

## Rhinology resources on the Internet: an update\*

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### SUMMARY

**Aim:** There has been a significant increase in the number of clinically useful biomedical resources available through the Internet over the last few years. The aim of this article is to present an updated list of all the worldwide web sites of rhinology.

**Methods:** All rhinologic links, which appear on the web site of the journal "Rhinology" were accessed and updated. Non-responding links were discarded and a new extensive survey of all rhinologic sites on the Internet was performed using on-line available search engines. All sites were accessed more than once at different times and their uniform resource locator (URL) address was recorded.

**Results:** The URL addresses of all rhinologic sites on the Internet appear in categories. Main categories include endoscopy and operative techniques, allergy, olfaction, rhinology clinics and research centers, organizations and societies, scientific journals, discussion groups, news and medical conferences, collective otolaryngology resources, and miscellaneous other sites of interest to rhinologists.

**Conclusions:** This paper summarizes several types of resources available to rhinologists on the Internet. A complete universal list was composed, in which links to almost all interesting rhinologic links were included.

**Key words:** computer communication networks, internet, rhinology, otolaryngology

### INTRODUCTION

During recent years, the Internet has continued to expand, and new sites of interest are added daily, establishing it as the most promoted and most rapidly growing worldwide technology<sup>(1-3)</sup>. A new era in communications, commerce, education and science has emerged. Increased performance of personal computers allowed direct high-speed image and voice transfer by modern multimedia technology<sup>(4-5)</sup>. Applications of these developments include on-line educational courses, internet-based consultation with transfer of images, diagnostic tests and radiographs, and videoconferences, by using inexpensive web cameras and voice transfer equipment<sup>(6-8)</sup>. Internet based surveys are easily accomplished and extensive multi-center databases permit exchange of scientific information<sup>(9-10)</sup>. Electronic mail has become the standard mode of communication in the medical community, because of its inherent advantages versus surface mail, including immediate transmission and ability to transfer computer files including images and sound<sup>(11)</sup>.

The usefulness of these developments in the field of medicine is obvious, and rhinology is a specialty, which has taken advantage of the new possibilities. Many scientific associations, medical journals, academic departments, biomedical libraries and specialists, maintain on the world-wide web interesting sites with information about their activities<sup>(12-14)</sup>. Numerous rhinologic sites have been recently added, providing educational material, statistical data and all of the modern surgical, laboratory and clinical developments in rhinology. A problem, which still remains, is the change of the web addresses of numerous sites, due to various practical reasons, e.g. changing Internet Service Provider, or servers. Although quite advanced search engines of the Internet exist, access of a site in its new address demands time and effort and it should be noticed that several sites are no longer active. The aim of this study was the survey of all rhinologic links, which have been previously published<sup>(13)</sup> and are available on-line on the web site of the journal "Rhinology"<sup>(15)</sup>, updating their addresses and discarding non responding sites and, furthermore, including new sites of interest to rhinologists.

Footnote: All links in this article can be accessed from our website at: [www.rhinologyjournal.com/links](http://www.rhinologyjournal.com/links)

## METHODS

All rhinologic links that appear on the website of the journal "Rhinology" were accessed and their uniform resource locator (URL) addresses were recorded. Non-responding links were excluded. Each site was visited at least three times, in order to confirm that all of them were active and responding properly. Additionally, a new extensive survey of various rhinologic sites on the Internet was performed. Most information was collected by navigating across the Internet, starting from sites containing aggregate lists of otolaryngology sites and further accessing these sites and their links. Also, available on-line search engines were used for selected rhinology topics. Special effort was taken to include all relevant sites, compiling a complete universal list, in which as much as possible information on the Internet of interest to rhinologists has been included.

The URL addresses of all rhinologic sites on the Internet have been divided in categories. Main categories include endoscopy and operative techniques, allergy, olfaction, rhinology clinics and research centers, organizations and societies, scientific journals, discussion groups, news and medical conferences, collective otolaryngology resources, and miscellaneous other sites of interest to rhinologists.

## RESULTS

The 1st category of URL addresses (Table 1) of rhinology issues includes endoscopy and operative techniques, including rhinoplasty (16 sites). The 2nd category (Table 2) includes selected allergy sites (18 sites) and the 3rd category (Table 3) includes sites with information about olfaction, pathophysiology and related disorders (34 sites). The 4th category (Table 4) includes homepages from research centers and rhinology clinics worldwide (23 sites). The 5th category (Table 5) consists of sites from professional societies, organizations and associations (65 sites). Most of them are general otolaryngological sites and only few of them focus on the subspecialty of rhinology. The 6th category (Table 6) consists of journals of interest to rhinologists, including mainly journals of general otolaryngology, with a few exceptions (45 sites). Only selected links from the fifth and sixth section are shown in Tables 5 and 6, due to increased number of links, but the complete lists are available on-line on the web site of "Rhinology"<sup>(15)</sup>.

The 7th category (Table 7) includes discussion groups and mailing lists about rhinology topics (12 sites), maintained mostly by specialists in each subject. The 8th category (Table 8) includes sites with otolaryngology news and medical conferences, including news focused on rhinology and rhinology conferences (16 sites). The 9th category (Table 9) includes sites with collective lists of otolaryngology resources (10 sites). Finally, the 10th category (Table 10) contains miscellaneous links with rhinologic topics (22 sites).

