



# Health Hazards of Tobacco Smoking Requiring Surgical Intervention

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NAMSCON-2016, Raipur

Reduced  
Physiological  
Reserve & Chronic  
Diseases

Difficulties in  
Surgeries, Anesthesia  
and Healing



Tobacco is causative  
factor for many cancers

Malignancies

Various disorders due  
to smoking requiring  
Surgery

Non  
Malignant  
Vascular

# Risks from Smoking

Smoking can damage every part of the body

## Cancers

Head or Neck

Lung

Leukemia

Stomach

Kidney

Pancreas

Colon

Bladder

Cervix

## Chronic Diseases

Stroke

Blindness

Gum infection

Aortic rupture

Heart disease

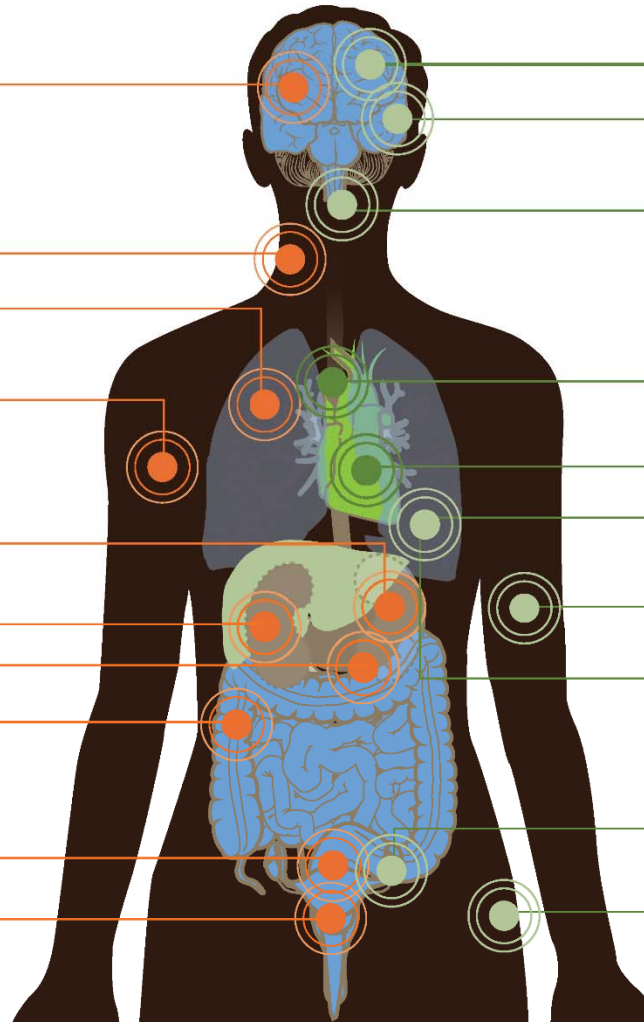
Pneumonia

Hardening of the arteries

Chronic lung disease  
& asthma

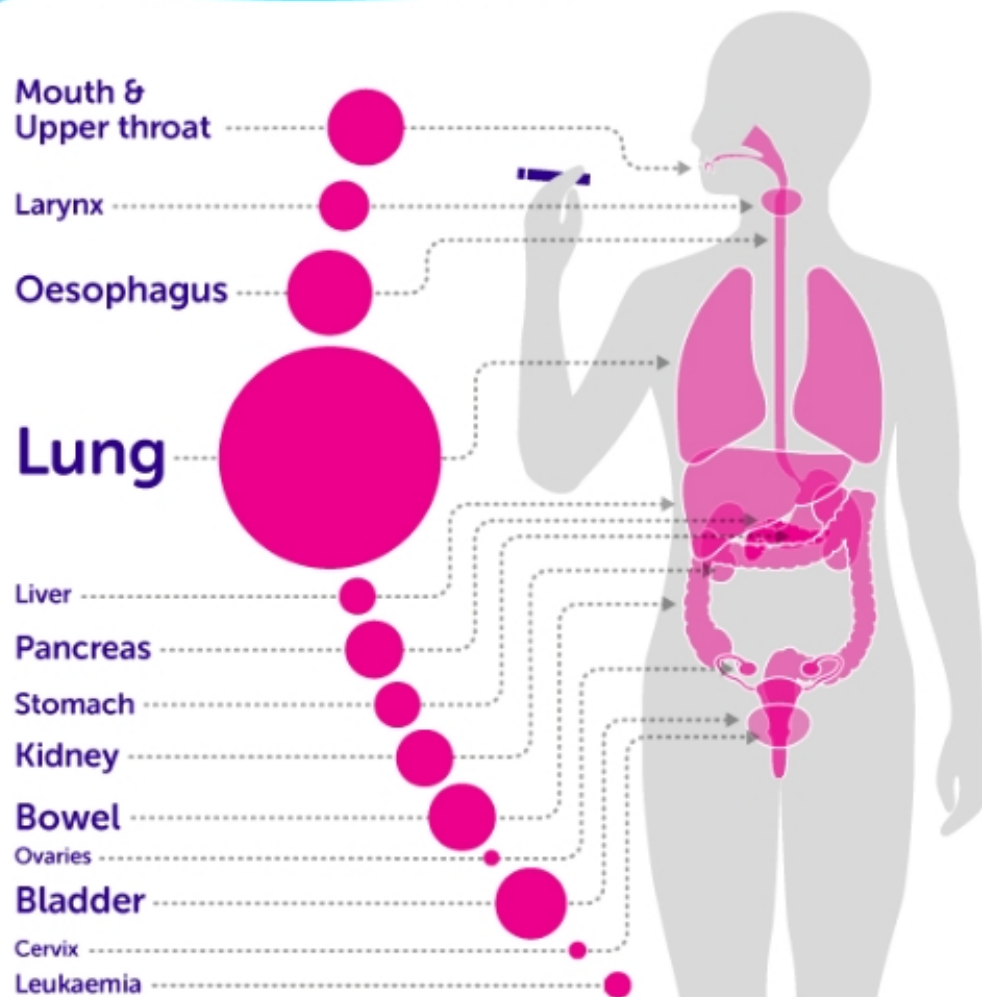
Reduced fertility

Hip fracture





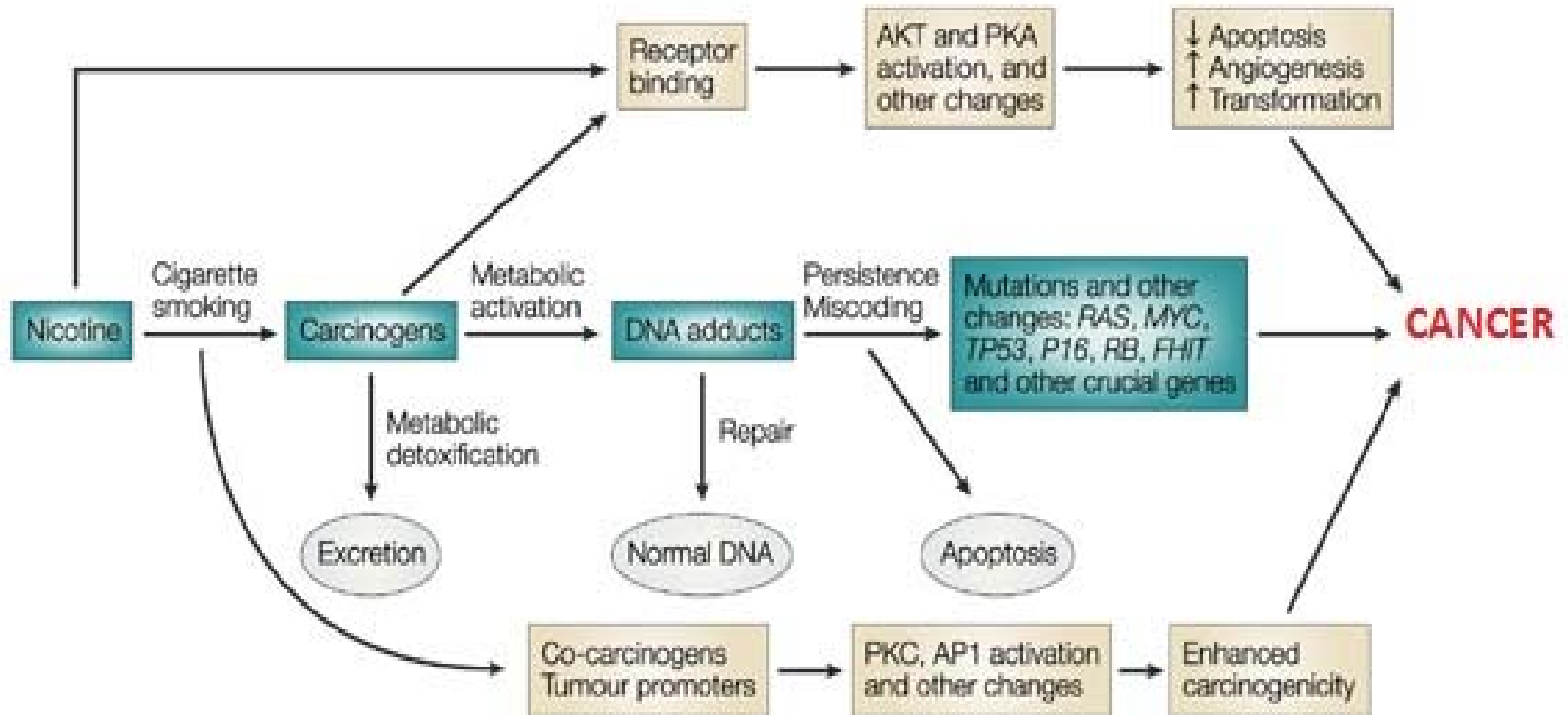
## SMOKING CAN CAUSE AT LEAST 14 TYPES OF CANCER

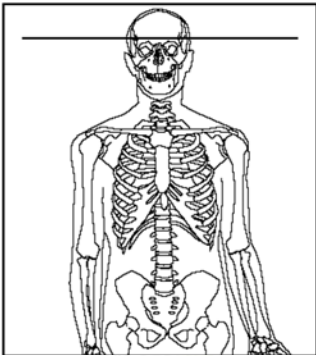


# Harms of Tobacco Smoking

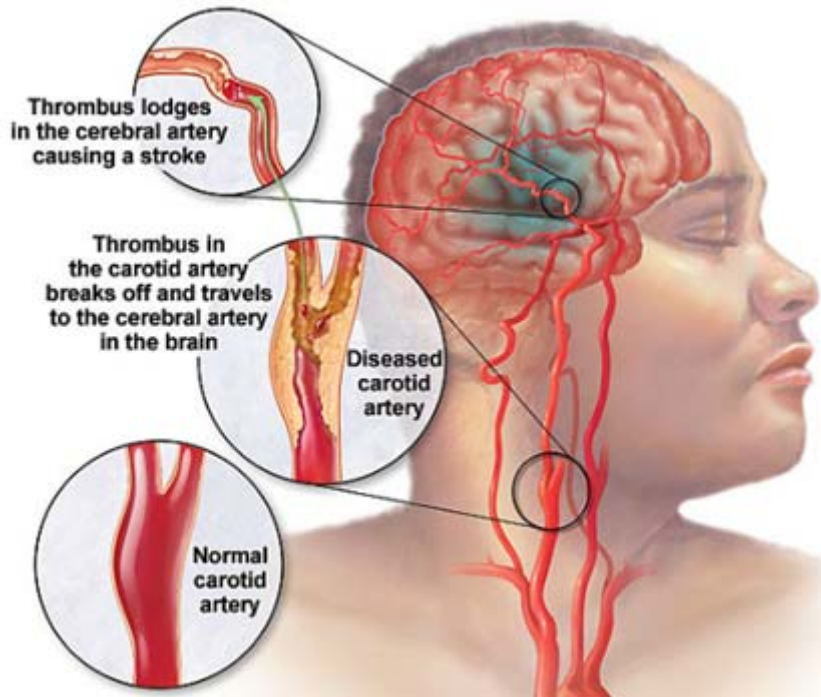
## Multifactorial Pathogenesis

### Carcinogenesis



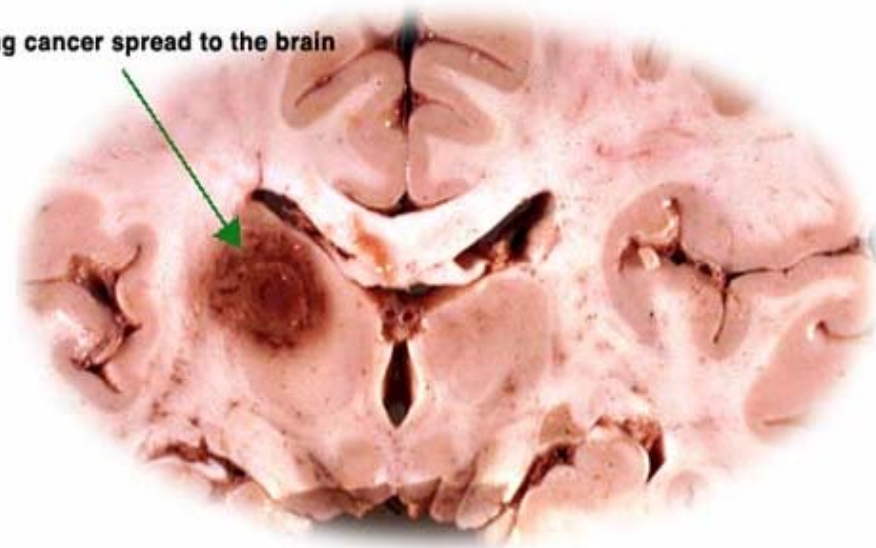


# Brain

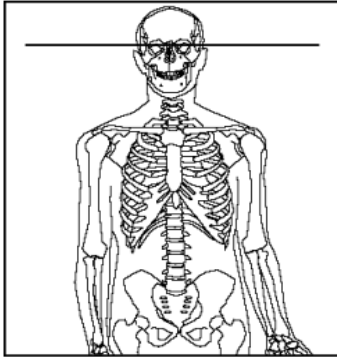


Vascular Disease & Thromboembolism may lead to Cerebral Thrombosis and Infarction requiring Neurosurgery

Lung cancer spread to the brain



Neurosurgical removal of Oligo-metastasis from Cancers improve survival



# Eye

## JAMA Ophthalmology

NCBI Resources ▾ How To ▾

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National Institutes of Health

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JAMA Ophthalmol. 2014 Mar;132(3):253-7. doi: 10.1001/jamaophthalmol.2013.6669.

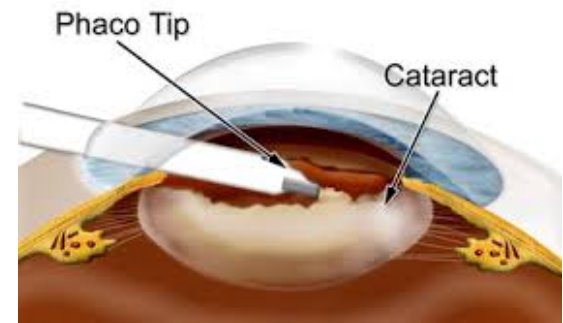
### **Smoking cessation and the risk of cataract: a prospective cohort study of cataract extraction among men.**

Lindblad BE<sup>1</sup>, Håkansson N<sup>2</sup>, Volk A<sup>2</sup>.

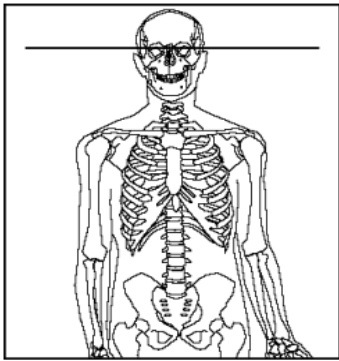
**CONCLUSIONS AND RELEVANCE:** Smoking cessation seems to decrease the risk of cataract extraction with time, although the risk persists for decades. The higher the intensity of smoking, the longer it takes for the increased risk to decline. These findings emphasize the importance of early smoking cessation and preferably the avoidance of smoking.

PMID: 24385206 DOI: 10.1001/jamaophthalmol.2013.6669

