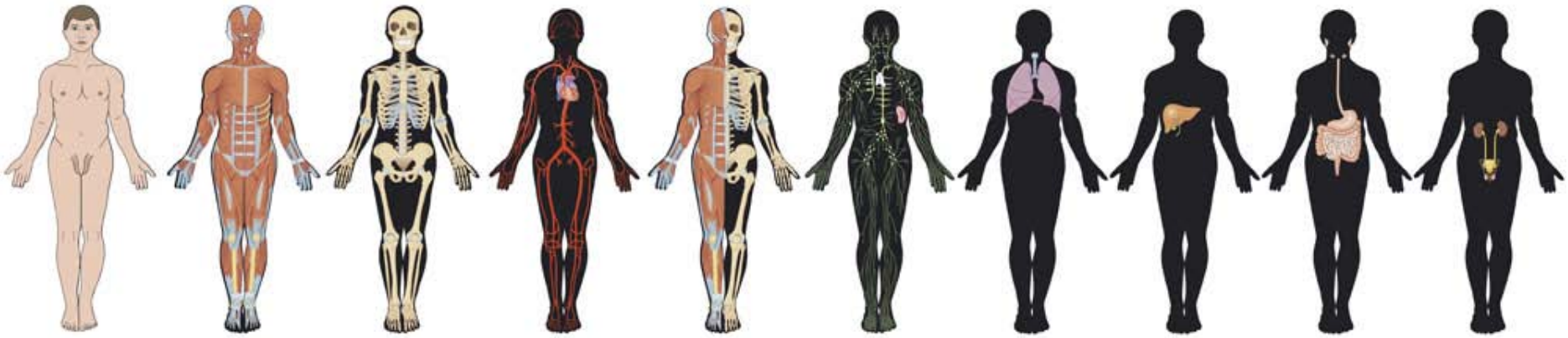
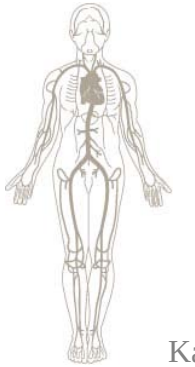
Color me beautiful!

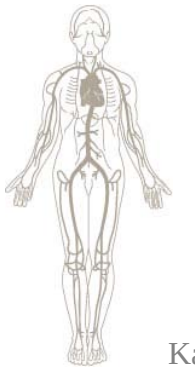
Insight into the field of medical illustration

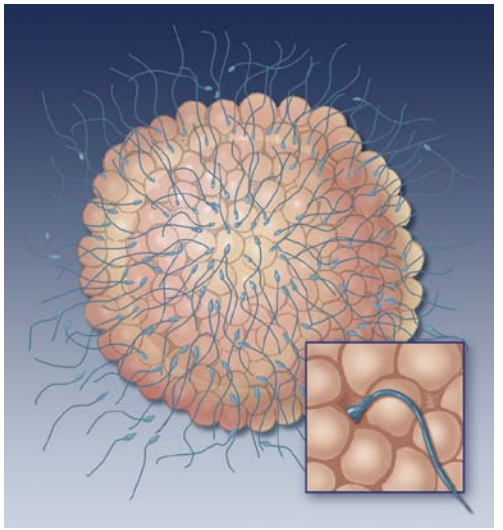




How do you become a medical illustrator?

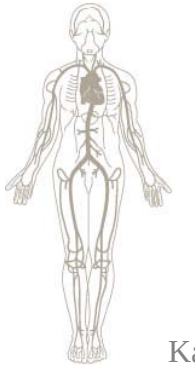
- Background
  - Bachelor of Arts degree in Art and Biology
    - Macalester College, St. Paul, Minnesota
  - Master of Science degree in Medical illustration
    - Medical College of Georgia
  - Certified medical illustrator
    - Must be renewed every 5 years



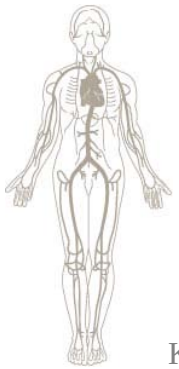


My career

- Universitetsforlaget, Oslo
  (University press)
  - 1983 until 1989
- Self-employed
  - 1989 until 2005
- Kari C. Toverud AS (Inc.)
  - 2006 until present



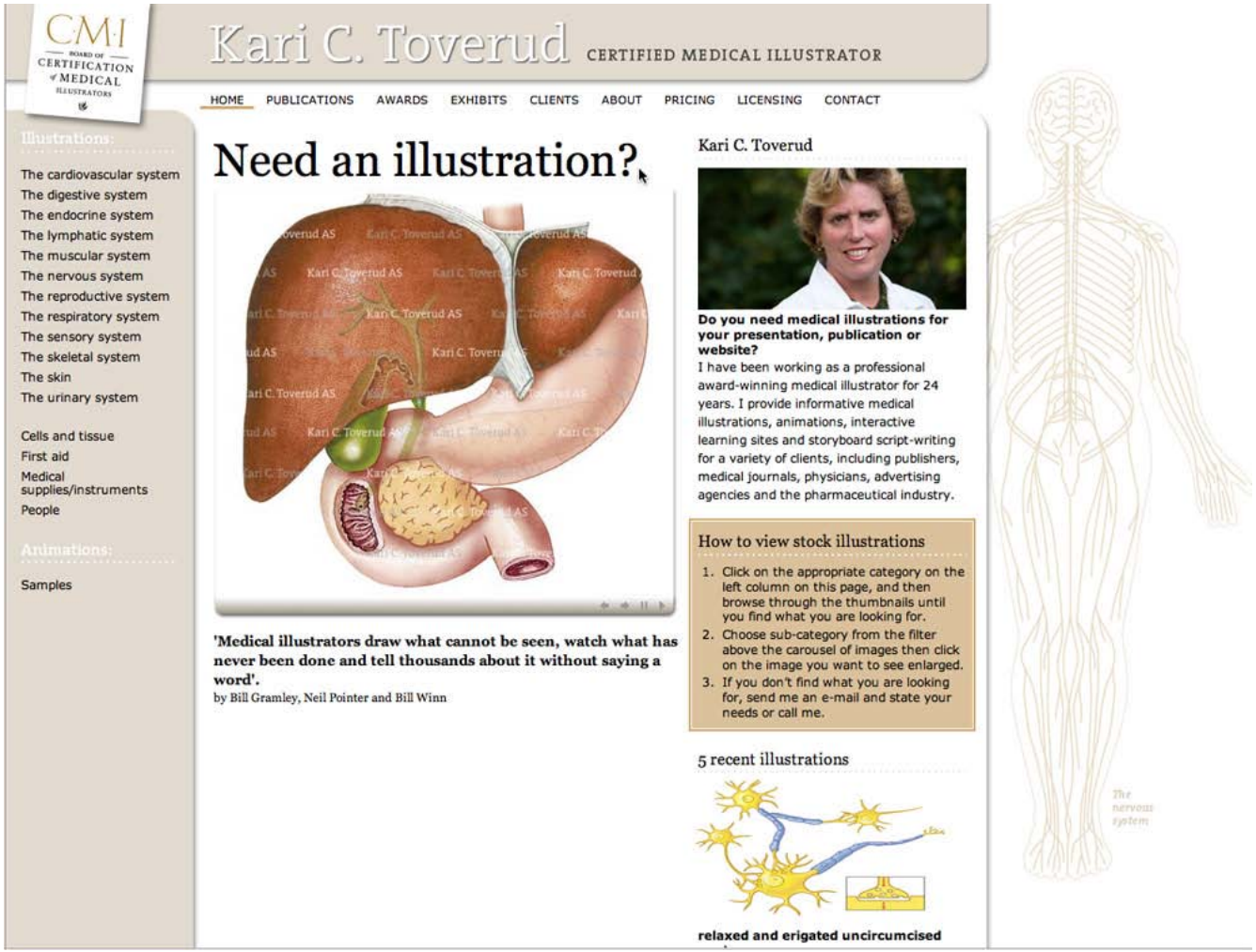
My office



My clients

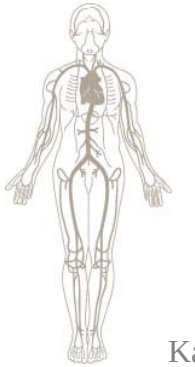
- Publishers
  - Textbooks
  - Reference books
  - Interactive websites
- Journals and newspapers
- Pharmaceutical companies
- Hospitals
- State institutions

www.karitoverud.com



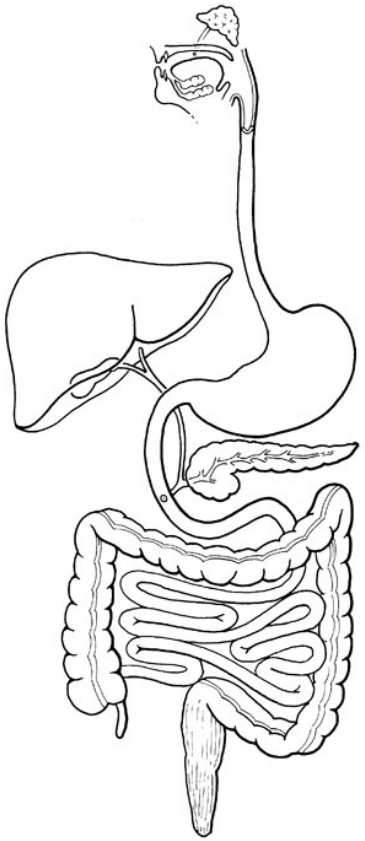
How do I approach a new drawing?

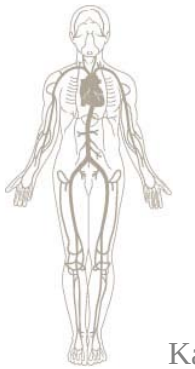
- Intended audience?
  - Medical background
  - Lay audience
    - adult
    - child