A comparison between the previously published rhinologic links<sup>(13)</sup> and the updated links is shown in Table 11. It appears

that 19.2% of the past links are no more active and another 30.8% have changed their URL address. Additionally, 33.7% of the current links are new.

## DISCUSSION

During the past five years, significant changes in the web sites of interest to rhinologists occurred. New interesting sites have appeared and about 20% of the past sites have ceased to be active. In the first section of rhinologic links, several sites have been added, including mainly descriptions of nasal and sinus endoscopic surgical procedures and techniques in facial plastic and reconstructive surgery and, especially, in rhinoplasty. Allergy is always an interesting subject to rhinologists, and several new links were added, including collective allergy Internet resources, news and information about antiallergic medications. The third section of rhinologic links concerns olfaction, which should no longer be considered as "the forgotten sense". Several sites were updated and changed, and additional sites were added reflecting the extensive research on the chemical senses, and including clinical data about smell disorders and new methods of olfactory testing. Rhinology clinics and research centers specialized in patient care, diagnosis and treatment of sinonasal diseases are well represented. Most notable additions include the Royal National Throat, Nose and Ear Hospital Rhinology Unit, and the Smell and Taste Clinic of the University of Dresden Medical School.

The fifth section includes the professional or support organizations, societies and associations concerning otolaryngology, or specifically rhinology. The number of available links has almost doubled, reflecting the impact of Internet on the medical organizations, which is considered now a means necessary for providing information to members and patients, dispensing educational material and announcing conferences, seminars and educational courses. The sixth section includes the general otolaryngology and rhinology journals, which are represented well on the Internet by sites including information about the publishing companies, archive material, information to subscribers and prices. In this section most links have changed, mainly due to the change of publisher of various journals, or merging of publishing companies. On-line submission of manuscripts for publication is now a standard feature, extremely helpful to authors, reviewers and editors.

Discussion groups and mailing lists about rhinology aspects maintained by various specialists or academic departments were included in the next section. Most of them have changed URL address, and several new sites have been added. ENT news and sites including information about otolaryngology conferences and seminars is presented next, with few changes during the past years. The next section of collective lists of otolaryngology resources on the Internet is probably the only section with fewer links since the previous edition. This probably reflects the difficulty to create and maintain such lists, due

to the tremendous increase of medical resources available on the Internet. The guide to Otolaryngology on the Internet from the Baylor College of Medicine Bobby R. Alford is one of the oldest and most detailed and highly estimated indexes, including information about academic programs, audiology links, discussion groups, educational links, organizations, outcomes research, publications, research links, software and other medical sites. Also, a grand rounds archive and an otolaryngology Medical Student Syllabus are available. In the last section, miscellaneous topics of interest to rhinologists or their patients were included, such as cancer news, medical information concerning rhinologic diseases or imaging rhinologic material. Among these, E-medicine is a well-known large current clinical knowledge base available to physicians. Thousands of articles on various diseases and disorders are written by specialists in each field and include multimedia information as well. Among them, articles useful to rhinologists are included, such as allergy, anatomy of the olfactory system and nasal anatomy, nasal physiology, nasal and sinus diseases, congenital malformations of the nose, tumors of the nose, and various topics of rhinoplasty. Also, the UTMB's Grand Round Archive is a very useful site including a collection of articles from the University of Texas Medical Branch - Department of Otolaryngology, maintained by F. Quinn. Recent on-line publications on rhinology include topics about nasal polyposis, rhinoplasty, allergic rhinitis, endoscopic sinus surgery and nasal oncology, available both as text documents and slide presentations.

In conclusion, rhinology resources on the Internet have greatly changed and expanded during recent years. The World Wide Web has changed the way that information is produced, disseminated, indexed, and retrieved and its usefulness has been acknowledged in the medical community. However, information retrieval using available search engines is difficult and time-consuming because of the indiscriminating nature by which they add information to their databases, including a great deal of irrelevant data or poor quality information<sup>(16)</sup>. We updated a previously published and on-line available detailed list of all rhinology web sites, in order to assist professionals to assess reliable and interesting rhinology resources.

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Table 1. Endoscopy - Rhinoplasty

