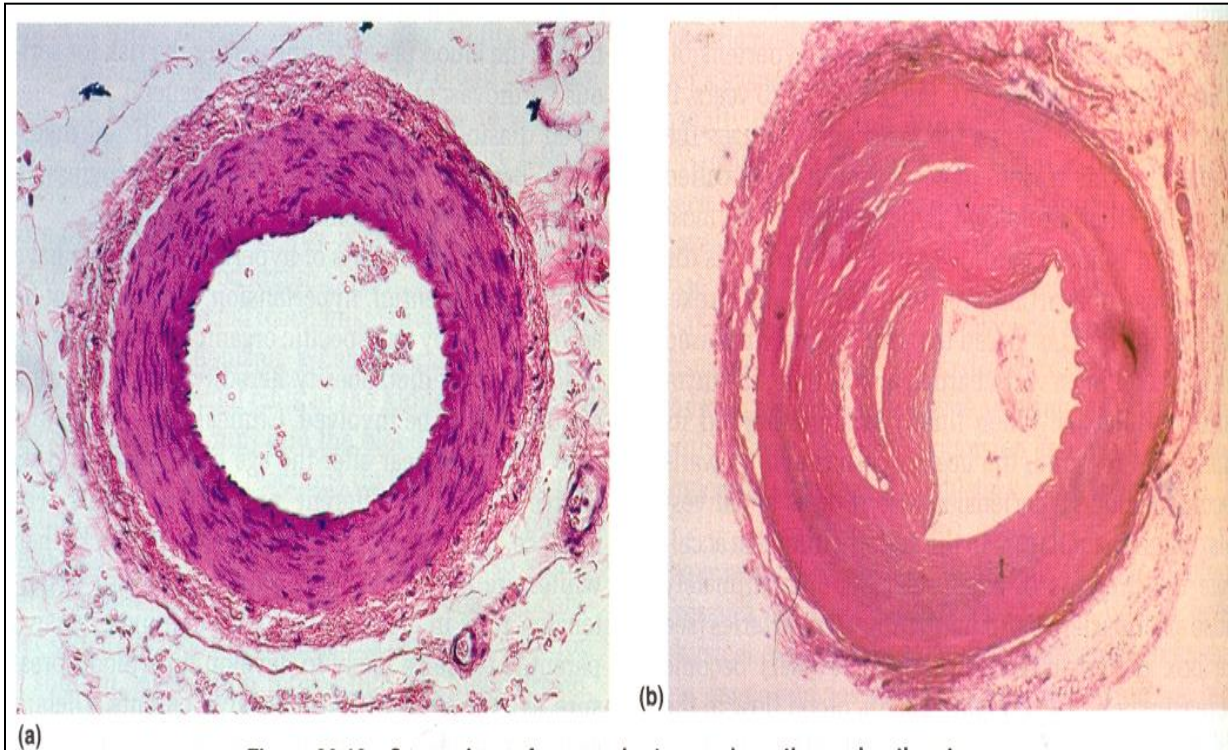
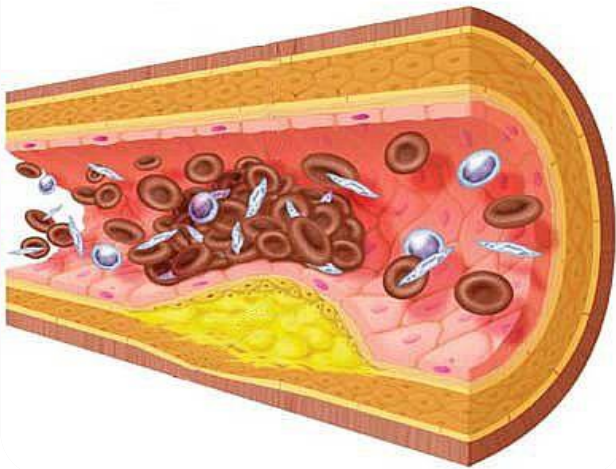


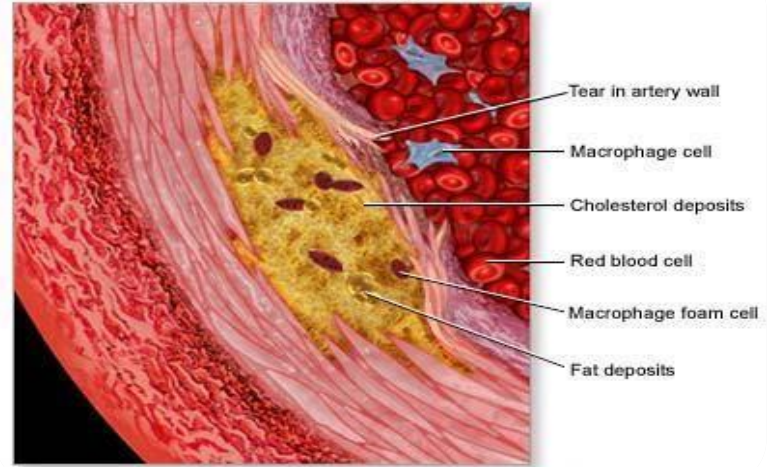
건강한 혈관과 경화된 혈관



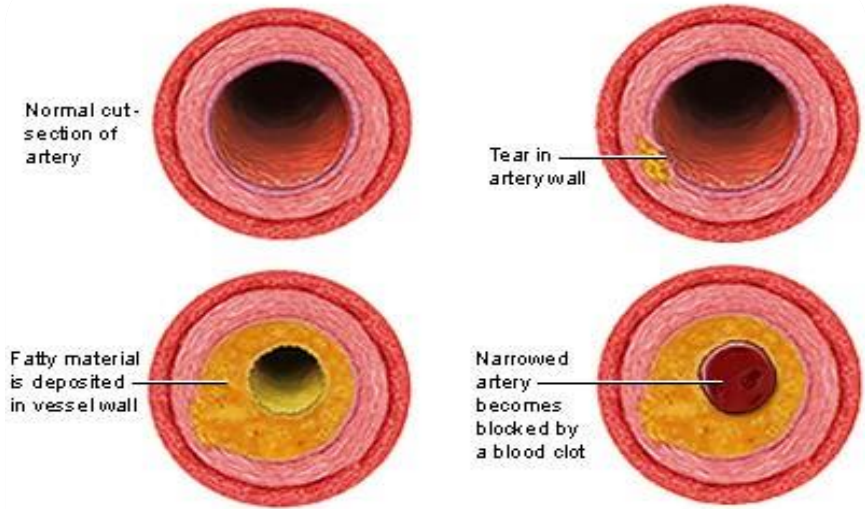
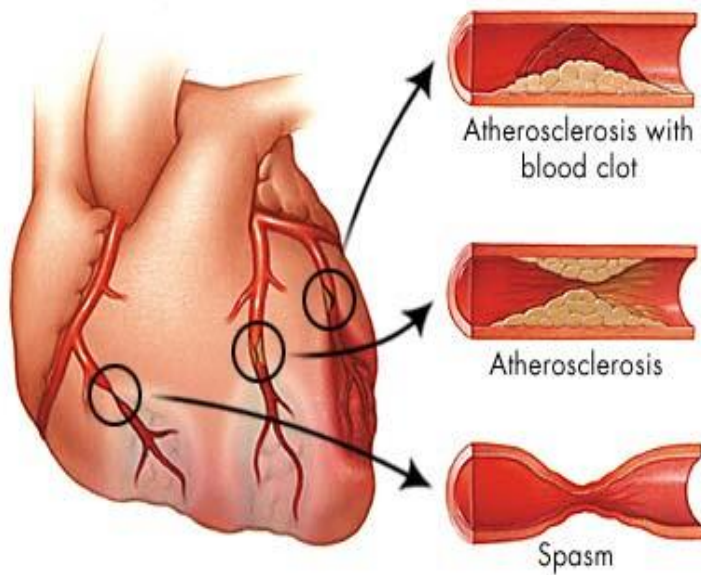
- Hardening of the arteries
- An inflammatory disease that results in scarring of the artery walls, primarily from long term buildup of fatty deposits and calcifications.



