

Natural factors that prevent skin dryness:

- (1) Intercellular lipids of the horny layer (SC):**
 composed mostly of free fatty acids, cholesterol, and ceramides
- (2) Natural moisturizing factors (NMF) that retain water content of the horny layer:** Small hygroscopic compounds inside the cells of the horny layer

تعدد مستويات الهي المملوء
لطبقات الجلد وتنتج الكفاف

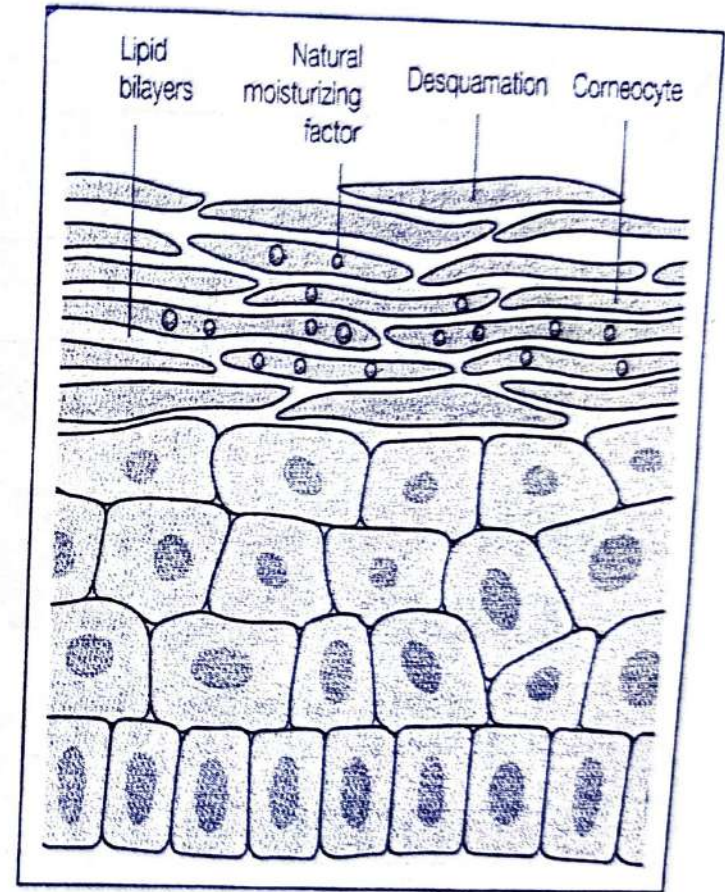


Fig. 2.2 The four key processes for the formation and functioning of the stratum corneum

Chemical composition of natural moisturizing factor within corneocyte

Concentration >5%

- Free amino acids
- Pyrrolidone carboxylic acid (PCA)
- Lactate
- Sugars
- Urea
- Chloride
- Sodium

Concentration <5%

- Ammonia
- Uric acid
- Glucosamine
- Creatine
- Calcium
- Magnesium
- Phosphate
- Citrate
- Formate

Box 14.1 Chemical composition of natural moisturizing factor within corneocyte

What causes dry skin?

A. External causes:

التعرض للهواء الجاف
كثرة غسل اليدين
والشعر
بمواد معينة

- exposure to dry environment and wind
- artificial indoor heating → the skin tends to be dryer in the winter "winter itch" الجفاف في الشتاء
- air-conditioned room (cold dry air) → cause the skin to become dry
- Frequent washing
- exposure to certain substances: e.g. certain medical treatments (such as some acne treatment) cause drying of the skin

مثل Retinoin

Environmental agents that can lead to Dry Skin

Environmental Agents That Can Lead to Dry Skin

- ① Hot water
- ② Detergents
- ③ Friction from clothing
- ④ Frequent air travel
- ⑤ Pollution
- ⑥ Other chemicals
- ⑦ Air conditioning

Environmental agent ← ماحولیات کا جتنی لگایا ہو
وہاں پر اس قدر خشکی کی صورت آئے گی

What causes dry skin?

