

What Makes Journal Club Effective?—A Survey of Orthopaedic Residents and Faculty

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BACKGROUND: Journal clubs play an important role in the education of orthopaedic surgery residents; however, there are sparse data available on the characteristics that make journal clubs effective.

OBJECTIVE: The primary goal of this study was to determine the characteristics of effective journal clubs as identified by orthopaedic residents and faculty. We sought to compare the opinions of residents and faculty in order to identify areas that may benefit from future research and discussion.

DESIGN: Orthopaedic surgery residents and faculty at residency programs around the country were surveyed anonymously. The survey was designed to determine the contribution of various journal club characteristics on the effectiveness of journal club. Nonparametric statistics were used to test for goodness-of-fit, and to compare responses between faculty and residents.

RESULTS: A total of 204 individuals participated. The most important goals of journal clubs were teaching the skillset of evaluating scientific papers (2.0 ± 1.2 [mean rank \pm standard deviation, on a scale of 6, with 1 being most important]), encouraging participants to read current orthopaedic literature (2.4 ± 1.1), and instilling career-long habits of reading the orthopaedic literature among residents (3.1 ± 1.3). Mandatory attendance (71.8%), monthly journal clubs (80.9%), resident presentation of articles (86.7%), and discussion of 3 to 5 papers (78.7%) were thought to lead to more effective clubs. The most clinically relevant articles published within the last year (63.8%), and classic articles that have influenced practice (68.1%) were preferred. Participation and attendance (2.4 ± 1.5) and paper selection (2.6 ± 1.5) were the most important characteristics overall.

CONCLUSIONS: In orthopaedics, journal clubs fulfill the role of encouraging reading of the literature, as well as educating residents and faculty. There are many possible club formats, but some are clearly felt to be more effective. Particular attention should be paid to attendance, participation, and paper selection. (J Surg Ed 1:111-111. © 2017 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: structured review instrument, peer-reviewed literature, journal clubs, orthopaedic education, scientific literacy

COMPETENCIES: Practice-Based Learning and Improvement, Professionalism

INTRODUCTION

Journal clubs play an important role in the education of orthopaedic residents. Their origin is typically attributed to Sir William Osler in the late 1870s.^{1,2} By the 1980s, they were commonplace, and have been used as a method for educating trainees and keeping physicians apprised of current peer reviewed research.¹⁻³

There are a number of publications in the peer-reviewed literature that discuss the effect of journal clubs on medical education and techniques for creating effective clubs. Most of these have focused on journal clubs in subspecialties such as emergency, family, and internal medicine^{4-6,3,7}; there have been only a few studies focusing on journal clubs in orthopaedic surgery.^{2,8} In 2000, Greene⁸ surveyed orthopaedic chairmen and found that 99% of orthopaedic residency programs held regular journal clubs, and that the primary goal of these clubs was to teach residents to evaluate scientific articles. The chairmen surveyed felt that they accomplished this successfully. In 2003, Dirschl et al.² published a review article discussing journal clubs in orthopaedics. These authors outlined strategies for implementing orthopaedic journal clubs, identified the importance of defining a journal club's goals, and discussed the

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TABLE 1. Table Demonstrating Mean Rank \pm Standard Deviation for Answer Choices to the Question “Which of the Following Do You Believe Are Important Goals of an Academic Journal Club? Rank 1 to 6, With 1 Being Most Important”

Answer Choices	All Respondents (Mean Rank \pm Standard Deviation)	Comparison		
		Residents	Faculty	Statistical Analysis (Mann-Whitney U), p Value
Teach the skillset of evaluating scientific papers	2.0 \pm 1.2	2.1 \pm 1.2	2.0 \pm 1.2	0.722
Encourage participants to read current orthopaedic literature	2.4 \pm 1.1	2.3 \pm 1.1	2.5 \pm 1.1	0.248
Instill career-long habits of reading the orthopaedic literature among residents	3.1 \pm 1.3	3.3 \pm 1.3	2.8 \pm 1.4	0.023
Develop rapport/sense of community between residents and attending staff	3.9 \pm 1.3	3.8 \pm 1.2	3.9 \pm 1.4	0.410
Provide another outlet for residents to learn the fundamental principles of orthopaedic surgery	4.0 \pm 1.5	3.8 \pm 1.5	4.2 \pm 1.3	0.100
Satisfy program, department, or ACGME requirements	5.7 \pm 0.8	5.8 \pm 0.9	5.6 \pm 0.9	0.002

Bold indicates a statistically significant difference between resident and faculty rank, with significance set at $p < 0.05$.

need to address factors such as leadership, timing, attendance, duration, and setting to meet these goals effectively. However, this work was based on a review of the existing literature, and most of it was derived from other subspecialties. Although this previous work has helped to identify the goals of journal clubs in orthopaedics from the perspective of department chairmen and make suggestions about optimizing the effectiveness of journal club, there have been no studies identifying goals important to orthopaedic surgery residents or evaluating the most effective orthopaedic-specific journal club methodology.

The primary goal of this study was to identify the characteristics of an effective journal club as identified by orthopaedic residents and faculty. We also sought to compare the opinions of residents and faculty in order to identify areas of disagreement that may benefit from future research, discussion, and reconciliation. We also attempted to identify important goals of journal clubs in orthopaedics.

MATERIALS AND METHODS

One hundred and fifty-seven orthopaedic residency programs with a contact e-mail address for either the program coordinator or program director were identified. A 15 question anonymous survey was distributed to faculty and residents at each program via the contact address listed. The survey was designed to determine the contribution of various journal club characteristics on the perceived effectiveness of journal club based on characteristics and club designs previously reported in the literature.^{2,8} Most of the questions were multiple choice, and asked participants to select a single answer choice. Two questions used a Likert scale, and asked participants to rank items on a scale of 6, with 1 being most important. One question allowed

participants to select 3 answer choices from 6 possible answers. The survey remained open for a period of 2 months (May-June 2016), and responses were recorded electronically using Qualtrics survey software (Provo, UT). Responses from participants who only partially completed the survey were included in the analysis for questions that were completed.

For categorical data, a chi-square goodness-of-fit test was used to determine if responses differed significantly from an even distribution frequency. Resident and faculty responses were compared with a chi-square test of independence, and standardized residuals were calculated to determine the specific cells involved in differences that were identified. For ordinal data, a Mann-Whitney *U* test was used to compare resident and faculty responses. For all statistical analyses, a $p < 0.05$ and a standardized residual greater than 2 were considered significant.

This study held an approved exemption from our institution's institutional review board. No external funding was used to complete this study.

RESULTS

Two hundred and four (204) individuals responded to the survey. There were 106 resident/fellows and 98 faculty. The response rate per question decreased as the survey progressed as some participants ended the survey early. For question number 3, there were 193 responses. The final questions had 187 responses, which was the lowest of all questions.

When asked to rank the goals of orthopaedic journal clubs in order of importance, survey participants chose “teach the skillset of evaluating scientific papers” as the most important goal, with a ranking of 2.0 ± 1.2 (mean rank \pm

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