



Forberedelseskurs MD/DDS opptaksprøven i Krakow

Del 2: Biologi

Forberedelseskurs 2



- ❖ **AMANDA AASBERG BRUKAAS**
- ❖ 27 ÅR, OSLO
- ❖ 3 MD
- ❖ B.SC BIOINGENIØR, NTNU
- ❖ 2 ÅR KIROPRAKTOR, SDU
- ❖ 9 ÅR SYKEHJEM
- ❖ 6 ÅR LEGEKONTOR
- ❖ 2 ÅR SYKEHUS
- ❖ **AMANDA-AB@HOTMAIL.COM**

Dagens slagplan: 45 min

- ▶ Taktisk kartlegging av opptaksprøven
- ▶ Gjennomgang av utvalgte spørsmål
- ▶ Oppsummering/tips og triks

*Spørsmål på mail
Ikke lov med opptak*



Taktisk kartlegging av opptaksprøven

Taktisk kartlegging av opptaksprøven: Pensum

- ▶ *DNA composition: 4 underkategorier*
- ▶ *RNAs diversity: 9 underkategorier*
- ▶ *Gene expression: 8 uk*
- ▶ *Enzymes: 4 underkategorier*
- ▶ *Cell life: 12 underkategorier*
- ▶ *Metabolism of the cell: 5 uk*
- ▶ *Cell communication and signaling: 6 uk*
- ▶ *Cell division: 6 uk*
- ▶ *Cancer: 6 uk*
- ▶ *Microbiology: 8 uk*

▶ *Specialized eukaryotic tissues:*

- *Nerve cell structure (4)*
- *Muscle cell structure (4)*
- *Skeletal structure (3)*
- *Epithelial cells*
- *Endothelial cells*
- *Connective tissue*
- *Endocrine system (9)*
- *Sensory reception and processing (4)*
- *Circulatory system (6)*
- *Blood (4)*
- *Immune system (8)*
- *Digestive system (8)*
- *Excretory system (3)*
- *Respiratory system (3)*
- *Skin system (1)*
- *Reproduction system (3)*

Embryogenesis (4)

Taktisk kartlegging av opptaksprøven forts.

PENSUM

- ▶ Totalt: $68+63+4 = 135$ underkategorier
 - **Specialized eukaryotic tissues:** $63/135 = \underline{47\%}$
 - **The cell:** $60/135 = \underline{44\%}$
 - Microbiology: $8/135 = 6\%$
 - Embryogenesis: $4/135 = 3\%$ (OBS 2022)

Taktisk kartlegging av opptaksprøven: Opptaksprøven

OPPTAKSPRØVEN

- 2021 MD: 47 biologi/33 kjemi/20 logikk (100)
- 2021 DDS: 47/33/20 (100)
- 2020 MD: 35/42/19 (97)
- 2020 DDS: 38/42/10 (91)
- 2019 MD: 37/33/28 (100)
- 2019 DDS: 40/36/33 (100)

- I år: 100 spml/180min = 108 sek/oppg (Ca 1.5 min)

Oppgavetype

- **Biologi:** Kombinasjon av tekstoppgaver, regneoppgaver og rene faktaoppgaver
- **Kjemi:** -
- **Logikk:** Lengre oppgaver, mange oppg i én tekst

Senere år: Mer teksttungt og korte regneoppgaver

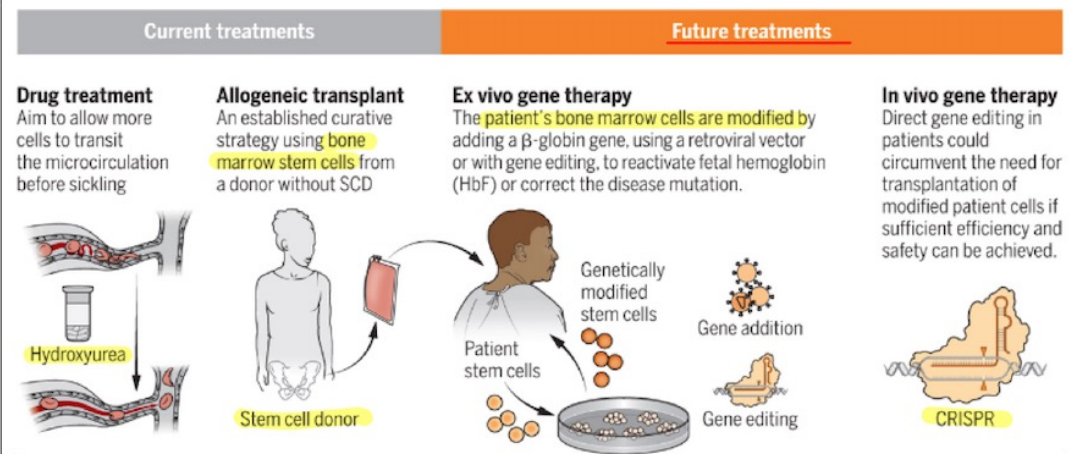


OPPGAVER

Spørsmål 1 og 2

The following information refers to questions 1 and 2.

Sickle cell anemia is an inherited disorder caused by a **point mutation** (affecting a single nucleotide) in the gene that encodes the β -globin chain of hemoglobin (Hb β). Two β -globin chains and two α -globin chains form **hemoglobin, the multisubunit protein** in red blood cells that carries oxygen. The mutation results in the **replacement** of negatively charged glutamate by a neutral, hydrophobic valine that produces sticky patches on the protein surface. Upon delivering oxygen to the tissues, the mutant hemoglobin (HbS) polymerizes into fibers, which distort (“sickle”) red blood cells and cause blockage of the circulation, resulting in severe acute pain called sickle cell crisis. (...) Hydroxyurea is the first of just two U.S. Food and Drug Administration (FDA)–approved drugs to treat sickle cell disease (SCD) by inhibiting the HbS polymerization that causes sickling.



