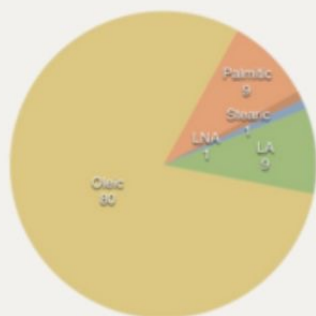
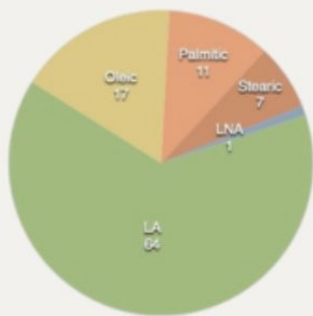
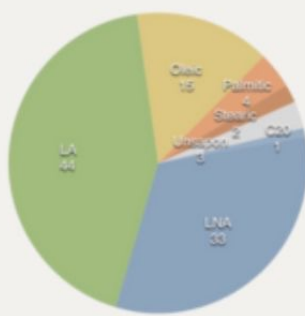




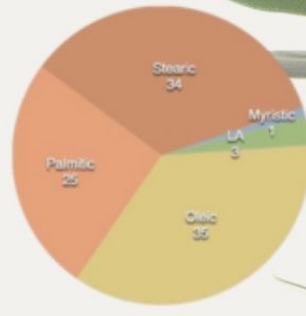
OLIVE OIL



CUCUMBER SEED OIL



ROSE HIP SEED OIL

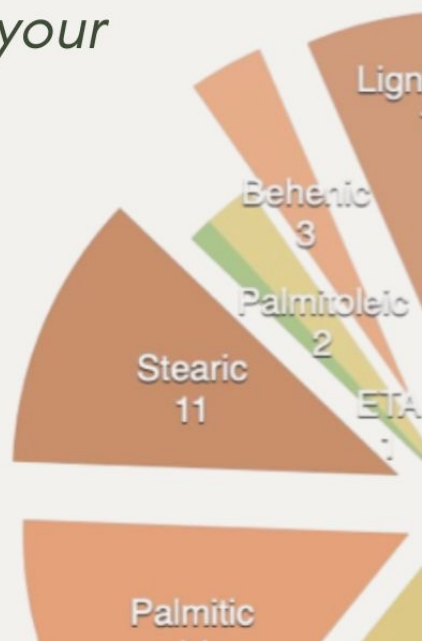


COCOA BUTTER

The Carrier Oil Blueprint

A QUICK-START GUIDE TO
LIPID SCIENCE FOR FORMULATORS

*Learn how fatty acids shape oils and
how to choose the right oils for your
skincare formulations*



Lipid Oils Blueprint

Fatty Acids - Quick Reference Guide, video 1

All oils are made up of **nearly 100% fatty acid chains** of carbon atoms:

🥥 **Saturated fatty acids** – red/ orange, occlusive, dense, slow to absorb, and protective.

The carbon chain is fully saturated with hydrogen atoms, making solid or semi-solid fats or butters. Stable with extended shelf life.

Cocoa butter, Shea butter, Tallow, Ghee

🥑 **Monounsaturated fatty acids** – yellow, soft, balancing, medium absorption.

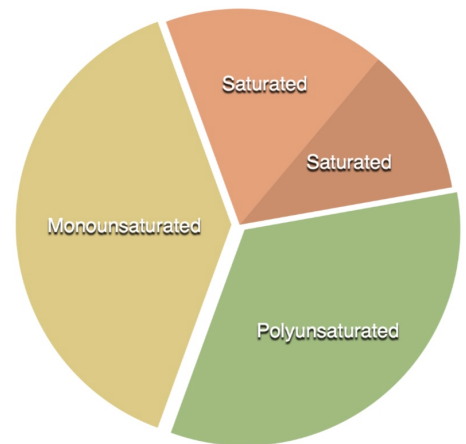
No longer solid butter, liquid oils protect the outer skin layers. Softens and conditions the skin while providing balance and protection.

Olive oil, Avocado oil, Argan oil

🌹 **Polyunsaturated fatty acids** – green - light feeling on the skin, fast-absorbing, delicate.

This group of fatty acids includes the two essential fatty acids, *EFA*. They are light, delicate oils that are prone to oxidation and rancidity, requiring careful storage.

Rose hip seed oil, Evening primrose oil, Hempseed oil



3 TYPES OF FATTY ACIDS

🧈 Fatty Acids

They determine the protective nature of the skin barrier function

They contribute to the shelf life of the oil

They contribute to the skin's natural lipid matrix and can remedy deficiencies

🌻 Check your favorite carrier oils, where do they fit?

Next: Quick Reference Guide to the five fatty acids, from video 2

The five fatty acids that occur over and over in the oils we use for skincare.

