



Comment and Controversy  
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## Two controversies confronting dermoscopy or dermatoscopy: nomenclature and results



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**Abstract** Dermoscopy is a noninvasive diagnostic technique that was used mostly for diagnosing pigmented lesions,<sup>1,2</sup> but more recently, it has been employed in the diagnosis of infectious and inflammatory skin lesions, also known as *entomodermoscopy* and *inflammoscopy*,<sup>3</sup> as well as for hair<sup>4</sup> and scalp disorders, called *trichoscopy*.<sup>5</sup> The initial name of *epiluminescence microscopy* has evolved into dermoscopy and dermatoscopy but not without controversy.

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### Dermoscopy versus dermatoscopy

#### Historical background

Dermoscopy is a noninvasive diagnostic tool allowing the observation of submacroscopic structures *in vivo* not visible to the naked eye.<sup>1,2</sup> The nomenclature has evolved from “epiluminescence microscopy and surface microscopy” to “dermoscopy and dermatoscopy.”

As early as 1663, Johann Christophorus Kohlhans (1604–1677) was the first to visualize the capillaries of the nail fold. He discussed the topic in *Tractatus Opticus*, a generic work on optic instruments, inventions, and innovations of that century. The technique was improved with the addition of immersion oil in 1879 by Ernst Abbe (1840–1905).<sup>6</sup>

In 1893, Paul Gerson Unna (1850–1929) published a contribution entitled “Diaskopie” in which he described the role

of the oil in skin surface microscopy. Unna observed the granular layer of the epidermis and realized that the irregularity of the surface of the skin led to diffusion of light. Applying oil, he was able to make the skin more transparent.<sup>7</sup>

Johann Saphier (1884–unknown), a German dermatologist, was the first to specify the possible applications of incident light and was the first to use the term *dermatoscopy*.

In 1920, Saphier published a contribution entitled, “Dermatoskopie,” in which he discussed, based on previous studies of Unna, the importance of using specific lenses to observe some characteristics of the lesions present in the skin, and the use of water and oils to make the stratum corneum moist and transparent, and, thus, bring out the skin lesions.<sup>8</sup>

Leon Goldman (1906–1997) was the first dermatologist to coin the term *dermascopy* and to use the dermatoscope to evaluate pigmented cutaneous lesions.<sup>9</sup>

In 1989, Wilhelm Stolz (1958–) and the photographer Peter Bilek (1936–2009), with other colleagues, presented a new instrument which was lightweight, inexpensive, and simple to use: the Delta 10 Dermatoscope (Heine

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Optotechnik, Herrsching, Germany). They focused on the importance of the use of optical microscopy as a new diagnostic tool to be added to the closed macroscopic and histologic investigations of dermatology.<sup>10</sup>

Otto Braun-Falco (1922-2018) was an important supporter of dermatoscopy. In his 1999 publication,<sup>11</sup> he advocated the role of the dermatoscopy, suggesting its use in daily dermatologic practice to improve the clinician's diagnostic skills for pigmented skin lesions. His collection of contributions, *Fortschritte der Dermatologie*, promoted the use of dermatoscopy. This collection introduced new diagnostic techniques, new therapeutic approaches for skin diseases, and talked about the scientific progress and improvement of the diagnosis for some dermatologic diseases. The contents of this volume traced the path of dermatology from the second half of the 20th century.<sup>12</sup>

In *Fortschritte der Dermatologie*, there is a significant contribution by Wilhelm Stolz, "From the magnifying glass to the computer," in which he deals with the development of dermatoscopy from the first lenses to the present day with computers and the most advanced technology.

## Nomenclature

Currently, there are two names for this technique: dermoscopy and dermatoscopy. Although the former is commonly used, the latter may be the more appropriate etymologic term. The root *derma-* originates from ancient Greek, particularly from the words *Τ δέρμα* and *Το δέρματος*, which translates to *the skin*. It would be more correct to call this examination *derma-toscopy* and not *dermo-scopy*, because the right root is *-derma* and not *-dermo*. For the same reason, we say *dermatology* and not *dermology* as well as *dermatologist* and not *dermologist*.

This was also highlighted by A. Bernard Ackerman (1936-2008) in a Letter to the Editor, in which he pointed out that the entry for *δέρμα*, *δέρματος* (Greek for *skin* or *leather*) in *A Dictionary of Dermatological Words, Terms, and Phrases* by Leider and Rosenblum reads, "...combining forms from the stem of the Greek word *derma*, *skin*, *dermatos*, of the *skin*."<sup>13</sup> Not surprisingly, there is no unique entry in the dictionary for "dermo," because no such stem exists.<sup>14</sup>

The controversy may never be settled, with proponents of each term being strong advocates of their choices. Curiously, *dermoscopy* seems more wordy in everyday language, but it found its way into organizations such as the International Dermoscopy Society.

## Metaphoric versus descriptive terminologies

With the description and discovery of a new morphologic dimension of skin lesions, the vocabulary to name the different dermatoscopic morphologies has quickly evolved so that

now it is difficult, even for experts, to remember all the newly introduced terms. It comes, therefore, as not a surprise that some participants have raised the need for a better standardization of terminologies, if only for future research.

