

# NORTH AMERICAN PERCEPTION OF THE PRESTIGE OF BIOMECHANICS SERIALS

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## INTRODUCTION

Since 1975, the Institute of Scientific Information (ISI) has published Journal Citation Reports (JCR) annually and reported impact factors (IF's) of scientific journals (<http://portal.isiknowledge.com/>). The IF is essentially the mean number of citations an average article in a journal had in a year in the over 12,000 journals indexed relative to the number of papers published in that journal in the last two years.

Biomechanics is a discipline with many applications and sub-areas so scholars often publish their work in journals in different subject categories used in JCR. It is not known whether the quality/prestige of journals in the discipline of biomechanics matches the IF reported in JCR. Therefore, the purpose of this study was to document the perceived quality/prestige of English language peer-reviewed serials publishing biomechanical papers by the North American biomechanics community and evaluate the association between these ratings and the IF. A secondary purpose was to explore the potential differences in perceived quality/prestige of journals publishing biomechanical papers across different interest areas within biomechanics.

## METHODS

An electronic mail survey including a list of 62 English language journals and regularly published proceedings that represented the variety of fields and publications focusing

on biomechanics or using biomechanical research (Table 1) was sent to 610 members the American Society of Biomechanics (ASB) in the early 2007. They were asked to rate the journals based on their assessment of the mean quality or impact of papers from these journals in the field of biomechanics on a 5-point scale:

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

A total of 78 members (13%) responded to the survey. A correlation coefficient between mean prestige ratings (PR's) and IF's reported for 2005 was determined ( $p = 0.05$ ) and serials without IF in 2005 were excluded from the correlation analysis.

## RESULTS AND DISCUSSION

Although the response rate was low, the respondents were representative of the ASB with a similar distribution of interest areas (biol sci-10%, eng/appl physics-39%, ergo/hum factors-6%, exerc/sport sci-23%, & health sci-22%) to the ASB membership (7, 50, 10, 20, 13%, respectively).

There was a significant but weak correlation between PR and the IF for 2005 ( $r_{45} = 0.35$ ,  $p < 0.05$ ). The weak correlation ( $r^2 = 12\%$ ) suggests that the IF alone is inappropriate for evaluating journal prestige within the field of biomechanics.

There was high variability of journal ratings across respondents probably because of the differences in research interests among respondents (Table 2). However, several journals were consistently highly rated across interest areas. Several respondents recommended additional journals that are considered relevant to their fields (e.g., IEEE Trans Biomed Eng, J Gerontol, Proc ISB, Spine, etc.) for future studies.

## SUMMARY/CONCLUSIONS

It was concluded that IF's should be used with caution in evaluating the quality/prestige of journals publishing biomechanics research. Furthermore, investigators should consider interest area specific ratings within biomechanics when selecting journals for publishing their research.

Table 1: Prestige ratings (PR's) of biomechanics serials (mean  $\pm$  SD).

