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Check homework from week 6 only at the end of exercise 2

Dermocosmetics, note taking and recommendations

1) DISCUSSION

- Based on the term itself, how would you characterize the term dermo-cosmetics in your own words?
- Have you ever used any of dermocosmetics products? Can you give any examples of such products?
- What skin problem can dermocosmetics help with in your opinion?



2) READING AND NOTE TAKING STRATEGIES

A. How often do you take notes? Do you have any particular strategies?

B. Watch the video on note taking. What recommendations are mentioned in the video?

<https://www.youtube.com/watch?v=n8HbFgEKgS8>

- using pen and paper

- focus on key info

- summarize your notes immediately after the event

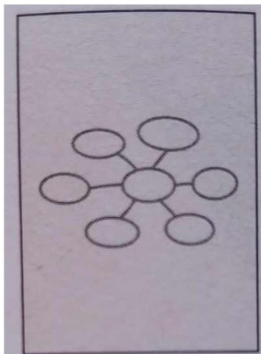
- use one place for storing notes (dedicated notebook)

- highlight with different colours

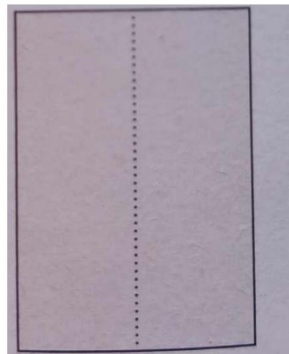
- compare your notes

C. Look at the different ways of organizing notes. Which style of notes would be best for

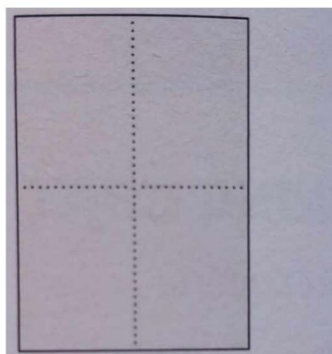
- Arguments for and against a particular point?
- Different points in a debate?
- A process of a sequence of events?
- Connections between ideas?



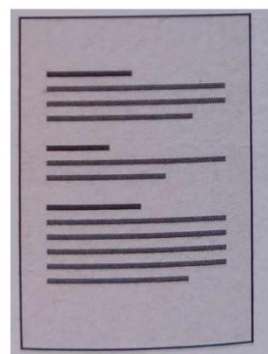
a Mind map



b Two-page split



c Page split into four



d Linear notes



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Key 1B, 2C, 3D, 4A

D. Note taking: identify areas where notes can help (mark them with H) and areas of potential problems (P)

- enables you to avoid unintentional plagiarism, **H**
- can distract you from listening to lectures, **P**
- helps you to focus on what is important in what you are reading or hearing, **H**
- helps you to understand and remember, and make connections, **H**
- helps you to structure the assignments you're researching for, **H**
- can put additional stress on those who do not write naturally, **P**
- provides a personal record of what you've learnt (more useful than your lecturer's or friends' notes) and records your questions and ideas, **H**
- you can end up with so many notes that you have to spend twice the amount of time going through them again to find out the important points, **P**
- sets you up for exam revision. **H**

E. Read the text assigned to you by the teacher and make notes. Then work with your partner – and compare your notes (two articles from week 6 that were assigned as homework, print and bring the “Print democosmetics a growing market). Then find a person who read the other article and tell them the content of your article.

Check homework from week 6

3) Common substances in dermocosmetics

A. Look at the words below – all of them can be alleviated by use of the dermocosmetic products. Decide with your partner which of them are symptoms (S) and which diseases (D) of skin. Can you think of any treatments that can address these issues?

eczema (atopic dermatitis)

aging

dryness

psoriasis

wrinkles and fine lines

sensitivity

dark circles and under-eye bags

acne

enlarged pores

flushing

hyperpigmentation

seborrheic dermatitis

sun burns

rosacea

uneven texture

oiliness

B) Look at the words below, can you write them down?

