

Arnica creams, gels and sprays for the treatment of soft tissue injury

Overview

Injuries from bumps, falls and other accidents can cause bruising and swelling to skin and muscles. A number of treatments are available to help reduce swelling and bruising, including the application of creams, gels and sprays containing extracts from the herb *arnica montana* (arnica) to injured areas of skin and muscle. This evidence summary identified two clinical trials (involving 56 people) on the use of arnica for the treatment of soft tissue injury. One case series study was also identified in which patch tests of plant extracts were undertaken on 443 patients suffering from contact dermatitis. Overall, the results from the trials and the case series indicate that the application of creams and gels containing arnica to areas of soft tissue injury has little or no effect on bruising or swelling. There is some evidence however that arnica may help relieve pain associated with bruising and swelling. Side effects associated with the use of topical preparations of arnica appear to be mild and reversible and include localised rash, itching, red spots and dry skin at the site of application. People with contact dermatitis may also react to arnica extract. Severe and potentially lethal side effects are associated with the ingestion of the essential oil or the arnica plant itself, and only the homoeopathic preparation of arnica is safe for oral use.

Background

Soft tissue injury

Falls, sudden forceful contact with a blunt instrument, and surgery often result in bleeding and inflammation deep in the muscle fibres. Symptoms of acute inflammation include pain, heat, redness, and swelling. Some bruising may also accompany this process. Although the inflammatory process is vital to the process of muscle regeneration and healing, it can cause further swelling which can be detrimental to the healing process. The goal of treatment for such injuries is to minimize bleeding and bruising, and to control pain.

Arnica

Arnica (*Arnica montana*) is an alpine herb native to the mountains of Siberia and central Europe.¹ Arnica grows from a cylindrical hairy bulb with a creeping underground stem.² The flowers are scented and daisy-like, and have 10-14 bright rays each with three notches at the end. Arnica is also known as leopardsbane, wolfsbane, and Mountain tobacco.² The flower head of arnica is the main part used in herbal medicine.² Traditionally, arnica has been used as a herbal medicine throughout North America, Germany and Russia, since the 16th century.

Sesquiterpene lactones are considered the active constituents of arnica and are thought to help reduce inflammation (anti-inflammatory) and reduce pain (analgesic).² Through this action,

arnica helps improve blood flow to areas of tissue damage, thereby assisting in the healing process.³ Arnica is also said to have some antibiotic activity. Arnica also contains two toxins, namely lobeline and myristic acid (found in the essential oil of arnica).^{2, 3}

Arnica creams, gels and sprays can be obtained as “over the counter” products from health food shops, supermarkets, pharmacies, etc. A medical herbalist may also prescribe arnica. The practice of herbal medicine is not currently regulated by legislation in New Zealand, however many herbal medicine practitioners are affiliated with a self-regulated professional body (such as the New Zealand Association of Medical Herbalists).

Evidence reviewed in this summary

Efficacy information

- Systematic reviews: No systematic reviews on the use of topically applied arnica for the treatment of soft tissue injury were identified for this evidence summary.
- Clinical trials: Two randomised controlled trials involving a total of 56 people were identified for this evidence summary.^{4,5} No clinical trials of topically applied arnica for soft tissue injury are known to be currently underway.

Safety information

- Systematic reviews: No systematic reviews on the safety of using topically applied arnica for the treatment of soft tissue injury were identified for this evidence summary.
- Clinical trials: Side effects related to the use of topically applied arnica for the treatment of soft tissue injury were reported by the two trials identified in the above efficacy section.^{4,5}
- Case-control studies/Cohort studies/Case Series studies: One case series involving a total of 443 people was identified that reported on side effects related to the use of topically applied arnica, as well as skin contact with arnica plants.⁶

