosion and then sudden disappearance of DMSO research, which sadly continued even with Congress repeatedly trying to get the FDA to overturn their indefensible prohibition of DMSO.

Note: *A detailed review of DMSO's extensive safety data and toxicology studies can be viewed* ***here****.*

As a result, very little knowledge now exists of DMSO's use in human musculoskeletal injuries other than it existing in a few FDA approved products (where it typically is combined with another agent). Remarkably however, it is fully permitted in veterinary medicine (which led to a lot of Americans using DMSO that was "meant for horses") where it is frequently utilized for musculoskeletal injuries. Those forgotten studies include:

A 1964 study,[31] where 22 out of 25 patients with subacromial bursitis experienced a rapid improvement within 30 minutes of DMSO, while in chronic cases 32 of 40 patients improved and in some patients, a reduction in shoulder calcium deposits was also noted (which in a later 1967 study,[32] were shown on X-ray to disappear following DMSO).

This 1965 study:[33]

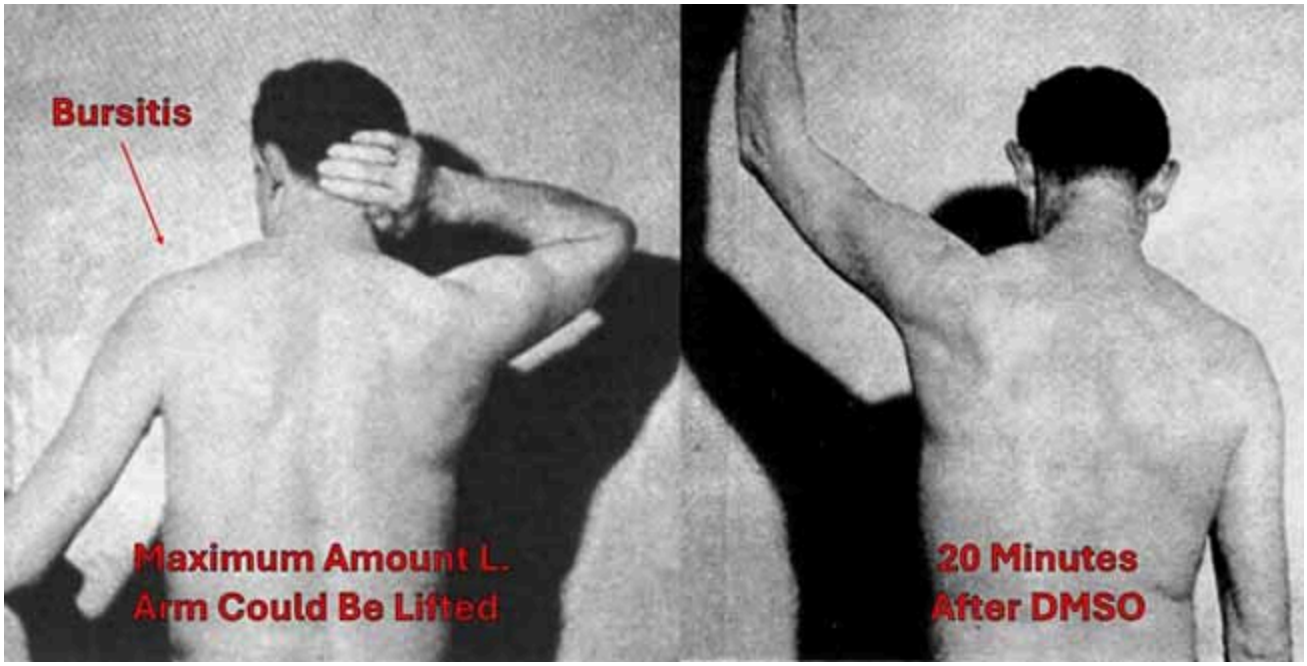
Diagnosis	Results and Comments
Acute musculo-skeletal injuries	Relief of pain and muscle spasm within 30 min; duration of benefit 2-12 hr
Bursitis	
subacromial acute	Rapid increase in range of motion and diminution of rest pain within 30 min
subacromial chronic	Continued treatment for 3 months required before patient symptom free; reduction of calcium by x-ray in 25% of patients exhibiting initial calcification
Arthritis	
osteoarthritis	Diminished pain, lessened muscular spasm; increased range of motion
rheumatoid	
grades 1, 2	Diminished pain, lessened muscular spasm; increased range of motion
grades 3, 4	Objective evidence of diminution of swelling; subjective relief of pain. Six of 10 patients followed for 8-10 months are improved
gouty	Diminution of swelling and redness, relief of rest pain in 30 min; some discomfort persists on walking
Scleroderma	Improved range of motion at joint with softening of skin
Dupuytren's contracture	Reduction of plaque size in palmar fascia with increased range of finger motion
Total	

