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Continuous Professional Development

Seminars & Webinars

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ALPSTEINCLINIC

WELCOME – Grüezi!


Das Alpstein Bergmassiv bei Appenzell


Denkmalgeschützter Marktplatz von Gais


Die Alpstein Clinic in Gais

Not all Fats are created equal

Understanding Cholesterol, protecting heart health

Dr. R. Oettmeier and Team, Alpstein Clinic Gais, Switzerland

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CONTENT: Not all fats are created equal…

- **Facts regarding blood fats**
  - Cholesterol
  - LDL – Profile
  - Fatty acids
- **Useful diagnostics**
  - Laboratory and terrain diagnostics
  - Epigenetics
  - Metal toxicology
- **Approved prevention and therapy**
  - Nutrition
  - Supplements and plant-based remedies
  - Chelation therapy
  - Lipid-Apheresis

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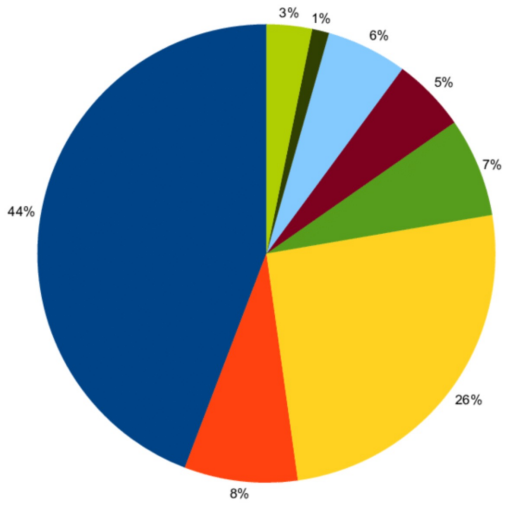
Cardiovascular diseases GERMANY: some numbers

No. 1 in Causes of Death!



Death figures 2017, source wikipedia.org

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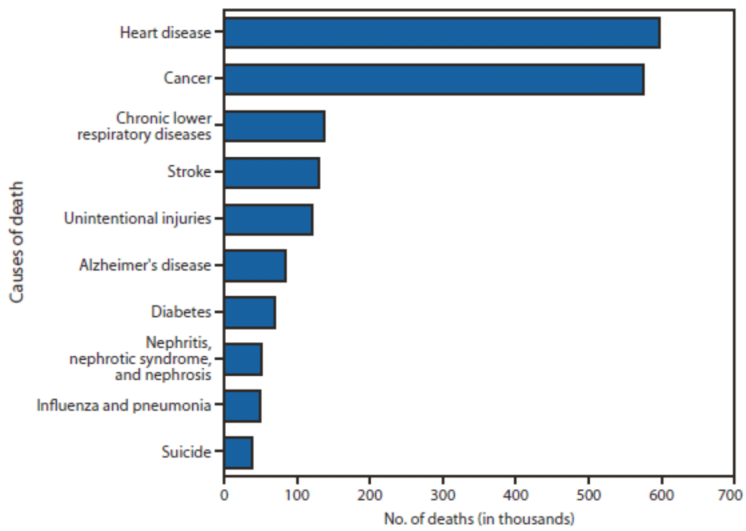
Cardiovascular diseases US: some numbers



Source: http://www.cdc.gov/nchs/data/dvs/deaths_2010_release.pdf

- Coronary heart disease is the most killed 371,506 people in 2022.
- About 1 in 20 adults age 20 and older have CAD (about 5%).
- In 2023, about 1 out of every 6 deaths from cardiovascular diseases (CVDs) was among adults younger than 65 years old.
- In the US, someone has a heart attack every 40 seconds.
- Every year, about 805,000 people in the United States have a heart attack. Of these, 605,000 are a first heart attack, and 200,000 happen to be people who have already had a heart attack.
- About 1 in 5 heart attacks are silent—the damage is done, but the person is not aware of **it**

