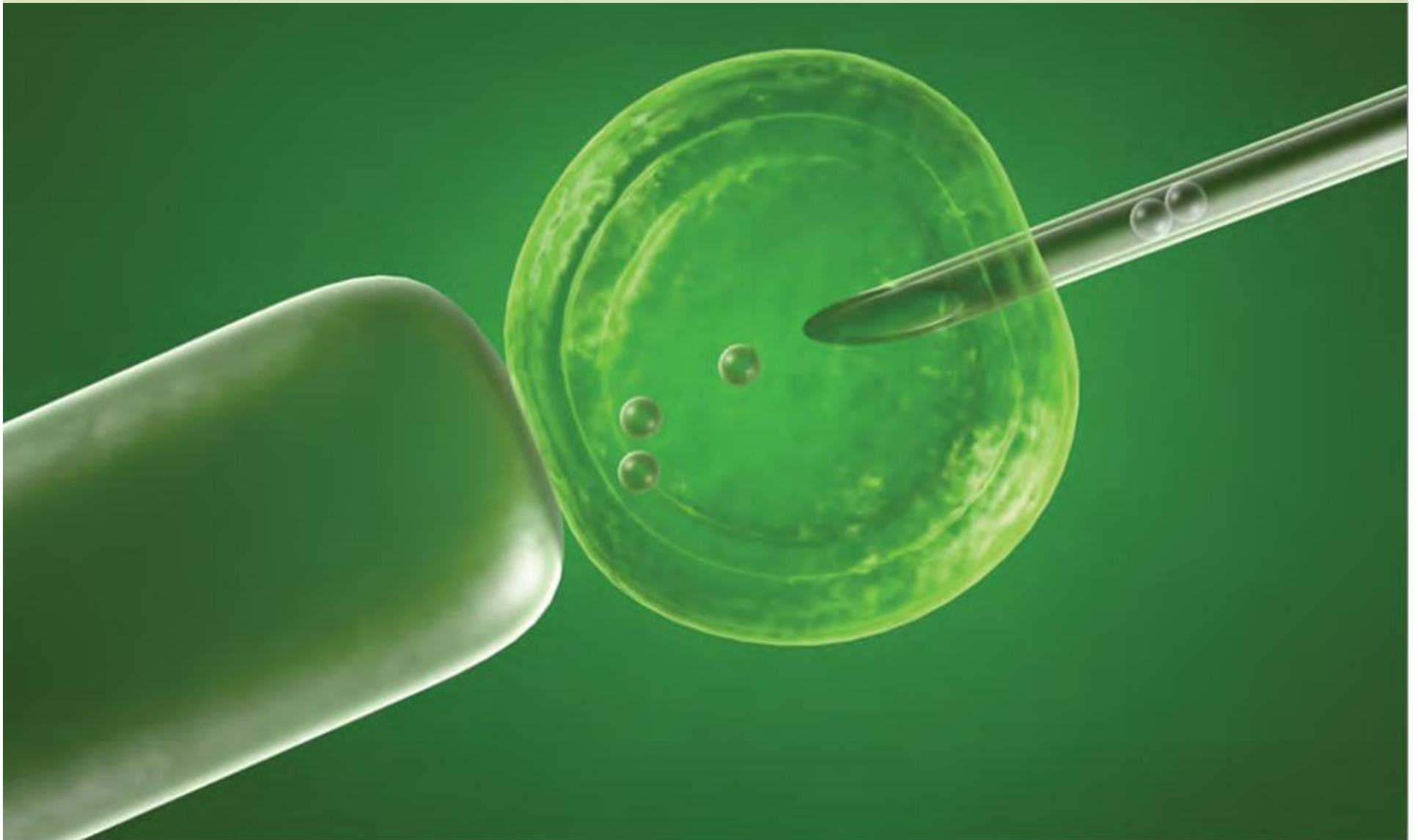
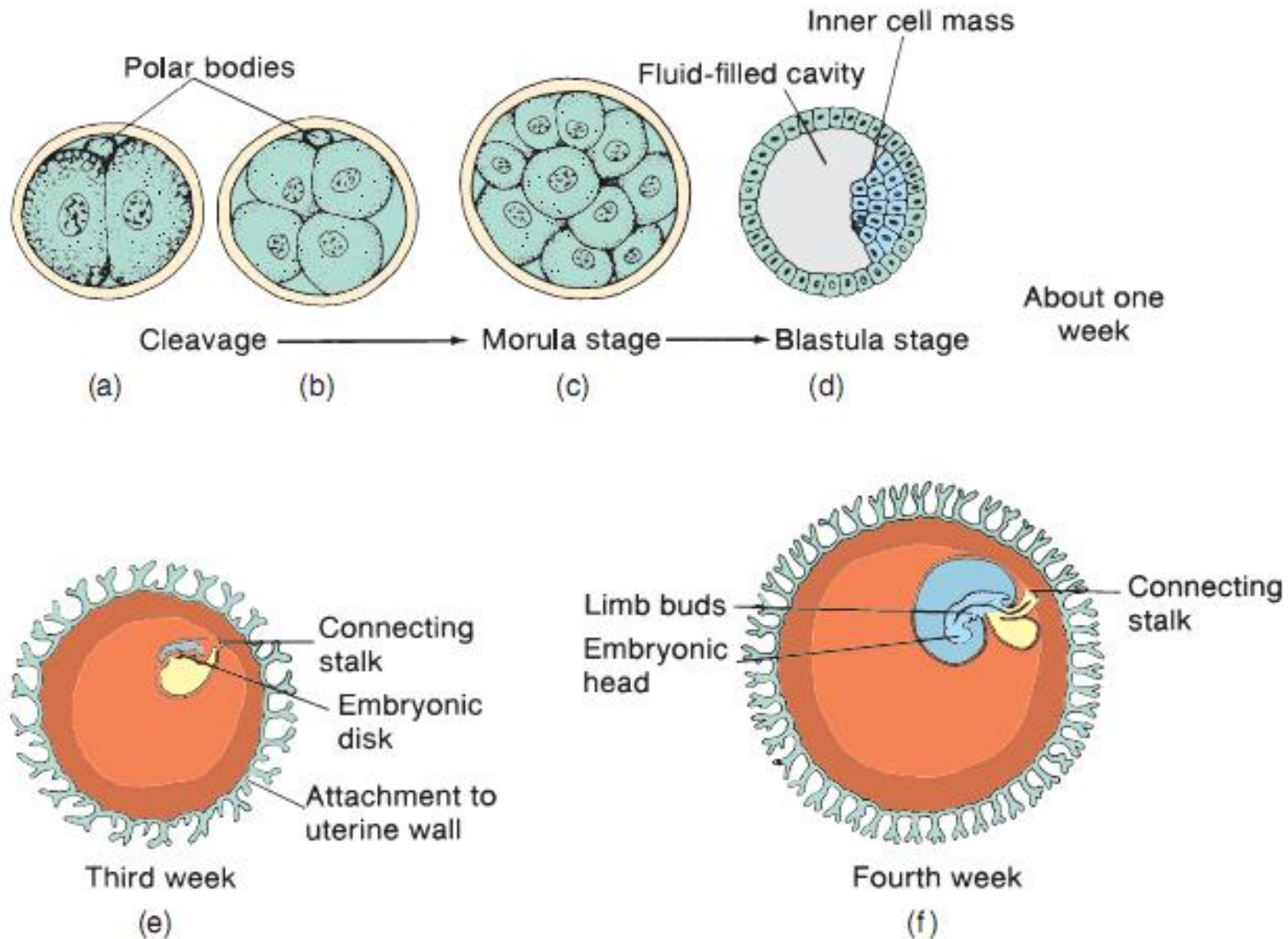