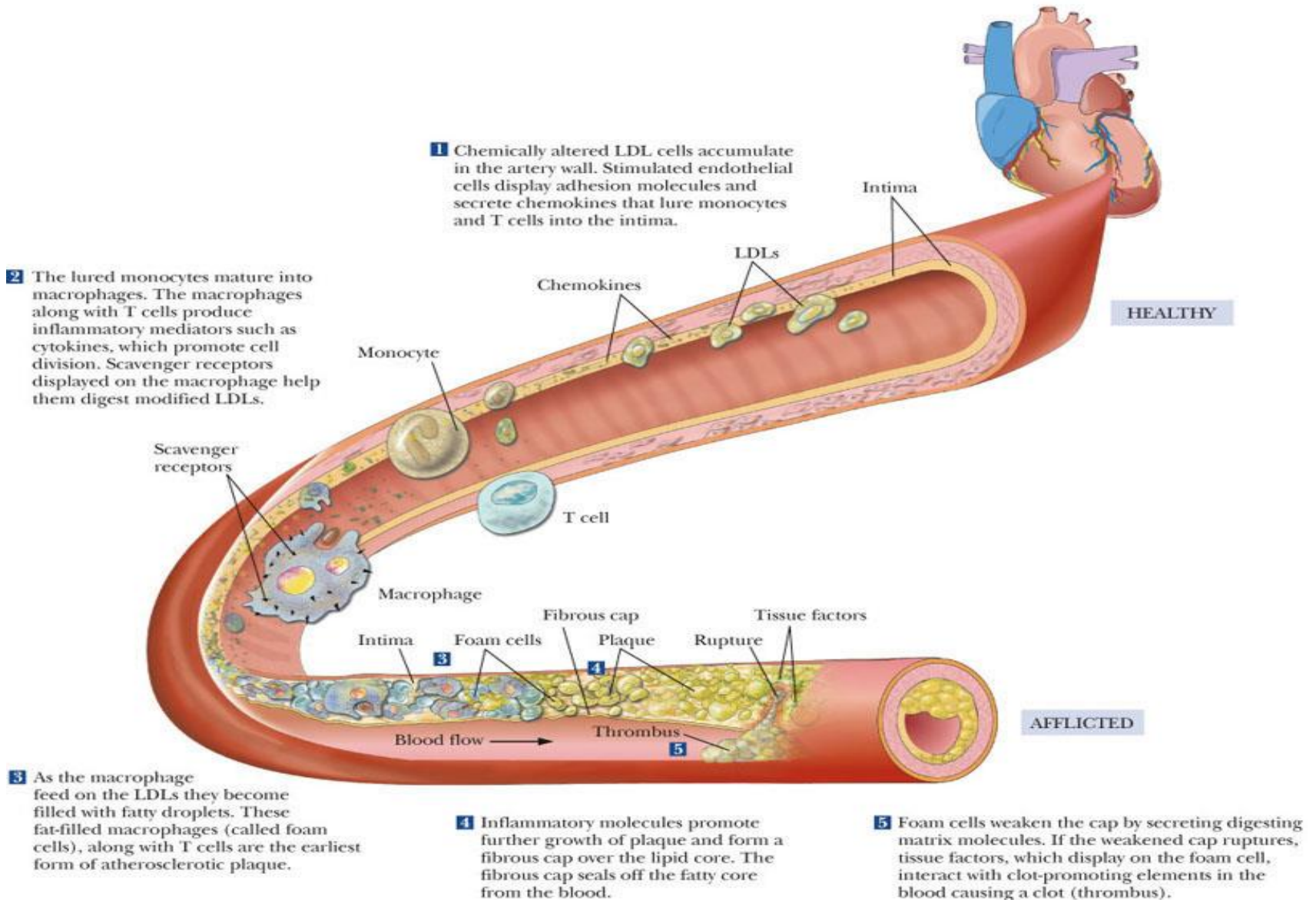
Cut-section of artery



ATHEROSCLEROSIS

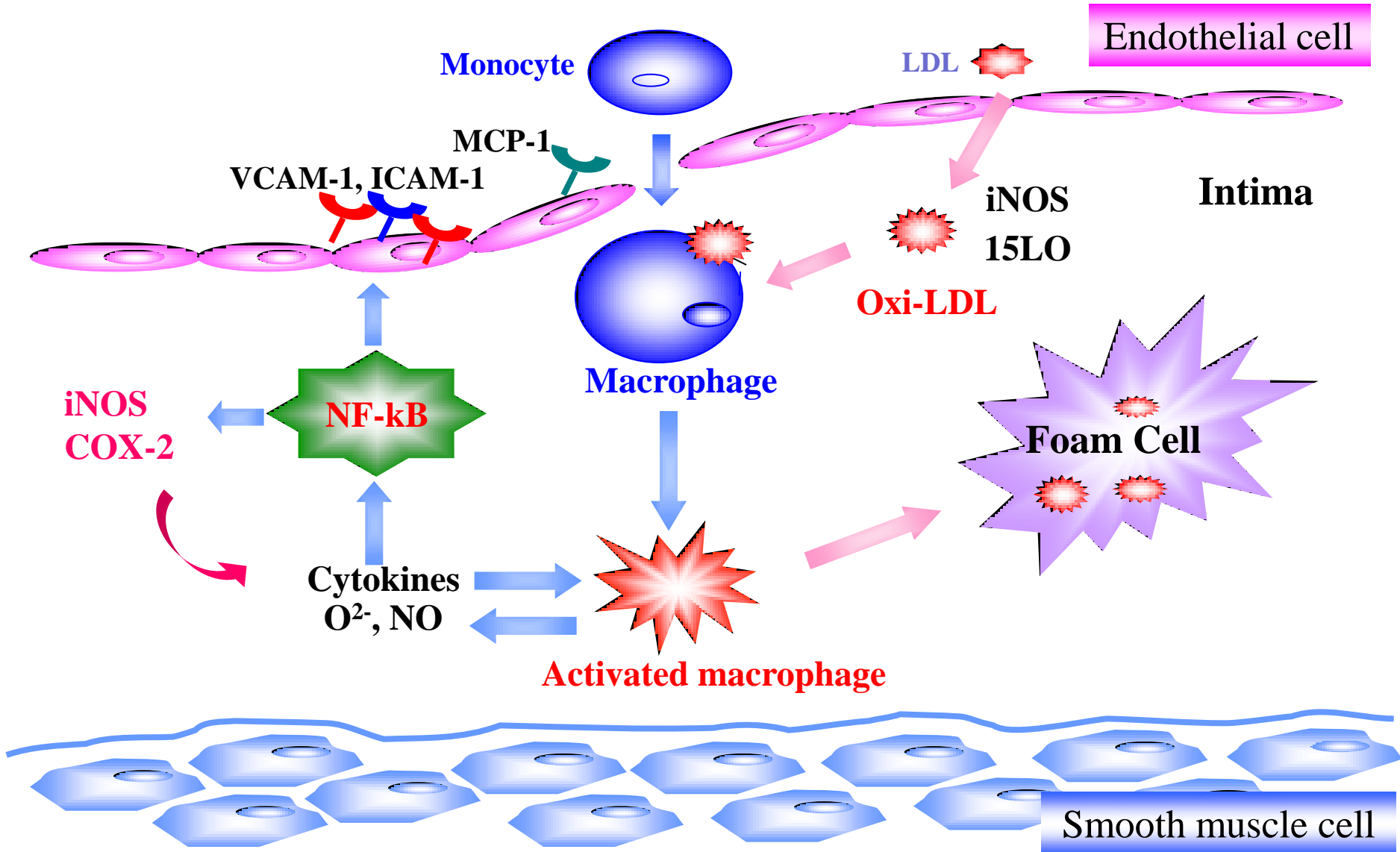


동맥경화의 진행과정



혈관은 어떻게 경화되기 시작하는가?

산화적 스트레스와 염증반응이 혈관경화의 시작

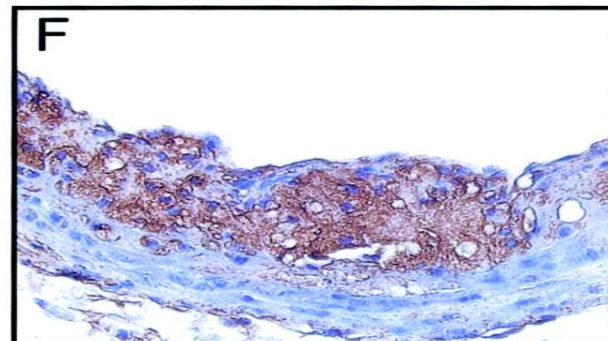
