

TERI MIKROBIALOGIYASI TERINING SOG'LOM VA YOSHAREISHINI TAMINLASH

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Annotatsiya: Teri yuzasi mikrobiota deb ataladigan milliardlab mikroorganizmlar tomonidan qoplangan. Ular orasida foydali bakteriyalar, zamburug'lar va boshqa mikroblar mavjud. Teri mikrobiotasi terining himoya to'sig'i bo'lib xizmat qiladi va qarishga qarshi tabiiy mexanizmlarni qo'llab-quvvatlaydi. Himoya funksiyasi: Mikrobiota zararli patogenlarning ko'payishini oldini oladi. Yallig'lanishga qarshi ta'sir: Foydali mikroblar yallig'lanishni kamaytiradi va teri to'qimalarini tiklaydi. Namlikni saqlash: Mikrobiota terining namlik darajasini boshqarishda muhim rol o'ynaydi.

Kalit so'zlar: mikrobiota, patogen, Probiyotik, prebiotik, gomeostaz, proteaz, sekretiya, desquamatsiya, Staphylococcus, sitokin, saraton, yallig'lanish, kollagen, elastin, Malasezia zamburug', potentsial patogenlar.

Mavzuning dolzarbligi: Teri mikroflorasi bu hozirgi kundagi global va dolzarb muamolardan biri hisoblanadi. Buni chuqurroq o'rganish orqali biz inson teri hujayralarini faoliyatini sog'lomlashtirishimiz mumkin hisoblanadi va insonlar o'zlari istagandek g'zallig va tabiiylikni saqlab qolishimiz mumkin bo'ladi. Tabiiy mikrobiotaning buzilishi, masalan, stress, yomon ovqatlanish yoki noto'g'ri kosmetik vositalar ishlatish natijasida yuzaga keladi. Bu esa terining qurishi, elastiklikning yo'qolishi va ajinlarning paydo bo'lishiga olib kelishi mumkin.

Relevance of the Topic: The skin microbiota is one of the most global and pressing issues of today. By studying it in greater depth, we can enhance the functioning of human skin cells, ensuring their health and allowing individuals to maintain the beauty and naturalness they desire. Disruptions to the natural microbiota, caused by factors such as stress, poor nutrition, or the use of inappropriate cosmetic products, can result in skin dryness, loss of elasticity, and the appearance of wrinkles.

Main Section: Moisture Retention: The microbiota helps regulate skin hydration levels. Disruptions in the natural microbiota—caused by factors like stress, poor diet, or improper skincare products—can lead to dryness, loss of elasticity, and premature wrinkles. Maintaining a balanced microbiota is therefore essential for healthy and youthful skin. The Role of Microbiology in Skin Rejuvenation Probiotics and Prebiotics

In microbiology, probiotics (beneficial bacteria) and prebiotics (nutrients for these bacteria) are widely used to restore skin health. Their benefits include: Enhancing skin elasticity.

Reducing the appearance of wrinkles.

Strengthening natural defense mechanisms.

For example, probiotic-enriched creams help balance the skin's microbiota and slow down the aging process. Bioactive Compounds and Stem Cells

Bioactive compounds like peptides and stem cells, developed through microbiological research, offer significant anti-aging benefits:

Stimulating collagen and elastin production.

Repairing skin cells. Role of the skin microbiome

The maintenance of skin homeostasis plays a protective role against potential pathogens and environmental issues

The skin microbiome contributes to the barrier function of the skin and ensures skin homeostasis. The secretion of protease enzymes by skin microbes is involved in the desquamation process and stratum corneum renewal. Sebum and free fatty acid production are involved in pH regulation. The secretion of lipase enzymes is involved in lipidic film surface breakdown. In addition, urease enzymes are implicated in urea degradation. Other roles of the microbiota include the production of biofilms, bacteriocins, and quorum sensing. Moreover, the skin microbiota plays an important role in protecting against potential pathogenic microorganisms by competition and antimicrobial peptide (AMP) production by commensal bacteria or Malassezia fungi, which produce a range of indoles that inhibit many other yeasts and molds. Training and communication with the immune system (Fig. 1) Skin commensal bacteria have a close relationship with host immune cells from the beginning of their life, and skin resident T cells are thus trained to respond to potential transitory pathogenic bacteria. Meisel et al. showed that the expression of 2820 genes was modulated in mice in response to microbial colonization. A notable proportion of these genes was related to the host immune response and showed roles in processes such as cytokine production, the complement cascade, and the signaling and homing of T cells. A specific strain of Staphylococcus epidermidis was shown to be able to produce 6-N-hydroxyaminopurine, which may confer protection against skin cancer

Asosiy Osim. Mikrobiologiyaning yoshartirishdagi roli Probiyotik va prebiotiklar

Mikrobiologiyada probiyotiklar (foydali bakteriyalar) va prebiotiklar (ularning oziqasi) terining sog'lomligini tiklash uchun keng qo'llaniladi. Ularning foydalari:

Teri elastikligini oshirish.

Ajnlarni kamaytirish.

Tabiiy himoya mexanizmlarini kuchaytirish.

Masalan, probiyotiklar bilan boyatilgan kremlar terining mikrobiotasini muvozanatlashga yordam beradi va qarish jarayonini sekinlashtiradi. Bioaktiv moddalar va stam hujayralar

Mikrobiologiya yordamida ishlab chiqilgan bioaktiv moddalar, masalan, peptidlar va stam hujayralar: Kollagen va elastin ishlab chiqarishni rag'batlantiradi.

