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Memorandum

To: Trialists

Fr: Curtis Meinert

Re: Relative numbers

Trialists are trained to present results as absolute measures, for example baseline body weight in pounds. It is OK to present percentage change in body weight over time, but only if actual weights are presented.

Percentages are relative numbers ranging from 0 to 100% or ratios of percentages. That 9/10 th of a cent on signs at gas stations is a relative number. The history behind it dates to the U.S. Revenue Tax Act of 1932, enacted to impose a tax of $0.01 per gallon of gasoline sold (rationalized to offset the national debt due to the Great Depression). The tax was to expire in 1934 but did not (surprise). Today it varies by state from 0.09 cents in Alaska to 0.533 cents per gallon in California. The practice of pricing to 9/10 th of a cent became standard in the 1970s.

Another everyday relative number is humidity, expressed as the percentage of water vapor in the air at a given temperature. Relative because it is expressed as a percent of the total amount of water vapor (absolute humidity) possible at that temperature. What we "feel" is the actual amount of moisture in the air.

Another relative measure is "feels like temperatures". The estimate involves wind velocity, humidity, and temperature. More complex measures, such as developed by Accuweather, include measures of the heat index, wind chill, and other measures like cloud cover, UV index, sun intensity, visibility, ground cover, and heat transfer rates across an average sized human body with an average metabolism.

But relative numbers without any standard are all over the place, as with "Everything reduced", "Buy now and save", and "The more you buy, the more you save".

When my daughters were old enough to shop on their own, they would come home and show me the sweater they got for "20% off". I would say "Don't bother telling me how much was off, just tell me what you paid for it".

I should have majored in economics rather than statistics. Maybe then I would understand how you can save by spending.