

Sports dermatology part 2: swimming and other aquatic sports

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Participation in athletic activities is associated with a variety of skin problems. Proper diagnosis of specific sports dermatoses requires familiarity with their characteristic clinical presentations, which are occasionally bizarre and perplexing. This article highlights some of the common skin problems associated with swimming and other aquatic sports.

Anatoli Freiman

Division of Dermatology
McGill University
Montréal, Que.

Benjamin Barankin

Division of Dermatology
University of Alberta
Edmonton, Alta.

David J. Elpern

The Skin Clinic
Williamston, Mass.

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Swimmer's xerosis: Swimmer's xerosis, or dry skin, is common among swimmers. Dilution and melting of the natural protective skin sebum leads to moisture loss from the stratum corneum, which results in a dry, scaly, itchy skin.¹ Xerosis is exacerbated by the long hot showers that swimmers are notorious for taking, as well as by long soaks in Jacuzzis and hot tubs.

Management: Xerosis can be prevented by limiting immediate post-swim showers to quick rinse-offs, preferably in lukewarm or cool water. Small quantities of a mild oil-based soap or soap substitute (e.g., Spectro Jel 609)



are preferable to irritating shower-room soap solutions. An oil-based protective emollient should be applied immediately after thoroughly pat-drying oneself with a towel. Plain petroleum jelly or mineral oil can be used as an inexpensive and effective moisturizer, although less greasy creams are more appealing to most people. Topical steroid preparations are occasionally needed to treat areas that develop eczema, with the strength of preparation varying depending on the affected body part and on the severity of the eczema.

Bikini bottom: This form of deep bacterial folliculitis can occur after a full day of wearing damp, tight-fitting swimwear at the beach or during swimming competitions. *Streptococcus* or *Staphylococcus aureus* are commonly involved, and patients present with firm, inflamed, deep nodules over the inferior gluteal creases.



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Management: A course of systemic antibiotic therapy (e.g., cephalexin for 10 days) with adequate skin flora coverage is required. Skin cultures will be helpful since the prevalence of methicillin-resistant *Staphylococcus aureus* is as high as 30% in some geographic areas. Frequent warm soaks of the affected area can also speed recovery.

Hot-tub folliculitis: Caused by *Pseudomonas aeruginosa*, this infection can occur in outbreaks among people using hot tubs and whirlpools. The submerged parts of the skin develop follicular erythematous papules and pustules, and the symptoms of this self-limited condition usually last from 7 to 10 days. *Pseudomonas* hot foot syndrome manifests with tender nodules on the soles of children's feet after using a wading pool.²



Management: Treatment is usually supportive, with antipruritics administered orally or topically. Acetic acid 5% compresses applied for 20 minutes twice daily can also be used for symptomatic relief. When systemic manifestations (e.g., fever, chills and lymphadenopathy) are present, a course of oral ciprofloxacin therapy (500 mg twice daily for a week) may be warranted. Adequate chlorination and control of the pH level of the hot tub can help prevent hot-tub folliculitis.



Allergic contact dermatitis to swim gear: Several unique dermatoses are caused by swim gear. Scuba diver dermatitis is caused by an allergic contact dermatitis to swimmer's goggles or scuba masks and presents with erythema, pruritus and occasional vesiculation or crusting in the distribution of the contact with the equipment. Rubber allergy is the common culprit, with mercaptobenzothiazole, tetramethylthiuram and paraphenylenediamine derivatives being the common allergens involved. Included in the differential diagnosis are periorbital leukoderma, a toxic contact reaction thought to be caused by breakdown products of neoprene or glue in swim goggles, and purpura caused by excessively tight swim goggles.

Diving suit dermatitis affects the neck, trunk and extremities and is caused by contact allergy to thiourea derivative; it should be distinguished from acne mechanica. Contact dermatitis to nose clips, earplugs, fins and fin straps has also been described.³

Management: Cutaneous patch testing can help establish the diagnosis of allergic contact dermatitis to swim gear. Topical or systemic corticosteroid therapy and antihistamine therapy are the mainstay of treatment for acute cases, with oral prednisone therapy (1 mg/kg per day for about 7–10 days) used for generalized or severe cases with vesiculation and blistering. It is important to advise patients to avoid direct skin contact with the allergenic material (e.g., latex-free swim goggles can be worn).