Serial	PR's	Serial	PR's	Serial	PR's
J Biomech	3.8 $\pm$ 0.5	Muscle Nerve	1.9 $\pm$ 1.5	Clin J Sports Med	1.1 $\pm$ 1.2
Clin Biomech	3.0 $\pm$ 1.0	Eur J Appl Physiol	1.9 $\pm$ 1.3	J Sport Rehabil	1.1 $\pm$ 1.2
J Bone Joint Surg	2.9 $\pm$ 1.3	Ergonomics	1.8 $\pm$ 1.3	J Mech Med Biol	1.1 $\pm$ 1.3
J Orthop Res	2.9 $\pm$ 1.3	Hum Mov Sci	1.8 $\pm$ 1.3	J Sports Sci	1.1 $\pm$ 1.2
Nature	2.8 $\pm$ 1.5	Am J Phys Med Rehabil	1.7 $\pm$ 1.2	Eur J Sports Sci	1.0 $\pm$ 1.2
Science	2.8 $\pm$ 1.6	Phys Ther	1.7 $\pm$ 1.3	Res Q Exerc Sport	1.0 $\pm$ 1.1
Gait Posture	2.7 $\pm$ 1.2	Comput Methods Biomech Biomed Engin	1.7 $\pm$ 1.4	Proc Int Soc Biom Sports	1.0 $\pm$ 1.2
J Biomech Eng	2.7 $\pm$ 1.3	Motor Control	1.7 $\pm$ 1.4	Scand J Sci Med Sport	1.0 $\pm$ 1.2
J Appl Biomech	2.5 $\pm$ 1.2	J Orthop Sports Phys Ther	1.6 $\pm$ 1.3	J Strength Cond Res	0.9 $\pm$ 1.0
J Appl Physiol	2.4 $\pm$ 1.5	Hum Factors	1.5 $\pm$ 1.3	J Athl Train	0.9 $\pm$ 1.1
Med Sci Sports Exerc	2.4 $\pm$ 1.5	J Hum Mov Stud	1.5 $\pm$ 1.3	J Sports Med Phys Fitness	0.9 $\pm$ 1.0
Am J Sports Med	2.3 $\pm$ 1.3	J Mot Behav	1.5 $\pm$ 1.3	Percept Mot Skills	0.9 $\pm$ 1.1
J Biomed Eng	2.3 $\pm$ 1.4	Acta Physiol Scand	1.4 $\pm$ 1.3	Pediatr Exerc Sci	0.8 $\pm$ 1.1
J Electromyogr Kinesiol	2.2 $\pm$ 1.3	Med Biol Eng Comput	1.4 $\pm$ 1.3	Sports Eng	0.8 $\pm$ 1.1
Exp Brain Res	2.2 $\pm$ 1.6	Appl Ergonomics	1.3 $\pm$ 1.2	Int J Sport Health Sci	0.8 $\pm$ 1.2
J Physiol	2.2 $\pm$ 1.7	Br J Sports Med	1.3 $\pm$ 1.3	Isokinet Exerc Sci	0.7 $\pm$ 1.0
Arch Phys Med Rehabil	2.1 $\pm$ 1.2	Sports Biomech	1.3 $\pm$ 1.3	Proc: Sport-specific	0.7 $\pm$ 1.0
Am J Physiol	2.1 $\pm$ 1.5	Int J Sports Med	1.3 $\pm$ 1.3	Proc Int Sports Eng Assn	0.7 $\pm$ 1.0
J Neurophysiol	2.1 $\pm$ 1.7	J Biomech Sci Eng	1.3 $\pm$ 1.4	Jap J Biomech Sport Exerc	0.6 $\pm$ 1.0
Exerc Sport Sci Rev	2.0 $\pm$ 1.6	J Sci Med Sports	1.2 $\pm$ 1.3	Res Sports Med	0.6 $\pm$ 1.0
J Exp Biol	1.9 $\pm$ 1.5	Sports Med	1.2 $\pm$ 1.3		

Table 2: Top 10 original research journals by respondent ASB interest area

Biol Sci (n = 8)		Eng & Appl Physics (n = 30)		Ergonomics & Hum Factors (n = 5)		Exerc & Sports Sci (n = 18)		Health Sci (n = 17)	
J Biomech	3.6	J Biomech	3.7	J Biomech	4.0	J Biomech	3.9	J Biomech	3.8
J Appl Physiol	3.5	J Biom Eng	3.2	Clin Biomech	3.8	Med Sci Sp Ex	3.6	Gait Posture	3.4
J Neurophysiol	3.3	J Orthop Res	3.0	J Orthop Res	3.4	J Appl Biom	3.3	J Orthop Res	3.2
J Physiol	3.1	Clin Biom	2.8	Ergonomics	3.0	Clin Biom	3.2	J B Joint Surg	3.1
Exp Brain Res	3.1	J B Joint Surg	2.8	J Biom Eng	3.0	Am J Sp Med	2.8	Clin Biomech	2.9
J Exp Biol	2.9	Gait Posture	2.5	Hum Factors	2.8	Gait Posture	2.8	Exp Brain Res	2.9
Am J Physiol	2.9	J Appl Biom	2.3	J EMG Kines	2.8	J EMG Kines	2.8	J Physiol	2.9
J B Joint Surg	2.8	J Biomed Eng	2.2	J Appl Physiol	2.6	J B Joint Surg	2.7	J EMG Kines	2.6
Clin Biomech	2.5	J Appl Physiol	2.1	J Biomed Eng	2.4	Exp Brain Res	2.6	J Neurophysiol	2.6
J Biom Eng	2.5	Comp M Biom Biomed Eng	1.8	J Appl Physiol	2.6	J Appl Physiol	2.5	J Biomed Eng	2.6

