



## **A labour of love: Biocodological analysis of a medieval birthing girdle**

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Childbearing can be a dangerous time for both mother and child even today, but in medieval and early modern Europe the risks of childbearing were extremely perilous, with childbirth thought to be the main cause of death for women in medieval England. The medieval Church offered a bevy of relics and talismans, in various forms, that were believed to help bring about a safe pregnancy and delivery, with the most oft-recited item being a birthing girdle. Worn by women during pregnancy and even labour, these girdles (made of various materials) were thought to help aid safe delivery of the baby. An example of one of these birthing girdles, made out of parchment, is Wellcome Collection Western MS. 632 which was made in England in the late fifteenth century. MS. 632 is largely unique among the remaining parchment rolls, as it has obvious signs of actual use as a birth girdle. The images on the manuscript are particularly worn, especially those likely to be touched, rubbed or kissed as part of religious veneration. Here we present palaeoproteomic evidence obtained from MS.632, using a previously developed dry noninvasive sampling technique, to support the theory that these girdles were actively worn during pregnancy and childbirth. We were able to extract both human and non-human peptides from the manuscript, including evidence for the use of honey, cereals, ovicaprine milk and legumes. In addition, a large number of human peptides were detected on the birth roll, many of which are found in cervico-vaginal fluid. This suggests that the birth roll was actively used during childbirth. This study is, to our knowledge, the first to extract and analyse noncollagenous peptides from a birth girdle using this sampling method and demonstrates the potential of this type of analysis for stained manuscripts, providing direct biomolecular evidence for active use.