PRESTIGE OF SPORT BIOMECHANICS SERIALS

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This study documented the perceived quality/prestige of English language serials publishing biomechanics research by sport and exercise scholars. The 2006 membership of the American Society of Biomechanics was surveyed by electronic mail and asked to rate the typical quality/prestige of 62 serials on a five point scale. Mean ratings were calculated for the eighteen respondents from the Exercise and Sport Science interest area (13% response). Mean ratings showed that sports biomechanics scholars view the prestige of serials differently than the Thompson Scientific Impact Factor (IF). *Sports Biomechanics* was rated moderate to high in prestige, while *ISBS Proceedings* were rated as moderate prestige.

KEY WORDS: bibliometrics, citation, impact factor, peer review.

INTRODUCTION:

Thompson Scientific tracks citation data for thousands of journals and provides a variety of services to the academic community. The impact factor (IF) has become a key statistic for evaluating scientific journals. Despite numerous papers documenting problems with the IF (Bollen et al. 2006; Frank, 2003; Kurmis, 2003; Saha et al. 2003; Seglen, 1997; Smith, 1998) the IF continues to be misused in evaluating institutional and individual faculty papers (Cameron, 2005; Garfield, 2006; Kurmis, 2003: Seglen, 1997).

This inappropriate use of the IF has serious implications for a small field like sport and exercise biomechanics. The IF is biased against small disciplines (Frank, 2003; Jones, 2007; Seglen, 1997) and where citations tend to take longer than the two year window used in the IF. All these problems leads to the hypothesis that the IF is not a good index of the prestige of serials publishing sport biomechanics research. Sport biomechanists must compete for research funding and promotion with scholars from other disciplines, so it is essential that the true prestige of sport biomechanics serials be documented. Therefore, the purpose of this study was to document the quality/prestige of English language serials publishing biomechanics research from the perspective of sport and exercise biomechanics.

METHOD:

A survey listing 62 English language serials (Table 1) regularly publishing biomechanical research was developed. Respondents were asked to rate their assessment of the mean quality or impact of papers in these serials on a 5 point scale:

4 Likely High Quality/Impact
3
2 Likely Moderate Quality/Impact
1
0 Likely Low Quality/Impact or Unknown.

All 630 members of the American Society of Biomechanics (ASB) were sent the survey by electronic mail. A second email was sent after six weeks as a reminder. Of the 610 emails that were successfully delivered, 78 responses were received. Respondents also reported their primary ASB interest area: biological sciences, engineering/applied physics, ergonomics/human factors, exercise/sport science, or health sciences. Responses from the exercise/sport science area were compiled and mean (SD) calculated for each serial. For serials with an IF in 2005, ratings were correlated with the IF with statistical significance accepted at the $P < 0.05$ level.

RESULTS:

Eighteen respondents from the exercise/sport science area returned surveys. This was 13% of the membership in this interest area, identical to the overall percentage of ASB members responding to the survey. The relative percentage of the interest areas of all respondents was similar to the overall percentages within the ASB membership.

Mean (SD) prestige ratings for the serials are listed in Table 1. The overall mean rating was 2.1 (0.6) across the mean serial ratings. There was no statistically significant ($r_{45} = 0.24$) correlation between mean ratings and IF for 2005.

