**Title : Internet Resources In Prosthodontics: A Review**

Ashutosh Gupta MDS1\*

Praveen Rai MDS2

Arvind Tripathi MDS, PhD3

Ritika Sharma BDS, FICOI4

1. Reader, Dept. Of Prosthodontics, Saraswati Dental College and Hospital, Lucknow
2. Reader,Department of Prosthodontics,BBDCODS,BBD University,Lucknow
3. Dean Postgraduate Studies and Research, Saraswati Dental College and Hospital, Lucknow
4. Lecturer, Dept. Of Prosthodontics, Saraswati Dental College and Hospital, Lucknow

\*Correspondence

Dr. Ashutosh Gupta, 5/62 Vikas Khand, Gomti Nagar, Lucknow, Uttar Pradesh, India, email- drashutosh.gupta@yahoo.co.in

Ph no- 9793325773

**ABSTRACT**

**Objective:**

The internet has become an integral tool to access an information on everything including the science and art of practice of prosthodontics. This is because of the unlimited resources of information on the World Wide Web (www). The ebb and flow of internet content calls for an update of prosthodontic resources.

**Data Source:**

An extensive search on the Pubmed and Google scholar was done using following keywords: computer aided learning(CAL), prosthodontic resources, internet, patient education, prosthodontic portals, information technology. The available articles were reviewed and a literature compilation was done.

**Conclusion:**

This article reviews various prosthodontic resources available on net, making them useful knowledge bank for the teachers and the students.

**KEYWORDS:** computer aided learning(CAL), prosthodontic resources, internet, patient education, prosthodontic portals, information technology

**INTRODUCTION**

Radical changes in the way information is delivered are guaranteed by health education institutions. The development of a computerized network system that enables the storing and broadcast of information in a range of multimedia formats is one of the significant technological changes. The most important of these systems is without a doubt the internet. In the ensuing decades, how health educators absorb and deliver information will be greatly impacted by this potent, all-encompassing system.1-2 Despite the fact that the WWW is a vast repository of information, finding information is still an unorganized, frequently challenging, and time-consuming process. Except for people who are adept at navigating the complexities of the Internet and search engines, finding good information is frequently a frustrating, time-consuming, and random process. Therefore, a thorough assessment of the literature was required for a better understanding of the flow of prosthodontic information online.

**METHOD**

An extensive search on the Pubmed and Google scholar was done using the following keywords: computer aided learning(CAL), prosthodontic resources, internet, patient education, prosthodontic portals, information technology. The available articles between years 1993 to 2013 were reviewed and a literature compilation was done.

**SOFTWARES FOR NAVIGATING THE INTERNET**

Telnet

To communicate with other computers connected to the Internet, Telnet enables teletype-style communications as an alternative to phone contact through modems.3,4 Telnet is both a user command and an underlying TCP/IP protocol for connecting to remote computers. Telnet enables an administrator or other user to access a computer remotely. Telnet enables genuine video-display-terminal connectivity. With whatever access privileges you may have been granted to the specific software and data on that machine, you log in via Telnet as a regular user..

Client-server software

Client-server refers to the interaction between two computer programs in which the client requests a service from the server, who then provides the requested service. Although programs on a single computer can employ the client server concept, a network is where it is most crucial. The client-server architecture in a network offers a practical solution to connect applications that are effectively dispersed across several locations. Because server software cannot directly react to queries from terminals, it differs from conventional online retrieval tools. Only requests that arrive over the network correctly bundled receive a response from servers. To make the correct requests, users must execute the necessary client software on their own computers.3,4,5

File transfer protocol and Archie

A common Internet protocol for sending data between computers on the network is called File Transfer Protocol (FTP). FTP is an application protocol that leverages the TCP/IPprotocols of the Internet, just like the Hypertext Transfer Protocol (HTTP), which transfers displayable Web pages and related files, and the Simple Mail Transfer Protocol (SMTP), which transfers e-mail. FTP is frequently used to move Web page files from the computer that created them to the one that serves them to users of the Internet. A tool called Archie is used to locate files on FTP (File Transfer Protocol) servers. Because you need to know the precise file name you're looking for to utilize Archie properly, it is not used very much anymore.Most file searching is now done via the Web with a Web browser like Internet Explorer or Netscape.4,5

