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. In placental animals, this is the first physical interaction between the conceptus and the maternal uterine wall with adplantation and the commencement of implantaion.

the second week is the completion of **implantation** and establishment of **fetomaternal** **interactions**. This article will follow the developing embryo through the completion of implantation and development of the non-embryonic components of the conceptus. It will also discuss some complications associated with implantation.

**Implantation** is a complex biochemical and mechanical process that begins in the first week of gestation and extends into the second week. There are many influencing factors that affect the process. These can be grouped into **maternal** and **embryonal** **factors**. However, both entities work synchronously in order to effectively achieve implantation. The process of implantation can be subdivided into three phases:

* There is a period of **apposition** where the blastocyst establishes weak interactions with the uterine wall.
* The **attachment** phase occurs when definitive binding of the blastocyst to the uterine [epithelium](/en/library/anatomy/overview-and-types-of-epithelial-tissue) is more established, such that the blastocyst cannot be flushed from the uterine cavity.
* Finally **invasion** occurs when the blastocyst begins to burrow into the endometrium.

This period usually occurs between the 19th and 24th day of the menstrual cycle. This coincides roughly with the 6th to 10th day following ovulation.

### Maternal factors affecting implantation

In anticipation for successful fertilization each month, the inner uterine wall (**endometrium**) undergoes a series of changes in order to facilitate the blastocyst. Recall that there are three layers of the endometrium – the strata basalis, spongiosum and compactum.