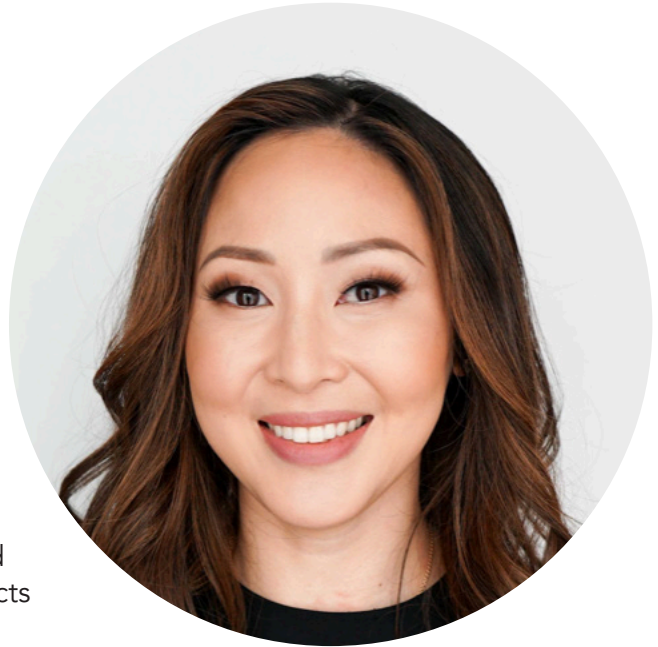


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Dr. Law is a dual-certified dermatologist in Canada and the U.S. She completed her medical school training at the University of British Columbia and was accepted into the joint dermatology program between the University of Saskatchewan and Dalhousie University. She opened SkinSense Dermatology in Saskatoon and practiced general and aesthetic dermatology for six years before moving back to Vancouver. She has a special interest in paediatric and adolescent dermatology but has been trained in all aspects of medical, surgical and cosmetic dermatology.



MY APPROACH TO COMPLEMENTARY AND NATURAL THERAPIES IN MANAGING ATOPIC DERMATITIS

Compared to other chronic cutaneous diseases, atopic dermatitis (AD) has gained much attention in the complementary and alternative realms of medicine. In a questionnaire-based study from Norway, 51% of patients with eczema reported use of one or more forms of alternative medicine (homeopathy, health foods, and herbal remedies) to help treat their condition.¹ Some patients may look for alternative options when their disease is chronic, when explanations are unsatisfying, or when treatments are felt to be unsafe (i.e. in the case of steroid-phobia in the treatment of AD).

An increasing number of patients are using complementary and alternative medicine and asking for 'natural' options particularly when dealing with recalcitrant eczema. As we enter an exciting new chapter for the treatment of moderate-to-severe AD with new biologics and small molecules on the horizon, we must keep in mind that these treatments are not a cure and patients may experience flares in their disease even when on therapy. I believe we should adapt and be open to providing 'integrative dermatology'- which combines conventional and complementary approaches to disease management together in a safe and evidence-based fashion.

This article includes complementary therapies that I recommend in my practice, with evidence provided in a table (**Table 1**) for the readers. Even though there are numerous complementary and alternative medicine options available, the peer-reviewed evidence supporting their use through methodologically robust clinical studies is scarce. The aim of this article is to serve as a resource when you are having discussions with your patients about the potential use of 'natural' options. The complementary treatment options have been grouped into the four pillars of conventional AD treatment: **moisturization, anti-inflammatories, anti-bacterials, and anti-pruritics.**

Moisturization and Wet Wraps

Moisturization is one of the most important components of AD therapy. It helps to maintain hydration and protect the skin barrier, decrease trans-epidermal water loss (TEWL), and prevent irritants and/or allergens from entering the skin. There is no 'best' emollient and clinicians must keep in mind patient preferences, cost of emollients, disease state, and patient skin type. Some patients feel comfortable using natural oils to moisturize their skin because it is a 'natural' ingredient or because of lower cost. Not all oils are interchangeable and there are a few key features to consider, particularly the type of oil and the processing of the oil (i.e. cold pressed vs. heat pressed).