HUMAN DEVELOPMENT

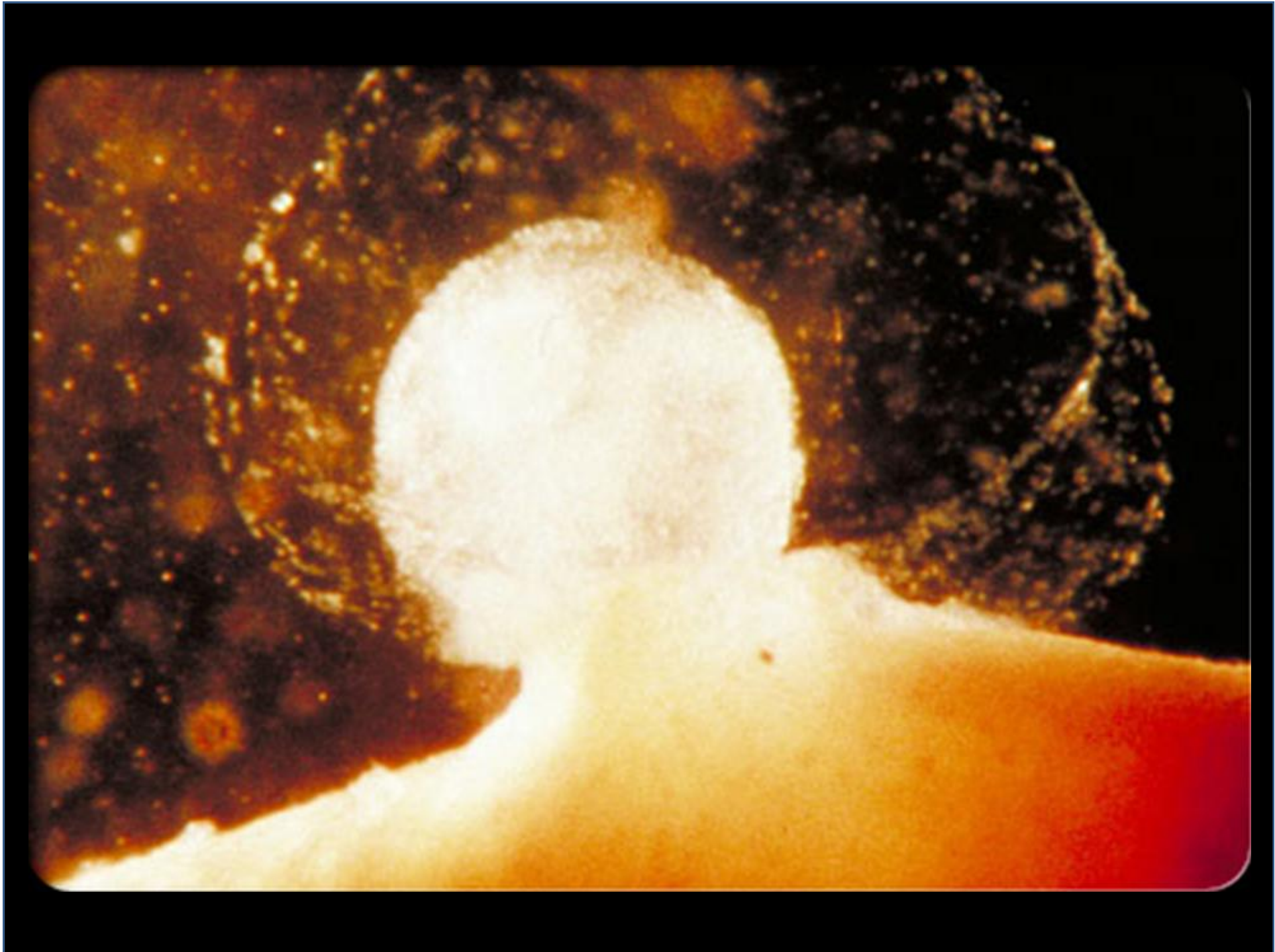


Fertilization " Implants



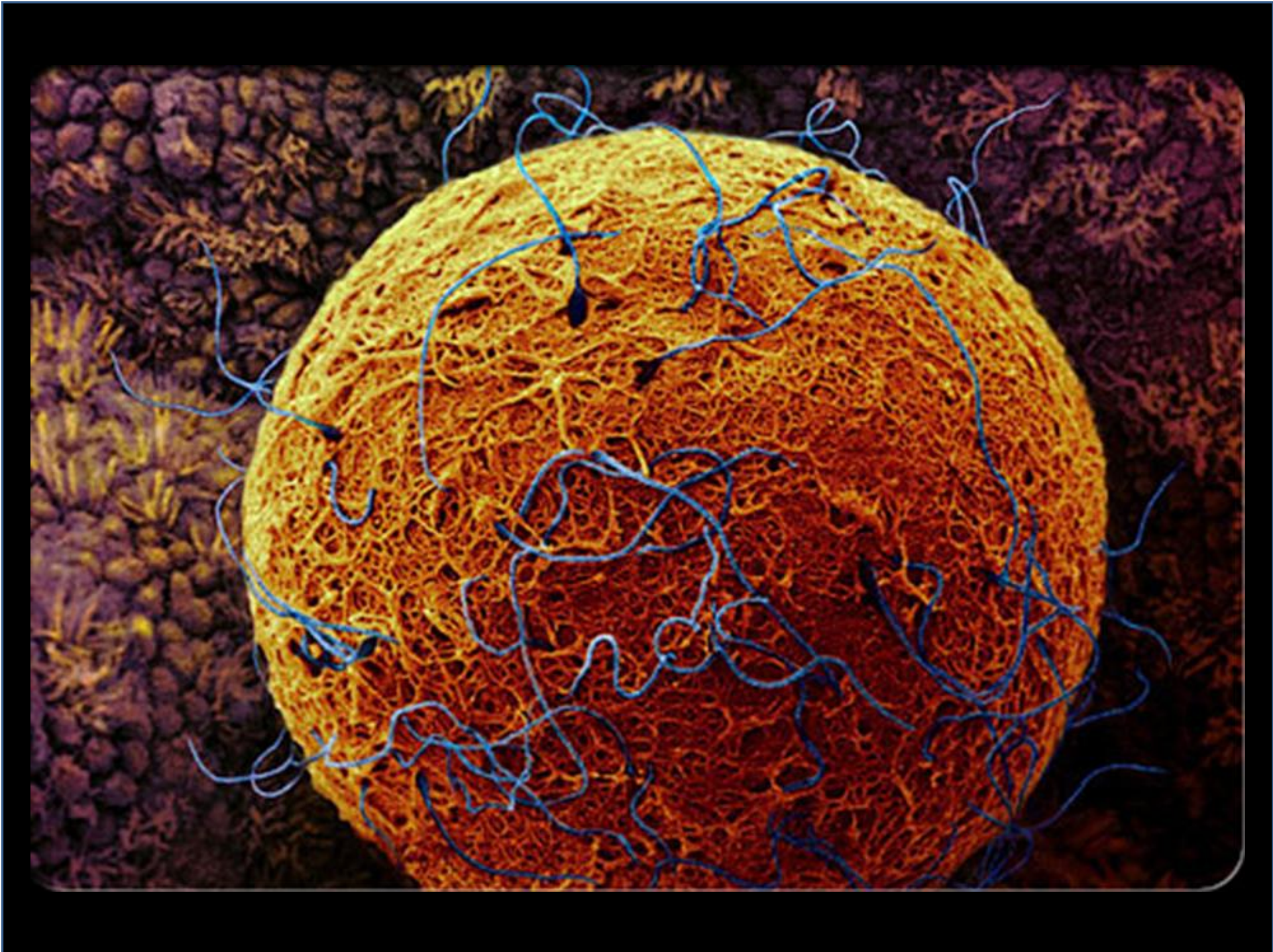
Ovulation

- Each month, a mature egg is released from one of the women's two ovaries -- this is called ovulation. Ovulation takes place about two weeks after the first day of the last menstrual period.