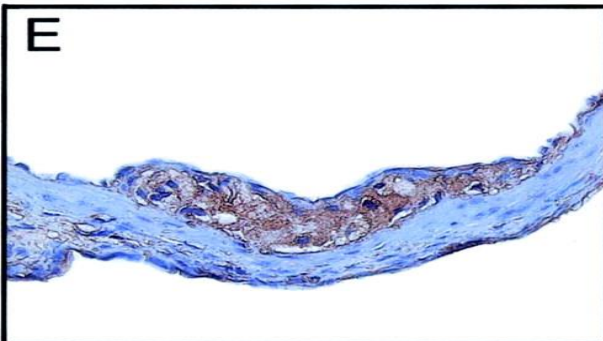
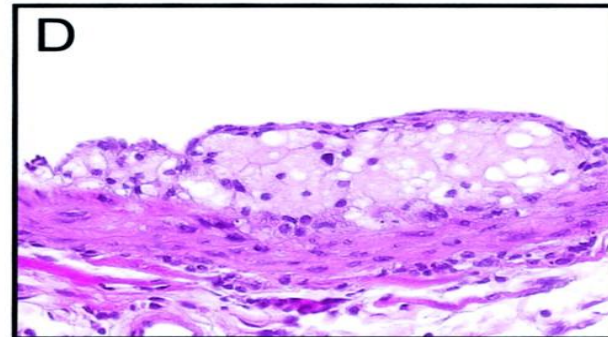
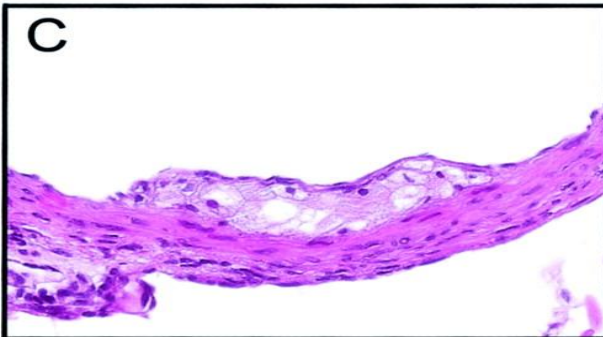
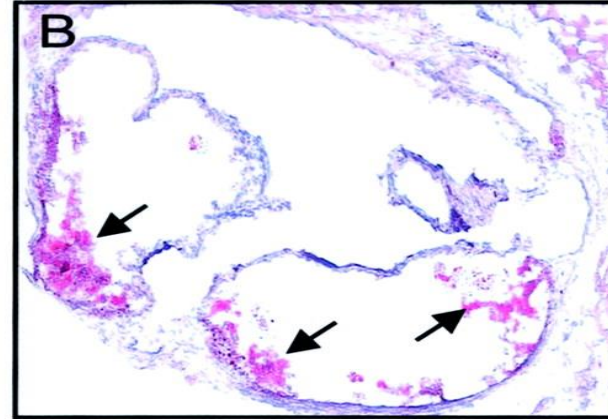
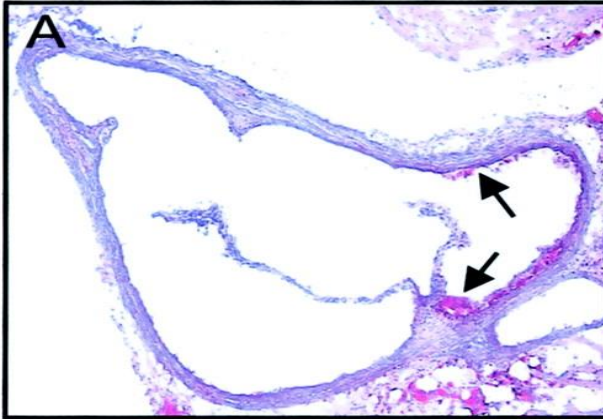


혈관경화는 어떻게 진행되는가?

