Orthodontic Products Update

Orthodontics on the World Wide Web

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Introduction

References to the Internet and the World Wide Web are very common nowadays, but what are they and what is their relevance to orthodontics? In computer jargon a network is a collection of computers which are connected to each other so that they can share information. The Internet or the Net is a network of networks. Through the Internet, individuals on one network may share information with individuals on another network anywhere in the world.

How to be connected to the Internet

Many large organisations and institutions, such as Universities, have computer networks which are permanently connected to the Internet by high speed phone lines. If you are not a member of a large organisation with its own network you have to be connected to someone else's network via a modem and a telephone line. These third parties are called Internet access providers and they charge. Whenever you want to access the Internet you click on an icon on your computer screen, your computer calls the access provider, who checks that you are a valid customer and connects you to the Internet. These dial-up accounts give full access to the Internet, but you are only on-line while your computer is connected by phone. They usually charge by the hour.

Finding an Access provider – There are basically two types of access provider. The 'On-line Service Provider' such as CompuServe (PO Box 676, Bristol BS99 1YN: Tel 0800 000200) or America Online (20 Fulham Broadway, London SW6 1AH: Tel 0800 279 1234). These will provide all the Internet services you will require.

The second and possibly cheaper option is an 'Internet Service Provider'. There are many to choose from, but their services and fees vary. If you can get access to the Internet you can look at a Web site with information about an Internet Service provider with an access number local to your area (http://thelist.com). The list is huge and it is worth shopping around. Some service providers charge a start up fee, some charge according to how much the service is used, either by the hour or a set number of hours per month. Many access providers offer a number of free hours at start up. When I browsed the list the average fee appeared to be about £12.00 a month (+VAT).

What services dos the Internet provide?

Electronic mail or e-mail – With e-mail it is possible to send messages to anyone who has a computer connected to the Internet. There are a number of advantages of e-mail over 'snail mail'. It takes only a few seconds for your message to reach anywhere in the world. The receiver can read it, reply, print or pass the information to someone else very quickly. There are electronic mailing lists for sending notices to hundreds or thousands of individuals at once.

Information – there is a huge amount of news and information on the Internet. You can look up a vast array of topics from stock market prices to Origami. If so inclined, you can do your shopping, publish a fairy tale, ask a geologist a question, fly a MiG-29 or carry on a discussion in Klingon!

Software – the Internet has the facility to make available software to download from a computer thousands of miles away onto your computer.

The World Wide Web

There are a number of services or 'tools', such as Gopher and Telnet, which allow you to access information on the Internet. The most exciting and well known is the World Wide Web, WWW or the Web. It came into being in 1989 at the European Laboratory for Particle Physics CERN in Geneva, Switzerland and was designed as a way for nuclear physicists to share information and data. It has grown enormously since then.

The Web consists of thousands of documents containing text, graphics, sound or video clips, which are linked together by key words and phrases using the principle of hypertext. Words or phrases are marked so you can choose them (click on them with a mouse) and a new document will appear which provides a further explanation.

The Web uses what is called a client-server model. Special machines or software known as World Wide Web servers make the linked hypermedia documents available to the public Individuals move around these documents using software known as 'browsers', the best known of which are Netscape and Mosaic. World Wide Web documents are written in a standardised way (HyperText Markup Language or HTML) and there is a standardised protocol (HyperText Transfer Protocol or HTTP) for transferring information across the Internet. This ensures that any browser can access the information at any site. Web sites are entered through the Home Page. This usually refers either to the first page that appears when the browser is loaded or to the first page at a particular Web site.

The limitlessness of what can be provided on the World Wide Web means that I can only review a small number of

sites which may be of interest. In addition, the Web is constantly expanding and new sites appearing, so that by the time this article is published it will be out of date, but will hopefully encourage the reader to get on-line and find out more.

Web Sites

Starting sites

Yahoo Health Dentistry
www.yahoo.com/health/dentistry

A good place to start a search on the Web is with a so called 'search engine'. This is a programme which hunts through the millions of Web pages to find the specific topic requested. The findings are then ranked in an order which the engine thinks will be most useful to your search request. Yahoo is one of several search engines available on the Web. Each engine has its own archive through which it searches, so no single engine searches every page on the Web. If you cannot find something with one search engine then try another.

