Patients with atopic skin show a defective barrier function both in rough and in clinically normal skin, with an increasing risk of developing contact dermatitis. Moisturizing creams are often used in the treatment of dry skin. The purpose of this study was to investigate the influence of treatment with a urea-containing moisturizer on the barrier properties of atopic skin. Fifteen patients with atopic dermatitis treated one of their forearms twice daily for 20 days with a moisturizing cream. Skin capacitance and transepidermal water loss (TEWL) were measured at the start of the study and after 10 and 20 days. On day 21 the skin was exposed to sodium lauryl sulphate (SLS) and on day 22 the irritant reaction was measured non-invasively. Skin capacitance was significantly increased by the treatment, indicating increased skin hydration. The water barrier function, as reflected by TEWL values, tended to improve (P=0.07). And the skin susceptibility to SLS was significantly reduced, as measured by TEWL and superficial skin blood flow (P<0.05). Thus, it seems that certain moisturizers could improve skin barrier function in atopics and reduce skin susceptibility to irritants. The mechanism and the clinical relevance need further investigation.