Academic quality and peer review.

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Editorial

The peer review process has long been adopted as the hallmark of academic quality and scientific credibility [1,2]. Within academia, scholarly peer review has been and is still used to determine suitability for publication and upholding established standards, as well as a criterion for review of individual performance for promotion and tenure. Furthermore, in reviewing scientific grant applications for public and private funding, the review of applicants by their peers depends upon the submitted curriculum vitae, track record and publications [1-4].

This process requires identifying persons of similar competence and assumes that the profession can provide an objective unbiased opinion. But, can the process successfully undergo self-regulation, so that objectivity is maintained in the face of stiff competition for a seemingly dwindling pot of research dollars and the potential conflict-of-interest of apparent academic protectionism?

A scholarly review by Smith [1], a former Editor of the prestigious British Medical Journal, provides insight and some cynicism about the peer review process. In his view, peer review is the heart of all science, yet is flawed, hard to define, and largely unstudied. The defects of the system are easier to identify than the attributes, despite the fact that peer review will likely never be replaced, largely because better alternatives have not been found, and scientists and editors still believe in the process [1]. Among the confounding issues noted by Smith is the need to define who is a peer? If the chosen peer is someone in the exact same field, does that person represent a competitor and can he or she be unbiased? Having thorough and objective reviews is rare, and studies have shown that the level of agreement between different reviewers of the same paper is little better than would be expected by chance [1]. Further, when asking experts to re-review papers that were originally rejected by the process, these reviewers often thought the papers were acceptable. Even the detection of errors and fraud is problematic, because peer review operates on trust.

A more recent discussion of medical journal publications advised that "Scientific peer review is pivotal in health care research in that it facilitates the evaluation of findings for competence, significance, and originality by qualified experts" [2]. This is often described as evidence-based medicine and comparative effectiveness research, and is used in academic medicine to award promotions, and to enhance institutional reputations and funding allocations [2].

Reasons to Support Peer Review

- Considered by many as the "gold standard" of scientific research and publication
- Valuable process and best available to assess quality of submissions
- Still considered by some to be objective, reliable, and consistent
- Provides authors a means of gauging the reaction to their work
- Allows for detection of potential flaws in design or logic before publication, thereby improving the paper
- Relies on trust of scientists and journal editors; believed to be impartial [1-4]

Main Defects of Peer Review

- Variable views on strengths, weaknesses and importance, erodes faith in the system
- Slow and expensive, can be several years in the process before publication, then outdated
- Inconsistent, as is subjective rather than objective
- Bias, against or in favor of certain topics and prominent authors, less prestigious institutions, certain interdisciplinary or subspecialties, negative results, language, and women in science
- Abuse of peer review, stealing ideas, unjustly harsh of competitors to block or slow down publication
- Allows for dishonesty, plagiarism, conflicts of interest, scientific misconduct or fraud [1-4]

Issues related to bias in the peer review process are more likely when novel or controversial ideas and concepts are presented [2-4]. Protecting the *status quo* in certain fields of academic pursuit like that involving clinical and basic vaccine research and naturopathic herbal medicinal approaches to healing are two such current examples. This has been termed "ego bias" and "cognitive cronyism" [2]. Obtaining impartial review may be difficult to accomplish when the significance of new concepts may never be widely accepted by contemporary scholars.

Conversely, the peer review process does not exclude publication of invalid or even fraudulent research [1-4].

Improving the Peer Review Process

- Train those involved to more effectively achieve the intended goals
- More rigorous selection or removal of reviewers
- Standardize the process among journals

- Double-blind review, where identity of authors and reviewers is withheld
- Open review so that both authors and reviewers are identified
- Make reviews more independent and transparent
- Use electronic review
- Studying whether science and peer review should continue to operate on trust [1,2]

A relatively recent approach has by-passed the traditional role of having anonymous peer review, with the advent of open access journals and peer review. In this case, review comments are visible to readers, and generally disclose the identities of the peer reviewers [2,3].

Examples of Academic Controversy

Adverse food reactions

The clinical signs of adverse food reactions in people and pets closely mimic those of environmental allergen and contact exposures; they typically manifest as cutaneous or gastrointestinal signs or both [5]. Today, the multinational commercial pet food industry is focused largely on producing foods in dry kibble and wet canned forms. The question arises then whether modern domestic companion animal dogs and cats can adequately digest and assimilate dry commercial pet foods, when they are ancestrally carnivorous. While cats have maintained their need to be carnivores, the dog genome has evolved with domestication over time to adapt to a starch-rich diet [6].

Novel tests using saliva in companion animal species to identify food sensitivity and intolerance offer a reliable and clinically predictive alternative to food elimination trials, serum-based food allergy testing, and skin patch testing [6].

Teas for healing instead of drugs

The tannins and polyphenol catechins in tea are anti-inflammatory and anti-microbial. Green tea is more effective than white or black tea as it releases its activity faster. Teas are use as decoctions (quick boiling of plant or herb for medicinal use) or as infusions. Publications have documented the benefits or teas in humans with Systemic Lupus Erythematosus (SLE), and for periodontal disease and osteoarthritic pain, they are stated to help angiogenesis by producing less scarring of wounds, which heal faster. Example teas include [7]:

- **Rooibos tea**: For stroke, also for headaches, insomnia, asthma, eczema, hypertension, and allergies. Free of caffeine and low in tannins.
- **Sage tea**: Anti-colon cancer.
- **Cinnamon tea**: High anti-oxidant properties.
- **Fennel tea and seeds**: Good for IBD/IBS (gas, bloating, abdominal cramps). **Not** for seizure patients (neurotransmitter).
- ***Bacopa monnieri* tea**: Sharpens mind and intellect, inhibits tumor necrosis factor-alpha (TNF-α) and interleukin 6 (IL6).
- **Mullein tea**: For coughs and upper respiratory issues. Brew strong mullein tea (1 cup boiled water and 1-2 teaspoons of dried mullein leaves or flowers), steep for 10-15 minutes. Drink or add to food daily.
- **Hibiscus tea**: For high blood pressure and cholesterol, upset digestion, avian influenza, liver disease, and reduces cancer risk
- **Chamomile tea**: Protects skin, lowers stress, regulates sleep, boosts immune system, and treats bowel issues.
- **Calendula tea or lotion**: For sore throat and mouth, cancer, stomach and duodenal ulcers. Apply to skin to soothe, reduce pain and swelling.

Vaccines

There is no doubt that application of modern vaccine technology has permitted us to protect companion animals effectively against serious infectious diseases. It must be recognized, however, that we have the luxury of asking such questions today only because the risk of disease has been effectively reduced by the widespread use of vaccination programs [8].

Appropriate alternatives to current vaccine practices include: measuring serum antibody titers; avoidance of unnecessary vaccines or over-vaccinating; caution in vaccinating sick or febrile individuals; and tailoring a specific minimal vaccination protocol for dogs of breeds or families known to be at increased risk for adverse reactions. Considerations include starting the vaccination series later, when the immune system is more able to handle antigenic challenge; alerting the caregiver to pay particular attention to the puppy's behavior and overall health after the second or subsequent boosters; and avoiding revaccination of individuals already experiencing a significant adverse event [8].

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