



Making No Bones About It!

A Lesson on Skeletal
Evidence



Introduction

- Archaeologists can tell a lot about a dead person's life by looking at all the parts of the skeleton.
- This is why archaeologists are sometimes asked to assist in solving crimes that occurred in the past.
- Because of their expertise with skeletal remains, they can often help identify the remains of peoples who have been dead for a long time.
- Many times they can determine age, sex, and some information about the individual's lifestyle.



Cartilage Before Bones

- Most of the bones in humans develop from masses of cartilage that resembles the bones they will become.
- The cartilage in bones is gradually replaced with true bone.
- As long as cartilage is present in the bone, that bone can continue to grow.
- As people grow, their bones get longer and thicker.



Continued...

- That is why an X-Ray of a young person's wrist can help his or her Medical Doctor decide if growth has stopped.
- If cartilage can be seen at the ends of the bones, there will be further growth; if no cartilage can be seen at the ends of the bones, there will be no further growth; if no cartilage is present, the child has reached full stature.



Growing and Changing

- All during life, minerals are deposited and removed from bone.
- During childhood and adolescence, the deposit of minerals occurs faster than mineral loss; therefore bones grow.
- The average female grows until the age of 18 years of age.
- In males, growth continues to 20 – 21 years.



Changes...continued.

- Between the years of 18 – 35, there is a balance of minerals deposits and loss so bones stay constant in size.
- After the age of 35, bone loss exceeds bone gain.
- In human adults, the end of the rib bones gradually change shape over the years.
- The sternal ends are rounded in young adults.
- These bones become cup-shaped and jagged with increasing age.



