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An analysis of visible patterns of horse bit wear

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Abstract

Horse control is regularly achieved through the application of pressure by a bit against tissue surfaces in the horse's mouth. The precise method of action of the bit in the mouth is still poorly understood. In an assessment of damage and changes seen on the surfaces of bits used in horse control, five independent assessors scored sixty photographic images of fifteen bits on the most common signs of wear. Each photographic image of the bit was divided into 4 -5 separate zones so that different areas on the bit surface could be individually scored. The signs of wear scored for were changes in lustre (burnishing), bite marks, food deposits and salivary staining. Using Cronbach's alpha values, inter-observer reliability was found to be high (0.94). Kruskall-Wallis H and Mann-Whitney U tests identified a higher frequency of bite marks on the central or medial areas of the bits compared to the lateral areas ($p<0.001$) whereas burnishing was distributed along the whole length of the bits ($p>0.5$). The least amounts of both food deposits and salivary staining were found on the caudal aspect of the bits. The findings may reflect the type, level and location of pressures exerted by oral surfaces against the bit. In addition, the location of bite marks may help identify how the equine reacts orally to the presence of a bit within the