

Vets weekly

VETS WEEKLY- Be the most Informed Veterinary Doctor.

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Why One Health is gaining importance

by PREJIT - Tuesday, June 07, 2016

<http://vetsweekly.coheart.ac.in/why-one-health-is-gaining-importance/>

Are you able to recognize inextricable interconnection of humans, pet animals, livestock and wildlife, if yes, then you are advocating a movement characterized as “One Health”. This movement involves joint action from human, animal and environmental health sectors especially public health agencies, disease control agencies, and veterinary and medical organization to control threats at Animal- Human interfaces. Supported by the World Organization for Animal Health, WHO and FAO, One Health concept is a worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of health care for humans, animals and the environment

Deriving One Health Literally...

“LIVE SIMPLY, SO THAT OTHERS CAN SIMPLY LIVE” is a beautiful quote by Mahatma Gandhi. Improving our wellbeing could be made possible only by “Living in harmony with nature and its creations like animal, plants and ecosystem”. Our **MOTHER EARTH** takes care of man, animal and plants and has an indivisible, interdependent, complementary, and spiritual relationship with all these creations. The sun supplies energy through heat and gives earth the light, and is the main reason we are alive. **PLANTS** are the backbone of all life on Earth and an essential resource for human well-being. For all forms of life, plants form the basic food staples and forests forms the lungs of our planet. But today the plants and trees, have suffered a great deal, due to de-forestation, soil degradation, desertification, acid rain and wildfires. Each **ANIMAL**, has its own being, its own life and its own purpose in the scheme of Creation, is loved by Creator and has Creator within it. Animals have long suffered the cruelty of man. It is not just the catastrophic effects of climate change which slowly and painfully condemn many species to death, but also due to humans interference with animals, even by those who say they love them. Man has taken over all land for his houses and roads, leaving no space to the animals that also share the land with us. Many animals wander around thirsty and emaciated, even though many nearby restaurants throw away bulks of unused food every day. **MAN should understand that he does not have “dominion” over plants and animals; rather he all coexists with them.** We are related to them; and we honor and respect the sacredness of their lives and being, as we honor our own life and being. We are all Children of mother Earth; to lose sight of this fact diminishes our own sacredness. We can learn much from the indigenous peoples who trod this same ground before us breathing the same air, specifically in their relationships with plants and animals. This respectful attitude, and way of living in balance and harmony with the plant and animal nations, called living in “right relation,” is vital for today, if we are to sustain the planet. **NATURE** is our teacher—reconnecting us with Spirit, waking us up and liberating our hearts. We are in harmony with nature. Man and nature interact dialectically in such a way that, as society develops, man tends to become less dependent on nature directly, while indirectly his dependence grows. Right relationship between the human, plant and animal nations is desperately needed in bringing balance to the Earth today.

As you all may agree, life became unusually complex over the ages as every successive generation ruthlessly exploited the resources of the universe. We are at the other receiving end, we bear the brunt.

The only way we can tide over the crises is to restore the connectedness, re-establishing consciously the harmony, to make earnest efforts to pick up the broken threads and set the woofs and warps of the tapestry we call the cosmic life in order to refresh our bonds with nature and unconditionally loving the animals, plants and the ecosystem.

Linking Man, Animal and Nature through One Health

In the past human lived in close communion with nature. There was unique harmony and connectedness born of the valuable co-existence of man, animals and plant lives. The nature maintains an indivisible, interdependent, complementary, and above all, spiritual relationship with all. During those days Man could breathe the pure, air, enjoy the blessings of sunlight and pure water. Healthy Co-existence was reason for this harmony. The forests form the lungs of our planet. Presently, we are hell-bent on damaging nature as heavily by de-forestation, soil -degradation, desertification, acid rain and wildfires for the ruthless exploitation of our material gains. When we pollute the air, the water and the streams by the residues of our exploiting industry, we dont even spare the sea. The importance of One Health is exposed when individuals cannot derive a solution especially in cases of disease or other health threats at the interface of man, animal and nature. Today world recognizes health not only as the physical, the mental and the social well being (as per WHO) but also as spiritual, emotional, vocational, political dimensions for which health of their surrounding environment and the animals are essential. These emphasizes the bonding of Man, Animal and Nature and symbolize “One Health” in which a huge range of factors to which other sectors besides health must contribute.