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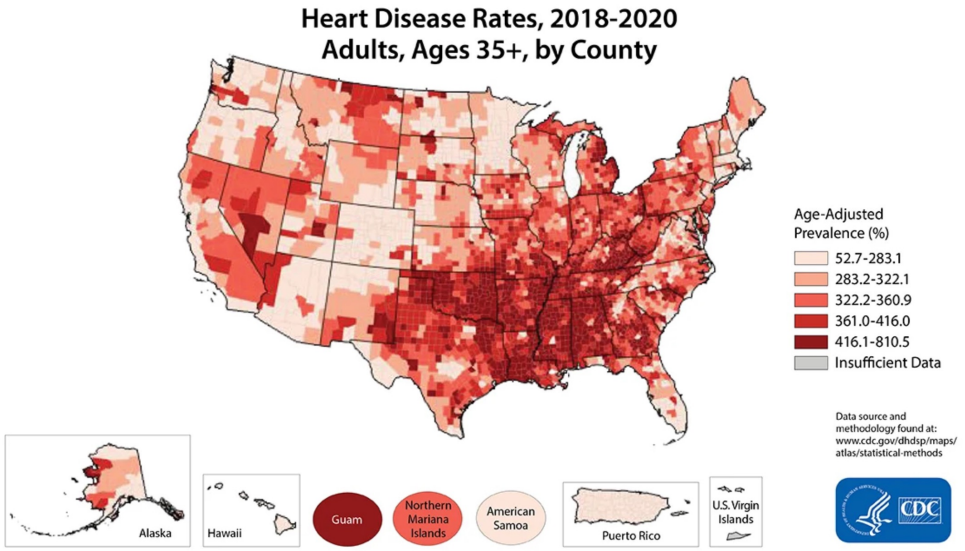
Cardiovascular diseases US: some numbers



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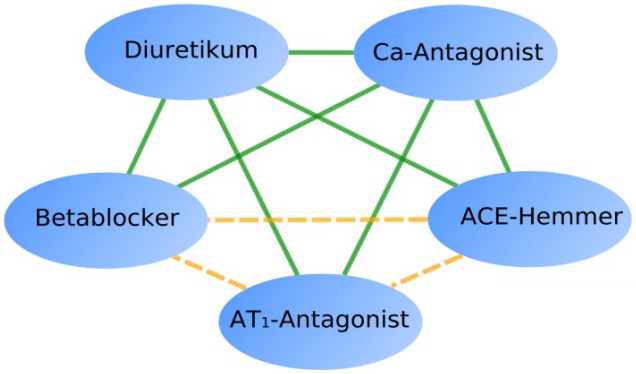
Cardio-vascular diseases: The big business

- **Drugs**
  - Blood pressure medication
    - Ca-antagonist
    - Diuretics
    - Beta-blockers
    - ACE-inhibitors
    - AT1-antagonist
  - Other heart medications
    - Anti-arhythmics
  - Statins (CSE inhibiters)



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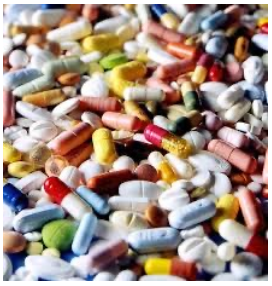
Cardio-vascular diseases: The big business

- **Worldwide sales** of CSE inhibitors amount to approximately **$40 billion per yea**r, e.g., with
  - LIPITOR/SORTIS (Pfizer) approximately $10 billion annual profit (2014)
  - ZOCOR (Merck & Co.) approximately $7.5 billion annual profit
- **Studies are funded by the pharmaceutical industry** with over $100 million per study.



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Vicious circle of Side Effects (I)

Treating symptoms makes people chronically !

Hyperacidity

Hypertonia

Beta-blockers
ACE-Inhibiters
Statins

Fatigue
Poor performance
Impotence

Cough, asthma, specialist consultations
Cortisone -> tissue aging

Hormone reduction
Muscle pain and liver disorders, Impotence

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ALPSTEINCLINIC

Vicious circle of Side Effects (II)

Treating symptoms makes people chronically !

