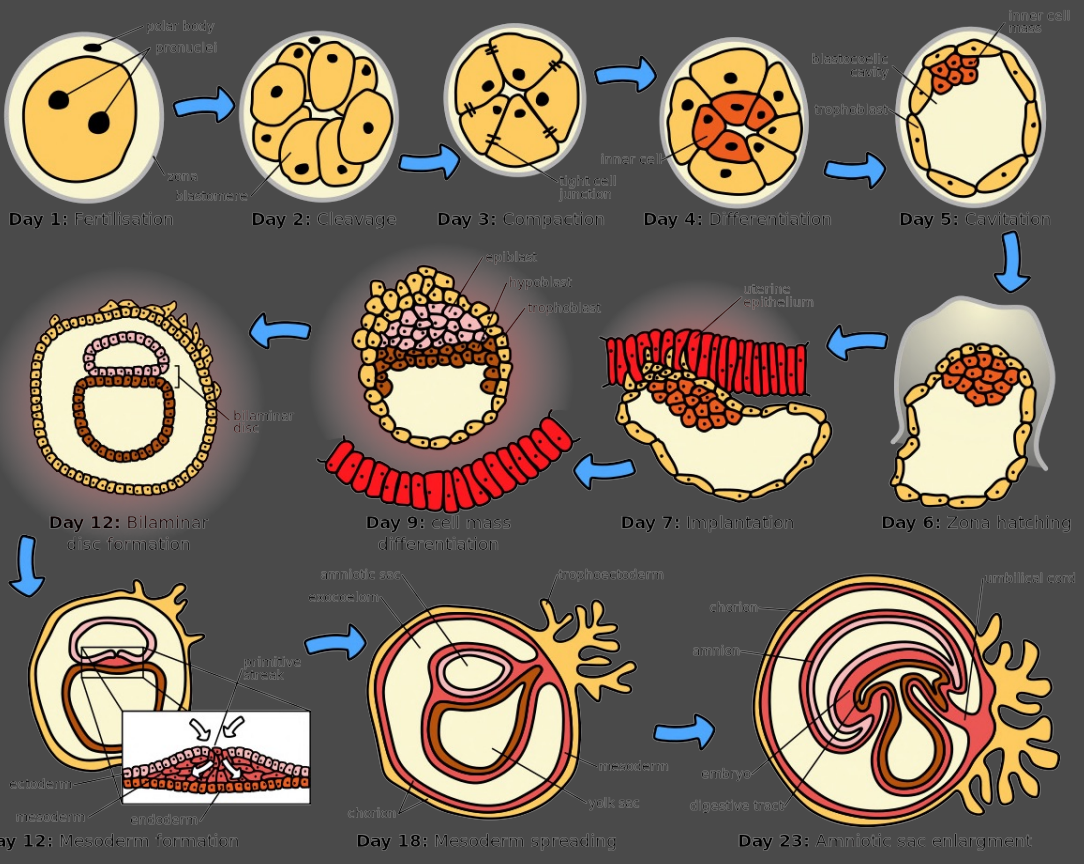
polar body
pronuclei
zona pellucida
Day 1: Fertilisation
Day 2: Cleavage
tight cell junction
Day 3: Compaction
inner cell
Day 4: Differentiation
blastocoelic cavity
trophoblast
inner cell mass
Day 5: Cavitation
Day 6: Zona hatching
uterine epithelium
Day 7: Implantation
epiblast
hypoblast
trophoblast
Day 9: cell mass differentiation
bilaminar disc
Day 12: Bilaminar disc formation
primitive streak
ectoderm
mesoderm
endoderm
Day 12: Mesoderm formation
amniotic sac
exocoelom
trophoectoderm
mesoderm
yolk sac
chorion
Day 18: Mesoderm spreading
umbilical cord
chorion
amnion
embryo
digestive tract
Day 23: Amniotic sac enlargment

what is present in the 2nd week development of the extraembryonic cavity?
exocoelmic cysts

in IVF, what is used to stimulate ovaries?
gonadotropins

on which day does the posterior neuropore close?
Day 23

which of the following are derived from the endoderm?
none of the following

which embryonic layer is in contact with parietal hypoblast?
cytotrophoblast

which layer is generated by the epiblast?
epiblast

which layer are the primary villi originated from?
cytotrophoblast

what structure is under the neural tube?
notochord

how long does semen capacitation take?
10 hours

what is the placenta?
Haemochoral

what is the percentage of sperm in a sample?
140%

on which day does the process of allantosis begin?
days 15-16

when does second meiosis of oogenesis occur?
Fertilisation

at the eight day of development the hypoblast consists of ?
small cuboidal cells

the amniotic cavity is formed by cells of the?
Epiblast

approx. how long after fertilisation occurs the first cleavage of the zygote ?
30 hours

the primitive endothelial cells are formed by ?
cells lining the yolk sac

the beginning of the 3rd week the paraxial mesoderm differentiates into segments known as?
somites

which embryonic layer is in direct contact with the parietal hypoblast until the formation of the extra embryonic mesoderm?
cytotrophoblast

monozygous twins may have
common amnion, placenta and chorion

the intraembryonic lateral plate mesoderm generates which of the following?
limb buds

which of the statements regarding spermatogonia is not true?
stem cells generating Sertoli cells

the number of oogonia at birth is approx?
700000-2000000

the primitive endothelial cells are formed by ?
cells lining the yolk sac

tha amniotic and yolk sac cavities are temporarily connected by?
the neuroenteric canal