(Zhou et al; Circulation. 2004;110:207-213.)

Control

HM



혈관경화는 어떻게 진행되는가?

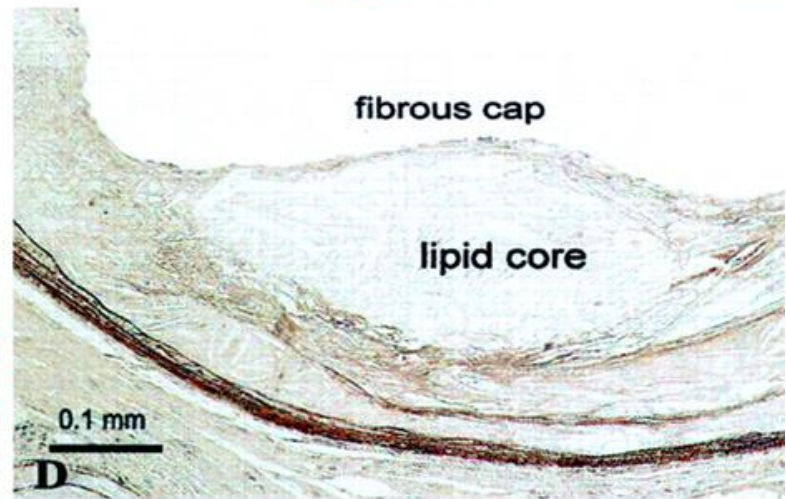
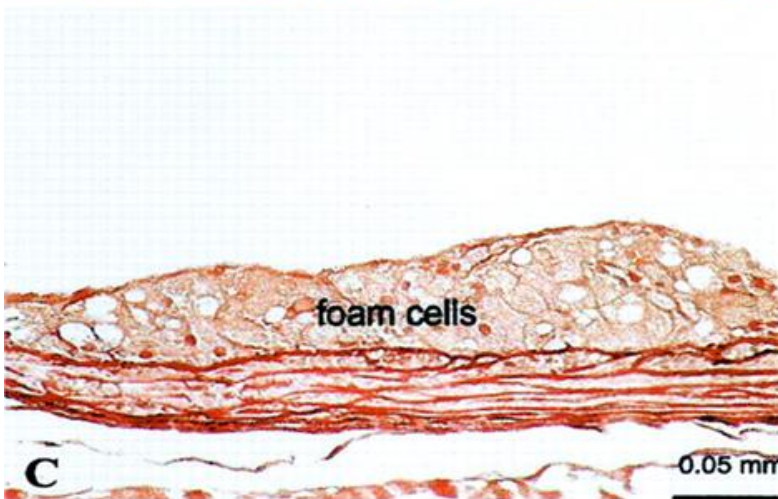
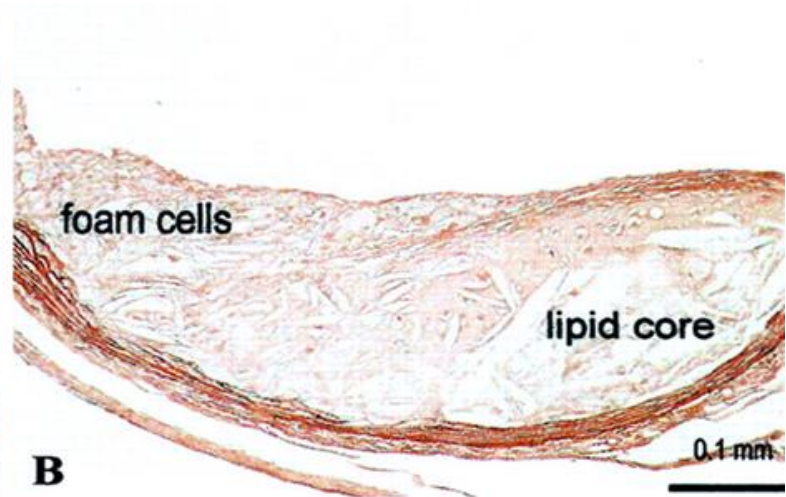
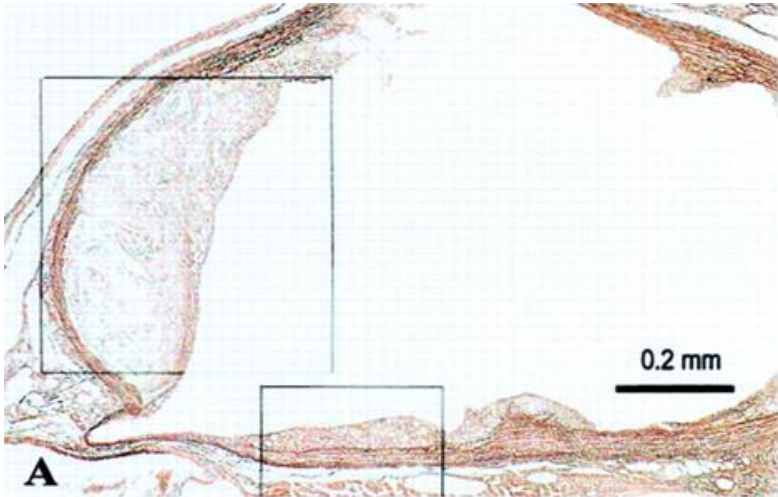
거품세포



