



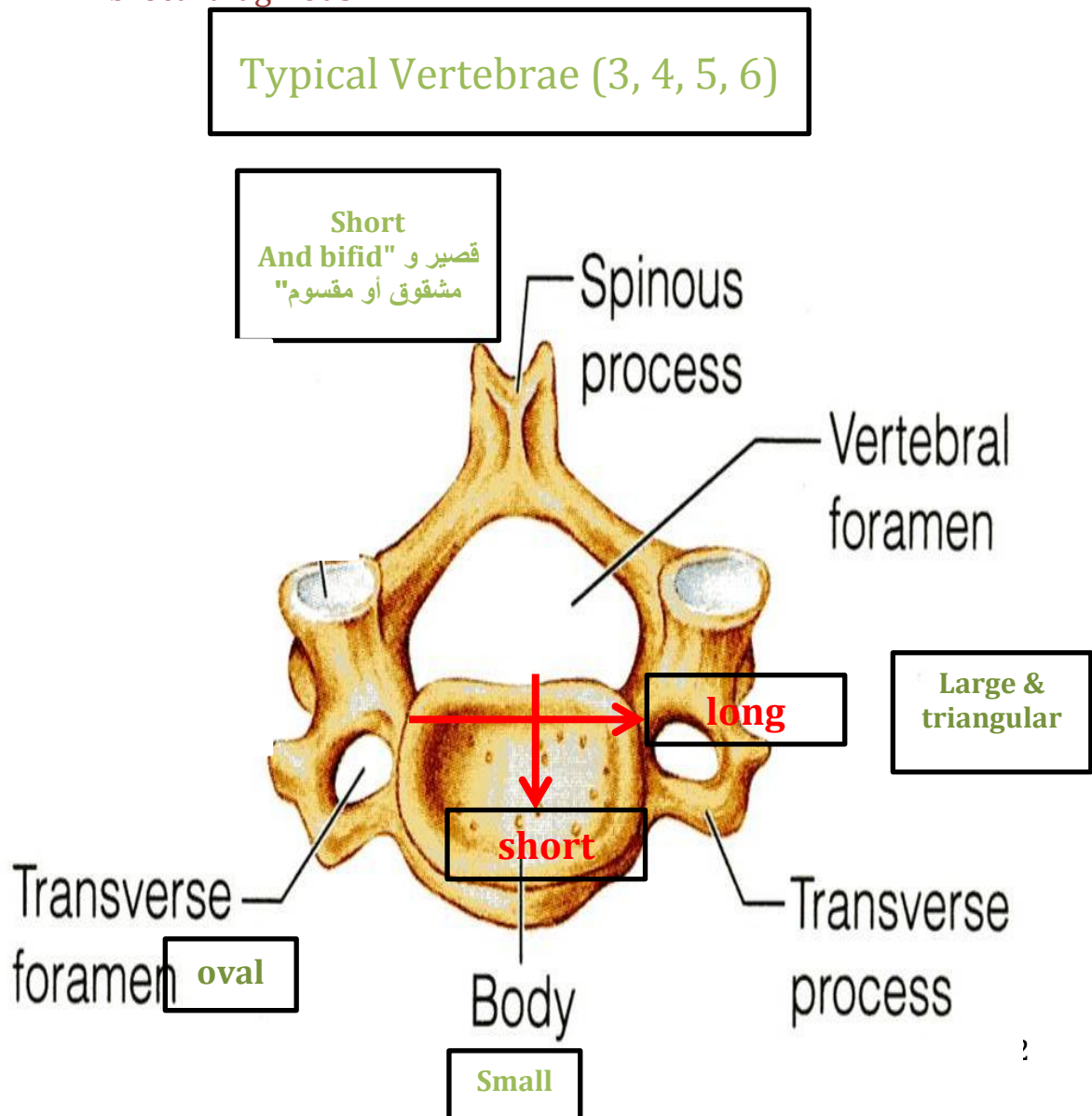
ANATOMY TEAM

LECTURE (3) CERVICAL SPINE

تنويه / هذا العمل لا يعتبر مصدر أساسي للمذاكرة وإنما هو للمراجعة فقط والمصدر الأساسي هو السلايدز ، وقد تم التأكد بأنه لا يوجد أي اختلاف بين سلايدز الأولاد والبنات