Baylor College of Medicine Otolaryngology Grand Rounds Archive: Plastic and Reconstructive Surgery	<a href="http://www.bcm.tmc.edu/oto/grand/fprs.html">http://www.bcm.tmc.edu/oto/grand/fprs.html</a>
Baylor College of Medicine Otolaryngology Grand Rounds Archive: Rhinology	<a href="http://www.bcm.tmc.edu/oto/grand/rhino.html">http://www.bcm.tmc.edu/oto/grand/rhino.html</a>
Computer Aided Surgery	<a href="http://ircas.blogspot.com/">http://ircas.blogspot.com/</a>
Cosmetic Surgery Online	<a href="http://www.cosmeticsurgeryonline.com/">http://www.cosmeticsurgeryonline.com/</a>
Endoscopic Laser-Assisted and Stereo Computer-Guided Nasal and Sinus Surgery	<a href="http://toffelcenter.com/index.html">http://toffelcenter.com/index.html</a>
Functional Endoscopic Sinus Surgery Tutorial	<a href="http://www.otohns.net/library/ess.asp">http://www.otohns.net/library/ess.asp</a>
Introduction to Nasal Endoscopy	<a href="http://www.american-rhinologic.org/patientinfo.introendoscopy.phtml">http://www.american-rhinologic.org/patientinfo.introendoscopy.phtml</a>
Nose Surgery	<a href="http://www.plasticsurgery.org/patients_consumers/procedures/Rhinoplasty.cfm">http://www.plasticsurgery.org/patients_consumers/procedures/Rhinoplasty.cfm</a>
Procedures - American Academy of Facial Plastic and Reconstructive Surgery	<a href="http://www.aafprs.org/patient/procedures/proctypes.html">http://www.aafprs.org/patient/procedures/proctypes.html</a>
Rhinoplasty Dissection Manual	<a href="http://www.therhinoplastycenter.com/Rhinoplasty-Manual/intro.html">http://www.therhinoplastycenter.com/Rhinoplasty-Manual/intro.html</a>
Rhinoplasty resources	<a href="http://www.noseresources.com/">http://www.noseresources.com/</a>
Rhinoplasty tutorial	<a href="http://www.facialsurgery.com/PRELIM.HTM">http://www.facialsurgery.com/PRELIM.HTM</a>
Surgical Planning Laboratory	<a href="http://www.spl.harvard.edu/">http://www.spl.harvard.edu/</a>
The Rhinoplasty Center	<a href="http://www.therhinoplastycenter.com/">http://www.therhinoplastycenter.com/</a>
University of Colorado-Facial Plastic Surgery and Rhinoplast Case of the Month	<a href="http://www.uchsc.edu/sm/pmb/medround/ENTrounds/">http://www.uchsc.edu/sm/pmb/medround/ENTrounds/</a>
Virtual Sinus Anatomy	<a href="http://www.american-rhinologic.org/pdf/VirtualAnatomy.pdf">http://www.american-rhinologic.org/pdf/VirtualAnatomy.pdf</a>

Table 2. Allergy

Allergic and Non-Allergic Rhinitis	<a href="http://www.nationaljewish.org/disease-info/diseases/allergy/about/conditions/rhinitis.aspx">http://www.nationaljewish.org/disease-info/diseases/allergy/about/conditions/rhinitis.aspx</a>
Allergies and Allergic Reactions	<a href="http://www.allergy-drug.com/">http://www.allergy-drug.com/</a>
Allergy and Asthma Rochester Resource Center	<a href="http://www.aaacr.com/">http://www.aaacr.com/</a>
Allergy Internet Resources	<a href="http://www.immune.com/allergy/allabc.html">http://www.immune.com/allergy/allabc.html</a>
Allergy News	<a href="http://www.medicalnewstoday.com/articles/73844.php">http://www.medicalnewstoday.com/articles/73844.php</a>
Allergy Statistics	<a href="http://www.cdc.gov/nchs/fastats/allergies.htm">http://www.cdc.gov/nchs/fastats/allergies.htm</a>
Allergy, Asthma & Immunology Online	<a href="http://www.aaaai.org/">http://www.aaaai.org/</a>
Asthma & Allergy Associates of Florida	<a href="http://www.allergyweb.com/">http://www.allergyweb.com/</a>
Family Doctor: Allergies	<a href="http://familydoctor.org/online/famdocen/home/common/allergies.html">http://familydoctor.org/online/famdocen/home/common/allergies.html</a>
Famous asthmatics	<a href="http://members.tripod.com/~limnos/index-2.html">http://members.tripod.com/~limnos/index-2.html</a>
Joint Council of Allergy, Asthma & Immunology	<a href="http://www.jcaai.org/">http://www.jcaai.org/</a>
Medications for Nasal Allergies	<a href="http://web.archive.org/web/20040612005859/www.allergyasthmatherapy.com/treatments/medications/NoseMedications.htm">http://web.archive.org/web/20040612005859/www.allergyasthmatherapy.com/treatments/medications/NoseMedications.htm</a>
National Allergy Bureau	<a href="http://www.aaaai.org/nab/">http://www.aaaai.org/nab/</a>
National Institute of Allergy and Infectious Diseases	<a href="http://www.niaid.nih.gov/default.htm">http://www.niaid.nih.gov/default.htm</a>
National Pollen and Aerobiology Research Unit	<a href="http://pollenuk.worc.ac.uk/">http://pollenuk.worc.ac.uk/</a>
Sinusitis: A Treatment Plan That Works for asthma and allergies too	<a href="http://www.sinuses.com/index.htm">http://www.sinuses.com/index.htm</a>
Food Allergy and Anaphylaxis Network	<a href="http://www.foodallergy.org/">http://www.foodallergy.org/</a>
World Allergy Organization	<a href="http://www.worldallergy.org/">http://www.worldallergy.org/</a>

