

Epilepsy

Behaviourists are occasionally asked to see dogs whose behaviour is abnormal rather than problematical. A proportion of these animals are in fact suffering from epilepsy, for example some cases of night pacing. So what is epilepsy?

Epilepsy is the most common chronic neurological disorder in dogs and is characterised by recurrent seizure activity, or fits. “Idiopathic epilepsy” accounts for the majority of dogs that suffer recurrent fits – in other words, no precise cause can be established. In cats, seizures are more likely to occur secondary to underlying disease or injury. The brain has a seizure threshold which varies for each individual and can be altered by a variety of factors.

Seizures are always a sign of cerebral dysfunction, and all or part of the brain may be affected. The neurones of the brain interact with each other through excitation and inhibition, excitation normally being followed by inhibition. When neurones fire simultaneously and excessively inhibition may fail, resulting in seizure activity. What we see as a fit is therefore the clinical manifestation of hypersynchronous neuronal discharges, which is usually self-limiting. Imagine a group of people clapping. Now imagine the same group clapping in rhythm – the sound is louder. So the “sound” made by hypersynchronous neurones is “louder”.

Seizures often, but not always, occur at rest or out of sleep. Why is this? The key lies in the concept explained above. At rest, electrical activity of the brain as recorded by an EEG (brain waves) is more rhythmical and synchronous than when the brain is active. Therefore, it is more likely that neuronal activity will become hypersynchronous, resulting in a fit.

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