

Editorial

BJN impact factor increases by 25 %

On 17 June 2010, the Institute for Scientific Information released its annual statistics on citations of articles published in previous years in scientific journals. A number of different summary statistics are produced by the Institute for Scientific Information, the most widely discussed being the impact factor. I have used previous editorials to keep readers informed of the most recent statistics for the *BJN*, and to analyse them in relation to those of comparator journals and to temporal changes^(1–5). The *BJN* is listed in the Nutrition and Dietetics category of Institute for Scientific Information Journal Citation Reports[®]. In 2009, there were sixty-six journals listed in this category, including review journals and journals in the areas of obesity (e.g. *International Journal of Obesity, Obesity*) and lipidology (e.g. *Progress in Lipid Research, Lipids*). The impact factor of a journal is calculated as the number of citations of papers published in the previous 2 years divided by the number of papers published in those 2 years. Thus, the impact factor for 2009 (issued in 2010) is based upon the number of citations during 2009 of papers published in a particular journal in 2007 and 2008 divided by the number of papers published in that journal in 2007 and 2008. Clearly, this favours very rapidly moving areas of research, and so journals such as *Nature*, *Cell* and *Science* have high impact factors (34.45, 31.15 and 29.75, respectively, for 2009). For the past 8 years, the two highest ranked journals in the Nutrition and Dietetics category have been *Annual Reviews in Nutrition* and *Progress in Lipid Research*, with impact factors of 8.78 and 8.17, respectively, for 2009. Table 1 lists the impact factors for the *BJN* and nine comparator journals over the period 2001–9 inclusive. The comparator journals all publish a similar range of material as does the *BJN*, including molecular, cellular, whole body, human, clinical, public health, experimental animal nutrition and, in most cases, also farm animal nutrition. It is evident that the *American Journal of Clinical Nutrition* is firmly established as the highest ranked journal in this category that is not solely limited to publishing review articles. In 2009, the impact factor of the *BJN* rose from 2.76 to 3.45 (2351 citations in 2009 to the 684 articles published in 2007 and 2008), a rise of 25 % which I take to indicate the health of the journal. For 2009, the impact factors of our sister journals were 4.31, 2.75 and 1.59 for *Proceedings of the Nutrition Society* (ranked 5/66), *Public Health Nutrition* (20/66) and *Nutrition Research Reviews* (41/66), respectively.

Table 2 lists the articles published in the *BJN* during 2007 and 2008 that were most highly cited in 2009. This table indicates the importance of review articles and the *Horizons in Nutritional Science* series to the impact factor of the

journal. Although the articles published in 2007 continue to be cited (Table 2), they will not contribute to the impact factor for 2010 which will be based upon the articles published in 2008 and 2009.

An argument against the importance of the impact factor in indicating the ‘value’ of a journal is that the time frame over which it is calculated is too short to really reflect the impact that the articles that a journal publishes will have. Thus, alternative measures of article citations are available. These include the total number of citations made to articles published in a journal, the 5-year impact factor and the cited half-life of articles. Table 3 lists the total number of citations made to articles published in the *BJN*, irrespective of their year of publication, during the years 2000–8. In 2009, the articles published in the *BJN* were cited 12 904 times, placing the *BJN* fifth in the Nutrition and Dietetics category for this statistic. It is apparent that the total number of citations of articles in the journal has increased year-on-year, and increased by 14 % from 2008 and by over 130 % since 2000. The cited half-life of a journal (Table 3) is the median age of the articles published in that journal that are cited in the reporting year. Thus, publication of articles that remain important (or controversial) long after they are published will result in a long cited half-life. The cited half-life of the *BJN* for 2009 was 7.0 years, indicating that half of the citations to the articles in the *BJN* in 2009 were to the articles published in 2002 or before. Thus, it seems to me that the *BJN* is publishing articles that are seen as important in the short term, as judged by the reasonably high impact factor (within the journal category), but which remain important for many years, as judged by the cited half-life. For comparison, the cited half-lives for the *American Journal of Clinical Nutrition* and the *Journal of Nutrition* for 2009 were 7.5 and 7.6 years, respectively. The immediacy index is calculated as citations of articles published in the reporting year (e.g. 2009) by papers published in that same year. It is a measure of how immediately important (or controversial) published papers are. For 2009, the immediacy index of the *BJN* was 0.530 (255 citations in 2009 to the 481 articles published in 2009). In 2008, the 5-year impact factor was calculated for the first time; this is the number of citations in the year to the articles published in the previous 5 years. For 2009, the 5-year impact factor of the *BJN* was 3.57 (5464 citations in 2009 to the articles published in 2004–8 inclusive), placing it 15th in the Nutrition and Dietetics category. For comparison, 5-year impact factors for the *American Journal of Clinical Nutrition* and the *Journal of Nutrition* for 2009 were 7.74 and 4.54, respectively. The final statistic shown in Table 3 is the Eigenfactor™ score.