Table 3. Olfaction

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About Pheromones	<a href="http://www.nysaes.cornell.edu/fst/faculty/acree/pheronet/pherom.html">http://www.nysaes.cornell.edu/fst/faculty/acree/pheronet/pherom.html</a>
Access Excellence - Molecular Basis of Good Taste	<a href="http://www.accessexcellence.org/WN/SUA12/taste299.html">http://www.accessexcellence.org/WN/SUA12/taste299.html</a>
Anosmia Page	<a href="http://personal.ecu.edu/wuenschk/anosmia.htm">http://personal.ecu.edu/wuenschk/anosmia.htm</a>
Chemical Senses	<a href="http://chemse.oupjournals.org/">http://chemse.oupjournals.org/</a>
Chemoreception Links	<a href="http://www.leffingwell.com/links5.htm">http://www.leffingwell.com/links5.htm</a>
Chemoreception Web	<a href="http://www.csa.com/crw/home.html">http://www.csa.com/crw/home.html</a>
Flavornet	<a href="http://www.flavornet.org/">http://www.flavornet.org/</a>
Glomerular Activity Response Archive	<a href="http://leonservers.bio.uci.edu/">http://leonservers.bio.uci.edu/</a>
Le Système Olfactif	<a href="http://olfac.univ-lyon1.fr/sysolf/">http://olfac.univ-lyon1.fr/sysolf/</a>
Les troubles de l'odorat et du goût	<a href="http://www.hcuge.ch/~infotec/rhino/">http://www.hcuge.ch/~infotec/rhino/</a>
Medial Temporal Lobe (the Limbic System)	<a href="http://thalamus.wustl.edu/course/limbic.html">http://thalamus.wustl.edu/course/limbic.html</a>
Molecular Approaches to Olfaction	<a href="http://www.hhmi.org/science/neurosci/reed.htm">http://www.hhmi.org/science/neurosci/reed.htm</a>
Nasal Physiology (SA Archer, eMedicine)	<a href="http://www.emedicine.com/ent/topic667.htm">http://www.emedicine.com/ent/topic667.htm</a>
OdorDB	<a href="http://senselab.med.yale.edu/odordb/default.asp">http://senselab.med.yale.edu/odordb/default.asp</a>
OdorMapDB	<a href="http://senselab.med.yale.edu/odormapdb/default.asp">http://senselab.med.yale.edu/odormapdb/default.asp</a>
Olfaction - A Review	<a href="http://www.leffingwell.com/olfaction.htm">http://www.leffingwell.com/olfaction.htm</a>
Olfaction, a Tutorial on the Sense of Smell	<a href="http://www.cf.ac.uk/biosi/staffinfo/jacob/teaching/sensory/olfact1.html">http://www.cf.ac.uk/biosi/staffinfo/jacob/teaching/sensory/olfact1.html</a>
Olfaction, Odeurs, Olfactométrie et Qualité de l'Air	<a href="http://olfac.univ-lyon1.fr/O&amp;O/">http://olfac.univ-lyon1.fr/O&amp;O/</a>
Olfaktorik	<a href="http://www.olfaktorik.de/">http://www.olfaktorik.de/</a>
Olfactory Nerve	<a href="http://info.med.yale.edu/caim/cnerves/cn1/cn1_1.html">http://info.med.yale.edu/caim/cnerves/cn1/cn1_1.html</a>
Olfactory Receptor Database	<a href="http://senselab.med.yale.edu/ordb/default.asp">http://senselab.med.yale.edu/ordb/default.asp</a>
Organ of Smell (Gray's Anatomy)	<a href="http://www.bartleby.com/107/223.html">http://www.bartleby.com/107/223.html</a>
Pheromones	<a href="http://www.pheromones.com/">http://www.pheromones.com/</a>
Seeing, Hearing and Smelling the World - Howard Hughes Medical Inst.	<a href="http://www.hhmi.org/senses/">http://www.hhmi.org/senses/</a>
SenseLab Project	<a href="http://senselab.med.yale.edu/">http://senselab.med.yale.edu/</a>
Sense of Smell	<a href="http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/O/Olfaction.html">http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/O/Olfaction.html</a>
Smell and Taste - NIDCD	<a href="http://www.nidcd.nih.gov/health/smelltaste/">http://www.nidcd.nih.gov/health/smelltaste/</a>
Smell and Taste Disorders	<a href="http://www.entdr.com/smell_taste.html">http://www.entdr.com/smell_taste.html</a>
Smell and Taste Disorders: A Primary Care Approach	<a href="http://www.aafp.org/afp/20000115/427.html">http://www.aafp.org/afp/20000115/427.html</a>
Smell Myths	<a href="http://zebra.biol.sc.edu/smell/ann/myth0.html">http://zebra.biol.sc.edu/smell/ann/myth0.html</a>
Smell: The Forgotten Sense	<a href="http://www.macalester.edu/psychology/whathap/ubnrrp/smell/smell.html">http://www.macalester.edu/psychology/whathap/ubnrrp/smell/smell.html</a>
Smells Database - Chem Connections	<a href="http://mc2.cchem.berkeley.edu/Smells/index.html">http://mc2.cchem.berkeley.edu/Smells/index.html</a>
Tim Jacob - Smell Research	<a href="http://www.cf.ac.uk/biosi/staff/jacob/index.html">http://www.cf.ac.uk/biosi/staff/jacob/index.html</a>
Vomer nasal Organ	<a href="http://www.neuro.fsu.edu/faculty/mmered/vomer/">http://www.neuro.fsu.edu/faculty/mmered/vomer/</a>

