

# e-Anatomy 데이터베이스 IMAIOS 제안서

▶ 안전한 사회를 위한  
맞춤형 의약품 데이터를 만들어 갑니다

(주)원스글로벌 신경현부장  
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02-3275-1250(207)



## 1. e-Anatomy란?

e-Anatomy: 인간 해부학 자료로 온라인, 스마트폰, 태블릿 PC에서 이용할 수 있는 가장 완벽한 해부학 참고자료입니다. 5,400개 이상의 해부학 구조와 375,000개 이상의 의학 라벨(용어와 설명), CT, MRI, 방사선, 해부학 도표 및 핵 이미지를 제공합니다.

Brain

Head and Neck

Chest

Shoulder

Mediastinum-Heart

Abdomen

Pelvis

Hip

Elbow

Wrist-Hand

Knee

Ankle-Foot

Whole Head

Spine

Lower limb

Upper limb

## 2. e-Anatomy 검색방법



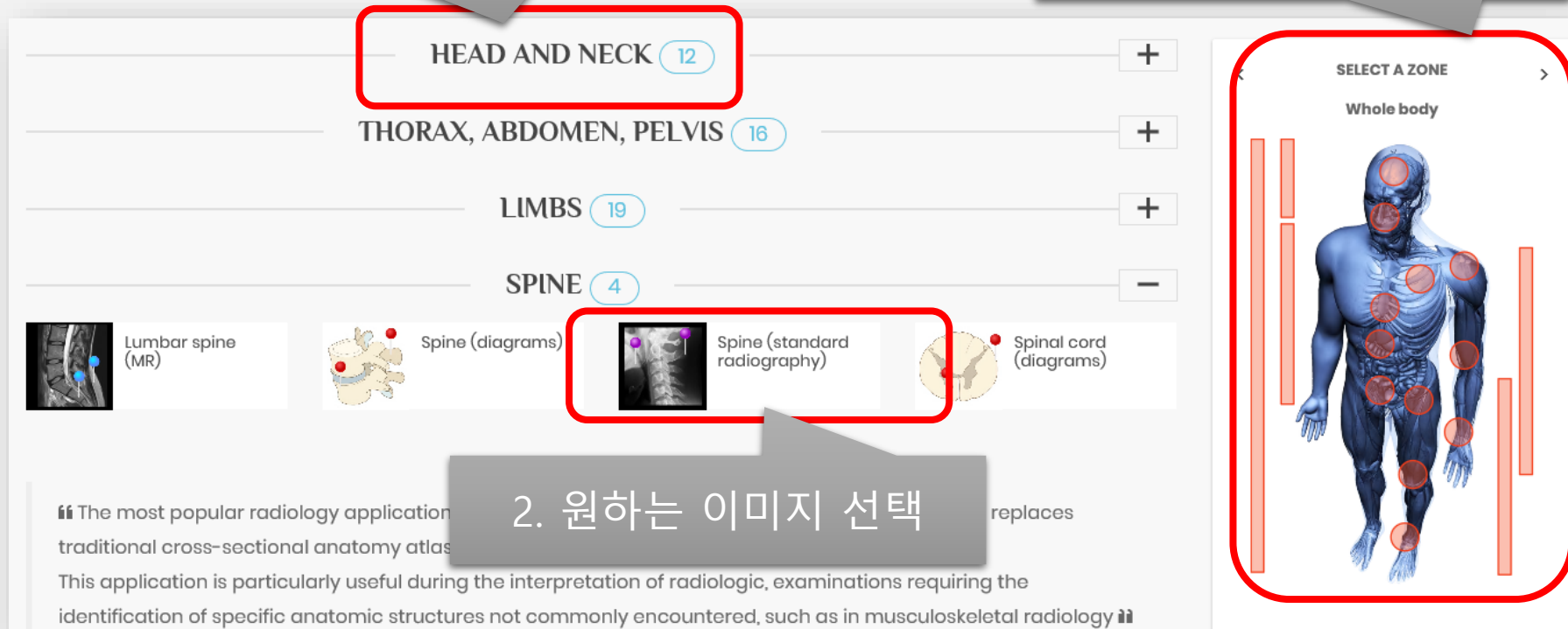
**e-Anatomy**

**e-Anatomy, the interactive atlas of human anatomy**

e-Anatomy is an award-winning interactive atlas of human anatomy. It is the most complete reference of human anatomy available on web, iPad, iPhone and android devices. Explore over 5400 anatomic structures and more than 375 000 translated medical labels. Images in: CT, MRI, Radiographs, Anatomic diagrams and nuclear images. Available in 8 languages.