/sæli'sɪlɪk 'æsɪd/ - _____

/naɪ.ə'sɪn.ə.maɪd/ - _____

/'ben.zɔɪlə pə'rɒksaɪd/ - _____

/kɔ'dʒɪk 'æsaɪd/ - _____

/ti: tri: ɔɪl/ - _____

/'retɪnɒl/ - _____

/həʊ'həʊbə ɔɪl / - _____

/'peɪ.taɪdz/ - _____



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/,æɪn.ti'ɒk.sɪ.dənts/ - _____

/taɪ'teɪ.ni.əm daɪ'ɒk.saɪd/ - _____

/zɪŋk 'ɒksaɪd/ - _____

/,haɪdrəʊ'kwɪnəʊn/ - _____

zinc oxide, ketoconazole, tea tree oil , titanium dioxide, niacinamide, clotrimazole, azelaic acid, antioxidants, benzoyl peroxide , jojoba oil, retinol, salicylic acid, kojic acid, peptides, hydroquinone

azelaic acid /ə'zɛləɪk 'æsɪd/ (azelaová kyselina)

ceramides /'sɛrəmaɪdz/ (ceramidy)

Ketoconazole /ketəʊkonazol/ (Ketokonazol)

Selenium sulfide /sɪ'li:niəm 'sʌlfɑɪd/ (sulfid selenu)

Zinc pyrithione /zɪŋk paɪ'rɪθi,əʊn/ (pyrithion zinečnatý)

Answers:

/sæɪl'sɪɪk 'æs.ɪd/ - salicylic acid

/'retɪnɒl/ - retinol

/'bɛn.zɔɪl pə'rɒksaɪd/ - benzoyl peroxide

/'pɛp.taɪdz/ - peptides

/ti: tri: ɔɪl/ - tea tree oil

/,æɪn.ti'ɒk.sɪ.dənts/ - antioxidants

/həʊ'həʊbə ɔɪl / - jojoba oil

/zɪŋk 'ɒksaɪd/ - zinc oxide

/naɪ.ə'sɪn.ə.maɪd/ - niacinamide

/taɪ'teɪ.ni.əm daɪ'ɒk.saɪd/ - titanium dioxide

/kɔ'dʒɪk 'æsɪd/ - kojic acid

/,haɪdrəʊ'kwɪnəʊn/ - hydroquinone

C) Read the six short texts below and complete the substances which best fit the descriptions.

1. _____ is a form of vitamin B3. It helps to regulate oil production, supports the skin's natural barrier function, improving its moisture retention and overall hydration. It has anti-



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inflammatory properties, helping to calm and soothe irritated or sensitive skin. It reduces the appearance of hyperpigmentation and uneven skin tone by inhibiting the transfer of melanin to the skin cells.

2. _____ is a chemical compound with the chemical formula ZnO . It acts as a broad-spectrum UV filter, providing protection against both UVA and UVB rays. For its ability to provide a matte finish and offer sun protection, it is used in various cosmetics, particularly in products like foundations, powders, and creams.

3. _____ is a colorless, organic compound with chemical formula $C_7H_6O_3$. It is a type of beta hydroxy acid (BHA) and is derived from the bark of willow trees. As a common ingredient in many skincare and cosmetic products, it is used to improve skin texture and treat acne due to its ability to unclog pores. Its exfoliating properties (= it helps to loosen and shed the top layer of dead skin cells) effectively address a range of skin conditions such as dandruff, psoriasis, warts and calluses.

4. _____ $C_6H_4(OH)_2$, a chemical compound derived from benzene, primarily used in skincare and dermatology. It is a topical agent that is commonly employed for its skin-lightening properties. This compound works by inhibiting the production of melanin, the pigment responsible for skin coloration. Its use in skincare products is controversial due to potential side effects when not used as directed.

5. _____ is a naturally occurring substance with chemical formula $(C_{14}H_{21}NO_{11})_n$ that can hydrate and plump the skin, and reduce the appearance of wrinkles. It plays a crucial role in retaining moisture and keeping tissues well lubricated.

