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UREA NITROGEN REUTILIZATION IN HIBERNATING BEARS. R.R. Wolfe;  
R.A. Nelson; T.P. Stein; L. Rogers\*; M.H. Wolfe\*. Carle Fdn.  
Hosptl; U of Ill. Med Schl; U Penn Med Schl; Kawishiwi Fld Lab;  
Harvard Med Schl; Shriners Burns Inst. Boston, MA 02114

Hibernating bears fast for several months, yet during that time they excrete negligible quantities of urea and have minimal loss of lean body mass. We have investigated the hypothesis that urea production persists during hibernation, but rather than being excreted, the urea-N is reincorporated into protein. We studied two black bears hibernating in the wilderness by injecting 15mMol ( $^{15}\text{N}$ )<sub>2</sub>-urea IV and drawing samples over the next two weeks.  $^3\text{H}_2\text{O}$  was also injected in order to estimate the total urea space.

The urea injection increased the total body urea by 15% in one bear and 7% in the other bear, yet by 4 days the excess urea had been cleared from the body. In each animal, the enrichment of urea declined exponentially with time, indicating urea production rates of .41 and .78  $\mu\text{mole/kg-min}$  in the two bears. Production of singly-labeled (recycled) urea was detected by 4 h, and persisted throughout the two weeks. Free ammonia enrichment, on the other hand, was not detectably increased at 4 h, but was elevated at 4 days. Enrichment measurements of plasma albumin, fibrinogen, and amino acids confirmed the recycling of urea-N into amino acids and protein. The lack of correlation between free ammonia enrichment and other enrichment measurements suggests the existence of pathways in addition to gut urea catabolism whereby the urea-N can be recycled.