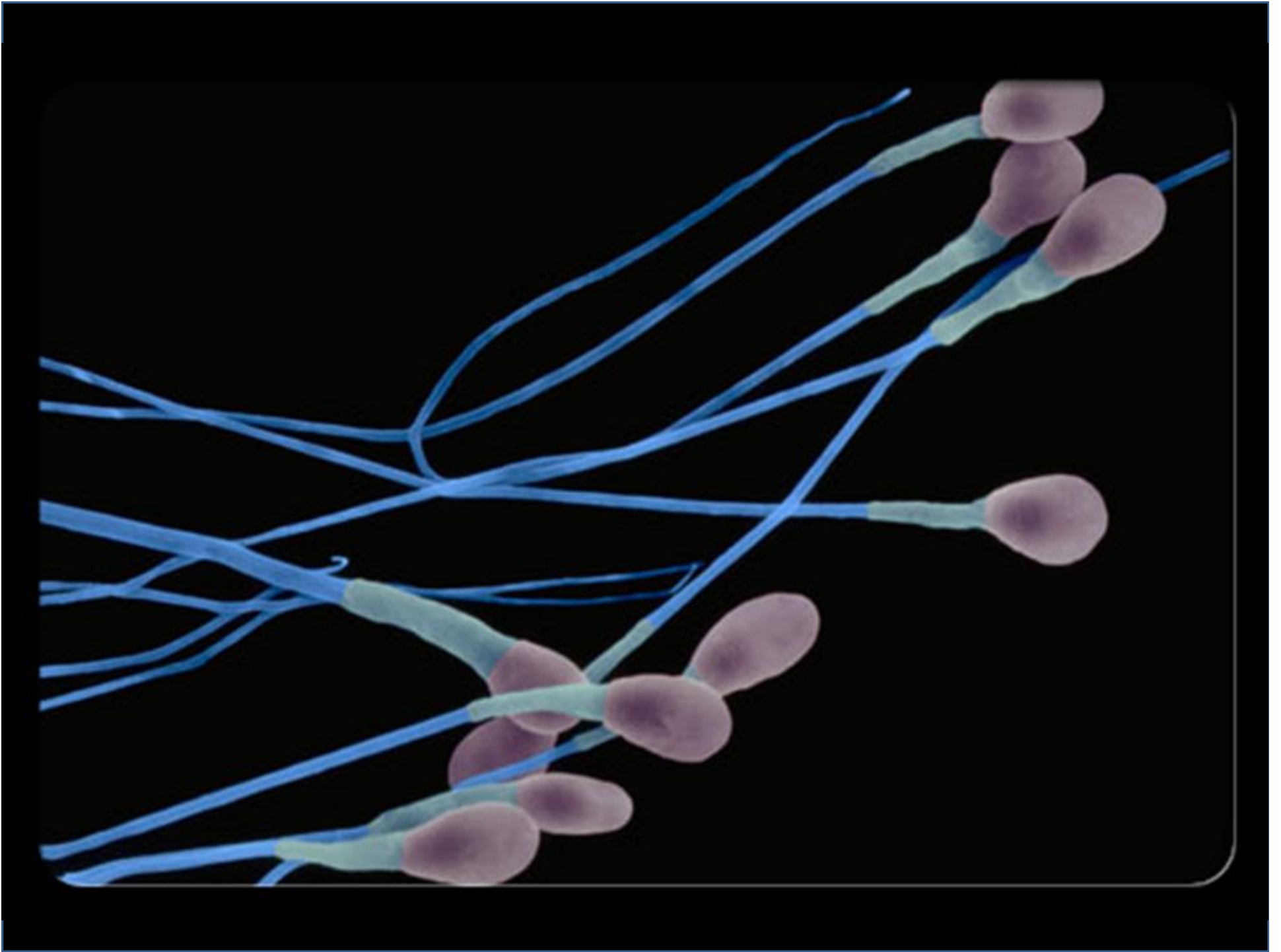
Passage Into the Fallopian Tube

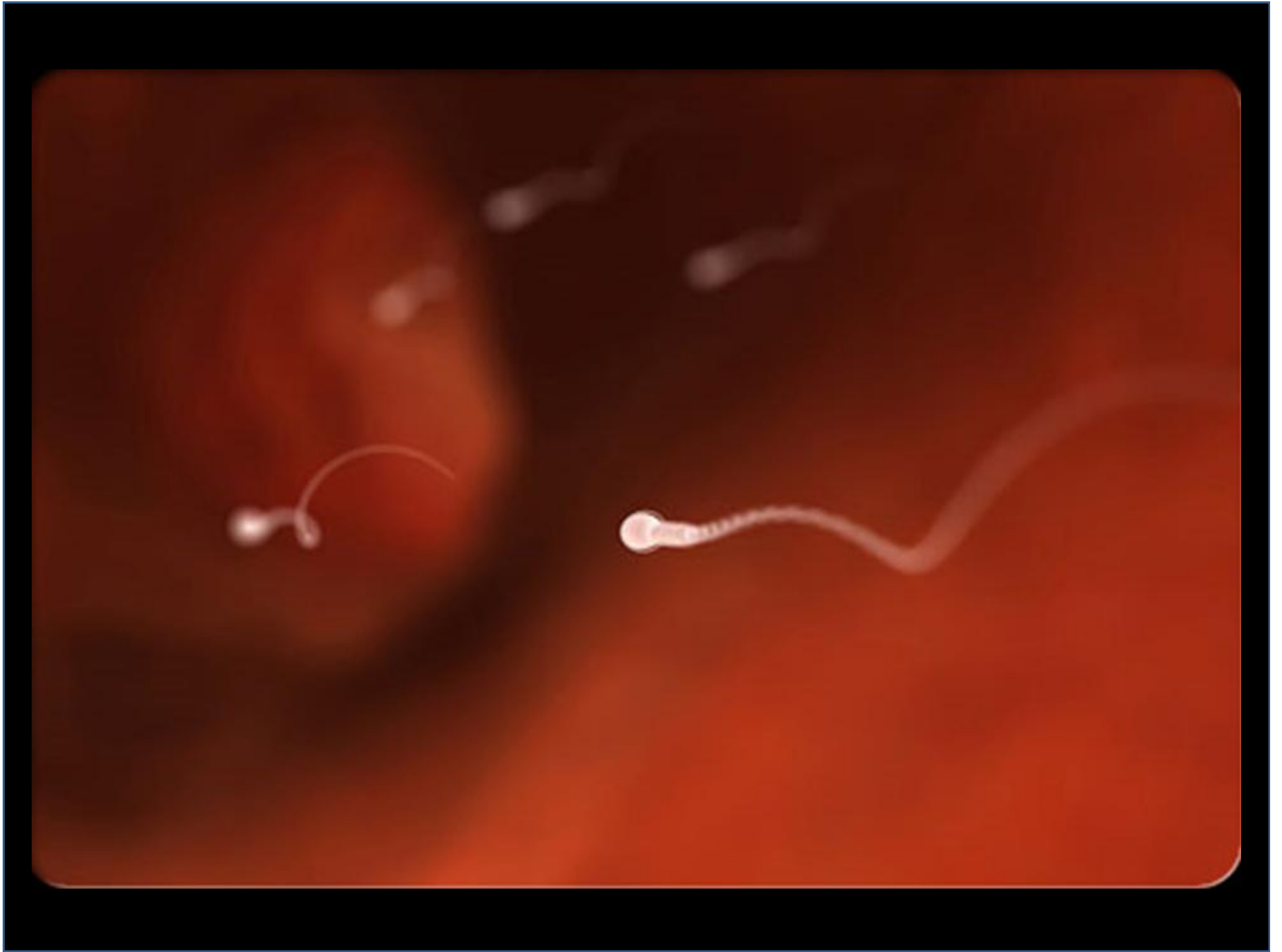
- Once the egg is released from the ovary, it travels into the fallopian tube where it remains until a single sperm penetrates it during fertilization.



The Laborious Journey of the Sperm

- An average ejaculate discharges 40-150 million sperm which eagerly swim upstream toward the fallopian tubes on their mission to fertilize an egg.
- Fast-swimming sperm can reach the egg in a half an hour, while other may take days.