[PubMed - indexed for MEDLINE]







# Eye

Smoking is associated with Age Related Macular Degeneration ( AMD)



## Smoking and age-related macular degeneration: a review of association

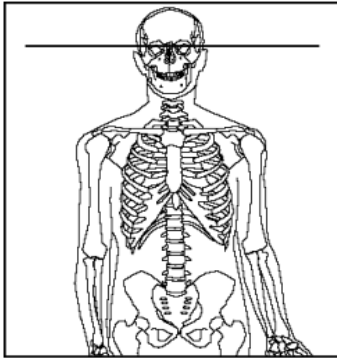
J Thornton<sup>1</sup>, R Edwards<sup>1</sup>, P Mitchell<sup>2</sup>, RA Harrison<sup>3</sup>,  
I Buchan<sup>1</sup> and SP Kelly<sup>4</sup>

**Conclusion** The literature review confirmed a strong association between current smoking and AMD, which fulfilled established causality criteria. Cigarette smoking is likely to have toxic effects on the retina. In spite of the strength of this evidence, there appears to be a lack of awareness about the risks of developing eye disease from smoking among both healthcare professionals and the general public.

REVIEW







# Eye

## Laser Surgery for slowing AMD

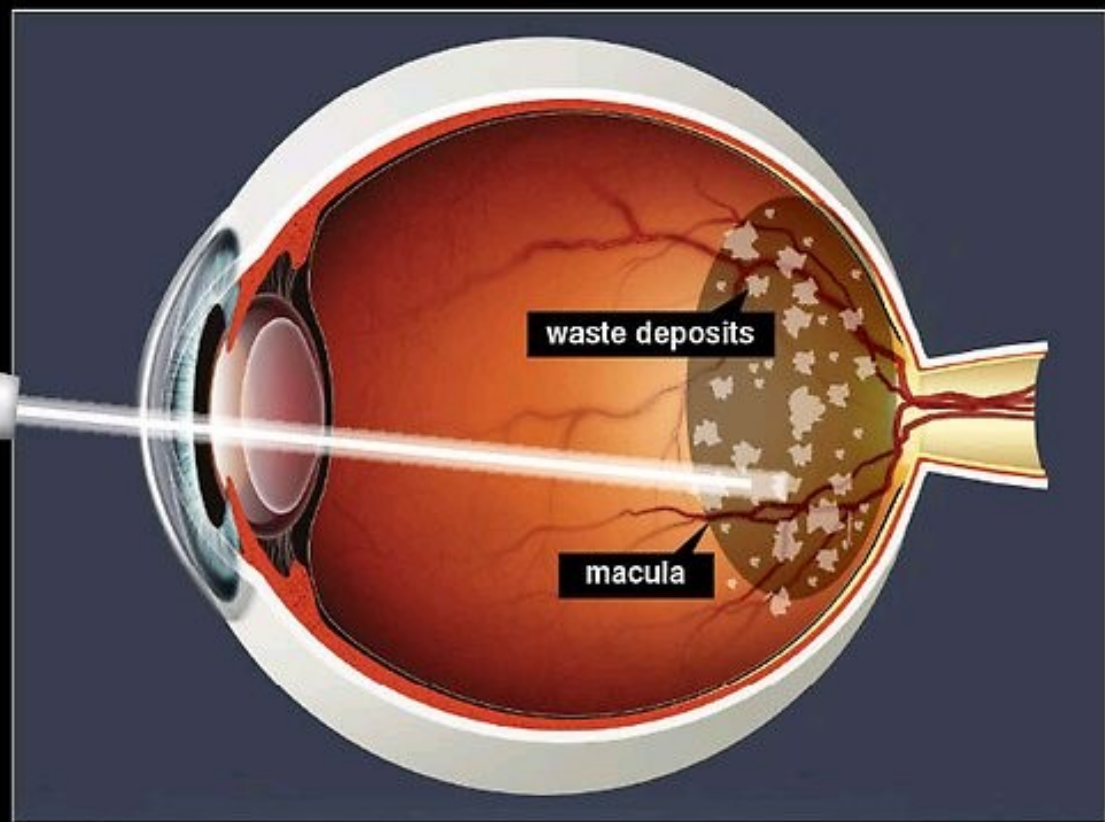


### HOW IT WORKS

**1** Deliver a specially designed nanosecond laser in fast nanosecond pulses to the macula in the centre of the retina

**2** The laser activates repair mechanism to the retinal layers

**3** The process is designed to slow down ageing changes in the back of the eye that may lead to vision loss.

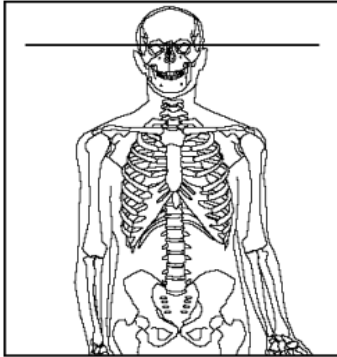


Eye (2005) 19, 935–944

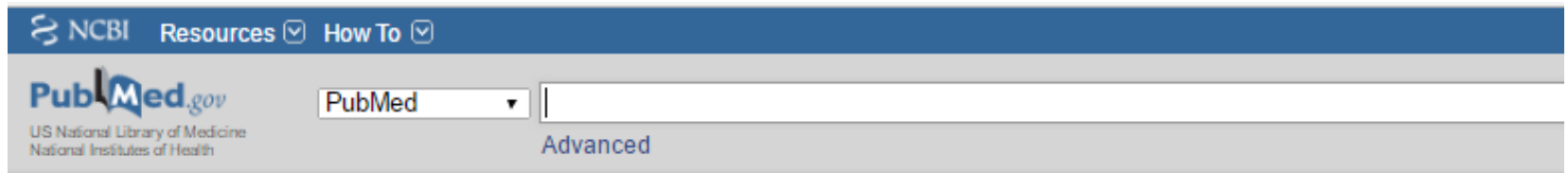
© 2005 Nature Publishing Group All rights reserved 0950-222X/05 \$30.00

[www.nature.com/eye](http://www.nature.com/eye)





# Ear



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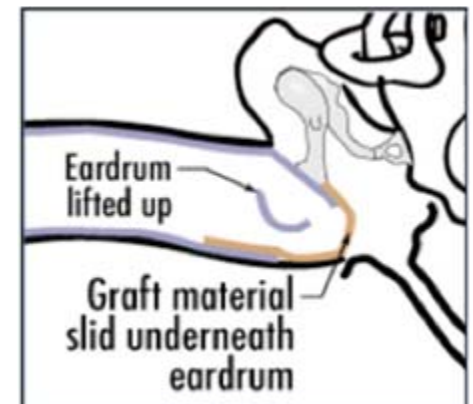
Laryngoscope. 2001 Oct;111(10):1806-11.

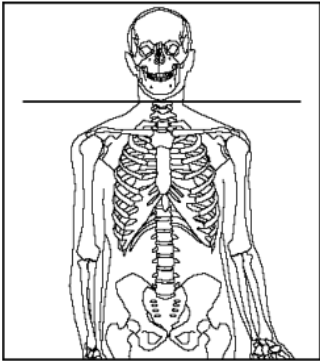
## **Smoking and tympanoplasty: implications for prognosis and the Middle Ear Risk Index (MERI).**

Becvarovski Z<sup>1</sup>, Kartush JM.

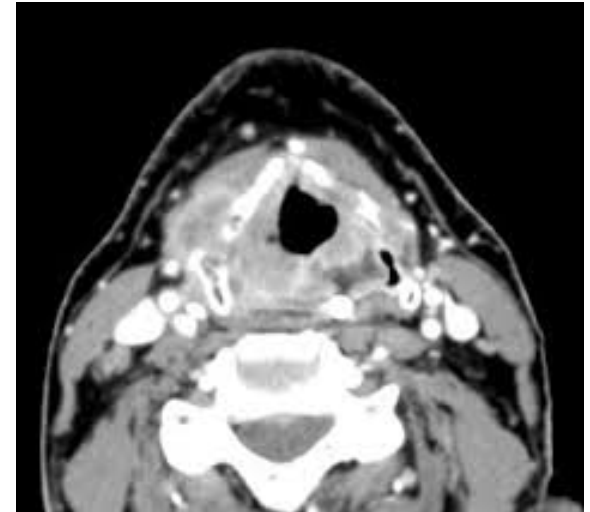
**CONCLUSIONS:** Cigarette smoking is associated with more severe middle ear disease preoperatively. More extensive surgery is often needed in smokers to eradicate the disease. Most significantly, smoking is associated with a threefold increase in the chance of long-term graft failure. Based on the results of this study, the MERI has been revised to include smoking as a risk factor.