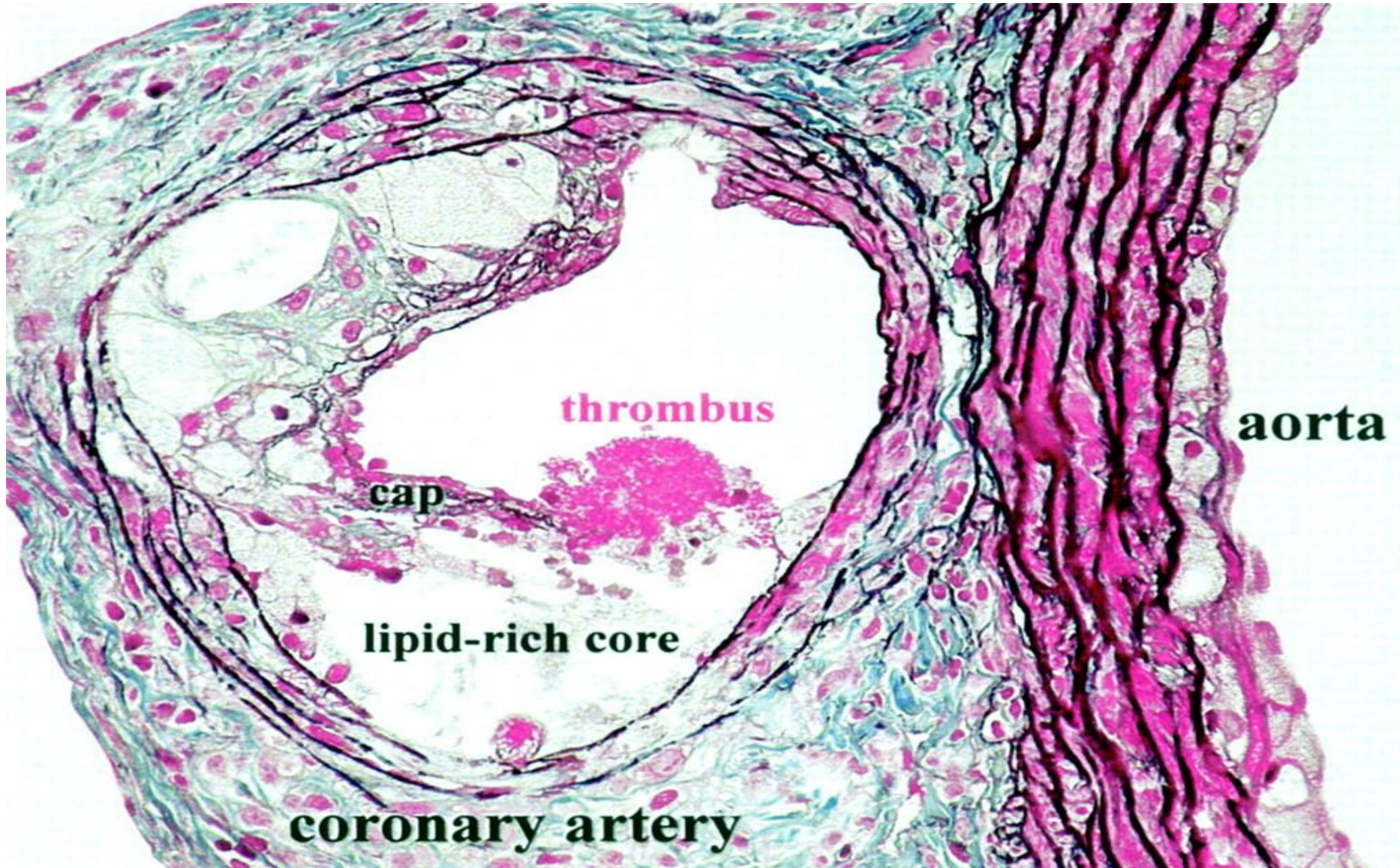
lipid core



fibrous cap



경화된 혈관에 혈전이 붙으면 매우 위험하다

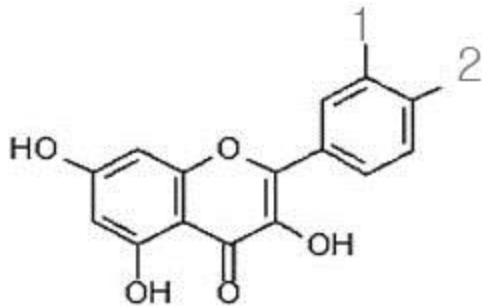


혈관 염증을 억제하는 물질

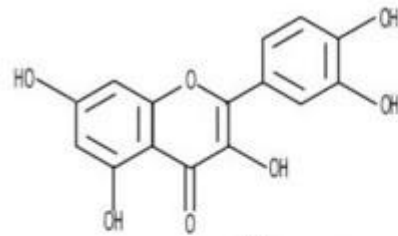
- Antioxidants (항산화제)
- 항염증제
 - 비타민 E, C, GSH, **Phytochemicals**



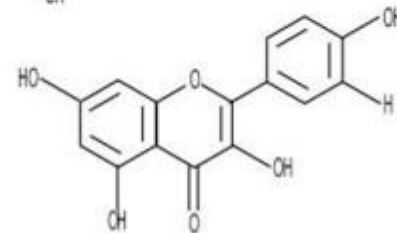
Phenol



flavonoid



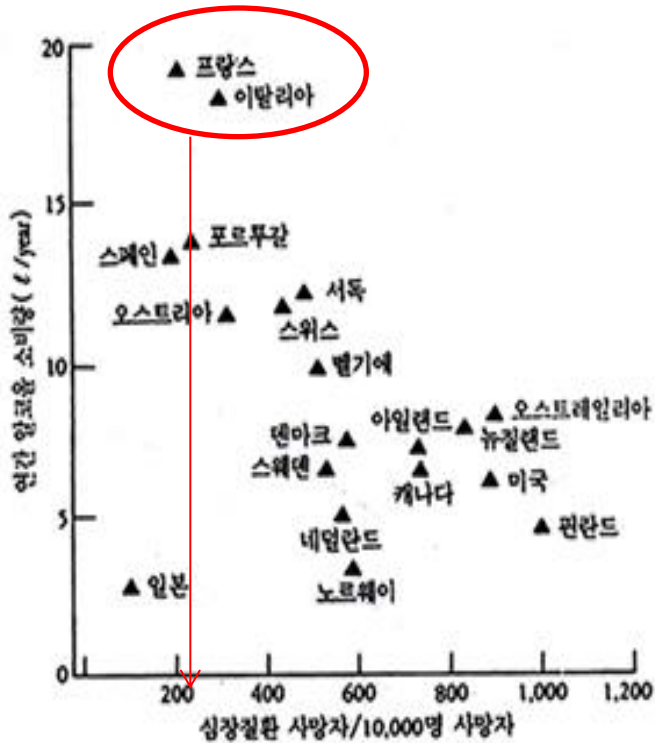
Kaempferol



Quercetin



French Paradox! (역설)



<그림 8-4> 알코올 소비량과 심장질환 사망률과의 관계
(55~64세 남자 1972년, La Porte 등, 1980)



RED WINE

WHAT WE USED TO THINK
Alcohol is bad for you, no exceptions

WHAT DOCTORS SAY NOW
A substance called resveratrol, found in grape skins, may reduce levels of bad cholesterol

WHAT TO DO Alcohol in excess is still bad for you, but a glass of wine with dinner is probably fine for nonalcoholics

THE SCORE ♥♥

ONIONS AND GARLIC

WHAT WE USED TO THINK

No nutritional value, give bad breath

WHAT DOCTORS SAY NOW

Onions contain flavonoids and garlic has polyphenols, so both could protect your heart