Two oils that clinicians may wish to consider are virgin coconut oil and virgin sunflower seed oil. Most 'virgin' oils are cold pressed meaning the seed or nut is processed through high pressure at a specific temperature to extract the oil without the use of chemicals or heat.²

Virgin sunflower seed oil

(VSO)- Virgin sunflower seed oil is composed mainly of linoleic acid, which is thought to decrease inflammation in the skin and restore the skin barrier by increasing the synthesis of ceramides.³ A study of 19 adults with and without a history of atopic dermatitis compared the use of olive oil and sunflower seed oil on opposite arms through two randomized forearm-controlled studies. Sunflower seed oil was shown to preserve the stratum corneum, improve hydration, and did not cause erythema. Conversely, olive oil decreased the stratum corneum, increased TEWL, and caused mild erythema.⁴

Virgin coconut oil (VCO)-

Virgin coconut oil is an effective emollient and a natural antibacterial against *S. aureus*.^{5,6} Virgin coconut oil is made by a wet-milled, cold pressed process that preserves the active components (antioxidants and fatty acids). There have been no reported cases of allergic contact dermatitis with virgin coconut oil in a review of the literature.⁷ A study of 117 patients showed virgin coconut oil as superior to mineral oil in SCORAD (SCORing of Atopic Dermatitis) and TEWL assessments compared to baseline.⁷

Wet Wraps are an easy and effective way to enhance moisturization. My recommended protocol is as follows:

1. Apply emollient cream or ointment on damp skin,
2. Apply layer of damp Tubifast® garments or wrap gauze,
3. Apply final layer of dry Tubifast® garment or wrap gauze on top, and
4. re-wet the garments/gauze every 2-3 hours but stop rewetting overnight⁹

This form of occlusive moisturization can significantly improve water absorption and skin barrier at least for the short-term and prevent scratching by blocking access to the skin.⁸ A review of wet wraps in 2006 concluded that they can be used as a short-term treatment in children with severe and/or refractory AD.¹⁰ Long-term occlusion with wet or dry garments can increase the number of bacteria on the skin and folliculitis can be a common complication of wet wrap therapy. It may be beneficial to use diluted bleach baths or antiseptic cleansers prior to applying the wet wraps.

Anti-inflammatories

Topical corticosteroids (TCS) are the mainstay of topical anti-inflammatory therapy in AD. There is a growing concern with side effects of long term topical steroid use (i.e. skin atrophy, striae, dyspigmentation and hypertrichosis), causing 'steroid phobia' especially in the treatment of pediatric AD. Patients will often ask for alternative and natural topical options that may decrease inflammation in eczema and some patients may refuse treatment with TCS. There are two topical vitamins that may help alleviate the inflammation caused by AD and may be used as an alternative to topical steroids or during periods of steroid holidays.

Vitamin B5 (Pantothenic acid)-

Vitamin B5, in the alcohol derivative form of Provitamin B5 (panthenol) is an effective humectant. It prevents TEWL and promotes healing of the skin by inducing keratinocyte proliferation and increasing glutathione in the skin.¹¹ There are many products containing panthenol that can be recommended to patients. A small study comparing dexpanthenol 5% ointment and hydrocortisone 1% ointment concluded that dexpanthenol 5% ointment may be just as efficacious as hydrocortisone 1% and can be used as an alternative to topical corticosteroids.¹²

Vitamin B12 (Cobalamin)-

Topical Vitamin B12 has shown some success in small clinical trials for the treatment of AD. It is not commercially available but can be compounded by a pharmacist. This is a topical therapy that may be suitable for those patients that are reluctant to try conventional therapy options. It is thought to decrease symptoms and

inflammation by reducing nitric oxide production in the skin.¹³ Topical Vitamin B12 was found to be superior to placebo in reducing the extent and severity of AD in one study.¹⁴ While there are many compounds of B12, a simple compound for topical Vitamin B12 is 0.07% of cyanocobalamin (B12) powder in any moisturizer base.

