Hemp and Cannabinoids for Beauty and Skin Disorders

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U034 - Scientific Studies Which Support the Topical Use of Hemp, CBD, and THC for Anti-aging, Psoriasis, Eczema, and Acne

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Hemp Oil for Beauty

• Hemp oil has trace levels of THC that are just enough to offer an antioxidant effect to combat wrinkles and fine lines
• Hemp oil heavy in omega3 and 6s, which are essential for moisturizing dull skin
• Hemp creams aren’t designed to penetrate the skin or enter the bloodstream
• Besides CBD, hemp oil contains vitamins A, B,C, D, and E
Hemp-The “New” Cosmeceutical Ingredient

• Although hemp seed oil is produced from the seeds of the Cannabis Sativa plant, it does not contain significant THC, (delta-9-tetrahydrocannabinol)

• When you press the seeds of the industrial hemp plant, you get oil, which contains lots of nutrition but only trace amounts of THC
Hemp-The “New” Cosmeceutical

• Anti-inflammatory and moisturizing properties that make hemp wonderful for skin care

• Hemp molecules are extremely small, penetrating into the skin better than most creams

• Hemp can be added to almost any cosmetic product, and has been
Hemp Oil for Hair

• Malin + Goetz Hair Pomade uses hemp for moisture, definition, texture, styling
• Nature’s Gate Hemp + Argan Oil Nourishing Shampoo for hair
• Marley Natural Hemp Seed Body Wash and Body Lotion
Hemp-The New Cosmeceutical Ingredient

• There are many brands already with hemp as a key ingredient:

• Walmart and Ulta both sell full lines of hemp topicals
Cannabinoids from Hemp vs. Marijuana

- Cannabinoids come from marijuana or hemp plants
- Both are varieties of Cannabis
- Hemp contains less than .3% THC and marijuana contains more than .3% THC
- Each one comes with its own legal status
CBD from Hemp Vs. Marijuana

- CBD extracts which are produced directly from cannabis flowers are up to 15 percent CBD (150,000 ppm)
- CBD extracts can be produced indirectly from hemp manufacture
- CBD from hemp plants are usually only 25 parts per million (25 ppm vs. 150,000 ppm from cannabis flowers)
Cannabinoids from Hemp vs. Marijuana

- Federal, state, local, DEA, Hemp Industries Association- different views of what should be legal
- Federal US Attorney General Jeff Sessions against cannabis
- 33 states have okayed hemp cultivation for industrial use
- States are in the process of making marijuana medically legal
- 20% of states- recreationally legal
- Hemp CBD products currently being sold on the internet
- Products containing more than .3% THC can be sold in medical marijuana and recreational marijuana stores in states and localities where it is legal
Cannabinoids History

- First isolated from Cannabis in 1940 by Roger Adams, the structure of CBD was not completely understood until 1963
- Early studies - accepted view that THC was the 'active' principle of Cannabis and research then focused primarily on it, to the virtual exclusion of CBD
The Endocannabinoid System in Skin Health

• The skin has an endocannabinoid system of its own, helping to regulate the production of various hormones and proteins, including cytokines, which are also involved in the immune response

• Caterina- 2014- cannabinoid lipids regulate numerous sensory, homeostatic, and inflammatory events in the skin
Cannabinoid Receptors and Endocannabinoids

- Human tissues have at least 2 types of cannabinoid receptors, CB1 and CB2

- CB1 receptors are expressed mostly at nerve terminals where they mediate inhibition of neurotransmitter release

- CB2 receptors are found mostly on immune cells, where they modulate cytokine release
Cannabinoid Receptors

- Cb1 receptors usually involved with euphoria found mainly in the brain, but also in the skin.

- Cb2 receptors usually involved with the anti-inflammatory qualities mainly found in skin and other peripheral organs.
Skin and the Endocannabinoid System

- 2015- Mauro Maccarrone’s multi-national study showed that keratinocytes are part of the peripheral endocannabinoid system.