Tympanoplasty for Middle Ear Diseases due to Smoking

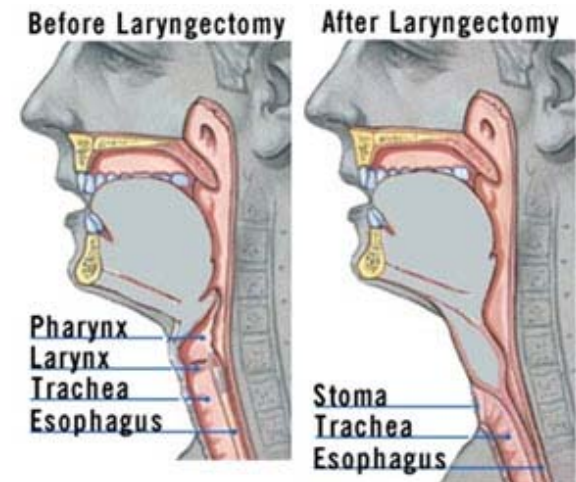




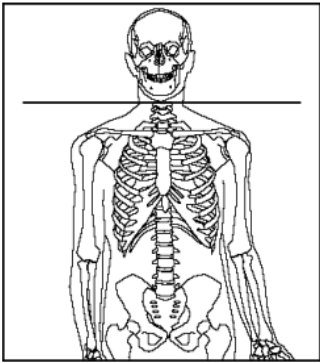
# Head & Neck Cancer



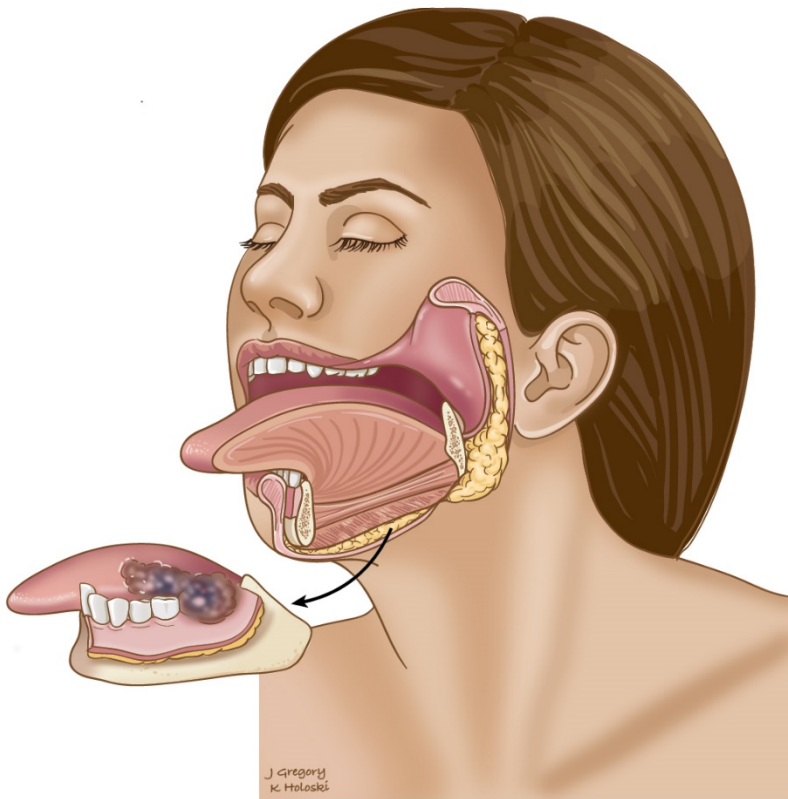
Early Laryngeal CA requiring Laser Sx



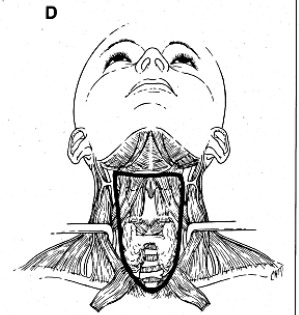
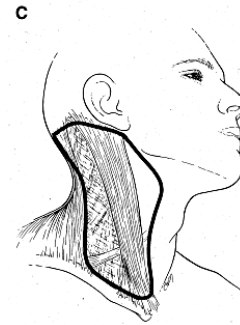
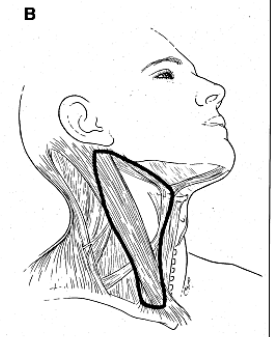
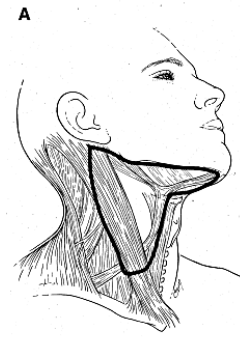
Advanced Laryngeal CA requiring Total Laryngectomy



# Head & Neck Cancer

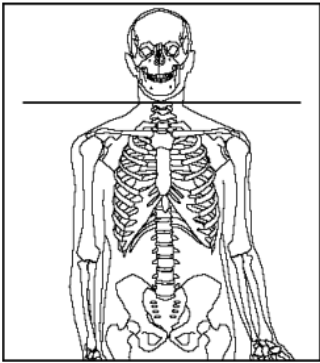


Mandibulectomy and WLE in Oral CA



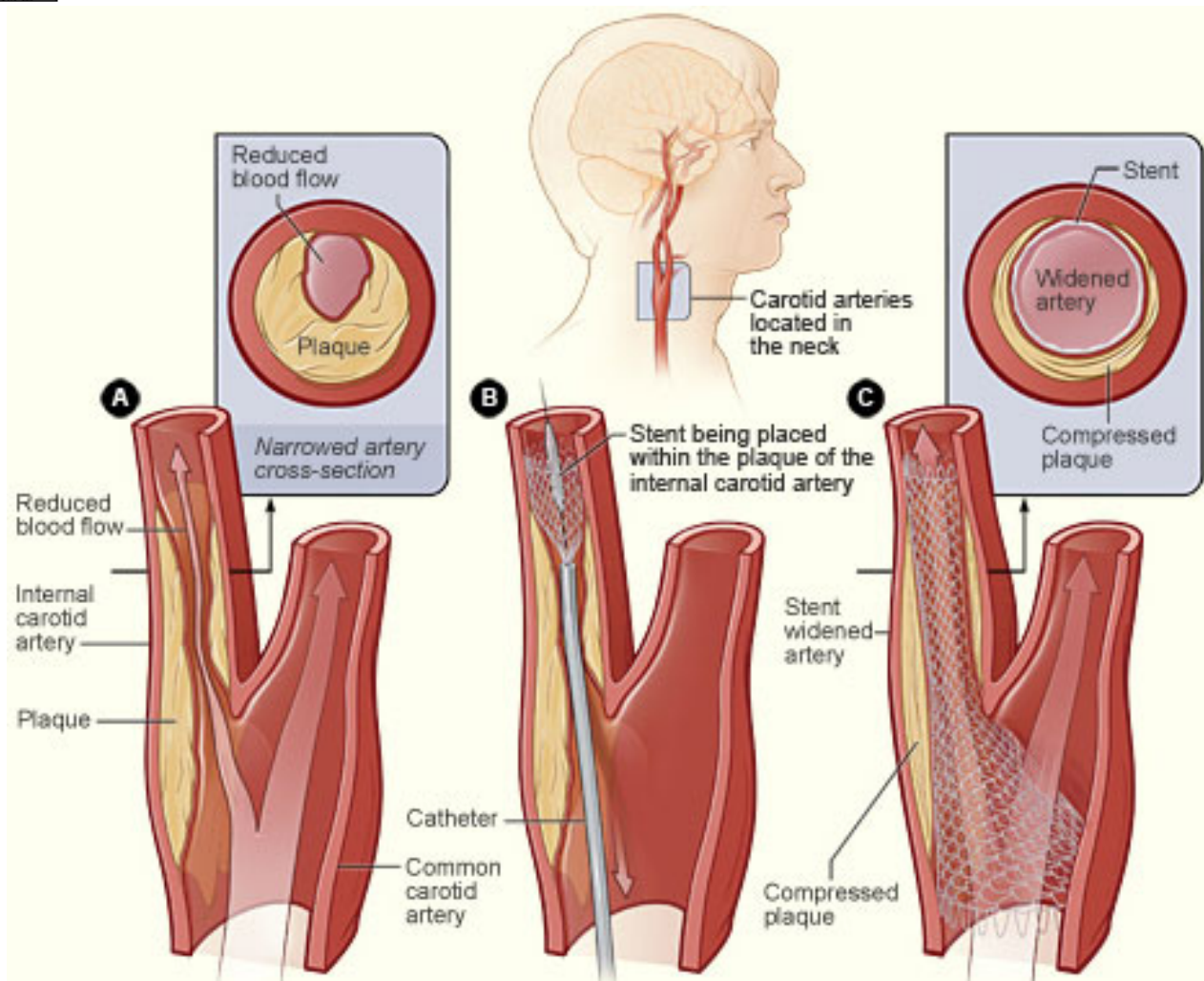
Neck Dissection in Head & Neck Cancers

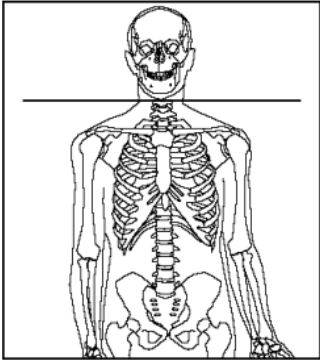




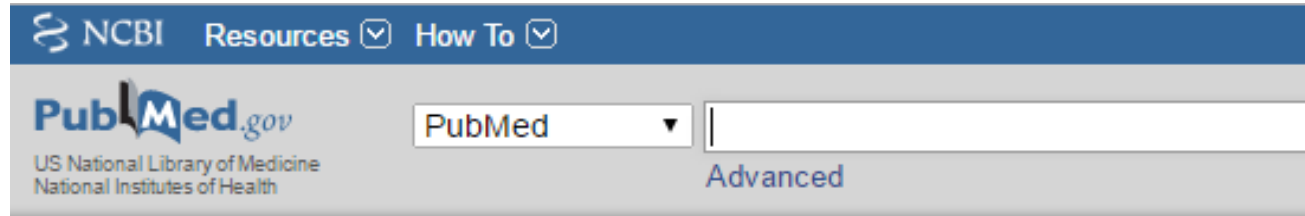
# Neck Vascular

Smoking leads to increased atherosclerosis -> Carotid Thrombosis requiring surgery and stenting





# The Teeth



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J Am Dent Assoc. 1999 Jan;130(1):57-64.

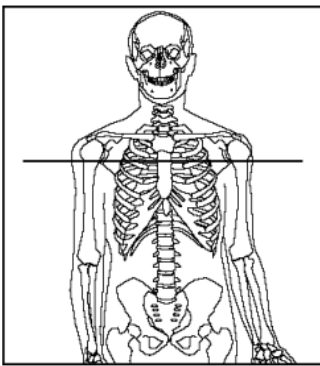
**Alveolar bone loss and tooth loss in male cigar and pipe smokers.**

Krall EA<sup>1</sup>, Garvey AJ, Garcia RI.