- The sperm can live up to 48-72 hours. Only a few hundred will even come close to the egg, due to the many natural barriers and hurdles that exist in the female reproductive tract.

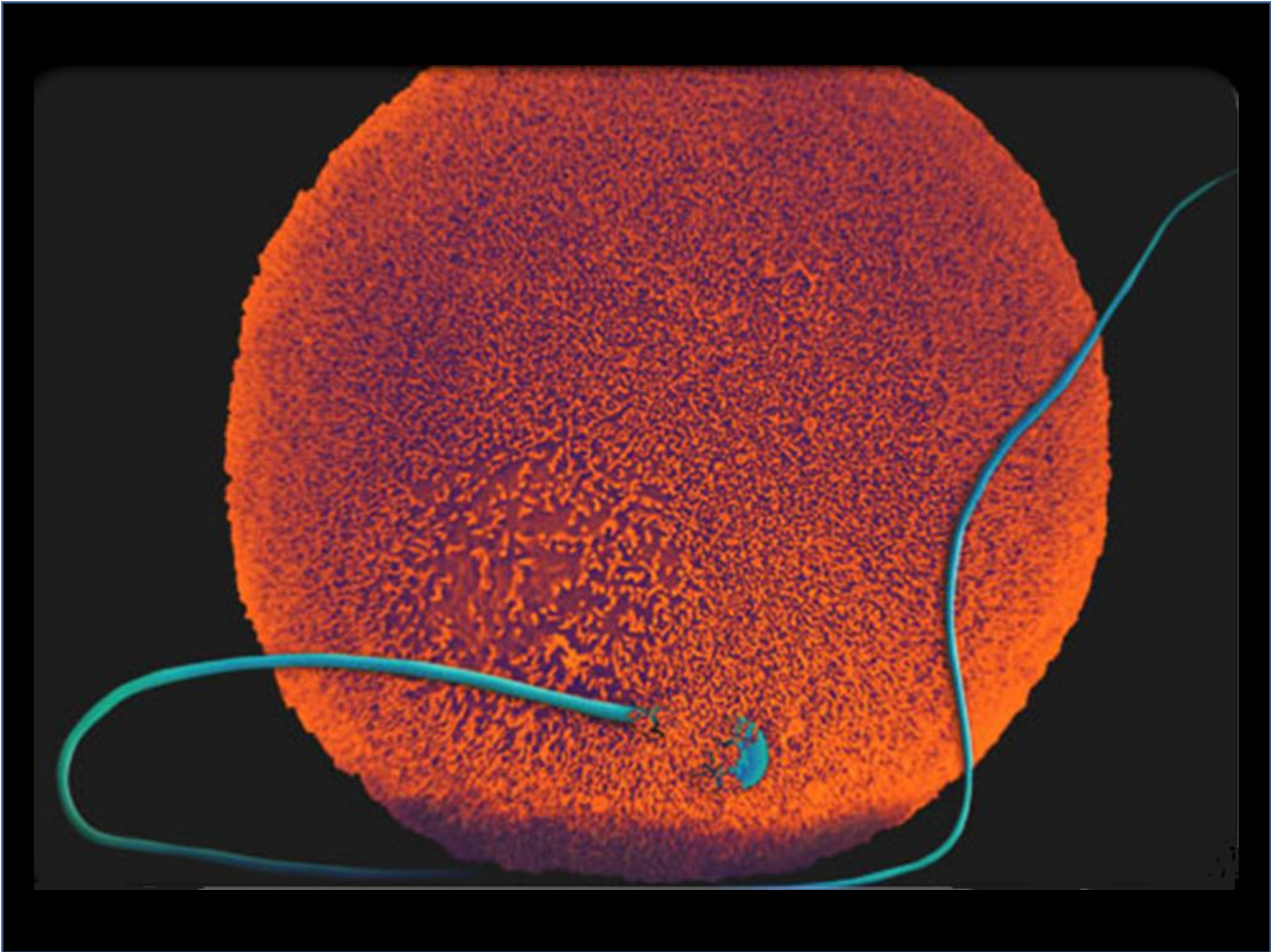




Conception

- If a sperm cell meets and penetrates an egg, it will fertilize it. This is known as conception.
- At this moment, the genetic make-up is complete, including the sex of the infant.
- Within about three days after conception, the fertilized egg, which is dividing rapidly into many cells, passes through the fallopian tube into the uterus where it attaches to the uterine wall.
- The placenta, which will nourish the baby, also begins to form.





