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Athletes and Skin Health: Managing Risks and Essential Care Strategies

Arifiana Wungu Kartika Dewi[1], Nur Luthfiatus Solikah[1], Diah Ngesti Kumalasari[2]
[1]*Faculty of medicine, Universitas Negeri Surabaya, Indonesia*
[2]*Departement Of Dermatology and Venereology, Faculty of Medicine Universitas Airlangga, Dr. Soetomo General Academic Hospital, Surabaya, Indonesia*
*Corresponding Author: Arifiana Wungu Kartika Dewi, e-mail: arifianadewi@unesa.ac.id.

ABSTRACTS

Background: Exercise enhances cardiovascular and muscular health, as well as skin health, by boosting circulation, facilitating detoxification, and alleviating stress. Physical activity improves circulation, supplying nutrients and oxygen to the skin, so facilitating cellular regeneration, wound healing, and acne prevention. Moreover, exercise enhances collagen synthesis, thereby preserving skin suppleness, decelerating aging, and facilitating skin rejuvenation.

Content: Exercise can markedly enhance physical health; however, it also presents several dangers to skin health, including UV exposure, skin irritation, dehydration, and allergies. Extended sun exposure elevates the risk of skin cancer and photoaging, but friction from constrictive garments and perspiration may result in irritation and conditions such as folliculitis. Dehydration and allergic reactions, induced by ambient elements or compounds in athletic equipment, intensify skin problems, rendering effective preventive measures such as sunscreen application, hydration, and appropriate attire crucial for athletes.

Conclusion: Consistent physical exercise has substantial advantages for general physical and mental well-being; nevertheless, it may also present concerns to skin health, particularly for athletes training outside. Prevalent concerns encompass UV-induced damage, friction-related irritation, dehydration, and allergic reactions stemming from contact with diverse materials and skincare products. Athletes are recommended to employ high-SPF sunscreen, don UV-protective apparel, maintain hydration, and adhere to a post-exercise skincare regimen to replenish moisture and restore barrier function.

Keywords: Exercise, Skin Health, Physical Activity, Well-being.

Background

Skin health is of prime importance for a variety of reasons, including beauty and overall well-being[1,2,3]. Exercise has multiple benefits for skin, on top of the cardiovascular and muscular benefits, including improving circulation to supply oxygen and other nutrients to skin cells, enhancing detoxification, controlling stress levels, and promoting cell regeneration[4,5,6,7,8,9].

Exercise also leads to stress reduction and the production of endorphins that facilitate relaxation. Medium-to-intense physical activities boost mental health because lowered stress levels may pre-empt flare-ups of certain skin diseases[10,11,12].

Regular workouts may promote collagen synthesis, the framework protein that makes skin firm and elastic-collagen is responsible for the retardation of skin aging, wrinkle formation, and the repair of sun- and pollution-induced damage. Exercise, therefore, is

essential for another healthy function: regeneration of the skin[13,14]. There are risks associated with exercise, however. This article will thus discuss the risks exercise poses to skin health, what athletes can do to prevent skin injury and what athletes must do to maintain skin health.

Content

Risks of Exercise on Skin Health

Exposure to UV rays

Football players, cyclists, and runners are all outdoor athletes and spend sustained periods outdoors, thus exposing them to the intensity of UV radiation. Long-duration exposure to ultraviolet radiation, predominantly UV-A and UV-B, causes sometimes serious acute or chronic skin problems. While UV-A rays damage deeper into the dermis due to their longer wavelength, thus speeding up aging processes and increasing skin cancer risks, rays of UV-B tend to act upon the epidermis and are respectively responsible for sunburn[15,16].

Lack of skin protection such as the use of a regular sun-block cream make outdoor athletes more vulnerable to skin cancers like melanoma, basal cell carcinoma (BCC), and squamous cell carcinoma (SCC) because of this long-term exposure to UV radiation[17,18,19]. UV radiation hastens skin aging: UV-A rays weaken collagen and elastin fibers: These factors impact upon the firmness and elasticity of the skin. Therefore, the possible outcomes of this damage would include the formation of wrinkles, dark spots or hyperpigmentation, and dryness[20]. In the study done, the athletes who did not use UV protection had a more noticeable aging effect on their skin than those who did[21].

Skin Irritation

Exercise is generally wholesome and has lots of benefits to health. However, it poses various risks to the skin, chief of these being skin-irritation[22]. The common skin disorders in athletes include dermatitis, folliculitis, and rashes, which are mostly due to pressure, friction, and sweat accumulation on the skin surface[23,24].

