



Podcasting: An innovative tool for enhanced osteoarthritis education and research dissemination



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ABSTRACT

Podcasts are portable digital audio files that have become a powerful medium in higher education and an indispensable tool in continuing medical education. This article reviews the best sources for educational podcasts on osteoarthritis (OA) and various aspects of synovial joint biology. It highlights the potential of podcasting for disseminating research findings, providing continuing medical education for healthcare professionals and educating patients about self-managing their condition. We highlight the potential for using this medium in conjunction with other digital platforms to achieve wider readership and greater impact for published papers, raising the profiles of social-media savvy faculty members and researchers, marketing the capabilities of research groups, and promoting the efforts of international consortia and across centres of excellence. We also offer advice on resources needed to start a podcast. Podcasts have captured the attention of millions of listeners across the world in recent years. There is a genuine and timely opportunity for educating patients and healthcare professionals about OA and facilitating the dialogue between them using this increasingly popular platform. Podcasting can also help our community to promote the key concept of OA as a serious disease and stimulate more research in the area of joint biology and drug development for OA.

1. Introduction

Podcasting, originally known as “audioblogging”, dates back to the 1980s. At that time, however, the internet did not exist, computers did not possess audio recording and playback capabilities, and audio-based education was only available through a Walkman with audio cassettes or a portable CD player. All of this changed in 2004 when Adam Curry and Dave Winer invented the podcasting model. The basic podcasting model developed by Curry and Winer was simple, yet elegant. They developed a program known as iPodder, which enabled them to download internet radio broadcasts to their iPods. Internet radio broadcasts, which have fewer regulations than traditional radio, were thus made portable, creating a new model for distributing a wide variety of audio content. The term podcasting was originally mentioned in the article “Audible revolution,”¹ written by Ben Hammersley for The Guardian

newspaper in the United Kingdom. It was the advancement of technology, however, that led to the podcast as the new state-of-the-art for asynchronous entertainment and learning. The development of the Apple iPod was an important catalyst in this process, and Apple added podcasts to iTunes in June 2005.

In the last 15 years we have witnessed an explosion in podcasting, mostly in entertainment, but also in education, particularly at secondary and tertiary levels. In this paper we review the available resources for osteoarthritis (OA) education and requirements for creating a podcast, and we comment on the future prospects of podcasting as a medium for dissemination of research findings, continuing medical education (CME), professional development and, importantly, dissemination of evidence-based, easily understandable educational material to the lay public to support patients with OA.

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¹ <https://www.theguardian.com/media/2004/feb/12/broadcasting.digitalmedia>.

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2. Academic and educational podcasting

Academic audio and video podcasting began with high quality media delivery almost as soon as podcast libraries started to form [1]. The Society of Critical Care Medicine was the first medical society that realized the potential for podcasting, successfully implementing the first medical podcast series [2]. As virtual learning environments started to develop across medical schools, teaching expanded from traditional lecture formats to include more innovative teaching and learning approaches. Podcasts became a disruptive innovation in education, allowing students to learn at their own pace, in various locations, and with opportunities to engage with a wider community (Fig. 1). Barriers to the use of podcasts were generally related to lack of access to or experience with technology, but were often addressed with I.T. support or assistance from family/friends [3]. It is also worth mentioning that podcast hosting platforms (e.g., Apple podcasts, Google Podcasts, Spotify, and others) have also become much more user friendly and easier to access. Students reported that podcasts added value to their learning experience by allowing them to gauge their learning needs and incrementally build knowledge and understanding [3]. In a traditional setting (e.g., classroom/conference), learners may only hear a complex issue discussed briefly before the next topic is introduced. In contrast, podcasts can be listened to multiple times or paused to provide time for the learner to process the information. Students have also used podcasts to identify areas where they need further resources to improve their understanding [3].

Podcasts have been developed to deliver educational content and CME for dermatologists [4], general practitioners [5], emergency medics [6], paediatricians [7], and orthopaedists [8]. Recent research suggests that qualified physicians (particularly general practitioners) find podcasting to be a beneficial and convenient learning method and the opportunity to gain CME credit is not a major motivation for listening [9]. Today, education, science, and health/medicine are common categories on podcast aggregators and an entire field of research has emerged on the pedagogy of podcasting [10–12]. While the number of podcasts dedicated specifically to OA and/or synovial joint biology is relatively small, those that exist provide a variety of excellent educational opportunities for researchers, clinicians, and patients (Table 1).

Table 1
Current OA, joint biology and other related podcast resources.