Antiseptic use and dilute bleach baths

S. Aureus colonization in AD has been linked with worsening of disease activity. Since a landmark study in 2009 suggested the use of diluted bleach baths to decrease the bacterial load of *S. Aureus* on the skin, it has been commonly used as an antibacterial therapy in the management of AD.¹⁵ A meta-analysis in 2017 of four studies evaluating the efficacy of bleach baths and bath water demonstrated that there was no significant difference between the two in terms of impact on *S. aureus* density or severity of AD.¹⁶ While this recent evidence may raise doubt about the benefits of diluted bleach baths, I regularly recommend diluted bleach baths for my patients with moderate-to-severe AD as an adjunct because the risks with this therapy are relatively low and I have had favourable outcomes in my clinical practice.

Antiseptics are used to decrease or slow the growth of microorganisms on surfaces. They can represent an alternative to topical antibiotics in patients with AD and frequent skin infections with *S. aureus*. The use of antiseptics is not substantiated through good clinical studies. Some advantages of antiseptics over antibiotics include the low potential of inducing bacterial resistance and rarely causing

delayed hypersensitivity reactions or allergies.¹⁷ One of the antiseptics that I often recommend is chlorhexidine gluconate (dexiden 4% detergent or 0.5-1% chlorhexidine added to an emollient). The patient can apply the chlorhexidine in emollient daily or use the antiseptic wash twice-weekly when bathing.

Textiles and Anti-pruritics

Clothing fabrics interact directly with our skin and can sometimes be the cause of irritation and induce itching. Fabric selection for eczema sufferers is an important component of counselling.

There are new synthetic fabrics that may combine anti-microbial, anti-inflammatory, moisture wicking and soothing properties for a patient suffering with AD. Cotton, bamboo and silk have historically been the fabrics that I recommend to most of my patients with AD. Fabrics such as large fibre wool and polyester may cause irritation and induce itch. Small fibre wools, such as ultra or superfine merino wool can be tolerated well by patients with AD and are a good alternative warm fabric in the autumn and winter months.¹⁸ A recent meta-analysis looking at fabric selection in AD found that some emerging fabrics that can potentially reduce atopic dermatitis severity and *S. aureus* burden include, silver-coated, chitosan-coated, and cellulose-based fabrics.¹⁹ I recommend silver-coated clothing for patients with frequent cutaneous infections that use TENCEL technology (a cellulose-based fibre embedded with chitosan) especially for pediatric patients with moderate-to-severe AD.

Itch associated with AD is complex and treatment can be challenging

and disappointing. Treatment strategies are aimed at decreasing inflammation in the skin, treatment of bacterial infections and creating a physical barrier to prevent scratching. There are several household products that clinicians may wish to consider as an adjunct therapy to help relieve itch.

Baking Soda (Sodium bicarbonate)-

Baking soda has been used to soothe and relieve itch and has been investigated as an antimicrobial agent and treatment option for aquagenic pruritus and psoriasis.^{20,21} Sodium bicarbonate has many useful properties including balancing the skin's pH, reducing inflammation, and acting as a natural antibacterial agent.²² The National Eczema Association recommends using a ¼ cup of baking soda in a full tub of warm water and soaking for 10-15 minutes, then rinsing off with warm water and locking in moisture with an emollient.

Colloidal Oat (*Avena sativa*)-

Colloidal oat is the finely ground form of uncooked oatmeal and can readily absorb water and easily mix with creams and lotions.² Colloidal oatmeal helps to provide a skin barrier by holding moisture through its hydrophilic polysaccharides and hydrocolloids. Studies have demonstrated that avenanthramides (a component of whole grains) are responsible for the oat's anti-inflammatory, antioxidant, and antihistaminic activity.^{23,24} Patients may purchase commercially available packaged bath treatments or take oat and grind it in a food processor or coffee grinder until a fine powder consistency is achieved. I recommend using a cup of colloidal oat and sprinkling it into a tub of warm water as the tub is