This large 1967 study:[34]

TABLE 4
CLINICAL EFFECT OF DMSO: ACUTE AND CHRONIC MUSCULOSKELETAL DISORDERS (3321 CASES)

	No. of Cases	Maximum Period of Treatment (Months)	Partial Remission of Symptoms	Complete Remission of Symptoms	Failures
1. Bursitis, periarthritis (1075)					
a) acute	293	1	121	136	36
b) chronic	782	3	321	345	116
2. Periostitis, epicondylitis Tendinitis	409	2	111	238	60
3. Osteoarthritis (1641)					
a) spine	896	2	253	539	104
b) hip	104	6	52	28	24
c) knee	497	6	202	215	80
d) small joints	144	3	46	69	29
4. Rheumatoid arthritis (grades 1, 2)	177	6	68	74	35
5. Gouty arthritis	19	2	3	16	–
			35.4%	50.0%	14.6%

***Note:** In that study,[35] many of the results were immediate and dramatic. For example, this was one bursitis patient.*



This 1967 study:[36]

Condition	Total Number of Patients	Excellent	Good	No Benefit	Delayed Action
1. Acute Injuries					
a) Athletes	23	16	6	1	4
b) Nonathletes	19	14	4	1	0
2. Osteoarthritis of peripheral joints (excluding shoulder)	21	5	9	7	6
3. Rheumatoid Arthritis	3	3	0	0	3
4. Inflammatory Shoulder Disease					
a) Acute	55	2	2	1	1
b) Chronic	18	12	5	1	8
5. Gout:					
a) Acute, first attack	4	4	0	0	0
b) Recurrent acute	2	0	2	0	0
6. Degenerative lumbar disc disease					
a) First attack	13	10	2	1	4
b) Recurrent	12	6	3	3	3
7. Degenerative Cervical Disc Disease (including one acute whiplash injury)	16	6	4	6	7
8. Varicose Veins	22	13	8	1	7
9. Sinusitis					
a) Acute	7	6	1	0	0
b) Chronic	5	1	2	2	0
10. Thrombophlebitis					
a) Acute	3	3	0	0	0
b) Chronic	1	0	1	0	1
11. Miscellaneous	6	0	3	3	2
Total	180	101	52	27	46
Percentages	-	56.1%	28.3%	15%	25.6%

This 1967 study:[37]

TABLE 2
MUSCULOSKELETAL DISORDERS

Diagnosis	No. of Patients Treated		Ages	Duration	Results			Side Effects	
	Male	Female			Poor	Good	Excellent	Mild	Severe
A. Chronic back pain	6	11	37-73	2days-8mo	4	9	4	3	5
B. Acute musculoskeletal injuries and pains	15	14	17-89	2days-8mo	6	11	12	5	8
C. Fractures	2	5	40-85	5days-1mo	0	3	4	2	0
D. Joint disorders									
Shoulder—acute	5	9	43-72	2days-2mo	2	1	11	1	3
Shoulder—chronic	5	8	37-68	2days-7mo	8	5	0	4	3
Elbow	7	3	35-58	2days-2mo	5	3	2	4	1
Knee, ankle, foot, hand	11	13	22-78	3days-8mo	4	10	10	9	2
Gout	3	2	47-62	1 wk-3 mo	1	2	2	1	0
Dupuytrens	3	0	46-75	2 mo-4 mo	2	1	0	2	0
Total	57	65			32	45	45	31	22