WHAT TO DO Get your date to eat some too

THE SCORE



OTHER VEGETABLES

The general rule is that dark-green vegetables are good for your heart, pale vegetables are neutral. Orange and red can be good too, in some cases

SPINACH ♥♥♥♥

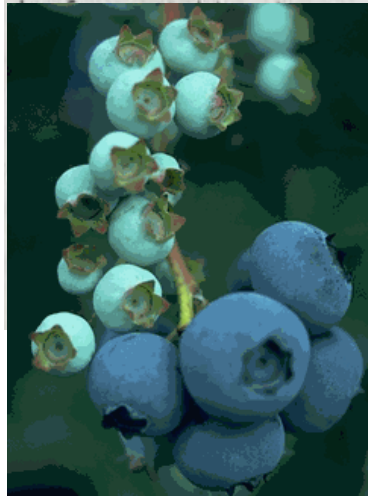
BROCCOLI ♥♥♥♥

CARROTS ♥♥♥

TOMATOES ♥♥♥

CELERY ♥

CUCUMBERS ♥



THE GREENER, THE BETTER

WHAT WE USED TO THINK

Iceberg lettuce and romaine are both green, leafy vegetables, so both are good for you

WHAT DOCTORS SAY NOW

Iceberg is barely green. It isn't bad for you, but it's hardly more nutritious than water. Romaine and other dark-green

er, contain flavonoids

little color in



고콜레스테롤혈증 유발 요인

- 콜레스테롤 - 달걀, 육류
- 포화지방
- 트랜스지방
- 호모시스테인 - 동물성 단백질

식품의 콜레스테롤 함량

<표 12-3> 식품의 콜레스테롤 함량

식품	분량	콜레스테롤 함량 (mg)	식품	분량	콜레스테롤 함량 (mg)
쇠고기, 돼지고기	85g	75	핫도그	1개	29
닭고기	85g	70	마요네즈	1Ts	10
계란	1개	213	아이스크림	1/2cup	30
쇠간	85g	410	(10% 유지방)		
우유	1cup	34	굴, 연어	85g	40
저지방우유(2%)	1cup	22	조개, 참치	85g	55
탈지유	1cup	5	게	85g	85
버터	1ts	35	새우, 가재	85g	90~110
치즈			대구	85g	51
체다	28g	28	물 오징어	85g	255
카타지	1cup	48	말린 오징어	85g	833
(4% 유지방)			문어	85g	115
모짜렐라	28g	18	뱀장어	85g	168

OFF THE FORBIDDEN LIST

WHAT WE USED TO THINK
Eggs are so full of cholesterol they might as well be poison. Stay away

WHAT DOCTORS SAY NOW Cholesterol in food doesn't necessarily raise blood-cholesterol levels

WHAT TO DO If you've got cholesterol problems, avoid eggs. If not, they are fine in moderation

THE SCORE ♥♥



SALMON OR SHRIMP?

WHAT WE USED TO THINK
Shrimp is relatively high in cholesterol, so salmon is healthier

WHAT DOCTORS SAY NOW
Cholesterol is a red herring. But salmon is high in omega-3 fatty acids, which may actually protect against heart disease

WHAT TO DO Shrimp is O.K. for most people, but salmon is among the best nonvegetarian foods on the market

THE SCORE Salmon ♥♥♥♥♥
Shrimp ♥♥

OTHER FISH

Salmon has omega-3 acids, and so do plenty of other fish. But not all sea and lake dwellers are equally blessed. A partial rundown:

MACKEREL ♥♥♥♥
AMERICAN EEL ♥♥
TUNA ♥♥
ATLANTIC HERRING ♥♥
NORWEGIAN SARDINES ♥♥
RAINBOW TROUT ♥♥
LAKE WHITEFISH ♥



포화지방이 많은 식품

- 동물성식품
- 상온에서 고체인 기름
팜유, 버터, 마가린 등

MEAT VS. POULTRY

WHAT WE USED TO THINK
Red meat is higher in cholesterol than chicken, so stick with the birds

WHAT DOCTORS SAY NOW
Saturated fat is the real problem. Chicken is still better, especially if you avoid fatty skin and dark meat


WHAT TO DO
Order the chicken (but not fried)

THE SCORE
Chicken ♥♥♥
Beef ♥

OTHER MEATS

In general, the leaner the meat, the better—and wild game tends to be the leanest

BUFFALO ♥♥♥♥♥
VENISON ♥♥♥♥♥
LEAN PORK CHOPS ♥♥♥♥♥
TURKEY ♥♥♥♥
LAMB ♥♥♥
VEAL ♥♥♥
HAM ♥♥
BACON ♥



BUTTER OR MARGARINE?



WHAT WE USED TO THINK
Butter packs a heart attack in every teaspoon. Switch to margarine

WHAT DOCTORS SAY NOW
Turning vegetable oil into sticks of margarine makes it just as bad

WHAT TO DO
Go for margarine in a tub or squeeze bottle. Or switch to a butter substitute, such as Benecol, that can boost good cholesterol

THE SCORE
Benecol ♥♥♥
Tub Margarine ♥♥
Butter ♥
Stick Margarine ♥

OTHER DAIRY

Butter is bad because it's made from saturated-fat-laden cream. But other milk-based products can also threaten the heart. Unless they're labeled low fat or nonfat, stay away from desserts and other foods that come from milk

