

THE FIRST **HEALTH-CARE** PEDICURE



Le'K™

The Movement for Healthier Nail Spas



Essential-Dm

Diabetic & Sensitive Skin

Immuni-7

Immune Defense

C-Pure Calm

Stress Relief & Relaxation

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C-PURE CALM SPA MENU

Stress Relief & Relaxation

ALL EXPERIENCES INCLUDE...

SOAK | SCRUB | MASK | LOTION

Step 1 SOAK



Salt Soak with Lavender/Chamomile

- Lavender & Chamomile: alleviating sore & tired muscles, calming inflammation. Combined with Hemp Oil Extract, immersing the skin in a calming and therapeutic spa experience.

Step 2 SCRUB



Soothing Scrub with Lavender/Chamomile

- Lavender: soothing sensitive skin & helping reduce redness and irritation.
- Chamomile: anti-inflammatory, promoting cell regeneration. Combined with Hemp Oil Extract to create a calming, gentle exfoliation.

Step 3 MASK



Renewal Mask with Lavender/Chamomile

- Lavender & Chamomile are packed with antioxidants to renew sensitive skin. Combined with Hemp Oil Extract, this mask infuses a calming sensation throughout the body.

Step 4 LOTION



Antiseptic Lotion with Lavender/Chamomile

- Chamomile: anti-inflammatory, help with skin regeneration.
- Lavender & Hemp Oil Extract added to this complex creates an experience of pure calm to the body.



Le'K™

ESSENTIAL-Dm SPA MENU

Diabetic & Sensitive Skin

ALL EXPERIENCES INCLUDE...

SOAK | SCRUB | MASK | LOTION

Step 1 SOAK



Salt Soak with Peppermint

- Peppermint: cleanses skin naturally and has antiseptic and antibacterial properties. It's cooling effect subdues irritation while helping to diminish neuropathy pain.

Step 2 SCRUB



Walnut Scrub with Green Tea

- Green tea: a powerful antioxidant with anti-inflammatory properties, soothing and repairing & hydrating sensitive skin.

Step 3 MASK



Cooling Mask with Mint/Eucalyptus

- Eucalyptus & Mint combination: drenching the skin in a super soothing potion, creating a refreshing & relaxing experience while sealing in moisture for lasting hydration.

Step 4 LOTION



Antiseptic Lotion with Green Tea

- Green tea: a powerful antioxidant with anti-inflammatory properties, soothing and repairing & hydrating sensitive skin.

IMMUNI-T SPA MENU

Immune Defense

ALL EXPERIENCES INCLUDE...

SOAK | SCRUB | MASK | LOTION

Step 1 SOAK



Salt Soak with Mint/Eucalyptus

- Mint: anti-inflammatory properties help boost the immune system.
- Eucalyptus: a great antiseptic with healing anti-inflammatory effects, reducing pain and swelling.

Step 2 SCRUB



Walnut Scrub with Pomegranate

- Pomegranate: anti-oxidant, anti-viral properties, anti-aging & inflammation.
- Walnuts: anti-oxidant (vitamin E, Omega-3 fatty acids), hydrating & minimizing signs of aging; softening & soothing rough, dry skin.

Step 3 MASK



Cream Mask with Mint/Eucalyptus

- Eucalyptus: critical for vibrant, glowing skin, anti-inflammatory & super skin soother.
- Mint: relaxing & sealing in moisture for lasting hydration.

Step 4 LOTION



Antiseptic Lotion with Lemon/Lime

- Lemon & lime: refreshing scents, help the body feel rejuvenated, natural disinfectants that help kill bacteria & pathogens on the skin.



IMMUNI-T



ESSENTIAL-Dm



C-PURE CALM



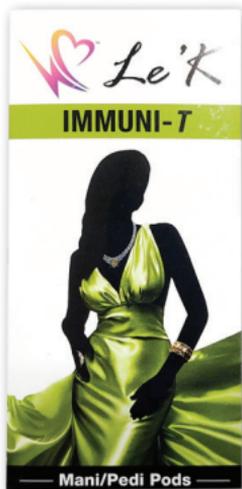


IMMUNI-T

Immune Defense

Strengthens and enhance your immune system with Le'K Immuni-T pedi-pod. This formula contains all natural virus fighting ingredients such as zinc oxide, vitamins A, B, C, & E.