Table 1. Impact factor of the *British Journal of Nutrition* and comparator journals over the period 2001–9*

	Impact factor and ranking†								
	2001	2002	2003	2004	2005	2006	2007	2008	2009
<i>American Journal of Clinical Nutrition</i>	5.02 (2/50)	5.60 (3/50)	5.69 (3/53)	5.43 (3/53)	5.85 (3/53)	6.56 (3/55)	6.60 (3/56)	6.74 (3/59)	6.31 (1/66)
<i>Journal of Nutrition</i>	3.25 (5/50)	3.62 (4/50)	3.32 (5/53)	3.25 (7/53)	3.69 (7/53)	4.01 (5/55)	3.77 (7/56)	3.65 (8/59)	4.09 (8/66)
<i>British Journal of Nutrition</i>	1.99 (16/50)	2.49 (7/50)	2.62 (9/53)	2.71 (10/53)	2.97 (9/53)	2.71 (12/55)	2.34 (17/56)	2.76 (15/59)	3.45 (11/66)
<i>Clinical Nutrition</i>	2.46 (9/50)	1.55 (22/50)	1.19 (32/53)	2.02 (18/53)	2.29 (15/53)	2.47 (15/55)	2.88 (14/56)	3.20 (12/59)	3.27 (14/66)
<i>European Journal of Clinical Nutrition</i>	1.77 (20/50)	1.94 (18/50)	1.86 (19/53)	2.13 (16/53)	2.16 (18/53)	2.12 (22/55)	2.33 (18/56)	2.69 (18/59)	3.07 (17/66)
<i>European Journal of Nutrition</i>	2.13 (13/50)	1.64 (21/50)	1.68 (22/53)	2.09 (17/53)	2.26 (16/53)	2.36 (18/55)	2.09 (23/56)	1.89 (29/59)	2.87 (18/66)
<i>Nutrition</i>	1.43 (23/50)	2.27 (10/50)	2.32 (11/53)	1.96 (19/53)	2.06 (20/53)	2.23 (20/55)	2.10 (21/56)	2.28 (23/59)	2.60 (23/66)
<i>Journal of the American College of Nutrition</i>	1.53 (22/50)	2.17 (11/50)	2.98 (7/53)	2.80 (9/53)	2.21 (17/53)	2.45 (16/55)	2.28 (19/56)	2.16 (25/59)	2.36 (26/66)
<i>Annals of Nutrition and Metabolism</i>	1.01 (31/51)	1.08 (28/50)	1.81 (20/53)	1.07 (35/53)	1.56 (29/53)	1.62 (30/55)	1.83 (28/56)	1.24 (40/59)	1.97 (32/66)
<i>Nutrition Research</i>	0.60 (37/50)	0.79 (35/50)	0.72 (39/53)	0.57 (41/53)	0.77 (40/53)	0.73 (44/55)	0.68 (51/56)	0.87 (48/59)	1.19 (49/66)

* Data are from Institute for Scientific Information Journal Citation Reports®.

