

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. 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. 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 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). 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.

The fatty acids are probably what contribute more to the changes.