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Optical Non-Invasive Approaches to Diagnosis of Skin Diseases

Kollias N, Stamatias N.; J Invest Dermatol Symp Proc. Dec 2002; 7(1):64-75.

ABSTRACT

A number of noninvasive approaches have been developed over the years to provide objective evaluation of the skin both in health and in disease. The advent of computers, as well as of lasers and photonics, has made it possible to develop additional techniques that were impossible a few years ago. These approaches provide the dermatologist with sensitive tools to measure the skin's condition in terms of physiologic parameters (e.g., color, erythema and pigmentation, induration, sebaceous and stratum corneum lipids, barrier function, etc.). Yet, a typical dermatologic diagnosis relies primarily on the trained eyes of the physician and to a lesser extent on information from other senses, such as touch and smell. The trained senses of the dermatologist backed by his/her brain form a powerful set of tools for evaluating the skin. The golden rule in diagnosis remains the histologic examination of a skin biopsy, a rather invasive method. These tools have served the profession well. The advent of ever faster and cheaper computers and of sensitive, inexpensive optical instrumentation of minimal dimensions provides the professional with the possibility of making objective measures of a number of skin parameters.