1. 부위별 명칭에서  
카테고리 선택

1. 혹은 이미지에서  
카테고리 선택



HEAD AND NECK 12 +

THORAX, ABDOMEN, PELVIS 16 +

LIMBS 19 +

SPINE 4 -

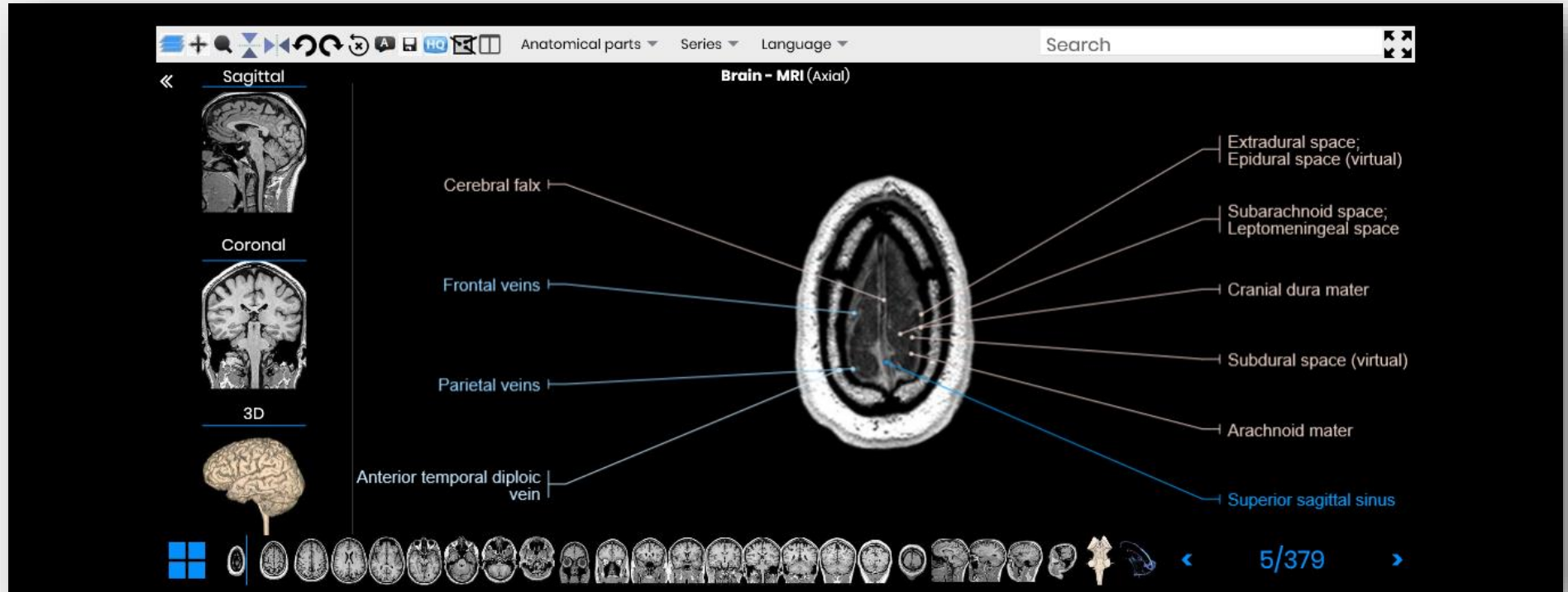
Lumbar spine (MR) Spine (diagrams) Spine (standard radiography) Spinal cord (diagrams)

SELECT A ZONE  
Whole body

2. 원하는 이미지 선택

The most popular radiology application... replaces  
traditional cross-sectional anatomy atlas  
This application is particularly useful during the interpretation of radiologic examinations requiring the identification of specific anatomic structures not commonly encountered, such as in musculoskeletal radiology

