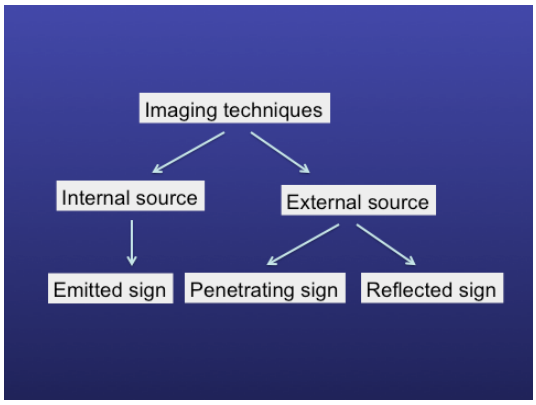
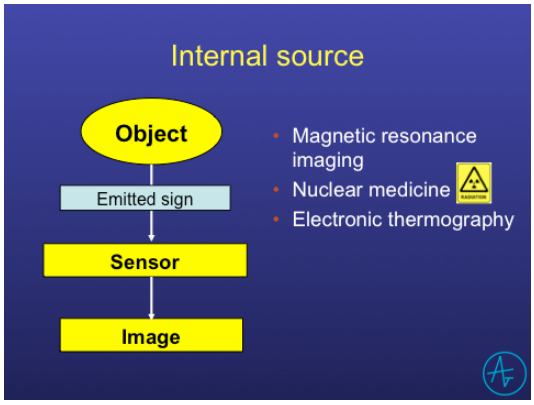
Modern imaging techniques, decision making in radiology

Dr. Ackermann Gábor

www.dentesthic.hu/oktatas/

gabor@dentesthic.hu





Nuclear Medicine

Assessing physiologic changes

Gamma camera

Radionuclide-labeled tracers (^{99}Tc, ^{67}Ga, ^{131}I)

Electronic Thermography

The emitted infrared radiation of the body is detected by a sensor

Static Area Telethermography (SAT)

chronic orofacial pain

TMJ disorders

inferior alveolar nerve deficit

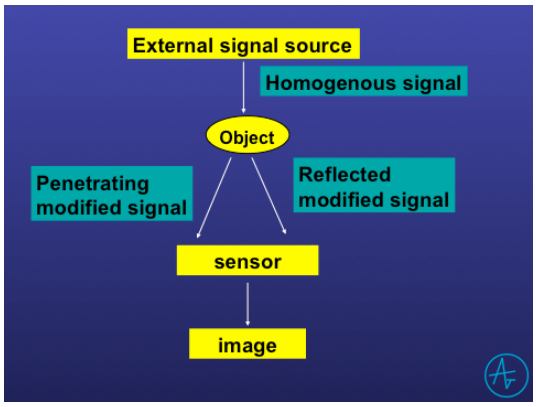
promising research tool

Dynamic Area Telethermography (DAT) (10/sec)

hemodynamic processes

neuronal control of facial skin perfusion

correlation between orofacial pain and facial thermal abnormalities



External source

Penetrating sign:

Radiography

Intraoral, extraoral, tomography

CT, CBCT

DIFOTI

Reflected sign:

Ultrasonography

Diagnodent

VistaProof

Ultrasonography

Salivary gland

Infections,Abscesses, sialoliths

Malignant tumors

Lymph nodes

Teeth, periapical area, TMJ

Diagnodent

Laser light penetrates enamel

Identifies hidden and incipiens lesions

Quantifies caries

Valuable diagnostic info

Helps treatment plan

DIFOTI
Digital Imaging Fiber-Optic Trans-Illumination

Light-based computer vision technology

non-invasive, reliable, automatic

instantaneous diagnosis.

New diagnostic capabilities for early detection of caries

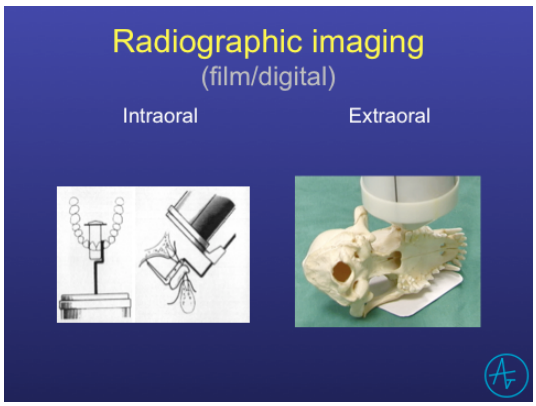
No harmful radiation

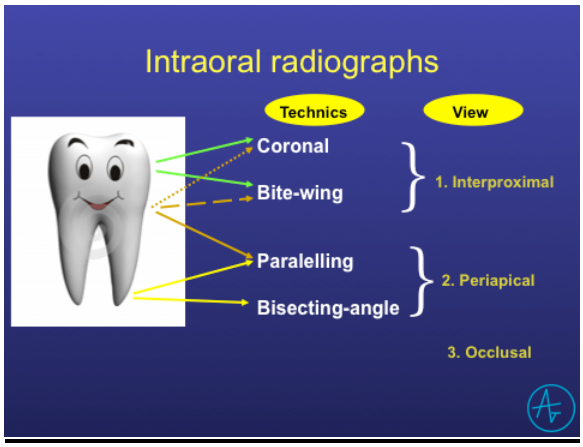
Excellent for patient education and patient acceptance of treatment