6. _____ a naturally occurring compound that is derived from certain types of fungi, particularly *Aspergillus oryzae* /,æspəˈdʒɪləs ɔˈraɪzɪ.i:/. This acid works by inhibiting the production of melanin, thereby helping to reduce the appearance of dark spots, hyperpigmentation, and uneven skin tone. In addition to its skin-lightening effects, it also possesses antioxidant properties, which can help protect the skin against damage caused by free radicals and environmental stressors.

Answers: 1 niacinamide, 2 zinc oxide, 3 salicylic acid, 4 hydroquinone, 5 hyaluronic acid, 6 kojic acid

D) Which substances from above will treat these conditions best. Give reasons.

Suggested answers

dry skin – **niacinamide** – moisture retention, hydration; **hyaluronic acid** – retaining moisture, keeps well lubricated tissues

Homework reading: glycerin, shea butter, ceramides, jojoba oil, niacinamide, squalene, aloe vera, panthenol, green tea

hyperpigmentation - **Hydroquinone** - skin-lightening properties. This compound works by inhibiting the production of melanin; **kojic acid** – inhibition of melanin production, reduces dark spots, uneven skin tone

homework reading - vitamin C, or niacinamide, which can help fade dark spots

signs of aging - **Hyaluronic acid** - hydrate and plump the skin, and reduce the appearance of wrinkles
homework reading: retinol, peptides, antioxidants

sun-sensitive skin – **zinc oxide** - broad-spectrum UV filter, providing protection against both UVA and UVB rays, **kojic acid** – protects skin against free radicals and environmental stressors

homework reading – titanium dioxide



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acne – niacinamide – helps regulate oil production, anti-inflammatory; **salicylic acid** - treat acne due to its ability to unclog pores, exfoliating properties
homework reading: benzoyl peroxide, tea tree oil

NOTE

The term "dermocosmetics" is often used interchangeably with the term "cosmeceuticals" and there is some overlap between the two. However, there are subtle differences in their definitions and usage.

In summary, cosmeceuticals primarily focus on enhancing the appearance of the skin and may contain biologically active ingredients, while dermocosmetics have a broader scope, aiming to improve skin health and address dermatological concerns. Dermocosmetics are developed in collaboration with dermatologists and undergo rigorous testing to support their claims.

Wordbank

Acne vulgaris /'ækni vl'gɛəris/ (akné, trudovitost)
adverse effects /ædvɜ:s/ - nepříznivý/vedlejší účinky
aloe vera /ə,ləʊ.i'veɪ.jə/ - aloe vera
alopecia /,ælə'pi:ʃə/ - alopecia (ztráta vlasů a ochlupení)
atopic dermatitis /et'tɒpɪk dɜ:(ɹ)m.ə'taɪ.tɪs/ - atopická dermatitida
boost /bu:st/ - podpořit, oživit
brittle nails /'brɪtəl/ - lámavé nehty
ceramides /'sɛrəmaɪdz/ - ceramidy
ciclopirox /,sɪklə'pɪrɒks/ - a synthetic antifungal agent
clog /kləg/ (ucpání) - obstruction
clotrimazole
Clotrimazole /,klɒt.rɪ'mæz.əʊl/ - Klotrimazol, antifungal medication.
Coal tar /kɒl tɑ:r/ - kamenouhelný dehet
colloidal oatmeal /'əʊt.mi:l/ - koloidní oves
Dandruff /'dændrʌf/ - lupy
emollient /[ɪ'mɒljənt/ - zvláčňující prostředek
exfoliate /eks'fəʊli,et/ - odlupovat, odstraňovat mrtvé buňky z pokožky
fade /feɪd/ - vyblednout, ztrácet barvu
flake /fleɪk/ - odlupovat se
Flaking - olupování, loupání
Follicle /'fɒlɪkəl/ - (folikul, váček), vesicle, cyst
Glycerin(e) /'glɪsɛrɪn/ - glycerol
hyaluronic acid /haɪ.ə.lə,rɒn.ɪk 'æs.ɪd/ - kyselina hyaluranová
Hyperpigmentation /,haɪpə,rɪgmən'teɪʃən/ - hyperpigmentace
itchiness /'ɪtʃɪnəs/ - svědění, svrbivost
jojoba oil /hə'hoʊbə/ - jojobový olej
Ketoconazole /ketəukonazol/ - Ketokonazol
Mild /maɪld/ - mírný
Moderate /modəreɪt/ - střední, přiměřený
Non-comedogenic /,kɒmɪ'dəʊdʒɛnɪk/ - nekomedogenní (nezpůsobující pupínky)
panthenol /'pænθɪ,nɒl/ - pantenol