Malnutrition

Increase of Cholesterol

Fibromyalgia
Depression

Analgetics
PPI, Antiacidics

Fatigue
Poor performance
Impotence

Stomach pain,
hyperacidity
"Specialist consultations"

Hypertension and liver disorders
Kidney problems

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COVID-19 and Spikes: Attacking the inner vascular layer

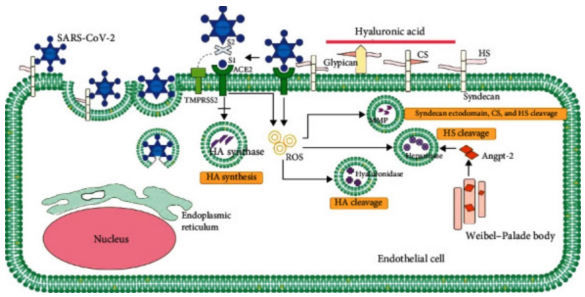
Review > Acta Pharmacol Sin. 2023 Apr;44(4):695-709. doi: 10.1038/s41401-022-00998-0. Epub 2022 Oct 17.

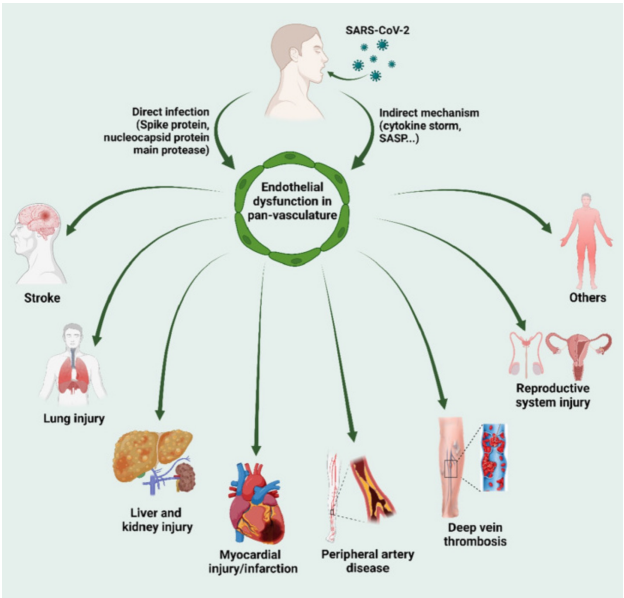
Endothelial dysfunction in COVID-19: an overview of evidence, biomarkers, mechanisms and potential therapies

Suo-Wen Xu [1], Iqra Ilyas [2], Jian-Ping Weng [3]

Affiliations + expand

PMID: 36253560 PMCID: PMC9574180 DOI: 10.1038/s41401-022-00998-0





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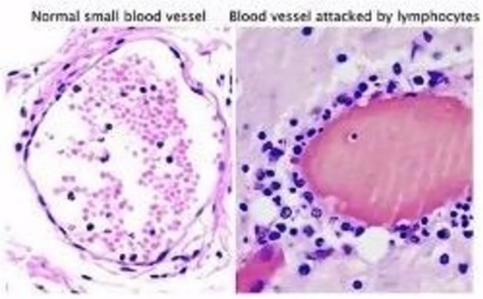
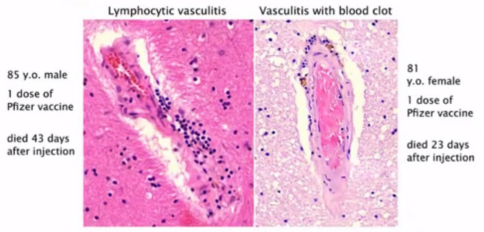
Vasculitis and thrombus formation by spike protein