- Step 1: Salt Soak with Mint/Eucalyptus
- Step 2: Walnut Scrub with Pomegranate
- Step 3: Cream Mask with Mint/Eucalyptus
- Step 4: Antiseptic Lotion with Lemon/Lime



ESSENTIAL-Dm

Diabetic & Sensitive Skin

Stimulates healing and blood circulation while alleviating inflammation associated with sensitive skin with Le'K Essential D. This pedi-pod contains all natural ingredients such as arnica, rosemary, green tea, grape-seed extract, and vitamin E.

- Step 1: Salt Soak with Peppermint
- Step 2: Walnut Scrub with Green Tea
- Step 3: Cooling Mask with Mint/Eucalyptus
- Step 4: Antiseptic Lotion with Green Tea



C-PURE CALM

Stress Relief & Relaxation

Fall into a state of pure calm with Le'K C-Pure calm pedipod that contains hemp seed extract, oatmeal, lavender and chamomile to alleviate sore and tired muscles while providing a soothing sensation to sensitive skin.

- Step 1: Salt Soak with Lavender/Chamomile
- Step 2: Soothing Scrub with Lavender/Chamomile
- Step 3: Renewal Mask with Lavender/Chamomile
- Step 4: Antiseptic Lotion with Lavender/Chamomile





IMMUNI-T

MANI/PEDI-POD

“Le’K Immuni-T is not only a therapeutic experience but gives clients the comfort in knowing that they are receiving a treatment that can help prevent COVID in just one box.”

- Dr. Tuan Doan, MD

“Le’K Immuni-T is the first of its kind on the market and is going to give nail salons a huge advantage in protecting their clients against COVID-19. All-natural ingredients backed by years of research from anti-aging doctors help me assure patients that this is a product that they can trust. It helps boost my credibility. There are just so many products out there that make false claims. When patients receive the treatment and see their skin is not only instantly moisturized, softer but also knowing they are protecting themselves against COVID, they know they found a product they can believe in.”

- Dr. Binh Pham, DPM

“Our feet may be the most neglected, yet abused part of our bodies. Caring for your feet, every day is one of the best ways to keep your feet and entire self healthy and prevent problems. Le’K Immuni-T is a combination of functional medicine and luxury that not only treats hurt feet but also gives patients a chance to rest, relax and pamper them which leads to the reduction of stress to the whole body.”

- Dr. Aziz Rasooli, DPM

“Le’K Immuni-T caters to all client needs from immunity, to sensitive skin, to a relaxing and calming experience in one unforgettable treatment. The Le’ K line is where beauty meets science. All-natural ingredients backed by years of research from anti-aging doctors such as myself, it helps me assure patients that this is a product that truly works. The product speaks for itself from its beautiful packaging to the highly thought-out concentrated formulations. This is truly a natural product I can stand behind.”

- Dr. Shannon Wood-Gallegos, NP, MS

“Le’K Immuni-T works at the cellular level to help repair cells that have been attacked by free radicals. It has natural antibacterial and antiviral abilities that only gets more effective over continued use.”

-Dr. Mary Hall, ND, LAc





Le'KTM

Presented by

HCD Anti-Aging Laboratories



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Benzalkonium Chloride

Pandemics raise a lot of questions, specifically in the field of public health. If one occurs, or threatens to occur, scientists rush to figure out what is and needs to be available to combat the illness - whether that be via treatment or through the prevention of transmission. The COVID pandemic of the last few years is no exception. In a few short years, researchers and medical providers have come together to provide vaccinations, treatments, and literature-supported recommendations to prevent the transmission of infection. But, **as the SARS-CoV-2 virus continues to mutate and change, these public health initiatives must adapt.** So, what else is out there?