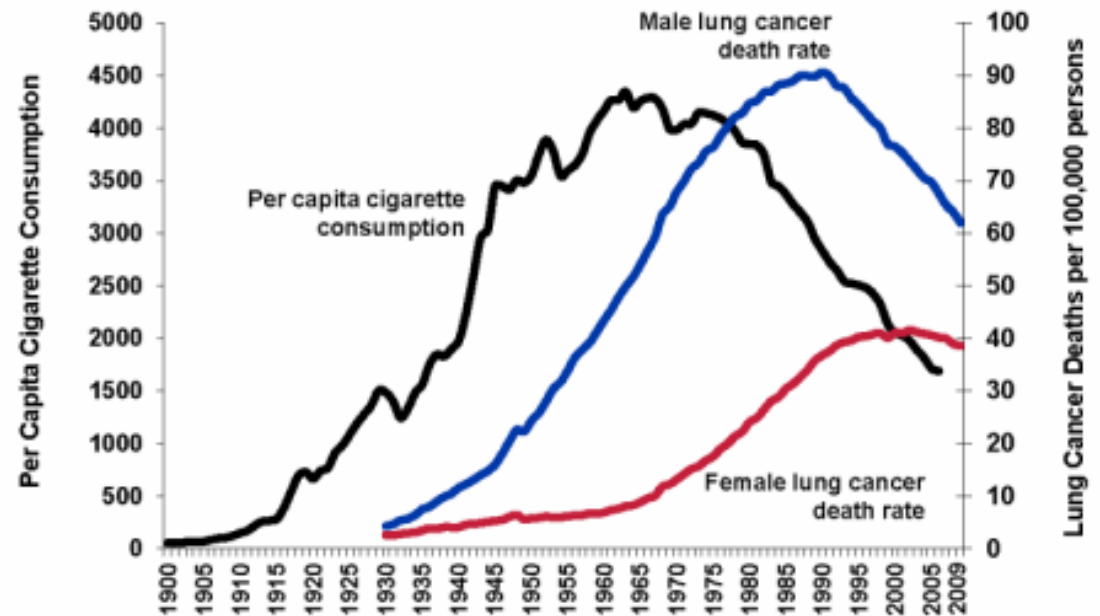
Smoking leads to increased dental procedures





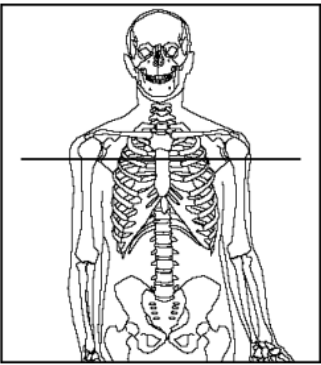
# The Lung Cancer

Trends in Tobacco Use and Lung Cancer Death Rates\* in the US

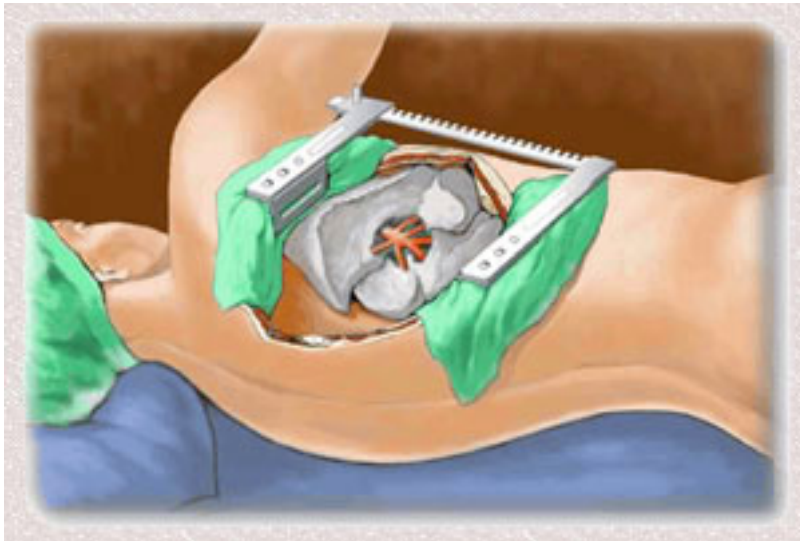


\*Age-adjusted to 2000 US standard population.

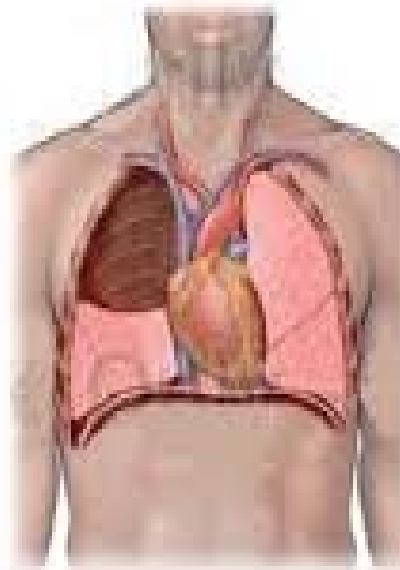
Source: Death rates: US Mortality Data, 1960-2009, US Mortality Volumes, 1930-1959, National Center for Health Statistics, Centers for Disease Control and Prevention. Cigarette consumption: US Department of Agriculture, 1900-2007.



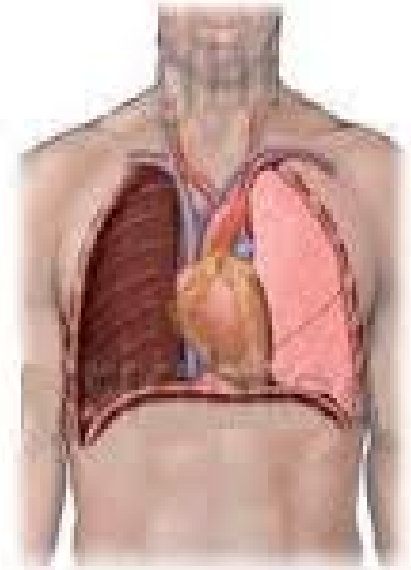
# The Lung Cancer



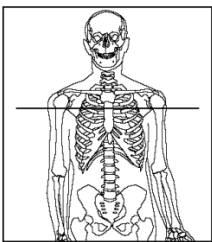
Lobectomy



Pneumonectomy



Different Standard Surgeries for Operable CA Lung



# Surgery

## Minimal Invasion and Image Guidance

Video Assisted Thoracoscopic Surgery (VATS) has been augmented **with Preoperative CT / Intraoperative Ultrasound** for localisation of deeper Nodules

Even for T3 (Chest Wall) disease VATS assisted Sx can be done

### Localizing Techniques – VATS

- Intraoperative imaging
- CT
- Thoracic ultrasound

### Preoperative CT guided marking

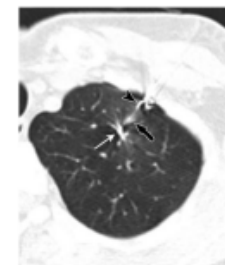
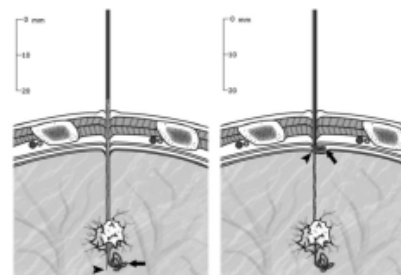
- Liquid material (contrast media, colored adhesive agents, dyes)
- Radionuclides
- Wires (hookwires, microcoils)