Evidence on efficacy

Information on the use of topical applications of arnica for the treatment of soft tissue injury is available from two clinical trials^{4,5}. Results from the trials indicate that topical applications of arnica have no clear effect on bruising after facial surgery⁴ or swelling in the wrist,⁵ although there is some effect on pain reduction two weeks after surgery for carpal tunnel syndrome.⁵ The results regarding pain relief should be interpreted with caution given the small size of the study. Specific results are as follows:

- In one trial (involving 19 people), participants with soft issue injury resulting from laser surgery for facial telangiectases (red spots) were randomised to receive either arnica gel

or a placebo gel for a two week period.⁴ No significant difference in bruising was noted between the treatment group and the placebo group at the end of the two week period.⁴

- In the second trial (involving 37 people), patients received either a placebo or a combination of homoeopathic arnica tablets (D6) and arnica ointment for a four week period, prior to and following surgery for carpal tunnel syndrome.⁵ No significant difference in swelling in the wrist was noted between the treatment group and the placebo group two weeks after surgery.⁵ However, there was a significant reduction in pain after two weeks in the arnica treated group. Since the treatment group in this trial received both homoeopathic arnica tablets and arnica ointment, it is not possible to determine the individual effects of these products on the outcome.

Evidence on safety

Information on the safety of using topical arnica for the treatment of soft tissue injury is available from two small clinical trials^{4,5} and one case-series study.⁶ Overall, side effects associated with the use of topical applications of arnica tend to be mild and reversible and include itching, localized rash, red spots, and dry skin at the site of application⁴. In one trial, the overall tolerability of the gel was rated as “good” or “fairly good” by 87% of participants at a follow-up visit.⁵ Furthermore, 76% of participants indicated that they would use the gel again.⁵ In the case series study, 443 people diagnosed with contact dermatitis were patch-tested for allergies to a variety of flowers and herbs (including arnica) to find the source of the allergen causing the dermatitis. Five people (1%) had positive allergic reactions to arnica.⁶ Three of these people had used arnica as a topical remedy, although it was not stated in what form it was applied. The remaining two people that reacted to arnica were hobby gardeners and therefore likely to have come into contact with the plant, although it was not possible to determine if arnica was the sole cause of the dermatitis in these people.

It is important to note that the arnica herb and the essential oil made from the herb should not be eaten as an overdose of arnica extract can result in vomiting, diarrhoea, and excessive bleeding (haemorrhage)². A number of publications state that deaths have occurred in people who have eaten the flowers or the arnica herb, although no documented evidence of these deaths could be located for this evidence summary.

Cited references

1. Mayor S. Trial shows that homoeopathic arnica is no better than placebo. *British Medical Journal* 2003;326(7384):303-303.
2. Hanrahan C. Arnica. In: Krapp K, Longe J, editors. *The gale encyclopedia of alternative medicine*. Framington Hills, Michigan: Gale Group; 2000.
3. Hattaway V. Arnica. *New Zealand Pharmacy* 2000;20(Apr):22-24.
4. Alonso D, Lazarus M, Baumann L. Effects of topical arnica gel on post-laser treatment bruises. *Dermatologic Surgery* 2002;28(8):686-688.
5. Jeffrey S, Belcher H. Use of Arnica to relieve pain after carpal-tunnel release surgery. *Alternative Therapies in Health and Medicine* 2002;8(2):66-68.

6. Reider N, Komericki P, Hausen B, Fritsch P, Aberer W. The steamy side of natural medicines: contact sensitization to arnica (*Arnica montana* L.) and marigold (*Calendula officinalis* L.). *Contact Dermatitis* 2001;45(5):269-272.