the intraembryonic intermediate mesoderm forms?
gonads

from which germ layer originates the adenohypophysis? (anterior pituitary)
surface ectoderm

which pharyngeal arch contributes to most of the middle ear ossicles?
second

which cells are generated by the secondary spermatocytes?
early spermatids

which effect have prostaglandins of the semen?
A and C

how does the female reproductive tract assist sperm migration?
B and C

Which of the following statements is true?
chorionic villi are part of the foetal placenta part

the merging of which structures contribute to the development of the face?
maxillary and mandibular processes, frontonasal prominence

from which component of the blastocyst can be isolated stem cells capable of organ regeneration in humans?
embryoblast

which of the zone pellucida proteins acts as a receptor for spermatozoa binding?
ZP3

what is he name of the outer layer of the blastocyst
trophoblast

which pharyngeal arch contributes to the formation of the mandible?
first

what is the rate of occurrence of abnormal blastocysts?
20-30%

at the cranial end of the embryonic disc is formed?
primitive knot

at the presence of how many cells generated by the zygote, the process of cleavage (segmentation) is assumed to begin?
16

the following originate from the endoderm
urinary bladder, urethra, alimentary canal, liver, pancreas, trachea, bronchi, alveoli,throid, thymus, tympanic cavity

the conjoined monozygotic twins connected in thoracic region are called?
thoracopagus

The primitive endothelial cells are formed by?
Cells lining the yolk sac

From which germ layer originates the adenohypophysis (anterior Pituitary)?
Surface ectoderm

The intraembryonic intermediate mesoderm forms:
Gonads

From the 3rd, the hemopoiesis is:
Extravasal

The amniotic cavity appears within the:
Epiblast

Which of the following originate(s) from the paraxial mesoderm?
Dermis (skin)

The process of compaction of the pre-embryo leads to a formation of outer and inner cell mass which differ in their intercellular junction as follows:
Outer cell mass - tight junction, inner cell mass - gap junction

How does the female reproductive tract assist sperm migration?
B. + C.

The merging of which structure contributes to the development of the face?
Maxillary and mandibular processes, frontonasal prominence

The amniotic and yolk sac cavities are temporarily connected by?
The neurenteric canal

Which embryonic layer is in a direct contact with the parietal hypoblast until the formation of the extraembryonic mesoderm?
Cytotrophoblast

Gastrulation begins with formation of:
Primitive streak

Which of the processes listed is NOT a stage of the fertilization?
Gastrulation

The following structures are NOT derived from the endoderm:
All answers are true

How long does normally capacitation of the semen take?
5-7 hours

Which of the phases of the menstrual cycle is under progesterone control?
Secretory phase

On which development day is the closure of the posterior neuropore of the neural tube?
Day 27

From which component of the blastocyst can be isolated stem cells capable of organ regeneration in humans?
Embryoblast

Down syndrome is an example of:
Autosomal trisomy

When does implantation after fertilization end?
13-14 days

Which pharyngeal arch contributes to most of middle ear ossicles?
Second

At which development stage appears the allantosis?
Day 15-16

Which cells are generated by the secondary spermatocytes?
Early spermatids

From which germ layer develop the smooth muscle cellsof internal organs:
Splanchnopleuric lateral plate mesoderm

The mesoderm is generated by:
Epiblast

Which effect have prostaglandins of the semen?
A. + C.

The notochord is under which structure?
The neural tube

A sperm sample is considered to have normal morphology when:
If 14% or more of the observed sperm are normal

Which of the statements regarding the types of spermatogionia is NOT true?
Type C - stem cell generation Sertoli cells

In the beginning of the 3rd week the paraxial mesoderm differentiates into segments known as:
Somites (somitomeres)

Trophoblastic overgrowth with lack of embryoblast development may lead to:
Molar pregnancy (Hydatiform mole)

The intraembryonic lateral plate mesoderm generates which of the following:
Limb buds

The number of somites at the end of the 5th week of development is:
42-44 pairs

Primary villi results from the proliferation of:
Cytotrophoblast

How long after ejaculation is the maximum fertile time for most sperm?
48 hours

Ovarian stimulation as part of an IVF procedure is realized via:
Injection of gonadotropins

Monozygotic twins may have:
Common amnion, chorion and placenta

Which of the following structures originate from the endoderm:
Epithelium of prostate and vagina

The second melodic division of the female gametes is complete at:
Fertilization

What is the name of the outer layer of blastocyst?
Trophoblast

The number of oogonia at birth is approximately:
700 000 - 2 000 000

Which of the zone pellucida proteins acts as a receptor for spermatozoa binding?
ZP3

The primordial germ cells during their migration divided by:
Mitosis

Which of the following statements is TRUE?
Chorionic villi form the fetal part of the placenta

The second meiotic division during oogenesis begins:
At the time of ovulation

Which layer is in contact with the cytotrophoblast after the formation of the extraembryonic cavity?
Extraembryonic somatopleuric mesoderm

At the eights day of development the hypoblast consists of:
Small cuboidal cells

Human placenta is of which type:
Hemochorial

The amniotic cavity is formed by cells of the:
Epiblast

Approximately how long after fertilization occurs the first cleavage of the zygote?
30 hours

What is present in the 2nd week of development of extraembryonic cavity?
Exocoelomic cysts.

In IVF, what is used to stimulate ovaries?
Gonadotropins are used to stimulate ovaries.

On which day does the posterior neuropore close?
23

Which are following are derived from the endoderm?
None of the following

Which embryonic layer is in contact with parietal hypoblast?
Cytotrophoblast.

Why layer are the primary villi originated from?
Cytotrophoblast

What structure is under the neural tube?
Notochord.

