

# Could the Remote Monitoring of Equines Using Activity Trackers Help with the Obesity Crisis?

Equine obesity, or the 'disease of domestication' as it is referred to by World Horse Welfare, is a health problem scarcely witnessed in the wild. Like in humans and domestic animals at home, the rise in affluence and availability of energy-rich feed rations coupled with increasingly sedentary lifestyles has taken its toll on the waistlines of not only us, but our cats, dogs and now horses<sup>1</sup>.

Unlike in the wild, where the horse's weight would naturally fluctuate with seasons and availability of forage, domestic practices such as rugging, the provision of shelter and ad libitum forage, prevent the body's natural 'reset' prior to spring, thus encouraging the accumulation of harmful fat deposition<sup>2</sup>. As a result, in some equine populations, obesity has been recorded as high as 70%, predominantly due to surplus in energy-dense rations and insufficient exercise for energy requirements<sup>3</sup>.

Poor welfare is no longer limited to the traditional presentations of badly nourished horses or horses with poor physical condition, easily recognisable by horse lovers. Threats to equine welfare are now greater, disguised by factors that horse owners tend not to view as a problem<sup>4</sup>. Typical examples of these overlooked problems include overbreeding, over rugging and obese horses and ponies. This is down to the fact equestrians do not recognise these as risks to the horse's health<sup>4</sup>. For example, horse owners tend not to associate a horse being fat with death or consider obesity as life-threatening, when in fact it's the predisposing illnesses such as laminitis, hyperlipemia or strangulating lipoma which could be the cause of death for these overweight horses<sup>4,5</sup>. Other consequential ailments such as respiratory compromise, colic, reduced exercise intolerance, poor fertility and osteoarthritis are also vastly overlooked<sup>4,5</sup>.

Furthermore, in addition to the lack of association between excess weight and poor health, it has been highlighted that most equestrians are unable to distinguish between a healthy weight and an unhealthy weight for their horses. In one study by Wyse *et al.* (2008), it was reported that only 50% of horse owners were in agreement with their horse's body scores classified as 'fat'<sup>6</sup>. The study concluded that misclassification by owners appeared to be due to lack of understanding of their condition and body score. This could be attributed to the too-familiar sight of over-conditioned horses in the show ring as a result of out-dated show turnout preferences<sup>2</sup>.

Aside from the problems with classification and lack of association with excess weight, other precursors for obese horses include lack of education as to how much exercise is needed and limited time available to care for and provide much-needed exercise for their horses<sup>6</sup>. The reality often is that with the high demand of basic care for an equine, horse owners are limited in time and resources to provide adequate exercise and activity for them. Coupled with sub-optimal facilities and domestic horse care routines, horses tend to receive far less turnout than deemed healthy and spend long periods spent sedentary with unlimited forage.

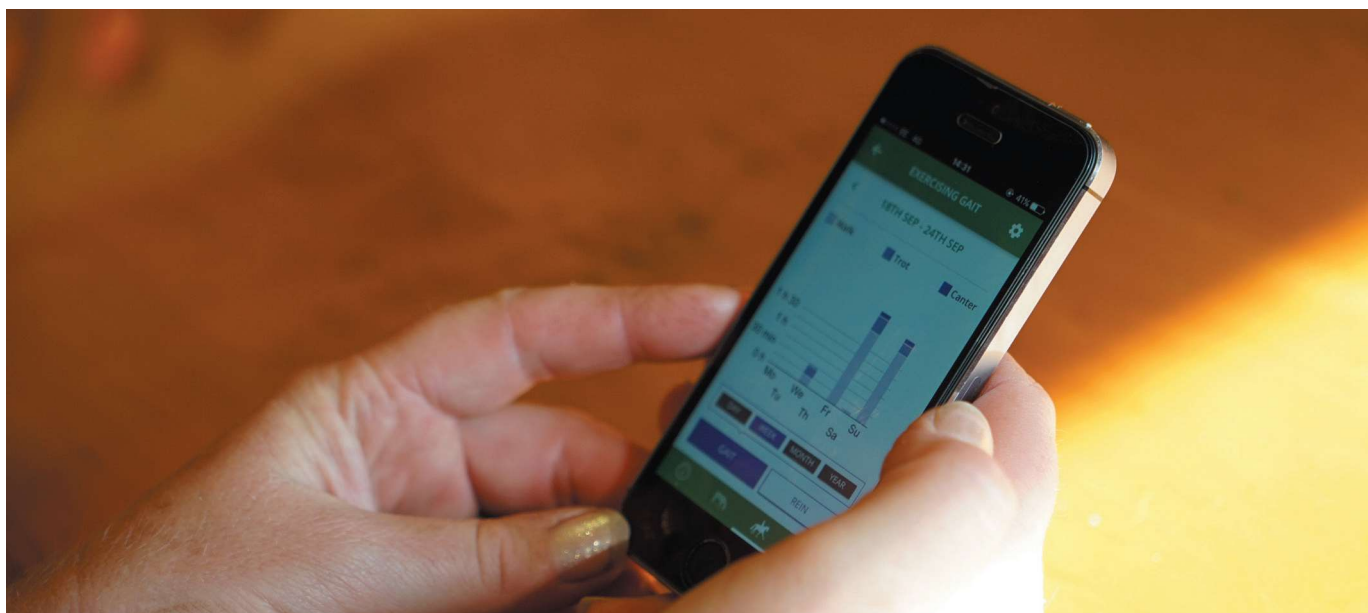
The responsibility then falls to veterinarians upon seeing the horse to diagnose and implement a weight-related programme, widely consisting of a calorie-restricted diet and increased exercise routine<sup>7</sup>.