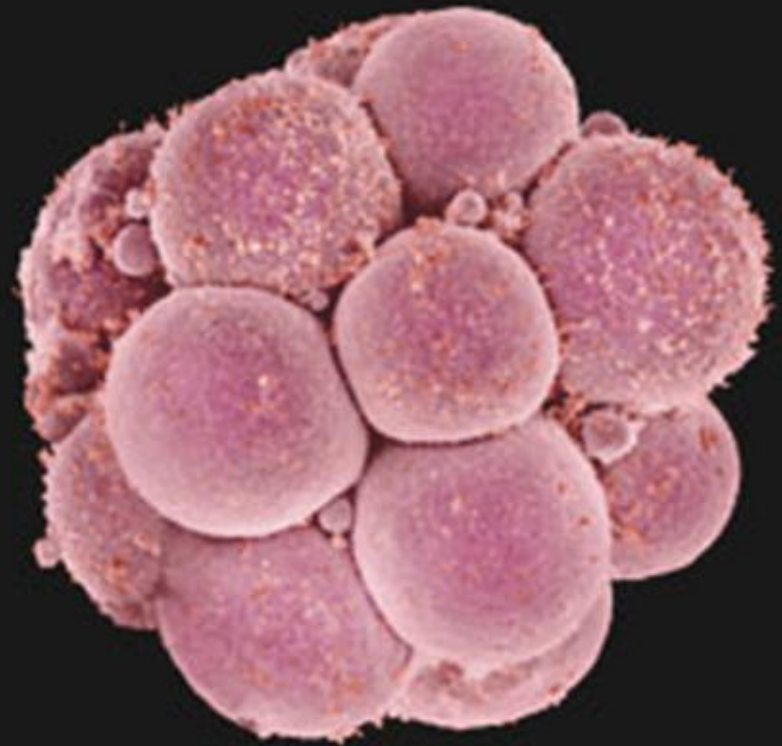
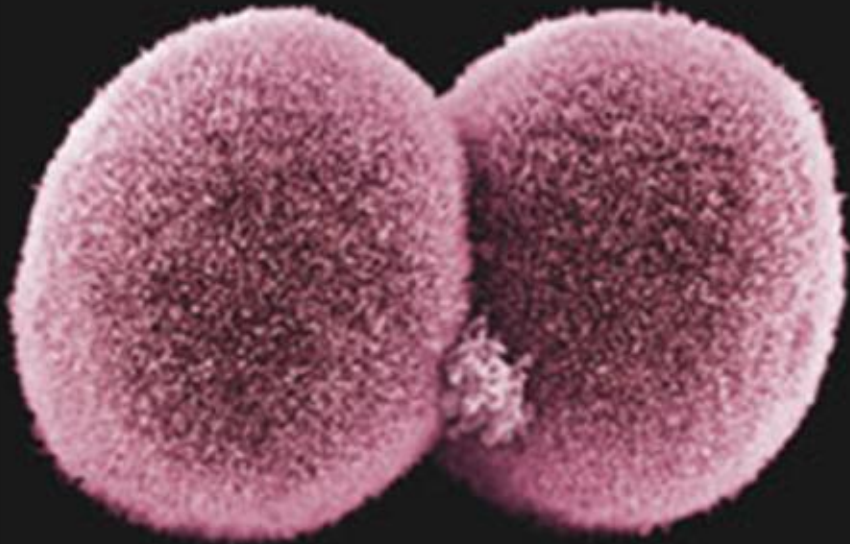
DR. DAVID M. PHILLIPS / VISUALS UNLIMITED / GETTY



The Cells Begin to Divide

- The fertilized egg begins dividing rapidly, growing into many cells.
- It leaves the fallopian tube and enters the uterus three to four days after fertilization.
- Rarely, the fertilized egg does not leave the fallopian tube; this is called a tubal pregnancy or ectopic pregnancy and is a danger to the mother.

CLEAVAGE



Implantation

- After entering the uterus, the fertilized egg attaches to the uterine lining, or endometrium. This process is called implantation. The cells continue to divide.



Pregnancy Hormones

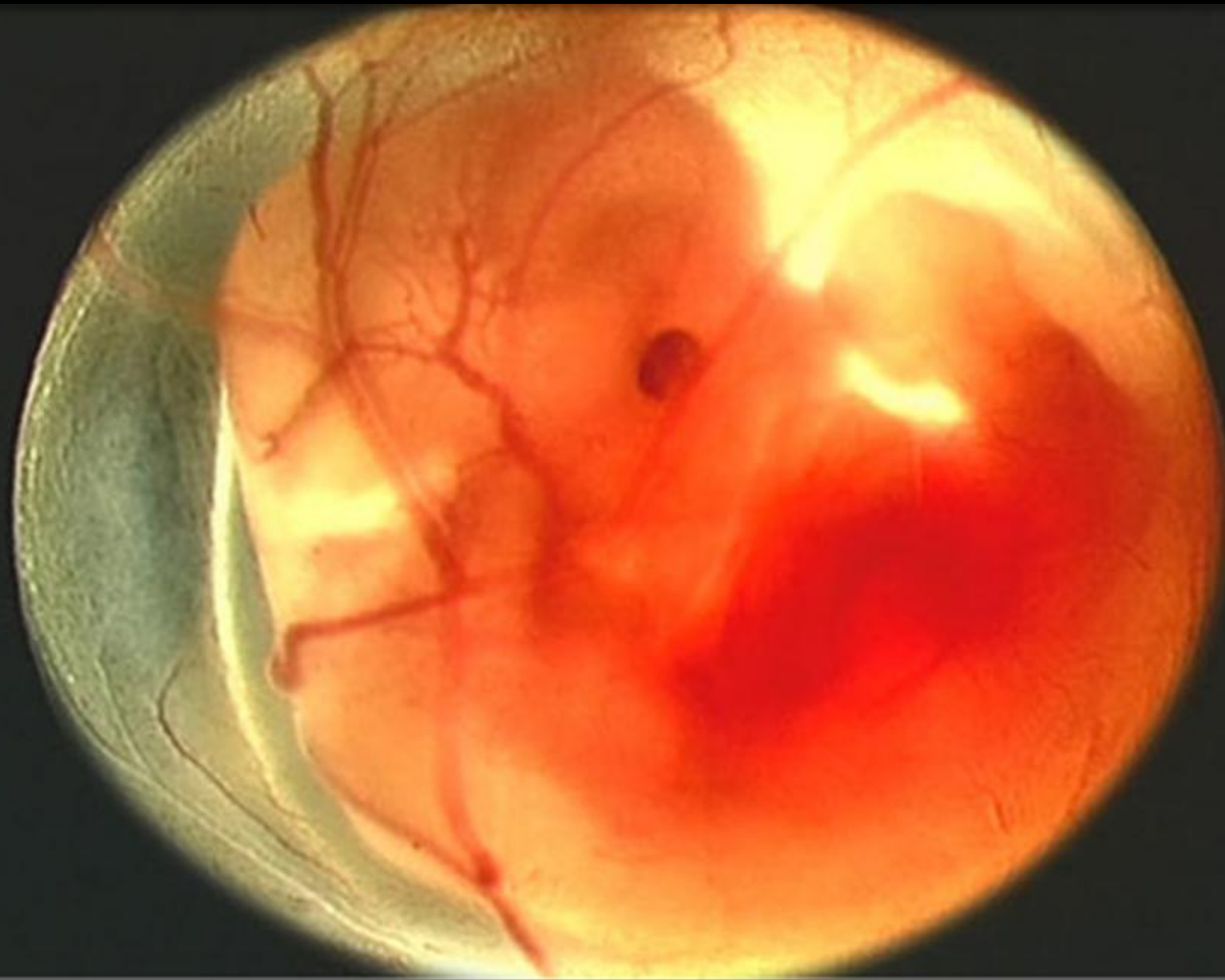
- Human chorionic gonadotropin (hCG) is a hormone present in the blood within about a week of conception.
- It is the hormone detected in a blood or urine pregnancy test, but it usually takes three to four weeks for levels of hCG to be high enough to be detected by pregnancy tests.
- It is secreted by cells that develop into the placenta.