Table 1: Mean ± SD Prestige Ratings of Sports Biomechanics Serials

Serial	Rating	Serial	Rating
J Biomech	3.9 ± 0.2	J St Cond Re	1.8 ± 1.1
M Sci Sp Ex	3.6 ± 0.6	Cl J Sp Med	1.8 ± 1.2
J App Biom	3.3 ± 0.8	J Si Med Sp	1.8 ± 1.3
Clin Biom	3.2 ± 1.0	Proc: ISBS	1.8 ± 1.4
Am J Sp Med	2.8 ± 1.1	Sc J Si M Sp	1.8 ± 1.3
Gait & Post	2.8 ± 1.3	J Mot Behav	1.8 ± 1.2
J EMG Kine	2.8 ± 1.0	J C M B B E	1.8 ± 1.4
J B Jt Surg	2.7 ± 1.4	J Atl Training	1.8 ± 1.1
J App Physio	2.6 ± 1.4	Ac Phy Scand	1.7 ± 1.1
Exp Br Res	2.6 ± 1.5	Hum Factors	1.7 ± 1.1
Sp Biomech	2.5 ± 1.5	J Hum Mo St	1.7 ± 1.4
J Sports Sci	2.4 ± 1.0	J Spt Rehab	1.7 ± 1.0
J Orth Res	2.4 ± 1.5	J Sp M Ph Fit	1.6 ± 1.1
Int J Sp Med	2.3 ± 1.0	Ped Ex Sci	1.5 ± 1.2
Ar Ph Med Re	2.3 ± 1.1	App Ergo	1.5 ± 1.1
Mus & Nerve	2.3 ± 1.3	J Bio Sci Eng	1.5 ± 1.3
J Biomec En	2.3 ± 1.5	Eu J Sp Sci	1.5 ± 1.3
J Exp Biology	2.3 ± 1.5	Iso Ex Sci	1.4 ± 1.1
J Or Sp Ph Th	2.2 ± 1.4	Per Mot Skills	1.4 ± 1.0
Hum Mov Sci	2.2 ± 1.5	Sports Eng	1.3 ± 1.2
Phys Therapy	2.2 ± 1.3	Int J Sp H Sci	1.3 ± 1.2
E J Ap Physio	2.2 ± 1.2	Med Bi En Co	1.3 ± 1.3
J Biomed En[#]	2.2 ± 1.5	Res Sp Med	1.2 ± 1.3
Ergonomics	2.2 ± 1.2	Proc: Sports	1.1± 1.0
Br J Sp Med	2.1 ± 1.1	Proc: ISEA	1.1 ± 1.0
J Neurophys	2.1 ± 1.4	J M Med Bio	1.1 ± 1.2
Am J Physio	2.1 ± 1.3	Jap J B Sp Ex	1.0 ± 0.9
Mot Control	2.0 ± 1.3	*Nature*	*2.9 ± 1.5*
J Physiol	2.0 ± 1.6	*Science*	*2.7 ± 1.5*
A JP Med Re	1.9 ± 1.0	*Ex Sp Sci Rev*	*2.7 ± 1.2*
Res Q Ex Spt	1.9 ± 1.1	*Sports Med*	*2.4 ± 1.2*

Journals publishing primarily review papers in *italics*. [#]This journal has been published under the name *Medical Engineering & Physics* since 1993 and J C M B B E is the *Journal of Computer Methods in Biomechanics & Biomedical Engineering*.

DISCUSSION:

The present study provided the first quantitative ratings of journal prestige in the area of biomechanics of sport and exercise. The lack of a significant correlation between prestige ratings and the IF supports the conclusion that the IF is a poor index of journal prestige in sport and exercise biomechanics. This was consistent with previous studies with large samples of journals that report weak correlations between the IF and disciplinary ratings of quality (Donohue & Fox, 2000; Sellers et al. 2004).

Four journals had mean ratings nominally higher than the prestigious review journals *Nature* and *Science* that traditionally have very high impact factors (about 30). The ISBS journal *Sports Biomechanics* was rated in the top 20% and *ISBS Proceedings* rated near moderate quality. Neither of these ISBS publications currently have an IF. The ratings reported in this study are important for authors who want to publish their research in journals perceived as influential in sport and exercise biomechanics.

The present study had several limitations. First, the sample size was small and respondents limited to sport and exercise biomechanists from North America. The rating scale used also assigned a zero to journals perceived as low prestige or where unknown to the respondents. This resulted in some journals receiving lower mean ratings and greater variability in their ratings. Unfortunately, this later weakness is necessary to document the true perspective of the sport and exercise biomechanics community in North America. Future research should survey the international sport biomechanics community to determine if the ratings reported here are representative of the larger international community of sport and exercise biomechanics.

CONCLUSION:

The data support the conclusion that journal prestige in sport and exercise biomechanics is not related to the commonly used Thompson Scientific Impact Factor. The perceived prestige of biomechanics serials by the North American respondents was specific to the area of sport and exercise biomechanics. Similar surveys should document the prestige of biomechanics serials of a world-wide sample of the sport and exercise biomechanics community.

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