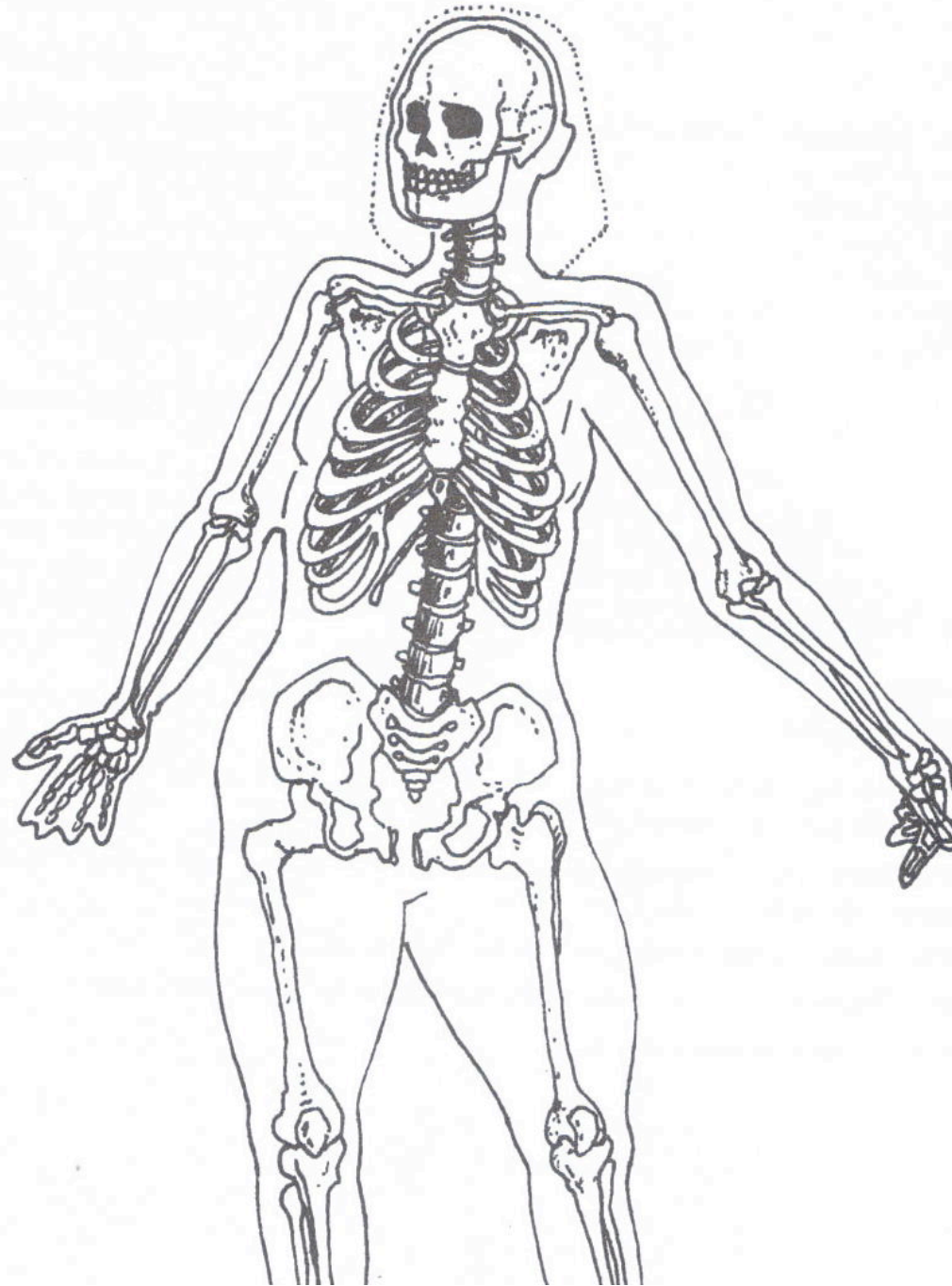
Pelvic Girdle Changes

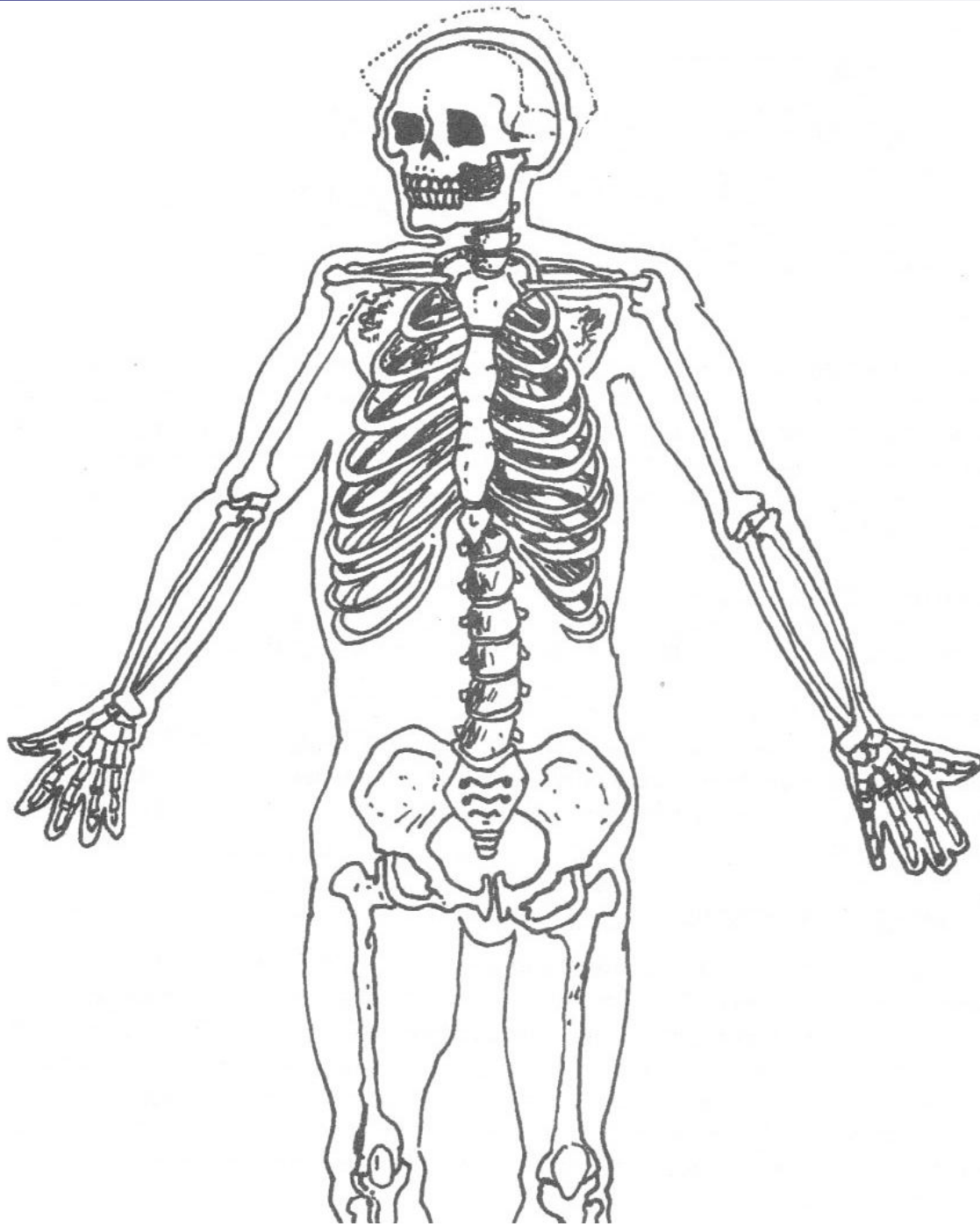
- In youth, the pelvic girdle consists of three bones, the ILIUM, ISCHIUM, and PUBIS.
- These eventually fuse to form the pelvic girdle in adults. The pelvic girdle serves as an area of attachment for bones and muscles of the legs.
- Females have wider pelvis than males.
- The additional width is necessary for childbearing and childbirth.
- In females, the public arch is wide, and the bones are lighter and smoother.