Friction between the skin and athletic garments is a major contributor to skin irritation in athletes. Clothing that fits too tightly or is made of synthetic fabrics that are not breathable can worsen the irritations by trapping moisture and heat. Perspiration can cause skin irritation and worsening of conditions such as contact dermatitis and miliaria, commonly called heat rash, due to its content of bacteria and salt[25].

Contact friction typically manifests itself in sore or irritated areas on the back, shoulders, and inner thighs[26]. Others are skin irritations due to allergic or irritating chemicals in soaps, detergents, or fabric softeners used in the washing of athletic attire.

Dryness of the skin

Sweating is one of many functions that allow for regulation of temperature in the body. Temperature regulation through sweating has a dual purpose: it cools the body during exercise and protects the skin from damage. Excessive sweating can thus lead to skin dryness by lowering the water content[27,28].

Dehydrated skin gives rise to the proverbial dry, cracked, and inelastic skin. The fluid loss due to dehydration is augmented even more by environmental components that the athlete is subjected to in outdoor practice such as wind, sunlight, and extreme temperatures[29]. With dehydration, the skin's barrier function is lessened, which only makes it more prone to irritations and infections[30]. The condition of dehydrated skin is not very beautiful, and all too often, it means scary prospects for its long-term health. Parched skin surely has a rough and dry surface with more pronounced fine lines, with a sallow look as well. Moreover, lowered moistness of the skin can also deter the process of cell renewal within the skin, delaying the process of healing wounds and thereby increasing the risk of infection[31,32]. There is also an increase in chances that other insults might hasten or worsen the skin aging process[33].

Allergies and Skin Sensitivities

Exercise has several positive health effects but also it may increase skin allergies or sensitivities and also trigger them among other athletes who have frequently deliberately exposed themselves to a lot of triggers such as chemicals, perspiration, and other environmentals. Physical contact with irritants or allergens makes certain athletes even more prone to skin reactions[34,35]. One may develop allergic contact dermatitis as a result of exposure to allergens, such as chemicals in skin-care products, latex in clothing, and metals that come into contact with the skin. The use of equipment or tight clothing by athletes can create prolonged friction and allow allergens to enter the skin. This might explain why this condition ails athletes frequently[36].

Athletes may also develop sensitivity to rubber in their gloves or shoes, leading to itching and rash and hampering the performance[37]. Physical exertion may cause cholinergic urticaria-an allergic reaction with itching associated with little red spots due to increased temperature of the body and profuse sweating[38]. Pollen and air pollutants can invoke environmental allergies in outdoor athletes which would further add to aggravation of skin sensitive disorders. Other irritants may come in other forms such as inappropriate skin preparations, like lotions or sunscreens that have chemicals and scented content. This would have a paralyzing effect on an athlete[39,40,41]. This message of homeostasis surely hits home with athletes who find themselves at serious risk of exposure: It is strongly advised that athletes use hypoallergenic and non-comedogenic products[42].

Preventive Measures for Athletes

Application of Sunscreen

Unrestrained exposure to ultraviolet (UV) light during outdoor athletic activities can cause significant skin damage: a severely sunburned experience, premature aging, an increase in hyperpigmentation, and with it, an increased risk of skin cancer[43,44]. The sunscreen application is one of the foremost techniques used to prevent further dermal damage from the UV light radiation exposure; this is indispensable for athletes that play outdoor sports for long hours in direct sunlight[45].

For its protective attributes against both UVA and UVB rays, the athlete is advised to use broad-spectrum sunscreens; sunscreens with an SPF of 30 or above are highly recommended[46]. The ticking formulation for athletes, generally, must be those with a high water- and sweat-resistance capacity, the reason being that the performance of almost all kinds of exercise for long hours would often cause sweating that can dilute its abilities[47]. For maximum protection, sunscreen should be applied to all skin areas exposed to the sun at least 15 to 30 minutes before any outdoor activity. Adequate time must thus be given to enable the sunscreen to penetrate the skin and form a credible protective shield[48]. Sunscreen should be reapplied every two hours, with particular attention to after swimming, excessive perspiration, or towel-drying[49]. According to the study, many individuals apply scanty amounts of sunscreen, thus decreasing the efficacy of its protecting power[50].

Keep Hydrated

Exercise contributes to fluid loss, especially in perspiration, which may further harm the skin's condition. Dehydration may, thus, decrease skin's natural moisture content, resulting in dry and rough skin that is easily irritated[51,52]. Water is crucial for keeping moisture in the stratum corneum. Hydration makes skin more supple and capable of bearing the impact of environmental stresses, such as pollution and UV rays[53]. Proper hydration lowers the risks of inflammatory skin disorders, speeds the regenerative phases of skin cells, and thus helps in wound healing[54].