An already well-respected antimicrobial class of chemicals, known as benzalkonium chlorides, holds significant potential. Their use began in the the early 1900s, gaining market recognition as a potent disinfectant and antiseptic. These days, benzalkonium chlorides are used in a wide range of products within the industry, agriculture, clinical medicine, and personal products. One major reason these chemicals are used in such a widespread manner is that they are known to be **effective with minimal safety concerns.** Other than reports of some skin irritation in sensitive individuals, one is probably unaware they are using and benefiting from these products. (1)

With the current pandemic, antiviral agents have gained a lot of attention. The good news is, **benzalkonium chloride**, though considered a broad-spectrum antimicrobial, seemingly has some significant potential in adding to the host of antiviral products used to combat the spread of SARS-CoV-2. It **has the ability to disrupt the lipid membranes of enveloped viruses, thereby deactivating them**- this includes enteroviruses, rotaviruses, norovirus, influenza virus, rhinoviruses, herpes simplex virus, hepatitis A virus, and thankfully, coronaviruses. (2)

So, what about **SARS-CoV-2**, the specific virus responsible for the **COVID-19 pandemic** still raging worldwide? At first, the research available was scarce, but as time has gone on more and more has been found supporting the use of benzalkonium chlorides in the prevention of SARS-CoV-2 spread and infection.

One study published in early 2021 tested the effectiveness of 0.2% benzalkonium chloride and 0.13% benzalkonium Qimei Hand Sanitizing Wipes. This was important, especially since there has been a shortage of alcohol-based sanitizers throughout the pandemic, due to alcohol-based sanitizers being the only option recommended by the CDC. Hospitals and outpatient healthcare professionals needed another option. The scientists in this study found that **both concentrations were effective in deactivating the SARS-CoV-2 virus.** In their discussion, they cited that in some situations, the benzalkonium chloride-based products **might be even more effective than the alcohol-based products because they were non-toxic and less irritating to the skin than alcohol-containing sanitizers, thus resulting in improved compliance and better hand hygiene** compliance from healthcare workers. These researchers felt so strongly about the data, they concluded benzalkonium chloride-containing sanitizers should be given the same expedited approval to manufacturers, making these products more available worldwide. (3)



Hand sanitizers and topical disinfectants aren't the only places benzalkonium chlorides can provide assistance. A study by Tunon-Molina, et al in late 2021 decided to look into whether these chemicals could be used in personal protective equipment used by healthcare providers, specifically facial protection. Their goal was to develop a transparent face shield with intrinsic antimicrobial activity, thereby reducing surface transmission of disease and the production of infectious waste, another source of potential transmission to healthy individuals. They found that **their single-use face shields, made by coating a transparent polyethylene terephthalate product with benzalkonium chloride, were successful at inactivating enveloped viruses, including coronaviruses.** Their hope is that this novel idea can be translated for use in goggles, helmets, and other forms of personal protective equipment in the healthcare setting. (4)

At HCD Anti-Aging Laboratories, benzalkonium chloride is added to manicure and pedicure formulas for its antimicrobial actions, but it is obvious there is more to the story when it comes to these compounds. Though more research needs to be done in the personal-care product realm, it is likely that its presence is preventing the spread of not only bacterial or fungal infections but also of viral infections, specifically against our biggest current adversary, the SARS-CoV-2 virus.



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C-Pure Calm

Stress affects everyone - whether it be physical or mental. It affects our work, our relationships, and most chronically, our health, with many diseases having well-established correlations to the presence of chronic stress. To manage, some partake in self-care, such as making an appointment for a spa treatment, while others take supplements, or use essential oils; others may exercise or meditate, and the list goes on. **At HCD Anti-Aging Laboratories, Inc, researchers have tried to bring together the idea of self-care with medicine, creating the C-Pure Calm Mani/Pedi-Pod treatment containing lavender, oatmeal, chamomile, and magnesium, all of which have literature to support their use when it comes to stress-management and overall health.** Medicine doesn't have to always be scary, or painful; this treatment hopes to prove just that.

Hemp oil is one of the few oils that contain about 80% polyunsaturated fats in an optimal ratio of omega-6s to omega-3s. In combination with its high flavonoids, antioxidants, and tocopherols (Vitamin E derivatives), it can potentially have numerous benefits for the human body, especially for the skin (1). In regards to the omega content, research supporting the topical application of hemp oil is in its early stages; however, there is research supporting the use of other omega-rich oils for skin support. In 2019, linseed oil, evening primrose oil, and olive oils were found in animal studies to **accelerate wound healing**; much of this effect was attributed to the **formation of new microvasculature** while modulating inflammatory and anti-inflammatory pathways (2). Hemp oil, based on its content, should be no different, **hydrating, oxygenating, and reducing inflammation in the skin.**