General Features of the Cervical Vertebrae

- i. The cervical vertebrae are 7 in number and are classified into **atypical** "1st, 2nd and 7th" & **typical** "3rd, 4th, 5th and 6th" vertebrae.
- ii. **The upper articular surface of the atlas c1 is kidney-shaped articulates with occipital condyles of the skull while The inferior articular surface of each lateral mass of the atlas is circular**
- iii. Has a transverse process that contains: **anterior tubercles**, **posterior tubercles**, and **foramen transversarium**. **the cervical vertebrae are the only vertebrae with foramen transversarium**
- iv. Presence of a **spinous process**.
- v. All the joints between the articular surfaces of the vertebrae are synovial joints **except for** the ones connecting between two vertebral bodies (**intervertebral discs**), which are **fibrocartilaginous**.



Atypical Cervical Vertebrae (1, 2, and 7)

◆ C1

Called **Atlas**, responsible for supporting the weight of your head, **does not have a body or a spine**, has a short or "small" anterior arch and a long posterior arch.

Atlanto-Occipital joints:

Number of articulation: 2

Type: Synovial joint

Location: The two upper facets of the Atlas with the Occipital Condyles of the skull.

Function: Flexion, extension, and lateral flexion.

*This joint allows the nodding of the head (to say "Yes").

◆ C2

Called Axis, has an **Odontoid process** (dens) **which is the body of atlas**

Atlanto-Axial joints:

Number of articulation: 3

Type: synovial joints:

Location:

- The two inferior articulating surfaces of the Atlas with the two superior articulating surfaces of the Axis
- The Odontoid Process with the anterior small arch of the Atlas

Function: Extensive rotation.

*This joint allows you to say " No".

Mnemonic:

ATLANTO-**OCCIPITAL** = sound near to (**accept**) mean yes, so it allow you say yes

ATLANTO-**AXIAL**= "**X**" mean false,

Is my answer correct? No, it is false, so this joint will allow you to say No

◆ C7 (Cervica Prominens)

Has a small foramen transversarium because it does not transmit the vertebral artery. (only small accessory vein)

The transversarium might be absent .

C7 → Its spinous process can be felt subcutaneously, is not bifid, and is the longest.

Intervertebral disc consist of two parts:

Anulus fibrosus (Ring)

Nucleus pulposus (remnant of the notochord)

Ligaments of cervical spines:

Supraspinous ligament: between tips of spines.

Interspinous ligament: between adjacent spines.

*Supraspinous & Interspinous ligaments are thickened to form **ligamentum nuchae** (extends from the spine of the seventh cervical vertebra to the external occipital protuberance of the skull).

Ligamentum flavum: between laminae.

Intertransverse ligaments: between transverse processes.

-Cervical and lumbar they responsible for enlargements of spinal cord

- Vertebral artery start from C6

-The name of Atlas become from Skull.

Spondylolisthesis → الإنزلاق الغضروفي

Nucleus pulposus عند حمل وزن بطريقه غير صحيحه للظهر يحدث خروج لل

Spinal cord والتي تقوم بالضغط على root of spinal nerve داخل الـ

، وتؤدي الى الشعور بالالم في الظهر أو الرجل أو في مناطق اخرى ، الإنزلاق غالبا يحدث بين الفقرتين (L4 and L5) أو بين (L5 and S1)

البدأ في نقصان الطول عند كبار السن :

خمس (بعض الكتب تذكر ربع) العمود الفقري ، ومع التقدم في السن يبدأ (invertebrate disc) Fluid and water . الموجود داخلها ينشف ، وهذا يؤدي الى أنه يخسر الـ

هذا السلايد موجود عند البنات فقط

- **Apical ligament** : median ligament connects apex of odontoid process to foramen magnum (it is undercover of cruciate ligament).
- **Alar ligaments** : these lie on each side of apical ligament and connect odontoid process to medial side of occipital condyles.
- **Cruciate ligament** : consists of a transverse part & a vertical part/vertical (between body of axis and foramen magnum)/ transverse (binds odontoid process to anterior arch of atlas).

عند الأولاد فقط

- **Ligamentum flavum** (one pair), between laminae.
- **Intertransverse ligaments**, (one pair), between transverse processes.

Quick Review

How many vertebrae are there in the cervical region?