† Ranking amongst journals in the Nutrition and Dietetics subject category is shown in parentheses beside each impact factor.

Table 2. Articles published in *British Journal of Nutrition* in 2007 and 2008 that were most highly cited in 2009*

	Type of article	Citations in 2009	Total citations to date
Li <i>et al.</i> ⁽⁸⁾	Review	29	52
Trayhurn <i>et al.</i> ⁽⁹⁾	Horizons	28	47
Lillicrop <i>et al.</i> ⁽¹⁰⁾	Full paper	24	57
Cooper <i>et al.</i> ⁽¹¹⁾	Review	24	39
Koletzko <i>et al.</i> ⁽¹²⁾	Consensus statement	23	47
Burdge <i>et al.</i> ⁽¹³⁾	Horizons	22	41
Rogers <i>et al.</i> ⁽¹⁴⁾	Full paper	22	34
Rayman ⁽¹⁵⁾	Review	22	29
Burdge <i>et al.</i> ⁽¹⁶⁾	Full paper	19	52
Roe <i>et al.</i> ⁽¹⁷⁾	Full paper	19	31
Bayol <i>et al.</i> ⁽¹⁸⁾	Full paper	19	31
Waijers <i>et al.</i> ⁽¹⁹⁾	Review	19	28

* Data were obtained from Institute for Scientific Information Web of Science® on 22 June 2010.

This is a complex calculation which, like impact factor, is a ratio of the number of citations to the total number of articles published. However, unlike the impact factor, the Eigenfactor™ score counts citations to journals in both the sciences and social sciences, eliminates self-citations (i.e. every reference from one article in a journal to another article from the same journal is discounted) and weights each reference according to a stochastic measure of the amount of time that the researchers spend reading the journal⁽⁶⁾. For 2009, the Eigenfactor™ score of the *BJN* was 0.0308, placing it fifth in the Nutrition and Dietetics category. For comparison, Eigenfactor™ scores for the *American Journal of Clinical Nutrition* and the *Journal of Nutrition* for 2009 were 0.09393 and 0.06086, respectively.

Another relatively new statistic is the Article Influence™ score, which calculates the relative importance of the journal on a per-article basis. It is the journal's Eigenfactor™ score divided by the fraction of articles within the category published by that journal. That fraction is normalised so that the mean Article Influence™ score within the category is 1.00. A score greater than 1.00 indicates that each article in the journal has above-average influence, while a score less than 1.00 indicates that each article in the journal has below-average influence. For 2009, the Article Influence™ score of the *BJN* was 0.964, placing it 14th in the Nutrition and Dietetics category. For comparison, Article Influence™ scores for the *American Journal of Clinical Nutrition* and the *Journal of Nutrition* for 2008 were 2.211 and 1.216, respectively.

My overall view based upon these statistics is that the *BJN* is doing well, but could do better. As I indicated in my previous editorials^(2–5,7), the *BJN* is receiving more submissions and is publishing more articles than ever before⁽⁷⁾. This suggests that the journal is in very good health and is viewed favourably by researchers within the discipline. My aim is to act to further improve the impact factor, the 5-year impact factor and the Article Influence™ score in order that the prestige and attractiveness of the *BJN* are maintained in the face of mounting competition from other journals, and that its perceived quality is enhanced. An improvement in (perceived) quality of the *BJN* will assure its place among the top journals in the field.

Table 3. Citation statistics for the *British Journal of Nutrition* 2000–9

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Impact factor	2.415	1.989	2.491	2.616	2.710	2.967	2.708	2.339	2.764	3.45
Total citations	5515	5360	6205	7144	7204	7893	8665	9843	11 287	12 904
Cited half-life (years)	> 10.0	8.9	8.0	7.7	7.0	6.3	6.8	7.1	7.1	7.0
5-Year impact factor								3.13	3.23	3.57
Immediacy index	0.307	0.283	0.402	0.500	0.515	0.289	0.300	0.337	0.602	0.530
Eigenfactor™ score								0.02486	0.02741	0.03080

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