Other than using hemp oil, the formulators of the **C-Pure Calm Mani/Pedi Pod** also worked to incorporate traditional herbal modalities supported by years of clinical use and research. Two of the botanicals - **lavender and chamomile**, have benefits when it comes to skin health as well as the ability to benefit psychological conditions, specifically stress. Topically, lavender essential oil has been shown in multiple studies to **support wound healing**. A review of current research by Samuelson et al in 2020 stated that many of these studies found the daily application was able to improve healing time, **increase the expression of collagen thereby strengthening the skin**, and enhance the activity of proteins known to be involved in the skin/tissue remodeling process (4). **Chamomile**, in one review, was found to reduce transepithelial water loss, thereby **hydrating the skin**; this was evidenced by diminished levels of skin roughness, scaliness, and wrinkles (5). These herbs together not only calm the skin but also are quite respected when it comes to calming the mind.

The **C-Pure Calm Mani/PediPod**, due to the aromatherapy aspects of lavender and chamomile, has a **direct effect on stress levels**. Lavender alone is possibly the most well-respected and most-researched essential oil - studies show **benefits on stress, depression, and anxiety levels** in a number of situations including the postpartum period, in those recovering from cardiovascular events, in individuals with job stress, and in patients recovering from surgery. Chamomile, also well-studied, has been shown to **alleviate depressive symptoms, improve sleep quality, reduce anxiety, and even modulate the diurnal cortisol pattern** in a beneficial way. Citing these benefits, Ebrahimi et



al 2022 studied the effects of both lavender and chamomile essential oil when inhaled nightly for over one month. They found both were able to significantly decrease depression, anxiety, and stress levels in the elderly population they studied.(6) By including both in the **C-Pure Calm Mani/PediPod**, the **scent while experiencing treatment should instill a sense of calm, helping promote self-care.**

The last herb included in the **C-Pure Calm Mani/PediPod** is Avena sativa, commonly known as **oatmeal**. Traditionally, it has been used for centuries on the skin to treat rashes, burns, eczematous conditions, itching, and redness (7). Evidence now shows that its success in treating these conditions can be attributed to avenanthramides, compounds with both **anti-inflammatory and antihistamine** mechanisms. The avenanthramides **directly inhibit the release of pro-inflammatory molecules known as cytokines and histamine.** (8) By reducing inflammation and the allergic response, topical chamomile has the ability to soothe the skin and keep it looking bright and healthy.

Magnesium, an important mineral for whole-body vitality, has also been included. It is used by healthcare professionals as an oral supplement for various concerns but frequently is also used topically. Epsom salts, a consumer product containing mainly magnesium salts, are touted to **promote relaxation, relieve muscle tension, and soften and exfoliate the skin.** Currently, research is limited, but physiologically it is well known that magnesium plays an important role in **maintaining the skin barrier, immune modulation, and hydration** (9). This has been seen in more clinically relevant studies looking at mineral mixes, especially Dead Sea salts, which are magnesium-rich. In 2005, Proksch et al showed that bathing in these salts significantly improved skin barrier function as evidenced by improved hydration, reduced skin roughness, and reduced signs of inflammation in patients with atopic dry skin or dermatitis (10), which is consistent with the known roles of magnesium in the body.

These natural and safe compounds are combined with **benzalkonium chloride**, that is known to be minimally irritating to the skin. Researchers have worked diligently to combine the traditional medicinal philosophies with modern medicine providing a new, novel way to support patients suffering from various skin conditions. **The C-Pure Calm Mani/PediPod formula, containing lavender, chamomile, oatmeal, and magnesium, truly** combines beauty, health, and self-care. It successfully provides a spa treatment, while clinically reducing stress levels, and supporting the health and vitality of the skin, while being supported by years of scientific research.