### Preoperative bronchoscopic marking

- Dye

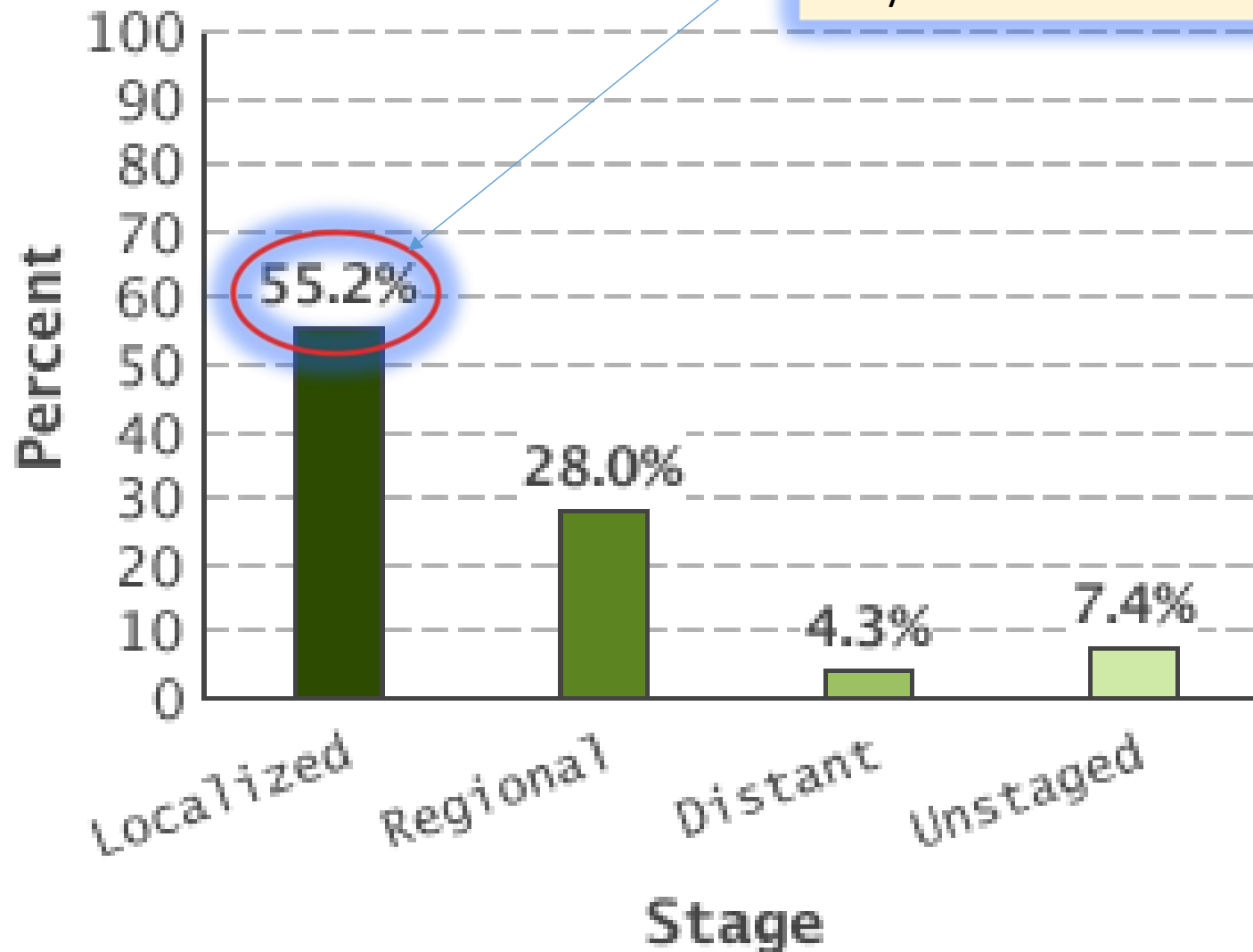


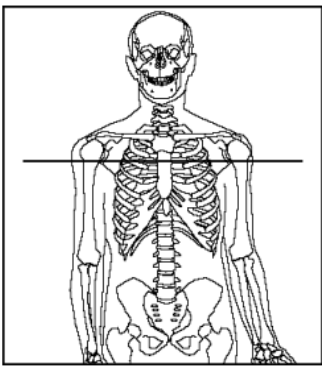
Single Incision VATS



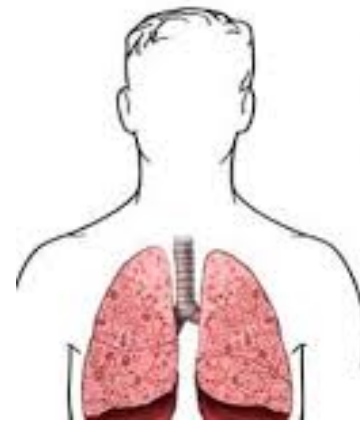
*Radiology 2002; 225: 511-518*

# Cancer of Lung 5 Year Relative Survival SEER Data





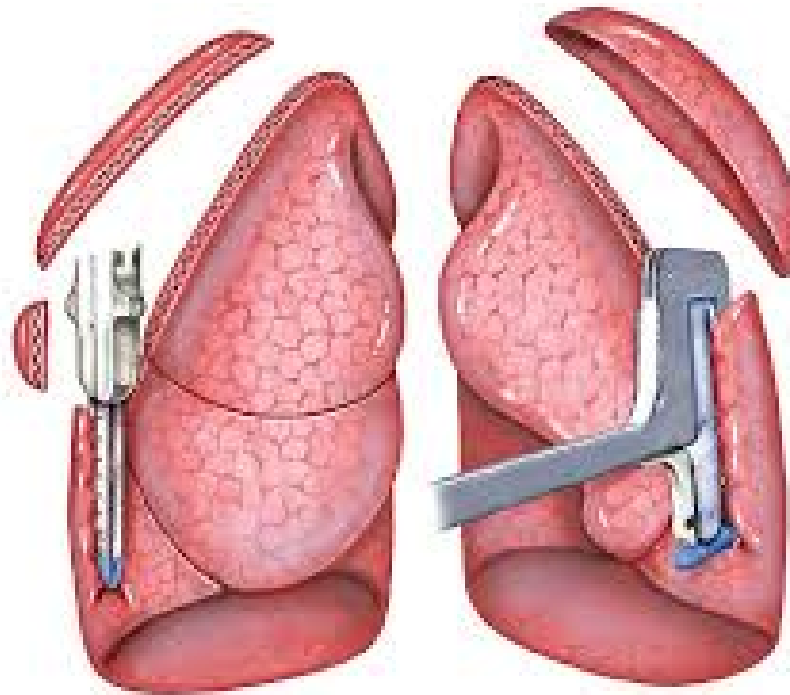
# The Lung COPD



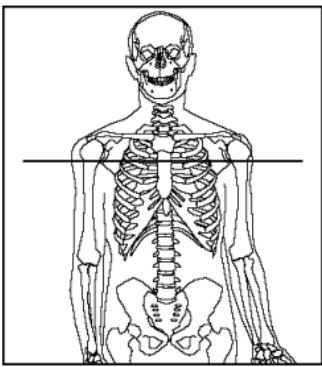
Normal bronchiole  
and alveoli



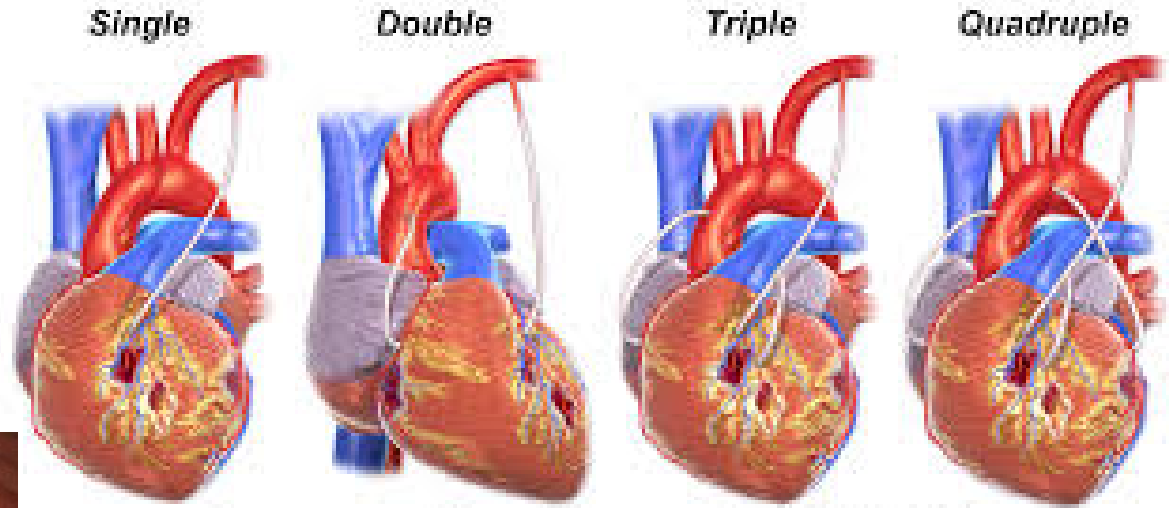
Emphysema



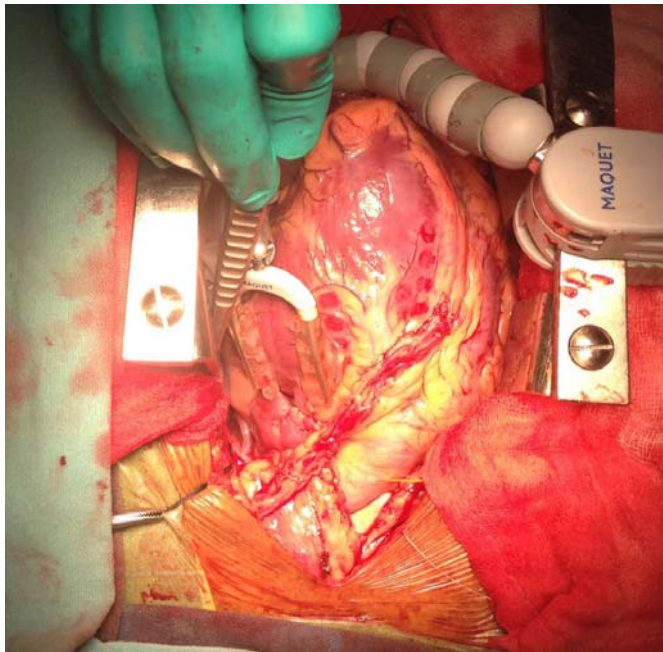
Various Surgeries to Increase Functional Lung Volume in  
COPD



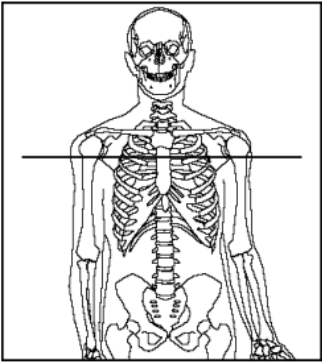
# The Heart & Major Vessels



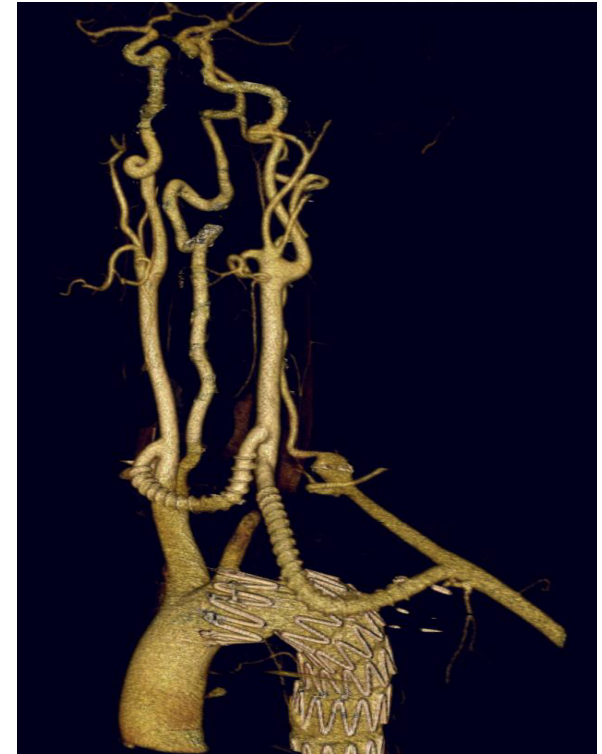
**Coronary Artery Bypass Graft (CABG)**



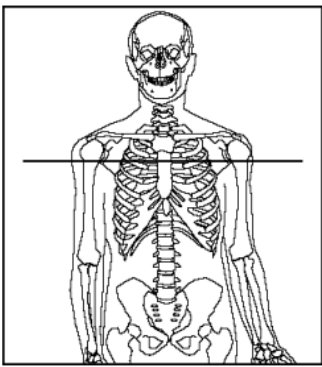




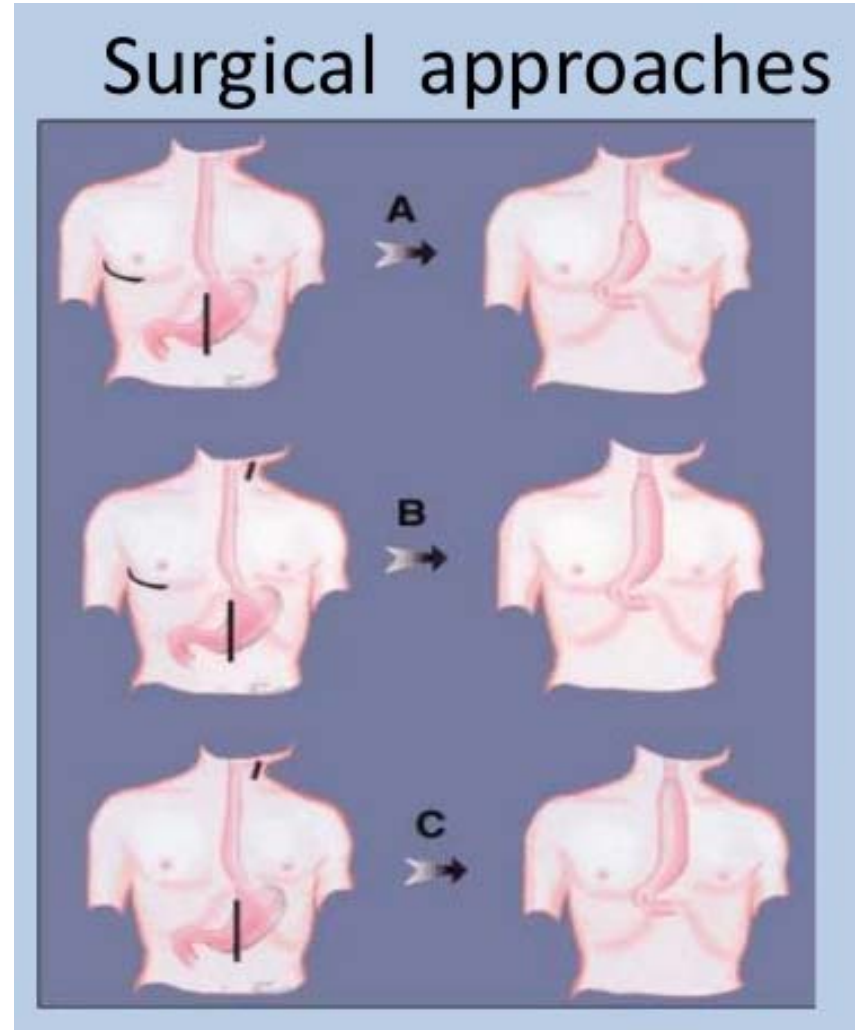
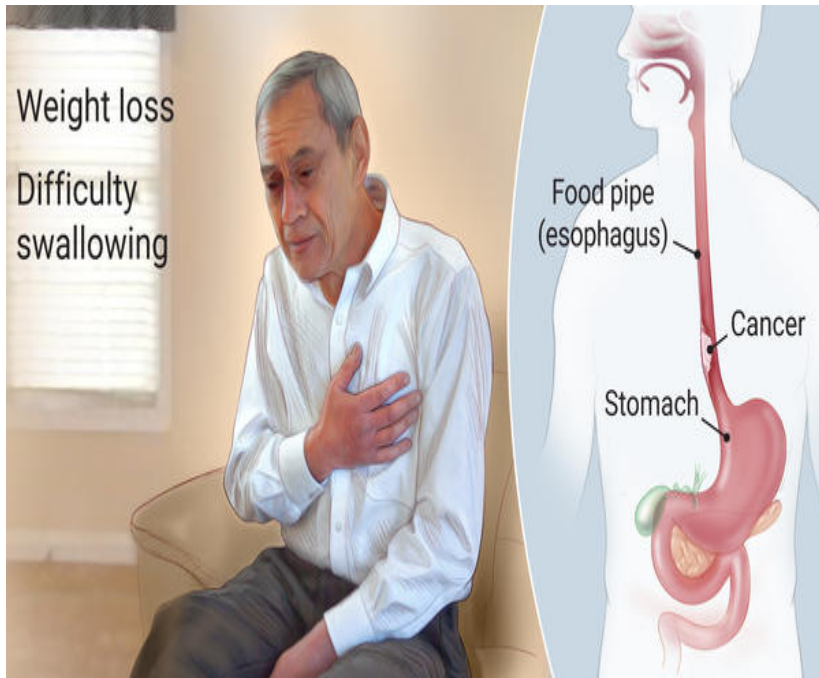
# Heart & Major Vessels



