

Randomized Controlled Trials are needed in Veterinary Medicine to Assess Treatment Efficacy

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Description

Veterinary microbiologists specialize in researching diseases caused by microorganisms (bacterial, fungal, viral) in various domesticated vertebrate animals (including livestock, companion animals, fur-bearing animals, game, poultry and fish), which are valuable for food, alternative products, or companionship.

Veterinary biology

Veterinary biology primarily focuses on studying microbes responsible for animal diseases. Agricultural biology aims to combat plant diseases affecting vital food crops and explores methods to enhance soil fertility and crop yields. Veterinary medicine is practiced extensively, both under professional supervision and independently. While veterinary care is typically led by a veterinarian, it can also involve para-veterinary staff such as veterinary nurses or technicians. Additionally, specialized paraprofessionals like animal therapists or dental technicians contribute to enhanced care. There is a growing interest in utilizing microbial or viral insect pathogens as alternatives to chemical pesticides. Similar to medical professionals, veterinarians encounter ethical dilemmas regarding patient care. Randomized controlled trials are essential in veterinary medicine to assess treatment efficacy.

Clinical veterinary research lags behind human medical research, with fewer randomized controlled trials often centered on research animals. Improvements could involve establishing networks to include private veterinary practices in such trials. Current debates in the field include the ethics of purely cosmetic procedures on animals. Veterinary biology often overlaps with the study of the immune system or immunology, as both disciplines frequently intersect. Para-veterinary staff, including veterinary nurses, technicians and assistants, either support veterinarians in their work or operate within their own practice scope, depending on their skills and qualifications. Veterinary medicine encompasses the study of infectious microbes and their role in human illness, including bacterial pathogenesis and immunology and relates to public health and medical microbiology.

The role of para-veterinary staff varies globally, with differing qualification levels and skill sets. An antimicrobial is a substance that kills or inhibits the growth of microorganisms, including bacteria and fungi. It extends beyond species boundaries and investigates naturally occurring and experimentally induced models of both human and animal diseases, including research at the human-animal interface such as food safety and zoonotic diseases. Microbiology focuses on the study of microscopic organisms including bacteria, fungi, algae, protozoa and viruses. Veterinary care and management are typically overseen by a veterinarian, equivalent to a medical doctor in human medicine, requiring postgraduate study and qualification.

Ultrasonography in animals

Ultrasonography is a widely used imaging technique in veterinary medicine, utilizing high-frequency sound waves to create images of internal body structures based on reflected echoes from tissues and organs. General practice veterinarians may receive training in ultrasonography, with specialized board-certified practitioners also available. Diagnostic ultrasound aids in diagnosing soft tissue and reproductive tract injuries in horses, as well as reproductive assessments in mares and stallions. Not all veterinary clinics offer ultrasound services due to equipment requirements. Ultrasound imaging, utilizing inaudible sound waves, provides detailed images of organs and structures, aiding in the detection of abnormalities such as tumors or pregnancies. The process involves the application of electric current to crystals within the ultrasound probe, causing them to vibrate and emit sound waves. Veterinary ultrasound, similar to its human counterpart, is non-invasive and rapidly expanding in its diagnostic and therapeutic applications.

This recognition carries with it profound implications for how we interact with animals in all facets of life. It requires us to reevaluate our laws and regulations surrounding animal welfare, ensuring that they reflect our evolving understanding of animal cognition and sentience. It calls upon us to embrace alternative models of agriculture and entertainment that prioritize the well-being of animals over profit margins. And perhaps most importantly, it demands a shift in cultural attitudes toward animals, fostering empathy and compassion for our non-human counterparts. In the final analysis, our understanding of animal

intelligence serves as a mirror reflecting back upon ourselves. It challenges us to confront our assumptions, biases and ethical blind spots, compelling us to strive for a more just and compassionate world for all beings. As we unlock the mysteries of animal cognition, we are presented with an opportunity one that demands nothing less than a reimagining of our relationship with the natural world and the creatures that inhabit it alongside us.