Additional references:

1. Aberer W, Strohal R. Homoeopathic preparations: severe adverse effects, unproven benefits. *Dermatologica*. 1991;182(4):253.
2. Alonso D, Lazarus MC, Baumann L. Effects of topical arnica gel on post-laser treatment bruises. *Dermatologic Surgery* 2002;28(8):686-688.
3. Anonymous. Allergic contact dermatitis from asteraceae/identification of an 8,9-epoxy thymoldiester as a contact allergen in *Arnica sachalinensis*. *Dermatosen in Beruf und Umwelt* 1988;36(3):79-82.
4. Anonymous. Arnica has been wrongly described and afterwards almost wiped out. *Pharmazeutische Zeitung* 2001;146(3):39-40.
5. Anonymous. Arnica montana and facial trauma treatment. *Annales D Oto-Laryngologie Et De Chirurgie Cervico-Faciale* 1977;94(1-2):65-65.
6. Anonymous. Erratum: Homoeopathic arnica dose (*Pharmaceutical Journal* (180)). *Pharmaceutical Journal* 2003;270(7238)
7. Anonymous. Final report on the safety assessment of *Arnica montana* extract and *Arnica montana*. *International Journal of Toxicology* 2001;20:1-11.
8. Anonymous. Homeopathic Arnica: just a placebo. *Prescrire International* 2001;10(55):156
9. Anonymous. Review of placebo-controlled trials of homeopathic Arnica does not show efficacy. *Health Inform* 1999;5(7):5.
10. Anonymous. State-based chronic disease control: the Rocky Mountain tobacco-free challenge. *Journal of the American Medical Association* 1989;262(21).
11. Baillargeon L, Drouin J, Desjardins L, Audet D, Leroux D. The effect of *Arnica-montana* on bleeding times: randomized clinical-trial. *Canadian Family Physician* 1994;40:225-225
12. Baillargeon L, Drouin J, Desjardins L, Leroux D, Audet D. The effects of *Arnica montana* on blood coagulation: a randomized clinical assay. *Canadian Family Physician* 1993;39(NOV):2362-2367
13. Bansal S. Infective arthropathy with tubercular aetiology. *Indian Journal of Homoeopathic Medicine* 1988;23(3):228-229
14. Bates P. Arnica's bruised reputation. *Pharmaceutical Journal* 2003;270(7239):330
15. Bauer CM, Lambert MI, Weight LM. The use of Arnica tablets by runners in the 90 Kilometer Comrades Marathon. *South African Journal of Physiotherapy* 2001;57(4):14-17
16. Bauer CM, Weight L, Lambert MI. The use of Arnica for the treatment of soft-tissue damage. *South African Journal of Physiotherapy* 2002;58(1):34-40
17. Bharatan V. *Arnica montana* L. *Homoeopath* 1995;56:341

