

# capsules

## THE CURRENT LITERATURE IN BRIEF

### Thyroid-Test Thwarting Drugs

Many factors can influence thyroid function testing in dogs, and this variability contributes to misdiagnosis of thyroid disease. Medications can alter synthesis, secretion, transport, or metabolism of thyroid hormones. Others directly inhibit the hypothalamic–pituitary–thyroid axis. Glucocorticoids given at immunosuppressive doses significantly decreased total thyroxine (TT4) and to a lesser extent free thyroxine (FT4). Thyroid-stimulating hormone (TSH) levels were not affected when such doses were given for 3 weeks. No changes in TT4 were seen after a month of prednisone at antiinflammatory doses. Thyroid function tests should be interpreted carefully in dogs receiving glucocorticoids. Longterm phenobarbital also influences thyroid function, with decreases in TT4 and FT4 shown in some studies. Most studies showed no effect or only a minor decrease in TSH levels. Thyroid function in dogs should not be evaluated if they are receiving phenobarbital unless it has been discontinued for at least 4 to 6 weeks. Not only can sulfonamides alter thyroid function test results, but they can also lead to clinical hypothyroidism in some dogs. Some NSAIDs alter thyroid function tests in humans. One study in dogs showed a mild decrease in TT4 and TSH after administration of carprofen. Further studies need to be conducted to determine the effect of other NSAIDs on canine thyroid function. Two drugs that cause alterations in humans, potassium bromide and propranolol, do not appear to have the same effect on dogs.

**COMMENTARY:** Thyroid evaluation in dogs is often confusing since it is affected by numerous factors, including test selection, the fact that no thyroid test is completely reliable, presence of systemic disease, and concurrent drug use. The authors found that glucocorticoids, phenobarbital, sulfonamides, and carprofen decreased various parameters of thyroid function, but potassium bromide and propranolol did not. NSAIDs alter thyroid function in humans but have unknown effects in animals. In vitro testing has shown that drugs that interfere with FT4 binding in vitro include furosemide, ipodate, diphenylhydramine, flunixin, probenecid, and oleic acid. This study expands the list of factors that must be considered when evaluating a patient for hypothyroidism.—*Ralph E. Barrett, DVM, Diplomate ACVIM*

*Influence of drugs on thyroid function in dogs. Daminet S, Ferguson DC. J VET INTERN MED 17:463-472, 2003.*