Tisdale, J.F. et al. “Treating sickle cell anemia”. Science. 2020 Mar 13; 367(6483): 1198–1199.

1. Which of the following statements is true about the sickle cell anemia mutation?
 - A. It causes a substitution of one of the red blood proteins with another protein.
 - B. It results in addition of an amino acid to one of the hemoglobin chains.
 - C. It is caused by environmental factors.
 - D. It changes the structure and function of the entire multisubunit protein.
 - E. It is a silent mutation.
2. Based on the provided text and figure, it can be concluded that:
 - A. The CRISPR gene edition is the most effective treatment.
 - B. Mutant hemoglobin leads to disruption of proper blood flow.
 - C. Only the patient's own stem cells can be used for therapy.
 - D. Hydroxyurea is used to fix the HbS mutation.
 - E. Sickle cell anemia is caused by a somatic mutation.

Svar spørsmål 1

1. Which of the following statements is true about the sickle cell anemia mutation?
 - A. It causes a substitution of one of the red blood proteins with another protein.
 - B. It results in addition of an amino acid to one of the hemoglobin chains.
 - C. It is caused by environmental factors. ✓
 - D. It changes the structure and function of the entire multisubunit protein.
 - E. It is a silent mutation. ✓
1. Which of the following statements is true about the sickle cell anemia mutation?
 - A. It causes a substitution of one of the red blood proteins with another protein.
 - B. It results in addition of an amino acid to one of the hemoglobin chains.
 - C. It is caused by environmental factors. ✓
 - D. It changes the structure and function of the entire multisubunit protein.
 - E. It is a silent mutation. ✓

Svar spørsmål 2

2. Based on the provided text and figure, it can be concluded that:
 - A. The CRISPR gene edition is the most effective treatment.
 - B. Mutant hemoglobin leads to disruption of proper blood flow.
 - C. Only the patient's own stem cells can be used for therapy.
 - D. Hydroxyurea is used to fix the HbS mutation.
 - E. Sickle cell anemia is caused by a somatic mutation.
2. Based on the provided text and figure, it can be concluded that:
 - A. The CRISPR gene edition is the most effective treatment.
 - B. Mutant hemoglobin leads to disruption of proper blood flow.
 - C. Only the patient's own stem cells can be used for therapy.
 - D. Hydroxyurea is used to fix the HbS mutation.
 - E. Sickle cell anemia is caused by a somatic mutation.

Spørsmål 3

3. Prolactin is a hormone produced by lactotrophs found in the anterior pituitary gland. Prolactin is regulated by the hypothalamus in an inhibitory manner, that is, dopamine is released from the hypothalamus to decrease prolactin secretion. All other hormones depend on a stimulation signal from the hypothalamus to be synthesized and released. (*Physiology, Endocrine Hormones* Miles Campbell 1, Ishwarlal Jialal 2)

The disruption of the HPA (hypothalamic–pituitary–adrenal) axis will:

Hypothalamus

ant. pituitary

- GH —————• Bones, muscles, organs
- LH —————• Ovaries: Estrogen, progest.
- FSH —————• Testes: Testosterone
- ACTH —————• Adrenal cortex
- TSH —————• Thyroid gl.: T₃, T₄

post. pituitary

- Oxytocin —————• Prolactin (breast) —————• Uterus + breasts
- ADH —————• Kidneys

Svar spørsmål 3

The disruption of the HPA (hypothalamic–pituitary–adrenal) axis will:

- A. increase the levels of all hypothalamus-dependent hormones. ✓
 - B. not affect prolactin levels. ✓
 - C. not affect the levels of any of the hypothalamus-dependent hormones. ✓
 - D. decrease prolactin levels.
 - E. increase prolactin levels. ✓
- } Motsetninger = !!

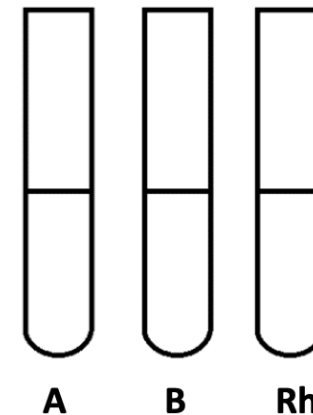
Spørsmål 4 og 5

The following information refers to questions 4 and 5.











Human blood typing is based on the following set of rules:

- Blood types have different combinations of antigens on the surface of red blood cells. Antigens A and B are sugars, and antigens Rh are proteins.
- Blood types have different combinations of antibodies, which are blood plasma molecules.
- Human blood belongs to one of eight different blood types: A Rh+, A Rh-, B Rh+, B Rh-, AB Rh+, AB Rh-, 0 Rh+, or 0 Rh-. The blood type is named after the antigens found on red blood cells.
- Attachment of antibodies to their corresponding antigens results in blood agglutination.

Test tubes A, B, and Rh contain solutions with A, B, and Rh antibodies, respectively.



Svar spørsmål 4

ABO BLOOD GROUP SYSTEM				
GROUP	A	B	AB	O
RED BLOOD CELL TYPE				
ANTIGENS PRESENT	 Antigen A	 Antigen B	 Antigen AB	✕ None
ANTIBODIES PRESENT	 Anti - B	 Anti - A	✕ None	 Anti - A + Anti - B

Svar spørsmål 4

4. You add the same amount of patient blood to each of the test tubes and observe agglutination in tubes A and B. What is your patient's blood type?