A large aneurysm in aorta - Before & After Surgical Repair



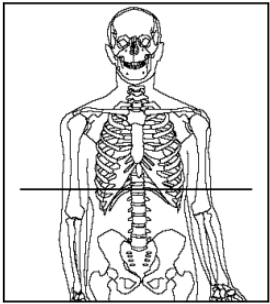
# Oesophagus Cancer



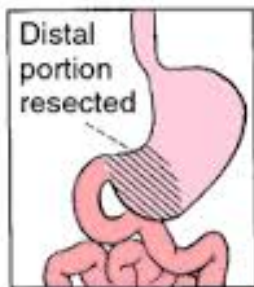
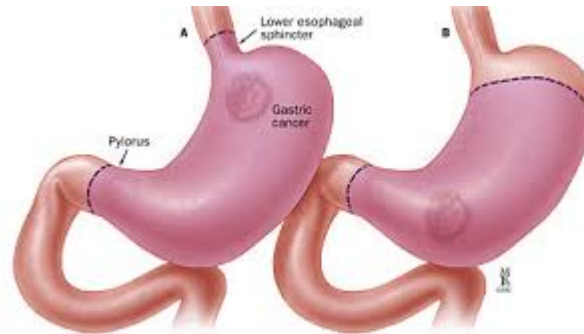
Various Surgeries for operable CA Esophagus

# Oesophageal cancer

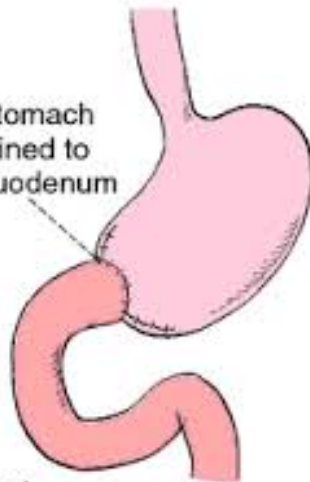




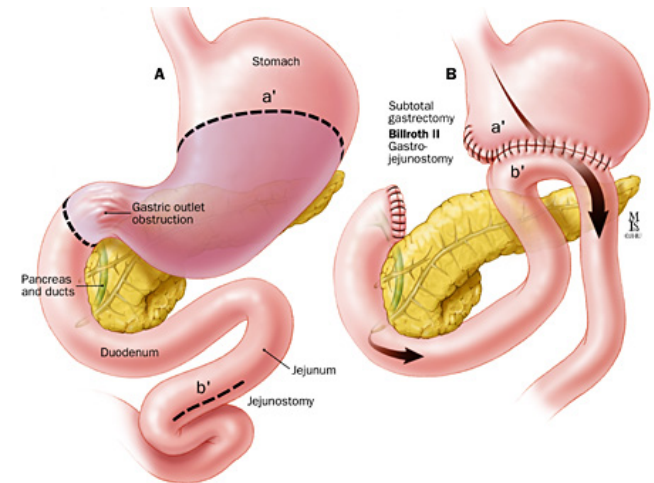
# Stomach Cancer



Stomach  
joined to  
duodenum



Billroth I  
(gastroduodenostomy)



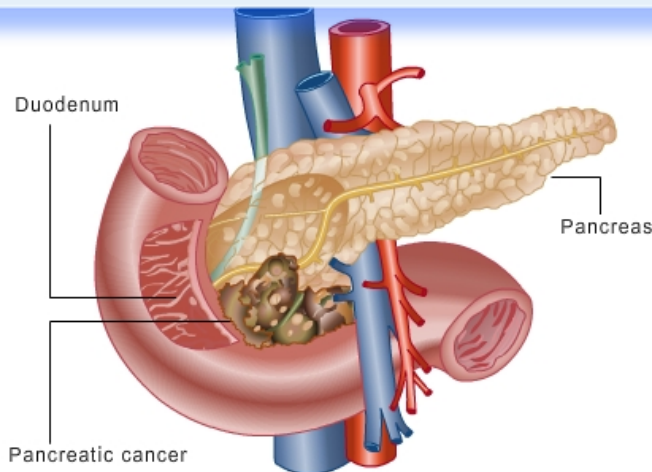
Various Surgeries for Operable CA Stomach ( Total & Partial Gastrectomies)

J Gastroenterol Hepatol. Author manuscript; available in PMC 2013 Aug 7.

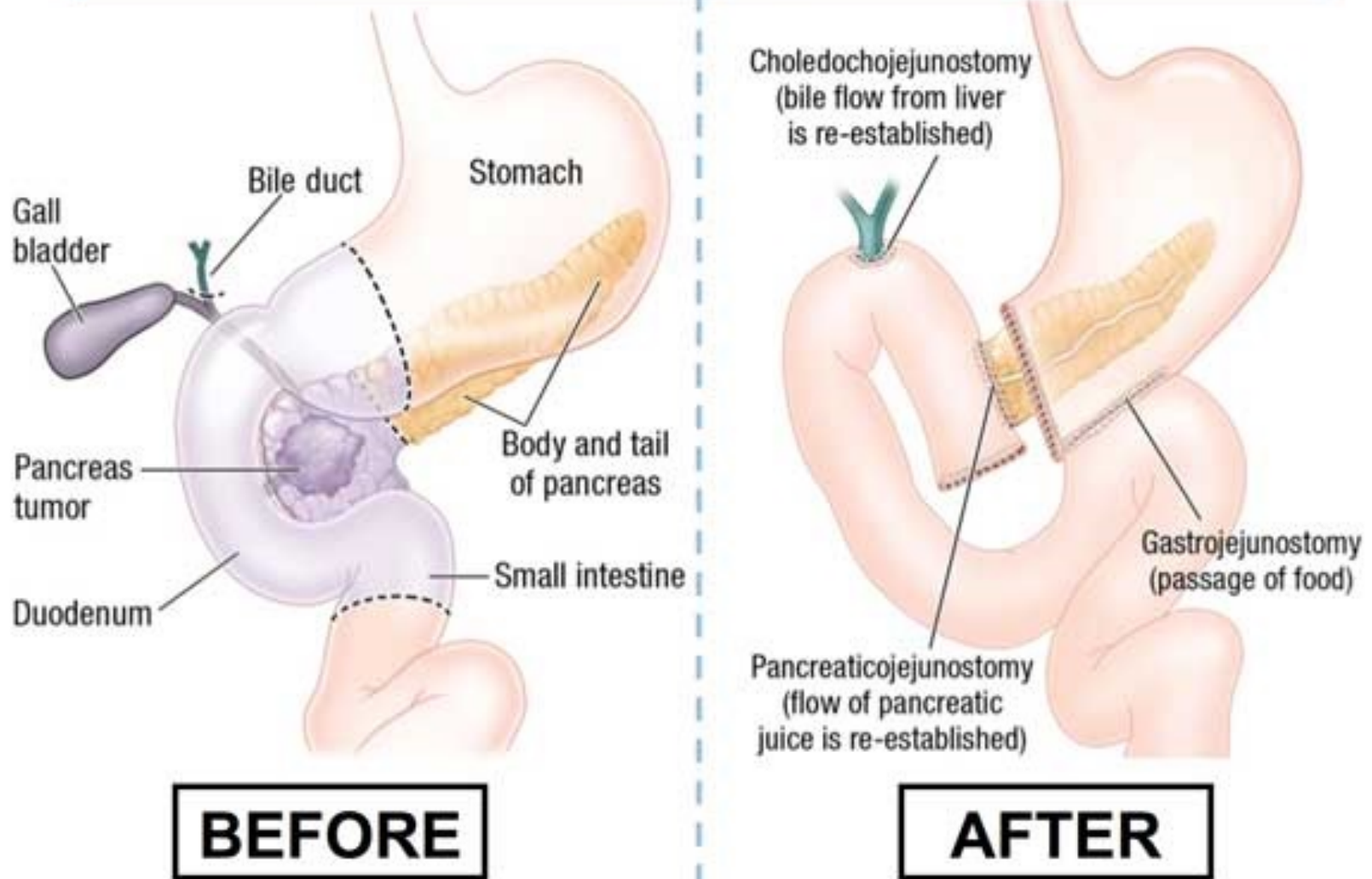
## Epidemiology, risk factors, and the promotion of pancreatic cancer: Role of the stellate cell

Cigarette smoking represents an independent risk for pancreatic cancer, resulting in an approximate doubling of the risk.

Because of the high prevalence of smoking in the world, it is estimated that **approximately 25% of the burden of pancreatic cancer is due to smoking**