How long does semen capacitation take?
10 hours.

What is the placenta?
haemochoral

What is the percentage of sperm in a sample
140

On which day does the process of Allantosis begin?
15-16

When does second meiosis of oogeneais occur?
fertilisation

At the eighth day of development the hypoblast consists of?
Small
cuboidal cells.

The amniotic cavity is formed by cells of the?
epiblast

Approximately how long after fertilization occurs the first cleavage of the zygote?
30 h

The primitive endothelial cells are formed by?
cells lining the yolk sac

in the begining of the 3rd week the paraxial mesoderm differentiates into segments known as?
somites

Which embryonic layer is in a direct contact with the parietal hypoblast until the formation of the extraembryonic mesoderm?
Cytotrophoblast

Monozygous twins may have:
Common amnion, placenta and chorion.

The intraembryonic lateral plate mesoderm generates which of the following?
Limb buds.

Which of the statements regarding the types of spermatogionia is NOT true?
stem cells generating sertoli cells

The amniotic and yolk sac cavities are temporarily connected by?
The
neurenteric canal.

The intraembryonic intermediate mesoderm forms?
gonads

From which germ layer originates the adenohypophysis (anterior pituitary)?
Surface ectoderm

Which pharyngeal arch contributes to most of middle ear ossicles?
Second.

Which cells are generated by the secondary spermatocytes?
Early
spermatids.

. Which effect have prostaglandins of the semen?
a+c

How does the female reproductive tract assist sperm migration?
B+C

Which of the following statements is true?
Chorionic villi are part of
the foetal placenta part

. The merging of which structures contributes to the development of the face?
Maxillary & Mandibular processes and Frontonasal prominence.

From which component of the blastocyst can be isolated stem cells capable of organ regeneration in humans?
Embryoblast.

Which of the zona pellucida proteins acts as a receptor for spermatozoa binding?
ZP3.

What is the name of the outer layer of the blastocyst?
Trophoblast.

The process of compaction of the pre-embryo leads to a formation of outer and inner cell mass, which differ in their intercellular junctions as follows:
Outer cell mass --> Tight junctions --> Inner cell mass --> Gap junctions

From the 3rd month, the hemopoiesis is?
Extravasal.

The number of somites at the end of the 5th week of development is?
42-44.

Which of the following structures originates from the endoderm?
Epithelium of vagina and prostate.

Which of the following stages is not a process of fertilisation?
Gastrulation.

Which of the following phases of the menstrual cycle is under progesterone control?
Secretory phase

Primary villi result from the proliferation of?
Cytotrophoblast

In which cavity are localized the exocoelomic cysts during the second week of development?
Extraembryonic cavity

How long after ejaculation is the maximum fertile time for most sperm?
48 hours

Which of the following originate(s) from the paraxial mesoderm?
Dermis

The amniotic cavity is formed by cells of the?
epiblast

. Gastrulation begins with formation of?
primitive streak

The following structures are NOT derived from the endoderm?
All
answers are true

. How long does normally capacitation of the semen take?
About 10
hours

Trophoblastic overgrowth with lack of embryoblast development may lead to?
Molar pregnancy (Hydatiform mole).

Which pharyngeal arch contributes to the formation of the mandible?
First.

What is the rate of occurrence of abnormal blastocysts?
20-30%

At the cranial end of the embryonic disc is formed?
Primitive knot.

At the presence of how many cells, generated by the zygote, the process of cleavage (segmentation) is assumed to begin?
16

The following originate from the endoderm.
Urinary bladder,
urethra, alimentary canal, liver, pancreas, traches, bronchi, alveoli, thyroid, thymus, tympanic cavity

The conjoined monozygotic twins connected in thoracic region are called?
Thoracopagus.

Each somite differentiates into all of the following
Dermatomes,
Myotomes, Syndetomes, Sclerotomes.

The bilaminar disc consists of?
Epiblast & Hypoblast

Turner syndrome is?
Monosomy X (absence of an entire sex
chromosome, the Barr body) resulting in 45 chromosomes.

From which germ layers originate the nephrogenic cords?
Intermediate mesoderm

How is designated the outermost layer of the embryonic mesoderm?
ectoderm

Which of the following tissues is derived from the ectoderm?
Epidermis skin cells, Neurons of brain, Pigment cells

How is designated the outermost layer of the pre-embryo?
Trophoblast.

What are the two layers of the endometrium?
Stratum functionale &

Embryology questions

1.Which compartment of the blastocyst contributes to the formation of the fetus?
Embryoblast
2. Which layer of the pre-embryo is in direct contact with the endometrium?
Amnion
3. Which of the following issue is derived from the ectoderm?
Adenohypophysis (endocrine cells ->consists of epithelial cells)
4. Insemination is a progress of passage of the spermatozoa through the female genital tract?
Vagina- Cervix uteri - Cavum uteri - Uterine tubes
5. The heart and the blood vessels are derivates of:
lateral plate mesoderm
6. Which germ layer forms lacunae?
Syncytiotrophoblast
7. The olfactory placode is located on the surface of which structure?
Frontonasal prominence
8. How is the inner mucous layer of the uterus called?
Endometrium
9. What is insemination?
Deposit of sperm into the vagina, its migration to the…
10. From which germ layer originate the nephrogenic cords?
Intermediate
11. Which of the listed structures penetrate deepest into the endometrium?
Tertiary villi
12. The formation of the notochord occurs during?
Third week
13. Teratogens are agents that?
Cause congenital malfunction
14. Which of the following does not originate from the endoderm?
Heart and blood vessels
15. The definitive umbilical cord contains?
Two umbilical arteries and one umbilical vein
16. Gastrulation established?
Ectoderm, mesoderm and endoderm
17. Which structures originate from the lateral plate and mesoderm?

