

## Internet and Social Media Contribute to Medical Research Journal Growth



**Abstract:** In 2010, our editorial team wrote about the Internet's inarguable role in overloading information on our readers. In this editorial, we reflect on insights gained, mostly in the past decade, regarding the Internet and social media. Medical and surgical information online is easy to obtain, but it varies from platform to platform, is low in quality and reliability, and overestimates the public's ability to decipher the information. Physicians do not use social media enough, or well. Social media can engage patients and can inform patients about the quality of medical and surgical information online. Physicians, themselves, can provide reliable information that informs patients and eases their minds. Physician-authors can use social media to develop communities with shared interests in research; members of these communities can post research findings and highlight the publications in which they find them. Discussion of research online increases the likelihood that it will be cited. It is no surprise that the Internet and social media have contributed to the growth of *Arthroscopy*; *Arthroscopy Techniques*; and *Arthroscopy, Sports Medicine, and Rehabilitation*.

### Editorial

*"Almost overnight, the Internet's gone from a technical wonder to a business must."<sup>1</sup>*

Bill Schrader

In 2010, more than a decade ago, our editorial team wrote about the Internet's inarguable role in overloading information on our readers. Also inarguably, the Internet's overloading has exploded. At the same time, *Arthroscopy* has experienced rapid growth. Since the introduction of our online submission process and of the electronic version of the journal, we have seen a surge in submissions and a significant increase in readership.<sup>2</sup>

As a result, we have introduced two open-access journals: *Arthroscopy Techniques* and *Arthroscopy, Sports Medicine, and Rehabilitation*. *Arthroscopy* Podcasts recently recorded its 150th episode. *Arthroscopy* infographics and visual abstracts relieve information overload by quickly delivering impactful insights through reader-friendly social media. In this editorial, we reflect on insights gained, mostly in the past decade, regarding the Internet and social media.

*"The problem with the Internet is that it gives you everything—reliable material and crazy material. So, the problem becomes, how do you discriminate?"<sup>1</sup>*

Umberto Eco

If you, the reader, agree with Umberto Eco, you will not be surprised by the results of reports in our journals that investigated the quality of online information about knee arthroscopy, meniscal injuries, platelet-rich plasma, femoroacetabular impingement, hip arthroscopy, and anterior cruciate ligament (ACL) injury and reconstruction.<sup>3-11</sup> Here are sample comments published by our authors:

- "Our study shows the difficulties encountered by patients in obtaining information regarding knee arthroscopy, and highlights the duty of knee surgeons to help patients identify relevant and authentic information in the most efficient manner from the World Wide Web."<sup>5</sup>
- "The Internet can be a valuable asset for educating patients, but, due to significant variability, physicians should be familiar with the quality of information available."<sup>10</sup>
- "The information overestimates the reading ability of the general population."<sup>6</sup>
- "Information on the meniscus found in YouTube videos is of low quality and reliability."<sup>4</sup>

To this last point, with the creation of our peer-reviewed *Arthroscopy Techniques* YouTube channel, our journal has done our best to upgrade the quality of online medical and surgical information on YouTube.<sup>12</sup>

Three investigations focused on the Health on the Net Foundation: Code of Conduct (HONcode). As stated on its website,<sup>13</sup> Health on the Net aims to ensure the reliability and credibility of online health care information. Bruce-Brand et al. reported that sites

bearing the HONcode seal had higher content scores for ACL reconstruction than sites without this certification.<sup>3</sup> However, Ellsworth et al. found that “The HONcode is useful to identify quality patient information websites; however, it is not commonly used in hip arthroscopy (HA)-specific websites and does not encompass all quality websites about HA.”<sup>7</sup> Also, Lee et al. reported that “Sites with HONcode certification showed as much variability in quality as noncertified sites.”<sup>9</sup>

*“Social media creates communities, not markets.”<sup>14</sup>*

*Don Schultz*

As of 2019, there were 3.48 billion people using social media.<sup>14</sup> Our journals are institutional users and make a large social-media impression.<sup>15,16</sup> Under the leadership of our Social Media Board, we engage readers across multiple platforms: Twitter, Facebook, Instagram, and LinkedIn.