World Wide Web

a group of Internet servers for supporting papers with unique formats. The pages are formatted in HTML (HyperText Markup Language), a markup language that allows for the linking of graphics, audio, and video files, as well as links to other documents. This implies that you can navigate between documents by clicking on hot areas. The World Wide Web does not exist on every Internet server. Web browsers are programs that make it simple to access the World Wide Web; the two most often used ones are Microsoft's Internet Explorer and Firefox..5,6

**PROSTHODONTICS PORTALS**

The google search engines gives more than a million websites related to the search word "prosthodontics" in under a second. Despite the enormous amount of information that is available online, searching is frequently a difficult, disorganized, and time-consuming process. Because portals are collections of webpages chosen or updated by people for their quality, they are more trustworthy gateways to smaller selections of prosthodontic information. Table 1 provides a list of various prosthodontic websites, making it a useful resource and knowledge base for instructors and students.. 7

Table 1:

|  |  |  |
| --- | --- | --- |
| Site Name | URL | Site Description |
| The American College of Prosthodontists | [www.prosthodontics.org](http://www.prosthodontics.org) | The American College of Prosthodontists is a professional organization of dentists with extensive speciality training who provide optimal oral health, including dental implants, dentures, veneers, crowns, and teeth whitening, both in function and aesthetics. |
| Dentistry internet resources, university of Hong Kong | www.hku.hk/lib/DenLib/den.html | It is an excellent resource that offers links to associations, internet libraries, and periodicals for dentistry education. Subjects covered by the dental resources include cariology, cleft lip and palate, dental implants, dental materials, endodontics, forensic dentistry, HIV and dental care, oral and maxillofacial radiology, oral and maxillofacial surgery, oral cancer, orthodontics, pediatric dentistry, periodontics, prosthodontics, and temporomandibular joint disease. |
| MedWeb at Emory University, Educational Resources: Dentistry. | [www.gen.emory.edulMEDWEB/keyword/educationaLresources/dentistry](http://www.gen.emory.edulMEDWEB/keyword/educationaLresources/dentistry) | With only 17 websites dedicated to dentists, this website is not particularly comprehensive. The connections to sites that deal with biology, chemistry, and genetics as well as general scientific and health science sites may be more helpful. |
| Dentistry Resources at the University of Alberta. | [www.ualberta.ca/cbidwelllhsmslhsresdnt.htm](http://www.ualberta.ca/cbidwelllhsmslhsresdnt.htm) | This site provides links to professional organizations, companies, educational, research and social sites. |
| Dental Related Internet Resources. | [www.dental-resources.com](http://www.dental-resources.com) | This website has a commercial bent and offers links to dental suppliers, laboratories, and associations in addition to dental education and continuing education resources. It has a search engine in it. |
| The Clinical Dentistry Page, Harvard School of DentalMedicine. | www.hsdm.med.harvard.edulpages/clindent.htm | This website links to instructional websites that offer lessons on a variety of subjects, such as periodontology, systemic antibiotic therapy in oral surgery, odontogenic tumors, oral anatomy, the temperomandibular joint, facial and mandibular fractures, and oral health. Additionally, it offers links to websites with case studies, including cases in oral and maxillofacial surgery, periodontology, oral and maxillofacial radiography, and diagnostic and treatment planning. |
| Internet Resource, Dentistry, University of Pittsburgh | [www.hsIs.pitt.edulintreslhealthldental.html](http://www.hsIs.pitt.edulintreslhealthldental.html) | This site provides numerous links to dental schools, sites for dental education, associations and information for the lay person. |
| MedNets Dental Database. | [www.internets.comlmednets/sdental.htm#chid](http://www.internets.comlmednets/sdental.htm#chid) | This database can be searched, meaning it has a search engine that lets users find content within its repository. Abstracts of books, booklets, brochures, information sheets, and journal articles are all included in the enormous database, many of which were produced by top experts in their disciplines. Additionally, there are links to other dental databases that can be searched. |
| Dental Study Club Online Archives. | [www.tambed.eduIDentaICE/dsc/ARCHIVES/](http://www.tambed.eduIDentaICE/dsc/ARCHIVES/) search.html | This database offers structured abstracts of journal articles and is searchable. The structured abstracts include summaries of the goals, findings, and conclusions of the research. There are also provided reading lists and quizzes for self-evaluation. |
| Biomaterials Properties Database, University ofMichigan. | [www.lib.umich.edu/libhome/Dentistry.lib/DentaUables.ltoc.htm](http://www.lib.umich.edu/libhome/Dentistry.lib/DentaUables.ltoc.htm) | This site provides data on the physical properties of biomaterials. It is perhaps more useful to the researcher than the student or teacher, as only physical data is provided. |
| Dental Materials School of Dentistry, University of North Carolina at Chapel Hill. | www.dent.unc. edu/bayneldentmtls/dm-lectures.htm | This site provides lecture notes on dental materials.The topics include resin modified glass ionomers, filling materials, gold casting alloys, the mercury controversy, anddental cements. |
| Anatomy Modules: TMJ tutorials, University ofWashington Department of Radiology. | [www.rad.washington.edu/Anatomy/TM J/TMJ.html](http://www.rad.washington.edu/Anatomy/TM%20J/TMJ.html) | This superb website offers guides on the tempromandibular joint (TMJ). TMJ anatomy, TMJ artrography, TMJ computed tomography, and TMJ magnetic resonance imaging are some of the subjects discussed. The notes are succinct and interesting, and the graphics and QuickTime movie snippets are excellent. |
| Dental Education Resources on the Web (DERWeb),University of Sheffield . | www.derweb.ac.uklindex.html | The authors may safely say that this is the best resource they have found for dentistry education. It offers online conferencing, a virtual bookshop, linkages to professional groups, and a sizable image database. In addition to case studies, a CAL program on dental caries, revision notes on periodontology, immediate dentures, and removing foreign objects from root canals, DERWeb also includes patient education pages, a history of occlusal concepts, information on the dental articulator, a quiz on root canals (with hints, if necessary), and a history of occlusal concepts. |