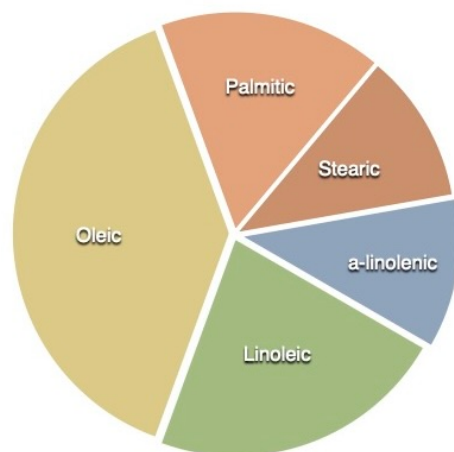
The five fatty acids cover the three structural groups, representing each group with the colors in a pie chart.

Saturated **Palmitic** and **Stearic acid** are orange and red.

Oleic acid, a **mono-unsaturated** fatty acid, is the yellow buff color.

Linoleic acid, LA, polyunsaturated fatty acid, is a green color.

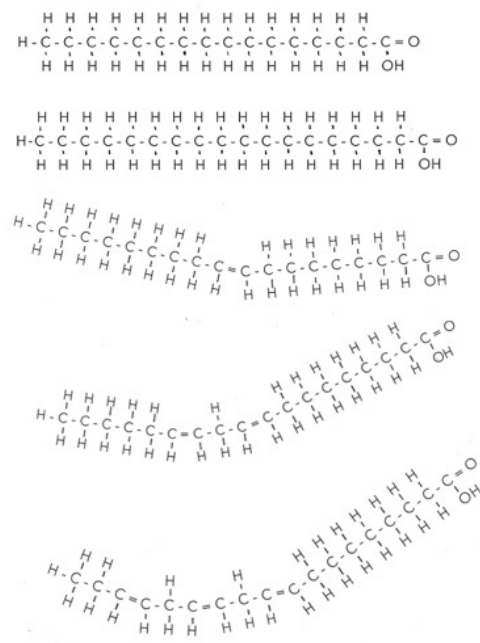
Alpha-linolenic acid, LNA, polyunsaturated fatty acid, is blue.



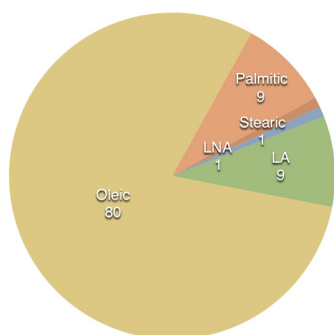
And here they are as drawings

While there are hundreds of fatty acids in total, **five** are commonly found in the oils we use on our skin.

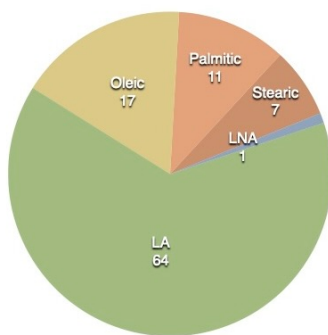
- **Stearic acid** - sat
- **Palmitic acid** - sat
- **Oleic acid** - mono
- **Linoleic acid** - poly
- **a-Linolenic acid** - poly



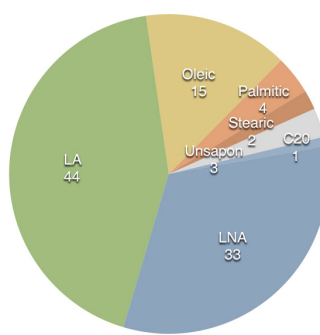
Distribution of fatty acids across four types of oil



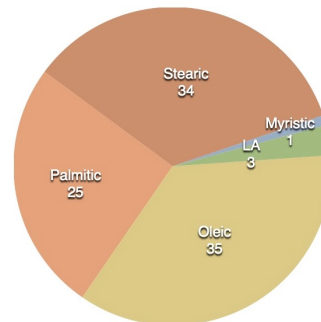
OLIVE OIL



CUCUMBER SEED OIL



ROSE HIP SEED OIL



COCOA BUTTER

Our skin: is made up of the same fatty acids as the oils we use

Lipid compounds help maintain hydration by preventing trans-epidermal water loss (TEWL), mimicking the compounds found in the skin.

Our skin is made up of many of the same fatty acids, waxes, and sterols as are found in the oils and butters from the plant world.

Choosing oils for different skin concerns and skincare needs is going to depend on a variety of factors including the type of skin a person has.

We want to consider this from several points of view:

- **Type of skin;** dry, oily, sensitive, mature
- **A person's age,** by decade
- **Life style,** indoor, or exposed to the environment
- **Personal sensitivities,** potential allergies
- **Seasons,** the conditions which can vary tremendously
- **Climate** - tropical, northern, temperate, damp, dry

So we can adjust the oils we use depending on the season, the climate, our life-style and our personal skin conditions.

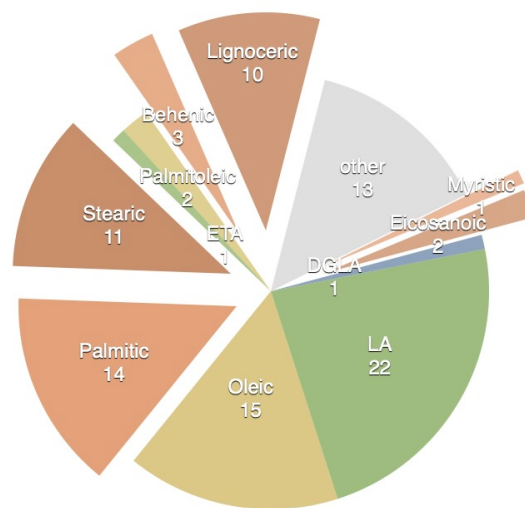
Suggestions:

Do you change the oils you use from summer to winter?

