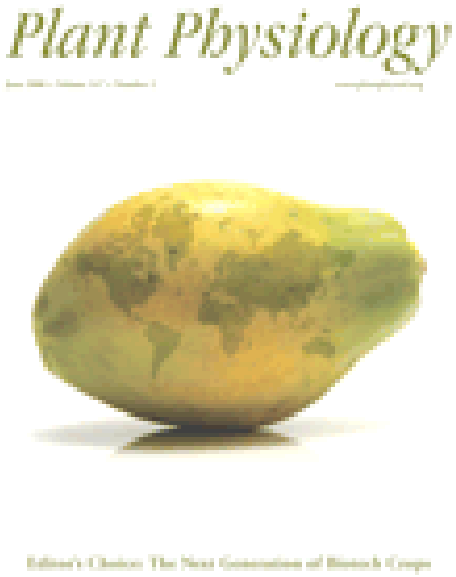
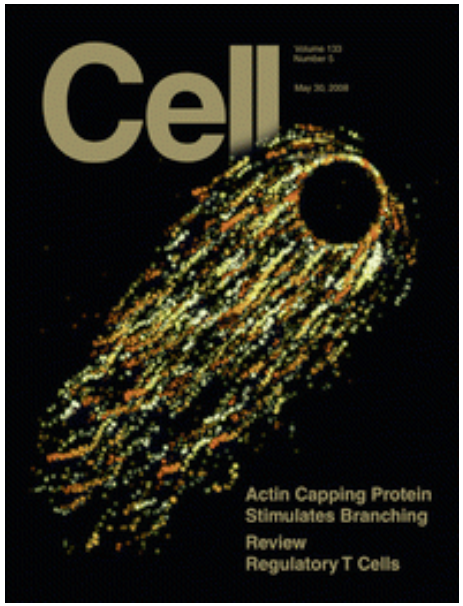
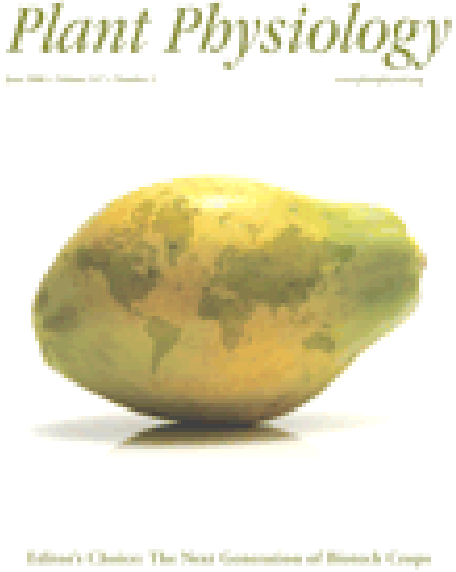
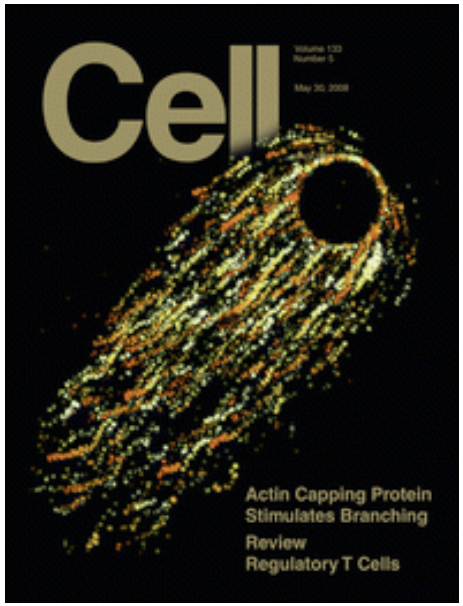
Scientists communicate by publishing their findings in journals…





What is in a journal article?





What is in a journal article?

AMERICAN JOURNAL OF HUMAN BIOLOGY 18:714–717 (2006)

Short Report

Season of Birth Contributes to Variation in University Examination Outcomes

MARTIN FIEDER,[1,2*] HERMANN PROSSINGER,[2] KAROLINE IBER,[3] KATRIN SCHAEFER,[2] BERNARD WALLNER,[2] AND SUSANNE HUBER[3]
[1]*Rector's Office, University of Vienna, A-1010 Vienna, Austria*
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[3]*Research Institute of Wildlife Ecology, University of Veterinary Medicine of Vienna, A-1160 Vienna, Austria*

ABSTRACT Epidemiological studies show that birth season influences a wide range of biological parameters such as growth, reproduction, mental illnesses, dyslexia, personality, and success in school. The present study is aimed at examining birth season's relationship to examination marks achieved at a university in a very large contemporary sample of male and female undergraduate students. We find that female university students born in spring and summer achieve better marks than those born in autumn and winter. Male students born in spring receive worse marks than those born in other seasons of the year. Furthermore, we find a birth-week periodicity in examination results of female students, with highest examination results for those born in May. We suppose that biological mechanisms might explain part of the observed effects. Am. J. Hum. Biol. 18:714–717, 2006. © 2006 Wiley-Liss, Inc.