## 2. e-Anatomy 검색방법



스�크롤모드

이미지 위치이동

줌

이미지 상하 회전

이미지 좌우 회전

왼쪽으로 회전

오른쪽으로 회전

실행취소

퀴즈모드로 전환

이미지 저장

HQ 이미지로 전환

View Zone 사용

Menu Description 열람

Anatomical parts 표시하고자하는 카테고리선택

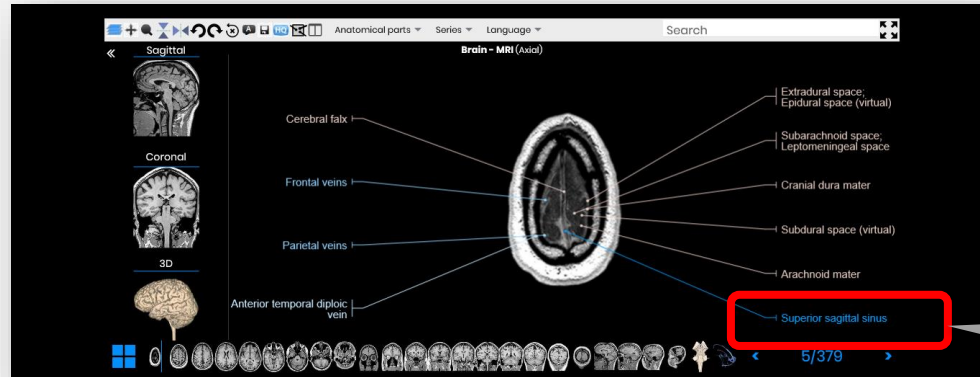
Series 시리즈 선택

Language 언어 선택

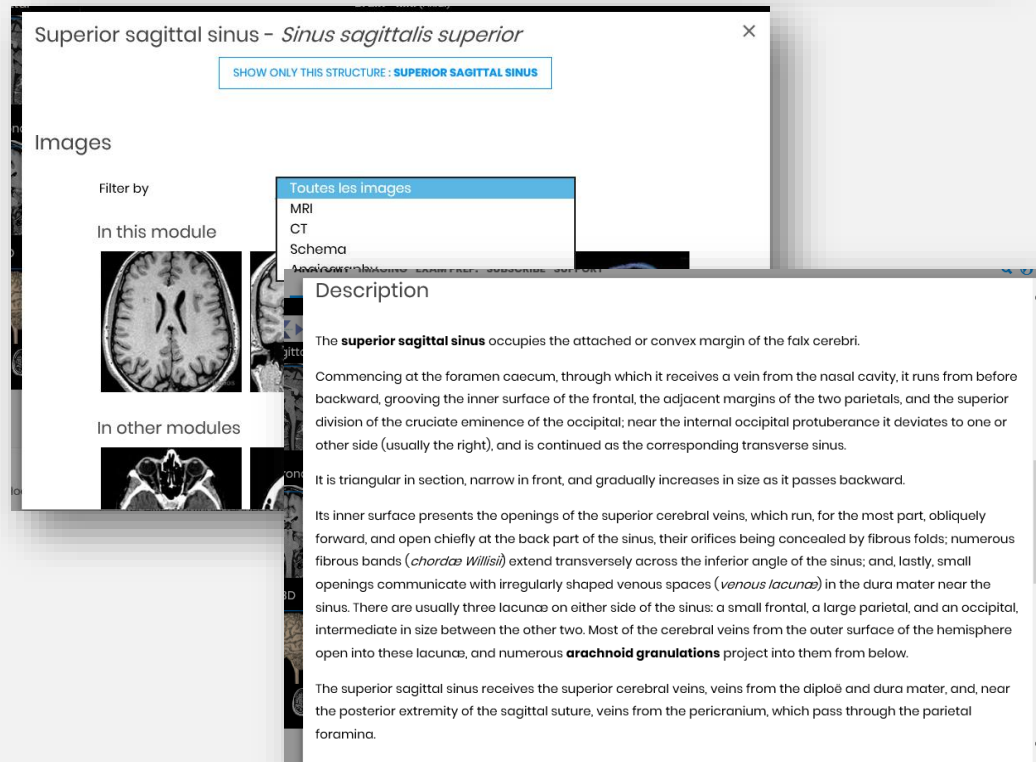
Search 검색

전체화면보기

## 2. e-Anatomy 검색방법



1. 명칭 클릭



- Images: 타입별, 모듈별 관련 이미지 열람
- Description: 설명
- Anatomical hierarchy: 해부학적 계층구조
- Anatomical children: 해부학적 하위구조

## 2. e-Anatomy 검색방법

저자, 날짜, 섹션

### AUTHORS

Antoine Micheau, MD , Denis Hoa, MD

### PUBLISHED ON

Wednesday 20 September 2017

### SECTION

Head and Neck

### ANATOMICAL PARTS

[Abducent nerve; Abducens nerve \[VI\]](#)

[Accessory nerve \[XI\]](#)

[Accessory nuclei of oculomotor nerve](#)

[Alveus](#)

[Ambient cistern](#)

[Amygdaloclaustral area](#)

[Amygdalohippocampal area](#)

[Amygdaloid body; Amygdaloid complex](#)

[Amygdalopiriform transition area](#)

[Angular gyrus](#)

[Anterior amygdaloid area](#)

[Anterior cerebral artery](#)

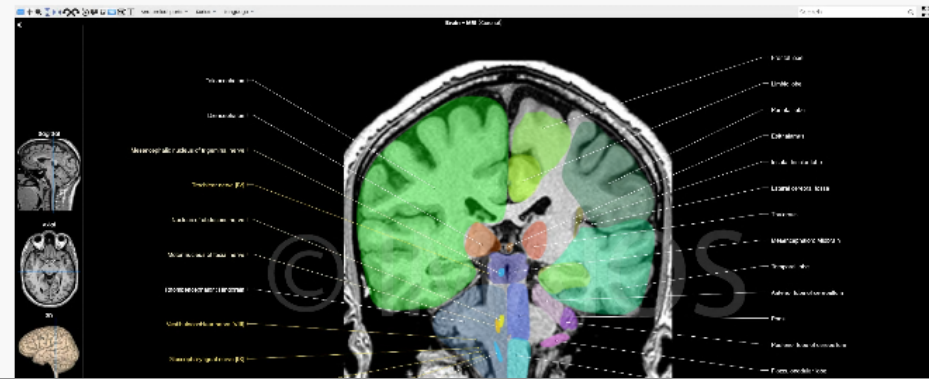
[Anterior cerebral veins](#)