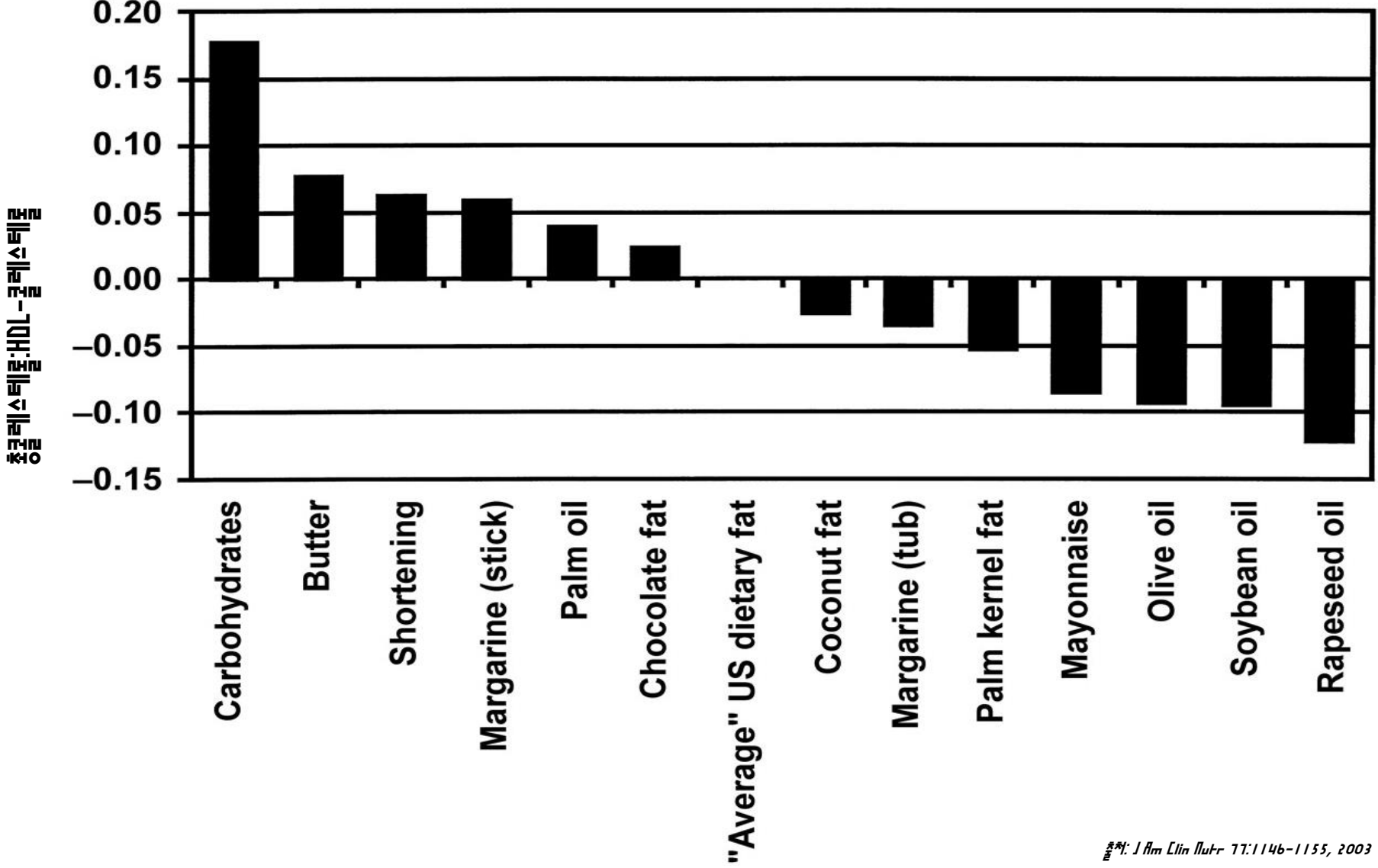
SKIM MILK ♥♥♥♥
LOW-FAT MILK ♥♥♥
FROZEN YOGURT ♥♥
WHOLE MILK ♥
ICE CREAM ♥

Times, 1999

트랜스지방이 많은 식품



콜레스테롤 저하효과가 있는 지방의 종류

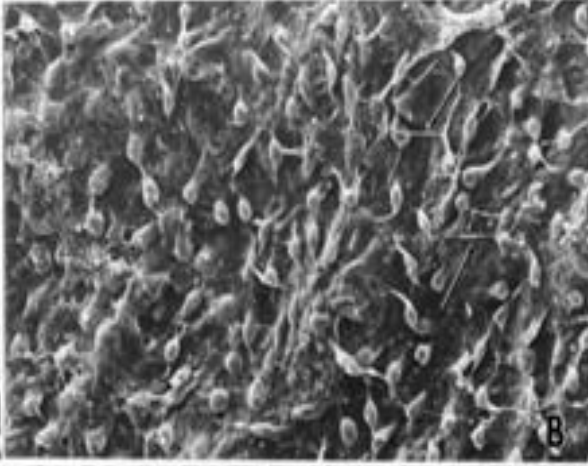


출처: J Am Clin Nutr 77:1146-1155, 2003



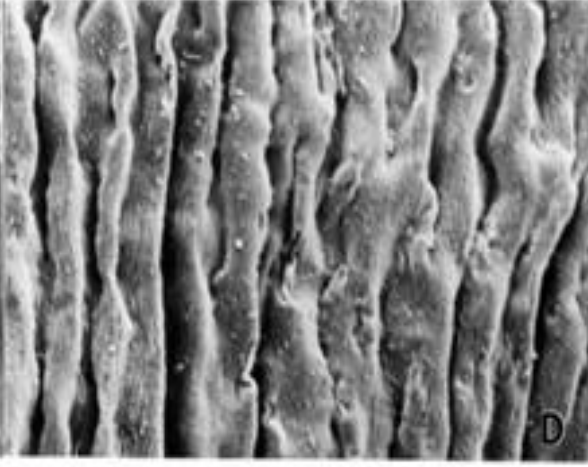
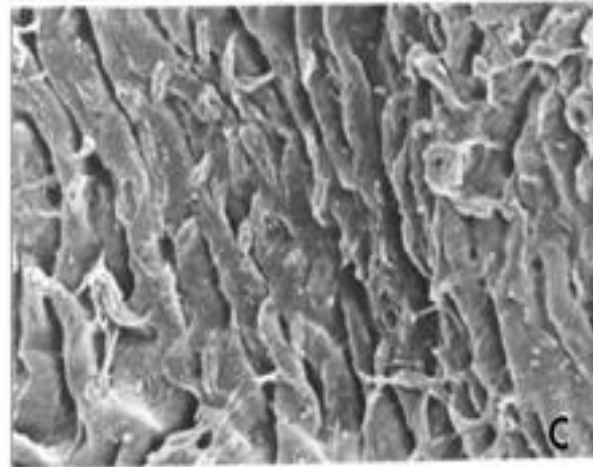
김치 재료의 동맥경화 예방효과

대조군



배추섭취군

고추섭취군



마늘섭취군

Fig. 5

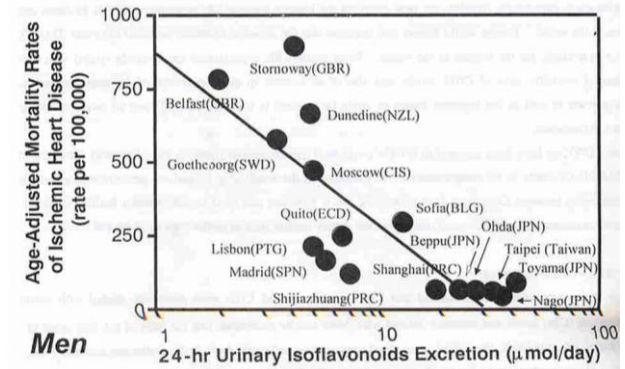
**Aorta of Rabbits fed Chinese Cabbage,
Red Pepper, and Garlic (x600)**