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patch /pætʃ/ - plocha (jiné barvy/povahy), flek, náplast
plaque /plæk/ - plak
prone to - náchylný k
puffiness /'pʌfɪnəs/ - zduření, otok
scale /skeɪl/ - šupina (skaling – šupinatění)
Seborrhoeic dermatitis /,sɛb ə'ri: ɪk,dʒ:mə'taɪtɪs/ - seboroická dermatitida
sebum /'si:bəm/ - kožní maz
Selenium sulfide /sɪ'li:niəm 'sʌlfɑɪd/ - sulfid selenu
Severe /sɪ'viə/ - vážný, kritický
shea butter /'ʃeɪ ,bʌtə/ - bambucké máslo
soothe /su:ð/ - uklidnit, zmírnit
squalene /'skweɪlɛɪn/ - skvalen
symptomatic relief – úleva od symptom
Titanium dioxide /taɪ'teɪ.ni.əm daɪ'ɒk.saɪd/ - oxid titaničitý
urea /jʊ'ri:ə/ - močovina
Yeast Malassezia /,mælə'si:ziə/ - Malassezia - rod hub
Zinc pyrithione /zɪŋk paɪ'rɪθi,əʊn/ - pyrithion zinečnatý

Further information

Dermocosmetics

Dermocosmetics is a branch of dermatology that applies scientific principles to manage various skin conditions. They are skincare products specially designed to offer both cosmetic and dermatological benefits. These products contain small molecules that can penetrate the skin more effectively than standard cosmetics, and they also help protect the skin's natural barrier. Dermocosmetics are topically applied to the skin, nails, scalp and hair. Dermocosmetics are created in collaboration with dermatologists and follow strict safety and regulatory guidelines. Nowadays, they are an integral part of dermatology, backed by scientific research to assess their efficacy and benefits. Dermocosmetics are topically applied to the skin, scalp and hair. Besides the skin, they can also treat a **variety of hair and nail disorders**: e.g., brittle nails, fungal nail infections, nail psoriasis, dry and damaged hair, dandruff, scalp psoriasis, hair loss – alopecia.

Thus, dermocosmetics alone, or as an adjunct to pharmacological treatment, are regularly used to improve:

Dryness: Dermocosmetics often include moisturizing ingredients that help to hydrate and nourish dry skin, restoring its moisture barrier. Examples are: **glycerin**, **hyaluronic acid**, **shea butter**, **ceramides**, **jojoba oil** (derived from the seeds of the jojoba plant - *Simmondsia chinensis*), **niacinamide**, **squalene** (= an organic compound with the formula C₃₀H₅₀ found in the sebum of human skin and certain plant oils); **aloe vera**, **panthenol** (Pro-Vitamin B5), **green tea extract**.



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Sensitivity: Dermocosmetics are formulated to be gentle and suitable for sensitive skin types, helping to reduce redness, soothe irritation, and minimize the risk of adverse reactions.

Acne: Acne, also known as **acne vulgaris**, is a long-term skin condition that occurs when dead skin cells and oil from the skin **clog** hair **follicles**. Typical features of the condition include blackheads or whiteheads, pimples, oily skin, and possible scarring. Dermocosmetics can include ingredients like **salicylic acid, benzoyl peroxide, or tea tree oil**, which target acne-causing bacteria and help control breakouts. They may also regulate **sebum** production and reduce inflammation.

Hyperpigmentation: is a common skin condition characterized by patches or areas of the skin that appear darker than the surrounding skin tone. It occurs when an excess amount of melanin, is produced in specific areas. Products for hyperpigmentation may contain ingredients like **hydroquinone, kojic acid, vitamin C, or niacinamide**, which can help fade dark spots and even out skin tone.

