

## Reactive Arthritis – The Appropriate Name

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### Abstract

Reiter's syndrome is an eponym used to denote the triad of arthritis, urethritis and conjunctivitis. This syndrome is named after Hans Conrad Julius Reiter, who was involved in the activities of the Nazi Racial Hygiene Program related to involuntary sterilization, euthanasia and criminal research projects. Reiter defamed the entire medical profession and it was therefore suggested that the term Reiter's syndrome be changed to reactive arthritis. We undertook to investigate the use of the eponym Reiter syndrome in medical literature, medical schools in Israel and medical textbooks, compared to the term reactive arthritis, by searching Medline between the years 2003 and 2007, 14 current medical textbooks, curricula of the four medical schools in Israel, and computerized patient file systems in Israel. We found a decline in the use of the eponym in articles published between 2003 (18%) and 2007 (9%); however, most textbooks (13/14) still use it. Two of the four medical schools in Israel continue to use the eponym. The eponym appears in the computerized patient files of all four healthcare providers in Israel. We hold that the continued use of the eponym Reiter syndrome in medical textbooks, medical schools and computerized patients files in Israel is honoring an abomination and is inconsistent with medical principles. Awareness is still lacking and we suggest deleting the Reiter syndrome eponym from use, and replacing it with the more appropriate term – reactive arthritis.

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Reiter's syndrome is an eponym used to denote the combination of three symptoms – arthritis, urethritis and conjunctivitis – occurring during or after episodes of diarrhea or urethritis. We believe that the eponym should be deleted from the medical literature and replaced by the term reactive arthritis, as suggested previously, for several reasons. Firstly, the triad described in this syndrome is too restrictive of the concept of reactive arthritis, which encompasses a great deal more and can be present even in the absence of all three components. Second, a more descriptive term than an eponym is preferred. Third, Reiter was not the first to describe the syndrome. Finally, and most important, is the moral issue. Despite this reasoning the term Reiter syndrome is still being used and there are few instances where it is mentioned with disfavor.

The syndrome was probably recognized as far back as the time of Hippocrates. Sir Benjamin Brodie describes this syndrome in five patients with the triad of urethritis, arthritis and conjunctivitis, in a book published in 1818. In 1916, two French

investigators, Noel Fiessinger and Edgar LeRoy, described four patients with arthritis, urethritis and conjunctivitis in the *Bulletin of the Medical Society of Paris*. This article appeared eight days prior to the report of Reiter. The authors named it the “conjunctival, urethral, synovial syndrome.”

This association of arthritis, conjunctivitis and non-gonococcal urethritis was published in 1916 in the *German Medical Weekly*. The author was Reiter. Reiter did not actually recognize that the arthritis and conjunctivitis were related to the dysentery and mistakenly attributed the disease to a spirochete infection, naming it Spirochaetosis arthritica, speculating that it may have been transmitted by biting flies or mosquitoes [1]. Although he was not the first to describe the syndrome and despite the fact that he associated it with a spirochetal pathogen, the eponym “Reiter's syndrome” gained popularity.

Hans Conrad Julius Reiter, born in 1881 in Leipzig, received his medical degree in 1906. He joined the Nazi Party on 31 August 1931. He was appointed Minister of Hygiene in the District of Mecklenburg/Lübeck and subsequently directed the Department of Health. After 1933, he was promoted to the position of president of the German Health Ministry and was involved in the activities of the Nazi Racial Hygiene Program. He was ministerially responsible for the “euthanasia” and forced sterilization programs, whose victims numbered in the hundreds of thousands. The documents relating to charges against Reiter and the investigation of these charges during the Nuremberg Trials between 1945 and 1947 were obtained and published by Wallace and Weisman [2,3]. Among the charges against Reiter is active participation in experiments related to involuntary sterilization and euthanasia. In addition, according to documentation presented by Iglesias-Gammara and co-authors [1], he helped design one of the sixty “overtly criminal” research projects – that of vaccinating Buchenwald concentration camp inmates with typhus, resulting in hundreds of deaths [2,3]. Wallace and Weisman, in a letter to the International Committee of Rheumatology Medical Editors and the American College of Rheumatology, suggested that the term Reiter's syndrome be changed to reactive arthritis in all publications.

The efforts of Wallace and Weisman bore fruit and the rate of the unqualified use of the Reiter eponym in medical publications in the English language declined from 57% in 1998 to 34% in 2003, but was not eliminated [4]. In 2003, Dan Caspi, head of the Israeli Rheumatology Society at that time, called for the substitution of the eponym Reiter syndrome by the more appropriate

term "reactive arthritis," in Israel. A detailed letter containing the evidence and pertinent facts about Hans Conrad Reiter was distributed among the deans of all medical schools in Israel and the presidents of Israeli societies of relevant medical disciplines. Indeed, after 2003, in no article published in an Israeli medical journal (*IMAJ* and *Harefuah*) does the eponym Reiter syndrome appear.

The aim of the present study was to investigate the incorporation of the term "reactive arthritis" in the world literature since 2003, in Israeli medical schools and in everyday practice.

## Methods

### Medline search

Articles were identified via Medline search for articles published from 2003 through 2007 with the key words "Reiter's syndrome," "Reiter disease" or "reactive arthritis." We excluded articles that focused specifically on the controversy surrounding the Reiter eponym or that used the eponym with qualification (i.e., with mention of its disfavored use). The frequency of the use of the term Reiter syndrome compared to the term "reactive arthritis" was evaluated.