Orthodontics and Orthodontist in Cyberspace
www.dada.it/odontoiatria/oando.html
Maintained by Dr Gabriele Floria

This site contains a list of addresses on the Internet which may be of interest to orthodontists. The list includes a number of dental schools in the United States which have Web sites. This would be particularly useful to those thinking of applying for courses in that country.

The Dentistry Homepage
www.pitt.edu/~cbw/dental.html
By Falk Library of Health Sciences, University of Pittsburgh

This site is aimed at the dentist and the patient. It has a very comprehensive list of Web sites and is a excellent starting point for finding information on the Internet concerned with all aspects of dentistry, including diagnosis and treatment of dental diseases. It also aims to provide information to dentists concerning Web sites relevant to the practice of dentistry.

Cyberjournals

All the main orthodontic print journals have Web sites which provide tables of contents and in some cases abstracts of articles. These can be found by using a search engine. The Oxford Journals Web site (www.oup.co.uk/jnls/hdb/) which includes the home pages for the European Journal of Orthodontics and the British Journal of Orthodontics, has a useful facility to search for key words in abstracts, however this is a fairly recent addition and it only covers the journals from January 1996 onwards.

There are two orthodontic journals which are dedicated to sharing ideas on the clinical management of cases via the Internet. They also welcome submission of articles.

The Virtual Journal of Clinical Orthodontics (VJCO)
http://vjco.it/provjci.htm
Editor Dr Gabriele Floria

This is a journal written in Italian, English and French and hopes to be produced four times a year. The aim of the journal is to use the Internet to provide postgraduate education and professional up-date in orthodontics. It will accept case reports or scientific articles for publication. It also aims to provide an international forum for controversial clinical arguments. Submitted articles are peer reviewed by an eminent list of scientific advisors including Professor Graber, editor of the American Journal of Orthodontics and Dentofacial Orthopaedics and Dr Beni Solow. The referee's report of each article is also published and can be accessed. I found this site interesting, but very slow to load. There was a document on the history of orthodontics which I would have found attractive had I been able to access it.

The Orthodontic Cyberjournal
www.maine.com/orthodontics
By Dr Gary Roebuck and Dr Raymond Bedette

This journal is sponsored by Ormco and is to be produced three times a year. The editors of the journal state that it is dedicated to the exchange of information regarding the art and science of orthodontics. The journal I looked at (Volume 1; Issue 3, December 1996) contained an article comparing the estimated rate of bond failure of adhesive precoated brackets with that of non-precoated brackets. The results were obtained from a questionnaire sent to orthodontists asking them to estimate their failure rate with precoated and non-precoated brackets. There was also a case report of a cantilever bite jumper. One document contained anecdotes about being an orthodontist. I found the most useful section to be the product updates section which included information about a digital camera.

Orthodontic newsgroups

The Internet makes it possible to carrying on a discussion with orthodontists around the world. I found two orthodontic discussion sites on the Web.

The Electronic Study Club for Orthodontics
www-hsc.usc.edu/~jzernik/eclub.htm
Maintained by Dr Joseph Zernick at the University of Southern California

This site is designed to allow the free exchange of information and opinions by orthodontists. The topics for discussion include specific appliances and their performance, unusual cases, as well as issues related to practice management. There are also facilities for the announcement of meetings. One interesting addition to this site includes the publishing of the tables of contents for the American Journal of Orthodontics and Dentofacial Orthopaedics, Angle Orthodontist and the Journal of Clinical Orthodontics a month or more before they appear in print. The Journal of Clinical Orthodontics also transmits its editorials to this site.

Dr Chung's Orthodontic Study Forum
http://blue.nowcom.co.kr/~abeh/index.htm

This site invites discussion on a particular topic each month. The topic during the month that I accessed the site was class III malocclusion treatment during the growth stage. There was an article written by Dr Chung entitled 'A study of the skeletal changes after treatment of class III malocclusion'.