B. Internal g

Dermatitis

له دالها انواع كثر ممكن تكون
مشكلة بتورعها او lipid ف
بتأدي لمشاكل بار NMF
مبتزبه الجفاف
او جفاف لا كزها

سواء جفاف

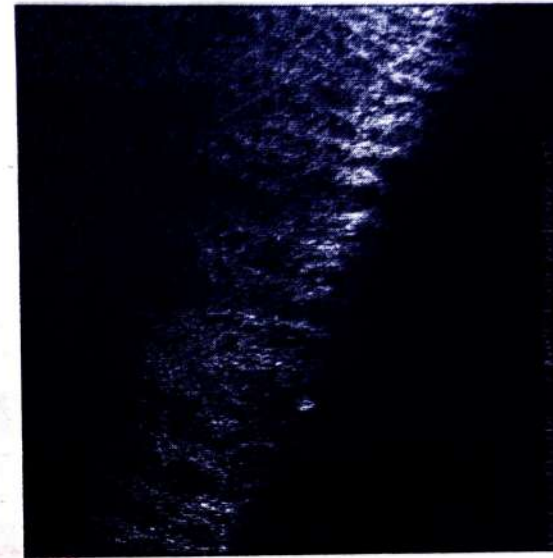


Figure 13. Cracking—Grade 10.

What causes dry skin?

It is characterized by the **lack of moisture in the SC**

نقص برطوبة SC

Barrier perturbation causes an increase in TEWL allowing **excessive water to be lost to the atmosphere**

Transdermal water loss

لما تقل البرطوبة بالجلد تزيد تبخر الماء من الجلد

Skin with a **normal water content** will **shed off dead cells naturally**

إذا ما كان في جفاف ورح يتبدد الجلد تلقائي بشكل طبيعي

لما يقل مستوى الماء بالجلد مع زرع زرع هشأكل

Decreased water content in the stratum corneum leads to **abnormal desquamation of corneocytes**

Patients with dry skin have a perturbation in the **normal bilayer structure of lipids** which is associated with **increased fatty acid and decreased ceramide levels**

لما ينقص ليبلد لما تبخر منه الماء ؟

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Saja Hamed, PhD

لما ينقص في نقص الماء والبرطوبة

ببطل الجلد قادر يشتغل مع دبرج

خلل بالانزيمات يؤدي لحدوث جفاف ومساكن كثيرة خاصة عند Joints لأنه الجلد يبطل smooth.

Ceramide

Dry skin = low content of ceramide.

Constitutes 40% of the human SC lipids

النسبة الطبيعية
للـ Normal skin

Six classes

الإشعاع المشترك بين الـ 6

Basic structure is a fatty acid covalently bound to a sphingoid base

اختلاف أنشائها أو ارتباطها
مع سكر السفينجوليد

Ceramide 1 is non-polar and contain

linoleic acid (Fatty acid covalent bond with sphingoid base)

It has been shown that ceramides applied externally, in the form of moisturizers, can effectively reduce dry skin symptoms

$\begin{array}{c} \text{F} \\ \text{O} \\ \text{NH} \end{array} \text{OH} \Rightarrow \text{This is sphingoid base}$
 OH