Turnout can be a positive contributor to weight maintenance by continual movement and exposure to the elements<sup>2</sup>. This energy expenditure is necessary for balancing energy requirements. As horses in the wild can travel up to 28.3km a day while foraging, seeking out water and shelter and running from predators, etc., it is unsurprising that domestic horses moving just 6–7km a day during turnout, also with unlimited access to forage, experience an oversupply of energy and ultimately gain weight<sup>8</sup>. These levels of activity are often reduced further during winter months when grazing is poached, flooded or simply preserved, or owners perceive the risk of injury as higher. As a result, the horse receives less natural exercise and alternative methods of exercise become increasingly important. Although the lack of exercise given by owners does in many cases contribute to obesity, exercise has proven a preferential treatment by horse owners over alternative methods to reduce weight, such as the use of grazing muzzles<sup>9</sup>.

In humans, an increase in physical activity has frequently proven successful for weight loss. In particular, a study on obese adolescents compared the effects of a two-month programme of groups walking at 70% maximal speed, 50% maximal speed and a self-regulated pace three times a week. Results showed that for both the predetermined speeds by experts, weight was reduced along with better body composition. Meanwhile, self-regulated speeds yielded less improvement<sup>10</sup>.

Guidelines from the NHS also incorporate exercise recommendations of 30 minutes, five times a week, while elsewhere in healthcare, experts advise 10,000 steps a day using activity monitors such as 'FitBit' to combat undesired weight and poor health. These kinds of activity trackers and pedometers are usually favoured to improve people's activity levels but also their awareness of their own activity levels by providing a quantitative measure<sup>11</sup>. Similar equipment has now entered the domestic animal market with activity monitors aiming to align dog and owner fitness goals for a healthier domestic partnership to help fight the obesity epidemic in pets<sup>14</sup>. Aims of the trackers include "ensuring pets get adequate exercise", to "ensure clients understand what is meant by physical exercise" and to provide an "objective measure to report back to the vet" so that programmes for weight loss and good overall health can be evaluated and clients not adhering to the exercise regime are apparent<sup>12</sup>. With success already observed in the canine market, could this new and novel measure of activity supplement treatment plans from vets for the obese equine patient?

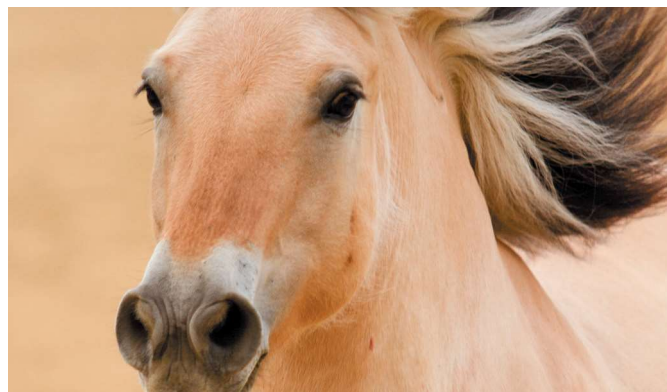
Creators of new horse data loggers believe this is the case and endeavour to extend the uses of their horse monitoring system to a prescription type service for vets to provide qualitative data for weight loss in between objective weighing and fat scoring, and ensure exercise protocols and activity levels are being adhered to. Many studies have shown a clear gap between owners' perceptions of



their horse's workload and the horse's actual workload, and therefore could help educate and increase awareness about what constitutes sufficient exercise for energy expenditure, weight maintenance and good health<sup>13</sup>. Objectively measuring the time spent in each gait alongside heart rate and speed could improve the effectiveness of weight loss programmes and help vets standardise an exercise protocol whereby the horse must sustain a period of exercise at a specific pace. As mentioned earlier in the study of obese adolescents, predetermined criteria for exercise work more effectively than self-determined speed criteria and could therefore generate more successful results than owners devising an exercise protocol on their own. In turn, this could help reduce the number of obesity-related illnesses and the poor quality of life the horse acquires as a result, helping the current efforts such as World Horse Welfare's 'Right Weight' campaign to combat the equine obesity crisis.

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