A 1967 study that found:[38]

Diagnosis	Favorable Response	Failure	Total Cases	% Responding favorably
Acute injury	43	10	53	81.1
Osteoarthritis	128	24	152	84.1
Rheum. Arthritis	28	8	36	77.7
Tendonitis Peritendonitis	47	3	50	94.0
Acute neuritis	30	4	34	88.2
Synovitis and Tenosynovitis	22	3	25	88.0
Discogenic Disease	9	9	18	50.0
Miscellaneous	98	34	132	74.2
Total	405	95	500	79.0%

Note: *The miscellaneous conditions treated in this study by DMSO included 19 cases of sciatica, 6 cases of coccydynia, and 2 cases of lupus.*[39]

Another 1967 study[40] found:

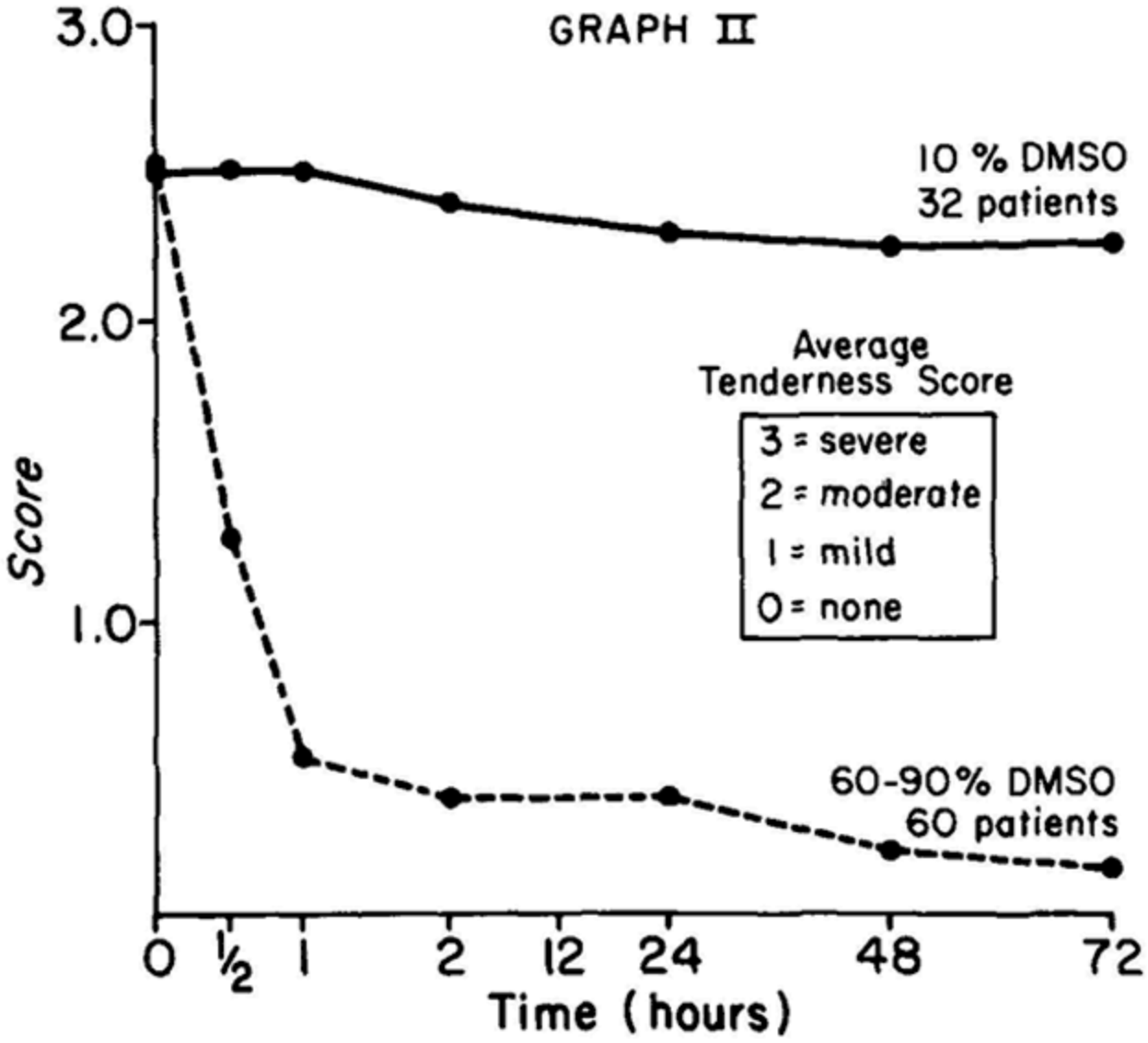
Condition	Total	Improved
Degenerative arthritis (osteoarthritis)	41	34 (lasted several days)
Rheumatoid arthritis	27	23 (temporary)
Periarthritis (frozen shoulder)	7	7 (temporary)
Acute supraspinatis bursitis	6	6 ("spectacular")
Psychosomatic pain	5	0 (cause of pain indeterminate)
Acute trauma (Buffalo Bills Football Team Athletes)	8	8 (halved recovery time)
Epicondylitis	4	3 (one stopped DMSO)
Diabetic neuritis	1	?
Postsurgical pain following removal palmar fascia (for Dupuytren contracture)	1	1 (no other treatment worked)
Tendinitis of palm	1	?
DeQuervains syndrome	1	?
Peripheral vascular disease	1	?
	103	