- A. AB Rh-
- B. AB Rh+
- C. 0 Rh+
- D. 0 Rh-
- E. B Rh+

4. You add the same amount of patient blood to each of the test tubes and observe agglutination in tubes A and B. What is your patient's blood type?

- A. AB Rh-
- B. AB Rh+
- C. 0 Rh+
- D. 0 Rh-
- E. B Rh+

A antibodies ⇒ AB
B antibodies
NO Rh = Rh-

Svar spørsmål 5

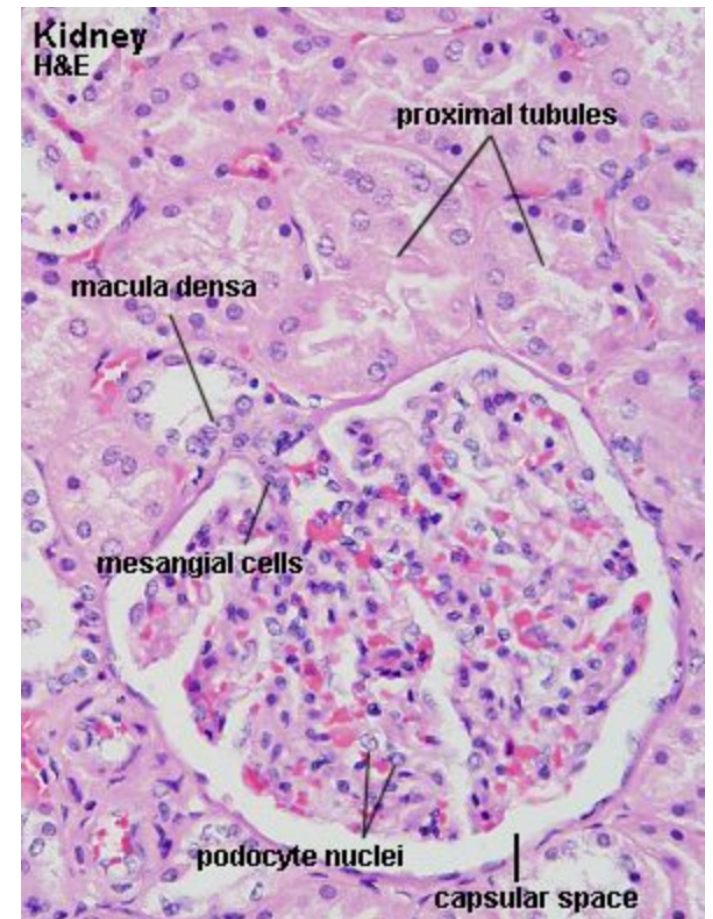
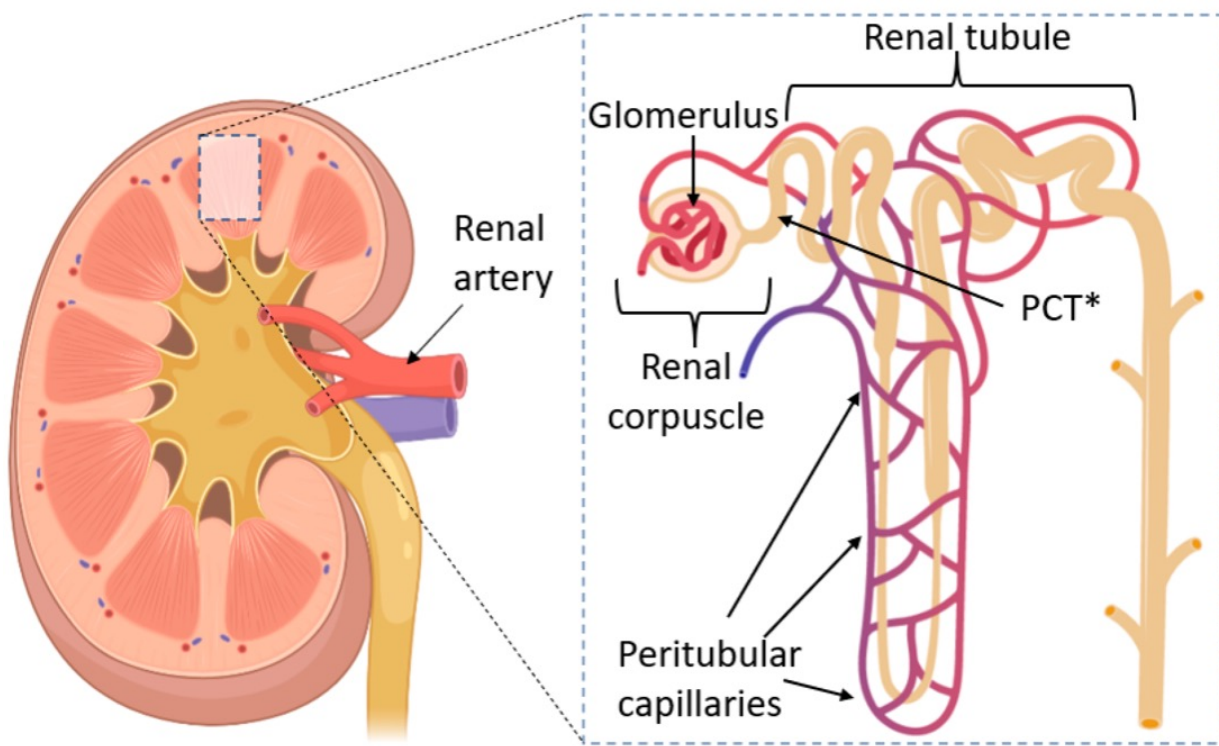
5. What type of blood would you NOT choose to perform a safe blood transfusion for this patient?
- A. AB Rh-
 - B. 0 Rh+
 - C. A Rh-
 - D. B Rh-
 - E. 0 Rh-