Podcast Name	Description	Where to find episodes ^a
OA-specific		
Hey OA!	Introduction to a variety of OA research areas, aimed at non-specialist audiences	https://www.oarsi.org/education/hey-oa-podcast https://www.podchaser.com/podcasts/hey-oa-532132https://player.fm/series/hey-oa https://www.jointaction.info/podcast
Joint Action	OA management, aimed at OA patients	https://www.jointaction.info/podcast
Not OA-specific (selected examples^b)		
British Journal of Sports Medicine podcast	Various sports medicine topics, including some episodes focused on OA-related topics	http://feeds.bmj.com/bjism/podcasts
Live Yes	Patient-hosted interviews discussing topics pertinent to various forms of arthritis, including OA	https://www.arthritis.org/liveyes/podcast
Digital Rheumatology Network podcast	Discussion of digital solutions in Rheumatology, some content relevant to OA	https://digitalrheumatology.org/category/podcast/
Science Friday	General science podcasts	https://www.sciencefriday.com/science-friday-podcasts/
Sports Medicine Weekly	Radio talk show format featuring Dr. Brian Cole and Chicago Bulls Radio Host Steve Kashul	https://sportsmedicineweekly.com/2019/04/20/advancements-in-technology-to-restore-knee-cartilage/
Ortho Bullets	Educational podcast series focusing on structure, function and degeneration	https://www.orthobullets.com/basic-science/9017/articular-cartilage

^a Many OA podcasts can also be found on popular podcast aggregation sites such as Apple podcasts or Google podcasts.

^b A web search for 'osteoarthritis podcast' returns ~392,000 results. Only a few of the many podcasts that provide OA-related content are included here.

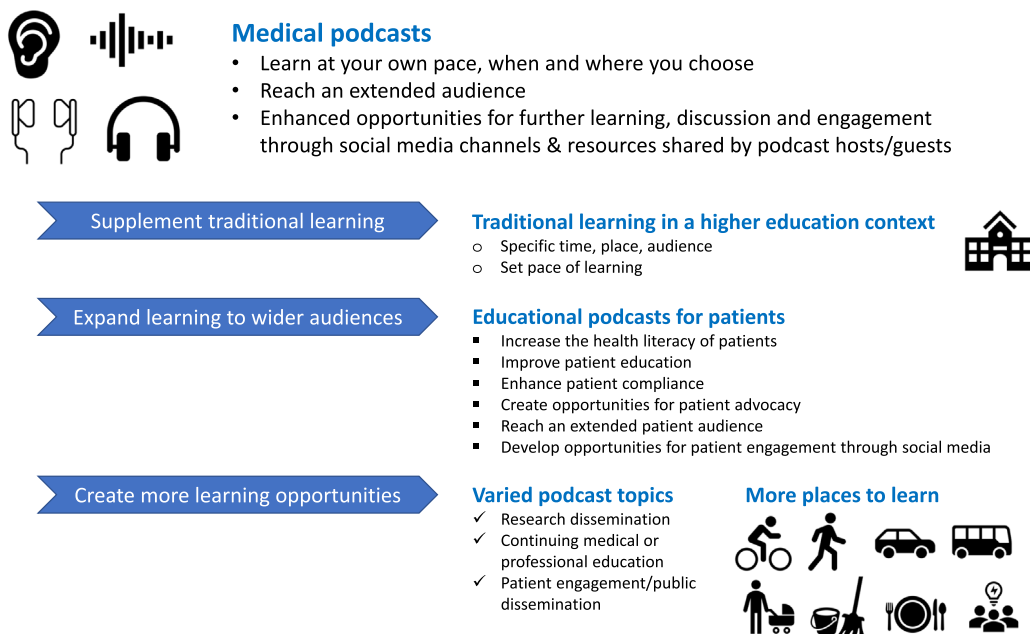


Fig. 1. Non-traditional learning with medical education podcasts.

3. Hey OA! podcasts

The “Hey OA!” podcast series², sponsored by the Osteoarthritis Research Society International (OARSI) and hosted by Dr. Kerry Costello at Boston University in the United States, introduces listeners to OA research through a series of conversations with OARSI members and other guests. These conversations have included overviews of various research areas (e.g., biology, biomechanics, imaging, pain) and methods (e.g., patient engagement, clinical trials, qualitative research), as well as the impact of research on clinical care and healthcare policy (e.g., optimizing knee replacement outcomes, sex and gender in OA research and care) and discussions about career development. This podcast, along with other current efforts, helps to address an acute and pressing need for maintaining engagement with the OARSI research community, allowing listeners to receive OA-related content throughout the year, rather than only at the annual OARSI conference.