Choice of illustration style

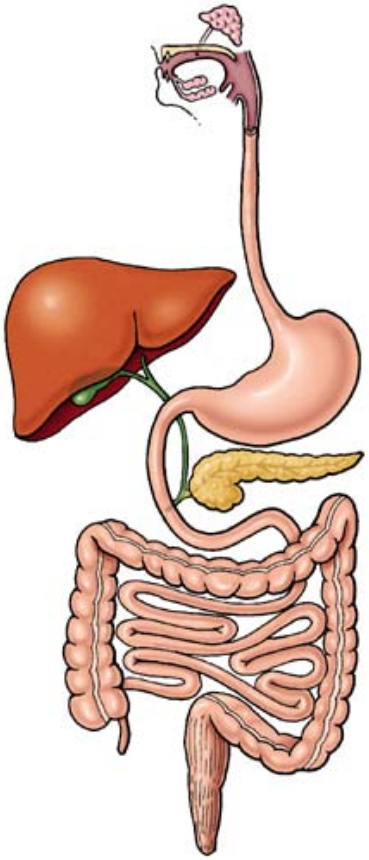
- Schematic
  - Only line

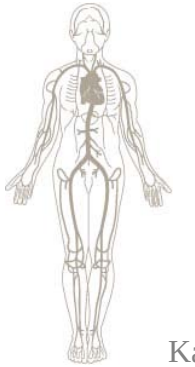




Choice of illustration style

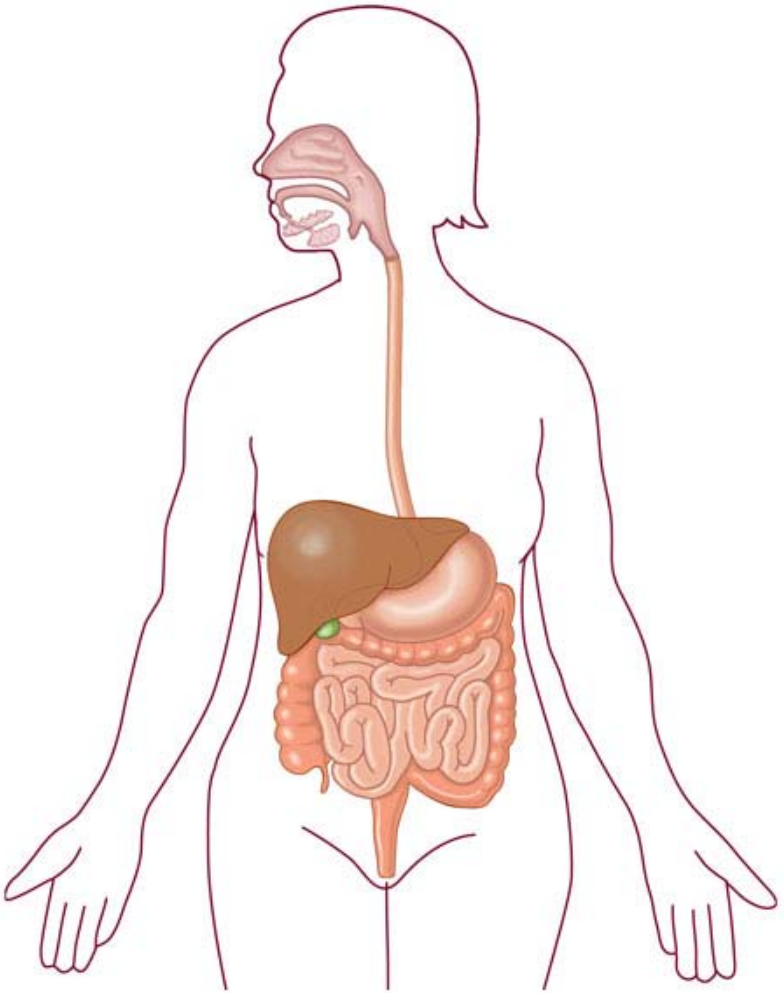
- Schematic
  - With color

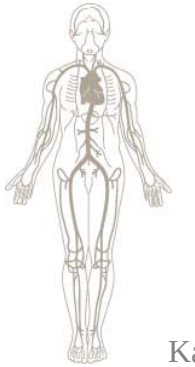




Choice of illustration style

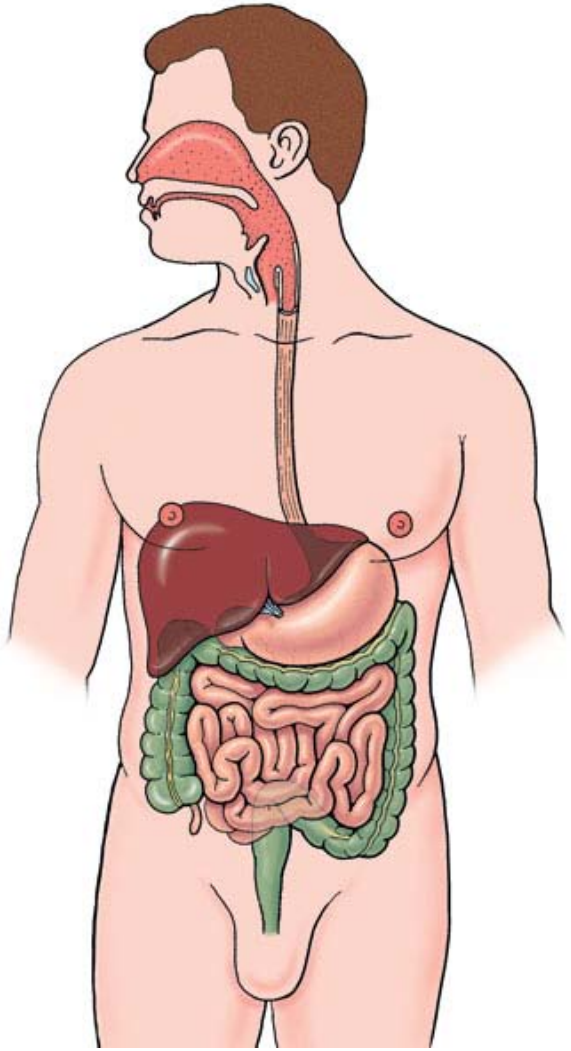
- Anatomically correct and with only a body contour

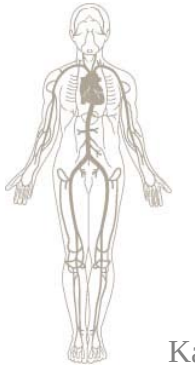




Choice of illustration style

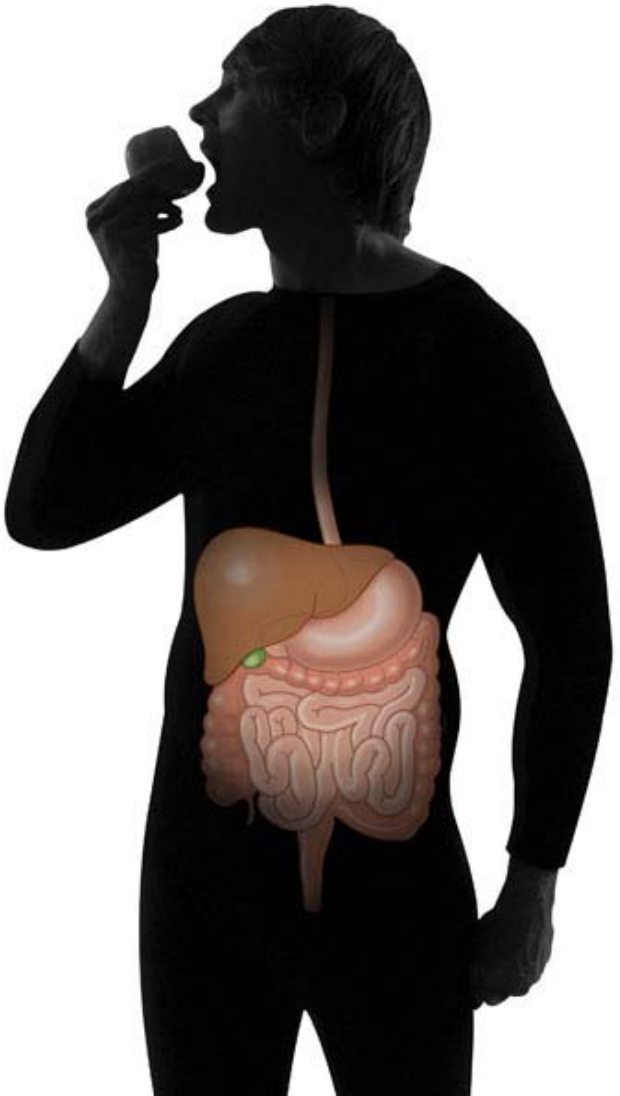
- Anatomically correct and fully rendered

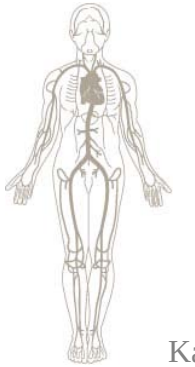




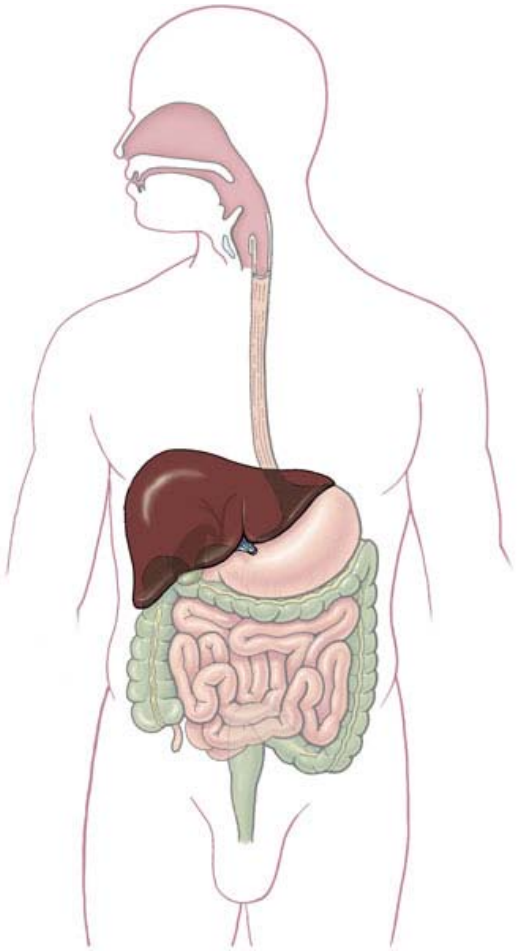
Choice of illustration style

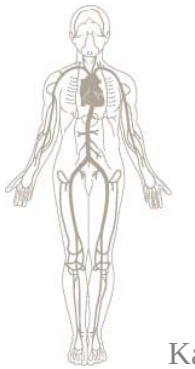
- Create a more dramatic atmosphere



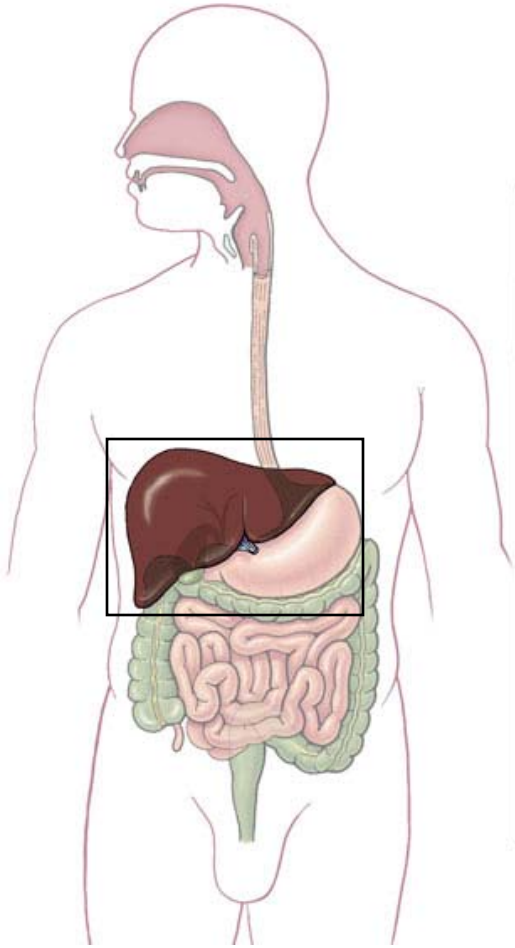


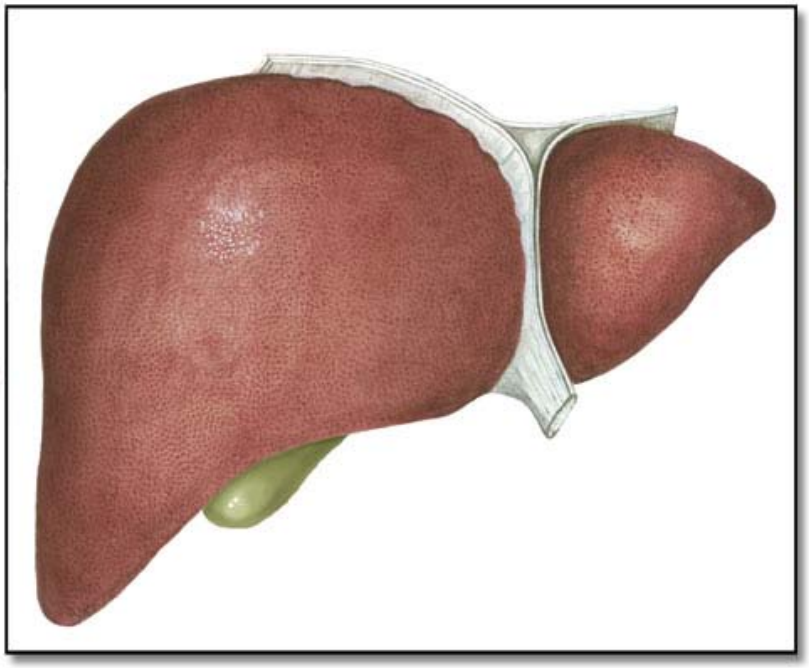
Where to focus?

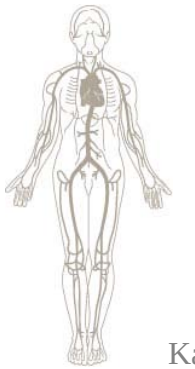




Where to focus?

