

Influence of Emu Oil on Skin Thickness In Older Individuals

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As we age, there are a number of issues that set us up for complications in our daily lives. There is a change in our skin thickness, so we are always interested in that and looking to change some of that. There is loss of elasticity and of the adherence to deep tissue – some of that sagging that you get is due to this. Langerhans cells are also decreased, and so immunocompetence is declining with age, and we are more prone to skin infections. There is also probably a decline in that ability of the skin to synthesize lipids, so this is the principal benefit we are aiming for when we apply oils. Skin dryness also increases with age.

The consequence is that there is a loss of the integrity of the skin, and then a decline in the ability to repair this. You are also at a greater risk for insults to the skin/body.

Dr. Hollick has done some studies with mice, applying emu oil to their skin with corn oil as the negative control. Epidermal growth thickness and, believe it or not, hair growth increased. His comments were that there was increased thickness although I don't know what that number was, and 80% of resting hair follicles were "charged". The bottom line is, you have to have a hair follicle for it to be rejuvenated. Emu oil will not make hair follicles.

Dr. Pugliese, last year, did another study on skin thickness using ratite oils (ostrich, rhea, and emu), with retinoic acid (Retin-A) as the positive control and mineral oil as the negative control. There were probably 4-5 mice per group. The findings from that mouse study was that the Retin-A gave marked hyperplasia. The ratite oils gave anything from mild hyperplasia to the mosaic effect seen with Retin-A. The mineral oil, to our chagrin perhaps, also gave a positive response. But this is because it is an irritant, and it gives a different hyperplasia to the response you see with Retin-A. We also looked at fish oil and chicken oil. These did not demonstrate any topical activity.

The next study that Dr. Pugliese did for us was to take a look at elderly individuals and see what their response was to the topical application of emu oil. So we recruited 8 people. In retrospect, there is a little problem here since they were unbelievably healthy Mennonites. These people, then, were a little unusual. The average age was 72. We did throw in one unusual patient who was 38, who had scleroderma, so she lowered the average age. The average age would have been 77 otherwise, and there were 4 patients that were over 80, or at least claimed to be. I didn't check birth certificates or anything, but these church Mennonites cannot lie, so we had to accept this. They were instructed to apply emu oil at least nightly (but more often if they wanted to) to the back of the non-dominant hand. That is what we measured to skin thickness on. The study was 6 weeks in duration.

Most of the mice studies had been of about a 5-day duration. I was always a little concerned about what you can do to the skin of a newborn in just 5 days, and how applicable that would be to humans. I think you would probably need a longer time frame.

This (SLIDE SHOWN) is sort of a summary of the 8 patients, looking at the summation of the epidermis and papillary dermis changes. There is a huge variation in skin thickness between individuals, so if I just gave you the raw numbers, it becomes a little tricky. That's why you need to look at the relative change. (percent change). Let me point two out. Patient 6 is the young lady in the group who had the scleroderma. There was essentially no response. I was looking for a miracle cure for scleroderma, and this study suggests that it's not emu oil. And this other individual with zero change was an individual who claimed he was 84. He was what you would call "ham hands." They were so big he could not purchase gloves. I think he plowed with his hands. They were the hardest hands I've ever seen, and when you put emu oil on them it would just dissipate right away. So I thought this could be interesting. But maybe he needed quarts of emu oil, instead of the two ounces that we gave. He had no change. So there are limits, and he could have been an individual that did not follow the protocol as closely as the others. Anyway, his hands were different.

The changes are of the order of 9.9 to 10.6%, depending on which portion of the skin you looked at. Combined, there was an 8% increase in skin thickness from 6 weeks of application of pure emu oil.

Most of the other products that I'll be talking to you about in later sessions are formulation, looking to make enhancements. If you haven't tried emu oil, it's of course grease. It depends on how interested you are in applying grease anywhere – to your hair, to your hands, etc. Formulations that take some of that greasiness with probably be important to us.

I will elaborate more later about the fatty acid roles. The fatty acids are probably what contribute more to the changes. I'll give more details in the next talk.

Here are some slides to show you what the scans look like (SLIDES SHOWN). This section right up here is the epidermis, and this software program within the equipment allows you to determine the thickness changes. This area in here is the papillary dermis. You can look at density, and there are a number of different measures that you can follow with this type of equipment, all depending on the internal software for those interpretations.

(end of skin thickness part of talk)

FOOTNOTE: In response to the question of whether skin thickness change was measured at the beginning and at the end of the study, or between the two hands (one with emu oil applied, the other without), Dr. Hopkins said that only skin thickness of the emu-oil-treated hand was measured – first at the beginning of the study, then at the end.