Increases practice productivity

Improves the standard of care

Radiographic imaging (film/digital)



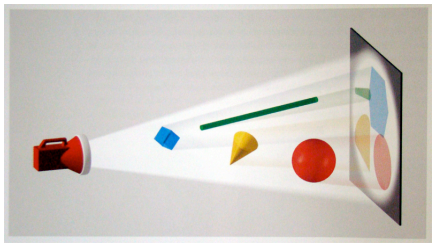


Extraoral radiography

Central projection

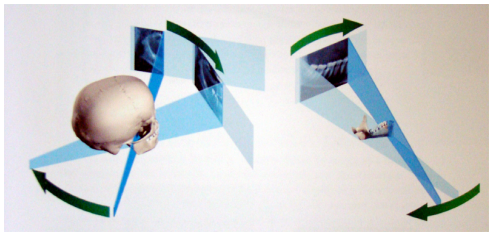
Skull projections

Cephalogram, PA , Waters', reverse-Towne's, submentovertex, mandib. oblique lat.



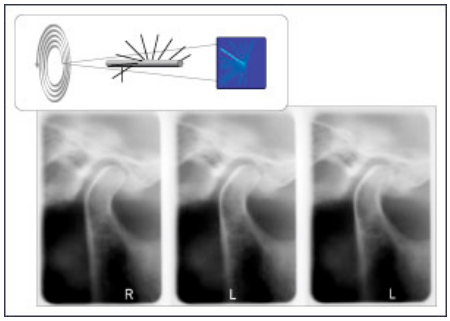
Narrow beam radiography

Panoramic, scanogramm



Tomography

Upper/lower jaw, TMJ



Panoramic imaging

Standard	Dental
dentition	•denition
jaws	–replacing full mouth (FMX)
TMJ	•Jaws
dental wall of Sinus	

Scanogram

Single/stereo dental scanogram

Sinus scanogram

TMJ scanogram

Tomography (Upper/lower jaw, TMJ)