PREGNANCY TEST



Fetal Development

- After implantation, some cells become the placenta while others become the embryo.
- The heart begins beating during week five. The baby's brain, spinal cord, heart, and other organs are beginning to form.
- A 'full term' delivery generally occurs around 40 weeks.

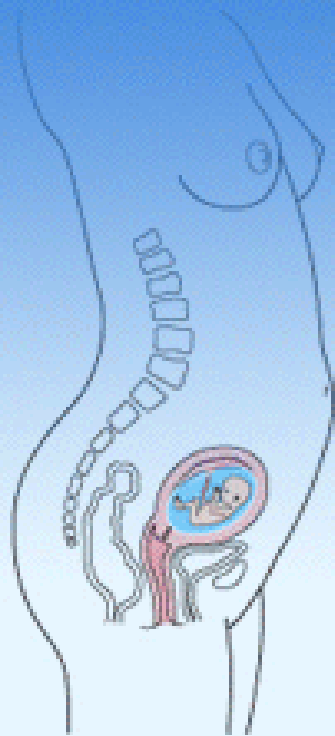


Pregnancy

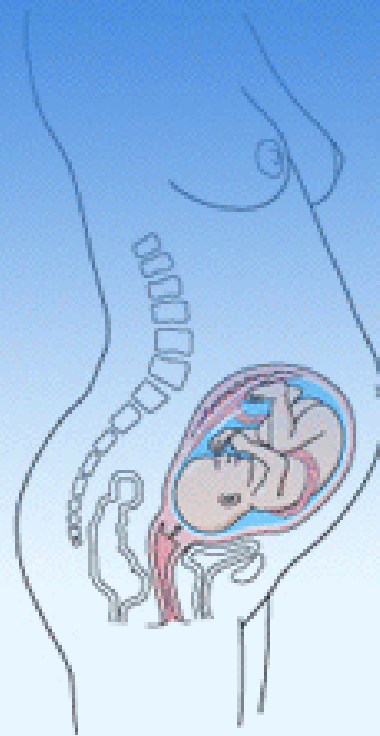
- Pregnancy is measured in trimesters from the first day of the last menstrual period and normally lasts about 40 weeks from conception to the birth of a baby.
- This time is roughly divided into 3 periods: the first trimester, second trimester and third trimester.

The Three Stages of Pregnancy

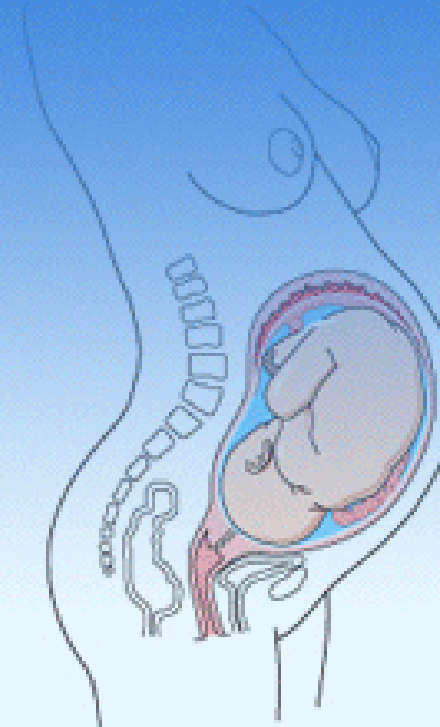
- The first trimester is measured from conception to about the 12th week of pregnancy
- The second trimester, from about 13 to 27 weeks of pregnancy
- The third trimester, from about 28 weeks of pregnancy until birth.
- Let's see what happens during each of the three stages.



First Trimester



Second Trimester



Third Trimester



First Trimester
(week 1 - week 12)

First Trimester

- During the first trimester the body undergoes many changes.
- Hormonal changes affect almost every organ system in the body. These changes can trigger symptoms even in the very first weeks of pregnancy.
- The period stopping is a clear sign that women are pregnant.



First Trimester

- Other changes include:
 - Extreme tiredness
 - Tender, swollen breasts. Your nipples might also stick out.
 - Upset stomach with or without throwing up (morning sickness)
 - Cravings or distaste for certain foods
 - Need to pass urine more often
 - Weight gain or loss



The Baby at 4 Weeks

- Baby's brain and spinal cord have begun to form.
- The heart begins to form.
- Arm and leg buds appear.
- Baby is now an embryo and 0.1cm long.





The Baby at 8 Weeks

- All major organs and external body structures have begun to form.
- Baby's heart beats with a regular rhythm.
- The arms and legs grow longer, and fingers and toes have begun to form.
- The sex organs begin to form.
- The eyes have moved forward on the face and eyelids have formed.
- The umbilical cord is clearly visible.

The Baby at 8 Weeks

- At the end of 8 weeks, baby is a fetus and looks more like a human.
- Baby is nearly 3cm long and weighs less than 4 g.



The Baby at 12 Weeks

- The nerves and muscles begin to work together. Baby can make a fist.
- Eyelids close to protect the developing eyes. They will not open again until the 28th week.
- Head growth has slowed, and the baby is much longer. Now, at about 8cm long, your baby weighs almost 30g.