5. What type of blood would you **NOT** choose to perform a safe blood transfusion for this patient?
- A. AB Rh⁻
 - B. 0 Rh⁺ *Odd one out*
 - C. A Rh⁻
 - D. B Rh⁻
 - E. 0 Rh⁻

Spørsmål 6

6. The renal corpuscle is comprised of two elements: a tuft of capillaries (called the glomerulus) and a surrounding Bowman's capsule. Which of the following correctly characterizes the glomerulus?
- A. It is mainly composed of nerve tissue.
 - B. It is primarily composed of blood vessels.
 - C. It is situated around Bowman's capsule.
 - D. There is one per kidney.
 - E. It is a part of the digestive system.

Svar spørsmål 6



Svar spørsmål 6

6. The renal corpuscle is comprised of two elements: a tuft of capillaries (called the glomerulus) and a surrounding Bowman's capsule. Which of the following correctly characterizes the glomerulus?
- A. It is mainly composed of nerve tissue. ✓
 - B. It is primarily composed of blood vessels.
 - C. It is situated around Bowman's capsule. → opposite!
 - D. There is one per kidney. → Very bad idea - NO!
 - E. It is a part of the digestive system. → kidney = genitourinary system

Spørsmål 7 og 8

The following information refers to questions 13 and 14.

Seizures involve excessive and uncontrolled activity of parts of the central nervous system or the entire system. There are three main types of seizures: grand mal, petit mal, and psychomotor. An epileptic who is subject to grand mal seizures is thought to have an intrinsic, ongoing overexcitability of the affected neurons in the brain. The actual seizure might be generated by a variety of external stimuli. Seizure is probably brought to an end through feedback mechanisms in which inhibitory cerebral centers are stimulated. Seizures do arise from conditions other than epilepsy. For example, excessive amounts of carbon dioxide in the blood (hypercapnia) are known to produce seizures, as are a variety of cerebral disorders, including a brain tumor. Young children from infancy to approximately seven years of age are sometimes prone to experiencing seizures when the body temperature is markedly elevated. The manifestation of such febrile seizures on one or more occasions during childhood does not on its own suggest a diagnosis of epilepsy.

13. According to the passage, which of the following factors would most likely cause a seizure?
 - A. Excessive feedback inhibition within the cerebral circuitry.
 - B. Failure of blood constituents to move metabolic by-products from tissue to pulmonary alveoli.
 - C. Increased threshold of neuronal response within the brain and spinal cord.
 - D. Reduced number of action potentials within the brain and spinal cord.
 - E. A sudden drop in body temperature.
14. A therapeutic agent with which of the following effects would most merit a trial for prevention of grand mal seizures?
 - A. Increasing the threshold for action potential within the central nervous system.
 - B. Decreasing the threshold for action potential within the peripheral nervous system.
 - C. Increasing the axon length for neurons within the central nervous system.
 - D. Increasing the growth of connective tissue within the central nervous system.
 - E. Increasing the synthesis and release of neurotransmitters.

Svar spørsmål 7 og 8

The following information refers to questions 13 and 14.

Seizures involve excessive and uncontrolled activity of parts of the central nervous system or the entire system. There are three main types of seizures: grand mal, petit mal, and psychomotor. An

epileptic who is subject to grand mal seizures is thought to have an intrinsic, ongoing overexcitability of the affected neurons in the brain. The actual seizure might be generated by a variety of external stimuli. Seizure is probably brought to an end through feedback mechanisms in which inhibitory

cerebral centers are stimulated. Seizures do arise from conditions other than epilepsy. For example, excessive amounts of carbon dioxide in the blood (hypercapnia) are known to produce seizures, as are a variety of cerebral disorders, including a brain tumor. Young children from infancy to approximately seven years of age are sometimes prone to experiencing seizures when the body temperature is markedly elevated. The manifestation of such febrile seizures on one or more occasions during childhood does not on its own suggest a diagnosis of epilepsy.

13. According to the passage, which of the following factors would most likely cause a seizure?
- A. Excessive feedback inhibition within the cerebral circuitry.
 - B. Failure of blood constituents to move metabolic by-products from tissue to pulmonary alveoli.
 - C. Increased threshold of neuronal response within the brain and spinal cord. = \downarrow AP = opposite
 - D. Reduced number of action potentials within the brain and spinal cord. \rightarrow opposite
 - E. A sudden drop in body temperature.

Svar spørsmål 8

The following information refers to questions 13 and 14.

Seizures involve excessive and uncontrolled activity of parts of the central nervous system or the entire system. There are three main types of seizures: grand mal, petit mal, and psychomotor. An

epileptic who is subject to grand mal seizures is thought to have an intrinsic, ongoing overexcitability of the affected neurons in the brain. The actual seizure might be generated by a variety of external stimuli. Seizure is probably brought to an end through feedback mechanisms in which inhibitory cerebral centers are stimulated. Seizures do arise from conditions other than epilepsy. For example, excessive amounts of carbon dioxide in the blood (hypercapnia) are known to produce seizures, as are a variety of cerebral disorders, including a brain tumor. Young children from infancy to approximately seven years of age are sometimes prone to experiencing seizures when the body temperature is markedly elevated. The manifestation of such febrile seizures on one or more occasions during childhood does not on its own suggest a diagnosis of epilepsy.