**DATA BASE AND JOURNALS**

An structured collection of data, usually in digital form, is called a database. Google returns more than 20 databases relevant to prosthodontics with just one click. PubMed and the Cochrane library's databases are the two that are used the most frequently.

A journal is a recurring publication meant to further science, typically by presenting fresh findings. Although some of the oldest publications, like Nature, publish articles and research papers in a variety of scientific subjects, most journals are extremely specialized. The majority of online journals are copies of their print equivalents.

Unfortunately, prosthodontic has not yet adopted the concept of free online journals, and full text access is typically only available through expensive subscriptions.

PubMed

Over 20 million citations for biomedical literature from MEDLINE, life science journals, and online books are included in PubMed. The fields of medicine, nursing, dentistry, veterinary medicine, the health care system, and preclinical sciences are all covered in the citations and abstracts found in PubMed.

Additionally, PubMed offers links to additional pertinent websites as well as access to the other NCBI molecular biology resources. The National Center for Biotechnology Information (NCBI), located in the U.S. National Library of Medicine, created and maintains the free online database PubMed. National Library of Medicine (NLM), located at the National Institutes of Health (NIH).

Publishers of journals can submit their citations to NCBI and then provide access to the full text of articles at journal Web sites using LinkOut. 8,9

The Cochrane Library

The Cochrane Library is made up of seven databases, including six that offer various types of high-quality, unbiased evidence to guide healthcare decisions and a seventh that contains details on the Cochrane Collaboration's groups.9 The Cochrane Library is a database that requires a subscription; it was first released by Update Software and is now a part of the Wiley Online platform. It has been made freely available to all residents by "national provision" in numerous nations, including Canada, the United Kingdom, Ireland, the Scandinavian countries, New Zealand, Australia, India, South Africa, and Poland. In many "low-income countries" and parts of Latin America, there are additional arrangements for free access, typically through HINARI. All Cochrane Reviews' two-page abstracts as well as brief, plain-language summaries of a few articles are available to everyone without charge.

