

## BILE ACIDS AND PRIMATE DIETS

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Bile acids (cholanoids) are a class of cholesterol-based compounds found in all vertebrates which regulate the uptake and excretion of cholesterol. Primary bile acids are synthesized from cholesterol in the liver and secreted into the biliary tract where they are stored until eating, when they are secreted into the small intestine; subsequently about 95% are resorbed and recycled. The 5% lost can account for 50% of daily cholesterol turnover. Secondary bile acids are formed by bacterial modification of primary bile acids in the intestine; these too are resorbed and reused. In their active forms they are conjugated; this increases their solubility in the slightly acid small intestine. There is marked variation across species in both cholanoids and in their major conjugate compounds. This degree of variability in a major metabolic pathway is unusual and the functional significance of particular variants is not known. Primates are unusual among mammals in the degree to which they utilize the amino acid glycine (rather than taurine) as a bile acid conjugate. We examined the relationships amongst cholanoids and their amino acid conjugates (using mass spectrometry), and diet (using both observational and morphological indices) in a wide variety of primates. Our results reveal a strong relationship between folivory and both the use of the secondary bile acid deoxycholic acid, and the use of glycine as a bile acid conjugate.