Open Access to the Evidence: Helpful Hints to Save Valuable Time and Resources in the Quest to Provide Evidence-Informed Physiotherapy Interventions

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Veras and colleagues' proposed definition of *evidence-based physiotherapy* is "an area of study, research, and practice in which clinical decisions are based on the best available evidence, integrating professional practice and expertise with ethical principles."^{1(p.95)} As health care providers, physiotherapists are expected to provide evidence-informed care,² and they embrace this responsibility.³ Yet physiotherapists have identified several barriers to providing evidence-informed care; these barriers primarily relate to awareness of, and access to, relevant research findings as well as lack of time.³⁻⁶

The medical literature has noted that it takes approximately 17 years for 14% of research findings to be adopted into clinical practice.⁷ Bridges and colleagues⁸ identified that the practicality of gathering evidence, including ease of access, efficiency, and relevance to practice, was associated with greater adoption. This makes sense! When one is working in a busy clinical practice, keeping client charts and professional communications up to date can be time consuming enough; staying informed and up to date with emerging evidence is something that gets pushed to the hours after work. Thus, physiotherapists need to be efficient at finding the evidence, and the evidence they gather needs to have practical application.

Indeed, the current volume and acceleration of scientific publications makes keeping up with the literature a responsibility that can become unmanageable. In 2016, 869,666 citations were added to the Medline database, or an average of 2,383 citations per day.⁹ Consistent with this, the volume of new publications added to the health and medical sciences literature has more than doubled over the past decade. How do physiotherapists sift through all of this to find and access information that is relevant to their practice area?

In *Physiotherapy Canada's* Winter 2009 issue, Padfield Francis eloquently described how news aggregators (Really Simple Syndication, or RSS, feeds) "push" relevant articles and other information to a clinician's inbox.¹⁰ Although

the information presented in that editorial remains highly pertinent, information technology has evolved over the 9 intervening years. As a result, strategies have been developed for busy clinicians to easily find and access information that is directly relevant to their clinical practice. We present three strategies for retrieving the best and most current evidence in your practice area with minimal time and effort. To demonstrate these strategies in action, we have developed a "LibGuide," which is a library platform for curating customized knowledge in a particular content area. Our LibGuide, Pelvic Health Rehabilitation: Open Access to the Evidence (<http://guides.library.queensu.ca/pelvichealth>), uses these three strategies to make gathering information as efficient as possible.

THREE STRATEGIES FOR ACCESSING PHYSIOTHERAPY EVIDENCE

Receive regular updates from the best peer-reviewed journals without having to search for them

Although you can always perform targeted searches of online databases free of charge—for example, through Google Scholar (<https://scholar.google.com>), Science Direct (<https://www.sciencedirect.com/search/advanced>), and PubMed (<https://www.ncbi.nlm.nih.gov/pubmed>)—our LibGuide uses RSS feeds in the manner described by Padfield Francis.¹⁰ RSS feeds push either current tables of contents or database search results to an archive site. Our LibGuide pushes tables of contents from the higher quality peer-reviewed journals in the area of pelvic floor rehabilitation to our site. RSS feeds also provide up-to-the-minute PubMed search results for the search terms *physiotherapy AND dyspareunia*, *physiotherapy AND pelvic pain*, *physiotherapy AND prolapse*, and *physiotherapy AND urinary incontinence*. Our site provides step-by-step instructions (with screenshots) for anyone wanting to generate their own RSS feed of search results using any

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combination of search terms. RSS feeds can be set up to send updates directly to an email address, but most people find that the volume of email received becomes overwhelming and instead prefer to set up a feed that they can access regularly from their Web browser. Our LibGuide shows you how to do both.

Find trustworthy sources of synthesized knowledge

Clinical practice guidelines, when followed according to accepted standards,¹¹ provide the highest level of evidence to inform clinical practice. Among 419 physical therapists in Sweden, most had positive attitudes toward evidence-based practice (90% considered practice necessary, and 96% considered guidelines important), but only 13% knew where to find guidelines, and only 9% reported having easy access to them.¹² Our LibGuide provides links to synthesized knowledge. The National Guideline Clearinghouse (<https://www.guideline.gov/>) is a free repository for clinical practice guidelines and holds several resources relevant to physiotherapy. The Physiotherapy Evidence Database, or PEDro (<http://search.pedro.org.au/search/>), indexes and abstracts 35,000 randomized trials, systematic reviews, and clinical practice guidelines specific to physiotherapy, and some full-text content is freely available (this is called *open access*). Physiopedia, which is accessed through Physiospot (<https://www.physiospot.com/>), is based on a Wikipedia-type structure, where clinician-members create abstracts of research while also providing full citation information. Although not specific to physiotherapy interventions, Turning Research into Practice, or TRiP (<https://www.tripdatabase.com/>), is an excellent clinical search engine designed to allow users to quickly and easily find high-quality research evidence.