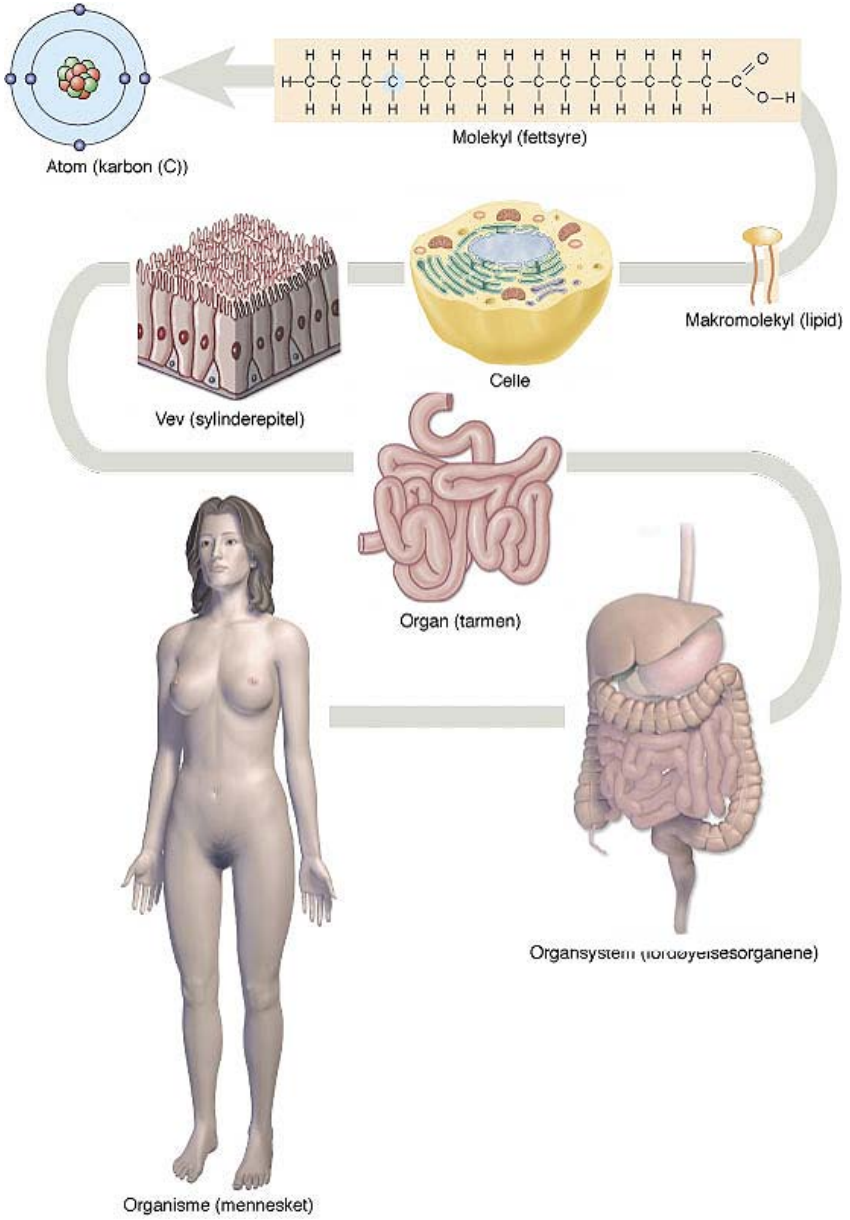


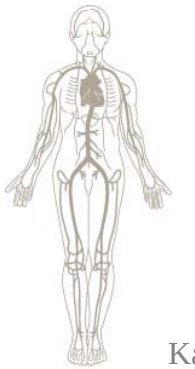


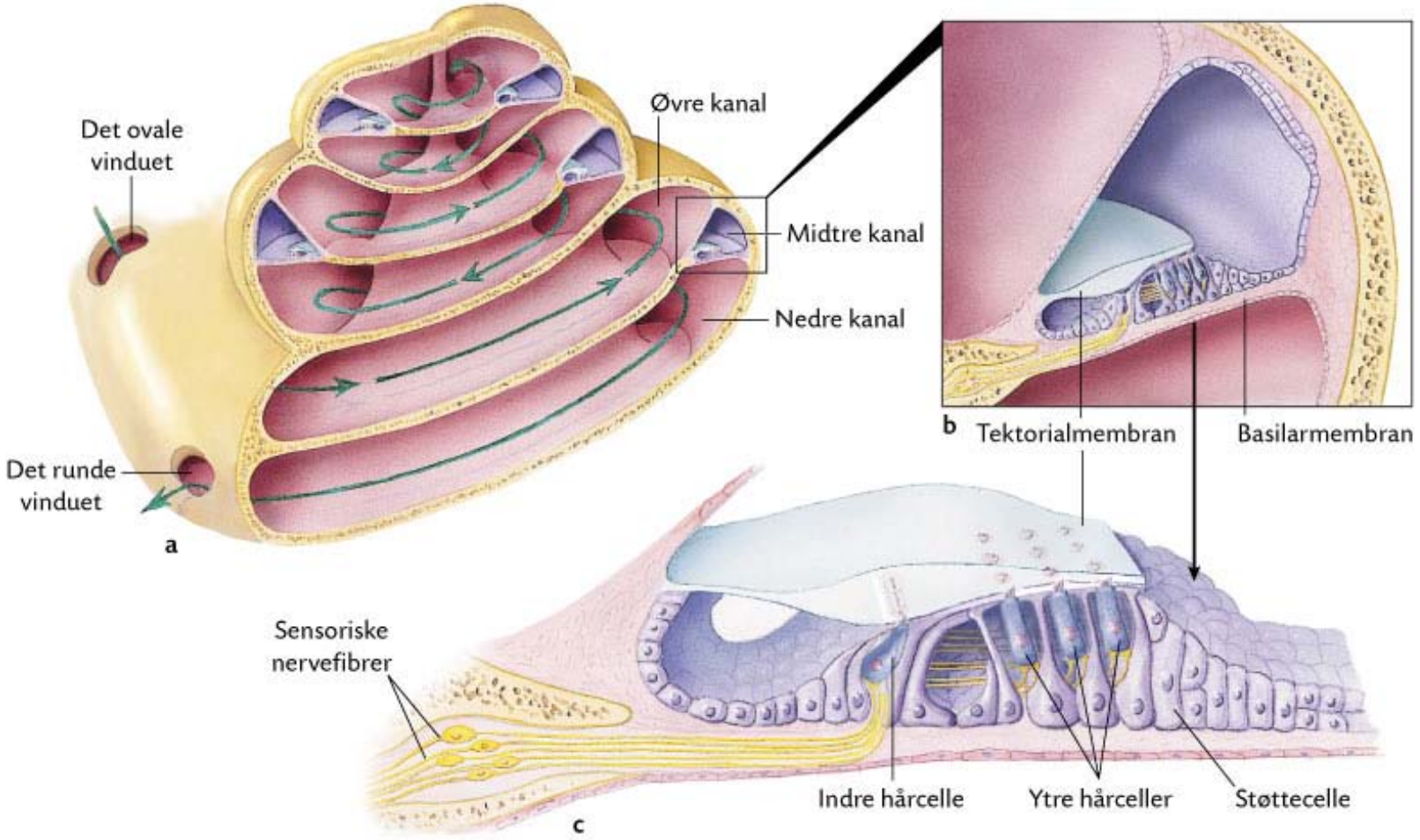


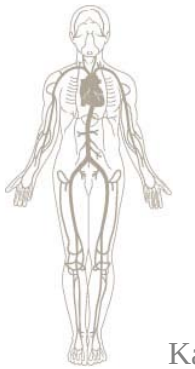
Orientation

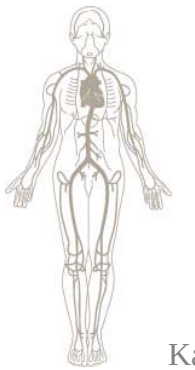
- From macro to micro
- Leading the reader deeper and deeper

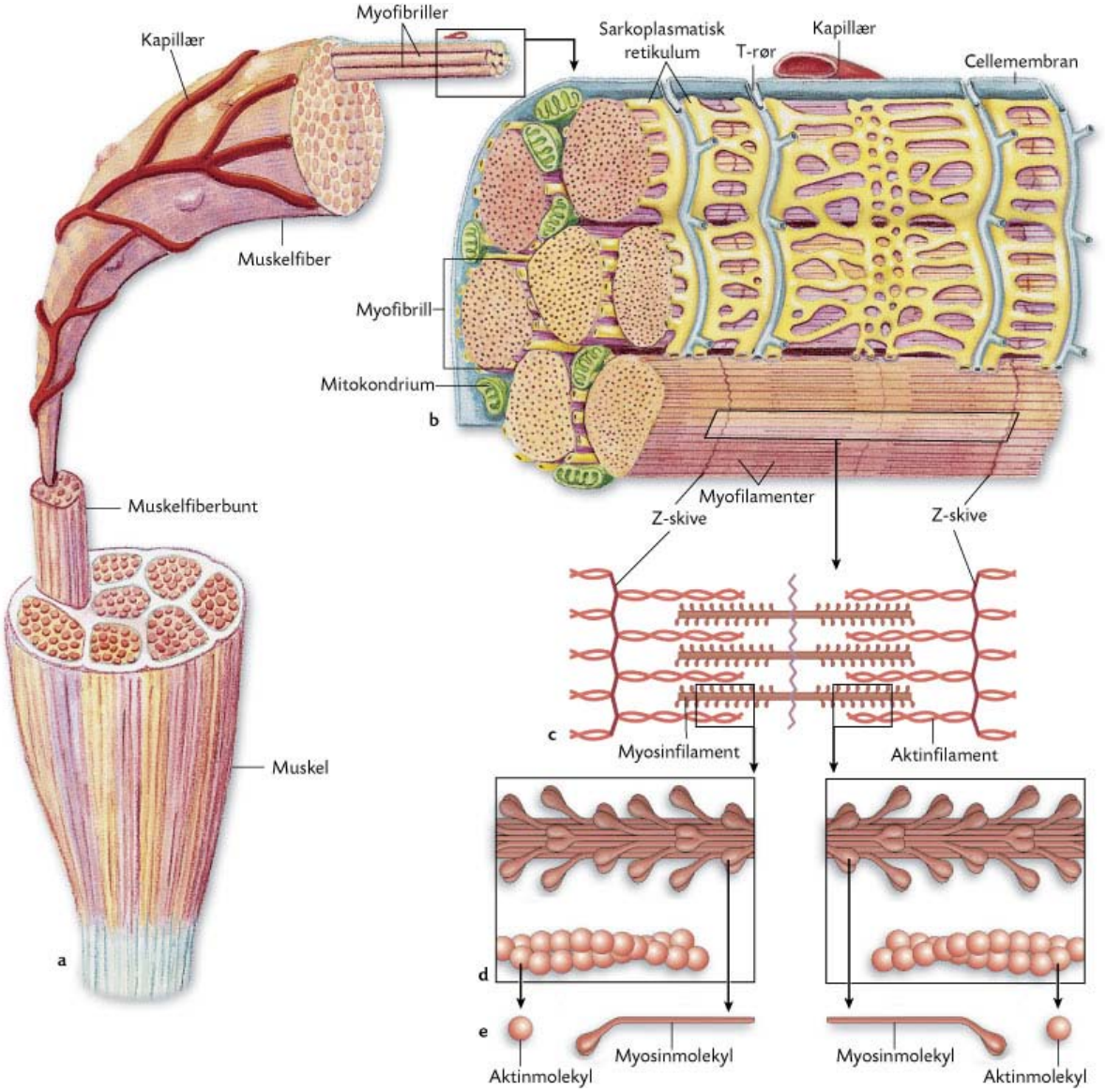





Det ovale vinduet
Øvre kanal
Midtre kanal
Nedre kanal
Det runde vinduet
a
b
Tektorialmembran
Basilarmembran
Sensoriske nervefibrer
Indre hårcelle
Ytre hårceller
Støttecelle
c