4. Joint Action podcasts

“Joint Action” is a podcast series hosted by Dr. David Hunter at the University of Sydney in Australia. Joint Action is a key component of the Joint Effort Initiative, an international consortium focused on the implementation and evaluation of programs that deliver high-value OA care (i.e., OA management programs). The rationale for the podcast is simple and very timely: exploiting the medium for the benefit of patients with OA. Individuals living with OA related disability may become less fit, more depressed/anxious and more socially isolated. With the COVID-19 pandemic leading to feelings of isolation for many people, this podcast fills a critical need to provide accessible sources of educational materials and a sense of community, optimism and hope about how individuals with OA can actively participate in their own care.

5. Other OA podcast resources

There are also a number of podcasts with wider focus areas that have specific episodes relevant to OA, some of which are listed in [Table 1](#). For example, there are great OA episodes in the British Journal of Sports Medicine podcast series. The Arthritis Foundation’s ‘Live Yes’ podcast series provides educational materials for patients with all types of arthritis and uniquely, is hosted by patients. The Digital Rheumatology Network podcast, edited by Dr Thomas Hügler at University Hospital Lausanne in Switzerland, aims to share new and innovative digital solutions in Rheumatology from leading experts in a variety of disciplines, including biomarkers, artificial intelligence, machine learning, and mobile health. In most cases a simple web search or scroll through social media can help us find podcast collections and relevant episodes on OA.

6. Opportunities for podcasting in OA

The number of currently available OA podcasts certainly has room for growth and this medium presents tremendous opportunities for both OA education and enhanced research dissemination. The success of podcasting is due, in part, to the convenience and pervasiveness of the modern smartphone. Millions of people are listening to podcasts right now. They may be driving, walking, cycling, using public transport or even working at home, cooking, cleaning, or caring for children. Many are scientists and clinicians that require information on demand, some are patients looking for more information on how to manage their condition. Podcasts are a great way to reach people despite physical distance and the audio format allows them to be consumed during tasks that require visual attention or by individuals with visual impairments, reading difficulties, or those who want to limit daily screen time.

Podcasting is rapidly expanding from tertiary education to open

access publishing, online journals and virtual conferences. Association management organisations are using podcasts to promote online events. Journals use podcasts to drum up interest for recent publications and distil findings for non-specialist audiences. With ongoing uncertainty about in-person conferences, podcasts can provide virtual content, including professional development, for researchers and clinicians working at home. Many organisations have recently created additional programming through podcasts and other channels (e.g., webinars) that previously were considered secondary to in-person meetings. Some of these organisations include the European League Against Rheumatism (EULAR), the American College of Rheumatology (ACR), the American Association of Orthopedic Surgeons (AAOS), and the Osteoarthritis Foundation International (OAFI). For example, through an unrestricted educational grant from Pfizer Global, OARSI is developing a series of podcasts to educate healthcare practitioners about OA pathogenesis and pain research.

Beyond these applications, the real opportunity we see for OA podcasts is in educating patients and facilitating dialogue between them and healthcare professionals using a more organic platform. Digital education is not simply for the privileged who have clinical qualifications and attended medical school. Individuals operating outside of, or parallel to, traditional medical education can also benefit as long as podcasts are appropriately targeted for non-specialists. The links between podcasts and social media (e.g., Twitter) also provide potential for knowledge translation [13]. While podcasts are typically consumed asynchronously, social media provides opportunities for continued discussion among the podcast host, guests, other experts and/or patients. Just as at a conference or in-person class, these continued discussions can create a sense of community and reinforce learning, while providing opportunities to expand the discussion to a broad audience. Further, while we populate podcast platforms with new content, we can also convert existing materials into patient education for wider distribution of this content.

7. Basic technology requirements for creating a podcast

Another attractive aspect of podcasting as a means for disseminating content is the relatively low barrier to entry. The essential items required to create a podcast are a computing device, a microphone, audio-editing software, and a website to host the podcast. To start a podcast, basic versions of these items are typically acceptable, and upgrades or additional equipment can be added to further improve the quality of the podcast.

Most modern computers can be used, whether a desktop or a laptop, a Mac or a PC, as the computational requirements for audio recording and editing are relatively low. Many computers will even have a built-in microphone, although high quality audio makes for a better experience for listeners and therefore a good external microphone is preferable. External USB microphones plug directly into your computer and thus are often preferred when first starting a podcast for their easy set up and low cost. Analog microphones can provide higher audio quality but require additional equipment to record and convert the signal from analog to digital. Smartphones can even be used to record audio content using built-in or add-on apps. The choice of microphone and other equipment may also depend on the intended format of the podcast. If multiple people are being recorded at the same time then several microphones may be needed, however, some microphones do have the capability to record audio from multiple people at once. For recording in noisy environments or outdoors, tools such as a windscreen or pop filter may be needed, and headphones, particularly closed back headphones, can help prevent the microphone from picking up audio coming from your computer (such as from an external guest). While a sound-proof recording studio and microphone with shock mount can improve audio quality, these are not necessary for most podcasts. A quiet, carpeted room in a low traffic area can also be effective at reducing noise from reflective surfaces and any external sources.