Second Trimester

(week 13 - week 28)

Second Trimester

- Most women find the second trimester of pregnancy easier than the first.
- Symptoms like nausea and fatigue are going away. But other new, more noticeable changes to the body are now happening.
- The abdomen will expand as the baby continues to grow. And before this trimester is over, woman will feel the baby beginning to move!



Second Trimester

- As the body changes to make room for growing baby, woman may have:
 - Body aches, such as back, abdomen, groin, or thigh pain
 - Stretch marks on abdomen, breasts, thighs, or buttocks
 - Darkening of the skin around the nipples
 - A line on the skin running from belly button to pubic hairline
 - Patches of darker skin, usually over the cheeks, forehead, nose, or upper lip. Patches often match on both sides of the face. This is sometimes called the mask of pregnancy.



The Baby at 16 Weeks

- Muscle tissue and bone continue to form, creating a more complete skeleton.
- Skin begins to form. You can nearly see through it.
- The baby makes sucking motions with the mouth (sucking reflex).
- The baby reaches a length of about 10 to 12 cm and weighs almost 85g.



The Baby at 20 Weeks

- The baby is covered by fine, downy hair called lanugo and a waxy coating called vernix. This protects the forming skin underneath.
- Eyebrows, eyelashes, fingernails, and toenails have formed.
- Baby can hear and swallow.







The Baby at 24 Weeks

- Bone marrow begins to make blood cells.
- Taste buds form on baby's tongue.
- Footprints and fingerprints have formed.
- Real hair begins to grow on baby's head.
- The lungs are formed, but do not work.
- The hand and startle reflex develop.
- Baby sleeps and wakes regularly.

The Baby at 24 Weeks

- If the baby is a boy, his testicles begin to move from the abdomen into the scrotum.
- If the baby is a girl, her uterus and ovaries are in place, and a lifetime supply of eggs have formed in the ovaries.
- The baby stores fat and has gained quite a bit of weight. Now at about 30cm long, the baby weighs about 700g.

THAI NHI 24 TUẦN



THAI NHI 28 TUẦN





Third Trimester
(week 29 - week 40)

Third Trimester

- Many women find breathing difficult and notice they have to go to the bathroom even more often. This is because the baby is getting bigger and it is putting more pressure on organs.



Third Trimester

- Some new body changes in the third trimester include:
 - Shortness of breath
 - Heartburn
 - Swelling of the ankles, fingers, and face.
 - Tender breasts, which may leak a watery pre-milk called colostrum
 - Trouble sleeping
 - The baby "dropping", or moving lower in the abdomen



The Baby at 32 Weeks

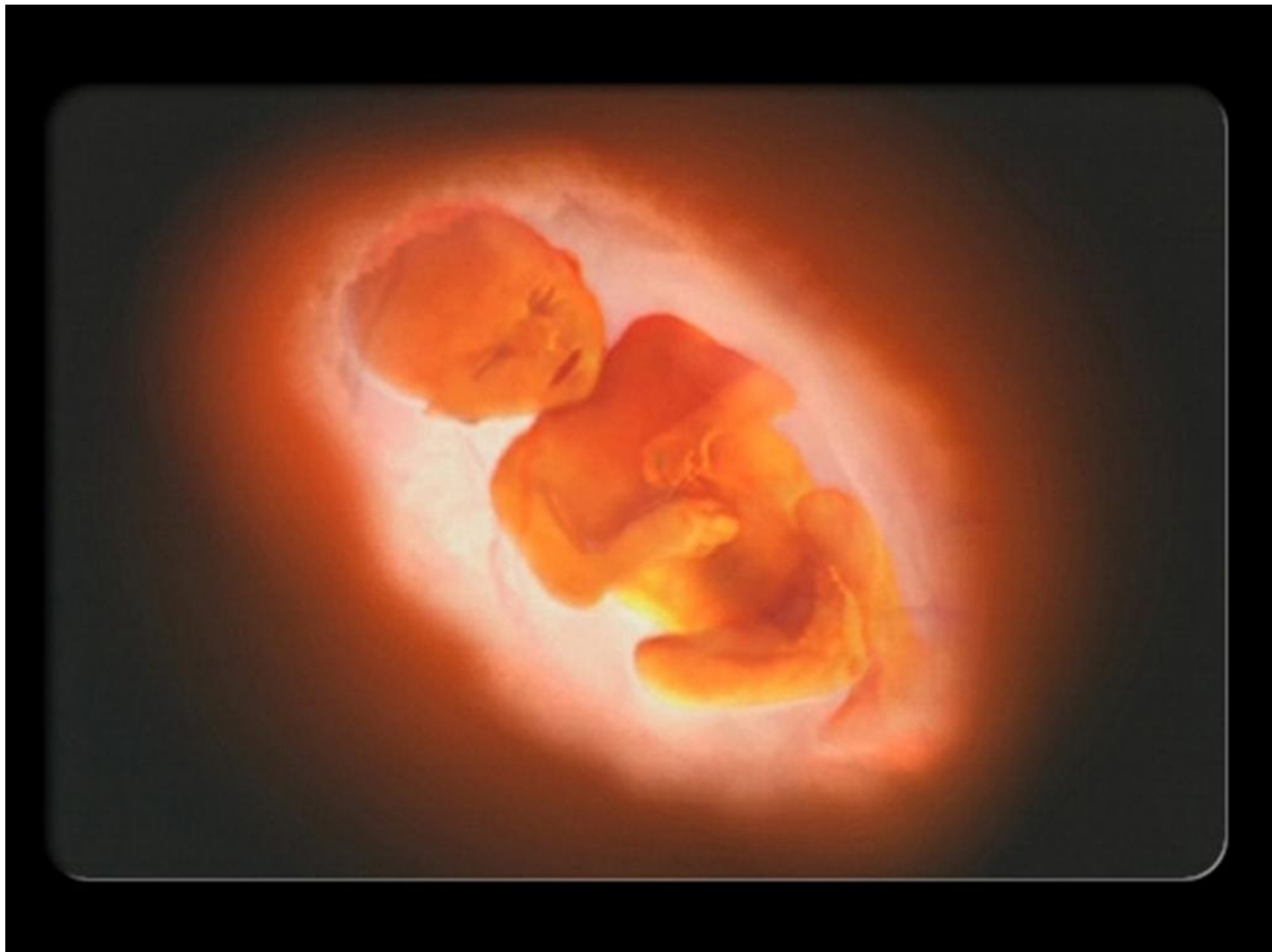
- Baby's bones are fully formed, but still soft.
- Baby's kicks and jabs are forceful.
- The eyes can open and close and sense changes in light.
- Lungs are not fully formed, but practice "breathing" movements occur.
- Baby's body begins to store vital minerals, such as iron and calcium.



The Baby at 36 Weeks

- The protective waxy coating called vernix gets thicker.
- Body fat increases. Your baby is getting bigger and bigger and has less space to move around. Movements are less forceful, but woman will feel stretches and wiggles.