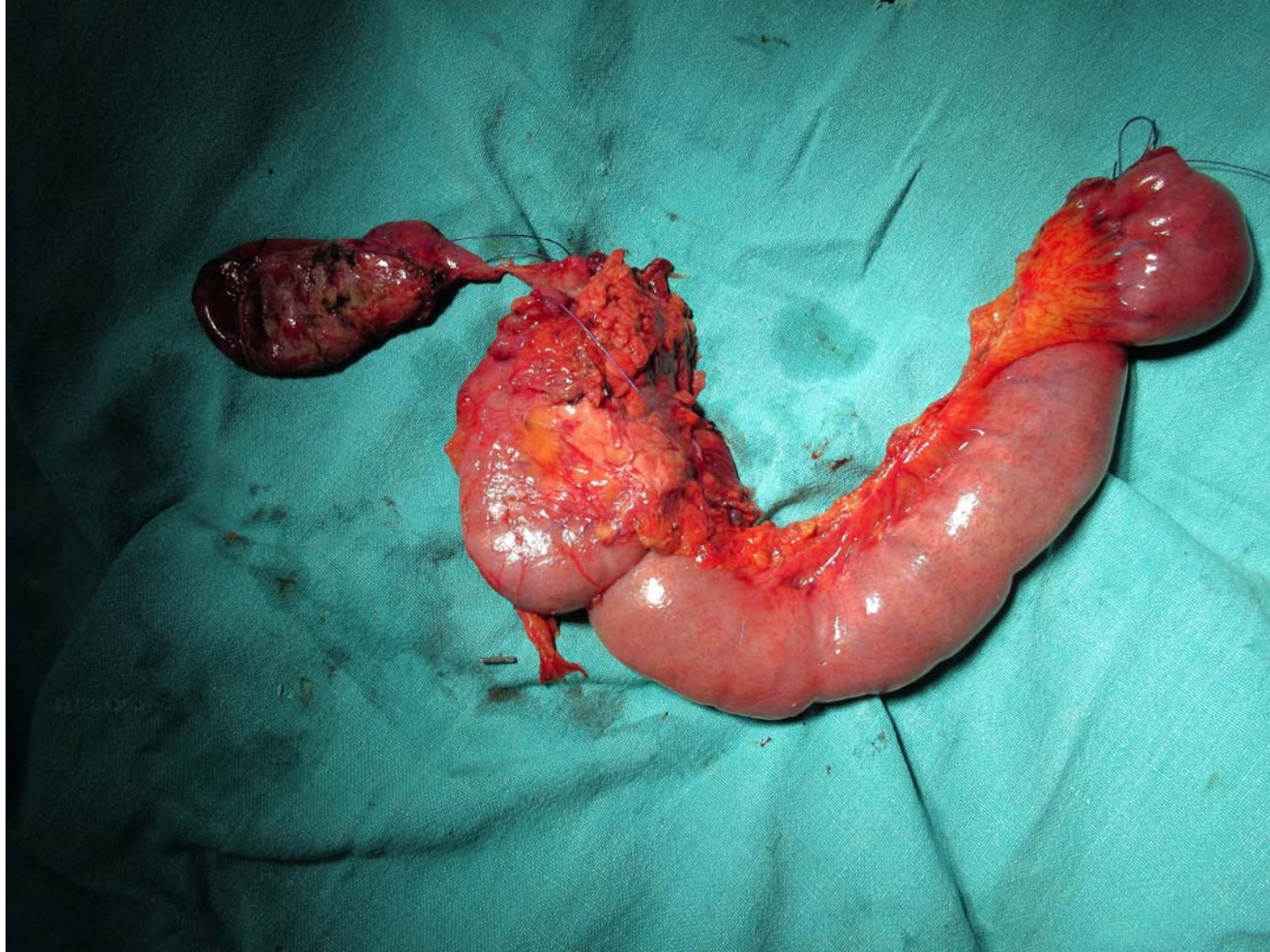


# THE WHIPPLE PROCEDURE

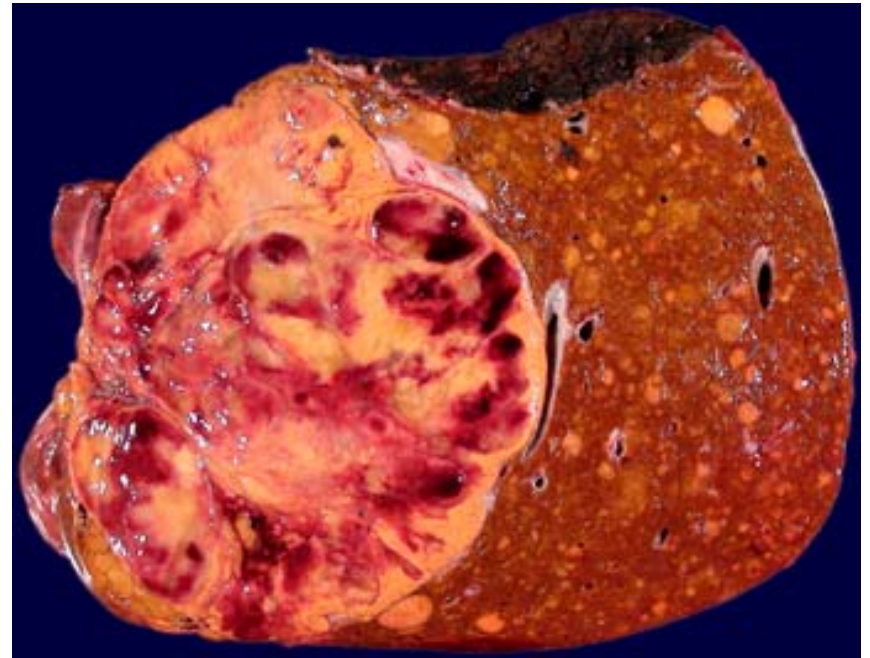




# Pancreatico-duodenectomy



# Liver Cancer

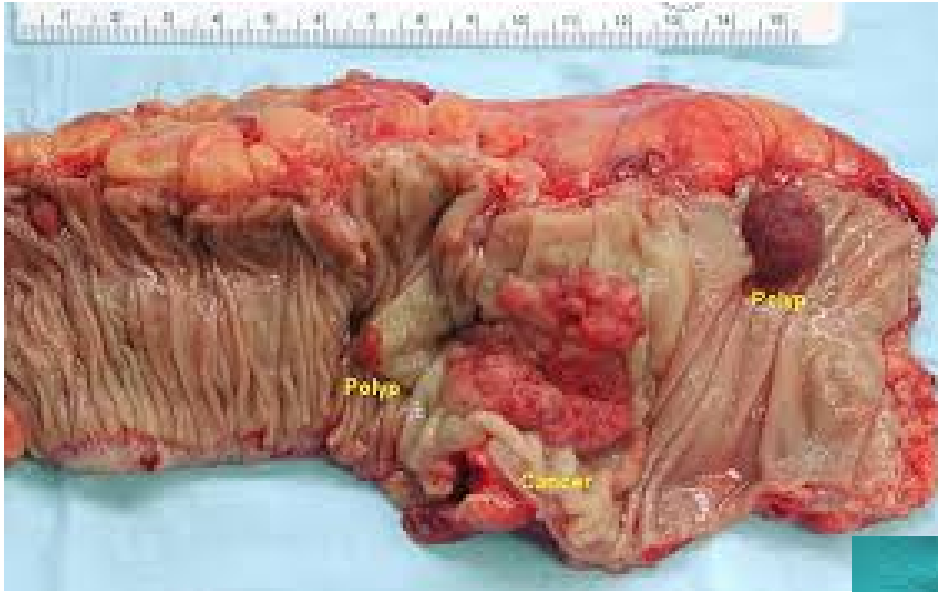


Hepatectomy

# Liver Cancer

- Causal relationship
- Risk for liver cancer increased with the duration of smoking or the number of cigarettes smoked daily.
- Former smokers who had stopped smoking for more than 10 years showed a decline in liver cancer risk.

# Colorectal cancer

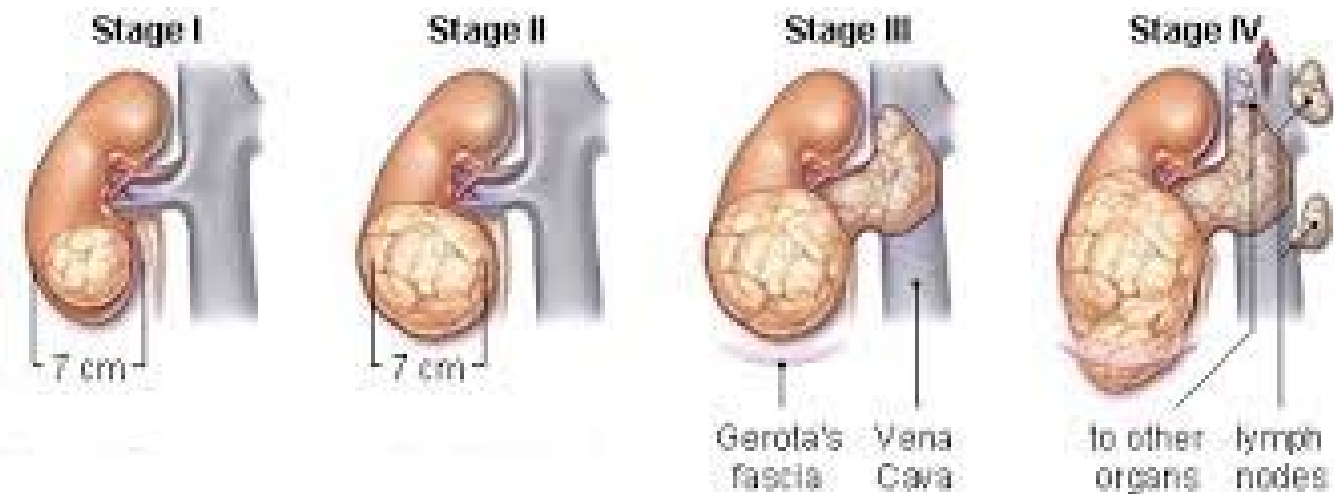


Colectomy  
Right, Left, Sigmoid



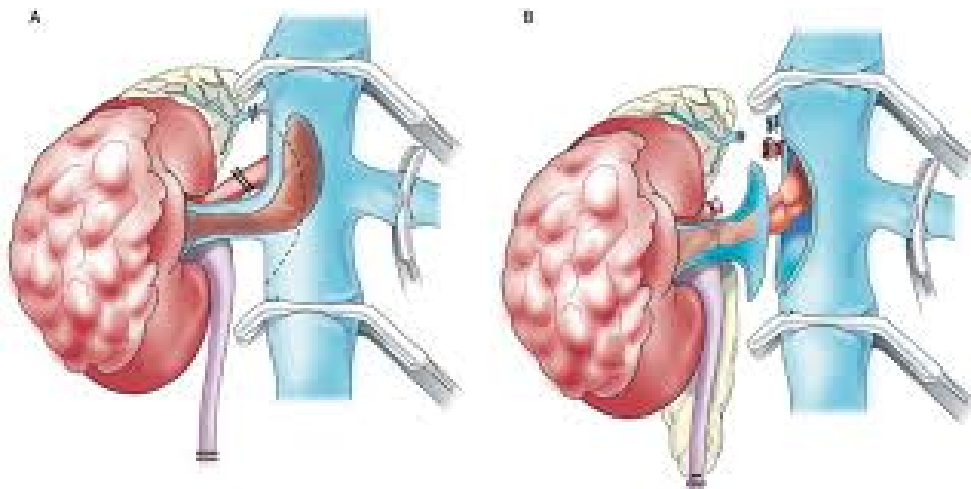
## Int J Cancer. 2005 Mar 10;114(1):101-8 Renal cell carcinoma in relation to cigarette smoking: meta-analysis of 24 studies

The case-control reports included 8,032 cases and 13,800 controls; the cohort estimates **were based on 1,457,754 participants** with 1,326 cases of RCC. The relative **risk (RR)** for **RCC** for ever smokers as compared to lifetime never smokers was **1.38 (95% confidence interval [CI] = 1.27-1.50)**