Aging: Dermocosmetics for aging concerns often contain ingredients like **retinol, peptides, antioxidants, or hyaluronic acid**. These ingredients can help reduce the appearance of wrinkles, boost collagen production, and improve skin elasticity.

Sun burns: Dermocosmetics often incorporate broad-spectrum sunscreen ingredients like **zinc oxide** or **titanium dioxide** to provide sun protection and prevent UV-induced damage, such as sunburn and premature aging.

Uneven Texture: Dermocosmetics can help improve the texture of the skin by exfoliating dead skin cells and promoting cell turnover. Ingredients like **alpha-hydroxy acids (AHAs)** or **beta-hydroxy acids (BHAs)** are commonly used for this purpose.

Dark Circles and Under-Eye Bags: Products targeting this concern often contain ingredients like **caffeine, peptides, or vitamin K** to improve blood circulation, reduce **puffiness**, and minimize the appearance of dark circles.

Common substances

Benzoyl peroxide /'bɛn.zɔɪl pə'roʊksaɪd/ is a chemical compound with structural formula $(C_6H_5-C(=O)O)_2$, often abbreviated as $(BzO)_2$. When used to treat acne, it works by reducing the amount of acne-causing bacteria and by inducing the skin to dry and peel.

Retinol /'retɪnɒl/ (retinol) a form of vitamin A. It is known for its ability to promote cell turnover, stimulate collagen /'kɒl.ə.dʒɪn/ production, and help improve the appearance of fine lines, wrinkles, and uneven skin texture.

Peptides /'pɛp.taɪdz/ - short chains of amino acids, which are the building blocks of proteins. They are composed of two or more amino acids linked together by peptide bonds. Peptides can vary in length, ranging from just a few amino acids to several dozen.

Antioxidants /,æ.n.tɪ'ɒk.sɪ.dənts/ are substances that help protect the body's cells from damage caused by free radicals. Common examples of antioxidants include vitamin C, vitamin E, beta-carotene /'kær.ə.ti:n/, selenium /sɪ'li:niəm/, and various phytochemicals /,faɪ.tɔʊ'kɛm.ɪ.kəlz/ found in fruits, vegetables, and other plant-based foods.



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Titanium dioxide /taɪˈteɪ.ni.əm daɪˈɒk.saɪd/ (oxid titaničitý), a chemical compound with the chemical formula TiO_2 . Titanium dioxide is widely used in various industries due to its excellent light-scattering properties, high refractive index, and UV-blocking capabilities.

Azelaic acid /əˈzeɪleɪk ˈæsaɪd/ (azelaová kyselina) an organic compound with the formula $HOOC(CH_2)_7COOH$. This saturated dicarboxylic acid exists as a white powder. It is found in wheat, rye, and barley.

Green tea extract - extract derived from the leaves of the *Camellia sinensis* plant

Ceramides /ˈserəmaɪdz/ (ceramidy): are a family of waxy lipid molecules. They are essential for maintaining the skin's barrier function and preventing moisture loss.

Colloidal oatmeal (koloidní oves): oatmeal extract, a finely ground form of oats that is suspended in a liquid, typically water or another fluid. It is made by grinding oats into a fine powder, which allows it to disperse easily in liquids, creating a colloidal suspension. Colloidal oatmeal is known for its soothing and moisturizing properties, making it beneficial for various skin conditions, especially for relieving dry, itchy, and irritated skin.

Shea butter /ˈʃeɪ ˌbʌt.ə / (bambucké máslo) is a fat (triglyceride; mainly oleic acid and stearic acid) extracted from the nut of the African shea tree (*Vitellaria paradoxa*). It is highly valued for its moisturizing and nourishing properties.

Alpha-hydroxy acids (AHAs) /ˈæɪ.fə ˈhaɪ.drɒk.si ˈæs.ɪdz/ (Alfa-hydroxykyseliny) or α -hydroxy acids (also known as 2-hydroxy acids), are a class of chemical compounds commonly used in cosmetic products to chemically exfoliate and moisturize.

