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Between day 10 and 12 of gestation in the pig, the embryo undergoes a dramatic morphological change, known as elongation. During elongation the embryo produces and secretes estrogen, which serves as a key signal for maternal recognition of pregnancy. The uterine environment prepares for embryo elongation and implantation by releasing nutrients, metabolites, and hormones in a time-dependent manner relative to paracrine signals from the conceptus (i.e., estrogen) and endocrine/paracrine signals within the endometrium (i.e., progesterone). Despite advances in identification of specific uterine factors present throughout pregnancy in the pig, little is known about the exact mechanisms by which porcine embryos elongate normally, or how this elongation is altered during embryonic loss. Previously, our laboratory has established an *in vitro* culture system using alginate hydrogels as a three-dimensional (3-D) matrix to support the development of pre-implantation porcine embryos in base serum media without the addition of hormones. The objective of the current study was to improve our 3-D system and determine if uterine flushes from day 9 or 10 of gestation were capable of supporting *in vitro* embryonic development of *in vivo*-developed day 9 porcine embryos using the 3-D alginate culture system. Embryos collected on day 9 of gestation were assigned to be cultured in pooled day 9 flushes, day 10 flushes, or base serum media for five days within 0.7% alginate gels. Our results demonstrate that uterine flushes from day 9 or 10 of gestation supported embryonic development in our 3-D hydrogel system, similar to that from embryos cultured in base serum media. These results illustrate that soluble factors present in uterine flushings at day 9 or 10 of gestation support *in vitro* embryonic development within our 3-D alginate culture system. Developing better scientific understanding of the factors that regulate embryo elongation and early embryonic mortality can be useful for developing strategies to improve sow productivity and increase the profitability of swine production.

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