Epithelium of the peritoneal, pleural and pericardial cavities

18. Which components of the seminal fluid contributes for raising the pH from about 3,5-7,5 and activating the sperm?

Seminal vesicle fluid

19. During the process of cleave the cells?

Do not change their size

20. Which are the risks for a pregnant women in case of a tubal pregnancy?

Tuba rupture

21. How many pairs of chromosomes contain the primordial germ cells?

23 pair

22. The conjoined monozygotic twins connected in a head are called?

Craniopagus

23. The sclerotomes differentiate into?

Bone and cartilage, which surround the notochord

24. Which 2 germ layers to the pre-embro are seperated by the extra embryonic cavity?

none of the answers is true

25. Which cells of the spermatogenic population have bivalent chromosomes?

Spermatids

26. The bilaminar discs consist of?

Epiblast and hypoblast

27. In which cell are localized the cortical granules?

Oocyte (peripheral cytoplasm)

28. The preimplantation genetic diagnosis represents analysis of?

Blastomeres

29. Name the most medially located compartment of the intraembryonnic mesoderm?

Paraxial mesoderm

30. Which structures originate from the lateral plate mesoderm?

Epithelium of the renal tubes, renal calices

31. What is the rate of assurance of abnormal blastocyst?

20-30%

32. How much is the volume of the seminal fluid of a healthy individual?

0,5-1ml

33. Which of the listed is associated with the acrosomal reaction of the spermatozoa?

All answers are true

34. The initial hemopoiesis is?

Intravasal

35. Which techniques of artificial insemination are available to the public?

A and C

36. Each somite differentiate into all of the following except?

Nephrotome

37. At which embryonic stage form the endocardial heart tubes?

Day 19

38. Chromosome number aberrations (trisomy/monosomy) are most frequently due to?

Non disfunction of homologous chromosome during first meiotic division

39. The notochord serves as the basis for?

The axial skeleton

40. The definitive umbilical chord contains…

Mucous connective tissue (Warton's jelly)

41. Which of the structures originate the exocoelomic cavities (cysts) in 2nd week of development?

Secondary yolk sac

42. Which of the following are functions of the yolk sac?

Takes part in early blood circulation

43. The somatopleure and splanchnopleure originate from…

Lateral mesoderm

44. The process of cleavage (segmentation) is…

Mitosis

45. The first blood cells originate from…

Cells which are around the yolk sac

46. Gastrulation occurs in the beginning of the…

Third week

47. Menopause is usually by…

45-55

48. What is present in the 2nd week of the development of extraembryonic cavity?

Exocoelomic cysts

49. In in-vitro fertilization what is used to stimulate the ovaries?

Gonadotropins

50. On which day does the posterior neuropore close?

Day 23

51. Which of the following are derived from the endoderm?

None of the following

52. Which embryonic layer is in contact with parietal hypoblast?

Cytotrophoblast

53. Which layer is generated by the epiblast?

Epiblast

54. Which layer are the primary vili originated from?

Cytotrophoblast
55. What structure is under the neural tube?
Notochord
56. How long does semen capacitation take?
10 hours
57. What is the placenta?
Haemochorial
58. What is the percentage of sperm in sample?
140%
59. On which day does the process of Allantosis begin?
Days 15-16
60. When does second meiosis of the oogenesis occur?
Fertilisation
61. At the eighth Day of development the hypoblast consists of?
Small cuboidal cells
62. The amniotic cavity is formed by cells of the?
Epiblast
63. Approximately how long after fertilization occurs the first cleavage of the zygote?
30 days
64. The primitive endothelial cells are formed by?
Cells lining the yolk sac
65. In the beginning of the 3rd week the paraxial mesoderm differentiates into segments known as?
Somites
66. The amniotic cavity is formed by cells of the?
Epiblast
67. Gastrulation begins with formation of?
Primitive streak
68. The following structures are not derived from the endoderm?
All answers are true
69. How long does normal capacitation of the semen take?
About 10 hours
70. The primitive endothelial cells are formed by?
Cell linings of the yolk sac
71. Trophoblastic overgrowth with lack of embryoblast development may lead to?
Molar pregnancy (Hydatid mole)
72. Select the correct sequence of formation of the chorionic vili during the III. week of development:

Primary: The chorionic villi are at first small and non-vascular/Secondary: The villi increase in size and ramify, while the mesoderm grows into them/ Tertiary:Branches of the umbilical artery and umbilical vein grow into the mesoderm, and in this way the chorionic villi are vascularized.

73. Which pharyngeal arch contributes to the formation of the mandible?

First Pharyngeal arch

74. What is the rate of assurance of abnormal blastocysts?

20-30%

75. At the cranial end of the embryonic disc is formed by…

Primitive knot

76. At the presence of how many cells, generated by the zygote, the process of cleavage (segmentation) is assumed to begin?