What is One Health concept

One Health concept is based on the understanding that the health of the humans, animals and the environment is inextricably linked, and that promoting the well being of all species can only be achieved through a holistic multidisciplinary approach at the human-animal-ecosystems interface. One Health introduces a concept embedded in the philosophy of “co-existence” in which every other living being (and non-living beings like air, water and soil) influences the health of the fellow being. Here multiple disciplines work together to attain optimal health for people, animals and our environment. The recent Ebola virus outbreak, along with the growing recognition of the importance of antimicrobial resistance, a spectrum of emerging and re-emerging diseases, as well as the positive benefits of human-animal interactions, is bringing One Health concepts to the attention of health professions educators.

One Health Movements in India

- Massey University entered into a non-consulting contract with Public Health Foundation of India for facilitating strengthening of the India One Health Hub and Indian participation in the South Asia One Health Network .
- The India One Health Hub connects people and organizations working in or engaged with the government sector that are committed to One Health activities in India and provides a coordination framework in which projects and cross-sectoral collaboration is supported through facilities for networking, communication and resource sharing.
- Center for One Health Education, Advocacy, Research and Training is a new initiative by Kerala Veterinary and Animal Sciences University which is aimed to develop a tradition of One Health. The Center act as a consortium comprising of different partnering institutions with an aim to

address many of the future issues we face. The Center functions with the vision of establishment of closer professional interactions, collaborations, and educational opportunities across the veterinary and medical professions, together with their allied sciences, in order to improve the life of all species.

Linking Human and Animal Health Care Professionals

1. The concept that animal health and the environment influences human health have been around since ancient times. In the late 19th and early 20th centuries, leaders in medicine such as Drs. Rudolf Virchow and William Osler embraced the concept that human health and animal health were inextricably linked. As the 20th century progressed, collaboration between medicine and veterinary medicine waned. In the 21st century, the emergence of deadly zoonotic diseases, such as H5N1 avian influenza presented the urgent need that these professions renew and increase collaborative efforts.
2. One Health fosters mutual respect amongst doctors and veterinarians and recognizing and acknowledging the interdependence of health in humans and animals is a necessity.
3. Recent outbreaks of West Nile Virus (WNV), MERS CoV, Ebola Hemorrhagic Fever, Severe Acute Respiratory Syndrome (SARS), Monkey pox, Mad Cow Disease and Avian Influenza remind that human and animal health is intimately connected. A broader understanding of health and disease demands a unity of approach achievable only through a consilience of human, domestic animal and wildlife health
4. To win the disease battles of the 21st Century while ensuring the biological integrity of the Earth for future generations requires interdisciplinary and cross-sectoral approaches to disease prevention, surveillance, monitoring, control and mitigation as well as to environmental conservation more broadly.
5. Linking human and animal health care professionals will help to solve zoonotic infections, animal allergies and to improve human animal bond
6. One Health builds closer *cooperation* between human and animal health sectors, *promotes public health*, integrates of human, veterinary, wildlife disease, and environmental health disciplines at multiple levels to *face increasing challenge*.
7. One Health approach can form *integrated policy interventions* that simultaneously and holistically address multiple and interacting causes of poor health of man and animals
8. One Health Improves *Social equity and the 'integrity'* of the environment.

