Natural plant oils: the best topical agents to use on baby skin?

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While completing a baby check on a healthy 2-day-old, a parent asks you about some areas of dry, cracked and flaky skin they have noticed on their infant. They have heard that natural plant oils are the best remedy and would like to know your opinion.

Structured Clinical Question

In healthy neonates with dry skin (*population*), does topical application of natural plant oils (*intervention*) or synthetic emollients (*comparison*) lead to the best dermatological results (*outcome*)?

Search criteria	Studies (RCT’s)
(neonat* OR baby) AND skin	40,848 (1038)
(neonat* OR baby) AND skin AND oil*	275 (49)
(neonat* OR baby) AND skin AND (natural OR plant) oil*	97 (24)
(neonat* OR baby) AND skin AND (natural OR plant) oil* AND emollient*	26 (14)

Citation	Study group	Study type & level of evidence	Outcomes	Key findings	Comments
Influence of sunflower seed oil or baby lotion on the skin barrier function of newborns: A pilot study. Kanti et al: J Cosmet Dermatol 2017; 16(4): 500-507.	50 healthy, full-term newborns aged <72 hours randomised to baby lotion or sunflower seed oil (SSO)	Randomised controlled trial (2)	Trans-epidermal water loss (TEWL)	Statistically significant decrease in TEWL in the forearm in both lotion and oil groups (p≤0.015)	Small study using baby lotion containing multiple ingredients - implications not discussed.
			Stratum corneum hydration (SCH) & skin pH	Statistically significant increase in SCH (p≤0.001) and decrease in skin pH (p≤0.001) in all areas in both lotion and oil groups	Found no clear difference between use of SSO vs baby lotion in neonatal skin barrier function adaptation.
The Oil in Baby SkinCaRE [OBSerVe] Study. Cooke et al: Acta Derm Venereol 2016; 96(3): 323-30.	115 healthy, full-term neonates randomised to olive oil, sunflower oil or no oil	Randomised controlled trial (2)	Spectral profile lipid lamellae	Both oil groups had less improvement in lipid lamellar structure than no oil (p<0.001)	Study not powered for significance.
			Stratum corneum hydration (SCH) & skin pH	Both oil groups increased hydration vs no oil (p<0.001)	Pilot data contradicted hypothesis that sunflower oil was beneficial vs olive oil.
The effect of daily treatment with an olive oil/lanolin emollient on skin integrity in preterm infants. Kiechl-Kohlendorfer et al: Pediatr Dermatol 2008; 25(2): 174-8.	173 preterm (25-36 weeks gestation) neonates from NICU randomised to emollient, olive oil cream or no cream	Randomised controlled trial (2)	Skin condition score (reflecting degree of dermatitis)	Olive oil cream improved skin scores from weeks 2-4 (p<0.001) compared to emollient and no cream	Limited detail about skin scoring. Supports use of olive oil cream vs emollients in this population.

Commentary

We defined emollients as synthetic commercial products used to moisturise skin. Only 3 RCT’s compared natural plant oils to emollients/other plant oils with regard to dermatological rather than clinical outcomes.

The collected evidence proved contradictory, especially with regard to the use of sunflower oil. Many of the studies pointed to the lack of national or international guidelines on this subject and recommended further research to aid prediction of long-term risks of negative health outcomes, such as atopic dermatitis.

Clinical Bottom Line

- Topical application of olive & sunflower oils improves neonatal skin hydration, but has the potential to disturb neonatal skin barrier function, the long-term significance of which is not yet understood. (Recommendation grade C)
- Natural plant oils are cheap, traditional (i.e. acceptable to parents) and there is no good quality evidence at present that they are more likely to cause atopic dermatitis within this population than their medicinal counterparts, emollients. (Recommendation grade C)