

Iridology

Not Useful and Potentially Harmful

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More than 1000 licensed naturopathic physicians practice in the United States,¹ and iridology is being described as “the most valuable diagnostic tool of the naturopath.”² Some therapists are using iridology as a basis for recommending dietary supplements and/or herbs.³ Several US iridologist organizations exist: the National Iridology Research Association is an iridologists’ service organization, the International Association of Iridologists is the leading organization for European-style iridology and runs training programs (minimum of 72 hours in class), and the Bastyr Naturopathic College in Seattle, Wash, has an elective course on iridology (J. Colton, e-mail communication, December 2, 1998). In the United States, insurance programs do not normally cover iridology, but in some European countries, they do. In Germany, for instance, 80% of the *Heilpraktiker* (nonmedically qualified health practitioners) practice iridology.⁴ Ophthalmologists may therefore ask what is iridology and how valuable is it?

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Iridology, developed more than 100 years ago, is the diagnosis of medical conditions through noting irregularities of the pigmentation in the iris. Iridology assumes that all bodily organs are represented on the surface of the iris via intricate neural connections⁵ and that dysfunction of most organs is marked on the iris, usually as a pigmentary change; the right half of the body is represented in the right iris, the left half in the left iris. Iridologists refer to maps of the iris on which each iris is divided into 60 sectors (much like the face of a clock), and each segment is related to an inner organ or bodily function. Heart diseases, for instance, are thus identified in the left iris somewhere between the 2- and 3-o’clock positions. Iridologists study the iris in situ or they produce high-quality color photographs of both irides.

Does iridology work? To answer this question, the following databases were searched: MEDLINE, EMBASE, and CISCOM (all from their inception to the end of 1998). In addition, other experts on complementary or alternative medicine were asked for further references, and professional societies of iridologists were addressed and invited to contribute mate-

rial. Finally, my own files were searched. All bibliographies of articles thus obtained were scanned for further relevant publications. This search strategy resulted in 77 publications on the subject of iridology. Copies of all of these articles were obtained unless it was clear from the title that it did not pertain to an experimental study. Those published in English, German, French, Spanish, and Italian were read in full. Of those published in other languages, the English abstracts were read, and if they suggested a relevant investigation, translations of the full article were obtained.

Most of the 77 papers were review articles, comments, and descriptions of the technique.^{6,7} Seventeen articles were classified as attempts to evaluate the diagnostic validity of iridology. Most of these investigations were conducted without a control group, and some (with or without a control group) were not evaluator masked.^{8,9} All of the uncontrolled studies and several of the unmasked experiments suggested that iridology was a valid diagnostic tool. Such investigations are wide open to bias. The discussion that follows refers to the 4 controlled, masked evaluations of the diagnostic validity of iridology.¹⁰⁻¹³

Simon et al¹⁰ studied patients suffering from kidney disease as defined by a creatinine level higher than 106 $\mu\text{mol/L}$ (1.2

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mg/dL); the controls were free of kidney disease. Patients were assessed as a total group as well as 2 separate subgroups, one with moderately high creatinine levels (up to 433 $\mu\text{mol/L}$ [4.9 mg/dL]) and one with markedly high creatinine levels (557-1414 $\mu\text{mol/L}$ [6.3-16.0 mg/dL]). Kidney disease was chosen for convenience and because iridologists felt comfortable with it (and with the study outline). Photographs were taken of both irides of all 146 study participants, coded, and shown to 3 experienced iridologists and 3 ophthalmologists. They were asked to categorize the photographs according to patients (kidney disease) and controls (no kidney disease). The resulting frequency of false-positive and false-negative diagnoses was not significantly different from that expected by chance. Simon and coauthors concluded that "none of the 6 observers in this study derived data of clinical importance or significance."¹⁰

Knipschild¹¹ conducted another investigator-masked case-control study. His 39 patients had inflamed gallbladder disease as confirmed by subsequent surgery. Patients with jaundice were excluded. Controls were matched for age and sex and had no signs or symptoms of gallbladder disease. Gallbladder disease was chosen because the participating 6 iridologists, all leading experts in their field, had previously indicated that this condition was impossible to overlook. Stereo color slides were taken of the right iris of each patient, coded, randomized, and shown to the iridologists. Validity, sensitivity, specificity, and consistency were not significantly different from that expected by pure chance. Knipschild concluded that "iridology is not a useful diagnostic tool."¹¹

Buchanan and coworkers¹² took color photographs of the irides of 4 different patient populations—ulcerative colitis (n = 30), coronary heart disease (n = 25), asthma (n = 30), and psoriasis (n = 30)—and 1 control group. Controls were matched for age and sex. These photographs were coded and analyzed by an investigator, both manually and by a computer program according to criteria generated by reputed iridologists.^{1,2} Using either method, discrimination between cases and

controls was not different from that expected by chance. The authors concluded that "diagnosis of these diseases cannot be aided by an iridological-style analysis."¹²

Cockburn¹³ published the results of 1 uncontrolled and 1 small controlled and evaluator-masked trial in a single article. In the latter study, photographs were taken of 3 patients (1 with pleurisy, 1 with gastroenteritis, and 1 with an upper respiratory tract infection), both in a healthy and an acutely diseased state. These were examined by the (masked) author of the article, who

was unable to detect changes in the pre-disease and during-disease photographs, other than slight artifactual variations attributable to exposure variations in the printing and the positioning of reflections.¹³

Even though this trial is burdened by a minute sample size, the author concludes that iridology "does not appear to have any validity in the context of conventional medicine."¹³

Collectively, these controlled and masked studies do not support the notion that iridology is a valid diagnostic tool. There is little reason to suspect that a type II error rendered these investigations falsely negative. Many other less rigorous assessments of iridology have been published. Kibler and Sterzing¹⁴ took more than 4000 photographs of more than 1000 patients and healthy volunteers and concluded that "iridology as a diagnostic tool collapses like a house of cards." Unfortunately, some of these early evaluations of iridology were methodologically flawed. The 4 above-cited studies¹¹⁻¹⁴ were, however, adequately designed and masked. Therefore, they are most likely to represent the truth about iridology.

Might iridology be doing any harm? Waste of money and time are two obvious undesired effects. The possibility of false-positive diagnoses, ie, diagnosing—and subsequently treating—conditions that did not exist in the first place, seems more serious. The real problem, however, might be false-negative diagnoses: someone may feel unwell, go to an iridologist, and be given a clean bill of health. Subsequently, this person could be found to have a serious disease. In such cases, valu-

able time for early treatment (and indeed lives) can be lost through the use of iridology. No data are available on how frequently such problems occur. Thus no firm judgments are possible as to the damage done by iridology in real life.

In conclusion, few controlled studies with masked evaluation of diagnostic validity have been published. None have found any benefit from iridology. As iridology has the potential for causing personal and economic harm, patients and therapists should be discouraged from using it.

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