18. Brock FE. Additiver Effekt venentypischer Hydrotherapie nach Kniepp und lokaler Arnika-Anwendung bei Patienten mit chronisch venöser Insuffizienz - Synergismus naturheilkundlicher Therapien. *Erfahrungsheilkunde* 2001;50(6):357-363
19. Brock FE. Arnica montana and vein disease. *Zeitschrift für Phytotherapie* 1991;12(5):141-145
20. Concha Zambrano O. The effects of a complex homeopathic preparation on aerobic resistance, anaerobic capacity, strength, and flexibility. *Biomedical Therapy* 2000;18(1):172-175
21. Daane SP. Potential for danger with Arnica montana. *Annals of Plastic Surgery* 2001;46(3):349-350
22. Dantas F. Reporting and investigating adverse effects of homeopathy. *British Homoeopathic Journal*. 1999;88(3):99-100
23. Davis A. Arnica: a remedy for soft-tissue injuries. *Practitioner* 1989;233(1474):1129-1129
24. Diederich K, Riggers U. Arnica. *Der Merkurstab* 2003;56(2):61-76
25. Elsholz I. Unusual complication of a homeopathic preoperative treatment with Arnica D 12. *Tierärztliche Umschau* 1991;46(9):556-561
26. Ernst E. A systematic review of systematic reviews of homeopathy. *British Journal of Clinical Pharmacology* 2002;54(6):577-582
27. Ernst E. Homeopathic arnica. Author's reply. *Journal of the Royal Society of Medicine* 2003;96(4):206-207
28. Ernst E. How objective are systematic reviews? *Journal of the Royal Society of Medicine* 2003;96(3):156-157
29. Ernst E. Intangible risks of complementary and alternative medicine. *Journal of Clinical Oncology*. 2001;19(8):2365-2366
30. Fisher P, Mathie R, van Haselen R. Homeopathic Arnica. *Journal of the Royal Society of Medicine* 2003;96(4):206-207
31. Fisher P. Homoeopathic Arnica for sequelae of hand surgery. *Focus on Alternative & Complementary Therapies* 2003;8(2):208-209
32. Ghosh A. Neoplasm and pleural effusions: a case report. *British Homoeopath Journal* 1987;76(4):218-220
33. Hamdy MK, Sloan PE. Healing efficacy of homeopathic Arnica on experimentally bruised tissue. *Proceedings of the Society for Experimental Biology and Medicine* 1986;181(3):472-472
34. Hausen BM, Herrmann HD, Willuhn G. The sensitizing capacity of compositae plants. I. Occupational contact dermatitis from Arnica longifolia Eaton. *Contact Dermatitis* 1978;4(1):3-10
35. Hausen BM. Arnica allergy. *Hautarzt* 1980;31(1):10-17
36. Hausen BM. Identification of the allergens of Arnica montana L. *Contact Dermatitis* 1978;4(5):308
37. Heck AM, DeWitt BA, Lukes AL. Potential interactions between alternative therapies and warfarin. *American Journal of Health System Pharmacy* 2000;57(13):1221-1227
38. Herscu P. An Arnica save. *Homoeopathic Heritage* 1996;21(3):175-178
39. Hormann HP, Korting HC. Acute allergic contact dermatitis to Arnica tincture. *Dermatosen in Beruf und Umwelt* 1994;42(6):246-249

40. Iauk L, Lo Bue AM, Milazzo I, Rapisarda A, Blandino G. Antibacterial activity of medicinal plant extracts against periodontopathic bacteria. *Phytotherapy Research* 2003;17(6):599-604
41. Ippen H. Problems concerning 'Arnica allergy'. *Dermatosen in Beruf und Umwelt* 1994;42(6):250-252
42. Johnson K. Homeopathy for athletes. A new remedy for sore muscles. *East West* 1987;17(11):24-35
43. Klaas CA, Wagner G, Laufer S, Sosa S, Della Loggia R, Bomme U, et al. Studies on the anti-inflammatory activity of phytopharmaceuticals prepared from Arnica flowers. *Planta Medica* 2002;68(5):385-391
44. Lagrue G, Grillot A. Tobacco and Acupuncture. *Nouvelle Presse Medicale* 1977;6(36):3333-3334
45. Linde K. Available controlled trials do not support the efficacy of homoeopathic Arnica. *Focus on Alternative & Complementary Therapies* 1999;4(3):131-132
46. Lokken P, Straumsheim PA, Tveiten D, Skjelbred P, Borchgrevink CF. Effect of homoeopathy on pain and other events after acute trauma: placebo controlled trial with bilateral oral surgery. *BMJ* 1995;310(6992):1439-1442
47. Lyb G, Schmidt TJ, Pahl HL, Merfort I. Anti-inflammatory activity of Arnica tincture (DAB 1998) using the transcription factor NF-kappaB as molecular target. *Pharmaceutical & Pharmacological Letters* 1999;9(1):5-8
48. Machet L, Vaillant L, Callens A, Demasure M, Barruet K, Lorette G. Allergic contact dermatitis from sunflower (*Helianthus annuus*) with cross-sensitivity to arnica. *Contact Dermatitis* 1993;28(3):184-185
49. MacKinnon S. Arnica montana. *Canadian Pharmaceutical Journal* 1992;125(3)
50. Merfort I, Wendisch D, Jawara N, Lewith GT, Vickers AJ, Mullee MA. Flavonoidglycoside aus Arnica montana und Arnica chamissonis homoeopathic Arnica and Rhus toxicodendron for delayed onset muscle soreness: a pilot for a randomized, double-blind, placebo-controlled trial. *Planta Medica* 1987;53(5):434-437
51. Merfort I, Willuhn G, Jerga C. Arnica flowers German Pharmacopeia: test for purity. *Deutsche Apotheker Zeitung* 1990;130(May 3):980-984
52. Merfort I. Arnica montana anti-inflammatory effect transcription factors NF-kappa B cytokines. *Forschende Komplementarmedizin Und Klassische Naturheilkunde* 2003;10:45-48
53. Mevorah B, Orion E, Matz H, Wolf R. Cutaneous side effects of alternative therapy. *Dermatologic Therapy*. 2003;16(2):141-149
54. Millikan LE. Alternative therapy in pruritus. *Dermatologic Therapy* 2003;16(2):175-180
55. Mitra S. Arnica montana: its unknown role in diabetes mellitus. *Simillimum* 2000;13(4):67-69
56. Moog-Schulze JB. Een medisch experimenteel onderzoek naar de werkzaamheid van een uitwendige toepassing van Arnica-gelei. *Tijdschrift voor Integrale Geneeskunde* 1993;9(3):105-112
57. Niebauer GW, Dorcsi M, Pfeil L. Effect of homoeopathic Arnica-D-12 and actihemyl on wound-healing in the animal-experiment. *Praktische Tierarzt* 1980;61(2):128-132
58. Norred CL, Zamudio S, Palmer SK. Use of complementary and alternative medicines by surgical patients. *AANA Journal* 2000;68(1):13-18