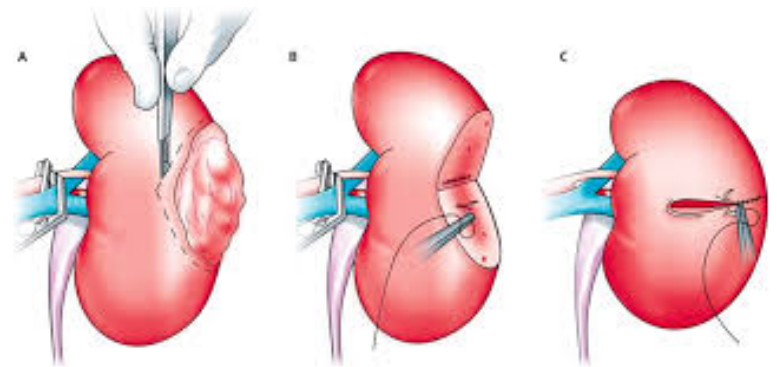




# Renal Cancer



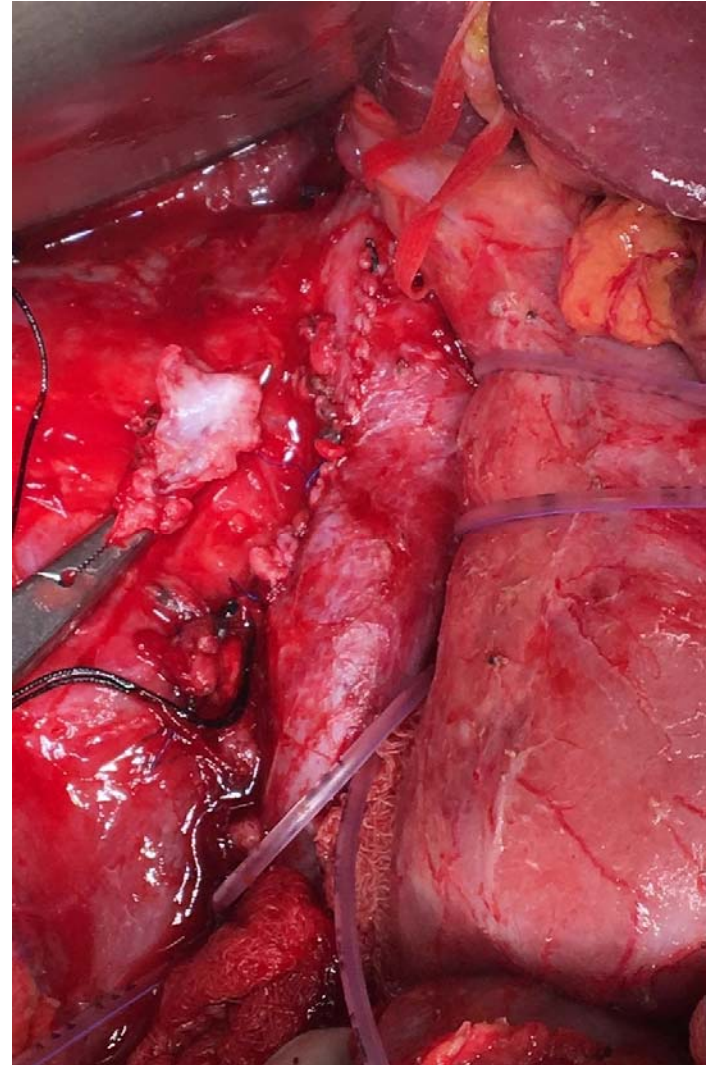
Radical Nephrectomy

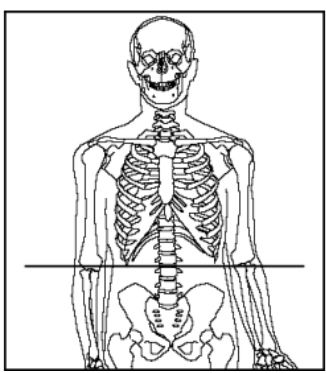


Partial Nephrectomy

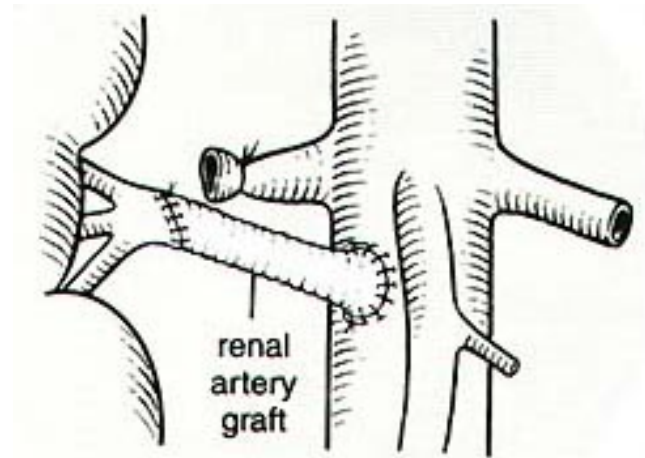
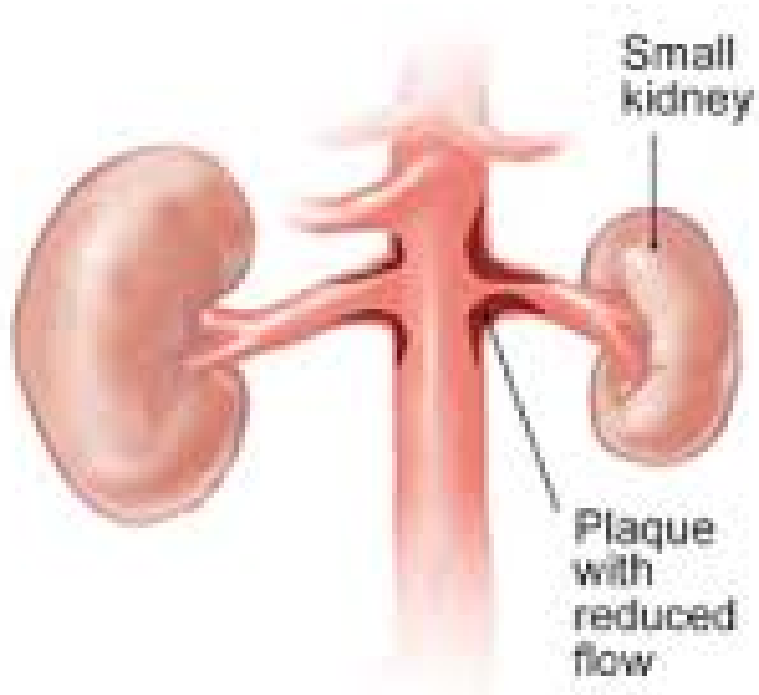


# Renal Cancer with IVC Thrombus





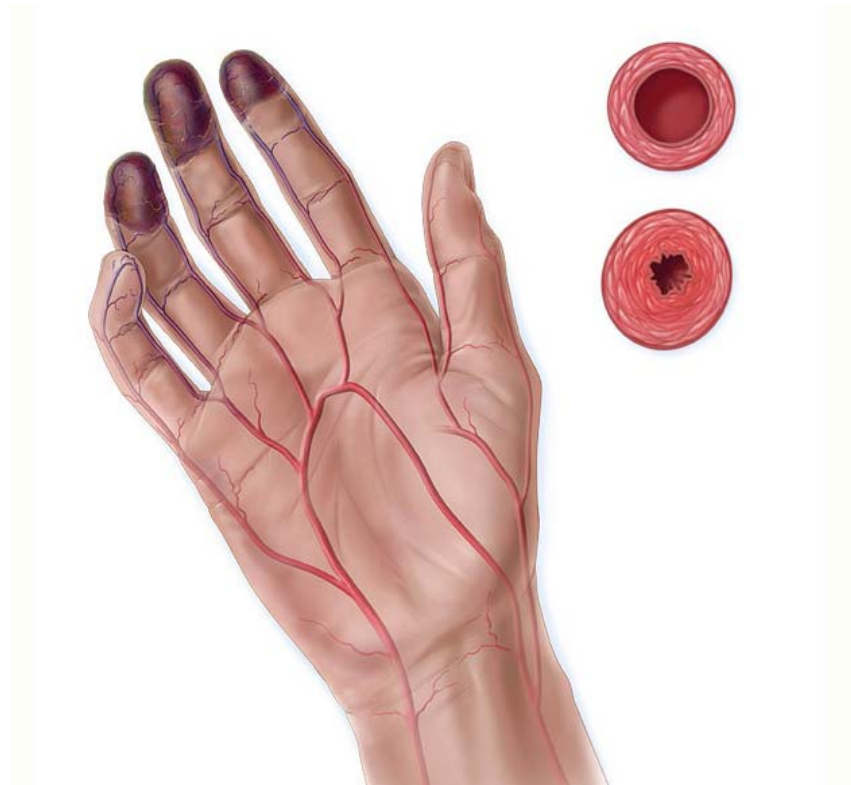
# The Kidney Vessels



Renal Artery Stenosis requiring Surgery / Stenting

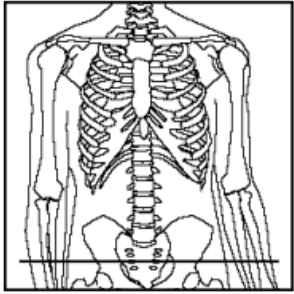
# Limbs

## Blood Vessels



Burgers' Disease (**Thromboangiitis Obliterans**) may require amputation of gangrenous parts of limbs

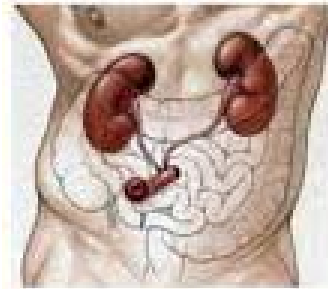




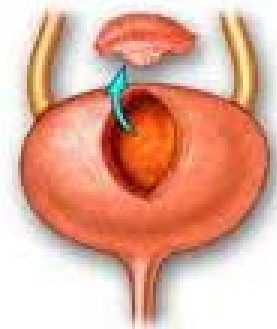
# Urinary Bladder Cancer



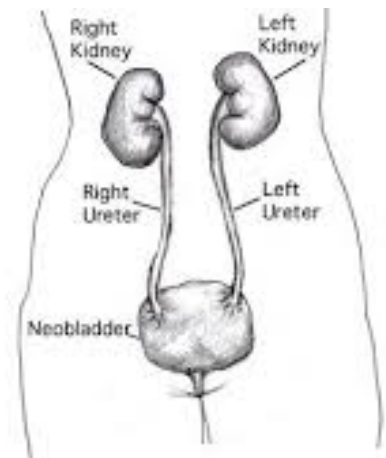
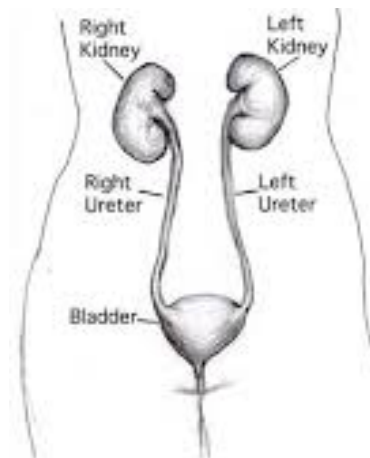
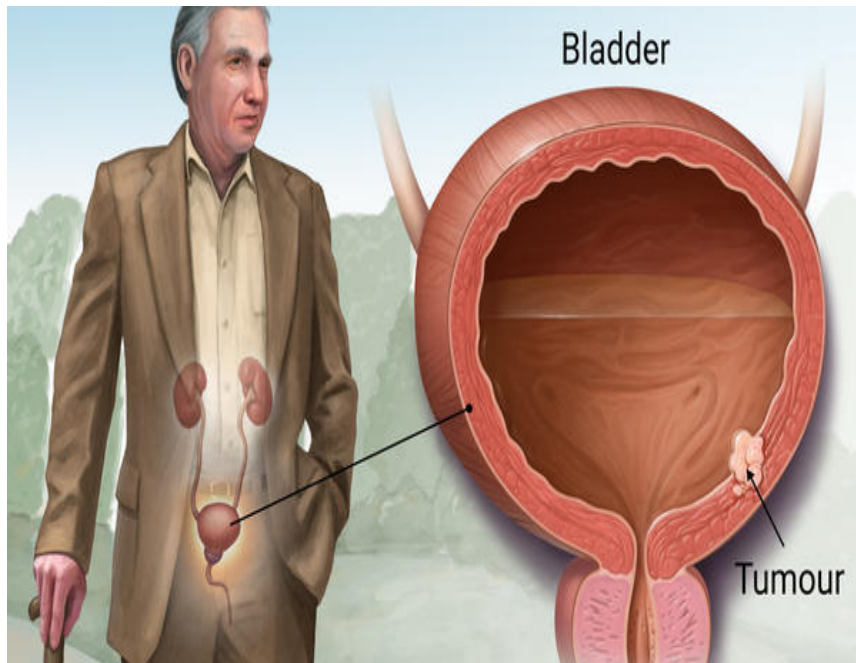
## Surgery

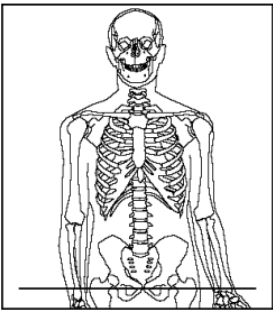


Total Cystectomy



Partial Cystectomy





# Bones



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ORIGINAL ARTICLE

## The Bone Density of Female Twins Discordant for Tobacco Use

John Llewelyn Hopper, and Ego Seeman

N Engl J Med 1994; 330:387-392 | February 10, 1994 | DOI: 10.1056/NEJM199402103300603



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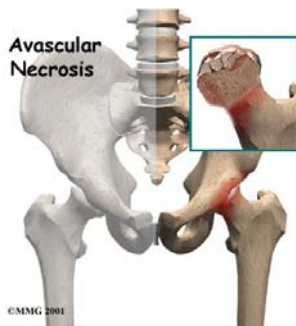
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## 69% delayed Union in smokers in Tibial Fractures

Clin Orthop Relat Res. 1999 Aug;(365):184-200.

**Effect of smoking on tibial shaft fracture healing.**

Schmitz MA<sup>1</sup>, Finnegan M, Natarajan R, Champine J.



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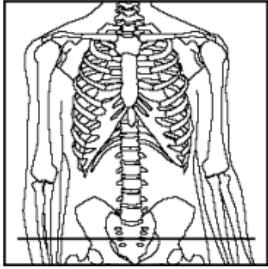
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Am J Epidemiol. 1993 Mar 1;137(5):530-8.

**Association of alcohol intake, cigarette smoking, and occupational status with the risk of idiopathic osteonecrosis of the femoral head.**

Hirota Y<sup>1</sup>, Hirohata T, Fukuda K, Mori M, Yanagawa H, Ohno Y, Sugioka Y.





# Obstetrical Mother & Fetus

## Smoking and Preg

Smoking can cause problems for a woman trying to be already pregnant, and for her baby before and after birth.



Prevent Clefts  
Caused by Smoking

6%



About 6% of clefts of the lip or palate in the United States are caused by smoking during early pregnancy.

400+



Over 400 babies could be born without clefts each year in the United States if women did not smoke early in pregnancy.

\$40.4  
Million



Preventing clefts caused by smoking could save an estimated \$40.4 million in healthcare costs each year for children up to age 10 years.

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Bull World Health Organ. 2004 Mar;82(3):213-8. Epub 2004 Apr 16.

**Tobacco smoking and oral clefts: a meta-analysis.**

Little J<sup>1</sup>, Cardy A, Munger RG.

Smoking causes these health effects:

Smoking health studies

Eff



- Clubfoot
- Gastroschisis
- Some heart defects

Active / Passive Smoking leads to various Obstetrical Surgical Complications  
And Various Reconstructions for Cleft Lip / Palate are needed

# Effect of smoking cessation

- Quitting smoking lowers the risks for cancers of the lung, mouth, throat, and larynx.
- Within 5 years of quitting, chance of getting cancer of the mouth, throat, and bladder is cut in half.
- Ten years after quitting smoking, risk of dying from lung cancer drops by half.

<b>ASK</b>	about tobacco <b>USE</b>
<b>ADVISE</b>	tobacco users to <b>QUIT</b>
<b>ASSESS</b>	readiness to make a <b>QUIT</b> attempt
<b>ASSIST</b>	with the <b>QUIT ATTEMPT</b>
<b>ARRANGE</b>	<b>FOLLOW-UP</b> care