The Baby at 37 – 40 Weeks

- By the end of 37 weeks, baby is considered full term. Baby's organs are ready to function on their own.
- As woman near due date, baby may turn into a head-down position for birth. Most babies "present" head down.

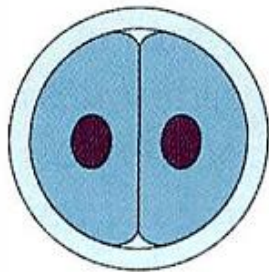
37 – 40 TUẦN



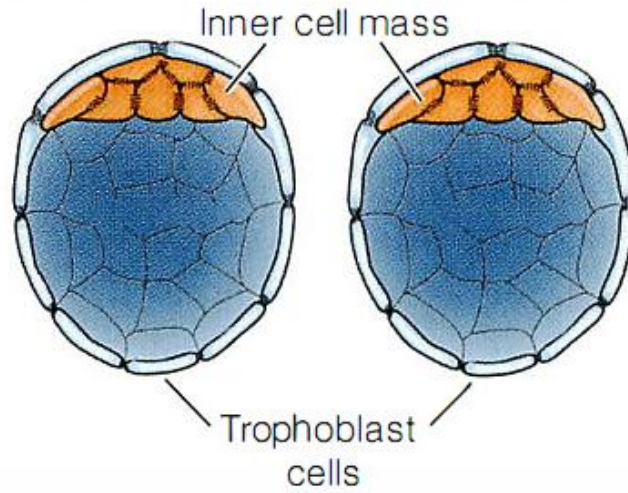
Twins



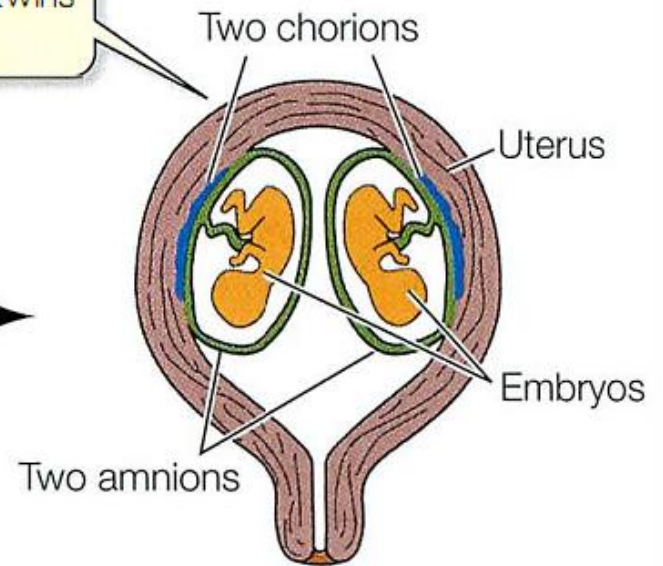
Separation of blastomeres during early blastula formation...

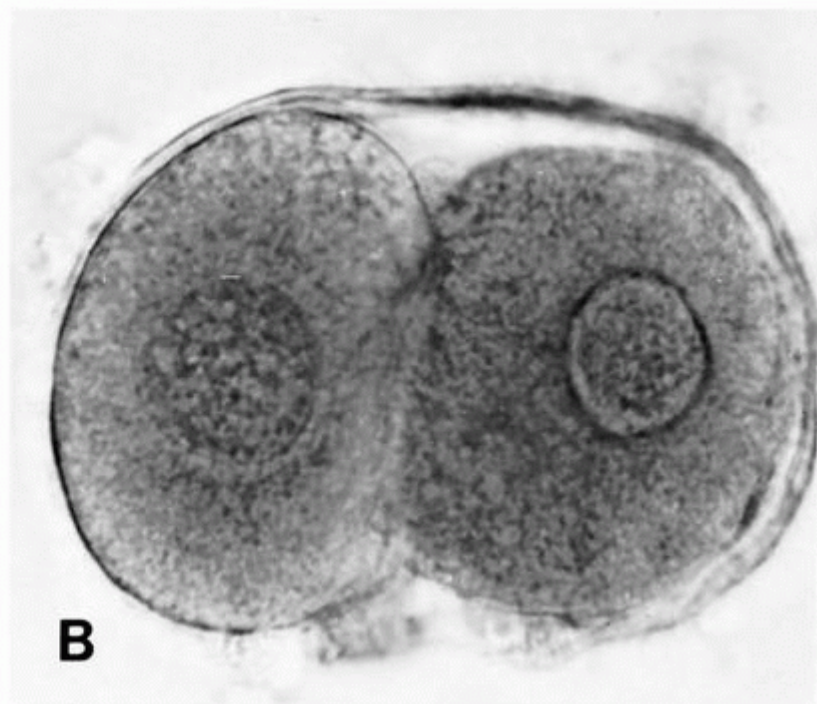
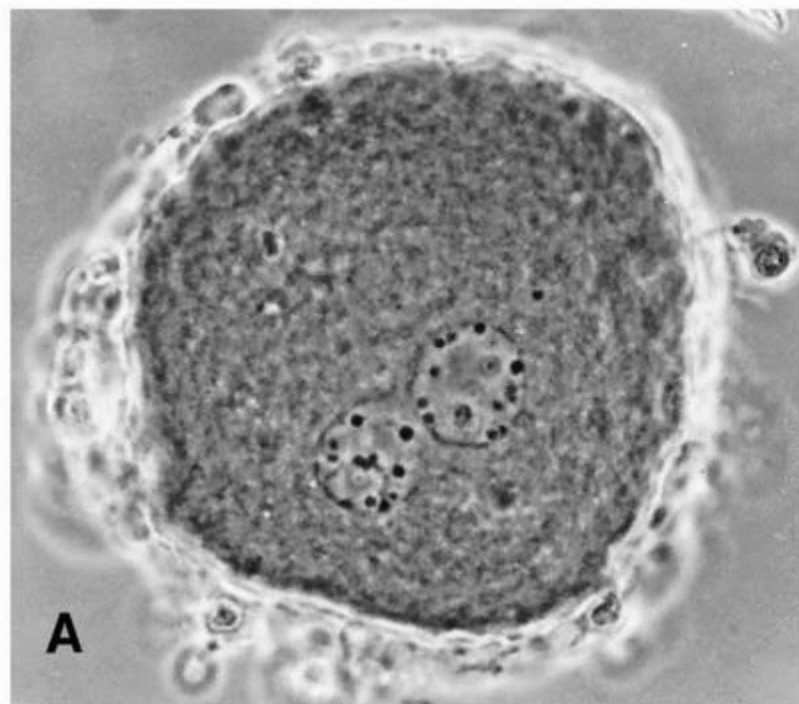


2-cell embryo



...produces monozygotic twins with separate placentas.









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3. Sadler, T. W. 2010. **Langman's Medical Embryology**, 11th Edition, Lippincott Williams & Wilkins.

THANKS FOR YOUR ATTENTION