- The researchers showed a unique signaling mechanism of CB1 receptors, which has important implications in epidermal differentiation and skin development.
Cannabinoid Receptors and Endocannabinoids

- Cannabinoid receptors found in smallest nerve fibers controlling hair follicles
- Keratinocytes bind anandamide, the most common endocannabinoid
- Development of CB1- and CB2-selective agonists and antagonists
- In the future we can have more targeted cannabinoid therapies
Cannabinoids
CBD for Anti-Aging

- 2010- *Journal of Investigative Dermatology* - manipulation of the endocannabinoid system can help regulate the life cycle of basal cells for more radiant, youthful skin

- 2012 - *Neurobiology of Aging* - mice bred without CB-1 receptors showed increased skin aging
CBD and Cannabinoids for Beauty

- Cannabis and CBD hemp creams are the next big thing in skin care
- There are many lines already!
CBD and Cannabinoids for Beauty

• Pericone’s Cbx Men’s skin care line with phytocannabinoids

• NYTimes article Feb1, 2018 on how “in” CBD skin care is

• Stars using CBD skin care

• Re-branding and marketing the trendsetting cannabis beauty lifestyle

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Stars are now slathering themselves with cannabis lotion

Olivia Wilde, Jessica Seinfeld, Stacy London
Cannabis for Beauty

• Pro-pot day spas are also coming into vogue
• Spas incorporate cannabis-spiked creams into their most popular body treatments and massage
• Many marijuana dispensaries have been aligning themselves with the idea of a spa, adopting similar offerings, like massage, acupuncture, “medicinal” smoothies, and consults with naturopaths
Cannabinoids in Acne, Seb Derm, and Dry Skin

- *The Federation of American Societies for Experimental Biology (FASEB) Journal* - cannabinoids produce lipids that regulate acne vulgaris, seborrhea and dry skin
Cannabinoids in Acne and Seborrhea

- 2014- Olah - CBD behaves as a highly effective sebostatic agent
- CBD inhibited the lipogenic actions of various compounds in human cultures
- CBD suppressed sebocyte proliferation, thereby inhibiting sebocyte lipogenesis.
- CBD also exerted complex anti-inflammatory actions
- Therefore, Olah thought CBD a promising agent for treatment of acne vulgaris
Cannabinoids in Acne and Seborrhea

• 2015- Ali and Aktar- 3% cannabis to one side of face 2x/day x 12 weeks

• 3% cannabis cream-treated side-decreased sebum and erythema

• Safe and well tolerated

• 3% cannabis cream suggested for the treatment of acne vulgaris and seborrhea.
Cannabinoids and Itch

- Cannabinoids effective for pain
- Itch and pain share common pathways
- Cannabinoids a rational tx for itch
- Anandamide (AEA)- endogenous agonist of cannabinoid receptors
Cannabinoids and Itch

- Todurga- 2016- in mice a cannabinoid agonist reduced serotonin-induced itching in a dose-dependent manner
- BUT no change in results when neurotoxins depleted serotonin and noradrenaline
- So, cannabinoids may work independently of descending serotonergic and noradrenergic inhibitory pathways from spinal cord
Cannabinoids and Itch

• Palmitoylethanolamide or PEA stimulates anandamide, activating cannabinoid 1 (CB1) receptors

• Stander- 2006 - 14/22 patients with prurigo, lichen simplex, and pruritus had good anti-itch effect with topical cream with PEA

• 86.4% reduction in itch
Cannabinoids and ESRD Itch

• Szepietowski – 2005- 8 of 21 patients with ESRD- cannabinoid cream with structured physiologic lipids 2x/day x 3 weeks totally stopped their itching

• No correlation between severity of dry skin and severity of itch

• At 3 weeks- complete elimination of dryness in 81% of patients
Hemp Seed Oil for Eczema

- Hemp seed oil - some success with the symptoms of psoriasis and eczema.
- High concentration of polyunsaturated fatty acids (PUFAs) are believed to reduce itching and inflammation
- Linoleic acid in particular is thought to be particularly effective.
Dietary Hemp Seed Oil for Eczema

• Dietary hemp seed oil makes the epidermal fatty acid profile like ‘normal’ skin
• 2005, Dr. J. Callaway- treatment of eczema using hemp seed oil:
  Skin dryness and itching improved significantly in eczema patients after using hemp seed oil for 20 weeks
  Hemp seed oil increased levels of linoleic acid & α-linolenic acid
Cannabinoids in Eczema

• Cannabinoids are almost exclusively found in Cannabis...hemp and marijuana

• Cannabinoids are well-known to play a role in regulating inflammation, and this may be the key to their ability to treat eczema
Cannabinoids in Atopic Dermatitis

- Leonti- 2010- *falcariol* which selectively alkylates the anandamide binding site in the CB (1) receptor, acting as an inverse agonist in CB(1) receptor cells