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Table 4. Rhinology Clinics and Research Centers

Chemosensory Perception Laboratory, University of California, USA	<a href="http://chemosensory.ucsd.edu/">http://chemosensory.ucsd.edu/</a>
Comprehensive Sinus Clinic	<a href="http://www.slucare.edu/csc/">http://www.slucare.edu/csc/</a>
Craniofacial Surgical Planning and Simulation – Telecommunications Institute, University Erlangen-Nuremberg, Germany	<a href="http://www-nt.e-technik.uni-erlangen.de/~ keeve/IntOps.html">http://www-nt.e-technik.uni-erlangen.de/~ keeve/IntOps.html</a>
Howard Hughes Medical Institute	<a href="http://www.hhmi.org/">http://www.hhmi.org/</a>
Monell Chemical Senses Center	<a href="http://www.monell.org/">http://www.monell.org/</a>
Nasal Dysfunction Clinic	<a href="http://health.ucsd.edu/specialties/surgery/otolaryngology/nasal/">http://health.ucsd.edu/specialties/surgery/otolaryngology/nasal/</a>
Neurosciences Sensorielles Comportement Cognition, Université Lyon I, France	<a href="http://olfac.univ-lyon1.fr/">http://olfac.univ-lyon1.fr/</a>
Northwest Face	<a href="http://www.nwface.com/">http://www.nwface.com/</a>
Riechen und Schmecken (Smell and Taste Clinic), University of Dresden Medical School, Germany	<a href="http://www.tu-dresden.de/medkhno/RIECH.HTM">http://www.tu-dresden.de/medkhno/RIECH.HTM</a>
Royal National Throat, Nose and Ear Hospital, Rhinology Unit	<a href="http://www.royalfree.nhs.uk/default.aspx?top_nav_id=1&amp;sel_left_nav=25&amp;tab_id=542">http://www.royalfree.nhs.uk/default.aspx?top_nav_id=1&amp;sel_left_nav=25&amp;tab_id=542</a>
Sense of Smell Institute	<a href="http://www.senseofsmell.org/">http://www.senseofsmell.org/</a>
Sinus Center of Stanford University	<a href="http://american-rhinologic.org/images/stanford.jpg">http://american-rhinologic.org/images/stanford.jpg</a>
Smell and Taste Center at the University of Pennsylvania	<a href="http://www.med.upenn.edu/stc/">http://www.med.upenn.edu/stc/</a>
Smell & Taste Treatment and Research Foundation	<a href="http://www.smellandtaste.org/">http://www.smellandtaste.org/</a>
Southern California Nasal and Sinus Care Center	<a href="http://toffelcenter.com/index.html">http://toffelcenter.com/index.html</a>
Taste and Smell Center, University of Connecticut	<a href="http://www.uchc.edu/uconntasteandsmell/index.html">http://www.uchc.edu/uconntasteandsmell/index.html</a>
Taste and Smell Clinic	<a href="http://www.tasteandsmell.com/">http://www.tasteandsmell.com/</a>
Taste and Smell Disorders Clinic	<a href="http://www.tastesmell.com/">http://www.tastesmell.com/</a>
The Japanese Association for the Study of Taste and Smell	<a href="http://epn.hal.kagoshima-u.ac.jp/JASTSE/index.html">http://epn.hal.kagoshima-u.ac.jp/JASTSE/index.html</a>
The Nose & Sinus Center	<a href="http://www.noseandsinus.com/">http://www.noseandsinus.com/</a>
The Nose Clinic, Guildford Nuffield Hospital	<a href="http://www.thenoseclinic.co.uk/">http://www.thenoseclinic.co.uk/</a>
The OFCN Ear, Nose and Throat Clinic	<a href="http://ofcn.org/cyber.serv/hwp/hwc/ent/">http://ofcn.org/cyber.serv/hwp/hwc/ent/</a>
The Rocky Mountain Taste and Smell Center	<a href="http://www.uchsc.edu/rmtsc/">http://www.uchsc.edu/rmtsc/</a>

Table 5. Organizations and Societies (selected links)