Beta-hydroxy acids /ˈbeɪ.tə ˈhaɪ.drɒk.si ˈæs.ɪdz/ (BHAs) (Beta-hydroxykyseliny) or β -hydroxy acids (BHA) are organic compounds closely related to alpha hydroxy acids, in which the two functional groups are separated by one carbon atom. In cosmetics, the term beta hydroxy acid refers specifically to salicylic acid, which is used in some "anti-aging" creams and acne treatments. It is used to combat inflammation.

Some other common ingredients in dermocosmetics are:

- **Bisabolol**: a soothing and anti-irritant agent derived from chamomile that can protect the skin from environmental stressors and enhance its appearance.
- **Biotin**: a vitamin that can support the health and beauty of the skin, hair, and nails, and regulate sebum production.
- **Cyclopeptide-5**: a novel peptide that can smooth the appearance of wrinkles and slow down the skin aging process by mimicking the natural structure of collagen.
- **Ectoin**: a natural molecule that can maintain skin cells' protective properties, hydrate and moisturize the skin, and enhance the sensory characteristics of products.
- **AP**: Aldol-1-naphthylamine, an antioxidant that can protect the skin from photo-induced radicals, support the skin's natural protection shield, and regulate the skin's own microflora.



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Puffiness /'plʌfi.nəs/ swelling, oedema, (zduření, otok, napuchnutí),

Plaque /plæk/ (plak) thick patch

Emollients /ɪ'mɒliənts/ (emoliencia, emollientia, emoliens, zvláčňující prostředky), products that are used to soothe, soften, and moisturize the skin

Corticosteroids Corticosteroids are a class of steroid hormones that are either naturally produced by the adrenal glands in the body or synthetically manufactured for medical purposes. There are two main types of corticosteroids: glucocorticoids and mineralocorticoids.

Ketoconazole /ketəʊkonazol/ (Ketokonazol), an antiandrogen /,æn.ti'ænd.roʊ.dʒən/, antifungal /,æn.ti'fʌŋ.gəl/, and antiglucocorticoid /,æn.ti.glu.koʊ'kɔr.ti.kɔɪd/ medication used to treat a number of fungal infections

Selenium sulfide /sɪ'li:niəm 'sʌlfaid/ (sulfid selenu) an antifungal agent, a chemical compound with the formula SeS₂

Coal tar /kɔʊl tɑ:r/ (kamenouhelný dehet) a thick dark liquid which is a by-product of the production of coke /kɔʊk/ (koks) and coal gas from coal. Coal Tar is used in the formulation of Over-the-Counter (OTC) shampoos, skin care products, and hair care products for treatment of dandruff, seborrheic dermatitis and psoriasis.

Zinc pyrithione /zɪŋk paɪ'rɪθi,oun/ (pyrithion zinečnatý), a coordination complex of zinc (koordináční komplex zinku). It has fungistatic /,fʌŋ.dʒi'stæ.tɪk/ and bacteriostatic /,bæk.tɪəri'ou.stæ.tɪk/ properties.

Flaking (olupování, loupání), coming off in small, thin pieces or layers

Clotrimazole /,klɒt.rɪ'mæz.ou/ (Klotrimazol), an antifungal medication.

Ciclopirox /,sɪklə'pɪrɒks/, a synthetic antifungal agent

Yeast Malassezia /,mælə'si:ziə/ (Malassezia -species of fungi - rod hub), a type of fungus that is a natural part of the skin's microbiota /,maɪkrɔʊ'baɪ'ou.tə/ -the community of microorganisms. While it is typically harmless, it can sometimes overgrow and lead to skin conditions such as Malassezia dermatitis, also known as pityriasis versicolor /,pɪtə'raɪəsɪs vɜ:rsɪ'kʌlər/or tinea versicolor /,tɪniə vɜ:rsɪ'kʌlər/.

Dandruff /'dændrʌf/ - flaking of dead skin cells from the scalp (lupy)