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Editorial: Blogs and Podcasts

Will G Hopkins, Sport and Recreation, AUT University, Auckland 0627, New Zealand. **Email**. Sportscience 11, 21, 2007 (sportsci.org/2007/inbrief.htm#edit). Reviewer: John A Hawley, School of Medical Sciences, RMIT University. Bundoora, Victoria 3083, Australia. Published Aug 20, 2007.

A blog is a web page that functions as someone's public diary. Web pages like this one have always had that capacity, but software now makes it easy for anyone to run a blog. A mailing list with open access at a website–for example, the Sportscience list–can also function as a public diary, so what are the advantages of blogs from the perspective of someone seeking informed opinion? Well, you are only one click away from the scrolling content of a blog, but you need two or more clicks to reach the content of a mailing list. (I'm serious–do you ever look at the second page of Google's hits?) What's more, the blog is the opinion of one person, undiluted by the hotch-potch of postings on a mailing list. Which is fine, when the blog belongs to a trustworthy expert, but even then a well-moderated mailing list may have the advantage: you don't get garbage of the kind you see on some blogs, and you *do* get the opinions and queries of various experts and interested parties.

Several blogs focusing on sport science are currently active, as I found when I put out a request on the Sportscience list for useful links to feature in this issue. Try the Science of Sport by Ross Tucker and Jonathan Dugas, Footloose and Peak Performance by Amby Burfoot of Runner's World, Sportsci.blog by Taisuki Kinugasa, and Sports and Fitness Science by Marco Cardinale. These blogs will survive if they earn respect or notoriety for their authors.

The other relatively new kid on the i-block is the podcast, basically a sound recording you can listen to from a browser while you i-work or that you can download to an MP3 player for your next training session or flight. Some podcasts also have visual content. My request for interesting links netted the Strength-Power Hour, a glitzy podcast site featuring Bill Kraemer, amongst others. There seems to be some overlap of content and guests between this site and the Performance-Nutrition Show. Gatorade is also in on the act with some short podcasts, currently on protein, and you can also link to transcripts. Sport podcasts by Grant Abt and Tim Barry on several academic aspects of exercise physiology have also been available for over a year. Podcasts will also survive if they make money for a dotcom or if their scientific or pedagogical content is valuable and utilized.

Tutorials on R Stats

Ian Shrier, Department of Family Medicine, McGill University, Montreal, Quebec H3T 1E2. **Email**. Sportscience 11, 21-22, 2007 (sportsci.org/2007/inbrief.htm#Rstats). Reviewer: Will Hopkins, Sport and Recreation, AUT University, Auckland 0627, New Zealand.

Approximately six months ago, Robert Rein began to distribute tutorials for a free statistical program called "R". Although there are many statistical programs available at a cost, R is free, has a wonderful graphics package, is extremely powerful, and is used by many statisticians. This community of experts also helps support the program by adding packages covering new developments as they occur (one statistician said that if it cannot be done in R, it shouldn't be done at all). These benefits come at an important albeit non-financial cost: R re-

quires some knowledge about computer programming in an object-oriented environment. I had wanted to start using R several years ago but was discouraged just opening it. Robert Rein's tutorials have created the bridge I needed to start using the program effectively and over a relatively short period of time. Each short tutorial is covered from a problem-oriented approach with a specific objective. The text is extremely clear and examples are used extensively. The examples are so well done that one might be tempted to simply read the notes without typing the text into the program. However, I have found that actually working through the examples by retyping the text has helped me learn more effectively. For anyone interested in learning more about R, I strongly encourage you to get a copy of the tutorials and begin to work through them.

Access Rob's tutorials as Word docs at the Rtutorial mailing list he set up. The R package can be downloaded free from the R Project for Statistical Computing.

Update: Finding Out What's Known

Will G Hopkins, Sport and Recreation, AUT University, Auckland 0627, New Zealand. **Email**. Sportscience 11, 22, 2007 (sportsci.org/2007/inbrief.htm#FindingOut). Reviewer: John A Hawley, School of Medical Sciences, RMIT University. Bundoora, Victoria 3083, Australia. Published Aug 20, 2007.

Having read *The God Delusion* by Richard Dawkins, I felt inspired to add a section on religious tracts to Finding Out What's Known. I published this slideshow (or view as a PDF) here in 2003, and I use it for an undergraduate lecture on what's good and bad about various sources of information. It includes advice on how to read original-research articles and reviews in journals. I may soon start campaigning for removal of any self-confessed Christians or representatives of that faith from our ethics committee, on the grounds that it is unethical to have anyone on the committee representing a god who permits suffering of the innocent.