The outcomes of the "?" cases could not be found in the study.

A 1967 study[41] gave PT and 70% DMSO to 7 people with frozen shoulders, 4 of whom had excellent pain relief and improved motion.

A 1967 blinded study[42] for acute musculoskeletal disorders (using 10% DMSO gel as a "placebo") that found:

Strength	No. Cases	Results								DiC'd Side Effects	
		Excellent		Good		Fair		None			
		No.	%	No.	%	No.	%	No.	%	No.	%
90% gel	9	7	78	1	11	0	0	1	11	1	11
70% gel	60	48	80	5	8	2	3	5	8	3	5
70% sol'n	118	86	73	14	12	2	2	16	13	8	7



In that study, its author (a former president of the Aerospace Medical Association[43]) remarked:

> *"I am convinced that the topical application of DMSO in the treatment of acute musculoskeletal conditions is a striking and significant therapeutic contribution. During the period of time I conducted clinical investigation with this medication, I practically discarded physical therapy as treatment for musculoskeletal problems because the rehabilitation of my patients was so prompt with DMSO.*
>
> *There was little or no necessity to prescribe narcotics and tranquilizers since pain was promptly mitigated following topical application of DMSO."*

He then conducted a follow-up double-blind study[44] on patients with sprains, strains, bursitis, or tendinitis which found DMSO significantly improved those conditions and reduced the time patients lost from work.

A 1994 blinded study[45] gave 157 patients with acute tendinopathies (e.g., tennis elbow) 10% DMSO gel or a placebo ointment three times a day for 14 days within 3 days of symptoms starting. Pain of movement under loading and the mobility of the joints were significantly improved after, respectively, 3 and 7 days of treatment with DMSO. After 14 days on DMSO, a further improvement was observed, and 44% of the patients (and 9% of placebo) were pain-free.