이미지 타이틀  
및 설명자료

## Anatomy of the brain (MRI) - cross-sectional atlas of human anatomy

We have redesigned the module on the anatomy of the brain based on MRI with axial slices, having received multiple requests from users for coronal and sagittal slices. Preparation of this new module took more than 6 months, and involved labeling more than 524 structures on 353 MRI images in three different views and on 26 anatomical diagrams.

This module is intended for all physicians and non-physicians with an interest in neuroanatomy and medical imaging, and particularly for general practitioners and specialists in neurology, neurosurgery, anatomy and neurosciences, as well as speech pathologists and psychomotor therapists.



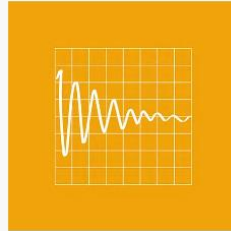
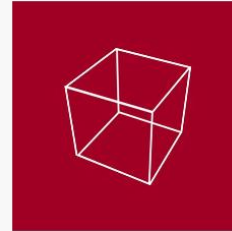
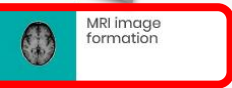













해당 이미지의 해부학적 파트.  
클릭 시, 상세정보로 이동

### 3. e-MRI 검색방법

e-MRI: 프랑스 방사선학회에서 수상한 MRI의 기능 및 물리학에 대한 대화형 과정

The image shows a screenshot of an interactive e-MRI course interface. It features a grid of 12 topic cards, each with a colorful icon and a title. A red box highlights the 'MRI image formation' card. A grey callout bubble with the text '1. 콘텐츠 클릭' (1. Click content) points to this card. To the right, a preview of a lesson titled 'IMPROVING MRI CONTRAST : MAGNETIZATION TRANSFER (3)' is shown. A red box highlights the first item in the list: '1. Free and bound protons'. A grey callout bubble with the text '1. 카테고리에서 콘텐츠 클릭' (1. Click content in category) points to this item.

 1. 콘텐츠 클릭	 MRI instrumentation and MRI safety	 NMR signal and MRI contrast	 Spatial encoding in MRI
 MRI image formation	 Sequences	 Improving MRI contrast : Imagin...	 Improving MRI contrast : Contra...
 Improving MRI contrast : Magne...	 Image quality and artifacts	 Parallel imaging	 Magnetic resonance angio...
 Cardiac MRI	 Cerebral perfusion MRI	 Diffusion-weighted and Dif...	 Functional MRI of the brain

IMPROVING MRI CONTRAST :  
MAGNETIZATION TRANSFER (3)

1. Free and bound protons
2. Mechanisms of magnetization tran...
3. ...

1. 카테고리에서 콘텐츠 클릭



# 3. e-MRI 검색방법

**Learning objectives**

1. 학습목표

After reading this chapter, you should be able to:

- To explain the relation between time domain, frequency domain and Fourier transform
- To define: spatial frequency, phase and magnitude
- To draw the effects of a point in k-space on the image
- To state the relations between RF pulses, gradients and navigation in k-space
- To describe the k-space trajectory with a spin echo sequence
- To link contrast, spatial resolution and field of view to k-space

**Key points**

2. 핵심포인트

- Spatial encoding in MRI is achieved by the application of magnetic field gradients. These gradients allow the encoding of spatial data as spatial frequency information. These data are mapped into k-space so that an inverse 2D Fourier transform reconstructs the MR image.

The location of the data in k-space is determined by the amplitude and the duration of the gradients. If no gradient is applied...

**References**

3. 참고문헌

1. Elster. Questions and answers in MRI. 1994:ix, 278 p.
2. McRobbie. MRI from picture to proton. 2003:xi, 389 p.
3. NessAiver. All you really need to know about MRI physics. 1997.
4. Kastler. Comprendre l'IRM. 2006.
5. Gibby. Basic principles of magnetic resonance imaging. Neurosurgery clinics of North America. 2005 Jan;16(1):1-64.
6. Hennig. K-space sampling strategies. European radiology. 1999;9(6):1020-31.
7. Cox. k-Space partition diagrams: a graphical tool for analysis of MRI pulse sequences. Magn Reson Med. 2000 Jan;43(1):160-2.