Male or Female?

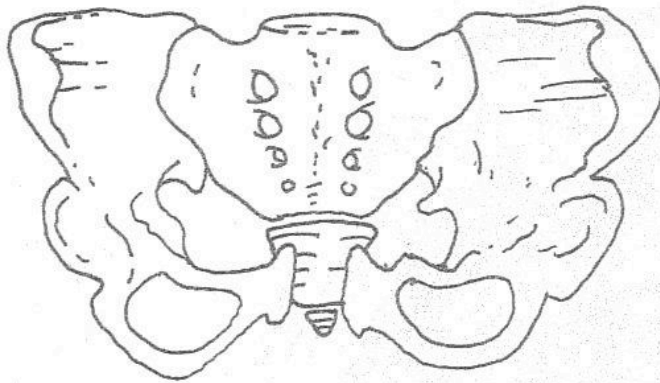
- When examining a skeleton, forensic archaeologists can determine its sex by examining the pelvis girdle and several other factors.
- The Female Skull is rounder and smaller than males.
- The female forehead is longer vertically, and the jaw is smaller.
- The females sacrum is wider and shorter than males.
- In females, the coccyx is more moveable than in males.



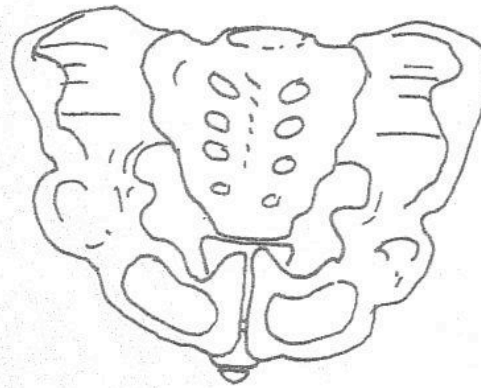


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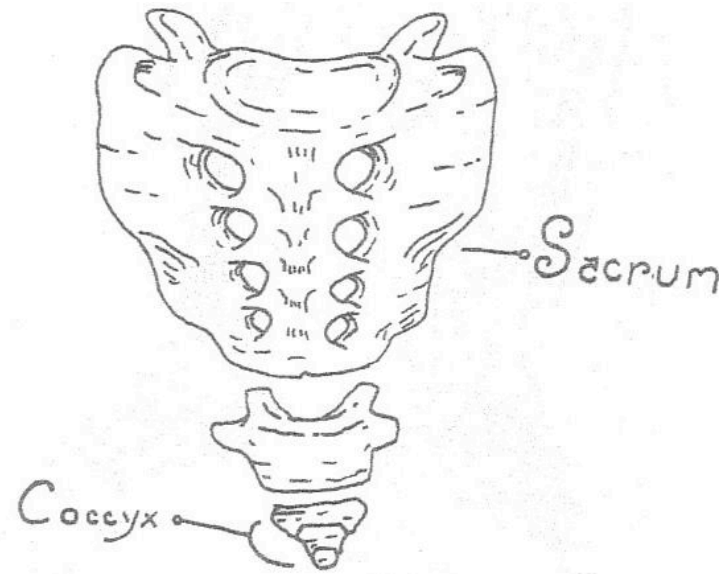
4-2 Making No Bones About It!



FEMALE



MALE



. The sacrum and coccyx.



Skulls Grow

- The skulls of adolescents and children are quite different from those of adults.
- At birth, the skull is incompletely developed. The bones of the child's head are not fused together as they are in adults.
- Instead, they are separated by membranous area called fontanelles.
- These fontanelles allow some movement between bones, so that the developing skull can be partially compressed and therefore be able to change shape slightly.
- The compressibility of the skull enables an infant to pass through the birth canal.
- As a child grows, these bones slowly grow together and eventually fuse.



Bones Tell a Story

- To determine if a person is right-handed or left-handed archaeologists compares the size of the bones in each arm.
- Bones that are used a lot are larger than bones in limbs that get little use.
- Similarly, loss of use of the limb can cause the bones in that limb to be small. Injuries and disease are also reflected in bones.



Bones...The Continued Story.

- Injuries and diseases are also reflected in bones.
- Breaks and fractures are generally easy to find.
- Degenerative bone and joint disease, such as arthritis and osteoporosis can be seen and evaluated from skeletal remains.



Thanks For Your Attention

- Experiment 24 and 25 are scheduled for Wednesday and Thursday!