American Academy of Otolaryngologic Allergy	<a href="http://www.aaof.org/">http://www.aaof.org/</a>
American Academy of Otolaryngology - Head and Neck Surgery	<a href="http://www.entnet.org/">http://www.entnet.org/</a>
American Rhinologic Society	<a href="http://www.american-rhinologic.org/">http://www.american-rhinologic.org/</a>
Association for Chemoreception Sciences	<a href="http://www.achems.org/">http://www.achems.org/</a>
Australian Society of Otolaryngology Head & Neck Surgery	<a href="http://www.asohns.org.au/">http://www.asohns.org.au/</a>
Brazilian Association of Otorhinolaryngology	<a href="http://www.aborlccf.org.br/conteudo/">http://www.aborlccf.org.br/conteudo/</a>
Canadian Society of Otolaryngology - Head and Neck Surgery	<a href="http://www.entcanada.org/">http://www.entcanada.org/</a>
Dutch Association of Otorhinolaryngology and Head & Neck Surgery	<a href="http://www.kno.nl/">http://www.kno.nl/</a>
European Chemoreception Research Organization	<a href="http://www.ecro-online.info/">http://www.ecro-online.info/</a>
European Rhinologic Society	<a href="http://www.europeanrhinologicsociety.org/">http://www.europeanrhinologicsociety.org/</a>
French ORL Society	<a href="http://www.orl-france.org/">http://www.orl-france.org/</a>
German Society of Otorhinolaryngology, Head and Neck Surgery	<a href="http://www.hno.org/">http://www.hno.org/</a>
International Federation of Oto-Rhino-Laryngological Societies	<a href="http://www.ifosworld.org/">http://www.ifosworld.org/</a>
Oto-Rhino-Laryngological Society of Japan	<a href="http://www.jibika.or.jp/">http://www.jibika.or.jp/</a>
Société Française d' ORL	<a href="http://www.sforl.org/">http://www.sforl.org/</a>
Societa Italiana di Otorinolaringologia e Chirurgia Cervico-Facciale	<a href="http://www.sioechcf.it/">http://www.sioechcf.it/</a>
Spanish Society of Otolaryngology	<a href="http://www.seorl.net/">http://www.seorl.net/</a>

Table 6. Scientific Journals (selected links)

Acta Oto-Laryngologica	<a href="http://www.informaworld.com.lt.ltag.bibl.liu.se/smpp/title~content=t713690940~db=all">http://www.informaworld.com.lt.ltag.bibl.liu.se/smpp/title~content=t713690940~db=all</a>
American Journal of Rhinology	<a href="http://www.oceansidepubl.com/ajr/index.htm">http://www.oceansidepubl.com/ajr/index.htm</a>
Annales d'Otolaryngologie et de Chirurgie Cervico-Faciale	<a href="http://www.elsevier-masson.fr/product_info.php?manufacturers_id=&amp;products_id=5209">http://www.elsevier-masson.fr/product_info.php?manufacturers_id=&amp;products_id=5209</a>
Annals of Otolaryngology, Rhinology and Laryngology	<a href="http://www.annals.com/">http://www.annals.com/</a>
Archives of Otolaryngology-Head and Neck Surgery	<a href="http://archotol.ama-assn.org/">http://archotol.ama-assn.org/</a>
Clinical Otolaryngology and Allied Sciences	<a href="http://www.blackwellpublishing.com/journal.asp?ref=1749-4478">http://www.blackwellpublishing.com/journal.asp?ref=1749-4478</a>
European Archives of Oto-Rhino-Laryngology	<a href="http://link.springer-ny.com/link/service/journals/00405/index.htm">http://link.springer-ny.com/link/service/journals/00405/index.htm</a>
Head & Neck	<a href="http://www3.interscience.wiley.com/journal/117934747/grouphome/home.html">http://www3.interscience.wiley.com/journal/117934747/grouphome/home.html</a>
HNO	<a href="http://www.springerlink.com/content/100516/">http://www.springerlink.com/content/100516/</a>
Journal of Allergy and Clinical Immunology	<a href="http://journals.elsevierhealth.com/periodicals/ymai">http://journals.elsevierhealth.com/periodicals/ymai</a>
Journal of Laryngology and Otology	<a href="http://www.jlo.co.uk/">http://www.jlo.co.uk/</a>
Laryngoscope	<a href="http://www.laryngoscope.com/">http://www.laryngoscope.com/</a>
Otolaryngologic Clinics of North America	<a href="http://www.oto.theclinics.com/">http://www.oto.theclinics.com/</a>
Otolaryngology-Head and Neck Surgery	<a href="http://journals.elsevierhealth.com/periodicals/ymhn">http://journals.elsevierhealth.com/periodicals/ymhn</a>
Rhinology	<a href="http://www.rhinologyjournal.com/">http://www.rhinologyjournal.com/</a>