The metaphoric terminologies are based on a metaphor that is a linguistic and conceptual tool commonly used in science and the arts. It has been defined as, "...understanding and experiencing one kind of thing in terms of another."<sup>15</sup> Metaphors, not surprisingly, are widely used in the dermatology lexicon, developed to aid recognition and description of clinical, dermatoscopic, and dermatopathologic criteria.<sup>15</sup>

Specific patterns have been described and some new morphologic criteria have been defined, not readily apparent to the naked eye but detected easily by epiluminescence microscopy, which represents relatively reliable markers of benign and malignant pigmented skin lesions. These features include specific patterns, colors, and intensities of pigmentation, as well as the configuration, regularity, and other characteristics of both the margin and the surface of pigmented skin lesions. Pattern analysis of these features permits a distinction among different types of pigmented skin lesions and, in particular, between benign and malignant growth patterns.

To standardize the terminology of this technique, a consensus conference<sup>16</sup> was held by the Committee on Analytical Morphology in Hamburg, Germany, in 1989. The purpose of this meeting was to arrive at a comprehensive list of features and terms. They introduced the name *network*, writing that, "...it appears as a delicate, regular grid of brown lines over a diffuse light brown background. The histologic substrates are the rete ridges surrounding the dermal papillae."<sup>16</sup> They also defined what globules, comedolike opening, teleangectasia, and red-blue areas are.

In 2003, the virtual "Consensus Net Meeting on Dermoscopy"<sup>17</sup> represented the first agreement made based on the need to standardize the dermatoscopic terminology.

The main criticism of metaphoric terms is that they are linked to a specific diagnosis. In other words, the use of a metaphoric term is based on the knowledge of the correct diagnosis. For this reason, a descriptive terminology<sup>17</sup> has been introduced, which is confined to five basic elements: (1) lines; (2) dots; (3) clods; (4) circles; and (5) pseudopods.

If one of these is missing, the term *structureless* can be used. These basic elements can form specific patterns based on their specific arrangement. With the addition of color, these five terms are sufficient to describe all dermatoscopic structures. The main problem is that the complexity of the architecture, that is, the exact arrangement and dimension of basic elements to each other, is not included in the descriptive terminology and often requires more time and long wording.

Metaphoric words are very convenient, because in one word something more complex can be described. Although all metaphoric terms can be translated into descriptive terminology, the means of accomplishing this appears to be more difficult. The descriptor *strawberry pattern* is an example

of a metaphoric term that sticks in the memory, because it is a good metaphor for a complex concept. In one word, the shape, the color, and the main dermatoscopic features of a lesion are described.

### The Third Consensus Conference of the International Society of Dermoscopy

As a result of the expansion of the dermatoscopic vocabulary and the controversy between metaphoric and descriptive terminology, the International Society of Dermoscopy decided to provide a consensus on dermatoscopic terms during a conference in Vienna in 2015.

After this Consensus Conference, a dictionary of terms was published, where both descriptive and metaphoric terminology were described.<sup>18</sup> For example, the term *lines* in descriptive form corresponds to *network* in metaphoric terminology.

In the same year, a study was conducted on dermatoscopic terminologies based on the daily terms used by dermatologists. The data was collected by a questionnaire sent to more than 1,090 dermatologists.<sup>18</sup> They were asked about familiarity with some terminology published in the literature (possible answers were: known, not sure, unknown) and whether or not they use those terms. The three most well-known terms were *blue-whitish veil*, *milialike cysts*, and *comedolike openings*.

The third Consensus Conference on dermatoscopic terminology took place in 2015 during the Fourth World Congress of the International Dermoscopy Society in Vienna, Italy. According to this conference, (1) metaphoric and descriptive terminology are both suitable methods for the description of dermatoscopic features; (2) metaphoric terms should have a definition; (3) if new dermatoscopic criteria are described, existing metaphoric terms or descriptive terms should be used preferentially instead of inventing new terms (if possible); and (4) the number of metaphoric terms should be reduced and synonyms should be replaced by the most popular or the most appropriate term.

### So what term must be used?

The controversies of dermatoscopy are many, starting from the name, up to the descriptive terms to use for describing the dermatoscopic characteristics of pigmented and inflammatory lesions. The controversies regarding metaphoric or descriptive terms have been addressed in the course of various international meetings. To this day, there is not a global consensus regarding the name to use for the method described for the first time several years ago.

Based on etymology, it would be more appropriate to use the term *dermatoscopy*, because the correct Greek root is *dermat-*, even if the term *dermoscopy* is widely used. For

example, there are several international organizations (such as International Dermoscopy Society) which prefer the English version for their name. We promote the term *dermatoscopy*, just like we will continue to say and write *dermatology* instead of *dermology*, *dermatologic* rather than *dermologic*, and continue to introduce ourselves as *dermatologists*, not *dermologists*.

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