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SUBJECTS AND METHODS

To investigate the influence of birth season on examination marks, we used the (anonymous) examination results from 1995–2001 of undergraduate students at the University of Vienna, together with their dates of birth. We included only examinations of those students who had taken more than five examinations. In this large data base (947,662 examinations of 33,036 female students, and 411,642 examinations of 16,397 male students), we looked for a possible association between examination marks received by male and female students, separately, with their birth dates. The median age of students at time of examination was 22.75 years (quartiles: 25%, 20.92 years; 75%, 25.67 years). The examinations covered a wide range of disciplines taught in various faculties: theology (0.9%), economics (8.8%), social sciences (33.9%), humanities (27.7%), natural sciences and mathematics (20.6%), and others (8.0%).

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Martin Fieder and Hermann Prossinger contributed equally to this work.

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Basic info: who, what, where, when

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The **abstract** is a summary of the rationale and results.

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The **introduction** has background information.

Epidemiological studies show that birth season influences a wide range of biological parameters such as growth (Weber et al., 1998), reproduction (Huber et al., 2004a,b), mental illness (Castrogiovanni et al., 1998), dyslexia (Livingston et al., 1993), personality (Chotai et al., 2001), and success in school and in science (Bell and Massey, 1994), and fluctuating asymmetry in humans (Benderlioglu and Nelson, 2004). For children, the claimed relationship between birth season and school performance has been attributed to the peculiarity of the school system (Williams et al., 1970). In Austria, for instance, children born in summer are at a disadvantage because they are the youngest in their school age cohort, comprising children born in September–August. Season-of-birth effects on examination performance in adults, however, must (if they do indeed exist) have other causes, as age-based season-of-birth influences vanish by age 12 years (Hutchinson and Sharp, 1999). Their putative existence may shed light on very early neuronal and cognitive development.

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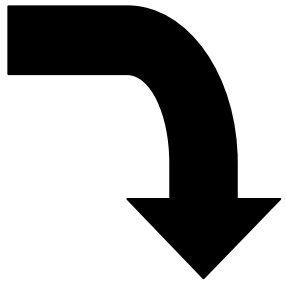
References are how scientists cite other people's ideas or data.

(Castrogiovanni et al., 1998)



Castrogiovanni P, Iapichino S, Pacchierotti C, Pieraccini F. 1998. Season of birth in psychiatry: a review. Neuropsychobiology 37:175–181.

Using other's ideas or data is fine, but not citing where the information came from is plagiarism.

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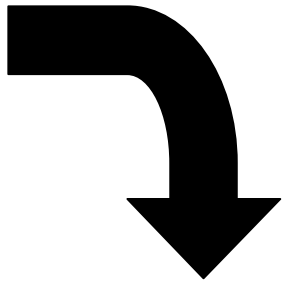

Castrogiovanni P, Iapichino S, Pacchierotti C, Pieraccini F. 1998. Season of birth in psychiatry: a review. Neuropsychobiology 37:175–181.

Materials and methods or other synonymous sections detail how the experiments were done.

SUBJECTS AND METHODS

To investigate the influence of birth season on examination marks, we used the (anonymous) examination results from 1995–2001 of undergraduate students at the University of Vienna, together with their dates of birth…….

The **results** section details the outcomes of the experiments.

RESULTS

The distribution of scores attained by male and female students is associated with their birth season (see data in Table 1)……

The **results** section details the outcomes of the experiments, and refers to the tables and figures in the paper.