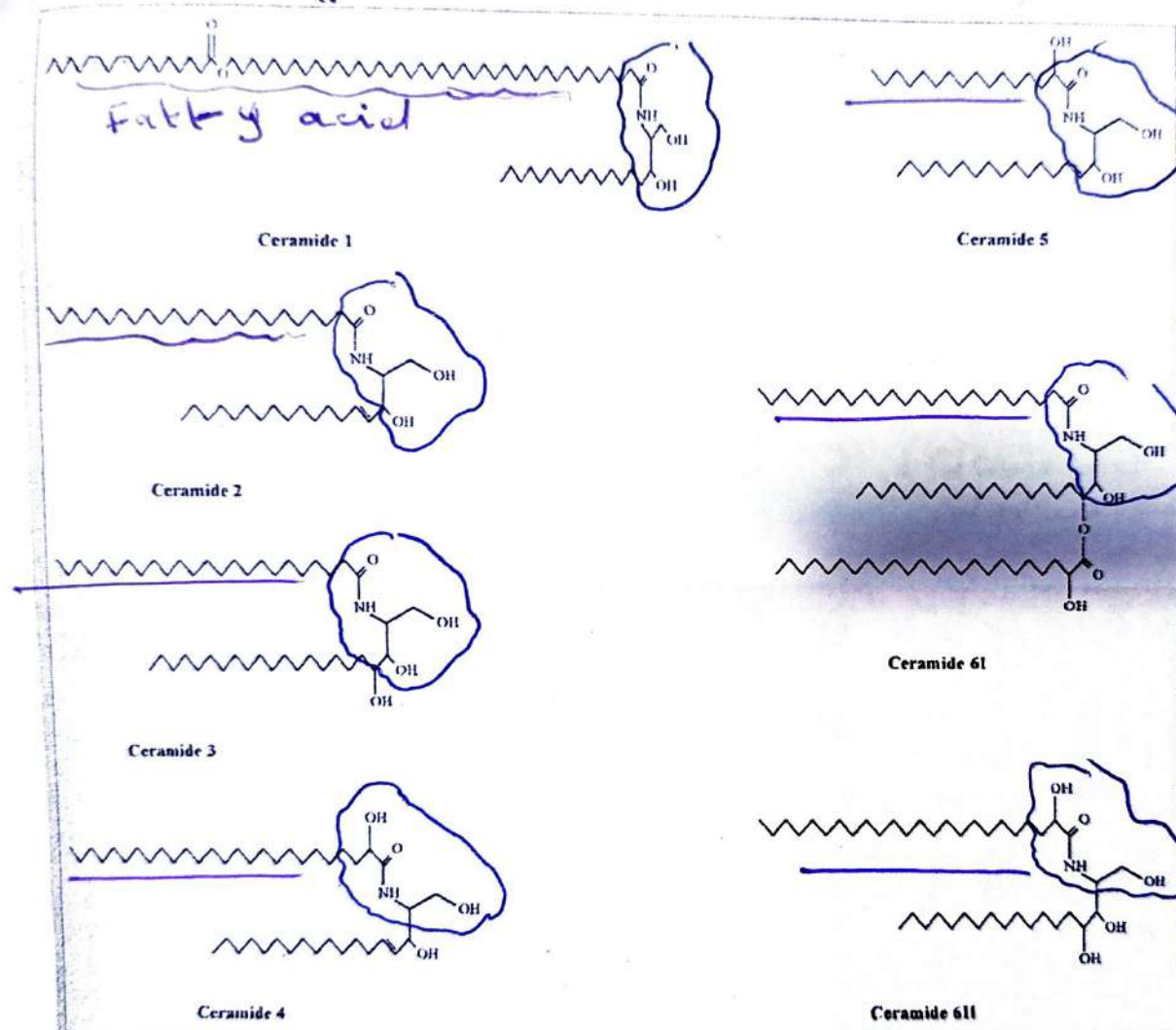


Figure 1-4.
 Ceramides 1 to 6. Ceramide 1 is the most nonpolar. The polarity of each ceramide increases until ceramide 6, which is the most polar of the ceramide forms. There are two forms of ceramide 6: ceramide 6I and ceramide 6II.

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sphingoid base OH OH NH
 Fatty acid OH OH NH
 acid

What causes dry skin?

In dry skin:

خلايا ميتة مفروضة الانزعاج الطبيعية
بالجدة تعمل اليها shed off
سريع الجفاف ما يتقذر
قشور بيضاء
Scales → dead cells do not shed off easily and remain attached

بشققات
Fissures → interfere with its function as a protective layer → increased water loss → the skin become dryer
مراد فقدان المي و بطل الكبد قلة
مع الوحة بتر fissure
سcales هادان طبيعي و

The condition is worst in areas of the body with relatively few oil glands (e.g. arms, legs, and trunk)

لـ بهاي المناظرة ما يكونا حبي داسي لغوص
فقدان المي و يتكون عرضة أكثر للجفاف .

Moisturizers:

مشكلة شائعة جداً

┌ Mild dry skin is a condition that affects many patients

مع زيادة المستحضرات في الوقت الحالي وزيادة عدد مرات السحرة زاد الجفاف

┌ Incidence of Dry skin has increased:

People bathe and shower more frequently

Fragrance bubble baths and bath salts are used more commonly

المصابين و المواد الثابتة

كيفية معالجة أعراض الجفاف

The symptoms of dry skin can be treated by increasing the hydration state of the SC with occlusive or humectant ingredients and by smoothing the rough surface by an emollient

تؤثر المشكلة
على البشرة
الرطبة و
فقدانها
للدهن

وظيفة

Moisturizers:

Moisturizers Components:

① **Occlusive ingredients:** form a hydrophobic film on the skin surface → retards water loss

② **Humectant ingredients:** attract water into the epidermis

③ **Emollient ingredients:** fill in effect to smooth the rough surface of the dry skin

④ **Most moisturizers contain a combination of occlusives and humectants.**

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لجميع المكونات المرطبة
تتواجد في التركيبة
بشكل واحد combination وما يتكون
منها

من الفازلين

← مثل ال MMF
المواد التي تجذب

تسببها جفاف
بواسطة
occlusive
أو حتى
humectant
معها
as emollient.

