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Identification of Axial Bones

Experiment 4 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To identify the adult axial skeleton and state the location and main features of representative bones.

Principle

The adult axial skeleton forms the central framework: skull, auditory ossicles, hyoid, vertebral column and thoracic cage. Its usual count is 80 bones. Counts depend on adult fusion and exclude variable accessory bones.

Requirements

- Articulated skeleton or labelled models, isolated teaching bones and anatomical charts.
- Notebook and an identification checklist.

Procedure

1. Orient the skeleton

Identify anterior, posterior, superior and inferior views. Locate the skull, vertebral column and thorax.

2. Study the skull

Identify the eight cranial bones and fourteen facial bones. Locate major sutures, orbit and mandible on the model.

3. Study vertebrae

Compare cervical, thoracic and lumbar vertebrae. Identify the atlas, axis, sacrum and coccyx; relate their appearance to position.

4. Study the thoracic cage

Identify sternum and ribs. Distinguish true ribs 1-7, false ribs 8-12 and floating ribs 11-12.

5. Record a spot identification

For each bone, state its name, location, one landmark and one function; do not rely only on size.

Skull Bone Checklist

Group	Bones	Count
Cranial	Frontal 1; parietal 2; temporal 2; occipital 1; sphenoid 1; ethmoid 1	8
Facial	Mandible 1; vomer 1; maxillae 2; zygomatic 2; nasal 2; lacrimal 2; palatine 2; inferior nasal conchae 2	14
Associated	Malleus, incus and stapes on each side; hyoid	6 + 1

Regional Features

- Cervical vertebrae generally show transverse foramina; atlas and axis have specialised forms.
- Thoracic vertebrae articulate with ribs. Lumbar vertebrae have substantial bodies for load bearing.
- The sternum has manubrium, body and xiphoid process. Identify these parts rather than counting them as separate adult bones.

Observations and Record

Bone / model	Landmark observed	Location / function
Skull bone	_____	_____
Vertebra	_____	_____
Rib / sternum	_____	_____

Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Usual adult count: skull 22 + ossicles 6 + hyoid 1 + vertebral column 26 + ribs 24 + sternum 1 = 80.
- Vertebral column count: 7 cervical + 12 thoracic + 5 lumbar + fused sacrum 1 + fused coccyx 1 = 26 adult bones.

Result

I identified ____ axial bones and recorded a diagnostic landmark for each. The usual adult axial bone count is 80.

Precautions

- Handle isolated bones and models as directed; fragile projections may break.
- Count the fused sacrum as one adult bone, not as five separate adult bones.
- Not every model includes the auditory ossicles or hyoid.

Viva Questions and Answers

1. What distinguishes a thoracic vertebra?

It has articular facets associated with ribs.

2. Which vertebra has the dens?

The axis, or second cervical vertebra.

3. Why are ribs 11 and 12 called floating?

They have no anterior attachment to the sternum.

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