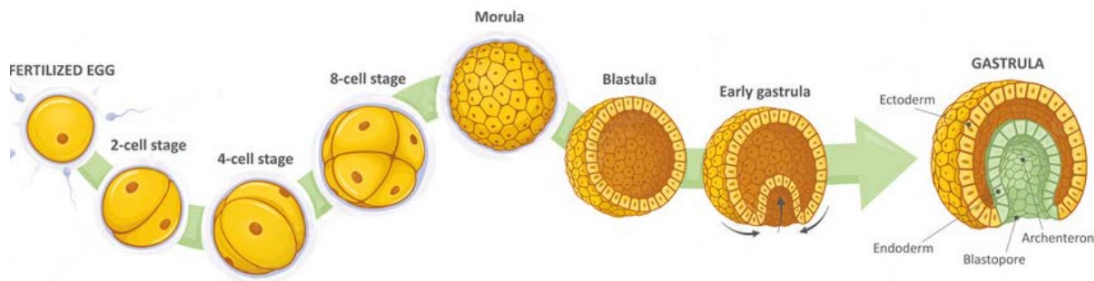
14. A therapeutic agent with which of the following effects would most merit a trial for prevention of grand mal seizures?

- A. Increasing the threshold for action potential within the central nervous system. = \downarrow AP = \downarrow seizures
- B. Decreasing the threshold for action potential within the peripheral nervous system. \rightarrow Motor (seizures = CNS)
- C. Increasing the axon length for neurons within the central nervous system. /
- D. Increasing the growth of connective tissue within the central nervous system. /
- E. Increasing the synthesis and release of neurotransmitters. \rightarrow Not mentioned

Spørsmål 9, 10, 11

The following information refers to questions 15 and 17.

HUMAN EMBRYONIC DEVELOPMENT

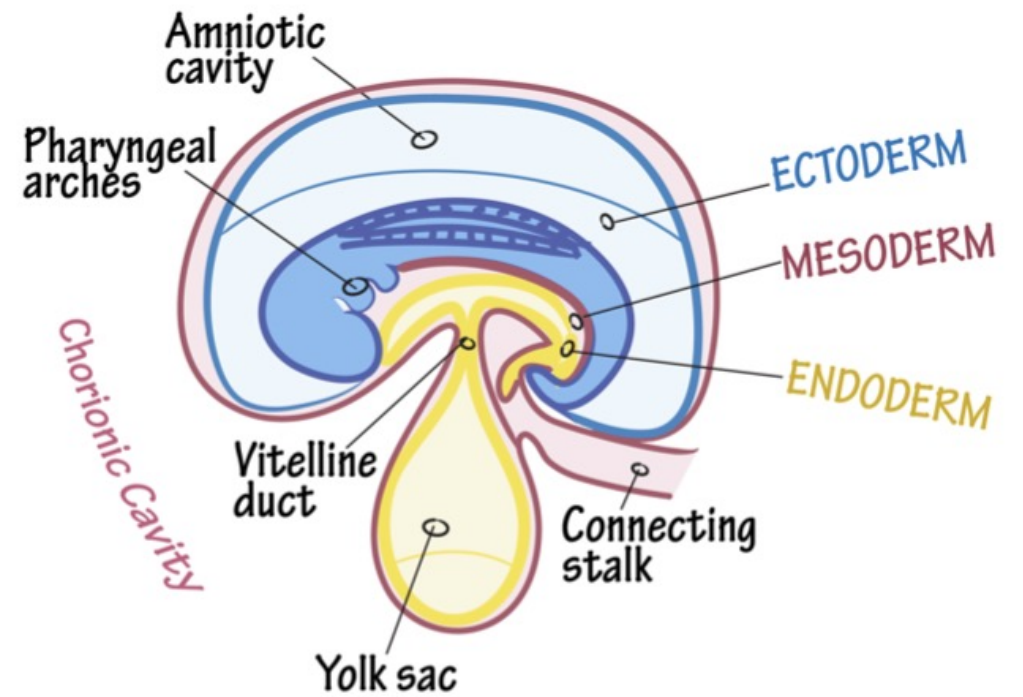
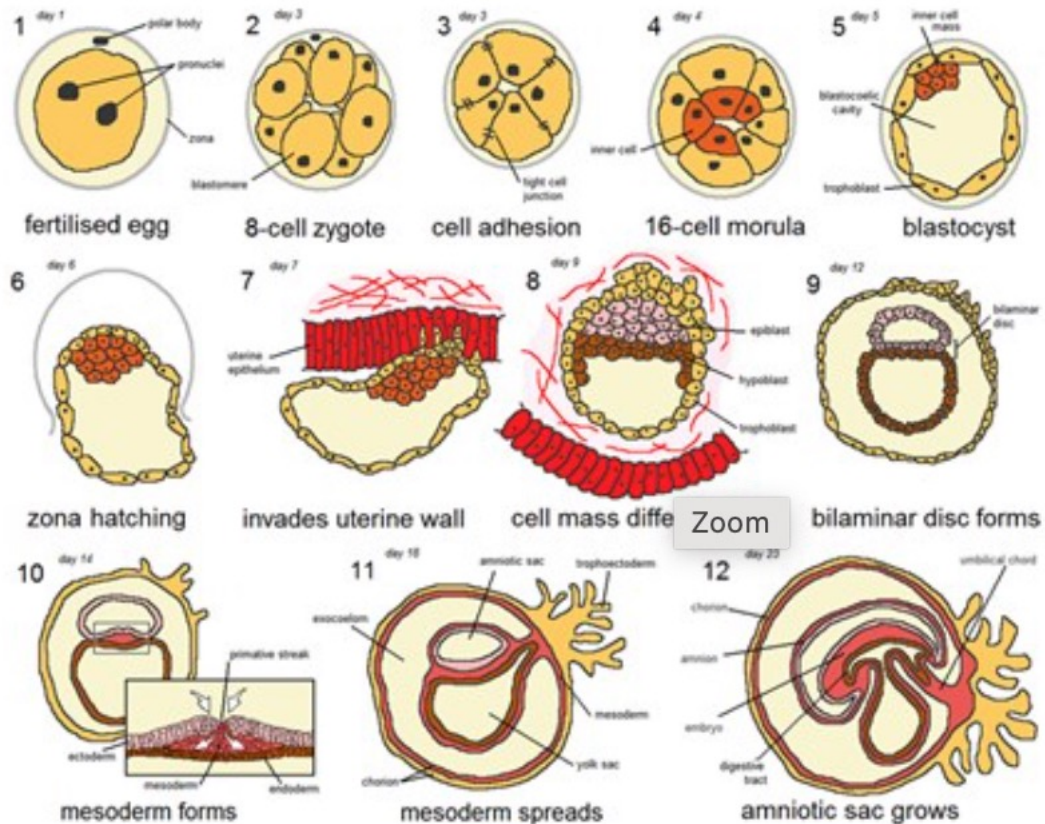