- Anti-allergic effects of *anandamide*

- *Falcariol-associated dermatitis- antagonism of the CB(1)R in keratinocytes, increased chemokine expression and aggravation of histamine action*
Cannabinoids Lessen TH2-Type Allergic Inflammatory Responses in Atopic Dermatitis

• Gaffal- 2014- CB 1 receptors in mouse keratinocytes lessened induced atopic-like dermatitis

• Mice lacking CB1 receptors were sensitized and challenged. CB1 receptor-deficient keratinocytes secreted increased levels of a proinflammatory mediator that drives Th2-type skin inflammation in atopic dermatitis
Topical Cannabinoids in Atopic Dermatitis

- Another study took seven phytocannabinoids and investigated them for topical anti-inflammatory activity in a mouse ear dermatitis assay.

- Results - involvement not only of cannabinoid receptors, but also other inflammatory end-points targeted by phytocannabinoids were important in the regulation of dermatitis in mice.
Kim confirmed Gaffal’s findings in 2015, in humans, not just mice.

Topical application of CB1R-specific agonist significantly accelerated the recovery of epidermal permeability barrier function and slowed anti-inflammatory activity in both acute and chronic inflammation in eczema.
Cannabinoids in the Treatment of Atopic Dermatitis

- 2016- Nam- CR-1 agonists regulate mast cell activation in atopic dermatitis
- CB1R inhibited release of inflammatory mediators without causing cytotoxicity
- Anandamide markedly suppressed mast cell proliferation
- Topical anandamide suppressed recruitment of mast cells into the skin and reduced the levels of blood histamine
Cannabinoids in the Treatment of Eczema and Psoriasis

- AXIM Biotechnologies launched human clinical trials in March 2016 based on their topical ointment that includes CBG and other cannabinoids.

- The ointment will be tested with different concentrations of cannabinoids.

- If results are successful, AXIM® will register an ointment called Renecann™ for psoriasis and eczema.
Hemp Seed Oil for Psoriasis

- 80% of those in online forums report improvement in their psoriasis with CBD creams

- Eskimos with high PUFA diet rarely have psoriasis
Cannabinoids Inhibit the Affected Immune Cells and Symptoms in Psoriasis

• Namazi-2005-cannabinoids a novel, potential treatment for psoriasis

• Exerted inhibitory effects on antigen processing, macrophage/T-cell interaction, and release of IL-2, TNF-alpha and nitric oxide from immune cells
Cannabinoids in the Treatment of Psoriasis

• 2007- Wilkinson investigated THC, CBD, CBN, and CBG for ability to inhibit hyper-proliferating human keratinocyte cell line

• Results confirmed that cannabinoids help inhibit keratinocyte proliferation

• Potential role for cannabinoids in the treatment of psoriasis
Cannabinoids to Treat Psoriasis

- Psoriasis- up-regulation of keratins K6 and K16

- 2013-Ramot showed that CBR 1-mediated signaling down-regulates the expression of keratins K6 and K16 in human keratinocytes

- Cannabinoids and their receptors a control element of human K6 and K16 expression, and thus, psoriasis
Pathways Postulated to Connect the Nervous and Immune Systems in Psoriasis

• Derakhshan -2016- postulated that the interaction between the nervous and the immune systems in psoriasis was through a cholinergic anti-inflammatory pathway and the endocannabinoid system.
Angiogenic Pathway Moderated by Cannabinoids Also Involved In Psoriasis

- Norooznezhad -2017- JWH-133, a synthetic cannabinoid with strong anti-angiogenic and anti-inflammatory activities, INHIBITED hypoxia inducible factor-1 α (HIF-1 α), vascular endothelial growth factor (VEGF), matrix metalloproteinases (MMPs), basic fibroblast growth factor (bFGF), Angiopoitin-2, IL-8, IL-17, IL-2, cellular adhesion molecule 1 (ICAM-1) and vascular cell adhesion molecule-1 (VCAM-1) in vivo & in vitro
Cannabinoids and Skin Health

• So, we have many studies documenting the contributory nature of cannabinoids and their receptors in the treatment of acne, seborrhea, eczema, psoriasis, and anti‑aging.

• In the next few years there is an expectation for targeted cannabinoid therapies to better control these chronic skin problems and improve the youthful beauty and appearance of our skin.
Great Sources of Medical Education on Cannabis and Cannabinoids

• 1) Greenflowermedia.com

• 2) TheAnswerPage.com....you can earn CME’s here

• 3) Holistic cannabis academy.com

• 4) NUNM give CME classes
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