**START →**

5. 학습컨텐츠
1. Introduction
  2. Fourier transform
  3. Spatial frequency
  4. 2D Fourier transform and MRI image reconstruction
  5. K-space exploration
  6. Gradients and spatial frequency
  7. Spatial frequency, image resolution and contrast
  8. Linear trajectory through k-space

5. 학습컨텐츠

4. 시작



### 3. e-MRI 검색방법

# Single frequency

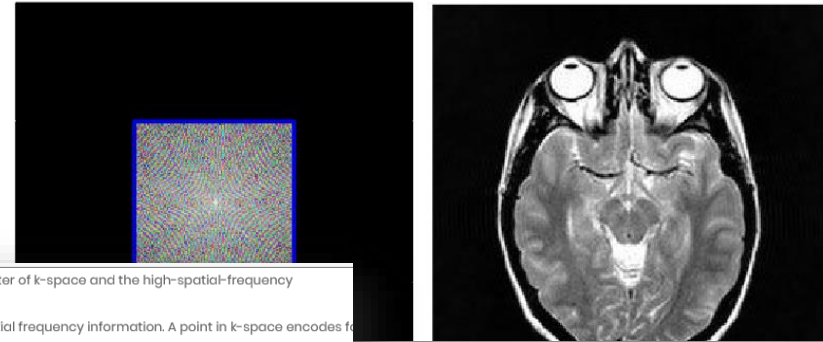
The following animation demonstrates the relation between time representing a single frequency sound.

Moving scroll bars change frequency and amplitude of the sound domain.

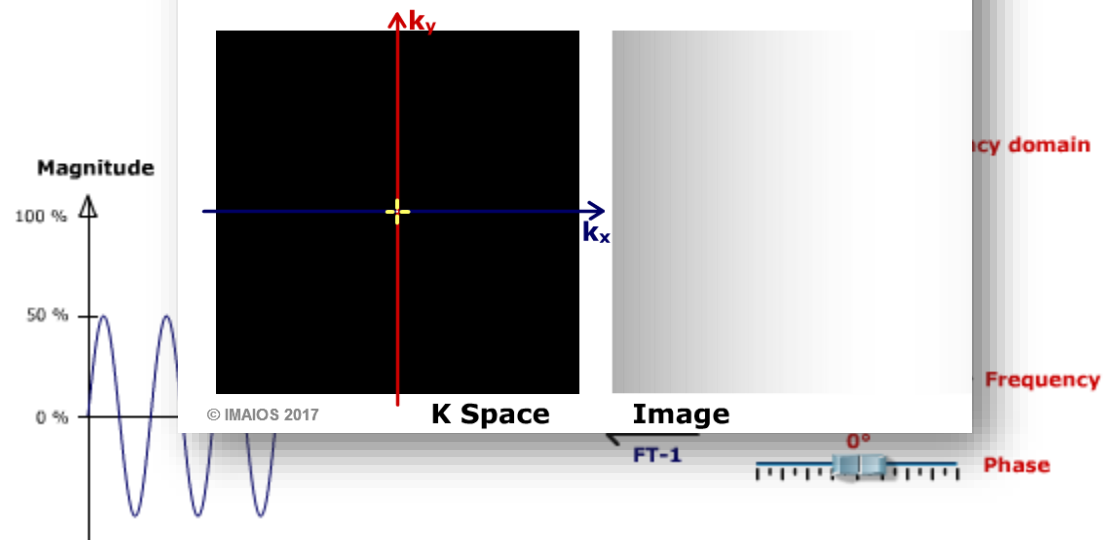
To describe a sine wave, we need its amplitude and frequency, but as a consequence of a phase change on the sine wave (shift in time)

Most MR image information (contrast and general shape) is contained in the center of k-space. Low-spatial-frequency data have the highest amplitude, giving the greatest changes in gray levels (contrast). However, these changes spread over in the image and only give the general shape of organs.

We can see below the resulting images of inverse 2D transform performed on data at the center of k-space. Image is contrasted but blurry.