***Note:** DMSO has also been reported to be effective for carpal tunnel syndrome[46] (and other hand issues like trigger fingers). For those struggling with carpal tunnel syndrome, I discussed our approaches to the disorder **here**.*

Finally, a 1967 analysis[47] of 76 studies using topically applied (90%) DMSO for musculoskeletal conditions found 72% improved. Specifically:

TABLE 4
INVESTIGATOR'S EVALUATION OF OVERALL THERAPEUTIC RESULT

	Percent of Total Patients	
Therapeutic Result	Acute	Chronic
Excellent	46.4	24.2
Good	26.0	27.6
Fair	12.2	16.0
Poor	14.9	31.7
Blank*	0.5	0.5
Total	100.0	100.0
Total Patients	1,068	848

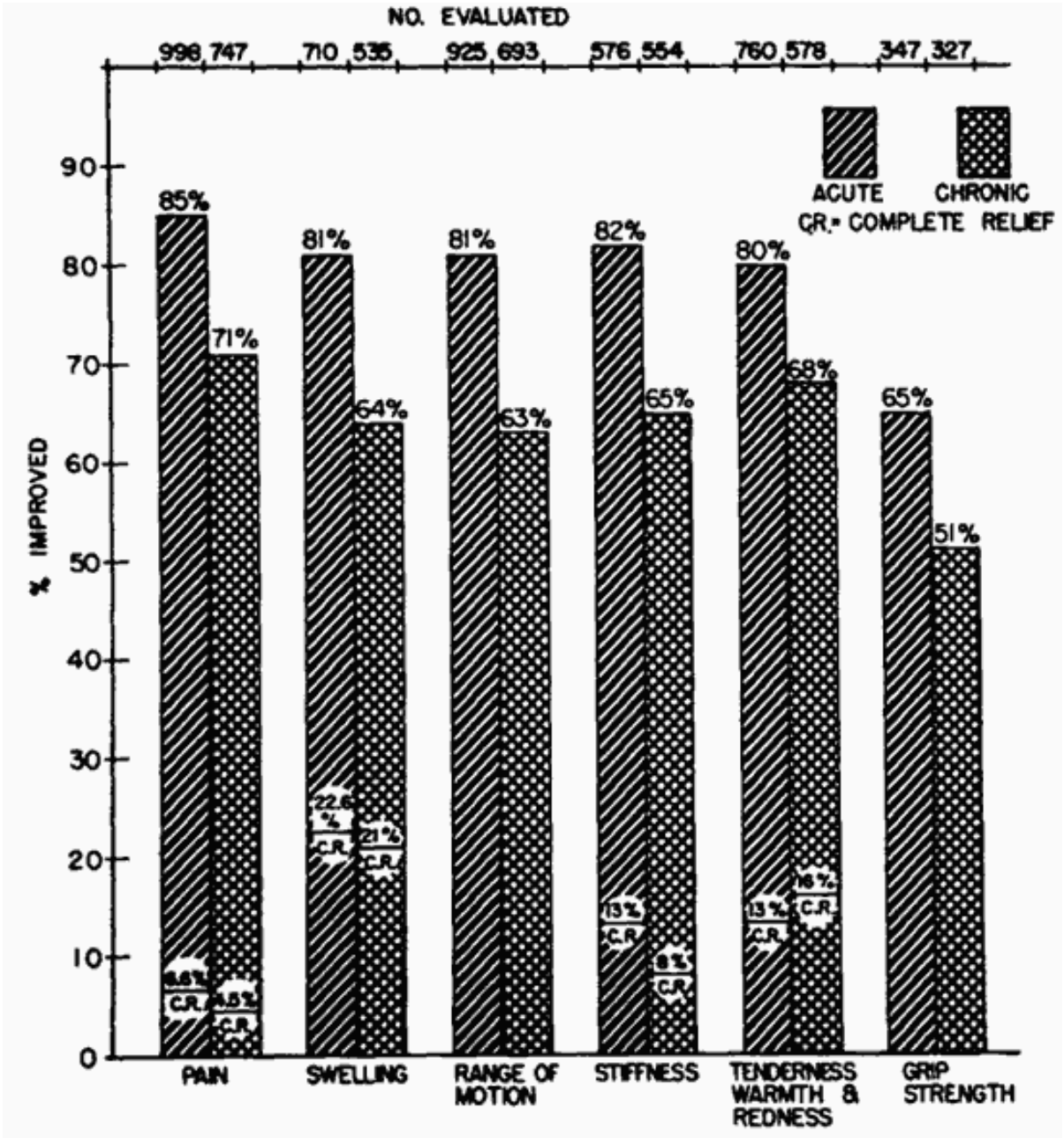

NO. EVALUATED
998 747
710 535
925 693
576 554
760 578
347 327
ACUTE
CHRONIC
C.R. = COMPLETE RELIEF
% IMPROVED
0
10
20
30
40
50
60
70
80
90
85%
71%
81%
64%
81%
63%
82%
65%
80%
68%
65%
51%
8.6%
C.R.
8.5%
C.R.
22.6%
C.R.
21%
C.R.
13%
C.R.
8%
C.R.
13%
C.R.
16%
C.R.
PAIN
SWELLING
RANGE OF MOTION
STIFFNESS
TENDERNESS WARMTH & REDNESS
GRIP STRENGTH

TABLE 5
THERAPEUTIC RESULTS IN SPECIFIC DISORDERS

Condition	Number of Patients	Response			
		Excellent	Good	Fair	Poor
Bursitis					
acute	183	48%	25%	12%	15%
chronic	141	31	26	20	23
Sprain	223	53	30	9	8
Strain	145	39	28	14	19
Myositis	99	45	28	12	15
Rheumatoid arthritis	76	20	30	16	34

Note: *The review also included 102 Traumas (contusion, fracture, etc.), 29 Tenosynovitis, 27 Neuritis, 20 Muscle spasms, 20 unspecified types of arthritis, and 220 miscellaneous issues (e.g., fibrositis, epicondylitis, synovitis, calcific tendinitis).*

To quote the authors:

> *"It is difficult to declare that a drug has efficacy on the basis of uncontrolled studies in a heterogeneous group of diseases. However, from these data and from discussions with many of our investigators, we feel that DMSO is a unique and effective agent for the treatment of many acute musculoskeletal disorders.*