Jellyfish sting: Jellyfish or man-of-war stings occur relatively commonly among salt-water swimmers and can be encountered on beaches where the coelenterates wash up. There are more than 100 toxic jellyfish, and sting symptoms range from annoying burning and pruritus to death. The most common cutaneous manifestation is immediate stinging, followed by urticarial lesions in a linear distribution. Occasionally, granulomatous lesions may ensue and last for weeks to months.

Management: The area should be rinsed with seawater and, for classic box jellyfish stings, topical application dressings soaked in acetic acid (vinegar) and applied for 15–30 minutes 2–4 times a day are often helpful. Tentacles should be removed with tweezers, and topical corticosteroid therapy can help reduce the inflammation. Meat tenderizer, which contains proteolytic enzymes, can be helpful in neutralizing the toxins when applied promptly after the contact.



Swimming pool granuloma: Also known as fish tank granuloma, this condition results from exposure to *Mycobacterium marinum*, an atypical mycobacterium found in fresh or salt water and in home aquariums. Patients typically present with indurated red to hyperpigmented papules or nodules on the knees, elbows or dorsal surface of the hands and feet. These may subsequently ulcerate. Symptoms are often quite minimal, but localized pain and pruritus can occur.



Management: Oral antibiotic therapy is required. A combination of rifampicin (600 mg) and ethambutol (1.2 g) daily for 3–4 months is often used as empiric treatment. It is recommended to continue the therapy for 4–6 weeks following clinical resolution of lesions. Minocycline (100–200 mg) daily for 6–12 weeks can also be effective.

Seabather's eruption: This typically affects salt-water swimmers, especially those bathing in the waters of the Gulf and Atlantic coasts of Florida, as well as of the Bermuda and Caribbean coasts. Seabather's eruption is due to larvae of *Edwardsiella lineate* and *Linuche unguiculata* (thimble jellyfish).⁴ Patients experience a stinging sensation typically within 24 hours after exposure, followed by an intensely pruritic vesiculopapular or urticarial eruption prominent on areas covered by the swimming suit, where the larvae get trapped. When localized to the scrotum, this can be disabling and very painful.



Management: Seabather's eruption can last for 3–7 days and sometimes up to 6 weeks. Treatment consists of application of cold packs, oral antihistamine therapy and mid-potency topical corticosteroid therapy. Showering with the bathing suit off immediately after coming out of the water may help get rid of the larvae trapped in the swimwear material and is the best prophylaxis.

Swimmer's itch or cercarial dermatitis: This allergic reaction to fresh-water schistosome (flatworm) larva presents with an itchy, transient erythematous eruption. After the swimmer exits the water, pruritic erythematous macules and papules develop on parts of the body that were immersed, and these resolve within several days.



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Management: Treatment may not be necessary when small areas are affected. Cold packs and oral antihistamine therapy and mid-potency topical corticosteroid therapy may be helpful for more extensive lesions.

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References

1. Basler RS, Basler GC, Palmer AH, Garcia MA. Special skin symptoms seen in swimmers. *J Am Acad Dermatol* 2000;43(2):299-305.
2. Fiorillo L, Zucker M, Sawyer D, Lin AN. The pseudomonas hot-foot syndrome. *N Engl J Med* 2001;345(5):335-8.
3. Fisher AA. Contact dermatitis to diving equipment, swimming pool chemicals, and other aquatic denizens. *Clin Dermatol* 1987;5(3):36-40.
4. Segura-Puertas L, Ramos ME, Aramburo C, Heimer De La Cotera EP, Burnett JW. One Linuche mystery solved: all 3 stages of the coronate scyphomedusa *Linuche unguiculata* cause seabather's eruption. *J Am Acad Dermatol* 2001;44(4):624-8.



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