2

77. The following originate from the endoderm…

Urinary bladder, urethra, alimentary canal liver, pancreas, traches, bronchi alveoli, thyroid thymus, tympanic cavity

78. The conjoined monozygotic twins connected in thoracic region are called?

Thoracopagus

79. Each somite differentiates into all of the following…

Dermatomes, Myotomes, Syndetomes, Sclerotomes

80. Bilaminar disc consists of?

Epiblast&Hypoblast

81. Turner syndrome is?

Monosomy X (absence of an entire sex chromosome)

82. From which germ layers originate the nephrogenic chords?

Intermediate mesoderm

83. How is designated the outermost layer of the embryonic mesoderm?

Ectoderm

84. The umbilical arteries…

Surround urinary bladder

85. Which of the following tissues is derived from the ectoderm?

Epidermis skin cells, Neurons of brain, Pigment cells

86. How is the outermost layer of the pre-embryo called?

Trophoblast

87. What are the two layers of the endometrium?

Stratum functionalis and Stratum basalis

88. What kind of change in the size of the yolk sac occurs during development?

-(growth?)

89. How long lasts the capability of the secondary oocyte to be fertilized?

12-24 hours

90. How many cavities characterize the pre-embryo at the end of the 2nd week of development?
2 (chorionic and amniotic cavity)
91. The first blood cells originate from?
Yolk sac
92. What is the normal sperm count of the sperm in 1/ml?
15-40
93. Which of the cells produce testosterone in the testis?
Interstitial cells
94. Which of the blastocyst's poles is directed to the endometrium at implantation?
Embryonic pole
95. Ectoderm is created by…
Epiblast
96. During which stage of Prophase of the first meiotic division in gametes does the crossing over take place?
Pachytene
97. Which is the optimal window of opportunity for people wishing to conceive a child?
3 days before ovulation and less than a day after
98. Which structure is formed at the dorsal border tip of the neural tube?
neural crest
99. The cells generated by the spermatogonia are…
Primary Spermatocytes
100. The maternal and fetal components of the placenta are?
intervillous/basal (maternal) and chorion plate
101. The cephalic end of the primitive streak is…
Primitive node
102. From which layer originates the chorion?
Extraembryonic mesoderm
103. Amniocentesis is used to investigate and detect?
Prenatal diagnosis of chromosomal abnormalities and fetal infections and genetic abnormalities
104. What is the name of the cells forming the morula?
Blastomeres
105. When does Implantation after fertilization start?
6-7 days
106. How many chromosomes has the fertilized egg?
46
107. Which are the risks of pregnant women in case of a tubal pregnancy?
Rupture, Bleeding, internal Haemorrhage

108. During the second week of development, the embryoblast differentiates into?
Bilaminar Germ disc Epiblast and Hypoblast
109. What compartment of the blastocyst contributes to the formation of the placenta?
Trophoblast
110. How long does it normally take the sperm to migrate in the female reproductive tract and to achieve the egg?
18-24h
111. During which week of development the primordial germ cell migrate to dorsal body wall…
Third month
112. Which process is ejaculation?
ejection of semen/sperm
113. Which of the following lists are steps in in-vitro fertilization procedure?
Ovarian hyperstimulation- Natural IVF- Final maturation induction- egg retrieval- Egg&Sperm preparation- co-incubation- Embryo culture- selection- transfer- adjunctive medication
114. Which of the following structures refers to embryonic membranes?
Amnion/Chorion/Yolk Sac
115. What is the average composition of the seminal fluid?
2-5% sperm/65-75% amino acids/25-30% Acid phosophotase/1% galactose
116. Which presents a primary villi?
Cytotrophoblast
117. What is the average age of the menopause in humans?
45-55 Years
118. The somatopleure and splanchnopleure originate from?
Lateral Mesoderm
119. Which of the following is not known to be human teratogen?
Ribociclib (Novartis®) und Palbociclib/***Thalidomid***
120. From which germ layer originates the heart and the spleen?
Mesoderm
121. What is the name of the inner layer of the blastocyst?
Embryoblast
122. What is the mechanism of the clonal expansion of the progenitors of the gametes?
Mitosis
123. Which of the listed form the corona radiata?
Cuboidal granulosa cells
124. What is the main factor of sperm migration in the female reproductive tract?
Sperm Chemotaxis eg. Progesterone

125. In which phase of the menstrual cycle does the endometrium achieve its maximum thickness?
Luteal phase
126. The myotomes consist of…
Epithelial somites
127. After its penetration in the oocyte, the spermatozoa head is transformed into?
Pronucleus of Zygote
128. The initial haemopoesis is?
Intravasal
129. The umbilical vein…
Carries deoxygenated blood from fetus to placenta
130. Which of the enumerated characteristics of a given semen analysis are normal?
20-40 million sperm per ml
131. Which of the following tissues originates from the endoderm?
Can be lung, thyroid or pancreatic cells
132. Cumulus oophorus is characteristic for which follicle?
Mature (graafian) follicles
133. The embryonic disc gradually becomes elongated with?
Primitive streak
134. The process of cleavage represents a series of?
Mitotic cell divisions
135. Gastrulation establishes:
The trilaminar disc
136. Which component of the pre-embryo aborts its development in a molar pregnancy?
Hydatid form mole
137. True statements of sperm capacitation:
5-6h in genital track increases flagellum motility and acrosome
138. The hypoblast belongs to…
Trophoblast
139. The formation of the fingers in the limb buds takes place via…
Apical ectoderm ridge
140. What is the correct sequence of the extended first meiotic division?
Leptotene-Zytotene-Pachytene-Diplotene-Diakinesis.Synchronous processes
141. At which developmental stage begins the segmentation of the paraxial mesoderm?
Third week
142. From which germ layer structure originate the neurons of the peripheral nervous system?
Neural crest of ectoderm