The next season change consider a new range of oils that can help protect your skin from the elements

Have you attempted to modulate your skin using plant oils or animal fats?

SKIN LIPIDS -
EPIDERMIS
SATURATED FATTY ACIDS



Healing Fraction - Quick Reference Guide, from video 2

The oils and fats are composed of two types of compounds: the **fatty acids** of which there are hundreds, and the **non-fatty acid** very small part that figure in the thousands.

These compounds are primarily **antioxidant and anti-inflammatory** and play significant roles in maintaining the health of the skin. And also what can be refined out.

Polyphenols; Flavonoids, and Phenolic acids

Flavonoids, phenolic acids, tannins, and lignans;

Have powerful effects on the skin.

Help minimize inflammation, and protect the skin from environmental stressors like pollution and UV damage

Olive oil, Açai oil, Argan oil, Pomegranate seed oil

Vitamin E; Tocopherols, and Tocotrienols

A group of eight isomers that provide powerful antioxidant properties.

alpha- (α -), beta- (β -), gamma- (γ -), and delta- (δ -) each

Natural antioxidant preservatives found in all oils, generously in a few

Wheat germ, Rice bran, Pomegranate, and Raspberry seed oil

Carotenoids; α -, γ -, β -carotene, Lutein, Zeaxanthin, Lycopene, +

Beta-carotene is the primary antioxidant in many oils,

Seen in red, orange, and golden yellow oils

Protects the skin from environmental damage, including UV rays and pollution

Rose hip seed oil, Sea buckthorn oil, Buriti oil,

Storing your oils - all oils should be cool and dark to preserve the useful life of the oil as long as possible. Oils degrade in the following order:

 light,  Heat,  Air, and slowly, over  time

Protecting your oils from the first three will extend the time factor they are useful

 How do you store your oils?

Oils for the Skin - Quick Reference Guide, video 3

💧 Lipid compounds help maintain hydration by preventing trans-epidermal water loss (TEWL), mimicking the compounds found in the skin.

🌻 Our skin is made up of many of the same fatty acids, waxes, and sterols as are found in the oils and butters from the plant world.

🍎 Not all oils act the same on the skin. In this lesson, we'll look at how fatty acids and unsaponifiables guide you to the right oil for each skin concern. Use this quick guide as a starting point.

Section 1: Skin conditions and the oil types to help remedy

Dry / Dehydrated Skin - *oils with saturated and monounsaturated fatty acids*

Avocado - oleic-rich, nourishing

Baobab - balanced fatty acids, rich nourishing

Oily / Acne-Prone Skin - *emphasize oils with linoleic acid*

Grapeseed - high linoleic, lightweight

Hemp seed - balanced omega-3 & 6, polyunsaturated fatty acids

Mature Skin - *rich oils with omega-7 monounsaturated fatty acid*

Pomegranate - puniceic polyunsaturated fatty acid

Sea buckthorn - carotenoids + antioxidants

Sensitive / Reactive Skin - *mild oils with oleic acid and infused calendula*

Calendula-infused oil - soothing, anti-inflammatory

Almond oil - oleic acid, vitamin E

Barrier Repair / Compromised Skin - *emphasize linoleic and GLA polyunsaturated*

Borage - GLA, gamma linolenic polyunsaturated acid, rich, calming

Safflower - linoleic polyunsaturated fatty acid, lightweight barrier repair

Oils for skin types

Oils consist of combinations of fatty acids that work together to nourish, regenerate, repair, and maintain moisture in the skin.

Our skin is dynamic and not just a static barrier.

Choosing the right oils for application can help slow the aging process and enhance its natural functions.

- **pomegranate** - mature skin
- **camellia** - oily, blemished skin
- **buriti and tucuma**, red oils for sun protective properties
- **argan, moringa, and baobab** for especially dry or mature skin
- **meadowfoam oil** to protect against oxidation of skin and oil
- **jojoba** for the elegant feel and skin mimicking elements

Section 2: Fatty acids matched to skin need

- **Linoleic acid** - polyunsaturated - for compromised skin, eczema, dermatitis, itching and barrier repair.
- **Saturated, Palmitic and Stearic acids** occlusive, able to protect from TEWL, moisture loss through the skin.
- **Oleic acid, monounsaturated** - protective while being softening and anti-inflammatory regulating
- The full course, **Lipids Decoded**, gives you the complete system of fatty acids, over 34, that impact the skin's health and ability to function properly

Section 3: Lipids Decoded,

- Consider the number of oils - between 150 and 200 - and the applications and skin conditions that can benefit from their use
- The complete lipid system to match oils to skin conditions, choose substitutes, and create targeted formulations is what will facilitate your growth as a formulator.