>
> *Beneficial results are unpredictable, but they occur frequently and are sometimes dramatic, particularly in acute conditions, which require low doses and short treatment periods. In chronic conditions, improvement occurs at a lower rate and is less dramatic."*

Finally, at a symposium on DMSO,[48] data on 9,521 patients were presented, which showed DMSO was effective therapy in a wide variety of acute traumatic conditions, in acute and chronic subacromial bursitis, osteoarthritis, gouty arthritis, and in some

patients with rheumatoid arthritis (along with other conditions such as early Dupuytren's contracture).

***Note:** A later 1981 study[49] also found DMSO was superior to indomethacin in the treatment of gout.*

Sports Injuries

> *"What I like about DMSO is that you don't have to interrupt your training every time you get a minor pull or sprain. It doesn't pump you up like certain pills. It's simply a very useful thing to use for simple athletic injuries.*
>
> *Some people have told me that you shouldn't use it because it might mask the pain of a serious injury, but a good athlete knows his body well. Even when I'm using DMSO, I know when I can push and when I can't."* — Al Oerter, a discus thrower and the first American to win 4 consecutive Olympic gold medals.[50]

One of the greatest challenges professional athletes face are sports injuries which prevent them from returning to the field, particularly since many sports injuries are a product of micro-injuries building up until a critical point is passed (e.g., from adhesions and scars in the soft tissue).

