MAATRIC NUMBER: 19/mhs07/006

DEPARTMENT: PHARMACOLOGY

COURSE CODE: PHS 212

QUESTION: WRITE SHORT NOTES ON IMPLANTATION]

In humans, **implantation** is the stage of pregnancy at which the embryo adheres to the wall of the uterus. At this stage of prenatal development, the conceptus is called a blastocyst. It is by this adhesion that the embryo receives oxygen and nutrients from the mother to be able to grow. The reception-ready phase of the endometrium of the uterus is usually termed the "implantation window" and lasts about 4 days. The implantation window occurs around 6 days after the peak in luteinizing hormone levels. With some disparity between sources, it has been stated to occur from 7 days after ovulation until 9 days after ovulation, or days 6-10 postovulation. On average, it occurs during the 20th to the 23rd day after the last menstrual period.

The implantation window is characterized by changes to the endometrium cells, which aid in the absorption of the uterine fluid. These changes are collectively known as the plasma membrane transformation and bring the blastocyst nearer to the endometrium and immobilize it. During this stage the blastocyst can still be eliminated by being flushed out of the uterus. Scientists have hypothesized that the hormones cause a swelling that fills the flattened out uterine cavity just prior to this stage, which may also help press the blastocyst against the endometrium. The implantation window may also be initiated by other preparations in the endometrium of the uterus, both structurally and in the composition of its secretions

**The most common implantation symptoms of early pregnancy include:**

* Implantation cramps. Some women may notice some minor cramping right around the time implantation is taking place. ...
* Implantation bleeding. ...
* Nausea. ...
* Tender breasts. ...
* Constipation and bloating. ...
* Fatigue. ...
* Headaches. ...
* Mood swings.

So, the next step is **conception**. This is **when** the sperm joins the egg and **fertilization** takes place. About 7-14 days **after** you have had sex, **implantation** will occur—the fertilized egg will attach itself to the lining of your uterus. About one-third of women will have some bleeding **when implantation** takes place. In the uterus, the morula becomes a blastocyst and eventually burrows into the uterine lining in a process called **implantation**. Although some women report **feeling** cramping or pain during the **implantation** process, not everyone **will** experience this symptom.

**Possible signs of implantation**

**Bleeding**

It’s actually a little unclear how common implantation bleeding is. Some sources claim that one-third of all women who become pregnant experience implantation bleeding, but this actually isn’t backed by peer-reviewed research.

Here’s what we can tell you. Up to 25 percent of women experience bleeding or spotting in the first trimester — and implantation is one cause of first trimester bleeding.

This bleeding can be confusing, because it may happen around the time that your regular period would start. Most commonly though, it will occur a few days to a week before you expect your menstrual period.

**Cramps**

It’s no secret that early pregnancy causes a rapid shift of hormones. More specifically, implantation is a trigger for the hormone surge — that’s why you can’t get that second pink line on a home pregnancy test until *after* implantation.

And the changing hormonal tide can also cause [cramping](https://www.healthline.com/health/pregnancy/implantation-cramping). Furthermore, there’s a lot going on in your uterus as the fertilized egg implants and begins to grow.

**Discharge**

If you’ve been monitoring your [cervical mucus](https://www.healthline.com/health/womens-health/cervical-mucus#stages), good work, future mama! Being aware of what’s going on with your body can be empowering when trying to conceive.

You may notice some cervical mucus changes around the time of implantation.

During ovulation, your cervical mucus will be clear, stretchy, and slippery (sort of like egg whites). You probably already know this as your green light to get your baby dance on.

After implantation occurs, your mucus might have a thicker, “gummier” texture and be clear or white in color

**Bloating**

Rising [progesterone](https://www.healthline.com/health/progesterone-function) (which happens in early pregnancy) slows your digestive system down. This can make you feel bloated. But as so many of us know, this feeling can be a really common symptom of your period, too. Want to know why? Progesterone also rises when your period is imminent. Thanks, hormones.

**Tender breasts**

After implantation, levels of hCG, estrogen, and progesterone all increase rapidly. This can cause your boobs to feel very sore. (These hormones sure are multitaskers!) While many women experience breast swelling or tenderness before their periods, this is likely to be more noticeable than usual in very early pregnancy

**Headaches**

While they’re good and necessary for a successful pregnancy, those wildly rising hormone levels (particularly progesterone) can also give you headaches following implantation.

**Mood swings**

Find yourself content and happy one minute, and weeping at a commercial on TV the next? Or excited to see your partner in the evening and then biting their head off over nothing? You may be experiencing mood swings.

Implantation failure

Implantation failure is considered to be caused by inadequate uterine receptivity in two-thirds of cases, and by problems with the embryo itself in the other third. Inadequate uterine receptivity may be caused by abnormal cutokine and hormonal signaling as well as epigenetic alterations . Recurrent implantations is a cause of female infertility.

In women with more than 3 implantation failures in assisted reproduction, a review of several small randomized controlled studies estimated that the use of adjust low molecular weight heparin improves live birth rate by approximately 80%.