

Week 2 is about the implantation process and blastocyst differentiation. Note that all cells produced from the initial fertilization event are defined as the "conceptus" and will include cells with both embryonic and extraembryonic futures. In the conceptus, this is a period of blastocyst "hatching" rapid blastocyst differentiation into extraembryonic and embryonic tissues and proliferation. This is the first physical interaction between the conceptus and the maternal uterine wall with adplantation and the commencement of implantaion.

At the 8 day of development the blastocyst is partially embedded in the endometrium, more cells of the cytotrophoblast divide and migrate to the syncytiotrophoblast where they fuse, the syncytiotrophoblast continues invasion of the endometrium by eroding endometrial glands and endometrial blood vessels. The cells of the embryoblast differniates into 2 layers the hypoblast and epiblast. The hypoblast layer is made up of small cubiodal cells and is adjacent to the blastocyst layer. The epiblast layer is made up of long columnar cells and is adjacent to the amniotic cavity. At the 9th day of development the blastocyst have deeply embedded into the endometrium and penetration defect is closed by a coagulum called fibrin. The trophoblast further developed into the lacunar stage. The cells of the hypoblast adjacent to the cytotrophoblast forms a thin membrane called the exocolemic (Heuser's) membrane. By the 11th to 12th day the blastocyst have fully embedded into the endometriym and now produces a slight protrusion into the lumen of the uterus cells of the syncytiotrophoblast penetrate deeper into the Stroma and erode the endothelial lining of the endometrial ruptured capillaries (sinsuiod). The lucane begins to communicate with the sinsoids and maternal blood enters the lucanar system establishing the primordial uteroplacental communication. A new population of cells appears between the inner surface if the cytotrophoblast and the other surface of the exocolemic cavity called the extra embryonic mesoderm, they later become confluent and they form a new space known as the extra embryonic cavity. The extra embryonic mesoderm linking the cytotrophoblast and amnion is called the extra embryonic somatic mesoderm which forms the stalk

As the conceptus implants the endometrial connective tissue cells undergo a transformation called the decidual reaction. The primary function of the decidual reaction is to provide nutrition for the early embryo and an immunologically privileged site for the conceptus.