Table 7. Discussions

Anosmia	<a href="http://health.groups.yahoo.com/group/anosmia/">http://health.groups.yahoo.com/group/anosmia/</a>
Congenital Anosmia Forums	<a href="http://www.anosmia.net/">http://www.anosmia.net/</a>
Forum AWMF online	<a href="http://www.uni-duesseldorf.de/awmf/">http://www.uni-duesseldorf.de/awmf/</a>
French ORL discussions	<a href="http://docadoc.com/forum/index.php">http://docadoc.com/forum/index.php</a>
Italian Forum (members only)	<a href="http://www.auorl.it/extranet.htm">http://www.auorl.it/extranet.htm</a>
OTOHNS Forum	<a href="http://www.otohns.net/forums/">http://www.otohns.net/forums/</a>
OTORRINO: Spanish Otolaryngology Discussions	<a href="http://www.lsoft.com/scripts/wl.exe?SL1=OTORRINO&amp;H=LISTSERV.REDIRIS.ES">http://www.lsoft.com/scripts/wl.exe?SL1=OTORRINO&amp;H=LISTSERV.REDIRIS.ES</a> (mail to: <a href="mailto:listserv@listserv.rediris.es">listserv@listserv.rediris.es</a> )
Pedi-Oto Forum	<a href="http://www.otohns.net/forums/pedi-oto.asp">http://www.otohns.net/forums/pedi-oto.asp</a>
Rhinology Discussions: Nose listserv maintained by Dr. R. Eccles	<a href="http://www.jiscmail.ac.uk/cgi-bin/webadmin?A0=nose">http://www.jiscmail.ac.uk/cgi-bin/webadmin?A0=nose</a>
Spanish ORL discussions	<a href="http://personal.redestb.es/frdelafuente/orl1.htm">http://personal.redestb.es/frdelafuente/orl1.htm</a>
Usenet group: Neuroscience	<a href="http://www.news2mail.com/bionet/neuroscience.html">http://www.news2mail.com/bionet/neuroscience.html</a>
Usenet group: Sinusitis	<a href="http://www.news2mail.com/alt/support/sinusitis.html">http://www.news2mail.com/alt/support/sinusitis.html</a>

Table 8. News and Medical Conferences

ARO News	<a href="http://www.aro.org/news/news.html">http://www.aro.org/news/news.html</a>
Cancer News	<a href="http://www.cancernews.com/">http://www.cancernews.com/</a>
Congress Resource Center	<a href="http://www.docguide.com/crc.nsf/web-bySpecDisp?OpenForm&amp;spec=Otorhinolaryngology">http://www.docguide.com/crc.nsf/web-bySpecDisp?OpenForm&amp;spec=Otorhinolaryngology</a>
Continuing Medical Education	<a href="http://www.cmellc.com/">http://www.cmellc.com/</a>
DIALOG Bluesheets Databases	<a href="http://library.dialog.com/bluesheets/html/">http://library.dialog.com/bluesheets/html/</a>
Doctor's Guide	<a href="http://www.docguide.com/">http://www.docguide.com/</a>
Doctor's guide to Otolaryngology Meetings and Conferences	<a href="http://www.pslgroup.com/dg/otorhino.htm">http://www.pslgroup.com/dg/otorhino.htm</a>
ENT Linx	<a href="http://www.mdlinx.com/ENTLinx/">http://www.mdlinx.com/ENTLinx/</a>
Medical Conferences	<a href="http://www.medicalconferences.com/">http://www.medicalconferences.com/</a>
Medical News from Doctors Guide	<a href="http://main.pslgroup.com/news/content.nsf/AllMedicalNews?Openform">http://main.pslgroup.com/news/content.nsf/AllMedicalNews?Openform</a>
MediConf - Otorhinolaryngology Meetings	<a href="http://www.mediconf.com/scme/8027.HTM">http://www.mediconf.com/scme/8027.HTM</a>
News de l'ORL (ORL-France)	<a href="http://www.orl-france.org/index2.php">http://www.orl-france.org/index2.php</a>
Online Medical News: Otolaryngology	<a href="http://www.online-medical-news.org/Otolaryngology-News.asp">http://www.online-medical-news.org/Otolaryngology-News.asp</a>
Otohns.net	<a href="http://www.otohns.net/news/news.asp">http://www.otohns.net/news/news.asp</a>
RhinoNewsPRO	<a href="http://www.rhinologie.com/rhinonews/med.htm">http://www.rhinologie.com/rhinonews/med.htm</a>
Topix: Otolaryngology News	<a href="http://www.topix.com/med/otolaryngology">http://www.topix.com/med/otolaryngology</a>

Table 9. Collective Otolaryngology Resources

Caducée.net - ORL	<a href="http://www.caducee.net/sites/web-medical.asp?T=001047">http://www.caducee.net/sites/web-medical.asp?T=001047</a>
Guide to Otolaryngology Resources on the Internet - Baylor College of Medicine Bobby R. Alford Department of Otolaryngology-Head and Neck Surgery	<a href="http://www.bcm.tmc.edu/oto/others.html">http://www.bcm.tmc.edu/oto/others.html</a>
Hardin Meta Directory	<a href="http://www.lib.uiowa.edu/hardin/md/oto.html">http://www.lib.uiowa.edu/hardin/md/oto.html</a>
Karolinska Institute: Otorhinolaryngologic Diseases	<a href="http://www.mic.ki.se/Diseases/C09.html">http://www.mic.ki.se/Diseases/C09.html</a>
Med Mark - Otorhinolaryngology	<a href="http://www.medmark.org/orl/">http://www.medmark.org/orl/</a>
ORL FRANCE	<a href="http://www.orl-france.org/">http://www.orl-france.org/</a>
ScienceCentral-Otolaryngology	<a href="http://www.sciencecentral.com/category/5894868">http://www.sciencecentral.com/category/5894868</a>
Sites Francophones d'Otorhinolaryngologie	<a href="http://www.chu-rouen.fr/ssf/metast/meta_otorhinolaryngologie.html">http://www.chu-rouen.fr/ssf/metast/meta_otorhinolaryngologie.html</a>
Spanish ORL Resources	<a href="http://personal.redestb.es/frdelafuente/#ENLACES">http://personal.redestb.es/frdelafuente/#ENLACES</a>
Yahoo - Otolaryngology	<a href="http://dir.yahoo.com/Health/Medicine/Otolaryngology/">http://dir.yahoo.com/Health/Medicine/Otolaryngology/</a>

