

**MEASUREMENT OF GLOMERULAR FILTRATION RATE IN CONSCIOUS HUMMINGBIRDS. Scott Medler and Carol Beuchat. San Diego State University.**

Glomerular filtration rate (GFR) is determined by two factors. Metabolic rate is the single most important determinant of GFR; mammals and birds have significantly higher GFRs than the other vertebrate classes. Environmental factors also affect GFR by influencing how much water needs to be excreted or conserved. Hummingbirds have among the highest mass-specific metabolic rates of any animal; a nectarivorous diet may lead to the consumption of up to 330% body mass in a single day. Because of these two factors, a hummingbird could be expected to have a very high GFR. I measured GFR in conscious hummingbirds using  $^3\text{H}$ -PEG as a fluid marker which is filtered at the glomerulus. Because the marker is not secreted nor reabsorbed, excretion rate of the marker divided by plasma concentration yields GFR. Using this method, GFRs are not substantially higher than expected values for a bird of that body mass (3-4g). High water flux associated with a nectarivorous diet may constrain physiological function as well as foraging behavior.