In turn, since DMSO both heals micro-injuries and rapidly treats traumatic injury (returning them to full functionality), DMSO was rapidly adopted by professional athletes once they realized what it could do for their careers (and being off the field was often devastating to their careers).

In turn, due to the voice their position afforded them, a few professional athletes (e.g., Atlanta Falcons Quarterback June Jones[51] — who now is a coach[52]) became some of the most impactful advocates for DMSO (e.g., Jones stated in Congressional testimony[53] that "veterinary" DMSO was widely used but athletes were afraid of publicly discussing it). Likewise, in 2013, a Dallas Cowboys Lineman stated:[54]

> *"You get it [from] the veterinarian and it goes right to the bloodstream. It's an ointment that's like anti-inflammatory. You put it on your skin and you put it on a muscle, and I guarantee you, in about 30 minutes you'd feel it. It wasn't on the list [of banned substances] ... we used DMSO and people knew it. Everyone knew about it."*

Furthermore, in his riveting testimony, Jones provided cases that left the Congressmen in disbelief, such as a teammate with a bone chip and a torn ligament (which would require months of recovery and hence end their season) taking DMSO immediately after the injury and 7 or 8 days later returning to the field (with the bone chip remaining but no longer causing issues).

Likewise, at that Congressional hearing, the former team physician for the Oakland Raiders[55] testified that he'd used 70% topical DMSO on a careful and controlled basis for his players 20 to 30 times a year for 5 years. From this, he observed that DMSO was the most beneficial when given in the first 3 to 4 days of an acute injury where a muscle or joint had severe swelling, particularly of the extremities, especially the ankle, elbow, hands, or wrist.

Overall, he stated that DMSO provided good to excellent results 70% to 80% of the time (e.g., through reduced pain and swelling) and the players felt they were able to return to play 50% to 75% faster than they had from similar injuries in the past. Conversely, they did not find DMSO was helpful for chronic injuries, but this may have been due to it not being used long enough for the effects to kick in.

Note: *He also emphasized that DMSO would transform the field of occupational medicine. I fully agree with his assessment, especially given just how frequently Worker's Comp fails to help its patients.*

Similarly, podiatrist Lowell Scott Weil (who was the physician for both the Chicago Bears and the United States Olympic gymnastics team) used DMSO on a regular basis (particularly injured gymnasts).

After 12 years of using it, he shared,[56] he'd seen it rapidly heal injuries (e.g., he had a gymnast who suffered an ankle sprain expected to end her season, but instead quickly recovered and made the U.S. Olympic team, and a football player who tore his hamstring but was able to rapidly return to the field).

Overall, he had a 60% treatment success rate and saw the best response to DMSO for tendinitis, myositis, and post-injury situations such as muscle pulls, ankle sprains, strains, and tears of the soft tissue (and conversely the only side effects he had were skin irritation). Additionally, he also used it for arthritic patients (especially rheumatoid arthritis) with many having dramatic relief. Many other compelling anecdotes exist.

For example, this book[57] discusses the experience of an Oregon State track coach and early adopter of DMSO who had many amazing stories of DMSO treating hamstring and achilles tendon injuries such as an athlete being able to return to the field at full capacity 3 days after a normally disqualifying hamstring injury and the story of a blind long distance runner who was able to run due to DMSO fixing musculoskeletal injuries and (according to the author) then played a pivotal role in opening the sport to women.

Note: *A major problem in certain sports like football is repeated concussions (which are now recognized to put them at risk for cognitive impairment and dementia later in life). As discussed in* ***the first part of this series****, in addition to treating strokes and spinal cord injuries, DMSO is also immensely helpful for mitigating the effects of concussions.*

Research also directly demonstrates DMSO's utility in sports medicine:

- A 1965 study[58] treated 47 injured athletes from a wide range of sports (e.g., tennis, diving, or wrestling) by applying 90% DMSO applied to the injured areas 3 times a day initially and then after 2 days, twice a day. The 30 acute traumas (e.g., sprains, strains, dislocations, serious cuts) were observed to rapidly resolve, sometimes "so spectacularly as to compel us to urge our patients to observe greatest caution in order to avoid further damage to a joint."