That said, although 96% of hospitals participate in social media,<sup>17</sup> it may not be widely used by physicians. Only one half of residency programs in orthopaedic surgery and one quarter of program directors and department chairs have a social media presence.<sup>18</sup> “Most hip arthroscopists have no professional social media accounts, and fewer post content frequently,”<sup>19</sup> despite the evidence that, “A professional Instagram account can increase the number of online ratings.”<sup>19</sup> However, *Arthroscopy* readers may be ahead of the curve. LaGrant et al. wrote in their article, “Fellowship Training Is a Significant Predictor of Sports Medicine Physician Social Media Presence,” that “nearly two-thirds of professional team physicians have a social media presence, most commonly LinkedIn.”<sup>20</sup> The most effective strategies to generate more interactions on Instagram is to elicit emotional responses and provoke viewer engagement by asking questions and directing actions.<sup>21</sup>

The amount of social media attention garnered by journal publications is quantified by Altmetrics.<sup>22</sup> The basis of altmetric measurements includes online forums, social media, research blogs, public policy documents, newspaper articles, and other online sources. Altmetrics complement traditional citation-based metrics that have long been used to measure quality and relevance of scientific articles.<sup>23</sup>

The Altmetric Attention Score (AAS) is calculated from the volume of mentions of content, sources, and authors (Table 1).<sup>23</sup> Of interest, the type of publication may correlate with the amount of social media attention. Vadhera et al. reported that articles on technique result in significantly higher AAS versus open-access original research articles on similar topics.<sup>23</sup> And, Polce et al. showed that “orthopaedic randomized control trials (RCTs) published in five high-impact general medical journals had a

**Table 1.** The Altmetric Attention Score Is a Weighted Count of the Attention That a Scholarly Article Has Received and Is Derived From 3 Main Factors<sup>23</sup>

1. Volume	The score for an article rises as more people mention it. Only one mention per source is counted.
2. Sources	Each different category of mention contributes a different base amount to the final score. For example, a news article contributes more than a tweet.
3. Authors	How often the author of each mention talks about the article and whether there is any bias, e.g., one account pushing the same article automatically.

significantly greater mean AAS, relative to nonorthopaedic RCTs, with no differences in rates of citation.<sup>24</sup> This may be because general medical journals may have a bias toward publishing only the most controversial orthopaedic trials.<sup>25,26</sup>

Social media posting may also be associated with bibliometric impact or, more simply stated, with the number of times a published research article is cited in a timely manner. “Statistically significant associations were found between higher metric scores and higher citations for articles with positive Altmetric scores in all cases with sufficient evidence (Tweets, Facebook wall posts, research highlights, blog mentions, mainstream media mentions, and forum posts).”<sup>27</sup> These findings agree with those of Polce et al., who reported “there was a strong association between the AAS and citation rate of orthopaedic RCTs.”<sup>24</sup>

## Reflections

We physicians do need to use social media. It can be useful in engaging patients and addressing current concerns about the quality of online medical and surgical information.<sup>3-11</sup> The quality of medical and surgical information is critical to patient education and informed decision-making. In an *Arthroscopy* Editorial Commentary, Nho and Neal wrote, “As caretakers of musculoskeletal medicine, we as orthopaedists must embrace the Internet as the first line of patient education.”<sup>28</sup> Associate Editor Emeritus Merrick Wetzler agrees: “As physicians, we need to guide our patients, especially when it comes to obtaining information on the Internet.”<sup>29</sup> Using social media, physicians can direct patients to scientifically supported treatments and higher quality information that targets frequently seen conditions. As a specialty, we need to do our best to ensure the quality, educational character, and readability of information available online.

Social media as measured by Altmetrics can provide an effective forum for discussion of recent research. Authors can develop communities that share research

interests and encourage those communities to examine and highlight publications. This could stimulate and improve further research. Online discussion of research can increase the likelihood that publications will reach a wider audience.

Finally, and unsurprisingly, the Internet and social media have contributed to the growth of *Arthroscopy*; *Arthroscopy Techniques*; and *Arthroscopy, Sports Medicine, and Rehabilitation*. Social media allows our journals to reach every member of every society in the entire world who has access to Twitter, Facebook, Instagram, YouTube, or LinkedIn.

This is a laudable step toward equity and unbiased opportunity.

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