### Textbooks

We searched the index and text of leading textbooks for the use of the eponym Reiter's syndrome or disease in rheumatology (*Kelley's Textbook of Rheumatology*, 7th edition, 2005; *Rheumatology*, 3rd edition, 2003), in dermatology (*Clinical Dermatology*, 4th edition, 2004), in ophthalmology (Vaughan & Asbury: *General Ophthalmology*, 16th edition, 2004; Duane's *Foundations of Clinical Ophthalmology*, 2007), in urology (Campbell-Walsh: *Urology*, 9th edition, 2007), in orthopedics (Campbell: *Operative Orthopaedics*, 10th edition, 2003), in infectious diseases (Mandell's *Principles and Practice of Infectious Diseases*, 6th edition, 2005), in internal medicine (Harrison's *Principals of Internal Medicine*, 16th edition, 2005; Cecil: *Textbook of Medicine*, 22nd edition, 2004), in family medicine (Rakel: *Textbook of Family Medicine*, 7th edition, 2007), in pediatrics (Nelson *Textbook of Pediatrics*, 18th edition, 2007), in obstetrics (Williams: *Obstetrics*, 22nd edition, 2005), and in cardiology (Braunwald's *Heart Disease: A Textbook of Cardiovascular Medicine*, 7th edition, 2005) [5-18].

### Medical schools in Israel

In order to evaluate the incorporation of the name "reactive arthritis" in Israeli medical schools we reviewed the preclinical curriculum of the four medical schools in Israel (Tel Aviv University's Sackler Faculty of Medicine, the Hebrew University of Jerusalem Medical School, Technion-Israel Institute of Technology's Rappaport School of Medicine in Haifa, and Ben-Gurion University of the Negev's Goldman Medical School in Beer Sheva).

### Computerized patient file system of health management organizations

In Israel there are four HMOs: Leumit, Clalit, Meuhedet and Maccabi. We searched the scrolling menu of the computerized

patient file systems of each provider for the terms "Reiter syndrome" and "reactive arthritis."

### Statistics

A declining trend for the use of the term "Reiter syndrome" compared to "reactive arthritis" in Medline publications was evaluated by the SAS software version 9, using the one sided Cochran-Armitage Test for Trend. A *P* value less than 0.05 was considered statistically significant.

## Results

### Medline search

Table 1 delineates the percentage of articles that use the eponym Reiter syndrome without qualification by year since 2003. The Cochran-Armitage Test for Trend demonstrates a declining trend for the use of the eponym (*P* = 0.034). Of note is the total number of articles using the eponym: 6 in 2007 compared to 24 in 1998.

### Textbooks

Searching the index and text of leading textbooks in rheumatology, dermatology, ophthalmology, urology, orthopedics, infectious diseases, internal medicine, family practice and cardiology for the use of the eponym Reiter's syndrome or disease revealed that all books use the term Reiter syndrome without qualification except for Cecil's *Textbook of Medicine*, 22nd edition, 2004. In Nelson's *Textbook of Pediatrics*, 18th edition, 2007, the eponym Reiter syndrome appears only in the index. Previous editions of both textbooks used the term Reiter syndrome.

### Medical schools

The curriculum of internal medicine rotation in two of the four medical schools in Israel included the term Reiter syndrome without qualification under the topic seronegative spondyloarthropathies.

### Computerized patient file system of the HMOs

The eponym Reiter syndrome was found in the scrolling diagnosis menu of the computerized patient-file system of all four health care providers in Israel. Only one system also included the term "reactive arthritis."

**Table 1.** Percentages of articles using Reiter eponym without qualification, according to year of publication

Year of publication	2003	2004	2005	2006	2007
No. of articles	102	99	87	81	67
% using Reiter eponym without qualification*	17.64706	16.16162	16.09195	13.58025	8.955224

\* Articles that use the eponym without qualification, refers to those that use the eponym without mentioning its disfavored use (compared with articles that either use the eponym along with mention of its disfavored use or do not use the eponym at all).

HMO = health management organization

## Discussion

In this study we investigated the unqualified use of the eponym "Reiter syndrome" in medical literature (i.e., journals), medical schools in Israel and everyday practice. Our findings demonstrate a clear trend away from the unqualified use of the term Reiter eponym in the medical literature between 2003 (17.6%) and 2007 (9%). Previous studies evaluated only the English literature yet demonstrated a similar trend: 34.0% in 2003, 57.0% in 1998, and 61.4% in 1980–1987 [4,19].

However, evaluating the use of the eponym in current editions of medical textbooks revealed a different picture: 13 of 14 textbooks still use the eponym Reiter syndrome without qualification. The discrepancy between the declining use of the eponym in articles with the continued use in textbooks may reflect the textbook authors' conservative attitude. In some textbooks, chapters have been simply copied from a previous edition.

Half of the medical schools in Israel continue to use the term Reiter syndrome, according to the official internal medicine curricula. This may be attributed to the fact that some of these curricula have not been updated recently.

In everyday practice, physicians using the computerized file system in Israel will find the term Reiter syndrome as the only option in the scrolling menu of most HMOs.

In conclusion, the term Reiter syndrome is an eponym that should be deleted from medical publications, mostly on moral grounds [20]. It is a reminder of a physician who was a member of the Nazi Party, misused his medical profession, and was directly responsible for the deaths of hundreds of concentration camp inmates. Reiter defamed the entire medical profession as well as medical science. It is inconsistent with medical principles to honor this abomination, nor is it consistent with medical education to use this eponym. Awareness of this issue is still lacking, as evident by the continued use of the eponym in medical textbooks, medical schools in Israel, and computerized patient files in Israel. We strongly suggest eliminating the Reiter syndrome eponym from use, and replacing it with the far more appropriate term – reactive arthritis.

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