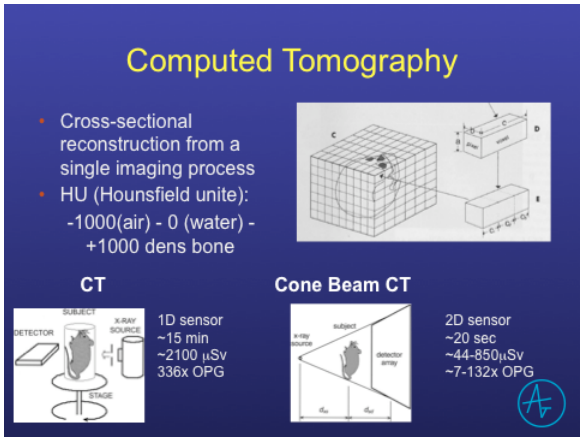
Dental tomogram

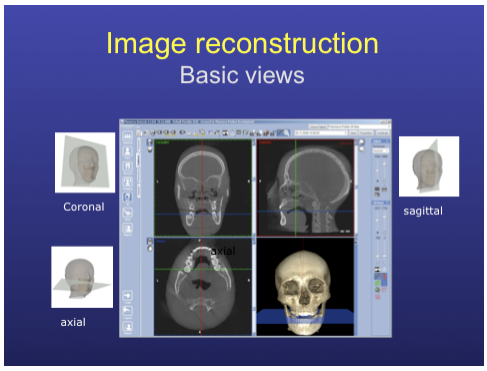
Several mm layer thickness

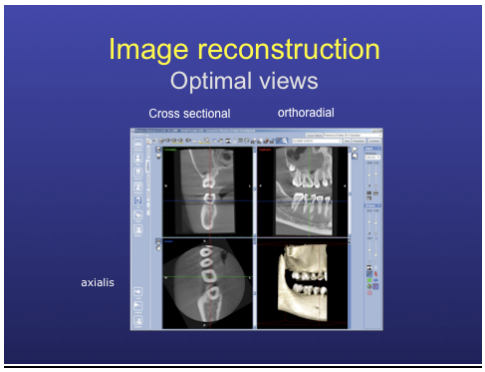
1-4 images

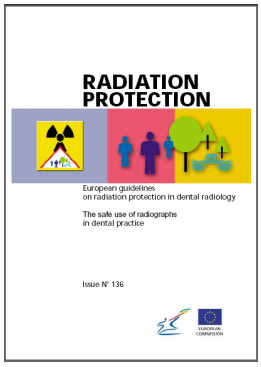
Magnified image

Lower or upper jaw









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X-ray examination

Justified on individual patient basis

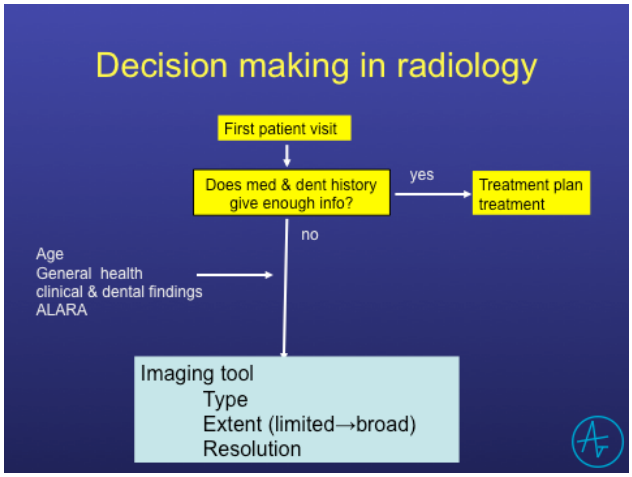
benefits > risk (ALARA)

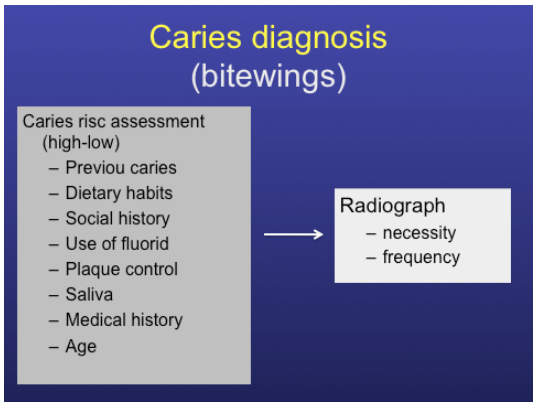
Add new information

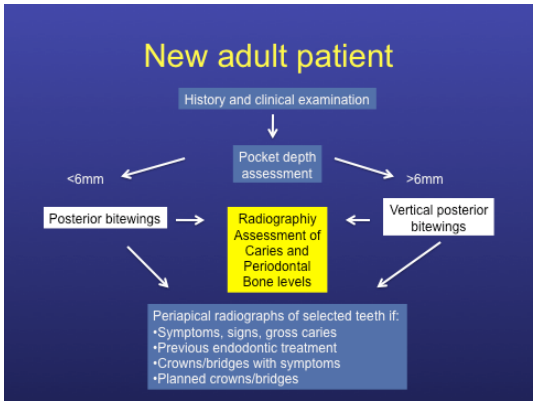
After clinical examination

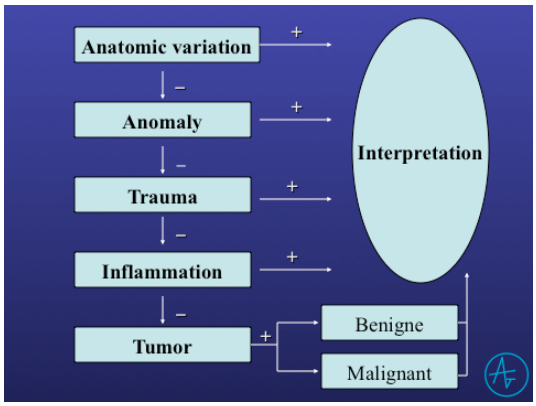
Reffering with sufficient clinical information

Routine radiography is unacceptable




Caries diagnosis
(bitewings)
Caries risc assessment
(high-low)
– Previou caries
– Dietary habits
– Social history
– Use of fluorid
– Plaque control
– Saliva
– Medical history
– Age
Radiograph
– necessity
– frequency


New adult patient
History and clinical examination
Pocket depth assessment
<6mm
>6mm
Posterior bitewings
Radiographiy Assessment of Caries and Periodontal Bone levels
Vertical posterior bitewings
Periapical radiographs of selected teeth if:
•Symptoms, signs, gross caries
•Previous endodontic treatment
•Crowns/bridges with symptoms
•Planned crowns/bridges


Anatomic variation
Anomaly
Trauma
Inflammation
Tumor
Interpretation
Benigne
Malignant