Myofibriller
Kapillær
Sarkoplasmatisk retikulum
T-rør
Kapillær
Cellemembran
Muskelfiber
Myofibrill
Mitokondrium
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Myofilamenter
Z-skive
Z-skive
Muskelfiberbunt
c
Myosinfilament
Aktinfilament
Muskel
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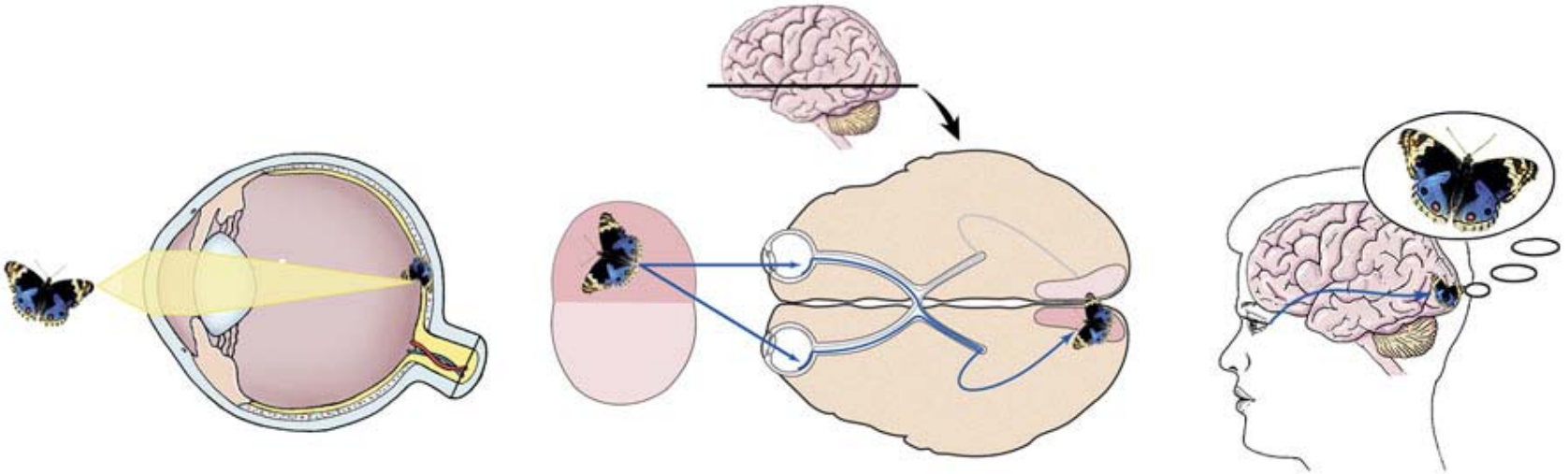
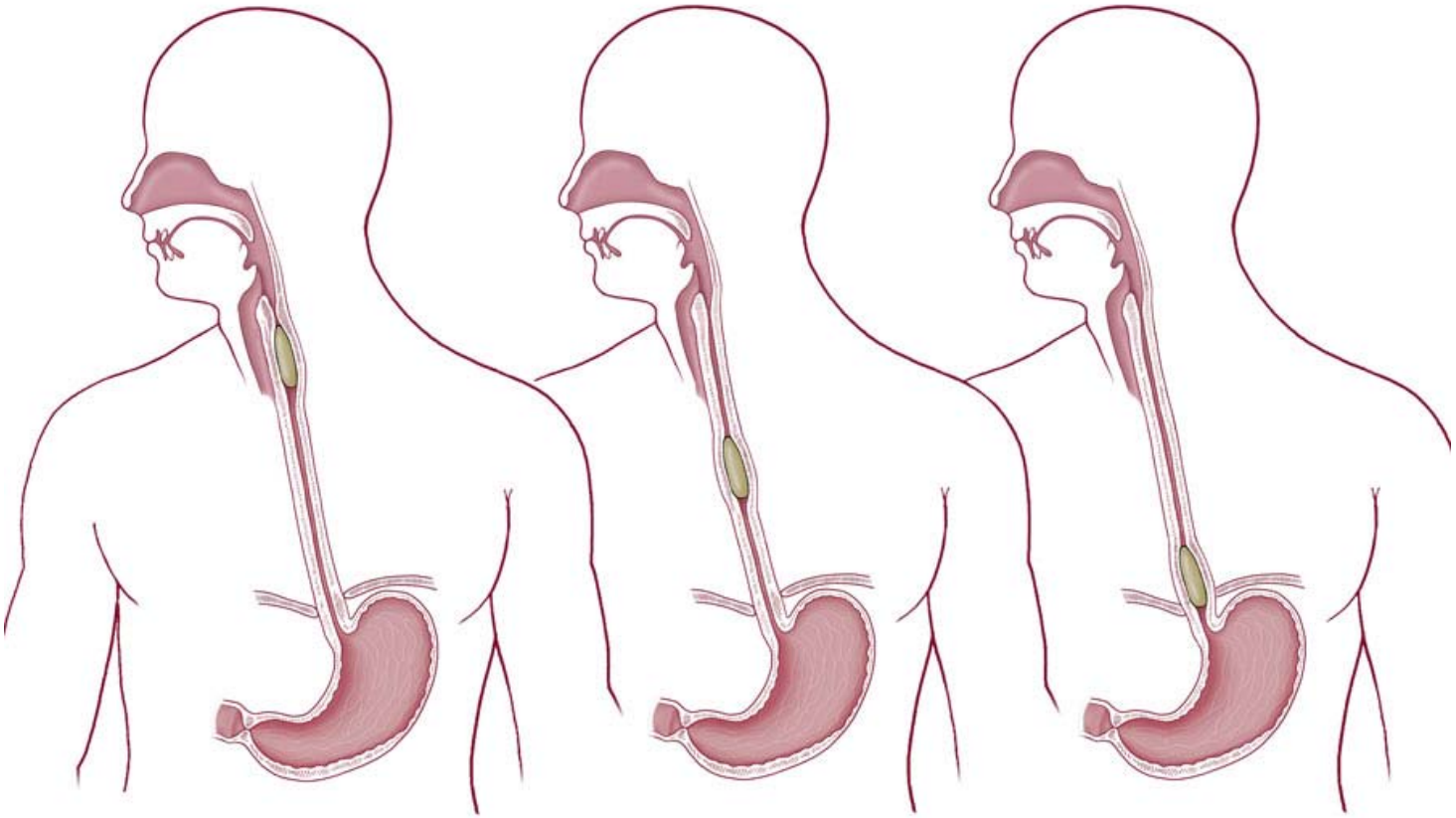
e
Myosinmolekyl
Myosinmolekyl
Aktinmolekyl
Aktinmolekyl

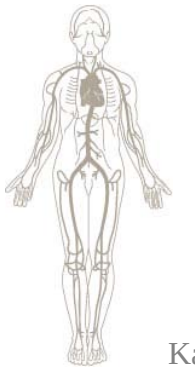
Serial technique

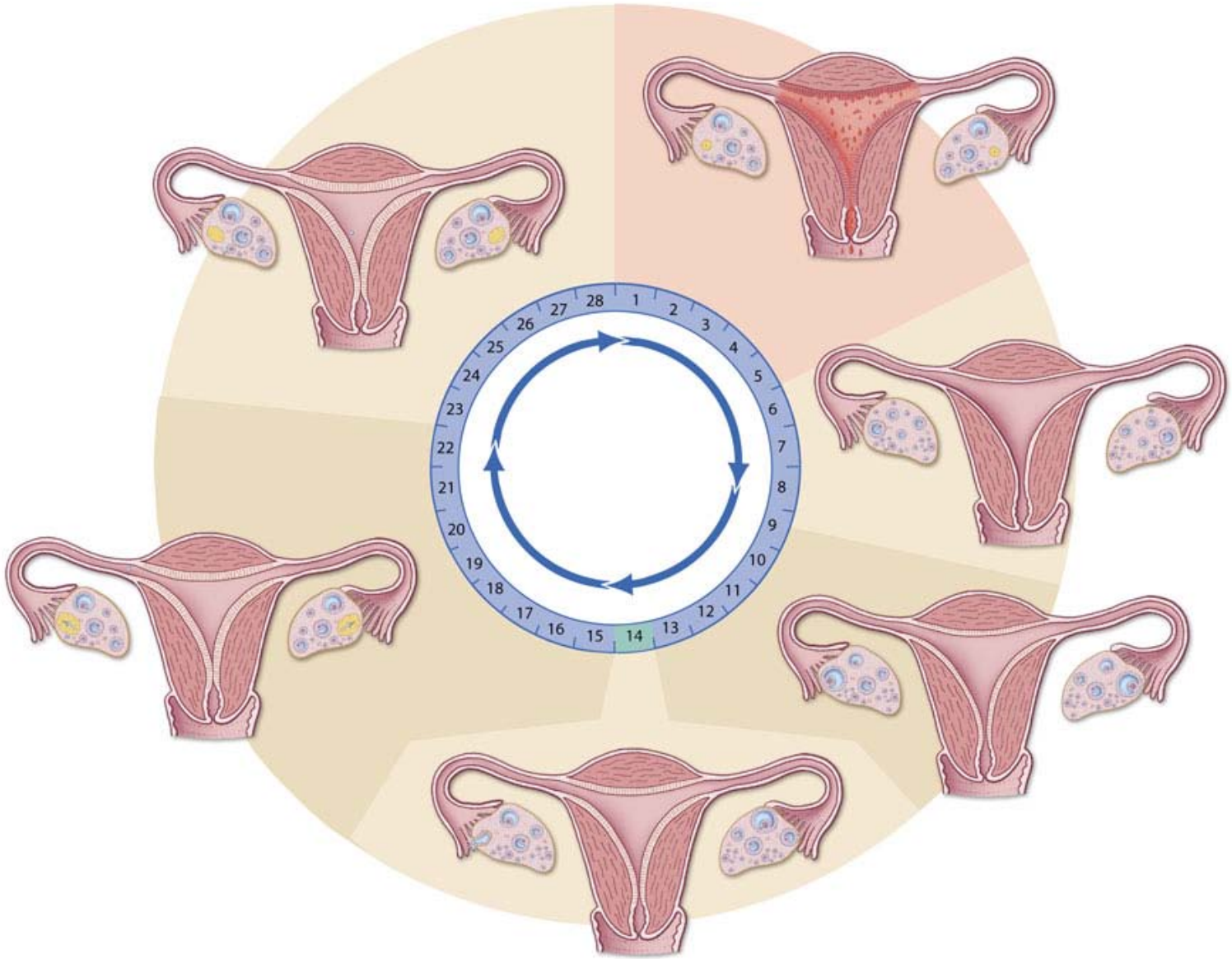
- Several images put together to convey a story



Serial technique



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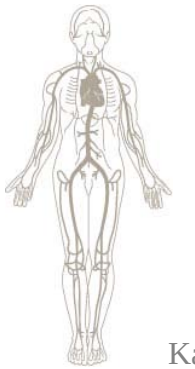
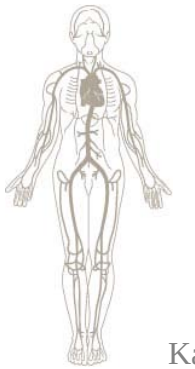
Photorealism

- A photograph documents reality
- It gives authenticity which an illustration cannot
- But a photograph shows only what the eye can see and captures a precise moment
  - It does not explain the relationship, concept and the effect of what we see

