

Electrolyzed Water: An Overview and Clinical Results Of its Use in 6 Veterinary Practices

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The electrolysis of water is a process in which electrical current passes through water. Single negatively charged free electrons are added to the water at the positive cathode (reduction) side of a semipermeable membrane and electrons are removed from the water at the negative anode (oxidization). The following reaction summarizes the chemical reactions that occur at the cathode: $4\text{H}_2\text{O}_2 + 4 e^- \implies 2\text{H}_2(\text{gas}) + 4\text{OH}^-$ and at the anode: $2\text{H}_2\text{O} \implies \text{O}_2(\text{gas}) + 4\text{H}^+ + 4e^-$. Water generated at the cathode is termed electrolyzed reduced water (ERW). This water is alkaline (basic) in pH and has a negative oxidative-reduction potential (-200 to -1200 mv). Water generated at the anode is termed electrolyzed oxidized water (EOW). This water is acidic and has a positive oxidation-reduction potential (+200 to +1200 mv). Water electrolysis (ionizer) units for home, industrial and medical use are commercially made and sold for the generation of both of these types of water. One such ionizer unit generates 9 levels of pH in the electrolyzed water (2.5, 4.5, 5.0, 5.5, 7.0, 8.5, 9.0, 9.5, 11.5 pH) and the water is generated by passing 220 watts of 60 cycle alternating electrical current through seven 7 x 5 inch platinum coated titanium electrodes (SD501 Enagic, Inc., Osaka, Japan).

The purpose of this presentation will be to: 1. To summarize what is known and published regarding the electrolysis process of water and the characteristics of the water following this process that has been proven to have health benefits; 2. To report results of the use of the ionizer cited above in its generation of EOW and ERW and the use of these waters in a small observational clinical investigation* involving pet dogs and cats as patients in 6 veterinary hospitals and in a small number of humans. (*The investigator and author is a veterinarian, practicing board certified veterinary surgeon, emergency and critical care specialist, fellow in the American College of Critical Care Medicine, and certified emergency medical technician, rescue specialist, and firefighter).

Observational summary results: Over 300 dogs and cats and 30 humans were provided the ERW for drinking and the EOW was used topically in the following: fresh traumatic wounds, infected wounds, ear infections, burns, pyoderma, oral cavity open fractures, dental infections, limb open fractures, infected osteomyelitis and open postsurgical infections. No adverse effects were observed. Animals and humans drank the water readily in 90% of cases. Some required syringe or tube feeding. Positive effects such as increased activity levels in those with osteoarthritis were common (80% of those with clinical signs of the condition). Two cats that had required subcutaneous fluid therapy to sustain renal function were able to have the subcutaneous fluids discontinued.