Update Nov 07: comment on opinion polls, comment on blogs and Wikipedia, and some reorganization of the slides.

Update: Sample Size

Will G Hopkins, Sport and Recreation, AUT University, Auckland 0627, New Zealand. **Email**. Sportscience 11, 22, 2007 (sportsci.org/2007/inbrief.htm#SampleSize). Reviewer: John A Hawley, School of Medical Sciences, RMIT University. Bundoora, Victoria 3083, Australia. Published Nov 21, 2007.

I have made several updates to the article on sample-size estimation since it was published last year, the most recent and important being the issue of adequate sample size for characterization of individual differences and individual responses. Greg Atkinson has reviewed the changes.

It turns out that we need four times more subjects than what we would use for making an inference about the population mean effect. It's just as well that my estimates of sample size for magnitude-based inferences are only one-third those for null-hypothesis tests! Even so, it means larger sample sizes than most of us use: ideally at least 1000 for correlational studies without repeated measures, and about 100 for controlled trials (depending on the type of controlled trial and the reliability of the dependent variable). We should all be concerned about individual differences and responses, because the population mean effect in general applies only to the average individual, not to specific individuals. For example, a treatment can be clearly beneficial on average and yet be harmful to nearly 50% of the population. Sorry folks, but we'll have to test more subjects.

A Spreadsheet to Compare Means of Two Groups

Will G Hopkins, Sport and Recreation, AUT University, Auckland 0627, New Zealand. **Email**. Sportscience 11, 22-23, 2007 (sportsci.org/2007/inbrief.htm#SampleSize). Reviewer: Gordon Chalmers, Physical Education Health and Recreation, Western Washington University, Bellingham, WA 98225-9067.

Update March 2018: The comment in the cell Number of independent inferences has been updated to remove what I thought was an efficient method to constrain error rates. There are also extensive updates of cells relating to individual differences and responses.

Comparing the mean value of a variable (e.g., strength) in two independent groups (e.g., females and males) is one of the fundamental statistical tasks I have included in my new arti-

cle on understanding statistics with spreadsheets. It's easy enough to use the t statistic to do the fundamentals of the analysis, but adjustment for a subject characteristic takes a lot of time and expertise to put into a spreadsheet from scratch. I have therefore produced a spreadsheet for the full analysis.

The starting point was the spreadsheet for analysis of a pre-post parallel-groups controlled trial (available via an article in Sportscience last year), which already included comparison of the groups in the pretests. I adapted the spreadsheet to adjust for a subject characteristic simply by copying the values of the dependent variable into one of the effects columns. For more on what it means to adjust for a subject characteristic or other covariate, see the article on controlled trials and/or hover the cursor over the appropriate cells in the spreadsheet to read the extensive comments.

The formulae for standardization of the adjusted comparison of means are somewhat different from those in the pre-post spreadsheet. When you adjust for something, what you have in mind is a comparison of subjects who have the same value of the variable you used for the adjustment. It follows that the appropriate standard deviation for the standardized comparison is the standard deviation of subjects with the given value of the adjusting variable, which here is simply the standard error of the estimate–except that you have to average the standard errors of the estimate in the two groups, via their squares. I have included a figure to show the unadjusted and adjusted means as a bar graph, with the standard errors of the estimate.

The new spreadsheet works well for a post-only parallel groups controlled trial, providing amongst other things an estimate of individual responses to the treatment. For more on the different kinds of controlled trial, see the article by Alan Batterham and me in this journal in 2005. I have explained in an earlier article how individual responses are represented by a standard deviation. The new article on understanding statistics also deals with the concept, but you will have to play with the associated spreadsheet to get the implicit learning.

I removed the cells for analysis of arcsine-root transformed proportions, because proportions should be analyzed via logistic regression. I have been unable to source a freeware plug-in for this task in Excel. If anyone knows of one, please contact me.

Download spreadsheet to compare means of two groups.

Update 23 Dec 2007: Sam Buttrey of the US Defense Technical Information Center has provided a free add-in for logistic regression (and easier multiple linear regression) in Excel. See his article for instructions and link. The output requires expert interpretation and is not yet suitable for integrating into my spreadsheets.

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