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Immuni-T

Salons offer a number of treatments that are aimed at supporting beauty and self-care. Generally, treatments like pedicures, one of the most common offerings at salons, are relaxing and moisturizing for the skin, but offer little more than that. In the medical world, podiatrists work with patients every day to treat and prevent infections, skin injury, and other ailments, specifically with the feet. **At HCD Anti-Aging Medical Laboratories, Inc, we thought to combine beauty and self-care with podiatry, designing the medical-grade Immuni-T PediPod, which includes a vitamin and mineral soak that supports immune and skin function with an antiseptic ingredient, known as benzalkonium chloride.**

Skin is the most vulnerable organ of the human body. Ensuring that it is supported, especially when it comes to its strength, ability to heal, and functionality can be tantamount to aging gracefully. Research suggests that various nutritional and environmental interventions, including those included in the Immuni-T PediPod formula, have the ability to support these aspects of the skin, improving health outcomes throughout life. (1) **This formula, specifically designed for skin support, contains vitamin C, vitamin E, vitamin B-complex, vitamin A, and zinc, all of which are supported by research.**

Vitamin C is a well-known **antioxidant**; in human skin, it is actually the most abundant antioxidant with multiple important roles in maintaining skin health and integrity. Though as a society we consume a lot of it, whether, through food or oral supplements, only a small amount ingested is biologically active in the skin. Thankfully, when applied topically it is well supported in having **antioxidative, photoprotective, antiaging, and anti-pigmentary effects.** Much of this can be **attributed to the role of vitamin C in collagen formation, which strengthens the skin, preventing injury and reducing signs of aging.** (2)

As an antioxidant, vitamin C can protect against photoaging, UV-induced immunosuppression, and photocarcinogenesis by neutralizing the oxidative stress these things induce. For example, one double-blind, placebo-controlled study showed that the topical application of 10% vitamin C over three months showed a significant reduction in photoaging scores and improved wrinkling. At the same concentration, vitamin C has also been shown to reduce UVB-induced erythema (visual burn) by 52 percent and sunburn-related cellular damage by 40-60%. This ultimately means it can help reduce the risk of skin cancers developing. (2)

Synergistically, vitamin C also interacts with another ingredient in the Immuni-T PediPod; specifically, vitamin E. **Though vitamin E has its own actions when it comes to skin health, vitamin C is essential to its replenishment within the skin,** as it is depleted rapidly by UV light exposure. By working to keep levels where they should be, vitamin E can therefore function to its full potential. (2)

Vitamin C and vitamin E have a very similar mechanism of action when it comes to the skin. **Vitamin E is a fat-soluble, lipophilic vitamin that gained popularity in dermatology and cosmetics due to its antioxidant properties, resulting in its having antitumorigenic, photoprotective, and**

skin barrier stabilizing properties (3). Though more studies are needed to elucidate vitamin E's direct success on skin health in humans, there are studies that show topical exposure is the best way to ensure the skin has an adequate amount of this vitamin. One done in 2004 by Tavokkol et al, showed this by measuring the amount of vitamin E in the stratum corneum layer of sun-exposed skin with either topical or oral vitamin E supplementation. Though both were able to improve levels, **the topical application was significantly more effective at replenishing lost vitamin E levels after sun exposure.**

(4) The Immuni-T PediPod ensures the skin is exposed to topical vitamin E, replenishing the skin after a day in the sun.

Vitamin A, another fat-soluble vitamin included to support skin health in the Immuni-T PediPod formula, plays a crucial role in skin health, especially when it comes to skin cell turnover, collagen formation, and elastin production.

Therefore, it works to make skin firmer and thicker, improving wrinkles and preventing injury. Similar to vitamin E, vitamin A can easily become depleted, both by UV exposure or dietary deficiency; by supplying it topically, the skin is given a dose to support these physiological processes. (5) One study, by Kafi et al in 2007, was able to show that topical retinol (vitamin A) applied up to three times per week for six months was able to significantly improve the fine wrinkles associated with natural aging. They found that this was done by inducing glycosaminoglycan, which retains moisture in the skin, and by increasing collagen production. They reported less reported injury and improved skin appearance at the end of the trial. (6) For these reasons, it was included in the Immuni-T PediPod, promoting healthy and strong skin.

There are a number of B vitamins that play important roles in human physiology. Though all are likely important to skin health, two have been well researched as topical applications – **niacinamide/nicotinamide (vitamin B3) and dexpanthenol (vitamin B5).** **Vitamin B3 is considered an antipruritic, antimicrobial, vasoactive, photo-protective, sebostatic, and lightening agent when applied topically.** (7) Because of these actions, has been cited as a treatment for **acne, melasma, atopic dermatitis, and rosacea** (8). It is included in the Immuni-T PediPod to reduce irritation, cleanse, and protect the skin.