59. O'Meara S, Wilson P, Bridle C, Wright K, Kleijnen J. Homeopathy. Quality & Safety in Health Care 2002;11(2):189-194
60. Paulsen E, Andersen KE, Hausen BM. Sensitization and cross-reaction patterns in Danish Compositae-allergic patients. Contact Dermatitis 2001;45(4):197-204
61. Perry R, Dowrick C. Homeopathy and general practice: an urban perspective. British Homoeopathic Journal. 2000;89(1):13-16
62. Pirker C, Moslinger T, Koller DY, Gotz M, Jarisch R. Cross-reactivity with Tagetes in Arnica contact eczema. Contact Dermatitis 1992;26(4):217-219
63. Pradhan AC. A remedy for bruises as a constitutional remedy: a case of Arnica montana. Homoeopathic Links 1997;10(1):8-9
64. Punzo A. Homeopathic medicine: an overview with specific applications for the orthopaedic patient. Techniques in Orthopaedics 2003;18(1):54-61
65. Ramelet AA, Buchheim G, Lorenz P, Imfeld M. Homoeopathic Arnica in postoperative haematomas: a double-blind study. Dermatology 2000;201(4):347-348
66. Reichenberg-Ullman J, Ullman R. Think homeopathy for sports injuries. Townsend Letter 2003;240:61-65
67. Reider N, Komericki P, Hausen BM, Fritsch P, Aberer W. The seamy side of natural medicines: contact sensitization to arnica (*Arnica montana* L.) and marigold (*Calendula officinalis* L.). Contact Dermatitis 2001;45(5):269-272
68. Richardson J. Homeopathic Arnica. Journal of the Royal Society of Medicine 2003;96(4):204-204
69. Riley D. Arnica montana and homeopathic dosing guidelines. Plastic and Reconstructive Surgery 2003;112(2):693-693
70. Rohan L. The effects of Arnica montana in dental extraction. Homeopathy in Practice 2003;3:42-43
71. Roki D, Menkovic N, Savikin-Fodulovic K, Krivokuca-Dokic D, Grubisic D. Flavonoids and essential oil in flower heads of introduced Arnica chamissonis. Journal of Herbs, Spices, & Medicinal Plants 2001;8:419-427
72. Rudzki E, Grzywa Z. Dermatitis from Arnica montana. Contact Dermatitis 1977;3(5):281-282
73. Schmidt TJ, Bomme U, Alfermann AW. Sesquiterpene lactone content in leaves of in vitro and field cultivated Arnica montana. Planta Medica 1998;64(3):268-270
74. Sevar R. Audit of outcome in 829 consecutive patients treated with homeopathic medicines. British Homoeopathic Journal. 2000;89(4):178-187
75. Shinde P. Importance of mental state in injury cases. Indian Journal of Homoeopathic Medicine 2001;33(3):31-32
76. Siebenwirth J. Homeopathic Arnica in postoperative haematomas: a double-blind study. Forschende Komplementarmedizin Und Klassische Naturheilkunde 2001;8(3):172-175
77. Sonawala S. Arnica: first alphabet of homoeopathy. Indian Journal of Homoeopathic Medicine 1986;21(2):33-34
78. Stevinson C. Unconvincing results for Arnica in recovery from surgery. Focus on Alternative & Complementary Therapies 2002;7(3):265
79. Uehleke B. Phytobalneoogy. Zeitschrift fur Phytotherapie 1996;17(1):26-43
80. Vickers AJ, Fisher P, Smith C, Wyllie SE, Lewith GT. Homoeopathy for delayed onset muscle soreness: a randomised double blind placebo controlled trial. British Journal of Sports Medicine 1997;31(4):304-307