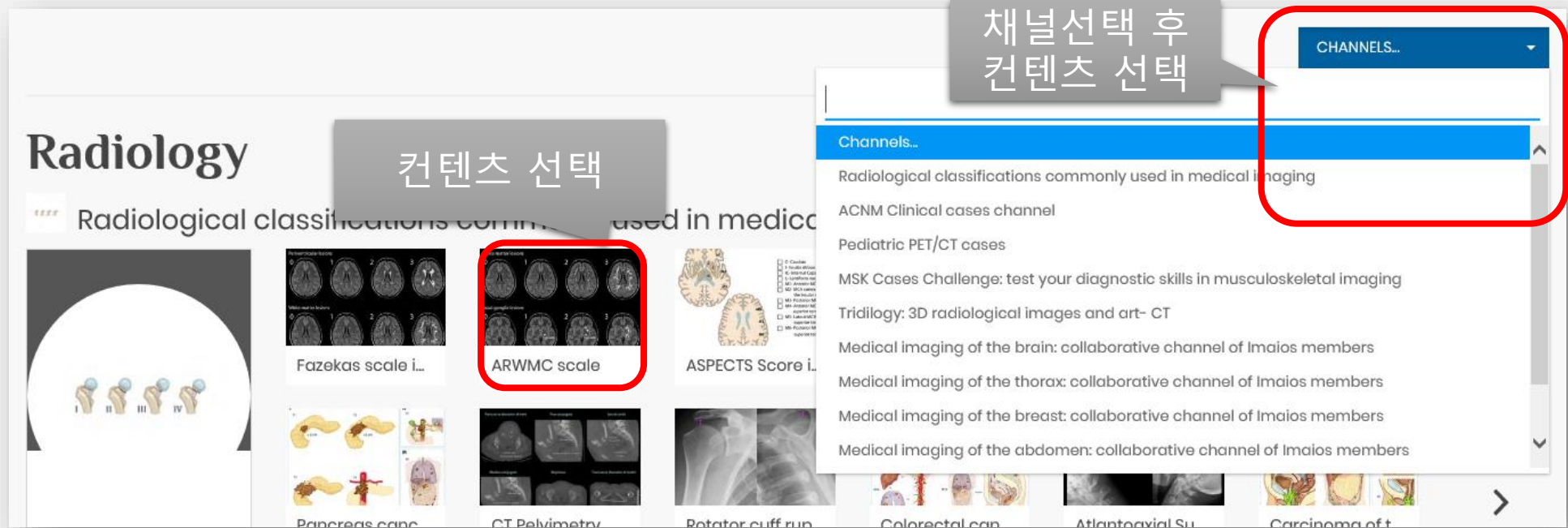


The low-spatial-frequency informations are mapped near the center of k-space and the high-spatial-frequency informations are mapped to the periphery of k-space. Drag the cross to see the image corresponding to low or high-spatial frequency information. A point in k-space encodes the data with the same orientation of the line passing through this point and the center of k-space.



## 4. e-Cases 검색방법

e-Cases: 오픈 된 임상 사례 사용자 생성 데이터베이스로 임상사례를 업로드하여 전 세계의 동료들과 공유할 수 있습니다.



## 4. e-Cases 검색방법

1. 케이스

Fazekas scale

2. 케이스 상세정보

The screenshot displays the 'Fazekas scale' interface. On the left, there are two rows of axial MRI brain scans. The top row is labeled 'Periventricular lesions' and the bottom row is labeled 'White matter lesions'. Each row shows four scans corresponding to scores 0, 1, 2, and 3. A 'History' panel on the right contains text explaining the scale and a table with two sections: 'Periventricular Lesions' and 'White matter lesions'. The 'History' panel title is highlighted with a red box.

Periventricular Lesions	
0	No lesions
1	Caps or thin line
2	Smooth halo
3	Extension into the white matter

White matter lesions	
0	No lesions
1	Discrete foci

- ☰ 마우스를 수직으로 움직이면 이미지 스크롤
- ☀ 마우스를 수직으로 움직이면 이미지 밝기 변화, 수평으로 움직이면 명암변화
- 🔍 마우스를 수직으로 움직이면서 줌인, 줌아웃
- 📏 이미지 드래그
- 📏 마우스를 움직여 픽셀/mm 그리기 및 측정
- 📐 마우스를 움직여 두 선 사이의 각도를 측정
- 📍 주석 표시
- 🔄 한 번에 모든 시리즈에 적용
- 🖼 전체 이미지 보기
- ↶ 실행취소

## 4. e-Cases 검색방법

Comments

3. 코멘트 작성

4. 저자, 소속, 채널, 이메일 전송

AUTHOR

Dr Antoine Micheau

ORGANIZATION

CHU Arnaud de Villeneuve

CHANNEL

**Radiological classifications commonly used in medical imaging**

SHARED USERS

SHARE

Post comment

Name \*

Comment \*

SEND 

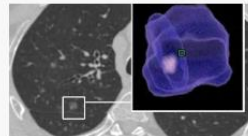
## 5. Classification in Radiology & Medical Imaging 검색 방법

Radiological Classification: 의학 이미지에 일반적으로 사용되는 방사선 이미지 분류군

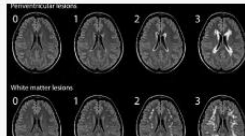
### Radiological classifications commonly used in medical imaging

42 CLINICAL CASES

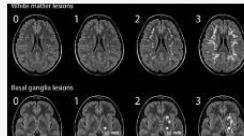
Filter by SPECIALITY... MODALITY...



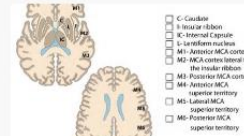
Solitary Pulmon...



Fazekas scale in...



ARWMC scale



ASPECTS Score...