مادة عازلة

يتمنع فقدان الماء

Occlusives

hydrophobic layer

Trans epidermal water loss

كيف يتساقط

They coat the SC to retard TEWL

They are usually oily substances

مادة زيتية دهنية
مثل الفازلين

An occlusive is one of the best choices to treat dry skin because it provides an emollient effect as well as decreases TEWL

ليست

يعتبر من أفضل الخيارات لسهولة السحب

Effective only while present on the skin

Petrolatum and mineral oil

vaselin

example

Paraffin oil

نوع المكونات وكمياتها بقدرتهم على
العزل وفقدان الماء

Occlusive agents

Hydrocarbon oils/waxes

- Petrolatum
- Mineral oil
- Paraffin
- Squalene
- Silicone derivatives:
Dimethicone
Cyclomethicone

Fatty alcohols

- Cetyl alcohol
- Stearyl alcohol
- Lanolin alcohol

Fatty acids

- Stearic acid
- Lanolin acid

Wax esters

- Lanolin
- Beeswax
- Stearyl stearate

Vegetable waxes

- Carnauba
- Candelilla

Phospholipids

- Lecithin

Sterols

- Cholesterol

Polyhydric alcohols

- Propylene glycol

secondary
emulsifier. ←

Box 14.2 Occlusive agents

كل ما كان hydrophobic أكثر له تزيه قدرته على العزل

Non comedogenic يعني
يعني ما يسبب الحبوب والبثور
Black and whiteheads

Occlusives: Petrolatum

- Considered by many to be one of the best moisturizers من أفضل الميكرات
- Used in skin care products since 1872
- It is a purified mixture of hydrocarbons that is derived from petroleum
- Has a greasy feeling دهني وزيتي
- Noncomedogenic and does not cause allergic reactions
- It is often combined with other ingredients to decrease the greasy feeling

عادةً يخلط مع مواد
أخرى لتقليل
الدهنية.

الاسم ما بهما شرح

Petrolatum, USP

- ┌ ***is a purified mixture of*** semisolid hydrocarbons obtained from petroleum.
- ┌ ***vary in color from yellowish to light amber.***
- ┌ It melts at 38°C to 60°C and may be used alone or in combination with other agents as an ointment base.
- ┌ Petrolatum is also known as yellow petrolatum and petroleum jelly.
- ┌ A commercial product is Vaseline.

يختلفون بالالوان

يمكن استعماله

باله او مع غيره

كأنه يعمل من الـ greasy effect

اسماء اخرى

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اسم التجاري

وهي اسماء اخرى

لحمه
بشي مع الصبغة مواد
بشعر اللون

White Petrolatum, USP

- Is a **purified mixture** of semisolid hydrocarbons from petroleum that has been wholly or nearly decolorized.

بفضله
بشي عشان
لونه
الوظيفة انك
نفسها

It is used for the same purpose as petrolatum, but because of its lighter color, it is considered more esthetically pleasing by some pharmacists and patients.

