

Maximizing Effective Twitter Use by Orthopaedic Sports Medicine Journals: Account Metrics and Impact Factor

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INTRODUCTION: Social media (SoMe) continues to play an increasingly profound role in social and professional interactions, with 3.96 billion people using SoMe in 2020 alone. Twitter is of particular interest to medical journals as a tool to enhance article reach and promote information dissemination. To date, no longitudinal analysis of Twitter usage in relation to orthopaedic surgery medical journal bibliometric influence, such as impact factor (IF), has been performed. Therefore, our study aims to investigate longitudinal Twitter account usage patterns and metrics most highly associated with enhanced bibliometric influence of orthopaedic sports medicine journals.

METHODS: Temporal relationships between usage of Twitter accounts by the top orthopaedic sports medicine journals and their IF were assessed using publicly available metrics. Activity markers on Twitter profiles were assessed within the first year of account opening, and then annually until 2020. Annual IFs were recorded, and statistical analysis was conducted via student's t-test and Pearson correlate to assess the relationship between account metrics and IF over time.

RESULTS: At the time of this study, all seven (100%) of the top orthopaedic sports medicine journals had dedicated Twitter profiles (Table 1). The mean IF for all journals was 2.99 (95% CI: 2.69, 3.30) (range = 0.25–6.60), with all IFs increasing over time except for the American Journal of Sports Medicine (AJSM). The number of tweets published per year was positively correlated with increased journal IF in all journals (100%), as seen in Table 2 and Figure 1. The percentage of original tweets liked by other accounts was positively correlated with increased IF in five out of six journals (83.3%). The number of retweets, hashtags used, and user mentions to other accounts were not correlated with IF over time in most journals, occurring in zero (0%), one (16.6%), and three (50%) of those analyzed, respectively. The Journal of International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine (JISAKOS) first received an IF in 2020 and thus could not be analyzed longitudinally.

DISCUSSION AND CONCLUSION: Increased number of annual tweets was the most specific usage pattern associated with enhanced traditional bibliometric markers for orthopaedic sports medicine journals. The findings of this study may allow orthopaedic sports medicine journals to have more effective, specified, and productive use of their social media accounts, such as Twitter, by focusing on account activity most significantly correlated with increased IF.

Table 1: Sports Medicine Journal SoMe and Impact Factor Characteristics

| Journal | Twitter Account | Year of First Publication | Year of Twitter Account Creation | Impact Factor 2009 | Impact Factor 2020 | Average # of Annual Tweets | No. of Followers (Dec-2021) |
|--|-----------------|---------------------------|----------------------------------|--------------------|--------------------|----------------------------|-----------------------------|
| American Journal of Sports Medicine (AJSM) | @AJSM_SportsMed | 1976 | 2012 | 2.32 | 5.04 | 117 | 38,707 |
| American Journal of Arthroscopic and Related Surgery | @ArthroscopyJ | 1985 | 2012 | 1.38 | 5.07 | 309 | 16,489 |
| Knee Surgery, Sports Traumatology, Arthroscopy (KSSTA) | @KSSTA | 1992 | 2012 | 1.14 | 3.74 | 24 | 2,220 |
| Journal of Shoulder and Elbow Surgery (JSES) | @JSESMedia | 1992 | 2012 | 1.19 | 3.09 | 94 | 1,548 |
| Orthopaedic Journal of Sports Medicine (OJSM) | @ojsm_sportmed | 2014 | 2015 | N/A* | 2.54 | 105 | 2,714 |
| Sports Health | @sports_health | 2008 | 2008 | N/A* | 3.13 | 59 | 13,561 |
| Journal of ISAKOS | @JISAKOS | 2016 | 2016 | N/A* | 0.72 | 443 | 3,428 |

*No impact factor reported in 2009.

*The average number of tweets since the beginning of their twitter account- December 2020

Table 2: Relationship between Account Markers and Impact Factor in Sports Medicine Journals

| Journal | Pearson Correlate with Annual Impact Factor | P Value |
|---------------|---|---------------------------------------|
| AJSM | Annual Tweets | R ² =0.67 0.02 |
| | Number of Hashtags | R ² =0.30 0.10 |
| | % Tweets Liked | R ² =0.81 <0.001 |
| | Annual Retweets | R ² =0.63 366 |
| | User Mentions | R ² =0.50 <0.001 |
| Arthroscopy | Annual Tweets | R ² =0.78 0.003 |
| | Number of Hashtags | R ² =0.38 0.09 |
| | % Tweets Liked | R ² =0.81 <0.001 |
| | Annual Retweets | R ² =0.61 0.13 |
| | User Mentions | R ² =0.37 0.029 |
| KSSTA | Annual Tweets | R ² =0.83 0.03 |
| | Number of Hashtags | R ² =0.76 0.73 |
| | % Tweets Liked | R ² =0.78 <0.001 |
| | Annual Retweets | N/A* N/A* |
| | User Mentions | N/A* N/A* |
| JSES | Annual Tweets | R ² =0.65 0.003 |
| | Number of Hashtags | N/A* N/A* |
| | % Tweets Liked | R ² =0.54 <0.001 |
| | Annual Retweets | N/A* N/A* |
| | User Mentions | N/A* N/A* |
| OJSM | Annual Tweets | R ² =0.86 0.01 |
| | Number of Hashtags | R ² =0.53 0.17 |
| | % Tweets Liked | R ² =0.81 0.05 |
| | Annual Retweets | R ² =0.76 0.07 |
| | User Mentions | R ² =0.56 0.09 |
| Sports Health | Annual Tweets | R ² =0.94 <0.001 |
| | Number of Hashtags | R ² =0.60 0.008 |
| | % Tweets Liked | R ² =0.82 0.07 |
| | Annual Retweets | R ² =0.54 0.12 |
| | User Mentions | R ² =0.74 0.01 |

* = Not reported longitudinally, bold = statistically significant finding.

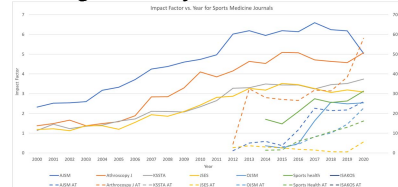


Figure 1: Impact Factor and Annual Number of Tweets Over Time for Orthopaedic Sports Medicine Journals

Figure 1 shows the positive correlational growth between journal IF and annual number of tweets over time. Data begins in the initial year that the journal received an IF or twitter account. Due to variety in this time point, data begins at various points within the figure for different journals. AT = Annual Tweet Volume.