MTA-scale for Medial Tempo...



Modic changes on MRI



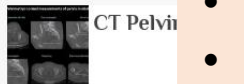
Aortic dissection



Prostate Cancer Staging



Pancreas cancer staging



CT Pelvis



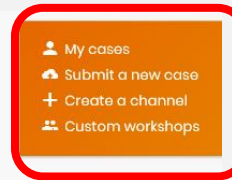
Atlantoaxial Subluxation/...



Carcinoma of the cervix uteri



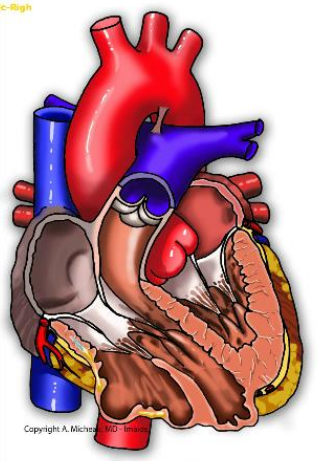
Carcinoma of the vulva



- Training Mode: 교육용 모드 실행
- My cases: 내가 업로드한 케이스
- Submit a new case: 새로운 케이스 제출
- Create a channel: 채널 선택

## 5. Classification in Radiology & Medical Imaging 검색 방법

Criteria of McKenna on MRI: modified task force criteria



ARVD-mcKenna-Arrhythmogenic-Right

Copyright A. Michalek MD - Imaios

IMAIOS

HTML5 VERSION

JPEG DICOM

**History**

Major criteria:

- Regional RV akinesia or dyskinesia or dyssynchronous RV contraction

And 1 of the following:

- Ratio of RV end-diastolic volume to BSA  $\geq 110$  mL/m<sup>2</sup> (male) or  $\geq 100$  mL/m<sup>2</sup> (female)
- or RV ejection fraction  $\leq 40\%$

Minor criteria:

- Regional RV akinesia or dyskinesia or dyssynchronous RV contraction

And 1 of the following:

- Ratio of RV end-diastolic volume to BSA  $\geq 100$  mL/m<sup>2</sup> to  $< 110$  mL/m<sup>2</sup> (male) or  $\geq 90$  mL/m<sup>2</sup> to  $< 100$  mL/m<sup>2</sup> (female)
- or RV ejection fraction  $> 40\%$  to  $\leq 45\%$

References :

Diagnosis of arrhythmogenic right ventricular cardiomyopathy/dysplasia: proposed modification of the task

- 마우스를 수직으로 움직이면 이미지 스크롤
- 마우스를 수직으로 움직이면 이미지 밝기 변화, 수평으로 움직이면 명암변화
- 마우스를 수직으로 움직이면서 줌인, 줌아웃
- 이미지 드래그
- 마우스를 움직여 픽셀/mm 그리기 및 측정
- 주석 표시
- 전체 이미지 보기
- 실행취소

## 6. QEVLAR app for Core prep 활용 방법

QEVLAR app for Core Prep: 레지던트 및 의학 이미지 전문가가 상호작용 가능한 임상 케이스와 수정 가능한 퀴즈를 활용하여 그들의 의학 이미지 진단 지식을 향상시키고 테스트 할 수 있는 과정

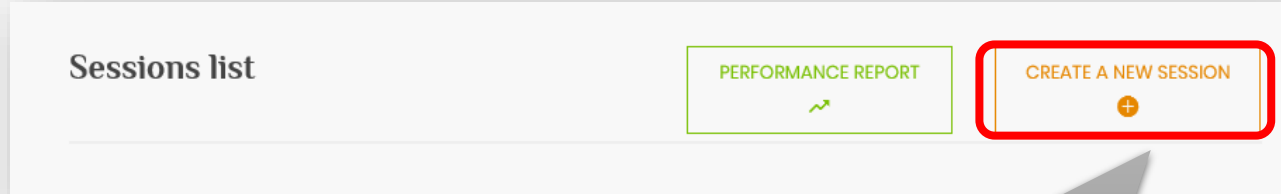


- NM Essential Qbank: 심장학, 내분비학 등 각 분야별 테스트
- RadCore Bundle: 방사선관련 테스트
- NucCore Bundle: 기초과학, 심장혈관 등에 관한 테스트