Veterinarians should explore Goniometry for effective treatment of condition affecting Joints

by K. M. LUCY - Wednesday, June 08, 2016

<http://vetsweekly.coheart.ac.in/veterinarians-should-explore-goniometry-for-effective-treatment-of-condition-affecting-joints/>

Goniometry is the measurement of angles, particularly those formed by joints. It is performed with a measuring device, the goniometer. It is a simple, safe, inexpensive and non-invasive method that can be used by the field veterinarians to quantitate the range of motion of joints as a tool for diagnosis and assessing treatment efficacy. In goniometric measurements, zero (*in situ* anatomical, neutral) position, stabilization of the joint, choice of the most suitable type of goniometer and proper emplacement of goniometer are the most important factors affecting the measurements. This technique is used extensively by orthopedic surgeons and physical therapists in human medicine to the quantify baseline limits of joint motion, to aid decisions on appropriate therapeutic interventions and to document the effectiveness of these interventions. Goniometry has been similarly used in foreign countries in canine orthopedics to assess treatment efficacy for problems involving the carpal, elbow, stifle and hip joints. By determining a range of values of angles for a given joint, it is possible to assess an animal's motor characteristics.

Goniometry can be used as an inexpensive verification method for measuring the angles of joints in the normal standing position. The data can be used for various interventions. It allows trainers to determine not only the health of an animal but also monitor therapeutic progress effectively and systematically. Properly functioning joints and proper gait not only testifies that an animal has good utility value for sports, but is also a key economic aspect taken under consideration when evaluating animals for breeding purposes. Moreover, determining range of motion of the joint in question and its functional capacity contributes profoundly to the evaluation of the development in various pathological conditions and rehabilitation processes. Limits in range of motion will help to quantify deficiencies and aid in documenting improvement after surgery.

Even though there are other techniques in determining the range of motion measurements of joints including walk analysis, radiology and scanning, the goniometry possesses considerable advantages as compared to these techniques such as lower cost, simplicity, rapidity, and no requirement for sedation or exposure to radiation. Furthermore, researchers have documented that there is no statistically significant difference between the results of goniometry and other techniques. Goniometry also forms a basis for research in the field of biomechanics.

Antibiotic Misuse in India- Time to turn around

by Arun Kumar N. S - Wednesday, June 08, 2016

<http://vetsweekly.coheart.ac.in/antibiotic-misuse-in-india-time-to-turn-around/>

Antibiotic misuse, sometimes called antibiotic abuse or antibiotic overuse, refers to the misuse or overuse of antibiotics, with potentially serious effects on health. It is a contributing factor to the development of antibiotic resistance, including the creation of multidrug-resistant bacteria, informally called "super bugs": relatively harmless bacteria can develop resistance to multiple antibiotics and cause life-threatening infections - *sic* **Wikipedia**.

Owing to the incessant, rampant and indifferent use of antibiotics, in conditions where there is no need to prescribed, are mellifluously taken by the patient with or without proper prescription. Even though, India count among the intellectually blessed nations of the world, the ignominy of ignorance dilutes this resource altogether with corruption and gross capital mismanagement. Nobody cares if the situation is grim till they themselves are exposed to such types of infections. In Mumbai, Hinduja National Hospital isolated 22 isolates of multi-drug resistant New Delhi Metallo-1 (NDM-1) in just 3 months study.

In order to administer antibiotics in the proper way, physicians usually prescribe a test called Kirby Bauer disc diffusion test to ascertain the efficacy of the antibiotics against the current infection, the patient is having. After getting the results only, the proper antibiotics are given through proper route and time interval. Nowadays, patients are usually administered with "antibiotic cocktails" with a hope of less likelihood of emergence of resistance, which of-course is back-firing in a spectacular fashion.

Some of the viral infections like common cold and flu, people usually consume antibiotics with impudence, lambasting the relevance of antibiotics in the near future. The tragedy, which inevitably is going to unfold, is that awareness will come too late after the issue had blown out of proportion. Doctors will turn priests and will watch their patients dying helplessly unless government imposes strict protocol regarding usage of antibiotics in medical and veterinary cases and strict retrospective monitoring of health records of the antibiotics' procedure in individuals.

The emergence of so-called 'superbugs' was first reported during early seventies and now almost every pathogen are known to have some strains of resistance. Though the resistant genes are ancient in the bacteria, because of our injudicious use of the same, we are selecting the resistant strains to thrive among us.

