There has been very little variation in our approach to the treatment of acute and chronic laminitis over the course of recorded history, mostly due to the fact that the normal function of the lamellae in suspending the distal phalanx within the hoof is largely unrecoverable once disrupted. Therapeutic efforts in laminitis should be focused on prevention and early intervention in acute cases. We now recognize that there are important differences in the mechanisms that lead to laminitis depending on the inciting cause, and laminitis may be classified as being sepsis-associated, endocrinopathic or supporting limb laminitis, with the preventative/therapeutic strategies and priorities being different for each.

Sepsis-associated laminitis

Therapeutic efforts to control the primary disease and systemic inflammation in cases of equine sepsis are paramount. Binding of circulating endotoxin using polymixin B and hyperimmune plasma and the use of NSAIDs to control downstream inflammation are important treatment strategies particularly in cases of gut-derived sepsis. Prophylactic continuous cooling of the feet has been demonstrated in several experimental studies and one clinical study of naturally occurring colitis to be protective and this is the only therapy to have withstood scientific rigor in human or veterinary research for the prevention of end-organ damage in sepsis. Continuous cooling of the feet using ice and water immersion of the distal limbs until after the abatement of clinical evidence of systemic inflammation is recommended. There is experimental evidence that cooling during the acute phase of laminitis (after lameness develops) can help to limit progression. The therapeutic mechanisms are not completely clear, however therapeutic cooling has profound effects on inflammatory mediators and a profound local hypometabolic effect.

Endocrinopathic laminitis

The key to prevention of endocrinopathic laminitis is early identification of horses at risk. Testing for evidence of insulin dysregulation (including insulin resistance as well as the propensity for post-prandial hyperinsulinemia) using insulin testing pre and post oral sugar challenge is the most effective way to identify horses and ponies at risk of laminitis development early. Management to reduce the laminitis risk in these cases can then include a combination of dietary control, pasture access management, weight loss and exercise, which can dramatically reduce the risk of laminitis development or progression. Cases that have a profound hyperinsulinemic response to oral sugar ingestion may benefit from medications such as metformin that blunt this insulin response. Since the systemic effects of metformin on insulin sensitivity appear inconsistent, the use of targeted administration (prior to meal/turnout) appears most effective and rational in order to reduce postprandial hyperinsulinemia in these cases. Testing for pituitary pars intermedia dysfunction (PPID) in appropriately aged horses (at least >5 years) can help to identify this condition before the development of irreversible laminitis.
pathology. It is important to recognize that although laminitis may be the only important clinical manifestation of PPID in some horses, the recognition of clinical signs of laminitis (lameness) often only occurs after the development of irreversible laminitis pathology, which can be insidious and gradual. Treatment of PPID with pergolide can be quite effective in preventing laminitis development (or its progression) however dosage adjustment guided by frequent monitoring of ACTH is required for adequate control in most cases. It is impossible to adequately control chronic laminitis in cases where there is inadequate control of an underlying endocrinopathy.

Supporting-limb laminitis

It appears that cyclic loading and unloading of the feet plays an essential role in digital homeostasis. In a horse that is preferentially weight bearing on one limb, it is currently not clear whether static or dynamic manipulations of the supporting limb (using orthotics or other devices) are sufficient to improve lamellar perfusion and energy balance without intermittent complete unweighting of the limb, however studies specifically evaluating this are underway. The key to supporting limb laminitis prevention is likely to be the development of strategies to monitor and then regulate load cycling frequency in the supporting limb of patients at risk. Monitoring should include some form of serial assessment of limb load cycling – human pedometer devices and fitness tracking devices that incorporate accelerometers can track limb load cycling over time and may be of use clinically. In horses at risk, regular encouragement to walk may be beneficial, however there is insufficient data to support specific recommendations at this stage and the logistics of this may depend on the nature and severity of the primary condition. Strategies to reduce weight on the supporting limb may include partial sling support and periodic forced or encouraged recumbency. Although sedation may help to encourage recumbency, it also reduces voluntary exercise and limb load cycling in stabled patients and therefore may be contraindicated.