Athletes are recommended to adopt drinking water before, during, and after workout in order to maintain a balanced hydration. Drinking enough water before a workout would

help keep the skin hydrated and enable it to withstand any prospective physical stress[55,56]. Being properly hydrated certainly makes the skin look so smooth, fresh, and even slows down the effects of premature aging, lowers the risks of infections, and boosts the protection powers of the skin[57,58,59].

It is possible to cultivate skin hydration by drinking enough quantity of water at least half an hour before exercising and balancing fluid intake at every 15 to 20 minutes while exercising. Apart from drinking water, foods that are high in water content such as fruits and vegetables can help to keep the body hydrated[60].

Appropriate clothing

Through applying efficient dress, athletes will protect their skin from lots of hazards encountered with outdoor sports[61,62]. UV-protective clothing contains UV-blocking substances, obtaining an Ultraviolet Protection Factor (UPF) which shows just how much the material protects the skin from sunlight[63]. Research states that clothing with high Ultraviolet Protection Factor (UPF) could dramatically reduce the risk of UV-induced skin damage: sunburn, early aging, and skin cancer[64.]

Manmade fibers such as polyester and nylon seem to block UV radiation more effectively than natural fibers like cotton[65]. These fabrics actually control body temperature to maintain dry skin as they absorb perspiration from the surface of the skin and promote fast evaporation[66]. Materials like spandex, polyester, and other technical fibers are meant to provide steady body temperatures by increasing air ventilation and improving perspiration evaporation[67]. Accumulation of irritants or chafed zones, especially in body folds or beneath tight clothing due to skin-rubbing against dresses, predominates friction. Athletes, therefore, must use clothing with dressed interfaces and velvet seams without clasp[68,69]. Using clothing that is dark or highly patterned for the athletes, as such colors absorb and block the UV rays better than lighter clothing[70]. Quick-drying and water-resistant were also recommended to help avert skin infections attributed to bacteria or fungus, especially acute in athletes exposed to moisture for long periods[71]. For the athletes with sensitive skin, they need to use hypoallergenic fabrics to minimize the chances of skin reactions[72].

Skin Care After Workouts : Essential Postworkout Steps for Athletes

The skin is susceptible to conditions like excessive sweating, dirt buildup, inflammation, and dehydration during a strenuous workout routine, particularly in outdoor conditions. Skincare after workouts is vital for maintaining general skin health[73,74].

Cleansing

Washing the skin is crucial to rid it of sweat, sebum, and any other potential pore-cloggers. A mildly-aggressive face cleanser, however, would do the job of removing the acne-causing and irritating factors from the skin. Cleansers possessing anti-inflammatory ingredients, such as aloe vera or chamomile will help in calming the skin following a vigorous workout[75]. It is extremely important to also cleanse the skin as soon as possible after the workout, so as to minimize the risk of infection from bacteria that thrive on moist and humid conditions[76].

Skin Hydration

Dryness sometimes occurs as a result of dehydration during training or an intense period of activity. Using a moisturizer helps restore the skin's moisture. Ceramides, glycerin, or hyaluronic acid-containing products will be good and have skin barrier protective properties and hydrating effects[77,78]. Applying a moisturizer post-bathing consolidate the skin[77,79] .

Decreasing Redness and Irritation

Green tea extracts and vitamin C serums are antioxidant products that could help to heal skin damage because of free radicals during exercising[80]. The presence of panthenol and allantoin in skincare preparations accelerates skin repair and reduces redness[81].

UV Protection

Except for the ones that have to do with our skin, this technique can be valuable to all athletes working out in an open environment: UV protection is also imperative for the athlete even after training is done. As mentioned before, it will soon wear out and become hot due to sweating; hence, broad-spectrum against UV rays having SPF at least 30 or above is necessary[82].

Conclusion

Exercise is beneficial to the mind and body but it poses a risk to skin health. Many athletes are exposed to ultraviolet light; irritations caused through friction; skin that is become dry; allergies; and hypersensitivity. Over-exposure to ultraviolet rays, for instance, increases the risk of skin cancer and accelerated aging. It is possible to irritate the skin through tight-fitting and/or non-breathable clothing, through friction with sports equipment or other clothing. Dehydration caused by excess perspiration can lead to dry, itchy, and even more sensitized skin condition. Proper skin care for athletes is needed for the health of their skin.

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