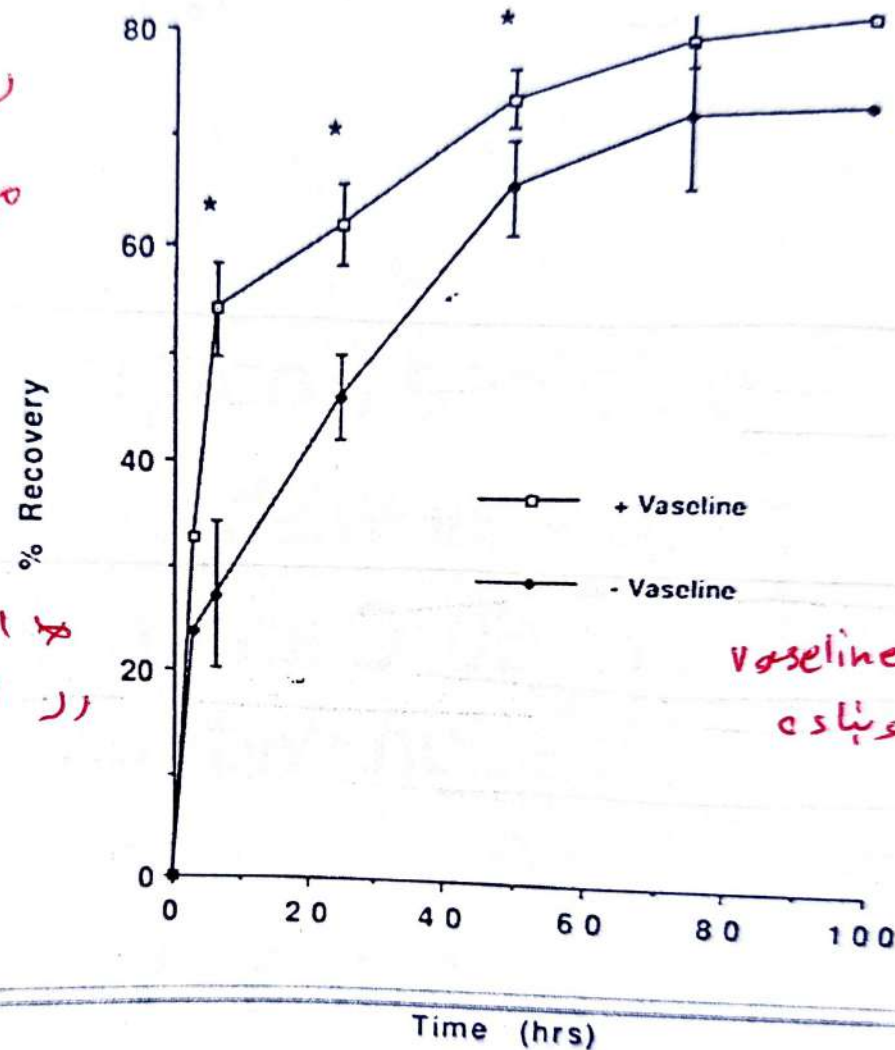
- White petrolatum is also known as white petroleum jelly.

- A commercial product is White Vaseline

نسبة الشفا في بار SC
مع الوقت مع أو بدون
إضافة القازلين بعد التعرض
للأستون .



استخدموا أستيون إلى بدو
في لونها فوالتي بزيه
TEWL



لا وجبوا إنه ار Vaseline
نراد الشفا في لكمة وبناءه
وتجديه .

Fig. 1. Effect of petrolatum on barrier recovery. Note accelerated rates of barrier recovery after repeated applications of petrolatum after acute barrier disruption with acetone. Measurements of TEWL were made with the Servomed Evaporimeter. Data points shown represent the mean $\pm$ standard error of the mean ($n = 5$). Asterisks indicate $p < 0.05$ with the paired t test.