143. Which pharyngeal arches mostly contribute to the formation of the thymus?
Third arch
144. The formation of the primitive streak occurs on the surface of…
Hypoblast
145. The connecting stalk originates from…
Extraembryonic mesoderm
146. The conjoined monozygotic twins connected in head are called…
Craniopagus
147. Which of the following phases of the menstrual cycle is under estrogen control?
Follicular phase
148. Ejaculation is identical to which process?
none
149. The intervillious space of the placenta contains…
Blood (maternal)
150. Which compartment of the blastocyst contributed to the formation of the fetus?
Embryoblast (inner cell mass)
151. The exocoelomic (heuser) membrane lines the inner surface of…
Cytotrophoblast
152. The secretion of the FSH by pituitary gland is suppressed by a factor secreted by the Sertoli cells. Which is this factory?
Inhibins
153. Where must sperm normally encounter the egg in order to fertilize it?
Ampulla of uterine/fallopian tube
154. How many pairs of chromosomes contain the primordial germ cell?
23
155. Placental villi are nest developed in the region of …
Syncytiotrophoblast
156. The rate for dizygotic twins is…
70% of twins
157. Down syndrome is…
Trisomy 21
158. From which germ layer originate the serous membranes of the body (peritoneum, pleura, pericardium)?
Lateral plate Mesoderm
159. Which type of trophoblastic villi are formed on the 2nd week of development?
Primary villi
160. Which of the following are functions of the yolk sac?
Producing early blood cells/vessels and forming digestive tube

161. Name the moat medially located components of the intraembryonic mesoderm:
Intermediate mesoderm
162. The layer of the embryoblast adjacent to the amnionic cavity is…
Epiblast
163. Insemination is a process of passage of the spermatozoa through the female genital tract as follows:
Deposition of sperm….
164. Which component of the pre-embryo continues to develop thus forming molar pregnancy?
Trophoblast
165. The definitive umbilical cord contains?
2 arteries and 1 vein
166. Which is the normal sperm motility?
3mm/min
167. The cardiongenic primordium is formed by…
Epiblast, lateral to primitive streak
168. Which is the sequence of appearance of the limb buds?
Flatten buds- Radial grooves on distal portion of buds- Digits
169. Which requirements of the mean must be met for sperm motility?
Increased flagellum motility/High number of mitochondria
170. Which embryonic layer is in a direct contact with the parietal hypoblast until the format of the extraembryonic mesoderm?
Cytotrophoblast
171. Monozygous twins may have…
Common amnion, placenta and chorion
172. The intraembryonic lateral plate mesoderm generates which of the following…
Limb buds
173. Which of the statements regarding the types of spermatogonia is not true?
Stem cells generating sertolli cells
174. The number of oogonia at birth is approximately?
700000-2000000
175. The primitive endothelial cells are formed by?
Cell linnings of the yolk sac
176. The amniotic and yolk sac cavities are temporarily connected by?
The neurenteric canal
177. The intraembryonic intermediate mesoderm forms?
Gonads
178. From which germ layer originates the adenohypophysis?
Surface Ectoderm

179. Which pharyngeal arch contributes to most of middle ear ossicles?
Second arch
180. Which cells are generated by the secondary spermatocytes?
Early Spermatids
181. Which effect have prostaglandin of the semen?
A and C
182. How does the female reproductive tract assist sperm migration?
B and C
183. Which of the following statements is true?
Chorionic villi are not part of the foetal placenta part
184. The merging of which structures contributes to the development of the face?
Maxillary and mandibular processes and frontonasal prominence
185. From which component of the blastocyst can be isolated stem cells capable of organ regeneration in humans?
Embryoblast
186. Which of the zone pellucid proteins acts as a receptor for spermatozoa binding?
ZP3
187. What is the name of the outer layer of the blastocyst?
Trophoblast
188. The processes of the compaction of the pre-embryo leads to a formation of outer and inner cell mass, which differ in their intracellular junctions as follows:
Outer cell mass- Tight junctions- Inner cell mass- Gap junctions
189. From the 3rd month, the hemopoiesis is…
Extravasal
190. The number of the somites at the end of the 5th week of development is?
42-44
191. Which of the following structures originates from the endoderm?
Epithelium of vagina and prostata
192. Which of the following phases of the menstrual cycle is under progesterone control?
Secretory phase
193. Primary villi result from the proliferation of…
Cytotrophoblast
194. In which cavity are localized the exocoelomic cysts during the second week of development?
Extraembryonic cavity
195. How long after ejaculation is the maximum fertile time for most sperm?
48 hours

196. Which of the following originate from the paraxial mesoderm?
Dermis

1. What is present in the 2nd week of developement of extraembryonic cavity?

   Exocoelomic cysts

2. In IVF (In-vitro-Fertilisation), what is used to stimulate ovaries?
   Gonadotropins (sexual hormones) are used to stimulate ovaries

3. On which day does the posterior neuropore close?
   Day 28

4. Which of the following are derived from the endoderm?
   None of the following

5. Which embryonic layer is in contact with pariental hypoblast?
   Cytotrophoblast

6. Which layer is generated by the Epiblast?

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7. Which layer are the primary villi originated from?
Cytotrophoblast

8. What structure is under the neural tube?
Notochord

9. How long does semen capacitation take?
5-7h

10.What is the placenta?
Haemochorial

11.What is the percentage of sperm in a sample?

14/94%

12.On which day does the process of Allantosis begin?

Day 15-16

13.When does second meiosis of oogenesis occur?

Fertilisation

14.At the 8th day of development the hypoblast consists of?

Small cuboidal cells

15.The amniotic cavity is formed by cells of the?

Epiblast

16.Approximately how long after fertilisation occurs the first cleavage of the zygote?

30 h

✎ **4th cleavage after 72h**

17.The primitive endothelial cells are formed by?