It becomes prudent, to have certain counter-measures in place to prevent this from happening by proper maintenance of health records in India, reduce incidence and prevent spreading of resistant strains, improve diagnostic techniques of the disease, develop improved vaccines against the bacteria and ban on non-medical usage of antibiotics such as in foods, plants *etc.* so that current and future generations should have access to effective prevention and treatment of bacterial infections as part of their right to health.

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Vets needs to differentiate animals on Eustress or Distress

by K. Karthiyini - Friday, June 10, 2016

<http://vetsweekly.coheart.ac.in/vets-working-on-animal-management-aspects-need-to-differentiate-animals-from-eustress-or-distress/>

We all have experienced many stressful situations in our life. However, if try to define stress we find it very difficult to give a proper definition. Though not complete, for the discussion purpose we can define stress as the biological response elicited when an individual's homoeostasis is under threat. The threat that elicits the response is termed "stressor".

Is stress necessary for life?

For all the animals stress is a part of life and some amount of stress is necessary for proper neuronal and endocrine functions. This amount of stress that avoids boredom and enhances health and production is termed as "Eustress"/ good stress.

When will the stress become bad?

When the intensity of stress exceeds a limit, the biological response of the animal to regain its homoeostasis will be at the expense of the body. This will adversely affect many systems of the body and there by health and production. This type of severe stress that is a threat even to animal's life is referred as "Distress"/ bad stress

How to differentiate Eustress and Distress?

To differentiate eustress and distress there should be proper indicators to measure stress. Unfortunately, there is no proper scientific tool to measure intensity of stress. More over same amount of stress produces different degree of response in different individuals. The response may also vary with the type and duration of stress. So the biological and behavioural indicators to measure intensity of stress will not give a correct measurement of stress. At present intensity of stress is assessed using a variety of endocrine, behavioural, autonomic nervous system and immunological responses. Assessment of intensity of stress outside the laboratory conditions by using these biological tools will be more complicated because at a time an individual will be exposed to multiple stressors which elicit different type of responses. Hence measuring and differentiating stress is too daunting a problem. At the same time impact of stress on animal welfare is too important to ignore.

Proteomics: A tool for the better future!

by Arun Kumar N. S - Friday, June 10, 2016

<http://vetsweekly.coheart.ac.in/proteomics-a-tool-for-the-better-future/>

After successful completion of human genomic sequencing the scientific community quickly diverted their attention towards transcriptomics and proteomics. Proteomics is the large-scale study of proteomes. A proteome is a set of proteins produced in an organism, system, or biological context. This might be referred to as, for instance, the proteome of a species (for example, *Homo sapiens*) or an organ (for example, the liver). The proteome is not constant; it differs from cell to cell and changes over time. To some degree, the proteome reflects the underlying transcriptome. However, protein activity (often assessed by the reaction rate of the processes in which the protein is involved) is also modulated by many factors in addition to the expression level of the relevant gene (EMBL-EBI resource).

The relevance of proteomics in day-today-day research lies in the investigations into assessment of site and time of protein synthesis, rates of protein synthesis, degradation and steady-state abundance; post translational modification of proteins; movement of protein between subcellular compartments; evaluation of proteins in metabolic pathways; reciprocity among different proteins etc. In short, proteomics analyzes the structure and function of biological systems.

Proteins are usually studied using a couple of techniques viz. immunoassays and mass spectrometry. During the course of study of a complex biological system, usually leads to bioseparation of sample, as too many analytes, may be required for estimation of individual proteins.

Practical applications of proteomics are usually in drug discovery for old rampant diseases and new emerging ailments, unearthing genes in plants responsible for defence response against herbivory. Because the proteomics is growing at a rapid pace there is a shift in focus of research from more focussed studies to a more broad-based study, utilizing ultra sophisticated equipments and more manpower along with knowledge of genome of the subject under investigation and when the efforts of many global proteomic studies are taken organized, understanding the proteome in its totality becomes a genuine possibility.

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