Source: <https://stock.adobe.com/pl/images/human-embryonic-development-or-human-embryogenesis-from-zygote-to-gastrula-zygote-2-cell-morula-blastula-gastrula/432759383>

The germ layers formed during gastrulation constitute the source of all organs and tissues of the body. The endoderm gives rise to the inner linings of the respiratory tract and esophagus, the stomach, the small and large intestine, and the organs that are outgrowths of the digestive tract (the pancreas, the gall bladder, and the liver). The ectoderm is the source of the epidermis, the eye and the nervous system. The mesoderm is the origin of connective tissue, the heart, blood cells, and the urogenital system.

15. The outermost germ layer is the:
 - A. Epidermis
 - B. Mesoderm
 - C. Endoderm
 - D. Ectoderm
 - E. Archenteron
16. The retina develops from the same germ layer as the:
 - A. Peripheral nerves
 - B. Trachea
 - C. Heart
 - D. Cartilage
 - E. Pancreas
17. Which of the following do not derive from the mesoderm?
 - A. Arteries and arterioles
 - B. Veins, venules, and capillaries
 - C. Muscles and associated connective tissues
 - D. Inner linings of the lungs
 - E. Kidneys

Svar spørsmål 9, 10, 11



Svar spørsmål 9, 10, 11

15. The outermost germ layer is the:

- A. Epidermis
- B. Mesoderm
- C. Endoderm
- D. Ectoderm
- E. Archenteron

16. The retina develops from the same germ layer as the:

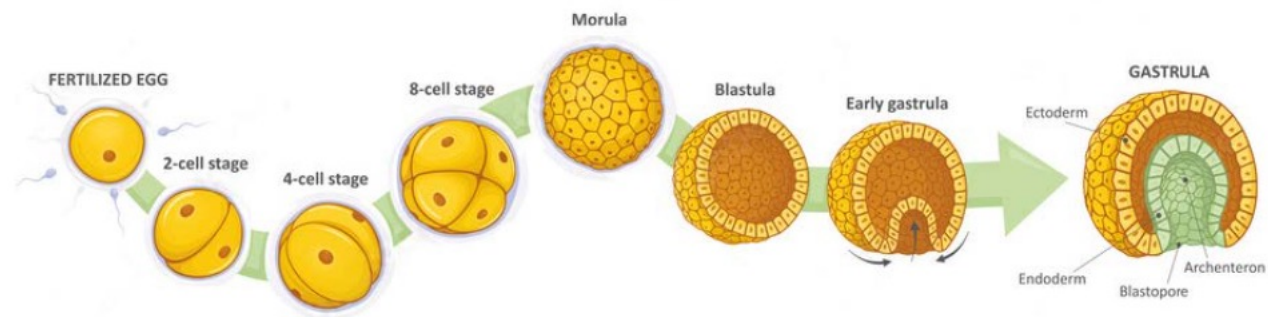
- A. Peripheral nerves
- B. Trachea
- C. Heart
- D. Cartilage
- E. Pancreas

17. Which of the following do not derive from the mesoderm?

- A. Arteries and arterioles
- B. Veins, venules, and capillaries
- C. Muscles and associated connective tissues
- D. Inner linings of the lungs
- E. Kidneys

Spørsmål 12

HUMAN EMBRYONIC DEVELOPMENT



15. After a period of cleavage, what is the developing organism first called?

- A. Zygote
- B. Morula
- C. Blastula
- D. Gastrula
- E. Blastopore

Svar spørsmål 12

15. After a period of cleavage, what is the developing organism first called?
- A. Zygote
 - B. Morula
 - C. Blastula
 - D. Gastrula
 - E. Blastopore

Spørsmål 13

20. A dose of 3500 mg of medication was ordered for a patient. The medication comes in 5 g/2 mL. What volume will you administer to the patient?
- A. 14 ml
 - B. 140 μ l
 - C. 14 μ l
 - D. 1.4 ml
 - E. 0.14 ml

