

# Retinoids

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Retinoid is a term used to describe Vitamin A and its chemical derivatives. Both the good and toxic effects of Vitamin A have been known for a long time. In the early 1900's, a lack of Vitamin A was associated with cancer development and also with skin changes. Based on these findings, retinoids were studied as a treatment for skin disorders and cancer. One problem with natural occurring Vitamin A is that the amount needed to cause the good effects is close to that which causes the toxic effects. By the time enough is taken to achieve a clinical benefit, side effects such as headaches, bone pain, and bone changes begin to occur. To try to increase the amount of benefit and decrease the toxic side effects, researchers and pharmaceutical companies became interested in creating and studying synthetic derivatives of Vitamin A.

Retinoids work in several different ways by different mechanisms. These compounds are required for normal growth and development of many cells and tissues. Retinoids enhance the process of cell differentiation (the process by which cells grow and develop), so that for cells, which are not growing normally, the addition of retinoids can push their development towards normal. In many of the scaly skin conditions, such as ichthyosis, additional retinoid can help the skin cells grow more normally.

Several retinoids are used as drugs either topically (rub on) or systemically (delivered to the whole body, as in a pill). Retinoic acid (tretinoin, Retin A, Renova), is used as a topical treatment for acne and may help other skin conditions such as sun induced skin damage, and thick or scaly conditions such as ichthyosis. Tazarotene is a different retinoid compound that is used topically for similar problems and has shown benefit when used to treat ectropion (pulling down of the eyelids). Isotretinoin (known as Accutane before 2009) is an oral medication used for a type of severe acne and may also help scaly skin conditions. Acitretin (Soriatane) is used for psoriasis, ichthyosis, and other skin disorders.

Systemic retinoid therapy almost always causes some side effects. Most are usually mild and easily controlled. The side effects include: dryness and scaling of the skin and mucous membranes; blood test abnormalities, such as increases in triglycerides and cholesterol, and abnormal liver function; and joint stiffness.

Naturally occurring retinoids (as vitamins) are important for the normal development of the fetus, but if a pregnant woman takes other oral retinoid drugs they can interfere with development and lead to birth defects. Even one pill of a retinoid drug taken during pregnancy can lead to severe birth defects such as a malformed brain, severe retardation, abnormal eyes, abnormal ears, and serious heart defects. Any woman of childbearing age must be on two effective forms of birth control (birth control pills, implanted hormone therapy, condoms, diaphragms, etc.) while taking retinoid drugs. In addition, certain retinoids can stay in the body for a very long time (possibly several years), and should not be taken by women who could possibly get pregnant without significant discussion with a physician and an understanding of the risks.

The retinoid drugs available today may be of some use to individuals with severe acne, psoriasis, ichthyosis and cancer. Whether retinoid treatment would be beneficial to you is something you need to discuss in great detail with your physician. The use of retinoids to treat

your ichthyosis should be an informed, negotiated agreement between you and your physician. Retinoids should NEVER be taken except under the supervision of a doctor, and under strict guidelines, as outlined by the FDA and the drug manufacturers. Regular pregnancy tests must be done, as well as frequent visits to the doctor. Under no circumstances should retinoids be taken by anyone other than the person for whom the drug was prescribed.

*This information was summarized from an article written by John J. DiGiovanna, MD, for an issue of the Ichthyosis Focus. The information herein was reviewed and revised by members of the FIRST Medical & Scientific Advisory Board.*

*This information is provided as a service to patients and parents of patients who have ichthyosis. It is not intended to supplement appropriate medical care, but instead to complement that care with guidance in practical issues facing patients and parents. Neither FIRST, its Board of Directors, Medical & Scientific Advisory Board, Board of Medical Editors, nor Foundation staff and officials endorse any treatments or products reported here. All issues pertaining to the care of patients with ichthyosis should be discussed with a dermatologist experienced in the treatment of their skin disorder.*



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Skin Types

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***Improve lives and seek cures for those affected by ichthyosis and related skin types.***

*January 2021*