7

The numbers of typical cervical vertebrae are

3,4,5,6

The numbers of atypical cervical vertebrae are

1,2,7

What are the general features of typical vertebrae?

- The body is small and horizontally longer than antero-posteriorly
- Its spinous processes are short and bifid

Where the vertebral arteries & veins are passing from?

Foramen transversarium

Which one of cervical vertebrae has no body or spine?

Atlas

What are the facets that the superior and inferior articular processes of the typical vertebrae have?

Superior, upward and backward.

Inferior, downward and forward

Which part of the Axis represents the body of the atlas?

Odontoid process (dens)

Which cervical vertebra has the longest spinous process?

Vertebra Prominens (seventh)

What is the first spine you can feel subcutaneously?

Vertebra Prominens

Does the vertebra prominens transmit arteries?

No, it transmits only the small accessory vein

Which type of joints are the Atlanto-Occipital joints?

Synovial joint

How many Atlanto-axial joints do we have?

Three synovial joints, two laterals and one medial

What do we call the joints between two vertebral arches?

Zygapophysial Joint (synovial joint)

Which ligaments run between the tips of adjacent spines?

Supraspinous ligament.

Which ligaments connect adjacent spines?

Interspinous ligament.

Which ligament connects the laminae of adjacent vertebrae?

Ligamentum flavum

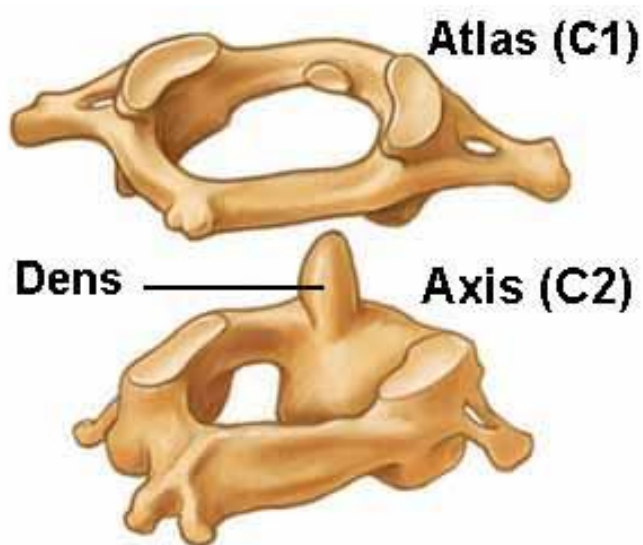
Which ligament runs between adjacent transverse processes?

Intertransverse ligaments

What is the ligamentum nuchae?

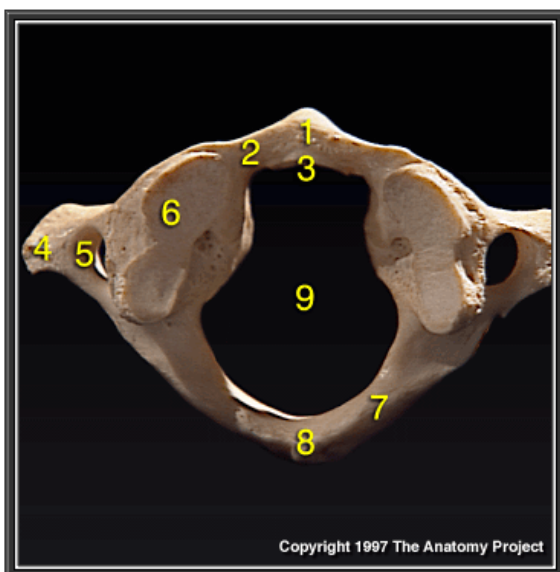
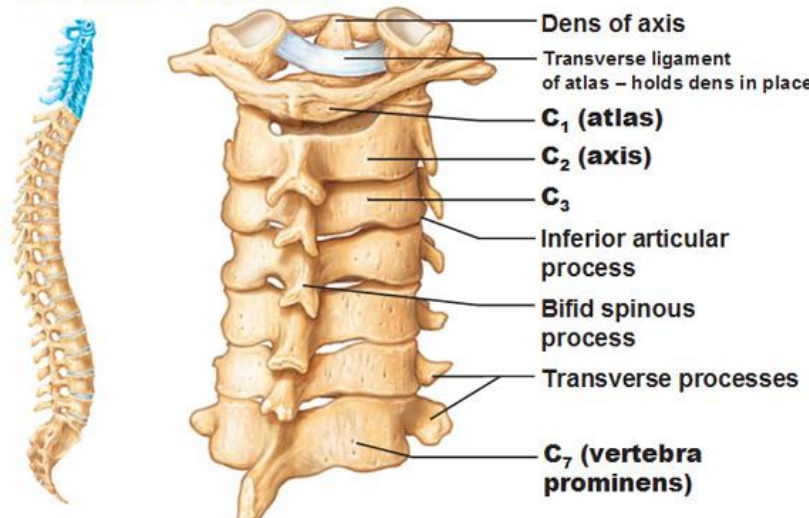
Supraspinous and Interspinous ligaments greatly thickened.