WHO-CARDIAC Study

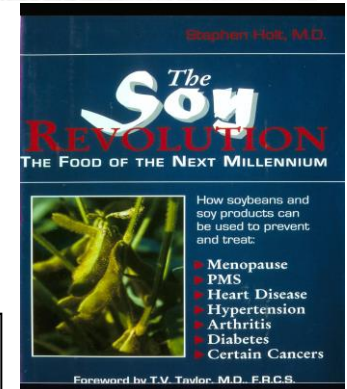
- WHO-Coordinated Cardiovascular Diseases and Alimentary Comparison Study
- 1983년 25개국 60개 지역사회
- Okinawan diets ↔ Longevity
- Immigrant Study on Okinawans in Brazil

Fig.2 Relationship between 24-hour Urinary Isoflavone Excretion and Age-adjusted Mortality Rates of Ischemic Heart Diseases

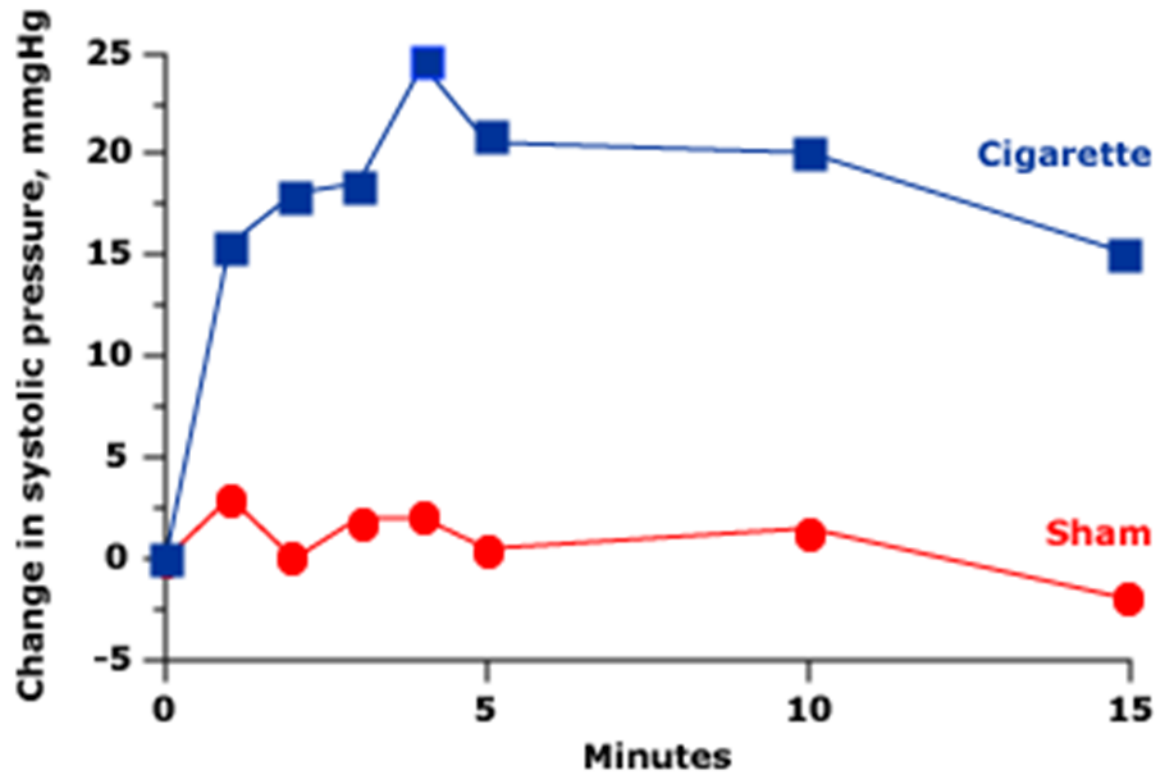


Approval of Health Claim by FDA (1999)

‘하루 25g의 콩단백질 섭취는 심순환계 질환을 예방할 수 있다’
 는 health claim을 1 serving size에 6.25g의 콩단백을 함유하는 콩제품에 표기할 수 있도록 함



담배 한 개피가 혈압에 미치는 영향



출처: Gropelli 등. *J Hypertension* 10(5):495, 1992



동맥경화는 어떤 사람에게 잘 생기나?



BALDNESS A shiny spot on top of the head has been linked to a risk of heart attack three times higher than average

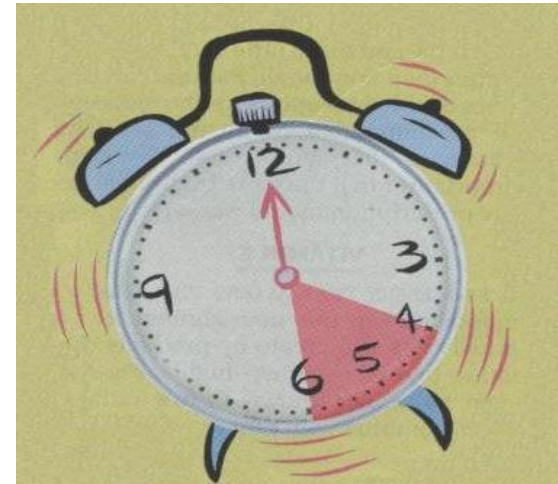


BODY SHAPE Being overweight is bad enough, but if your fat lies more in the abdomen than the hips, you are especially prone to heart disease

동맥경화의 위험요인



BAD GUMS Studies suggest that if you have periodontal disease, your heart-attack risk nearly doubles. Bacteria may enter the blood and cause deadly clots



DAY OF THE WEEK/TIME OF DAY Cardiac "events" tend to occur most often between 4 p.m. and 6 p.m. and on Mondays and Fridays



FOUL WEATHER Researchers have found that exposure to frigid temperatures can trigger heart attacks as well as angina and strokes

혈관 나이 진단표

평가 항목	0점	1점	2점
1. 수축기 혈압	120mmHg이하	121~139mmHg	140mmHg이상
2. 나이	40세 미만	40~55세	55세 초과
3. 흡연 경험	없다.	했던 적 있다.	하고 있다.
4. 당뇨병	없다.		있다.
5. 총 콜레스테롤	240mg/dl 미만	240mg/dl 이상	
6. 고밀도(HDL) 콜레스테롤	45mg/dl 이상	45mg/dl 미만	
7. 허리둘레(남90cm,여80cm)	미만	이상	
8. 스트레스	거의 없다.	어느 정도 있다.	심하다.
9. 과거 심장질환 유무	없다.		있다.
10. 가족 중 심장질환	없다.	있다.	

판정: 20대 0~1점, 30대 2~3점, 40대 4~5점,
50대 6~7점, 60대 8점 이하면 건강한 혈관