Teri hujayralarini tiklaydi.

Ajnlarning chuqurligini kamaytiradi. Teri mikrobiomasining roli

Teri gomeostazini saqlash potentsial patogenlar va atrof-muhit muammolariga qarshi himoya rolini o'ynaydi

Teri mikrobiomasi terining to'siq funksiyasiga hissa qo'shadi va terining gomeostazini ta'minlaydi. Teri mikroblari tomonidan proteaz fermentlarining sekretsiyasi desquamatsiya jarayonida va shox qavatning yangilanishida ishtirok etadi. Sebum va erkin yog 'kislotalari ishlab chiqarish pH ni tartibga solishda ishtirok etadi. Lipaza fermentlarining sekretsiyasi lipid plyonkasi sirtining parchalanishida ishtirok etadi. Bundan tashqari, ureaza fermentlari karbamid degradatsiyasida ishtirok etadi. Mikrobiotaning boshqa rollari biofilmlarni ishlab chiqarish, bakteriotsinlar va kvorumni aniqlashni o'z ichiga oladi. Bundan tashqari, teri mikrobiotasi potentsial patogen mikroorganizmlardan himoya qilishda muhim rol o'ynaydi va kommensal bakteriyalar tomonidan antimikrobiyal peptid (AMP) ishlab chiqarish, yoki ko'plab indollarni ishlab chiqaradigan Malassezia zamburug'lari, boshqa xamirturush va mog'or. Teri kommensal bakteriyalari hayotining boshidanoq xost immun hujayralari bilan yaqin aloqada bo'lib, teri rezidenti T hujayralari shu tariqa potentsial o'tuvchi patogen bakteriyalarga javob berishga o'rgatiladi. Meisel va boshqalar. Mikrob kolonizatsiyasiga javoban ushbu genlarning sezilarli qismi xostning immun javobi bilan bog'liq bo'lib, sitokin ishlab chiqarish, komplement kaskadi va T hujayralarining signalizatsiyasi va homingi kabi jarayonlarda rol o'ynagan. Staphylococcus epidermidisning o'ziga xos shtammi 6 -N - gidroksiaminopurin ishlab chiqarishga qodir ekanligi ko'rsatildi, bu teri saratoniga qarshi himoyani ta'minlaydi

Discussion and Results: Nanotechnology and Antioxidants

Nanotechnology enables the delivery of beneficial compounds to the deeper layers of the skin. Additionally, antioxidants (such as vitamins C and E, and polyphenols): Neutralize harmful free radicals. Preserve skin elasticity and hydration. Anti-Glycation Therapy, During aging, glycation (the binding of sugar molecules to collagen and elastin) damages skin cells. Anti-glycation therapies help improve skin structure and slow down the aging process.

Natural Remedies and Microbiological Innovations: The combination of natural remedies and microbiological approaches plays a crucial role in skin rejuvenation: Fermented Skincare Products: Developed through natural microbial

processes, these products restore the microbiota and promote healthy skin. Plant-Based Probiotics: Ingredients like aloe vera and green tea nourish skin cells and provide protection.

Muhokamalar va natijalar: Nanotexnologiya va antioksidantlar

Nanotexnologiyalar yordamida foydali moddalarni terining chuqur qatlamlariga yetkazish mumkin. Shuningdek, antioksidantlar (vitamin C, E va polifenollar): Erkin radikallarning zararli ta'sirini kamaytiradi. Terining elastikligi va namligini saqlaydi. Glikatsiyaga qarshi terapiya Qarish jarayonida glikatsiya (qand molekularining kollagen va elastin bilan bog'lanishi) teri hujayralariga zarar yetkazadi. Glikatsiyaga qarshi terapiya yordamida teri tuzilmasini yaxshilash va qarish jarayonini sekinlashtirish mumkin. Tabiiy vositalar va mikrobiologik yondashuvlarning uyg'unligi terining yoshartirishda muhim ahamiyatga ega: Fermentlangan kosmetik vositalar: Tabiiy mikroblar yordamida ishlab chiqilgan mahsulotlar teri mikrobiotasini tiklaydi va sog'lom ko'rinishni qaytaradi. O'simlik probiyotiklari: Aloe vera, yashil choy va boshqa tabiiy moddalar teri hujayralarini oziqlantiradi va himoya qiladi.

Conclusion. Breakthroughs in microbiology have revolutionized the field of skin rejuvenation. Balancing the skin microbiota, utilizing probiotics and prebiotics, and incorporating bioactive compounds and nanotechnology can improve not only the external appearance of the skin but also its internal health. By combining natural approaches with scientific advancements, individuals can achieve youthful and healthy skin while maintaining long-term wellness. The synergy between nature and science is proving to be one of the most effective strategies in the pursuit of skin rejuvenation.

Xulosa. Mikrobiologiya sohasidagi yutuqlar terining yoshartirish jarayonlarini tubdan o'zgartirdi. Teri mikrobiotasini muvozanatlash, probiyotik va prebiotiklarni qo'llash, shuningdek, bioaktiv moddalar va nanotexnologiyalardan foydalanish orqali nafaqat terining tashqi ko'rinishi, balki ichki salomatligini ham yaxshilash mumkin. Sog'lom mikrobiota va ilmiy asoslangan yondashuvlar orqali inson o'z terisini nafaqat yoshartirishi, balki uzoq vaqt davomida sog'lom saqlashi mumkin. Tabiat va ilm-fanning uyg'unligi terining yoshartirishda eng samarali yondashuvlardan biri hisoblanadi.

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