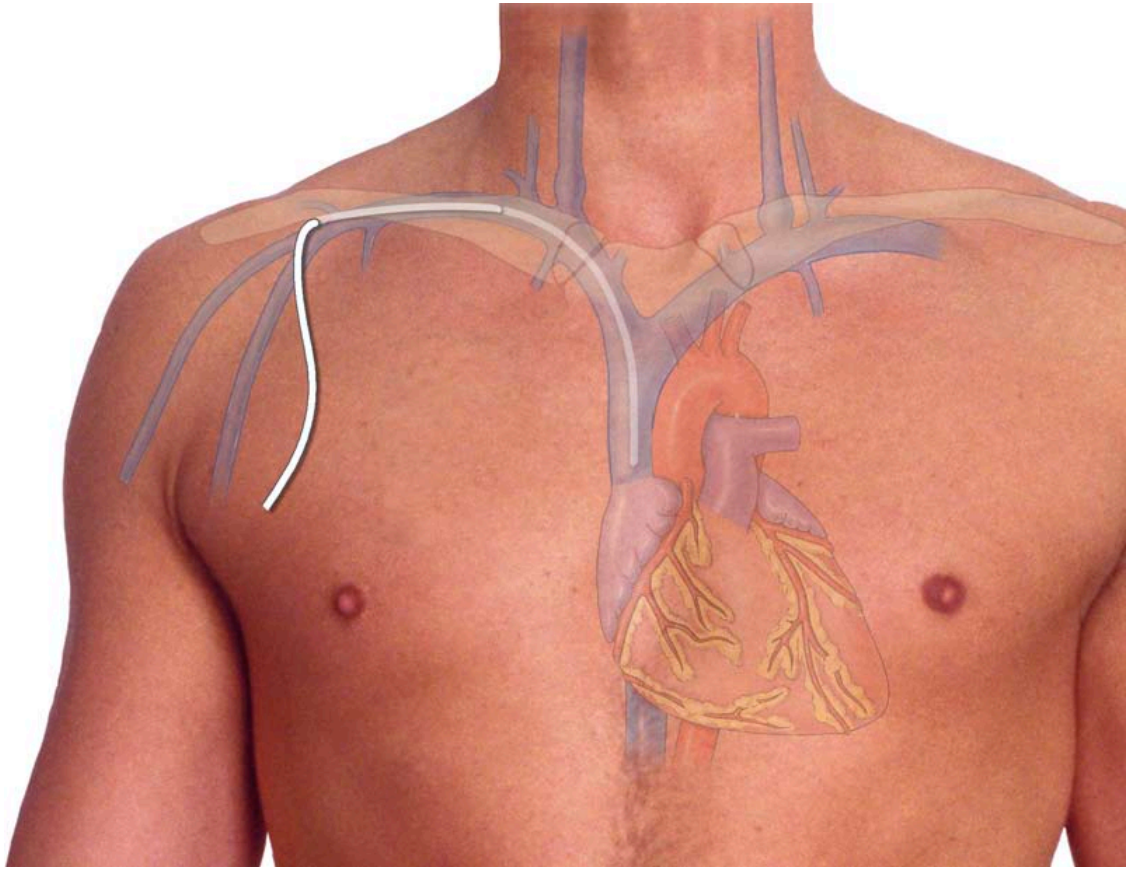


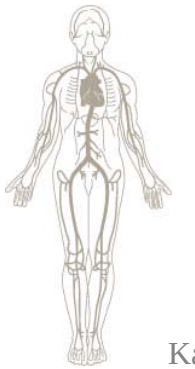
Enhancement by photorealism



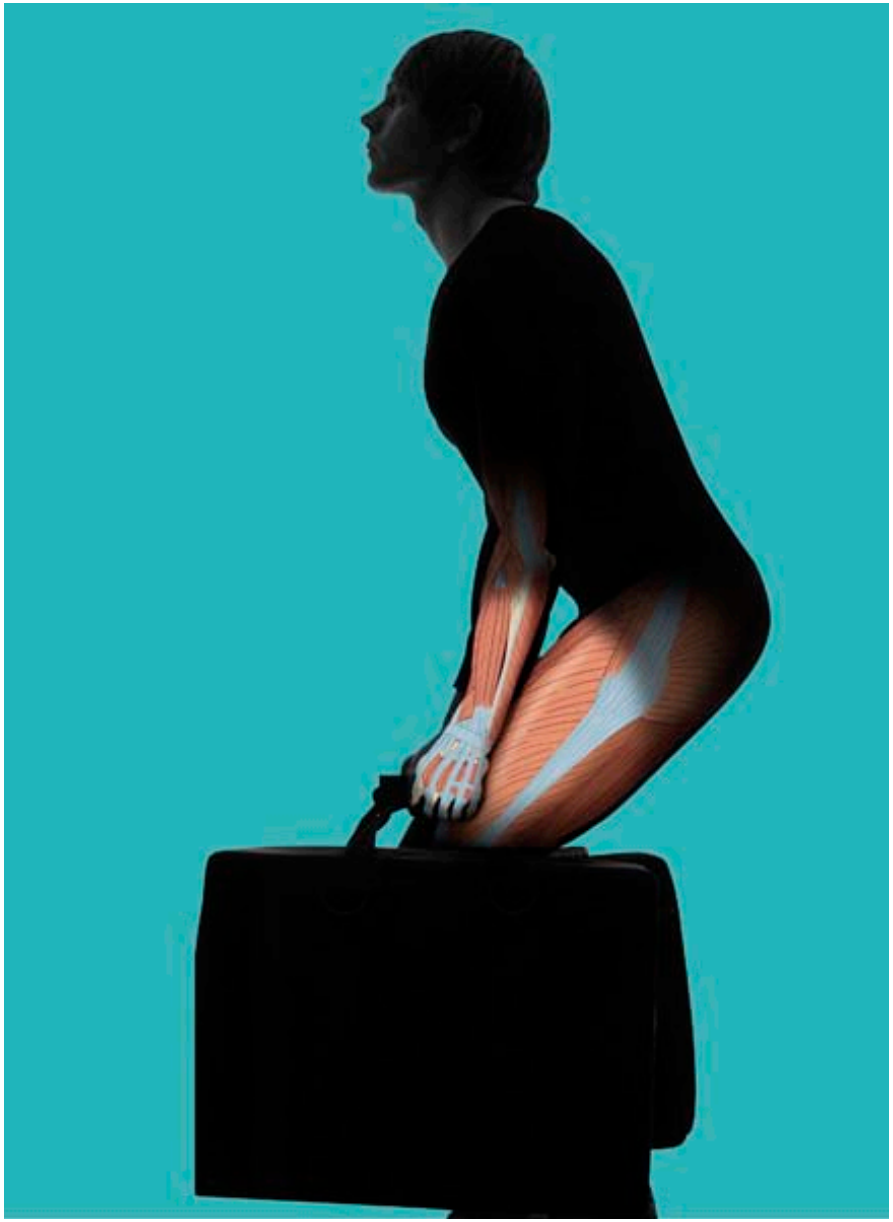
Central vein catheter

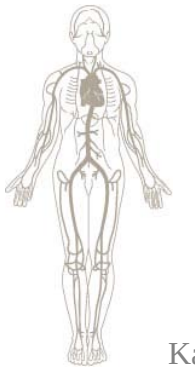
Central vein catheter



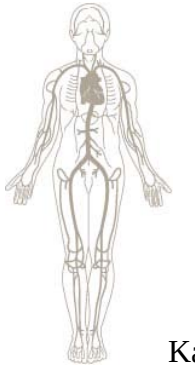


Mouth-to-mouth resusitaton



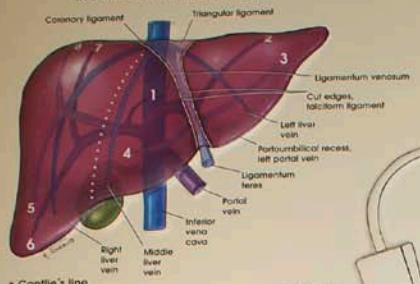


CT, ultrasound and MRI scans

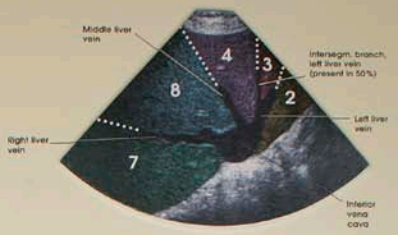


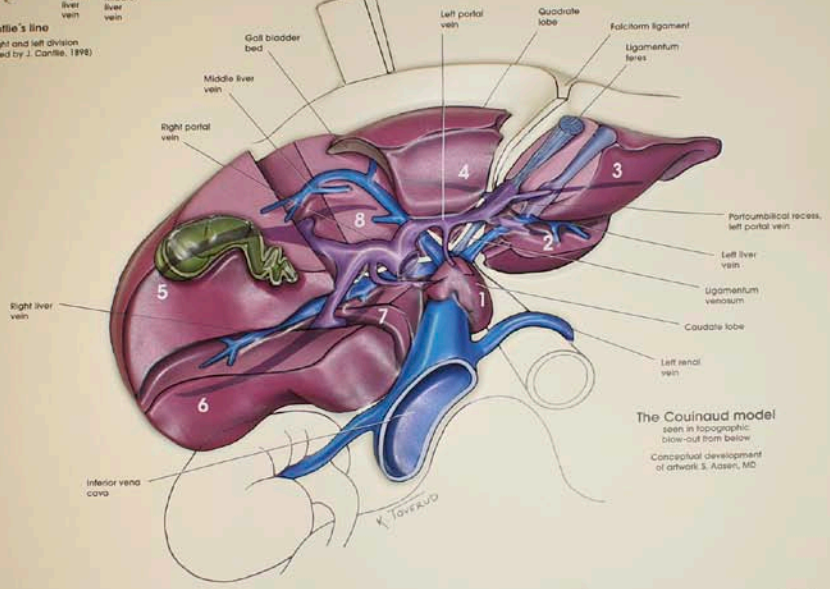
THE LIVER SEGMENTS

Defined by the portal branching and the liver veins

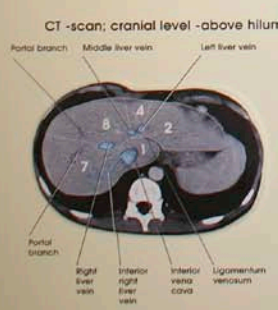


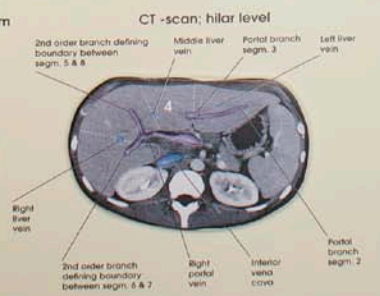
* Cantlie's line
(True right and left division described by J. Cantlie, 1898)

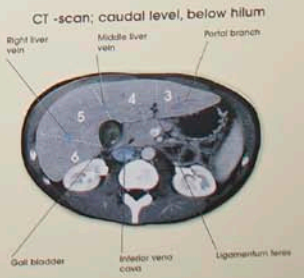




The Couinaud model
seen in topographic blow-out from below
Conceptual development of artwork: S. Aasen, MD