The choice of podcast format will also dictate the software needed for

² <https://oarsi.org/education/hey-oa-podcast>.

recording. For solo/monologue style podcasts, free editing software such as Audacity or Garageband can be used to both record and edit podcast audio. Multiple in-person guests may require a mixer to adjust sound levels. If you wish to record call-in guests, you will need additional software depending on the method of call (i.e., telephone or internet-based). For example, free Skype accounts for both the host and guest along with inexpensive ecam Call Recorder software will allow Mac users to capture audio files from both individuals that can be imported into Audacity or similar software for editing. Just as with the choice of microphone, there are many choices for audio recording and editing, and upgrades (such as to Adobe Audition) come at an added cost.

The last essential requirement for podcasting is a website that allows people to visit, access and download the audio files. Podcast hosting services (such as SoundCloud, Podbean, Libsyn, and many others) provide these services and allow your podcast to be distributed via RSS feeds to directories such as Apple Podcasts, Google Podcasts, and Spotify, allowing potential listeners to access your podcast in a variety of places. There are many podcast hosting platforms to choose from and many have free or low-cost options for beginners. The choice of platform and subscription level may depend on the amount and frequency of content that you plan to host and/or what listenership statistics you would like to access.

8. Editorial aspects of podcasting

Beyond the basic technical equipment, starting a podcast also requires deciding on a format or formats, desired content or topics to cover, and intended audience, and a commitment to the time and effort involved to continue to produce content. Podcasting also requires adherence to editorial standards including accuracy, impartiality and respecting privacy. Indeed, the same standards of rigour that are applied to traditional print publications should be applied to podcasts. Podcasts allow the host to experiment, try new things and push boundaries. The host can effectively take the listeners on a journey, giving them the opportunity to get hooked and engaged, taking them behind-the-scenes and creating a friendly environment for an informative and educational conversation, thus pushing forward the boundaries of creativity. Podcasts that are informal and personal are often extremely popular and hosts that can tell a good story and create a sense of community have the potential to amass a great gathering of listeners.

9. The future of OA podcasts

Podcasts have captured the attention of millions of listeners in recent years, more than earning their title as the modern-day radio. In the song "Video Killed the Radio Star" by The Buggles, written by Trevor Horn, Geoff Downes and Bruce Woolley, video was portrayed as the wicked emerging medium that killed off poor radio, as depicted by images of an exploding radio in the original MTV videos. However, more than 40 years later, it is clear that radio is alive and well, although it has, like a phoenix, risen from the ashes, evolving and transforming into different and more dynamic formats, thanks to modern technology. The growing interest in podcasting is infectious and starting to impact OA research and education. Thanks to the ubiquity of smartphones, time spent commuting or doing mundane tasks can now be used for education. Podcasting is already proliferating, and it has huge potential to grow and develop further. Research has pointed to brain-stimulating and addictive effects of audio learning and the multitasking potential of listening³, making audio podcasts a potent and powerful on-demand tool in education and dissemination.

Harnessing podcasts to provide varied sources of content to researchers, clinicians, and importantly, patients with OA, could prove to

be an innovative and invaluable tool to support those living with OA. Despite the common belief that retired individuals and OA patients over the age of 65 may be less familiar or less comfortable with technology, middle-aged and older adults are increasingly using technology to access information, including health information [14], and, given the COVID-19 pandemic, are becoming increasingly familiar with the use of technology in healthcare contexts as telemedicine becomes more common [15]. In the authors' own experiences, smartphones and social media (e.g., Facebook) use are common among middle-aged and older adults and therefore it may be possible to promote and embed podcasts into the Facebook platform for older individuals with good access to technology. In geographic areas with resource limitations, smart phones will likely be the best way to reach older individuals and OA patients.

So what is next beyond podcasting? Video podcasting or vodcasting is the next obvious platform but it requires a mobile device with a screen, a tablet, laptop or desktop computer. The beauty of the traditional podcast is that the audio-only format provides a unique advantage, making the podcast much more accessible for people who are willing to listen but might need to keep their eyes sharply focused on another task. Podcasting is a revolution and a media format that is here to stay.

Contributions

AM drafted the manuscript. Both KEC and AM revised the manuscript critically for important content and approved the final version. Both authors contributed to the revisions following peer review and take full responsibility for the accuracy and integrity of the information contained in this article.

Footnotes

The opinions expressed are those of the authors, and do not reflect the official policy of their academic institutions.

Declaration of competing interest

AM is the president of OARSI. KEC is the host and producer of the OARSI Hey OA podcast series. The authors have no financial conflicts to declare in connection with this article.

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