81. Wijnsma R, Woerdenbag HJ, Busse W. The importance of Arnica-species in phytomedicine. *Zeitschrift fur Phytotherapie* 1995;16(1):48-62
82. Wijnsma R, Woerdenberg HJ, Van Der Molen J. The phytotherapeutic use of arnica. *Pharmaceutisch Weekblad* 1994;129(37):924-930
83. Wilkens J, Ludtke R, Stein F, Schuwirth W, Karenovic A. Comparative study of the therapy of stroke syndrome with homeopathic and anthroposophic remedies in a geriatric rehabilitation center. *Der Merkurstab* 2003;56(1):22-27
84. Wilkens J, Ludtke R. Arnica 30x after knee surgery. *British Homeopathic Journal* 2000;89(Suppl. 1)
85. Willuhn G, Leven W, Luley C. Arnica flowers German Pharmacopeia 10 (DAB 10): investigation of the qualitative and quantitative variability of sesquiterpene lactone contents of official Arnica crude drugs. *Deutsche Apotheker Zeitung* 1994;134(Oct 20):49-50, 52, 55-56, 58-59
86. Willuhn G, Leven W. Quality of Arnica preparations: sesquiterpene lactone contents of tinctures and aqueous infusions. *Deutsche Apotheker Zeitung* 1995;135(May 25):33-36
87. Willuhn G. Arnica contact dermatitis and the contact allergens causing it. *Deutsche Apotheker Zeitung* 1986;126(Sep 18):2038-2044
88. Willuhn G. Arnica montana L.: portrait of a medicinal plant. *Pharmazeutische Zeitung* 1991;136(Sep 12):9-12, 14, 18, 21, 24-26
89. Willuhn G. Arnica montana: medicinal plant of the year 2000. *Zeitschrift fur Arznei & Gewurzpflanzen* 2001;6(2):51
90. Wiluhn G, Junior I, Wendisch D. Desmethoxy-enecalin und Thymolderivate aus Arnica sachalinensis. *Planta Medica* 1986;5:349-351
91. Woerdenbag HJ, Merfort I, Passreiter CM, Schmidt T, Willuhn G, Kampinga HH, et al. Cytotoxicity of flavonoids and sesquiterpene lactones from Arnica species. *Planta Medica* 1993;59(7 Suppl)
92. Wolf M, Tamaschke C, Mayer W, Heger M. Efficacy of Arnica in varicose vein surgery: results of a randomized, double-blind, placebo-controlled pilot study. *Forschende Komplementarmedizin und Klassische Naturheilkunde* 2003;10(5):242-247
93. Youngson RM. Randomized trial of homoeopathic Arnica. *Journal of the Royal Society of Medicine* 1997;90(4):239-240

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