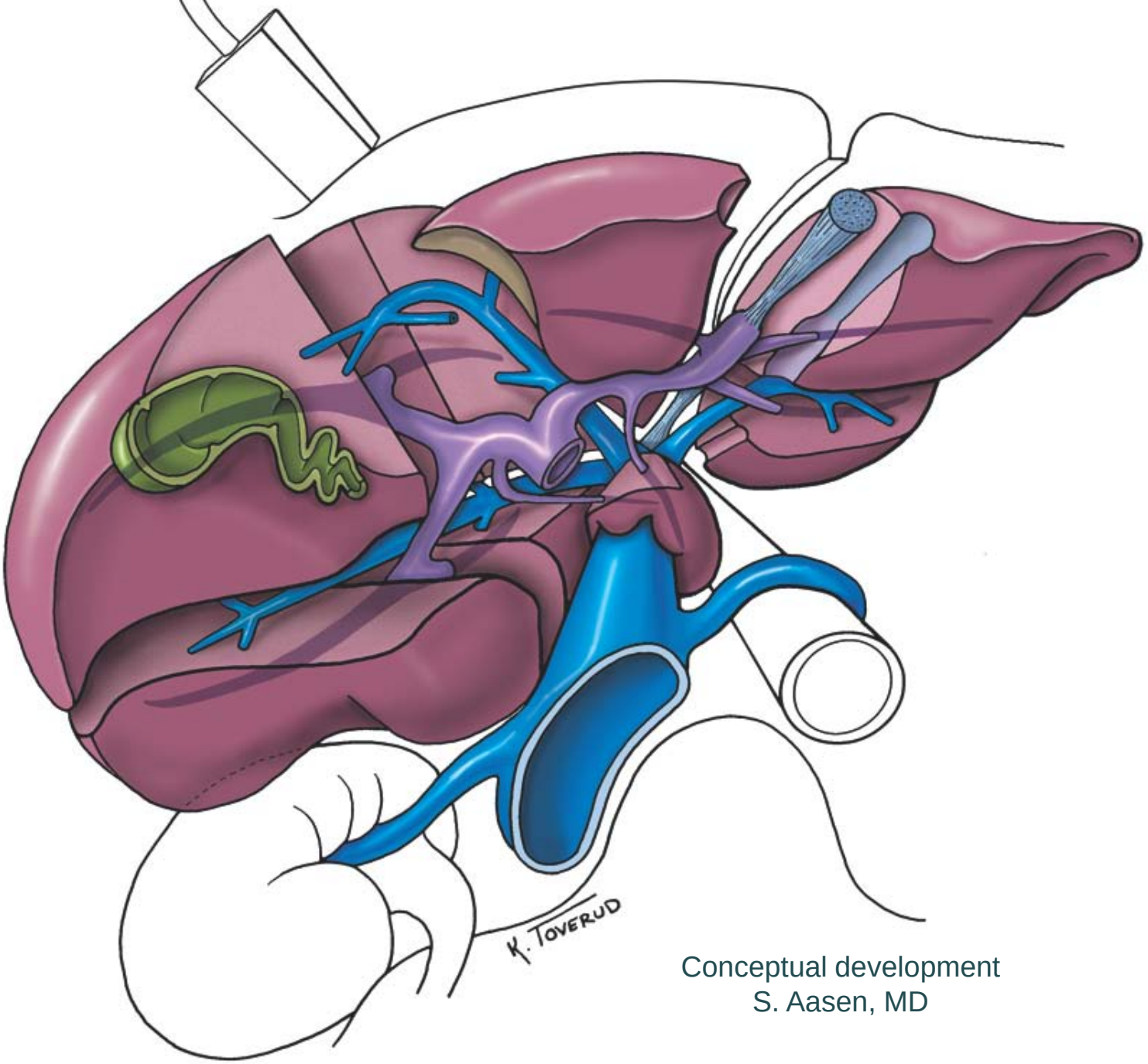


Levovist

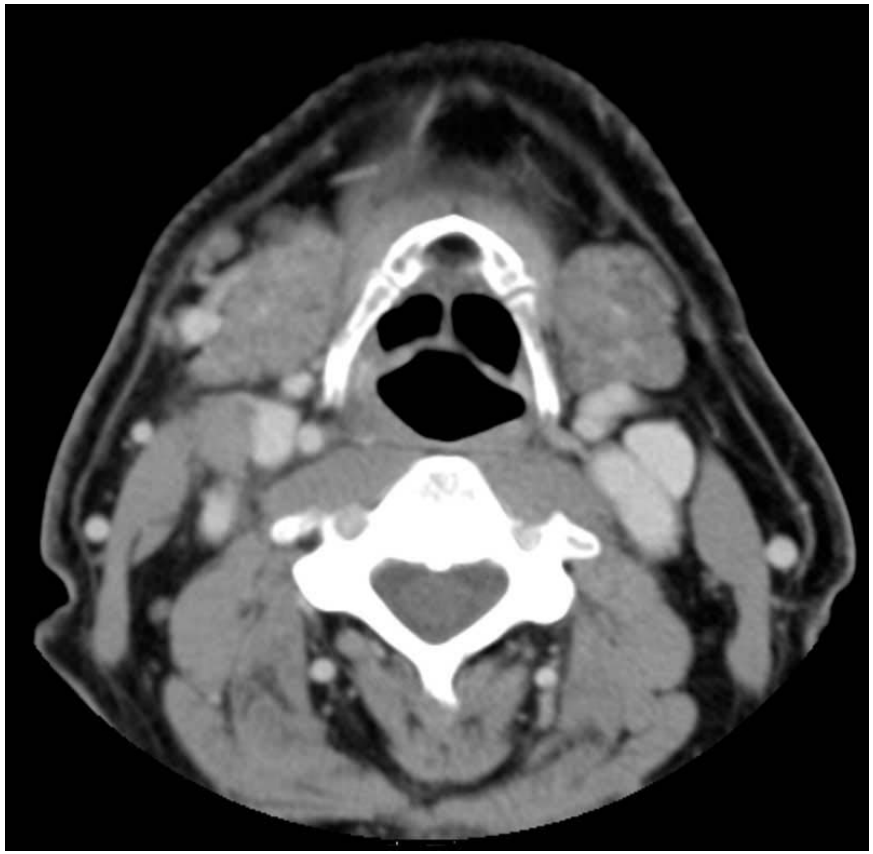
SCHERING

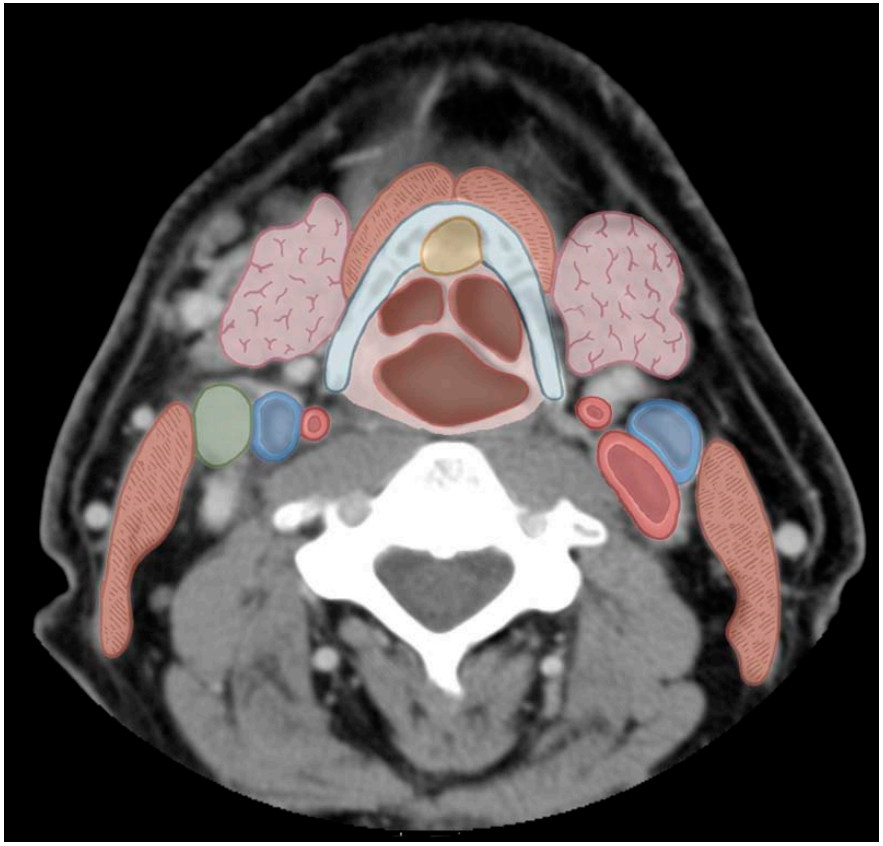
Ultravist

1989

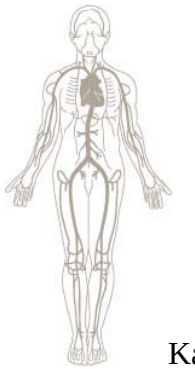


Conceptual development
S. Aasen, MD



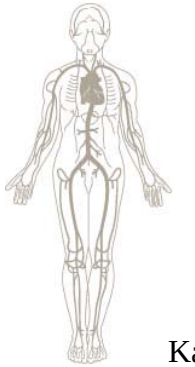


2004



Volumetric rendering

- Great reference
- Time-saver
- Nontraditional views
- Photorealism



Jessica Doe - Skull Fractures

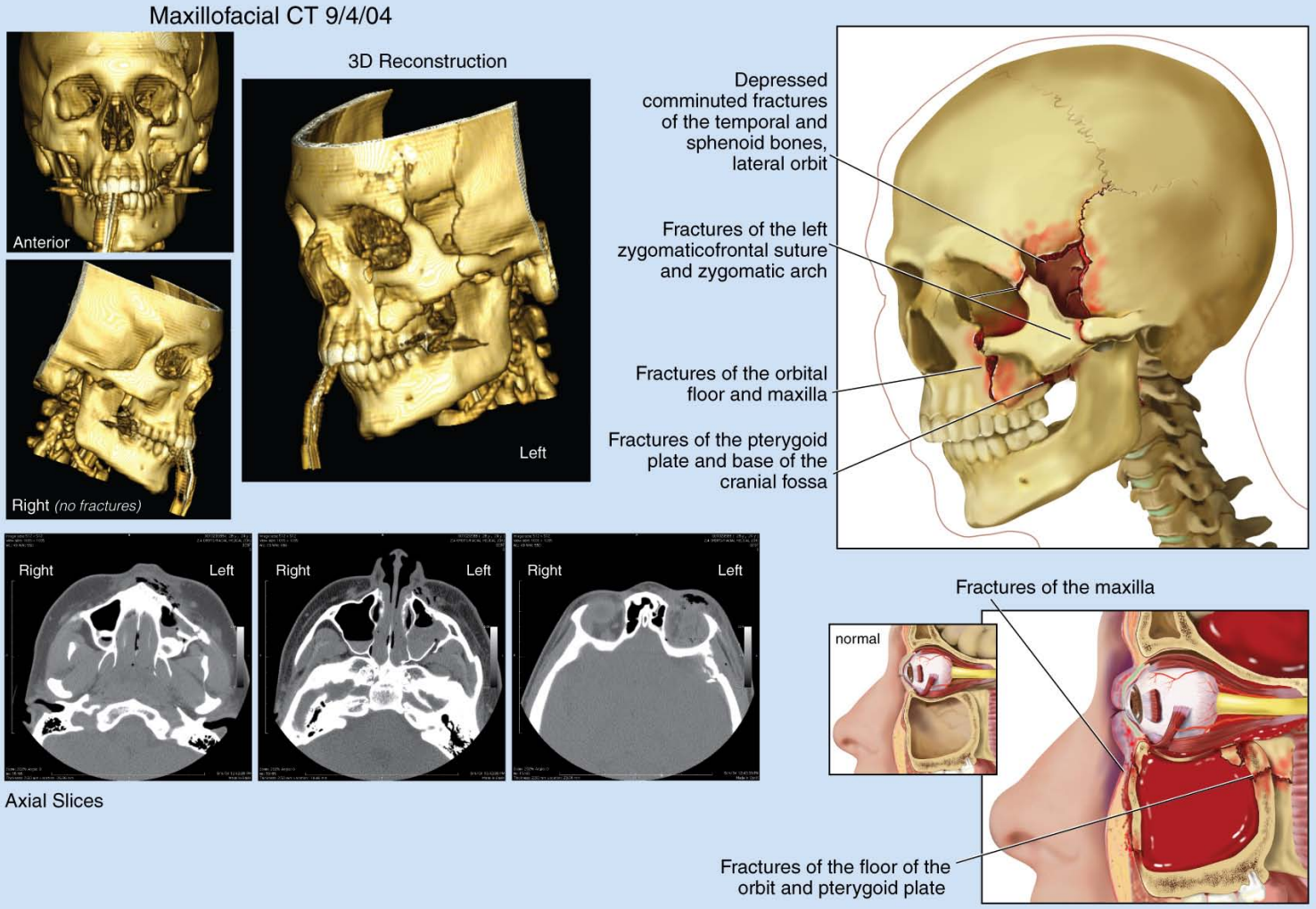
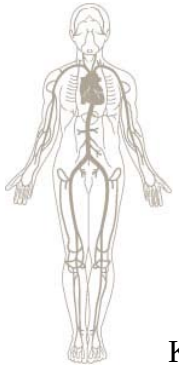