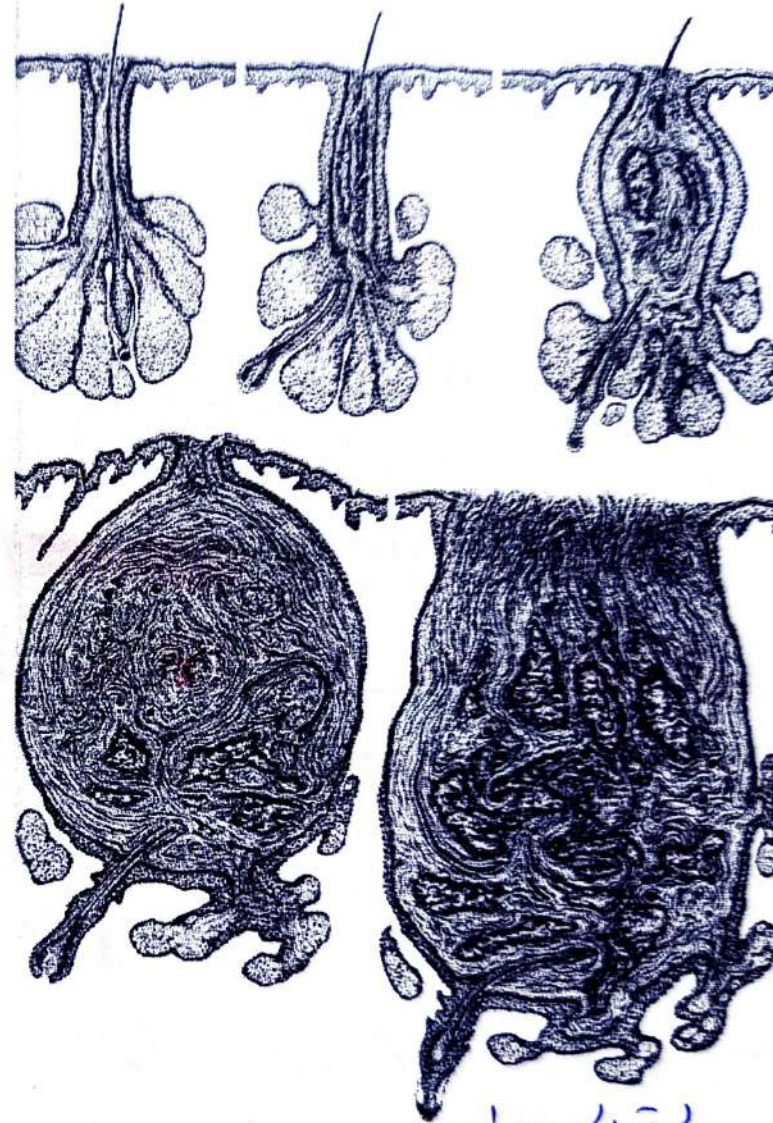
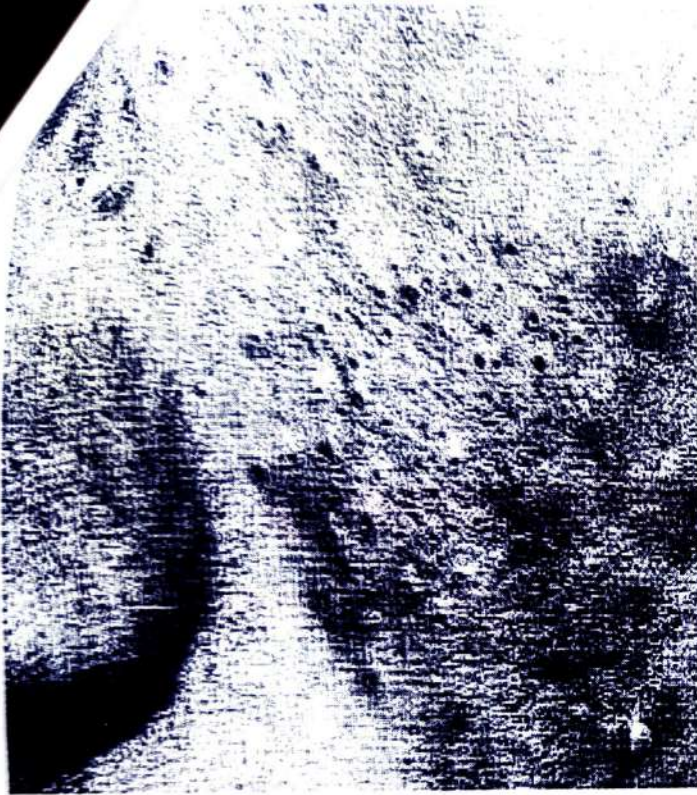
شئ الفرق بينهم ؟؟

raw material
→

Comedogenic vs. Noncomedogenic

يمكن ان يكون كل مادة عذبة بالتركيب
او يمكن تكون formula كلها هيلج

- Comedogenic: the tendency of a topical ingredient or product to cause the development of comedones, possibly leading to or worsening acne eruptions (Black heads and white heads),
بتزيد فرصة حدوث حب الشباب
- Comedone: clogged pore
- The ingredient or product is unlikely to cause comedone development (Non comedogenic)



الحبة السوداء

Illustration of the formation of open and closed comedones

الحبة البيضاء

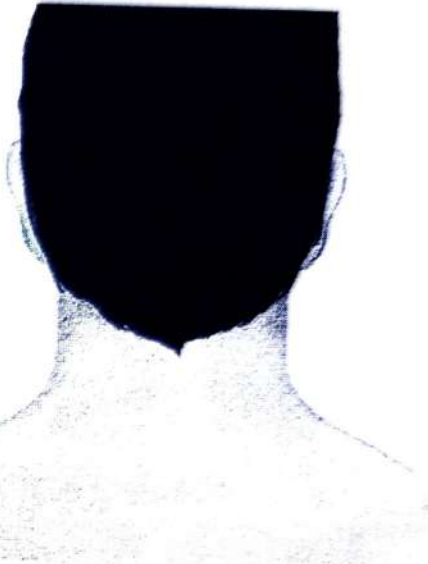
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منوعہ نہیں Testing کی حیوان

لم; مان کا لہا - سٹینڈا ۱۱
Rabbit-ear skin
نہ کیٹوفا عی فلو ۱۱
comedones.