Cells lining the yolk sac

18.In the beginning oft he 3rd week the paraxial mesoderm differentiates into segments known as?

Somites

19.Which embryonic layer is in a direct contact with the pariental hypoblast until the formation of the extraembryonic mesoderm?

Cytotrophoblast

20.Monozygous twins may have:

Common amnion, place and chorion

21.The intraembryonic lateral plate mesoderm generates which of the following?

Limb buds

22.Which of the following statements regarding the types of spermatogionia is NOT true?

Stem cells generating Sertoli cells

23.The number of oogonia at birth is approximately ...

700.000-2.000.000 – 600.000-800.000

24.The primitive endothelial cells are formed by?

Cell linings of the yolk sac

25.The amniotic and yolk sac cavities are temporarily connected by?

The neurenteric canal

26.The intraembryonic intermediate mesoderm forms?

Gonads

27.From which germ layer originates the adenohypophysis (anterior pituitary)?

Surface Ectoderm

28.Which pharyngeal arch contributes to most of middle ear ossicles?

Second **1st and 2nd**

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A+C

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47.The amniotic cavity is formed by cells of the?
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Primitive streak

49.The following structures are NOT derived from the endoderm?
ALL answers are true

50.How long does normally capacitation oft he semen take?
5-7h

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Cell linings oft he yolk sac

52.Trophoblastic overgrowth with lack of embryoblast development my lead to?

Molar pregnancy (Hydatidiform mole)

Embryology Questions & Answers

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6. Which layer is generated by the epiblast? Epiblast.

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8. What structure is under the neural tube? Notochord.

9. How long does semen capacitation take? 10 hours.

10. What is the placenta? Haemochoral.

11. What is the percentage of sperm in a sample? 140%.

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answers are true.
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hours.

51. The primitive endothelial cells are formed by? Cell linings of the yolk sac.

52. Trophoblastic overgrowth with lack of embryoblast development may lead to? Molar pregnancy (Hydatiform mole).

53. Select the correct sequence of formation of the chorionic villi during the III week of development:

54. Which pharyngeal arch contributes to the formation of the mandible? First.

55. What is the rate of occurrence of abnormal blastocysts? 20-30%. 56. At the cranial end of the embryonic disc is formed? Primitive knot.

57. At the presence of how many cells, generated by the zygote, the process of cleavage (segmentation) is assumed to begin? 16.

58.The following originate from the endoderm. Urinary bladder, urethra, alimentary canal, liver, pancreas, trachea, bronchi, alveoli, thyroid, thymus, tympanic cavity.

59. The conjoined monozygotic twins connected in thoracic region are called? Thoracopagus.

60. Each somite differentiates into all of the following: Dermatomes, Myotomes, Syndetomes, Sclerotomes.

61. The bilaminar disc consists of? Epiblast & Hypoblast.

62. Turner syndrome is? Monosomy X (absence of an entire sex chromosome, the Barr body) resulting in 45 chromosomes.

63.From which germ layers originate the nephrogenic cords? Intermediate mesoderm.

64. How is designated the outermost layer of the embryonic mesoderm?

Ectoderm.

65. The umbilical arteries: umbilical arteries surround the urinary bladder and then carry all the deoxygenated blood out of the fetus through the umbilical cord

66.Which of the following tissues is derived from the ectoderm?

Epidermis skin cells, Neurons of brain, Pigment cells.

67.How is designated the outermost layer of the pre-embryo?

Trophoblast.

68. What are the two layers of the endometrium? Stratum functionalis & Stratum basalis.

69. What kind of change in the size of the yolk sac (relative to the size of the embryo) occurs during development?

70. How long lasts the capability of the secondary oocyte to be fertilised?

12-24 hours.

71. How many cavities characterize the pre-embryo at the end of II week of development? 2 (chorionic & amniotic cavity).

72. The first blood cells originate from? Yolk sac.

73. What is the normal sperm count of the sperm in 1/mL? 15-40 million.

74. Which of the cells produce testosterone in the testis? Interstitial cells

75. Which of the blastocyst poles is directed to the endometrium at implantation? Embryonic pole.

76. The ectoderm is created by? Epiblast.

77. During which stage of prophase of first meiotic division in gametes does crossing-over take place? Pachytene.

78. Which is the optimal window of opportunity for people wishing to conceive a child? 3 days before ovulation and less than a day after.

79. Which structure is formed at the dorsal border (tip) of the neural tube? Spinal Cord.

80.The cells generated by the spermatogoinia are: Primary spermatocytes.

81. The maternal and fetal components of the placenta are?
82. The cephalic end of the primitive streak is? Primitive node.
83. From which layer originates the chorion? Extraembryonic mesoderm.
84.Amniocentesis is used to investigate and detect? Prenatal diagnosisofchromosomal abnormalitiesand fetal infections and genetic abnormalities.

85. What is the name of the cells forming the morula? Blastomeres.

86. When does implantation after fertilisation start? 6-7days.

87. How many chromosomes has the fertilised egg? 46.

88. Which are the risks for pregnant women in case of a tubal pregnancy?
Rupture, Bleeding, Internal Haemorrhage.

89.During the second week of development, the embryoblast differentiates into? Bilaminar Germ disc composed of Epiblast & Hypoblast.

90. What compartment of the blastocyst contributes to the formation of the placenta? Trophoblast.

91. How long does it normally take the sperm to migrate in the female reproductive track and to achieve the egg? 18-24 hours.

92. During which week of development the primordial germ cells migrate to the dorsal body wall (approx. at the level of T10 vertebra)?