Our LibGuide explains what each of these synthesis sites is and how it can be used to efficiently access relevant evidence. Members of the Canadian Physiotherapy Association have access to OrthoEvidence (<https://myorthoEvidence.com/>), which provides summaries of research evidence pertinent to musculoskeletal rehabilitation.

Access full-text versions of relevant articles

Once you have found citation information for an article that is relevant to your topic, the next step is to obtain a copy of the article so that you can read it. Most search engines provide links to free online content where it exists. The number of journals that are fully open access (e.g., BioMed Central, PLOS One, PeerJ) has risen steadily in recent years. This is primarily because research funding agencies are requiring grant recipients to maximize the exposure and impact of their research by making their publications freely accessible to a global audience. Science-Metrix, a research evaluation firm, reported that, as of 2014, more than 50% of the scientific articles published from 2007 to 2012 could be downloaded for free from the Internet.¹³

Even if a journal does not provide open access, most reputable journals allow authors to pay a processing

charge to give readers open access to their article as soon as it is published, and readers are automatically given open access to most articles published in reputable journals after 12 months. If an article is not open access, there are still several ways to procure a copy. Our LibGuide provides tips on how to access full-text versions of research articles free of charge without an affiliation with a hospital or university library. Some options are as follows:

- Use a public library's interlibrary loan service (depending on the library, the service may be offered at no cost or on a cost-recovery basis, or it may be subsidized).
- Contact the corresponding or lead author by email (click on the corresponding author icon to access his or her email address directly from the citation in PubMed) or through a professional networking site such as LinkedIn (<https://www.linkedin.com/>) or ResearchGate (<https://www.researchgate.net/>) to request a copy of the author manuscript. The author manuscript is the final manuscript version of an article that has been peer reviewed and accepted for publication in a journal. In most cases, publication agreements permit authors to share their author manuscript. The manuscript will not be formatted like the final article or have the final page numbering or publisher branding, but all of the information will be there. In some cases, authors' publication agreement outlines a fixed period in which they can distribute their published article to interested parties. For example, authors who publish with Elsevier receive a link to their published article that provides 50 days' free access to their article on ScienceDirect.
- Search PubMed (<https://www.ncbi.nlm.nih.gov/pubmed/>), using the "free full text" filter found on the left sidebar of the Search results page to limit your results to open access articles.
- Check online directories such as the Directory of Open Access Journals (<https://doaj.org/>) and HighWire (<http://highwire.stanford.edu/lists/freeart.dtl>). If an article is available through open access, it will be linked to these sites (e.g., *BMJ Open Sport and Exercise Medicine*, *NeuroEngineering and Rehabilitation*). Moreover, HighWire lets you know when open access to an article is delayed—for example, all articles published in *Acupuncture in Medicine* are available through open access after 4 years; articles in *Physical Therapy* and *Stroke*, after 12 months; and articles in the *Journal of Neuroscience*, after 6 months.
- Search online for the article's authors to see whether a PDF file of the article is available on their websites. If so, you can download it from there. Generally, it is worth looking up only the first author (the one who contributed the most to the article) or the last author (usually the professor in whose lab the work was done and who supervised the project). If there is no

link to the article on an author's website, you will most likely find their email address and can contact them to request the author manuscript.

- Search an institutional research repository. Many universities have set up repositories where their faculty can archive author manuscripts because, as noted, research funding agencies are requiring that research be made available free of charge.
- Use the Open Access Button (<https://openaccessbutton.org/>), a Web browser add-on launched in 2013, to search repositories for open-access versions of content behind a paywall (content whose access is restricted through a paid subscription). It is most effectively searched by using a PubMed reference number (PMID), PubMed Central identifier (PMCID), or digital object identifier (DOI), rather than an author's name or a word in an article title.
- Use Unpaywall (<http://unpaywall.org/>), another open access harvester of legally available open access articles.
- Last, if the article is not available through open access and it seems worthwhile to pay for the content, most publishers offer a 24-hour rental agreement. For example, Wiley provides 24-hour access for \$6.00 (US), and articles from more than 250 Elsevier journals can be rented through DeepDyve (<https://www.deepdyve.com/>) for between \$0.99 and \$3.99 (US).

In addition, our LibGuide, Pelvic Health Rehabilitation: Open Access to the Evidence (<http://guides.library.queensu.ca/pelvichealth>), provides links to pelvic rehabilitation professional and academic societies as well as to reputable patient education and advocacy websites; it also gives advice on how to use social media to connect with experts and communities of practice. We encourage you to take a look at the guide. As noted, we built it to be particularly relevant to physiotherapists working in the area of pelvic floor rehabilitation, yet the information provided on how to find and access information can be extrapolated to any area of clinical practice.

As a final note, if you are interested in any source document referred to in this editorial, its entry in the References includes the digital object identifier, or DOI, which is a unique alphanumeric string assigned by the registration agency (the International DOI Foundation) to identify the document's content and provides a persistent link to its location on the Internet. Clicking on a DOI will take you directly to the source of the document. If the document has open access, you will see the full text.

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