Svar spørsmål 13

20. A dose of 3500 mg of medication was ordered for a patient. The medication comes in 5 g/2 mL. What volume will you administer to the patient?
- A. 14 ml
 - B. 140 μ l
 - C. 14 μ l
 - D. 1.4 ml
 - E. 0.14 ml

$$\begin{aligned}\text{Medication} &: 5\text{g}/2\text{mL} = 2.5\text{g}/\text{mL} \\ \text{Giøre om til mg (1000)} &: 2.5 \cdot 1000 = 2500\text{mg}/\text{mL} \\ \text{Dose} &: 3500\text{mg} \\ \text{Pasient mottar} &: \frac{3500\text{mg}}{2500\text{mg}/\text{mL}} = \underline{\underline{1.4\text{mL}}}\end{aligned}$$

Spørsmål 14

21. A patient weighs 3 kg and is prescribed a medication with a dose of 0.1 mg/kg/day in equal doses every 8 hours. How many mg will you administer per dose?
- A. 0.04 mg
 - B. 0.1 mg
 - C. 0.3 mg
 - D. 1 mg
 - E. 100 mg

Svar spørsmål 14

21. A patient weighs 3 kg and is prescribed a medication with a dose of 0.1 mg/kg/day in equal doses every 8 hours. How many mg will you administer per dose?

- A. 0.04 mg
- B. 0.1 mg
- C. 0.3 mg
- D. 1 mg
- E. 100 mg

3 times/day! Dose per day: $0.1 \text{ mg/kg/day} \cdot 3 \text{ kg} = 0.3 \text{ mg/day}$
Per dose: $\frac{0.3 \text{ mg}}{3/\text{day}} = \underline{\underline{0.1 \text{ mg}}}$

Spørsmål 15 og 16

The following information refers to questions 34 through 35

There are a few different solutions for injections of epinephrine with concentrations expressed as 1:1000, 1:10 000, and 1:100 000 in hospital pharmacy. The concentration of 1:100 000 means 1 g of epinephrine in 100,000 ml of solvent.

34. By analogy, 2 ml of a 1:10,000 solution contains X mg of epinephrine, where X is:
- A. 0.02 mg
 - B. 0.1 mg
 - C. 0.2 mg
 - D. 1 mg
 - E. 2 mg
35. How many ml of 1:1000 solution should the patient be administered to cover the single dose of 0.5 mg epinephrine?
- A. 0.1 ml
 - B. 0.2 ml
 - C. 0.5 ml
 - D. 1 ml
 - E. 5 ml

Svar spørsmål 15

34. By analogy, 2 ml of a 1:10,000 solution contains X mg of epinephrine, where X is:

- A. 0.02 mg
- B. 0.1 mg
- C. 0.2 mg
- D. 1 mg
- E. 2 mg

$$X = \frac{2 \text{ mL}}{10\,000} = 0.0002 \cdot 1000 = \underline{\underline{0.2 \text{ mg}}}$$

Svar spørsmål 16

35. How many ml of 1:1000 solution should the patient be administered to cover the single dose of 0.5 mg epinephrine?

- A. 0.1 ml
- B. 0.2 ml
- C. 0.5 ml
- D. 1 ml
- E. 5 ml

1:1000 \Rightarrow Per 1000 ml har vi 1ml adrenalin
1ml adrenalin = 1mg adrenalin
0.5mg = 0.5ml

Spørsmål 17

44. A patient is to be administered 1200 ml by IV (intravenously) using an infusion controller with a drip factor of 15 drops/ml. The infusion starts at 9.00 am. If the drip rate was set at 30 drops per minute, at what time would the drip be complete?
- A. 3.00 pm
 - B. 4.30 pm
 - C. 5.00 pm
 - D. 7.00 pm
 - E. 8.30 pm

Svar spørsmål 17

44. A patient is to be administered 1200 ml by IV (intravenously) using an infusion controller with a drip factor of 15 drops/ml. The infusion starts at 9.00 am. If the drip rate was set at 30 drops per minute, at what time would the drip be complete?

- A. 3.00 pm
- B. 4.30 pm
- C. 5.00 pm
- D. 7.00 pm
- E. 8.30 pm

Dose : 1200ml

Drip rate : 15 drops/ml

Start : 9.00 om morgenen

$$\textcircled{1} 30 \text{ drops/min} \\ = 2 \text{ ml/min}$$

$$\textcircled{2} \text{Min} : \frac{1200 \text{ ml}}{2 \text{ ml/min}} = \frac{600 \text{ min}}{60} = \underline{10 \text{ t}}$$

$$\textcircled{3} 9.00 + 10 \text{ t} = \underline{\underline{19.00}}$$

Spørsmål 18

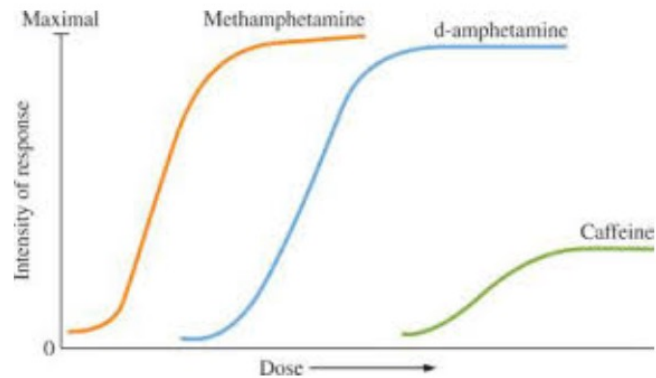


Fig.1. Theoretical dose-response curves for three psychostimulants.

Julien's Primer of Drug Action, Thirteenth Edition

45. Based on Fig.1, which statement is true?

- A. Methamphetamine is a weaker stimulant than amphetamine.
- B. To achieve a response of similar intensity, a higher dose of d-amphetamine than methamphetamine is needed.
- C. Caffeine is the strongest psychostimulant.
- D. A lower dose of caffeine than d-amphetamine is needed to achieve a similar effect.
- E. All of the above.