Helping pictures



C1, 1st Cervical Vertebra or Atlas
Superior View

Cervical Vertebrae



1. Anterior tubercle
2. Anterior arch
3. Facet for dens
4. Transverse process
5. Foramen transversarium or transverse foramen
6. Superior articular facet on lateral mass
7. Posterior arch
8. Posterior tubercle
9. Vertebral foramen

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check this link for terms used in this lecture: <http://www.indyspinemd.com/Normal/>

Quiz

1- Which one of the following is a non-typical cervical vertebrae:

- A- 2nd
- B- 3rd
- C- 4th
- D- 5th

2- Which one of the following is called axis:

- A- S2
- B- T2
- C- L2
- D- C2

3- The superior articular processes in typical cervical vertebrae has:

- A- Face upward & backward.
- B- Face upward & forward.
- C- Face downward & backward.
- D- Face downward and forward.

4- Which one of the following has NO body and NO spine:

- A- axis
- B- atlas
- C- typical cervical vertebrae
- D- Vertebra Prominens

5- Which joint has rotation movement for the face"allow you to say NO"

- A- Atlanto-Axial
- B- Atlanto-Occipital
- C- cartilaginous joint between the body
- D- a and c

6- Which one of cervical vertebrae has small foramen transversarium

- A- 1nd
- B- 3rd
- C- 5th
- D- 7th

7- The first spine to be felt subcutaneously:

- A- C6
- B- C7
- C- T1
- D- T2

8- The Atlanto-occipital joints are:

- A- synovial joint
- B- cartilage joint
- C- fibrous joint
- D- none

9- ligamentum nuchae is formed by

- A- Supraspinous
- B- Intertransverse
- C- Interspinous
- D- a and c

10- Interspinous ligament:

- A- It runs between the tips of adjacent spines
- B- It connects adjacent spines
- C- It connects the laminae of adjacent vertebrae.
- D- it run between adjacent transverse processes.

11- Intertransverse ligament:

- A- It runs between the tips of adjacent spines.
- B- It connects adjacent spines
- C- It connects the laminae of adjacent vertebrae.
- D- run between adjacent transverse processes.

12- One of the following is true about the joints between two vertebral arches of cervical vertebrae

- A- cartilage
- B- fibrous
- C- called Zygapophysial
- D- it is intervertebral disc

13- the ligamentum nuchae extends from the spine of?

- A- Atlas
- B- Axis.
- C- 5th vertebra.
- D- 7th vertebra.

14-Which one of the following ligaments contributes in ligamentum nuchae?

- A- Ligamentum flavum.
- B- Intertransverse ligament
- C- Supraspinous ligament.
- D- Anterior longitudinal ligament

15- Atlanto-axial joint is contributing with:

- A-Flexion of head
- B- Extention of head.
- C- Lateral flexion of head
- D- Lateral rotation of head.

16- Which one of the following is fibrocartilagenous joint?

- A-Atlanto-occipital.
- B- Atlanto-axial
- C- Between the vertebral bodies.
- D- Between the vertebral arches.

17- which of the following represent Nucleus pulposes :

- A-Notochord
- B- Spinal cord
- C- Spinal nerve
- D- Monochord

18-which of the following connect the body of two vertebrae:

- A-fibrous
- b- fibrocartilaginous
- C- Zygapophysial
- D- tubercles joints

N.Q	ANSWER
1	A
2	D
3	A
4	B
5	A
6	D
7	B
8	A
9	D
10	B
11	D
12	C
13	D
14	C
15	D
16	C
17	A
18	B

GOOD LUCK ;)