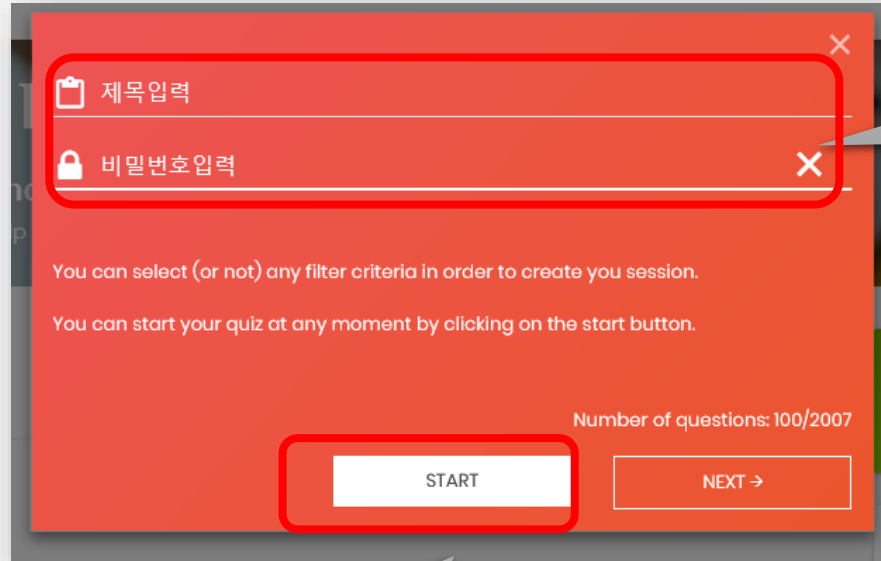
1. 테스트과정 선택



## 6. QEVLAR app for Core prep 활용 방법



2. 새로운 세션  
생성



3. 제목 및 비밀번호  
입력

3. 시작

## 6. QEVLAR app for Core prep 활용 방법



The screenshot displays the IMAIOS QEVLAR app interface. At the top, the IMAIOS logo is on the left, and the user's name 'Seung Woo Lee' and a timer '00:00:15' are on the right. The main area features a CT scan of the chest with a white arrow pointing to a specific finding. To the right of the scan is a vertical toolbar with various navigation and zooming icons. Below the scan, there are buttons for 'HTML5 VERSION', '.JPG', and 'DICOM'. On the far right, a sidebar menu lists 'MINICASE 1' through 'MINICASE 16', along with 'Question - 1', 'Question - 2', and 'ISOLATED QUESTIONS'. A red box highlights this sidebar menu. At the bottom, a question is displayed: '1/100 What is the finding demonstrated in the images provided?'. Below the question is a list of four multiple-choice options: A. Dominant left coronary artery system, B. Coronary arteriovenous fistula, C. Anomalous origin of the left coronary artery with an interarterial course, and D. Anomalous origin of the left coronary artery with an intraseptal course. A red box highlights this question and options area. Two grey callout boxes with white text are overlaid on the interface: '질문' (Question) points to the question text, and '답변하기' (Answer) points to the options list. A grey callout box with white text '테스트 목록' (Test List) points to the sidebar menu.

IMAIOS Seung Woo Lee 00:00:15

MINICASE 1  
Question - 1  
Question - 2  
MINICASE 2  
MINICASE 3  
MINICASE 4  
MINICASE 5  
MINICASE 6  
MINICASE 7  
MINICASE 8  
MINICASE 9  
MINICASE 10  
MINICASE 11  
MINICASE 12  
MINICASE 13  
MINICASE 14  
MINICASE 15  
MINICASE 16  
ISOLATED QUESTIONS

1/100 What is the finding demonstrated in the images provided?

A Dominant left coronary artery system  
 B Coronary arteriovenous fistula  
 C Anomalous origin of the left coronary artery with an interarterial course  
 D Anomalous origin of the left coronary artery with an intraseptal course

질문

답변하기

테스트 목록

## 6. QEVLAR app for Core prep 활용 방법

Sessions list

PERFORMANCE REPORT

CREATE A NEW SESSION

제목입력  
100 question(s)

2017/11/13  
15:56

PAUSED  
4%

진행했던 혹은  
진행중인 테스트  
과정

수행 리포트



## 7. 모바일 이용 가이드라인

### 옵션 1

1. www.imaios.com에서 무료 IMAIOS 계정을 등록하여 주십시오.
2. 반드시 Wifi로 설정하고 실행하여 주시고, IMAIOS e-Anatomy 앱을 실행하여 주십시오. (Wifi IP는 구독 설정된 IP 범위 중 하나여야 합니다.)

OR

### 옵션 2

1. www.imaios.com에서 무료 IMAIOS 계정을 등록하여 주십시오.
2. IP접속이 허용된 네트워크의 컴퓨터에서(페이지 상단에 기관 이름이 표시됨) IMAIOS 계정으로 로그인 합니다.
3. 2주 동안 IMAIOS 계정과 구독이 연결됩니다. (2주가 지나기 전 다시 로그인하여 갱신 필요)
4. IMAIOS e-Anatomy 앱을 핸드폰에 설치 합니다.
5. 앱을 실행하고, 위에서 로그인 했던 계정으로 로그인하여 모듈을 활성화합니다.

# Data Save LIVES

CONNECT DI  
CONNECT CARE  
CONNECTED-U