PILLAR OF AD MANAGEMENT	TREATMENT	RECOMMENDATION	EVIDENCE
Moisturization	Virgin sunflower seed oil	Apply VSO to damp skin twice daily	VSO improved skin hydration and preserved stratum corneum integrity, while olive oil reduced stratum corneum integrity and induced erythema. ⁴
	Virgin coconut oil	Apply VCO to damp skin twice daily	A study comparing topical VCO vs. mineral oil showed significant improvements in SCORAD, TEWL and skin capacitance scores compared with baseline. VCO was superior on all accounts compared with mineral oil after 8 weeks ⁷
	Wet Wraps	1) Apply emollient cream or ointment on damp skin 2) Apply layer of damp Tubifast® garments or wrap gauze 3) Apply final layer of dry Tubifast® garment or wrap gauze on top 4) rewet the garments/gauze every 2-3 hours but stop rewetting overnight	A review of wet wraps concluded that they can be used as an efficacious short-term intervention treatment in children with severe and/or refractory AD ¹⁰ .
Anti-inflammatories	Vitamin B5	Apply commercially available products available for use on active areas of eczema (ie La Roche Posay Cicaplast Baume B5) or compound panthenol 5% in moisturizer of choice	A small study of 30 patients comparing dexpanthenol 5% ointment and hydrocortisone 1% ointment concluded the effectiveness of dexpanthenol 5% ointment may be equal to that of hydrocortisone 1% and can be used as an alternative treatment in mild to moderate AD ¹²
	Vitamin B12	Topical B12 Cream: 0.07g cyanocobalamin (Vit B12), 46g persea gratissima oil (avocado oil), 45.42g water, 8g TEGO care PS or methyl glucose stearate (an emulsifier), 0.26g potassium sorbate (preservative), 0.25g citric acid OR 0.07% cyanocobalamin in moisturizer of choice	A small study of 49 patients compared topical Vitamin B12 to placebo and was found to be superior in regard to reducing the extent and severity of AD ¹⁴
Antibacterials	Dilute bleach bath	¼ cup of bleach in full tub of water, 10-15min soak, then rinse and apply emollient	Bleach baths are effective in decreasing the severity of AD but a recent meta-analysis of four small, randomized trials (116 patients) found that bleach baths were not more effective than plain water baths at 4 weeks in decreasing severity of AD ¹⁶
	Antiseptics	chlorhexidine gluconate (dexiden 4% detergent or 0.5-1% chlorhexidine added to emollient); apply the chlorhexidine in emollient daily or use the antiseptic wash when bathing twice weekly	A systematic review found that topical antibiotics and antiseptics reduced the colonization of skin with <i>S.aureus</i> but could not prove whether treatment with these agents in combination with TCS induced greater clinical improvements compared to TCS alone ¹⁷
Antipruritics	Textiles	Recommended fabrics for AD: cotton, silk, bamboo, ultra or super fine merino wool functional fabrics: silver-coated, chitosan-coated and cellulose-based fabrics	A meta-analysis looking at fabric selection in AD found that some emerging fabrics that could potentially reduce atopic dermatitis severity and <i>S. aureus</i> burden include silver-coated, chitosan-coated and cellulose-based fabrics ¹⁹
	Baking soda bath	¼ cup of baking soda in a full tub of warm water and soaking for 10-15 minutes, then rinsing off with warm water and locking in moisture with an emollient.	Baking soda baths have been used successfully in relieving itch associated with aquagenic pruritus ²⁶ ; There are no studies evaluating baking soda baths and AD although, it is often recommended as a bath additive for symptomatic relief by experts and recommended as part of treatment guidelines for the management of AD in the 2012 Joint Task Force Practice Parameter update ²⁷
	Colloidal oat bath	1 cup of colloidal oat sprinkled into a tub of warm water as it is filling, soaking for 10-15 minutes then patting dry and locking in moisture with an emollient	Colloidal oatmeal powder added to baths or cold wet packs led to complete clearance (29%) and great improvement (22%) of active AD lesions and some improvements in 41% of patients. ²⁵

Table 1. Complementary Therapies used for Atopic Dermatitis and evidence ; courtesy of Angela Law, MD

filling, soaking for 10-15 minutes then patting dry and locking in moisture with an emollient. Anecdotally, patients with open wounds and painful lesions prefer oatmeal baths to bleach baths because of superior tolerability and lack of irritation. In one study, children with AD who bathed with colloidal oatmeal powder achieved marked improvement in their active lesions.²⁵

AD is a challenging disease to treat, and there is no uniform approach for patients. Conventional treatments can offer relief for many patients, but symptoms often relapse, and treatments are not without risk. Some of the complementary options mentioned above are relatively harmless, affordable, and easy enough to incorporate into a patient's regimen. These options are not meant to replace conventional therapies but instead are supplementary therapy to provide more relief for AD patients.

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