← اڈا ہلج عی comedones عی
و بعدوا ۱۱ Test کی کس انار



Rabbit-ear skin clogs more easily/faster than human skin. If a substance is not comedogenic on a rabbit, chances are it won't be on a human. However, if it is comedogenic on a rabbit, human testing is required to confirm results.

acne.org

Although its non-comedogenic however according to the American Academy of Dermatologists, Vaseline can trigger outbreaks if you have acne-prone skin.

Don't put **petroleum jelly** on your face if you're having an active breakout. There are plenty of other moisturizing options if you have **acne-prone** skin.

حسب الدراسات الأمريكية ← إذا كانت بشرتك معرضة لـ حب الشباب فـ ما تستخدم
الـ Petroleum jelly قد يمكن يذيع ظهور البثور (Breakout) ولـ حب الشباب
مع Non comedogenic

10/21/2023

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However another study shows the opposite of AAD

J. Soc. Cosmet. Chem., 47, 41-48 (January/February 1996)

Petrolatum is not comedogenic in rabbits or humans: A critical reappraisal of the rabbit ear assay and the concept of "acne cosmetica"

ALBERT M. KLIGMAN, *Department of Dermatology, University of
Pennsylvania School of Medicine, Philadelphia, PA 19104.*

Accepted March 8, 1996.

Synopsis

The objective was to find out whether petrolatum, previously reported to be comedogenic in the rabbit ear model, would worsen acne. Vaseline petrolatum jelly (Vaseline®, Chesebrough-Ponds) and Vaseline petrolatum jelly cream (Creamy Vaseline®, Chesebrough-Ponds) were applied to separate groups of ten acne patients each twice daily for eight weeks.

No evidence of comedogenic potential was found by the follicular biopsy technique. Papule-pustules significantly decreased in both groups.

Greasiness cannot be equated with comedogenicity. The admonition for acne patients to seek "oil-free" skin care products has no scientific merit with regard to comedogenicity. Cosmetics are an unlikely cause of the relatively high prevalence of post-adolescent female acne.

علاوة دراسة إنهم جابوا على
أشياء مهمة بار acne وحبوب وحبوب
Petrolatum (جelly / cream) صرنا باليوم مرة 1 أ سابع في حبوب وحبوب
acne Papulo-Pustules لا حبوب وحبوب
non comedogenic هو الناتج هو

However another study shows the opposite of AAD recommendations

- Three recorded no change.
- Six recorded slight improvement.
- One recorded moderate improvement.

الفكرة إنه مع استخدام
Vaseline Petroleum Jelly Cream
كان مع مرور الوقت
(بعد 8 أسابيع)
تقل Papulo-pustules
و comedones
تقل ما يقرب