  The 10 chronic conditions (e.g., tennis elbow) and 7 conditions resulting from prolonged immobilization also responded rapidly and those athletes were often able

to quickly return to the field. These results and the lack of observed adverse events led the investigators to argue DMSO urgently needed to become the standard of care in sports medicine.

- A study[59] of 78 patients (mostly athletes) with overstrained tendons received Dolobene gel (15% DMSO, dexpanthenol and heparin) for 2 to 3 weeks, with over 50% having a significant improvement of symptoms and those improvements including a 94% improvement in pain, a 55% improvement of swelling, 95% improvement of redness and 92% improvement of warmth.

- A study[60] gave Dolobene gel to 30 athletes with soft tissue injuries of the upper and lower extremities twice daily for 4 weeks. There were 4 athletes with contusion of the shoulder, 8 with distortion and contusion of the knee joint, 8 with muscle, tendon and ligament lesions, and 10 with distortion of the ankle joint.

  Following DMSO, 10 had an excellent response (improvement), 5 had an excellent to good response, 10 had a good response and 5 had a moderate response. Specifically, pain, inflammation, swelling, reabsorption of hematomas, tenderness and recovery time were assessed.

- A study[61] gave Dolobene gel and ultrasound to 15 subjects who had received a blunt tissue trauma (without fracture) to the lower extremity within the last 24 hours. Compared to 15 placebos, the treatment resulted in a faster relief of pain, reduction of edema, and recovery of mobility.

- A 1966 study[62] of 28 professional baseball players found that giving them DMSO after injuries caused their downtime be one third of what was observed by the treating physician in the previous year with 42 players.

Note: *While not quite the same as getting tackled, I've also come across cases[63] of individuals taking DMSO immediately after getting hit by a car while crossing the street (which caused injuries but no fractures) and immediately fully recovering.*

Conclusion

Many of the benefits of DMSO are so extraordinary that they understandably invite a healthy degree of skepticism, and it is for that reason I have spent months carefully compiling the evidence behind it. Likewise, after presenting the initial case for DMSO to the readership of the Forgotten Side of Medicine, I put out a call for what those who'd tried DMSO had experienced.

In those comments, dozens of readers reported remarkable experiences of DMSO, many of which mirror those described throughout this article, but also other even more remarkable ones (e.g., for a child with Down Syndrome, a man with Parkinson's and a woman who had severed her spinal cord).

The suppression of DMSO has always deeply bothered me, and in turn, I feel incredibly grateful to be alive at a time when the world is ready to learn of the suppressed medical truths many before me (e.g., the DMSO researchers) devoted their lives to bring to humanity.

Furthermore, I believe this is just the start, as beyond open platforms like Twitter (X) rapidly eroding the public's trust in corrupt medical dogmas, I know through trusted confidants directly connected to RFK Jr. that the next four years offers an unprecedented opportunity to begin rectifying many of the previously insurmountable problems that have plagued our health care system and make America Healthy Again.

Author's note: *This is an abridged version of* ***a longer article*** *that goes into greater detail on the points mentioned here, others not as extensively covered (e.g., the wealth of evidence DMSO is a life-changing pain treatment), and guidance for topical DMSO use (e.g., dosing, therapeutic precautions and where to obtain it).*

That article and its additional references can be read ***here*** *(along with* ***a companion article*** *discussing DMSO's remarkable utility for a variety of musculoskeletal injuries and chronic pain conditions and* ***an article*** *about how DMSO treats a variety of "incurable" autoimmune and genetic disorders).*

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 find more of AMD's work, be sure to check out **The Forgotten Side of Medicine** on Substack.

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