93. Which process is ejaculation? It is the ejection of semen (usually carrying sperm) from the male reproductory tract, and is usually

accompanied by orgasm.

94.Which of the following lists are steps in in-vitro fertilisation procedure? Ovarian hyperstimulation --> Natural & mild IVF --> Final maturation induction --> Egg retrieval --> Egg & Sperm preparation - -> Co-incubation --> Embryo culture --> Embryo selection --> Embryo transfer --> Adjunctive medication.

95.Which of the following structures refers to as embryonic membranes? Any from, Amnion, Chorion, Yolk Sac, Atlantosis.

96. What is the average composition of the seminal fluid? 2-5% sperm, 65-75% amino acids & citrate, 25-30% acid phosphatase & citric acid, 1% galactose & mucus.

97. Which figure presents a primary villus?
98. What is the average age of menopause in humans? 40 years.
99.The somatopleure and splanchnopleure originate from? Lateral

mesoderm.

100. Which of the following is not known to be a human teratogen?

101. From which germ layer originates the heart and the spleen?

Mesoderm.

102. What is the name of the inner layer of the blastocyst?

Hypoblast.

103. What is the mechanism of the clonal expansion of the progenitors of the gametes? Mitosis.

104. Which of the listed form the corona radiata? Cuboidal Granulosa Cells.

105. What is the main factor of sperm migration in the female reproductive track? Sperm Chemotaxis eg.- Progesterone.

106. In which phase of the menstrual cycle does the endometrium achieve its maximum thickness? Luteal phase.

107.The myotomes consist of? Epithelial somites.

108.After its penetration in the oocyte, the spermatozoa head is

transformed into? Pronucleus of Zygote. 109. The initial haemopoeisis is? Intravasal.

110. The umbilical vein: Carries oxygenated blood from placenta to foetus.

111. Which of the enumerated characteristics of a given semen analysis are normal? 20 and 40 million sperm per millilitre.

112. Which of the following tissues originates from the endoderm?

Can be lung, thyroid or pancreatic cells.

113. Cumulus oophorus is characteristic for which follicle? Antral

(Graafin) follicles.

114. The embryonic disc gradually becomes elongated with?

Primitive streak.

115. The process of cleavage represents a series of? Mitotic cell

divisions.

116.Gastrulation establishes: The trilaminar disc.

117.Which component of the pre-embryo aborts its development

in a molar pregnancy? Hydatiform mole.

118. True statements of sperm capacitation: Takes between 5-6

hours. Takes place and is complete in female genital track. Increases flagellum motility. Sperm is able to undergo acrosome reaction.

119.The hypoblast belongs to? Trophoblast.

120.The formation of the fingers in the limb buds takes place via:

Apical ectodermal ridge.

121. What is the correct sequence of the extended first meiotic division? Leptotene --> Zygotene --> Pachytene --> Diplotene --> Diakisesis --> Synchronous processes.

122. At which developmental stage begins the segmentation of the paraxialmesoderm? (beginning of) 3rd Week.

123. From which germ layer structure originate the neurons of the peripheral nervous system? Neural crest of ectoderm.

124. Which pharyngeal arches mostly contribute to the formation of the thymus? 3.

125. The formation of the primitive streak occurs on the surface of:

Hypoblast.

126. The connecting stalk originates from: Extraembryonic mesoderm.

127. The conjoined monozygotic twins connected in head are called: Craniophagus.

128. Which of the following phases of the menstrual cycle is under estrogen control? Follicular phase.

129.Ejaculation is identical to which process? none

130.The intervillous space of the placenta contains: Blood (from maternal arteries & veins).

131. Which compartment of the blastocyst contributes to the formation of the fetus? Embryoblast (inner cell mass).

132. The exocoelomic (Heuser) membrane lines the inner surface of? Cytotrophoblast.

133. The secretion of FSH by pituitary gland is suppressed by a factor secreted by the Sertoli cells. Which is this factor? Inhibins.

134. Where must sperm normally encounter the egg in order to fertilize it? Ampulla of uterine/fallopian tube.

135. How many pairs of chromosomes contain the primordial germ cells? 23.

136. Placental villi are best developed in the region of? Syncytiotrophoblast.

137. The rate for dyzygotic twins is? 70% of Twins.

138. Down syndrome is: Also known as trisomy 21, is a genetic disorder caused by the presence of all or part of a third copy of chromosome 21.

139. From which germ layer originate the serous membranes of the body (peritoneum, pleura, pericardium)? (Lateral plate) Mesoderm.

140. Which type of trophoblastic villi are formed in the II week of development. Primary villi.

141. Which are the following are functions of the yolk sac?

Producing early blood cells & vessels. Forming digestive tube.

142. Name the most medially located components of the intraembryonic mesoderm. Intermediate mesoderm.

143. The layer of the embryoblast adjacent to the amniotic cavity is: Epiblast.

144. Insemination is a process of passage of the spermatozoa through the female genital track as follows: Deposition of sperm into vagina --> Migration to uterus --> Uterine tube.

145. Which component of the pre-embryo continues to develop thus forming molar pregnancy? Trophoblast.

146.The definitive umbillical cord contains? 2 arteries & 1 vein.

147.Which is the normal sperm motility? 3mm/min.

148.The cardiogenic primordium is formed by: Epiblast, lateral to

prmitive streak.

149. Which is the sequence of appearance of the limb buds?

Flatten buds --> Radial grooves on distal portion of buds --> Digits.

150. Which requirements of the semen must be met for sperm motility? Increased flagellum motility. High number of mitochondria.