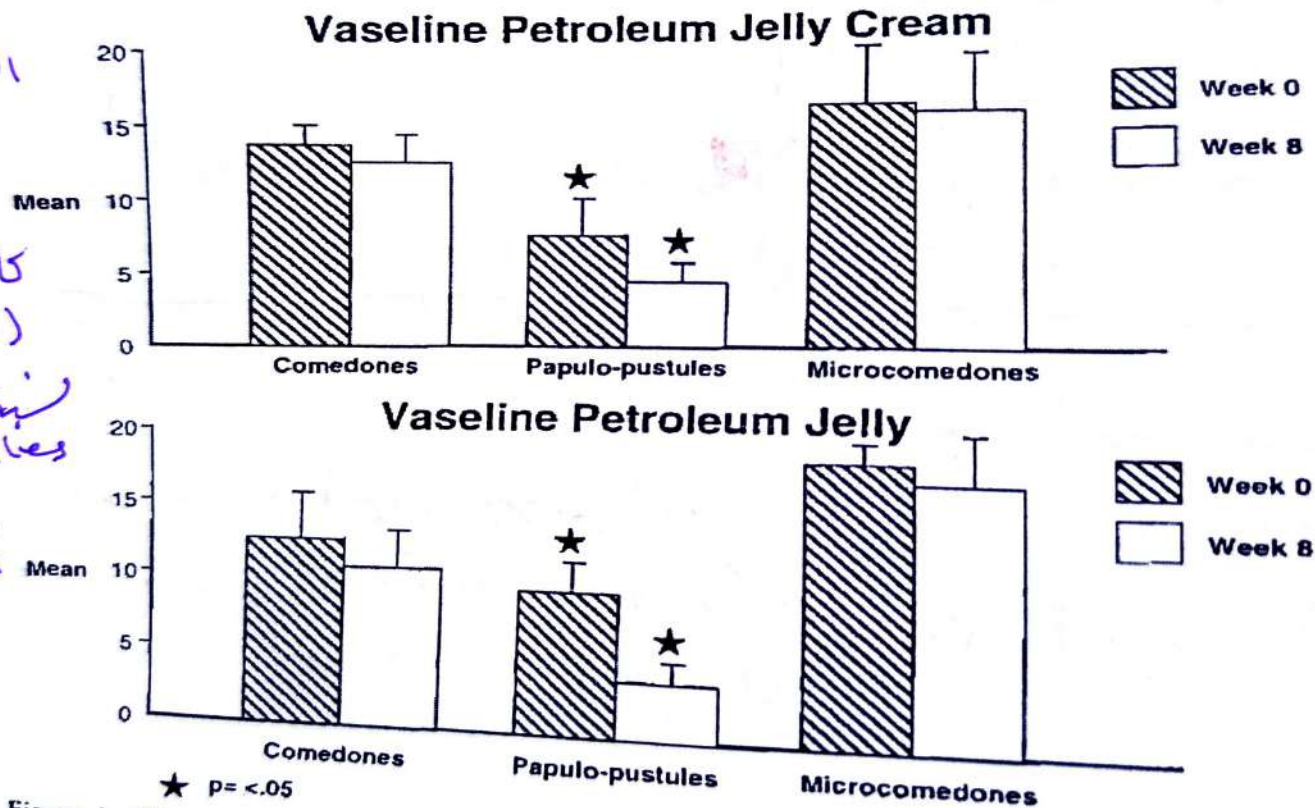


Figure 1. Effect of petrolatum on acne lesion counts after twice-daily applications for eight weeks. Comedones were not affected. Both products significantly reduced papulo-pustules.

10/21/2023

ساجد محمد، PhD

Is Petroleum Jelly Comedogenic?



Repeated analyses show that Vaseline® petroleum jelly **does not** possess pore-clogging potential

Petroleum Jelly is not comedogenic
petroleum is non comedogenic

petroleum is non comedogenic

Take home message

- └ Petrolatum and mineral oil should be cosmetic grades
- └ **COSMETIC GRADE** petrolatum has ^①no contaminants and is non-comedogenic.
- └ Don't use thick layer on face

- الفكرة إنه أحياناً يكون على مكونات أخرى مع الـ Petrolatum ممكن تكون comedogenic
- ما تترى Vaseline ما أي مكان في لازم تتأكد من الـ cosmetic grade إنك
- ما تترك طبقة سميكة على وجهك

Occlusives:

Lanolin

- Is a complex natural product that cannot be synthesized
مركب طبيعي صا بتلشح
- Derived from the sebaceous secretions of sheep
إفرازات الغنم = طبيعي
- Lanolin contains cholesterol
كوليسترول
- A number of people have develop contact sensitization to lanolin
كثيره من الناس صيروا في ممكن يحد حساس
- Some moisturizing products are now labeled as lanolin-free
بجنبنا للتحسس
- the us of lanolin is limited by odor, expense and potential allergenicity
مشاكله ← الرائحة + غالي + عرضة للتحسس

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مشاكله : الرائحة + غالي + عرضة للتحسس

(hydrophobic) & (adhesive) ←

(hygroscopic)
رطوبتي

Humectants

- Water soluble materials with high water absorption capabilities
- They draw water into the skin causing a slight swelling of the SC that give the perception of smoother skin with fewer wrinkles
- They attract water from the atmosphere (if atmospheric humidity is greater than 80%) and from the underlying epidermis
- They work better when combined with occlusives
- They also prevent product evaporation and thickening
- E.g. glycerin, sorbitol, sodium hyaluronate, urea, propylene glycol, α -hydroxy acids, and sugars

أمثلة
من الرطوبتي