Dexpanthenol, a form of vitamin B5, is also well used and respected in the cosmetic industry and included in the Immuni-T PediPod. It is known to improve the hydration of the skin by reducing water loss and supporting epidermal barrier function. It also is able to reduce skin inflammation when applied topically, reducing redness from sun exposure and improving wound healing. One review cited it also reduced skin irritation, including dryness, scaling, and itching when applied topically over 3-4 weeks with minimal risk of skin irritancy or sensitization, making it a great broad-spectrum additive to support skin vitality. (9)

Niacinamide and dexpanthenol, though the most widely researched, aren't the only B vitamins with supportive research on topical use for skin health. In 2009 researchers performed a double-blind, randomized, placebo-controlled study looking at the success of topical vitamin B12 as a treatment for childhood eczema. They found that those receiving topical B12 had significant improvement in symptoms at 2 and 4 weeks when compared to placebo. (10) That being said, other B vitamins are used, especially orally for skin health.



For the purposes of the Immuni-T PediPod, the B vitamins used topically are focused on.

Zinc, the last therapeutic ingredient in the Immuni-T PediPod, has been used for centuries as a therapy for skin symptoms. Review studies have cited use in sunscreens to protect from UV exposure, as a soothing agent, or in shampoos to reduce dandruff. More recently, it has also been used for skin infections, inflammatory skin issues, and even skin cancers. **Much of these effects are attributed to its antioxidant actions, but it is also respected as an antimicrobial, anti-inflammatory, and cofactor for various physiological processes.** (11)

These natural and safe compounds are combined with **benzalkonium chloride**, that is known to be minimally irritating to the skin. Researchers have worked diligently to combine the traditional medicinal philosophies with modern medicine providing a new, novel way to support patients suffering from various skin conditions. **The Immuni-T PediPod formula, containing vitamin C, vitamin E, vitamin A, vitamin B, and zinc truly combines beauty, health, and self-care.** It successfully provides a spa treatment, while clinically improving the health and vitality of the skin, while being supported by years of scientific research.



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Essential-Dm

According to the Centers for Disease Control, **an estimated 37.3 million Americans have diabetes, that's about 11.3% of the entire population.** On top of that, another 96 million adults have prediabetes, making this one of the single most damaging and prevalent diseases in the United States (1). Unfortunately, the health issues related to diabetes are physiologically widespread, affecting multiple organ systems. This results in an array of uncomfortable and hard-to-treat symptoms that researchers at **HCD Anti-Aging Laboratories** are working diligently to relieve. The **Essential-Dm Mani/PediPod manicure/pedicure formula**, with ingredients supported by research, is one treatment they have provided, specifically to **support skin ailments caused by diabetes.**

Epidemiologic research has shown that in a whopping 79.2% of individuals with diabetes, skin conditions will be present. This includes an array of microbial skin infections and inflammatory skin diseases, as well as chronically dry skin, all of which can result in uncomfortable and hard to treat symptoms (2). Because diabetes is so hard to treat with success, finding alternative ways to prevent and support these presentations can be essential to maintaining the quality of life.

The **Essential-Dm Mani/PediPod** contains ingredients to nourish and protect the skin with the goal of soothing current issues while preventing future problems. By combining medical philosophies from both eastern and western traditions, it has been designed to include **green tea extracts, grape seed extract, rosemary, arnica, vitamin E, and benzalkonium chloride**, all of which contain anti-inflammatory and/or antimicrobial properties.

A concern with diabetic patients is that when blood sugars are uncontrolled long-term, peripheral circulation is reduced, and therefore so is the ability of the skin to heal - in some cases, this can be so severe, that patients can lose the limb. **Green tea, containing a high relative content of an active polyphenol known as epigallocatechin gallate, or EGCG, is one medicinal herb that can combat some of these skin concerns, specifically by supporting wound healing.** Though the specific mechanisms are quite complex, **EGCG has been found to have antioxidant, anti-inflammatory, antimicrobial, angiogenic, and antifibrotic properties**, which benefit all stages of wound healing (homeostasis, inflammation, proliferation, and remodeling). (3)