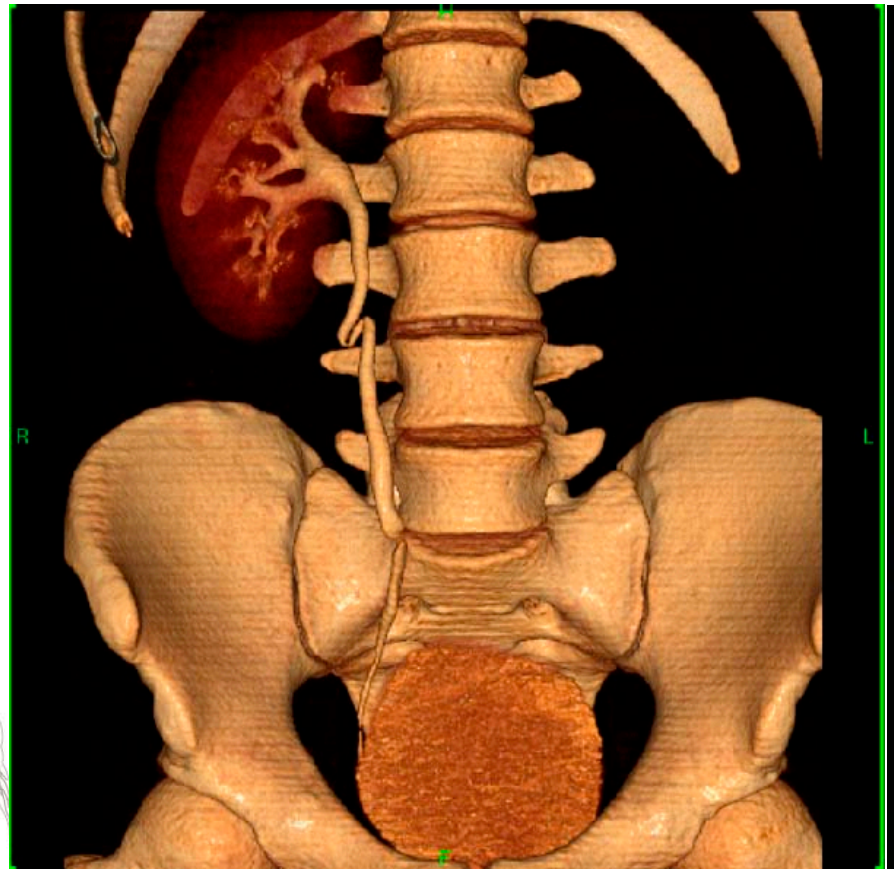
Illustration by Pat Tomas CMI

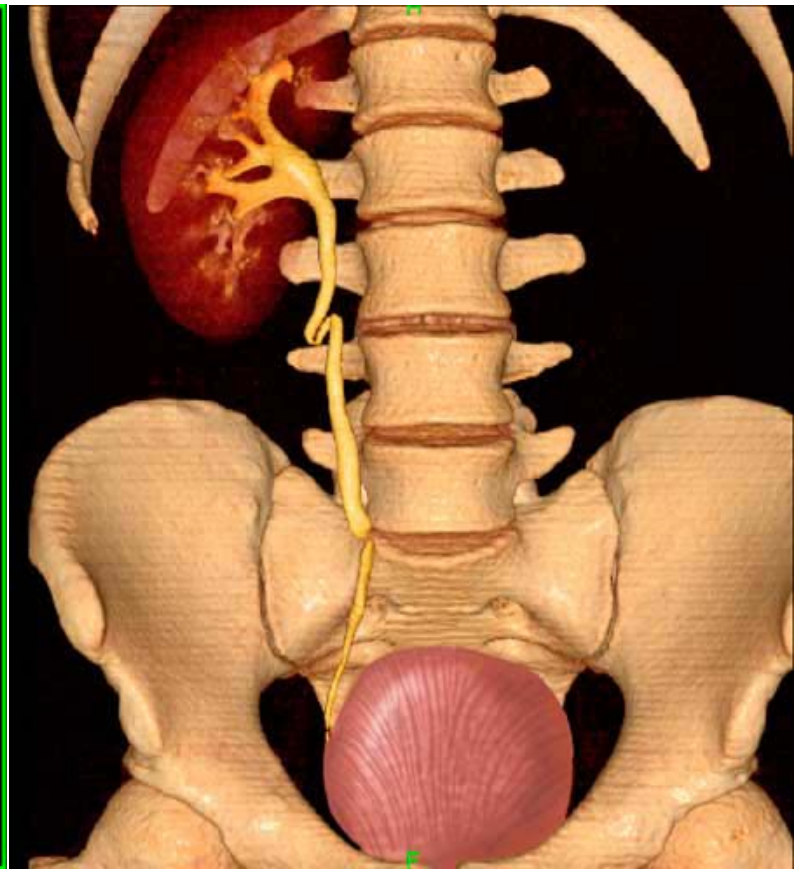
Osirix and artist combined

Illustration by Edmond Alexander CMI

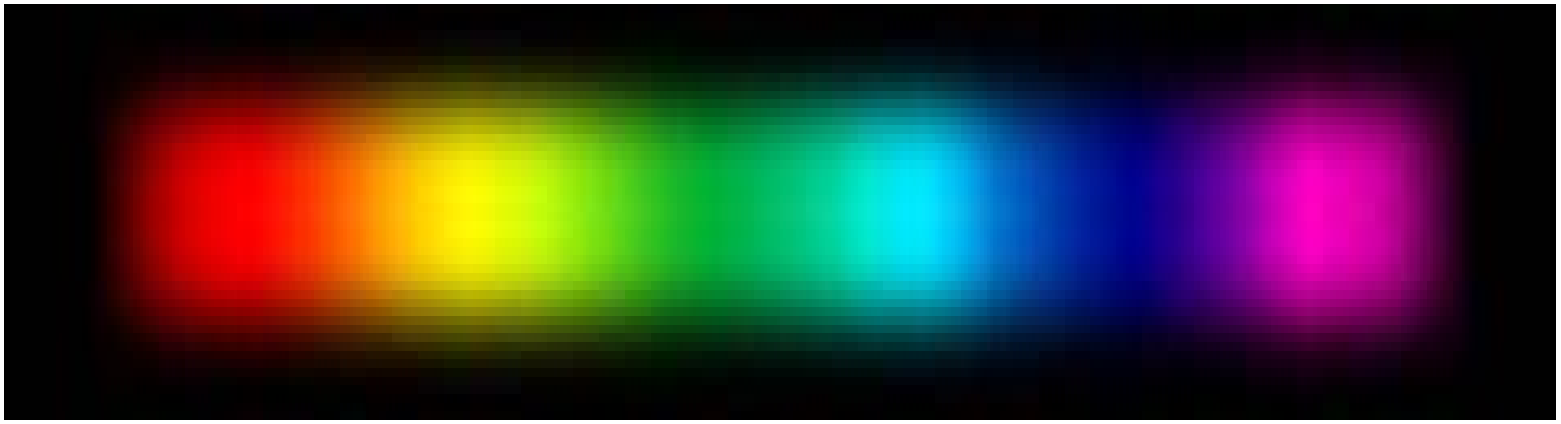


Color enhancement

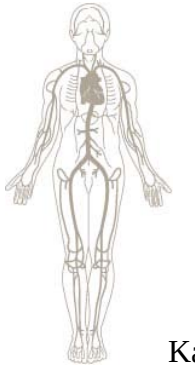




Use of color in medical illustration

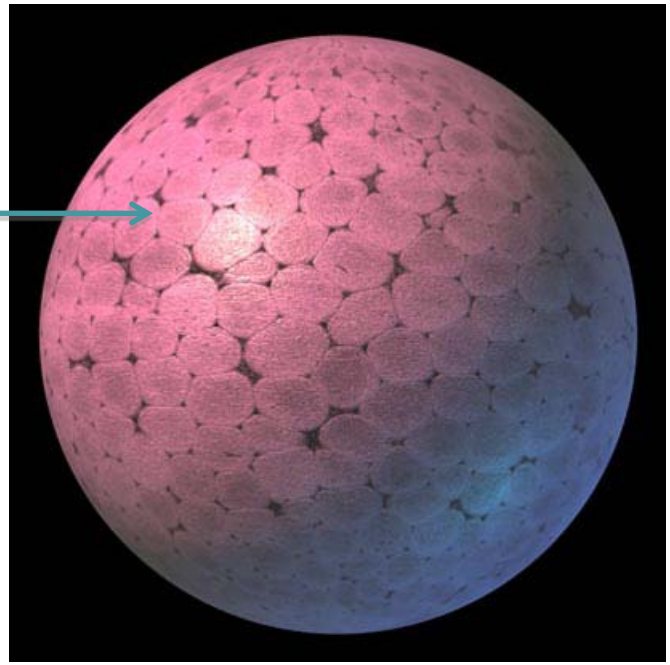


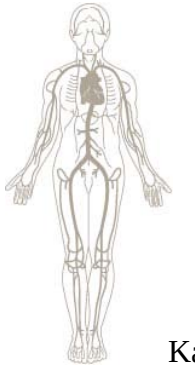
Images and text by Bill Andrews CMI
Dept. of Medical Illustration
Medical College of Georgia



Forms in Light

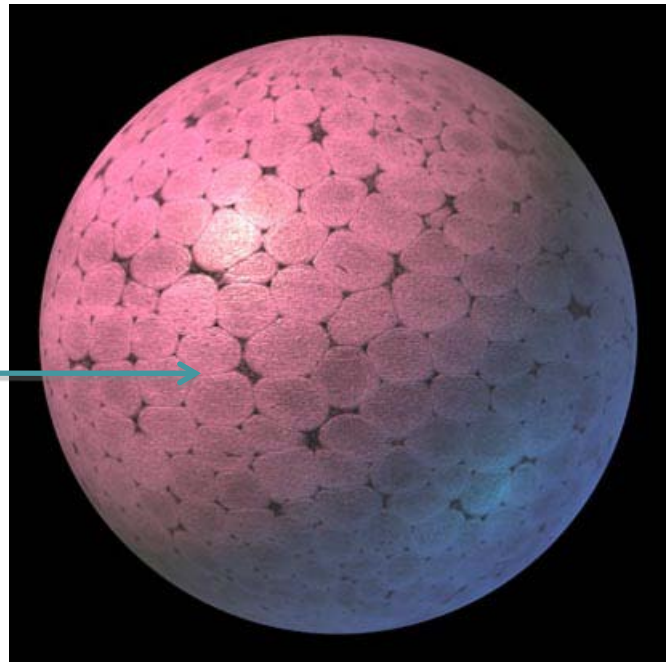
- Color exists where the light falls

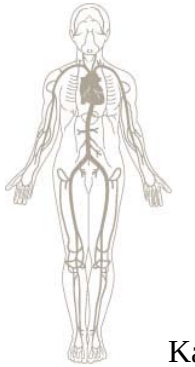




Color the halftone area

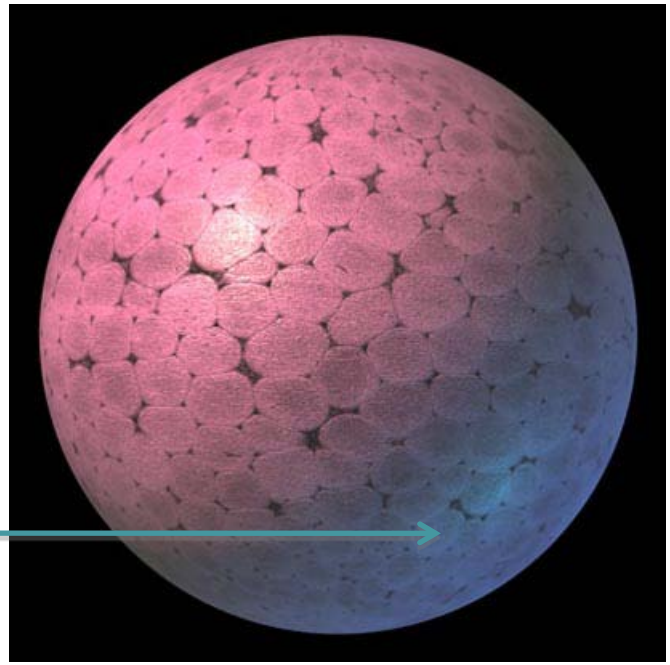
- The area of the purest, most intense local color occurs in the halftone area of a form

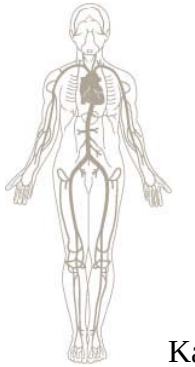




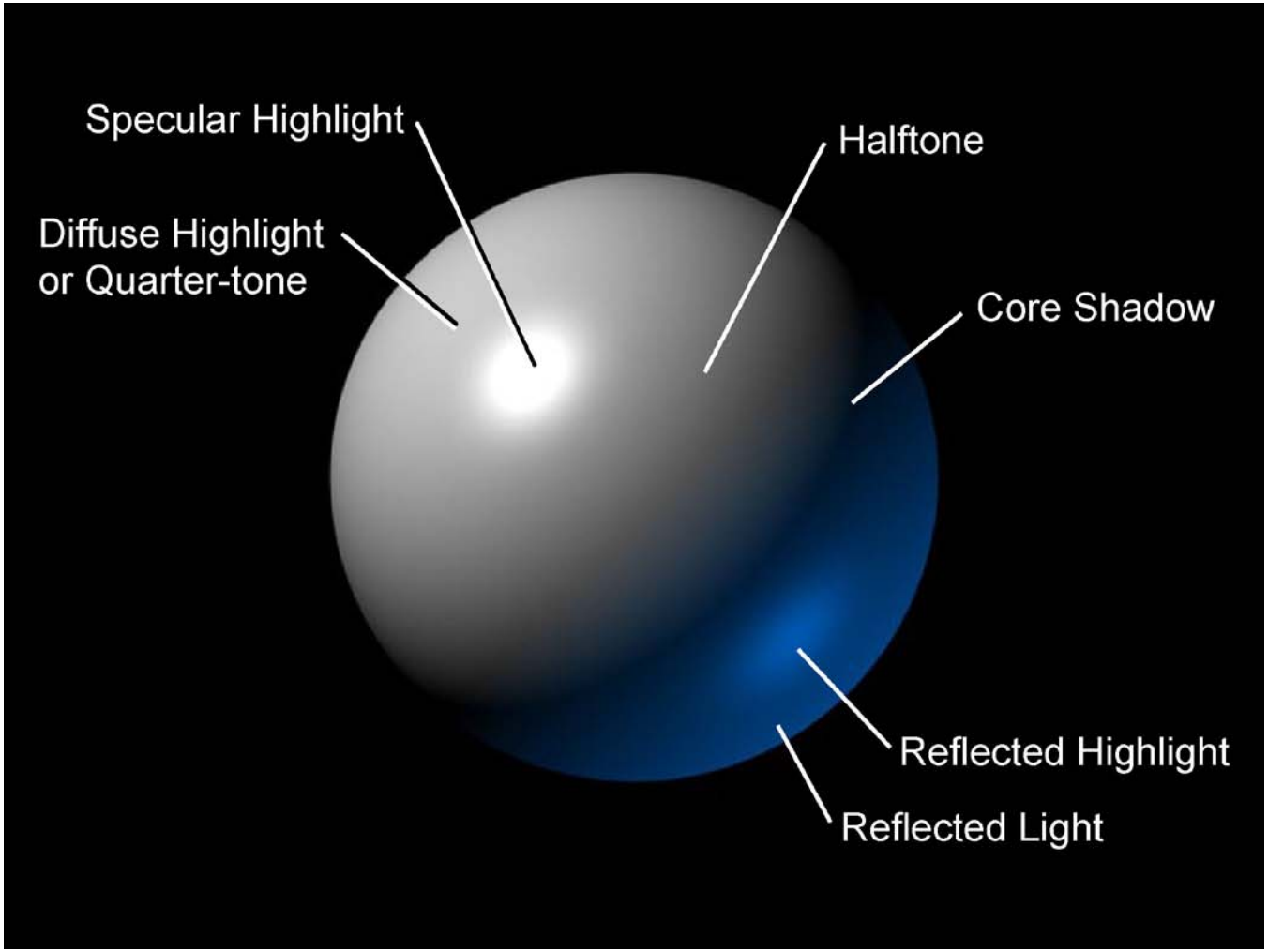
Forms in Light

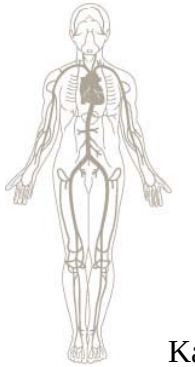
– Reflected light takes on the local color of the object from which it receives the reflection