Commercial business sites

All the main orthodontic manufacturing and supply companies have Web sites with up-to-date information on products including details of who the major share holders of the company are and how their stock is performing.
    Those which are particularly worth visiting are:

Dentofacial Software Inc Home Page
www.dentofacial.com/index.htm

This company was founded by Richard Walker and is based in Toronto in Canada. It has developed advanced software to help with cephalometric planning and facial visualisation, as well as record keeping and communication. There are details of their two main applications which are Dentofacial Planner Plus™ and Dentofacial Show-Case™. The former links digitised lateral cephalograms and digital facial images to aid treatment planning and visualisation of treatment effects. The latter is designed to store captured images of the face, teeth, radiographs and study models. Their site also contains useful information about the latest products in this area including digital cameras and flat bed scanners. If (like me!) you are lazy and cannot be bothered to visit their Web site for your updates, you can register with them and they will send the information to you periodically.

American Orthodontics
www.dataplusnet.com/ao/ao.html

This company produces similar software to Dentofacial Software. Their site provides a free demonstration of their orthodontic imaging software called Create It! Present It! This software is designed to store and present patient photographs, radiographs, models and appliances on CD-ROM. There are also 150 images included for patient education.They also produce some software called Compu-Ceph. This is designed to capture a patient's radiograph and photograph, reorientate it and produce one image with hard and soft tissue superimposed. This image may then be 'morphed' to show changes due to orthodontic tooth movement or surgical procedures. Cephalograms from different stages of treatment may be compared.

Free demonstration software

One of the great benefits of the WWW is the ability to make software freely available around the world. There are a few sites with free demonstration software for orthodontists.

Biomechanics in Orthodontics
www.ats.it/fiorelli/home.html
Maintained by Giorgio Fiorelli and Birte Melson

This site includes details of 'Biomechanics in Orthodontics'. This is a multimedia textbook available on CDROM. The textbook is based on the principle of hypertext in the same way as the WWW. It contains text, pictures, video clips and sound on many subjects including force systems, torquing and uprighting, alignment loops and treatment planning. A free demonstration of the textbook may be downloaded.

Butterworth Heinemann Practical Orthodontic Assessment
www.butterworth.heinemann.co.uk/ortho/ortho.html

This site offers a download of a free demonstration of the computer assisted learning package Practical Orthodontic Assessment based on the book of the same name by Professor CD Stephens and Mr K. Isaacson.

Other sites of interest

Orthodontic Information Page
www.bracesinfo.com/index.html
Sponsored by Masel Industries

This site is mainly designed for patients who are connected to the Web and require more information about orthodontics. There is a document containing FAQs (frequently asked questions) aimed at teenage orthodontic patients and their parents, as well as adult patients. There is a comprehensive list of questions including 'why should I get braces?', how does orthodontics work?' and 'what kinds of braces are there?' There are also more light-hearted sections on the top ten things to do while having your braces tightened or a list of famous people with braces. Many of the answers are prepared with a North American audience in mind.
    Some Practitioners homepages may be worth a visit. One site I visited was Dr Redmond's Homepage. www.asyst.net/ortho/ortho.html
    Dr Redmond is based in private practice in Southern California. He presents a few cases including jaw expansion and correction, overbite reduction and class II correction.

DERWeb (Dental Education Resources on the Web)
http://panizzi.shef.ac.uk/derweb/derweb.html
By the Department of Information Studies and Department of Restorative Dentistry at the University of Sheffield.

This is an essential site for anyone interested in dental education. The aim of the site is to publish teaching materials and other information on educational dentistry on the Internet. This includes an extensive library of approximately 1600 dental images for use in teaching and research. These images may be downloaded and used for teaching as long as various conditions are met. I browsed through the images, most of which are of good quality. There were not

many pictures on orthodontic subjects and they were numerically arranged so you had to use the browser's search facility to find them. There were also documents discussing how to use the Web for presenting educational material, which is undoubtedly the way forward in the future in both undergraduate and postgraduate education. It is also possible to download examples of experimental ideas on different approaches to teaching on the Internet. There was also some interesting background information on the technologies which make the DERWeb site possible and guest editorials providing information for the dental community.

The Internet, by connecting two networks of computers thousands of miles apart, provides the facility for rapid communication and dissemination of information. The World Wide Web is one of the tools available to those connected to the Internet. It is an expanding resource, which is easy to use and has unlimited potential, particularly in the fields of undergraduate and postgraduate education.

Further reading

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