Table 10. Miscellaneous

Alpha M.O.S. (Smell, Taste & Chemical Profiling)	<a href="http://www.alpha-mos.com/">http://www.alpha-mos.com/</a>
Animation of Nasal Passages	<a href="http://www.innerbody.com/anim/nasal.html">http://www.innerbody.com/anim/nasal.html</a>
Cancerweb	<a href="http://cancerweb.ncl.ac.uk/cancernet/">http://cancerweb.ncl.ac.uk/cancernet/</a>
Electronic Noses and their Applications	<a href="http://cns-web.bu.edu/pub/laliden/WWW/Papers/nose.html">http://cns-web.bu.edu/pub/laliden/WWW/Papers/nose.html</a>
eMedicine	<a href="http://www.emedicine.com/ent/">http://www.emedicine.com/ent/</a>
Grossan Hydro Pulse Sinus System	<a href="http://www.hydromedonline.com/hp.html">http://www.hydromedonline.com/hp.html</a>
Handbook of Nasal Disease	<a href="http://drdavidson.ucsd.edu/Portals/0/nasal.htm">http://drdavidson.ucsd.edu/Portals/0/nasal.htm</a>
Nasal Disease Chapter, Family Practice Notebook	<a href="http://www.fpnotebook.com/ENT/Nose/index.htm">http://www.fpnotebook.com/ENT/Nose/index.htm</a>
Nasopharyngeal cancer – National Cancer Institute	<a href="http://cancerweb.ncl.ac.uk/cancernet/101402.html">http://cancerweb.ncl.ac.uk/cancernet/101402.html</a>
National Cancer Institute	<a href="http://www.cancer.gov/">http://www.cancer.gov/</a>
Paranasal Sinus and Nasal Cavity Cancer – National Cancer Institute	<a href="http://cancerweb.ncl.ac.uk/cancernet/102892.html">http://cancerweb.ncl.ac.uk/cancernet/102892.html</a>
Paranasal Sinuses: Sagittal Anatomy with CT images	<a href="http://ws.ajou.ac.kr/~ent/RHINODATA/sagittalPNS.htm">http://ws.ajou.ac.kr/~ent/RHINODATA/sagittalPNS.htm</a>
Pubmed: Free Medline Search	<a href="http://www.ncbi.nlm.nih.gov/sites/">http://www.ncbi.nlm.nih.gov/sites/</a>
Sensonics, Inc.	<a href="http://www.sensonics.com/">http://www.sensonics.com/</a>
SinuCare	<a href="http://www.sinucare.com/">http://www.sinucare.com/</a>
Sinusitis: A Treatment Plan That Works	<a href="http://www.sinuses.com/toc.htm">http://www.sinuses.com/toc.htm</a>
Sniffin Sticks test	<a href="http://www.burghart.net/medizintechnik/index.php?p1=produkte&amp;p2=sticks">http://www.burghart.net/medizintechnik/index.php?p1=produkte&amp;p2=sticks</a>
The Merck Manual: Ear, Nose, and Throat Disorders	<a href="http://www.merck.com/mmhe/sec19.html">http://www.merck.com/mmhe/sec19.html</a>
The Merck Manual: Smell and Taste Disorders	<a href="http://www.merck.com/mmhe/sec19/ch221/ch221j.html?qt=smell&amp;alt=sh">http://www.merck.com/mmhe/sec19/ch221/ch221j.html?qt=smell&amp;alt=sh</a>
The Nose Project	<a href="http://www.wag.caltech.edu/muri/">http://www.wag.caltech.edu/muri/</a>
University of Pennsylvania Smell Identification Test	<a href="http://www.sensonics.com/shop/pc/viewPrd.asp?idcategory=&amp;idproduct=2">http://www.sensonics.com/shop/pc/viewPrd.asp?idcategory=&amp;idproduct=2</a>
UTMB's Grand Round Archive	<a href="http://www.utmb.edu/oto/Grand%20Rounds.html">http://www.utmb.edu/oto/Grand%20Rounds.html</a>



Table 11. Comparison between current and previously printed rhinologic links.

Sections (No of rhinologic links)	Non active	Same	Changed	New
Endoscopy - Rhinoplasty (16)	2	7	2	7
Allergy (18)	1	9	3	6
Olfaction (34)	7	16	8	10
Rhinology Clinics and Research Centers (23)	1	14	6	3
Organizations and Societies (65)	6	24	7	34
Scientific Journals (45)	2	12	23	10
Discussions (12)	4	1	7	4
News and Medical Conferences (16)	3	11	0	5
Collective Otolaryngology Resources (10)	10	5	4	1
Miscellaneous (22)	5	8	6	8
Total of past rhinologic links (214)	41 (19.2%)	107 (50%)	66 (30.8%)	
Updated rhinologic links (261)		107 (41.0%)	66 (25.3%)	88 (33.7%)