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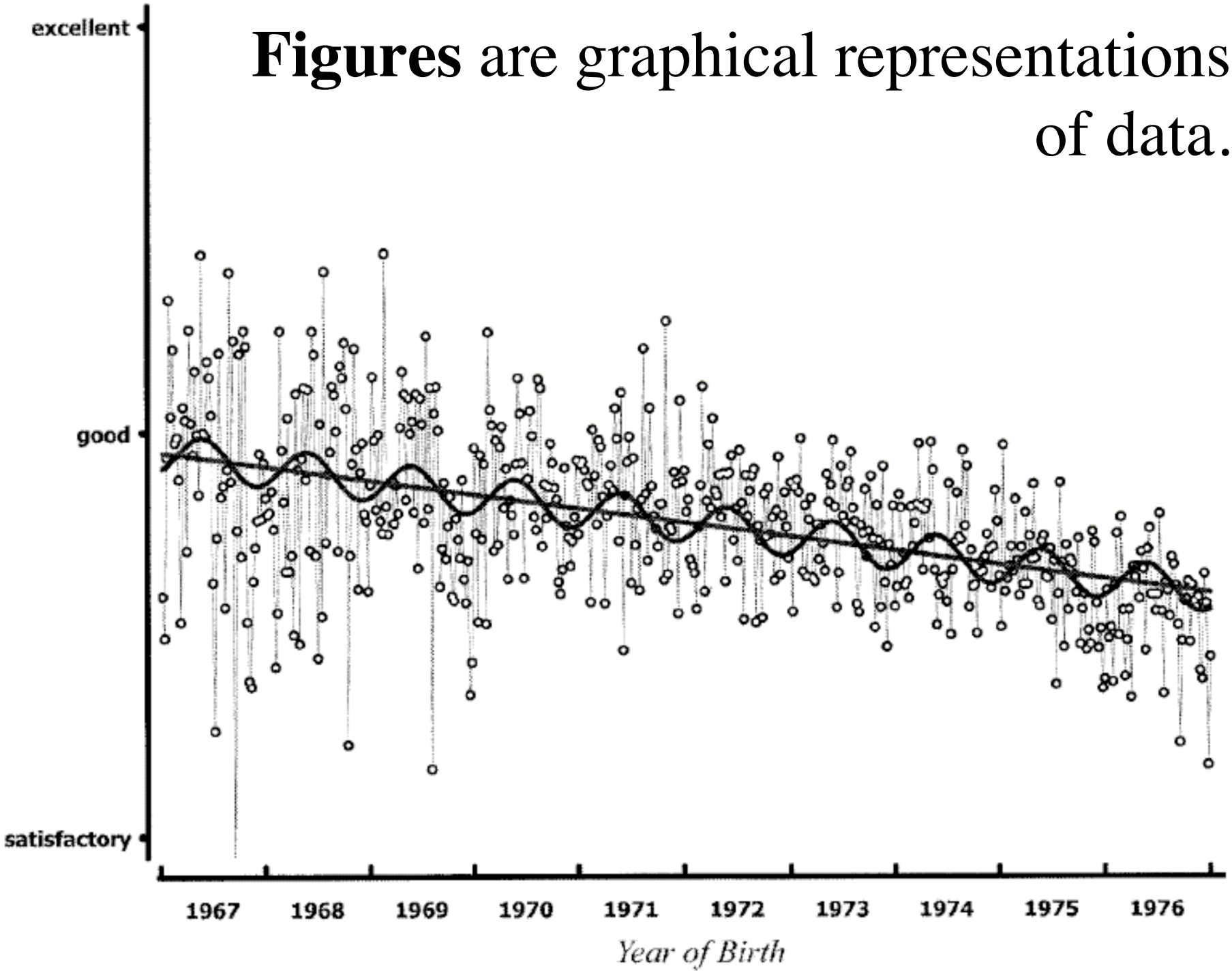
Figures are graphical representations of data.



Sometimes **tables** are used.

TABLE 1. Data and statistical estimators of examination scores[1]

	Female students				Male students			
	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
Excellent (%)	33.07	33.14	33.08	32.48	34.58	34.06	34.45	33.87
Good (%)	27.75	27.63	27.56	27.68	25.45	25.13	25.53	25.40
Satisfactory (%)	18.87	18.96	18.95	19.28	18.04	18.11	18.14	18.18
Passing (%)	11.23	11.18	11.29	11.52	11.69	11.92	11.47	11.97
Failure (%)	9.08	9.08	9.11	9.05	10.24	10.77	10.41	10.58
Mean mark	3.6449	3.6457	3.6422	3.6303	3.6245	3.5979	3.6215	3.6001
Standard error	0.0026	0.0026	0.0027	0.0027	0.0042	0.0041	0.0041	0.0043
Median age (years)	22.71	22.47	22.42	22.66	23.81	23.50	23.45	23.60
N (examinations)	238,229.0	250,390.0	234,128.0	224,915.0	102,404.0	107,515.0	106,286.0	95,437.0

[1]Distribution of scores awarded (percentage), mean score, standard error, median age of students, and sample size (*N*) for birth seasons, separately for females and males taking examinations.

The **discussion** is where the results are explained and related to other research. (sometimes it is combined with the results)

DISCUSSION

We find that examination scores are related to season of birth in both female and male students, indicating that there could be some biologically significant underlying ontogenetic or early life-history mechanism……

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