A study of behavioural responses of abruptly and gradually weaned foals to mare separation

C. McMeeking[1]* *and H. Randle*[2]

[1]Duchy College, Stoke Climsland, Callington, Cornwall, PL17 8PB, U.K
[2]School of Animal and Veterinary Science, Charles Sturt University, Wagga Wagga, NSW, 2650, Australia
*catherine.mcmeeking@duchy.ac.uk

Weaning-related stress in foals is recognised globally and management approaches at this time should aim to minimise its welfare implications. A range of weaning methods are employed worldwide, reflecting a lack in universal agreement as to preferred method in terms of being least stress-inducing for the foal. Domesticated foals are typically weaned around five to seven months, earlier than the eight to eleven months seen in the wild. Both timing and method of weaning used is commonly based on human preference with seemingly little regard to the potential effects on the foal. This study aimed to determine whether gradual or abrupt weaning of foals is preferable on the basis of foal welfare. Fourteen foals (7 colts, 7 fillies; age at weaning =200.71±6.97 days) were randomly allocated to one of two groups. Group 1 foals were weaned using an abrupt method (all mares suddenly removed, foals remained in the same housing). Group 2 foals were weaned using a gradual method (mares and foals separated daily, an additional one hour per day, leading to complete separation by one week). Foals were video recorded continuously for one hour pre-weaning and one hour post-weaning using an Annke 1080P Hi-Resolution IP66 weatherproof digital video surveillance camera. Behaviours were noted using an ethogram. Group 1 foals displayed a greater increase in overall behaviour displayed (Mann-Whitney W=68, $P < 0.01$) compared to group 2 foals post weaning. Stress-related behaviours increased in frequency for both groups post weaning (locomotion: 26.85±11.61, w=105, $P < 0.0001$, pre 5.08±1.71, post 26.85±11.61, vocalisation: pre n=0, post n=658, defecation: 6.30±3.17, w=105, $P < 0.0001$, pre 0.5±0.75, post 6.30±3.17). Group 1 displayed higher recordings of locomotion post weaning compared to group 2 (mean=208.4±36.2, w=68, $P < 0.01$). No significant differences were evident between any stress-related behaviours exhibited by fillies and colts. Behaviours exhibited by abruptly and gradually weaned foals during the weaning process indicates that the gradual method may result in less stress related behaviours than the abrupt method, therefore may be considered preferable in terms of potential impact on foal welfare. The long-term impact of weaning stress is a cause for concern, negative early life experiences influence behaviour (including coping mechanisms) in adulthood. Weaning-related stress also has a physiological impact and may also affect trainability. The welfare of the horse is arguably compromised both during weaning and potentially life-long, favourable weaning conditions may alleviate these concerns, however further investigation is needed to confirm best practice.

Lay person message: Weaning induces stress in foals which can have a negative effect on the foal's welfare in both the short and long term. The behaviours shown by abruptly and gradually weaned foals were observed and compared. Analysis of the behavioural data suggests that gradual weaning methods may be less stressful than abrupt weaning methods. Given management related events such as weaning can shape future behaviour in equids, it is important to utilize the least stressful method as possible.

Keywords: equine; weaning stress; abrupt; gradual; behaviour; welfare.