Basic Form Lighting





Directing light source

– Medical illustrators are taught to use upper left-hand lighting as standard

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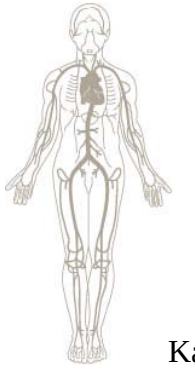

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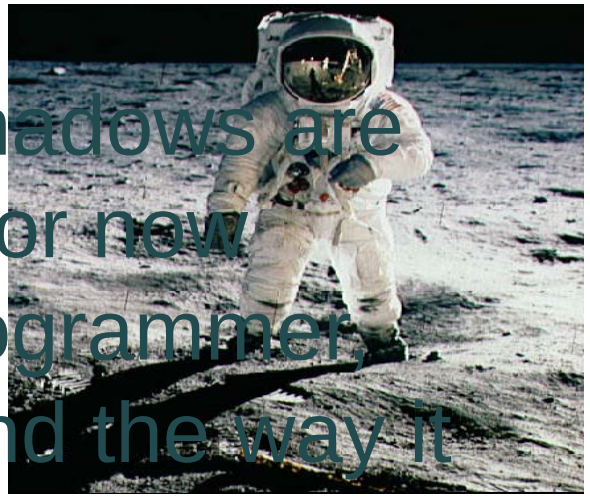
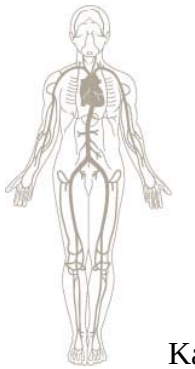
Shadows are never black

- The only place where the shadows are totally black is on the moon and in space, where there is very little atmosphere

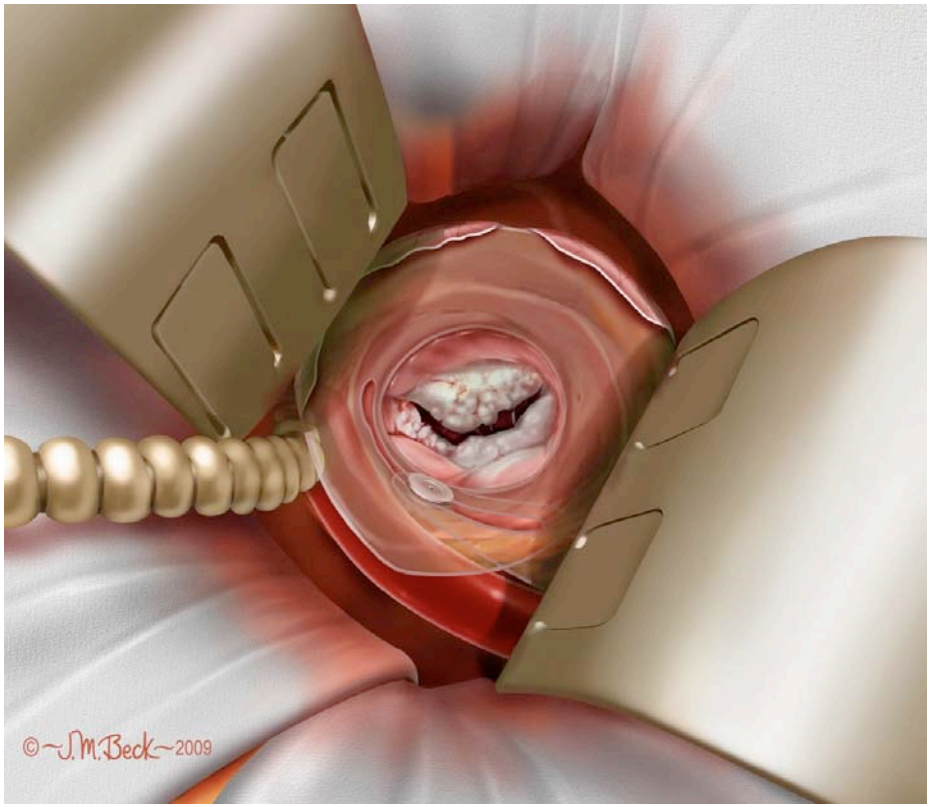


3D computer generated shadows are often black until the artist, or now hopefully the computer programmer, takes control of the light and the way it interacts with object surfaces



Light-filled Shadows

- Because of the influence of ambient light and reflected light, shadows can and **do** have color



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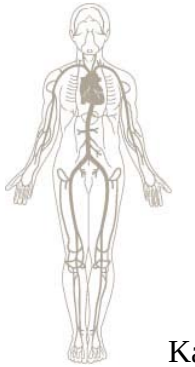
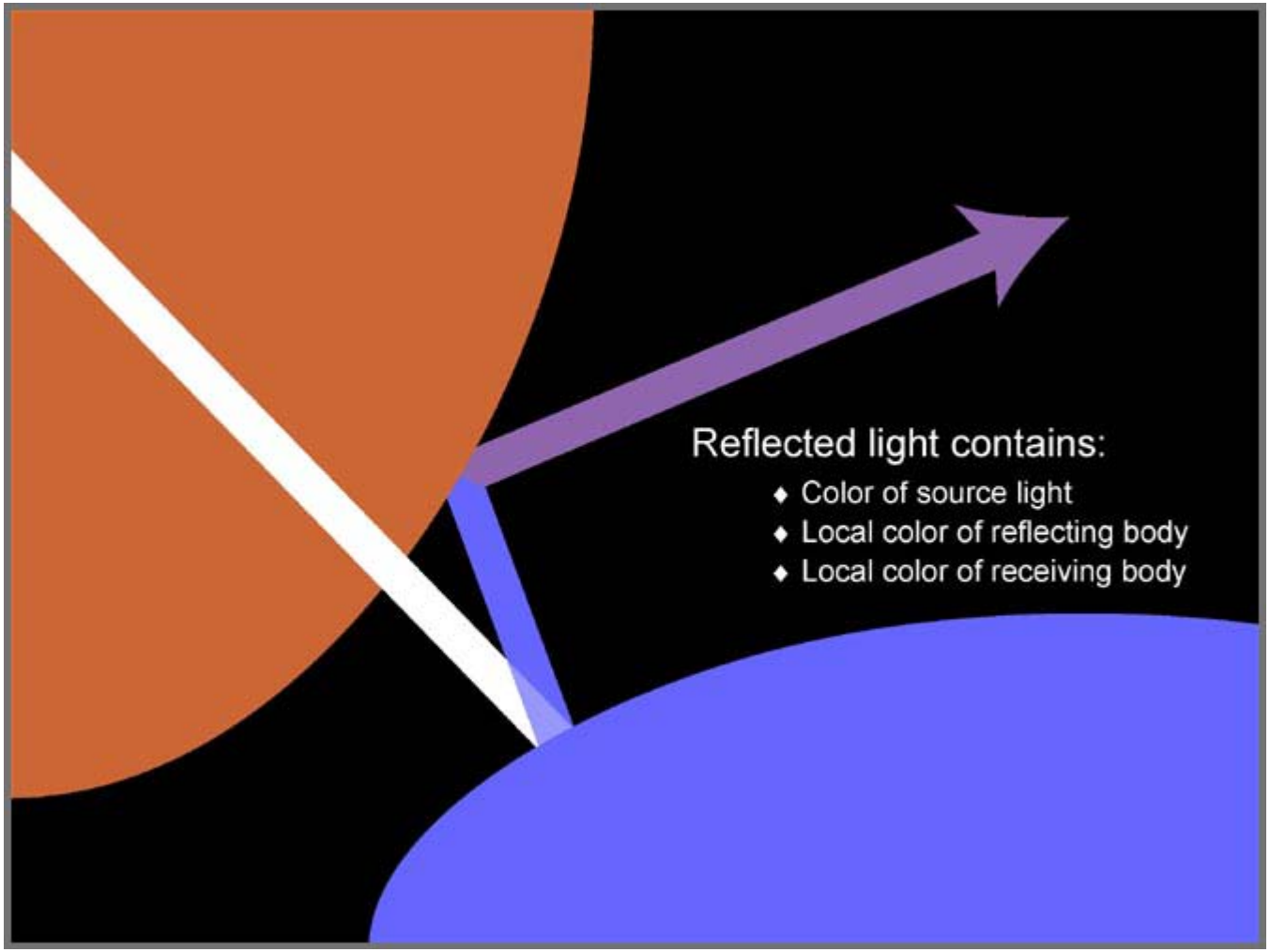
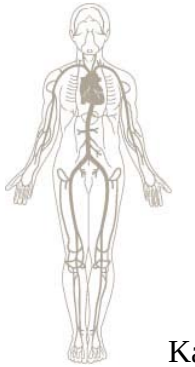
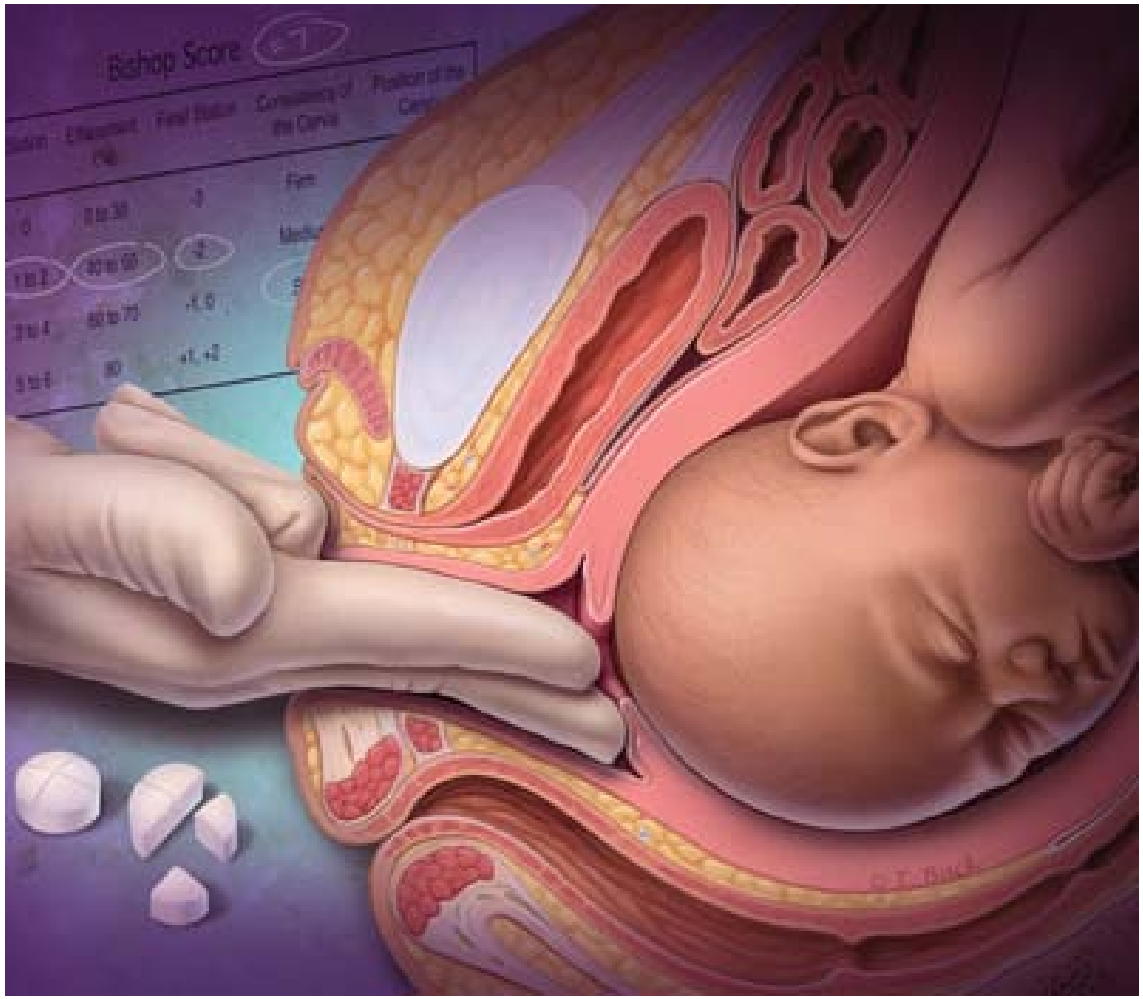


Reflected Light





Reflected Light



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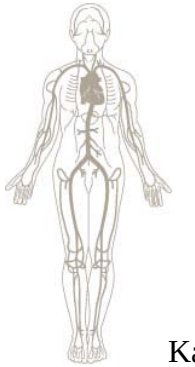

Tusen takk!

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