Svar spørsmål 18

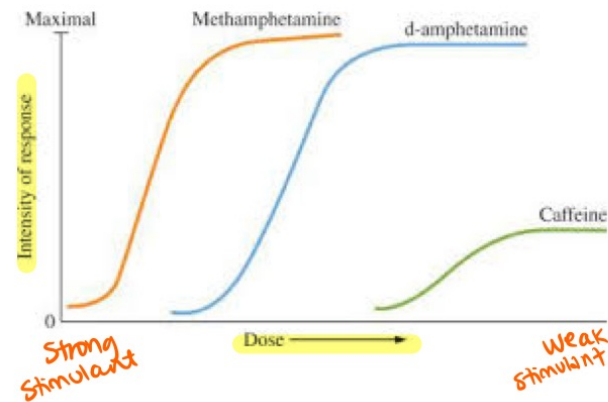


Fig.1. Theoretical dose-response curves for three psychostimulants.

Julien's Primer of Drug Action, Thirteenth Edition

45. Based on Fig.1, which statement is true?

- A. Methamphetamine is a weaker stimulant than amphetamine. /
- B. To achieve a response of similar intensity, a higher dose of d-amphetamine than methamphetamine is needed. /
- C. Caffeine is the strongest psychostimulant. /
- D. A lower dose of caffeine than d-amphetamine is needed to achieve a similar effect. /
- E. All of the above. /

Spørsmål 19

21. A dose of 4500 mg of medication was ordered for a patient. The medication comes in 5 g/0.3 mL. What volume will you administer to the patient?
- A. 270 ml
 - B. 27ml
 - C. 2.7 ml
 - D. 270 μ l
 - E. 27 μ l

Svar spørsmål 19

21. A dose of 4500 mg of medication was ordered for a patient. The medication comes in 5 g/0.3 mL.
What volume will you administer to the patient?

- A. 270 ml
- B. 27ml
- C. 2.7 ml
- D. 270 μ l**
- E. 27 μ l

Dose: 4500 mg
Medication: 5g / 0,3ml = 5000mg / 0,3ml
= just below 0,3ml!
• 0,3ml = 300 μ l \Rightarrow D. 270 μ l

Spørsmål 20

25. There are two types of digestion: mechanical and chemical. The mechanical type begins with shredding, grinding, and chewing (mastication). Then it continues with churning in the stomach. Chemical digestion occurs by means of enzymes produced throughout the digestive system. Which of the following does not participate in chemical digestion?

- A. Mouth
- B. Esophagus
- C. Stomach
- D. Pancreas
- E. Small intestine

Svar spørsmål 20

25. There are two types of digestion: mechanical and chemical. The mechanical type begins with shredding, grinding, and chewing (mastication). Then it continues with churning in the stomach. Chemical digestion occurs by means of enzymes produced throughout the digestive system. Which of the following does not participate in chemical digestion?

- A. Mouth → Amylase, lingual lipase
- B. Esophagus
- C. Stomach → Pepsin, gastric lipase ++
- D. Pancreas → !! ENZYME POWERHOUSE!
- E. Small intestine → Brush border (BB) enzymes - lactase

Eks på logikkoppgaver

The following information refers to questions no. 88-92

Five roommates: Rose, Sonia, Tatiana, Uma, and Veronica each do one housekeeping task: mopping, sweeping, laundry, vacuuming, or dusting one day a week; Monday through Friday.

- * Veronica does not vacuum and does not do her task on Tuesday.
- * Sonia does the dusting, and does not do it on Monday nor Friday.
- * Mopping is done on Thursday.
- * Tatiana does her task, which is not vacuuming, on Wednesday.
- * The laundry is done on Friday, and not by Uma.
- * Rose does her task on Monday.

88. What task does Tatiana do on Wednesday?

- A. vacuuming
- B. dusting
- C. mopping
- D. sweeping
- E. laundry

89. Who is responsible for mopping?

- A. Rose,
- B. Sonia,
- C. Tatiana,
- D. Uma,
- E. Veronica

90. When does Sonia do the dusting?

- A. Monday
- B. Tuesday
- C. Wednesday
- D. Thursday
- E. Friday

91. What day does Veronica do her task?

- A. Monday
- B. Tuesday
- C. Wednesday
- D. Thursday
- E. Friday

92. On what day is the vacuuming done?

- A. Monday
- B. Tuesday
- C. Wednesday
- D. Thursday
- E. Friday



Oppsummering/ tips&triks

Oppsummering

- ▶ **Selve opptaksprøven:**
 - ▶ Les undertekster og forstå hva du ser (grafer) før du gyver løs på oppgavene (men ikke bruk for lang tid)
 - ▶ Hvis to påstander motsier hverandre er ofte en av de det riktige alternativet. Samme med nesten like svar.
 - ▶ Lange tekstoppgraver: Les spørsmålene før du leser oppgaveteksten
 - ▶ Bruk fornuften
 - ▶ Hente tid der du kan → Er du sikker, gå videre.
- ▶ Øve på å prosessere mye informasjon raskt
- ▶ Gjennomfør tidligere opptaksprøver under tidspress
- ▶ Les smart → De store temaene
- ▶ Kjenn til og jobb med dine svakheter
- ▶ Stol på intuisjonen og magefølelsen (hvis du er godt forberedt)

Tusen takk for meg!

Lykke til, vi heier på deg!





Mails:

amanda-ab@hotmail.com

larsgulbrandsen.qa@gmail.com