

Non-invasive monitoring of stress hormones for welfare assessment in domestic and wild equids

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Stress responses play an important role in allowing animals to cope with challenges. Glucocorticoids, key elements in the neuroendocrine stress axis, are traditionally measured as a parameter for welfare assessment. As blood sample collection itself disturbs an animal, non-invasive or minimal invasive methods have gained importance for assessing stress. In horses saliva and faeces are most frequently used. Faecal samples offer the advantage that they can be collected easily and stress-free. In faecal samples circulating hormone levels are integrated over a certain period of time. As a consequence faecal glucocorticoid metabolites represent the cumulative secretion and they are less affected by short episodic fluctuations of

hormone secretion.

However, in order to gain reliable information about an animal's adrenocortical activity, certain criteria have to be met: Depending whether the impact of acute or chronic stressors is assessed, frequent sampling might be necessary whereas in other cases, single samples will suffice. Background knowledge regarding the metabolism and excretion of glucocorticoids is essential and a careful validation is obligatory. In addition, this presentation will address analytical issues regarding sample storage, extraction procedures, and immunoassays and various examples of a successful application in equids will be given. Applied properly, non-invasive techniques to monitor stress hormones are a useful tool for animal welfare assessment.