A 2019 animal study looked a little closer. They referenced the knowledge that in mice with diabetes, the persistent inflammation in the later stages of wound repair is specifically what delays healing. They found that **EGCG, the active constituent in green tea, was able to inhibit the accumulation of white blood cells, the inflammatory cascade, and a specific signaling pathway known as Notch-1.** Therefore, they concluded that EGCG was a novel potential medicine to treat chronic wounds, especially in diabetic patients. (4)

Grape seed extract, another ingredient of the **Essential-Dm Mani/PediPod** formula, is also supported in the literature as a treatment for wound healing and other diabetic complications. Though it is usually thought of as an oral supplement, a 2014 study by Hemmati et al, showed it's potential benefit

when applied topically. These researchers performed surgery on small skin lesions, with the study group receiving 2% grape seed extract cream and the controls receiving a placebo. After monitoring the healing process for 21 days, they found that the treatment group had complete repair of wounds by day 8, compared to day 14 in the control group, which was statistically significant. They attributed this success to the ability of the grape seed extract to **release endothelial growth factors, therefore closing the wound and improving circulation, as well as its ability as an antioxidant and antibacterial, reducing inflammation and the risk of infection.** (5) In diabetics, where wounds go unnoticed and healing times are extended, this could be a novel way to prevent complications.

Though **rosemary** is also known to improve wound healing, it has a bit more of a broader spectrum when it comes to its actions on skin health. The ability of its active constituents to act topically as an **antioxidant and anti-inflammatory** has made it a commonly used herbal medicine both in the pharmaceutical and cosmetic industries. For example, carnosic acid, one of the active molecules in rosemary, was found to act as an anti-inflammatory, specifically by mediating microcirculation – **pharmaceutically, this would improve healing and skin health; cosmetically, it would reduce redness, swelling, and signs of aging.** A comprehensive review of potential topical applications also cited studies touting **rosemary as an anti-fungal, a protectant against UV damage, adjunctive treatment for skin cancers, a possible treatment to improve the appearance of cellulite, and a possible promoter of hair growth in individuals with alopecia.** (6) All these potential benefits is what led it to be added to the **Essential-Dm Mani/PediPod** formula.

The last herb included in the formula is colloquially known as **Arnica**. Though most commonly thought of as a strictly musculoskeletal herb, the actual mechanisms behind why it works for strains, sprains, and bruising may indicate significant implications on skin health. Much of arnica's success in studies is attributed to its **strong antioxidant activity**, with one study finding that at concentrations up to 100 mg/L, it possessed a significant protective effect against hydrogen peroxide-induced oxidative stress (inflammation), especially in skin cells. (7) In the skin of diabetics, an imbalance of free radicals and antioxidants within the skin cells causes tissue damage and delayed wound healing. (8) Therefore, **supplying the strong antioxidants from arnica to the skin causes an overall improvement in tissue health, hydrating, protecting, and repairing the skin.**

Herbs aren't the only remedies that are in the **Essential-Dm Mani/PediPod**, however. **Vitamin E**, a fat-soluble vitamin known for its significant health effects, has also been included. Like many of the herbs, much of vitamin E's popularity in dermatology and cosmetics is attributed to its antioxidant properties. However, it also has the ability to moderate the biosynthesis of collagen and glycosaminoglycans in the skin. Therefore, on top of supporting wound healing, reducing inflammation, and hydrating the skin, it also supports the integrity and strength of the skin itself. (9) This could prevent known diabetic complications such as infection or ulcer formation. In addition to these topical effects, **vitamin E has shown to have neuroprotective and cardioprotective effects when taken orally.** Both circulatory and nerve conduction issues occur in diabetics, especially when blood sugars are poorly controlled. Theoretically, topical application of vitamin E could benefit



superficial nerves and microvasculature, improving outcomes with diabetics experiencing complications. (10)

These natural compounds are combined with **benzalkonium chloride**, that is known to be minimally irritating to the skin. Researchers have worked diligently to combine traditional medicinal philosophies with modern medicine, providing a new, novel way to support patients suffering from various skin conditions. The **Essential-Dm Mani/PediPod** formula, containing **green tea extracts, grape seed extract, rosemary, arnica, and vitamin E**, truly combines beauty with health, **specifically formulated with diabetic patients in mind**, preventing and aiming to heal painful, often debilitating symptoms.

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