The Cochrane Library consists of the following databases:

1. The Cochrane Database of Systematic Reviews
2. The Cochrane Central Register of Controlled Trials.
3. The Cochrane Methodology Register.
4. Health Technology Assessment Database.
5. NHS Economic Evaluation Database

**PATIENT EDUCATION**

Employing interactive videodiscs, digital cd-roms, and floppy discs as computer-aided learning (CAL) systems for patient education. CAL is just as efficient as traditional oral and written communication techniques.

In contrast to conventional teaching methods, multimedia engages students of various learning preferences, and CAL systems can be utilized by patients in the privacy of their own homes at a convenient time chosen by the user.

The patient just needs to click a mouse button to interact with web browser interfaces, and many programs use the same recognizable screen layout. Using information from each patient's electronic patient record, the material on the Web page can be customized for each specific patient.

In the coming ten years, videocassette recorders and satellite television receivers will be replaced with televisions with built-in Web browsers that can be navigated using a pointing device. Recently, it was demonstrated that on-demand digital video provided through a fiber-optic cable network may be used well at home, but because it requires a lot of supercomputing power, it is not yet economically feasible. 10-18

**CONCLUSION**

There is no need to be intimidated by the wealth of prosthodontics-related material available online. A tiny number of portals offer huge amounts of high quality content. Leaner only needs to accept the idea of receiving updates via email and keeping an eye on various information sources to stay current with prosthodontic advancements.

**REFERENCES**

1. Powell J, Clarke A. The WWW of the World Wide Web: Who, What, and Why?. Journal of Medical Internet Research 2002; 4(1):e4.
2. Kennedy AJ. The rough guide to the internet. London: Rough Guides Ltd, 2002.
3. Al-Shahi R. Search engines. Pract Neurol 2001; 1:60–1.
4. Powsner S, Roderer K N. Navigating the internet. Bull Med Libr Assoc. 1994; 82:419-425.
5. Glowniak V Jerry. Medical resources on the internet. Ann Intern Med. 1995; 123:123-131.
6. Albert Reka, Jeong Hawoong, Barabasi L A. Internet: Diameter of the world wide web. Nature 1999; 401:130-131.
7. KS Khoo, Michael AH Ong. Dental education resources on world wide web. Annals Dent Univ Malaya 1998;5:6-10
8. Delamothe T, Smith R. PubMed Central: creating an Aladdin’s cave of ideas. BMJ 2001;322: 1–2.
9. Canese K. PubMed Celebrates its 10th Anniversary! NLM Tech Bull. 2006 Sep-Oct;(352).
10. About the Cochrane library. The Cochrane library. Retrieved 2012; 11-29.
11. R. C. Sechrest, D.J Henry. Computer based patient education: Observations on effective communication in the clinical setting. Journal of biocommunications, 23, 8-12, 1996
12. Jadad AR, Sigouin C, Cocking L, et al. Internet use among physicians, nurses, and their patients. JAMA 2001;286:1451–2.
13. Berland GK, Elliott MN, Morales LS, et al. Health information on the internet: accessibility, quality, and readability in English and Spanish. JAMA 2001;285:2612–21.
14. Xie B, Wang M, Feldman R, Zhou L. Internet Use Frequency and Patient-Centered Care: Measuring Patient Preferences for Participation Using the Health Information Wants Questionnaire. Journal of Medical Internet Research 2013;15(7):e132
15. Safran C, Goldberg H. Electronic patient records and the impact of the internet. Int J Med Inform 2000;60:77–83.
16. Forkner-Dunn J. Internet-based Patient Self-care: The Next Generation of Health Care Delivery. Journal of Medical Internet Research 2003;5(2):e8
17. R.B. Jones, L.M. Navin, K.J. Murray. Use of a community-based touchscreen public-access health information system. Health Bulletin, 51, 34-42, 1993.
18. Gerber S. Ben, Eiser Arnold. The Patient-Physician Relationship in the Internet Age: Future Prospects and the Research Agenda.J Med Internet Res 2001;3(2):e15