Lymphocytic inflammation of a small blood vessel

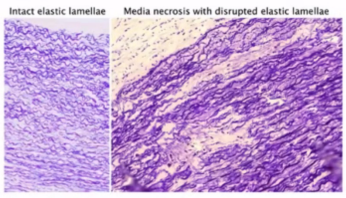


Findings by Prof. Dr. Arne Burkhardt Germany

Vasculitis of small blood vessels in the brain



Damage to elastic fibers in the arteries is irreversible



29 y.o. male, 2x Pfizer, died 67 days after second dose

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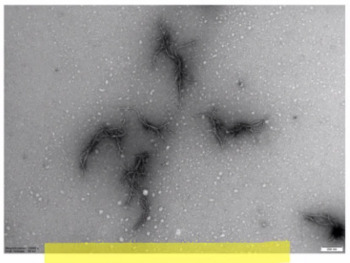
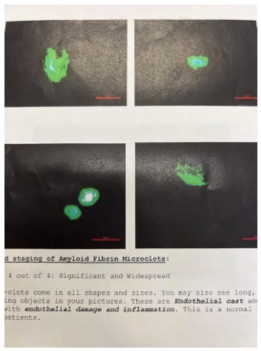
Amyloid fibres and Microclots and SARS-CoV-2 infection?

Possible discovery of mechanism behind mysterious COVID-19 symptoms

by Karin Söderlund Leifler , Linköping University



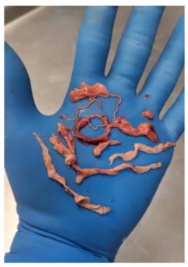
Picture of amyloid from the SARS-CoV-2 virus' spike protein, seen using an electron microscope. When the spike protein is mixed with the enzyme neutrophil elastase in test tubes, branched protein fibrils are created, which potentially can cause disturbed blood coagulation in patients with COVID-19. Credit: Sofie Nyström and Per Hammarström



Blood diagnostics - Fluorescent microscopy

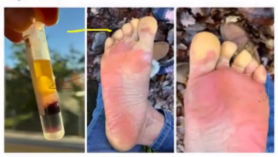
Elevated presence in the majority of patients (severity scale 1-4, in this case: 4 out of 4)

https://medicalxpress.com/news/2022-05-discovery-mechanism-



Richard Hirschman

Clot formation in blood sample of a live vaccinated patient with disrupted perfusion



Professor Dr. Arne Burckhardt

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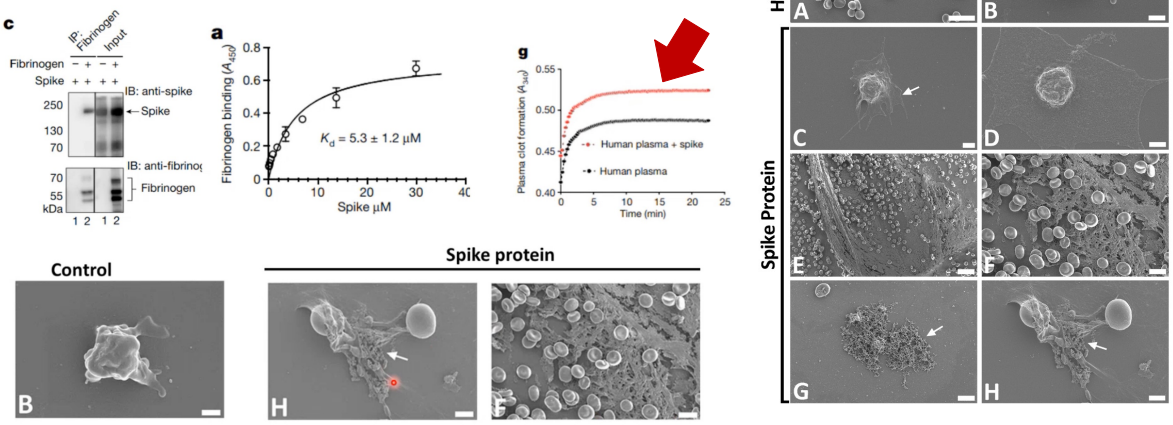
More fibrin formation induced by spike protein

Fibrinogen Interacts with SARS-CoV-2 Spike Protein



Ryue et al 2024, Nature

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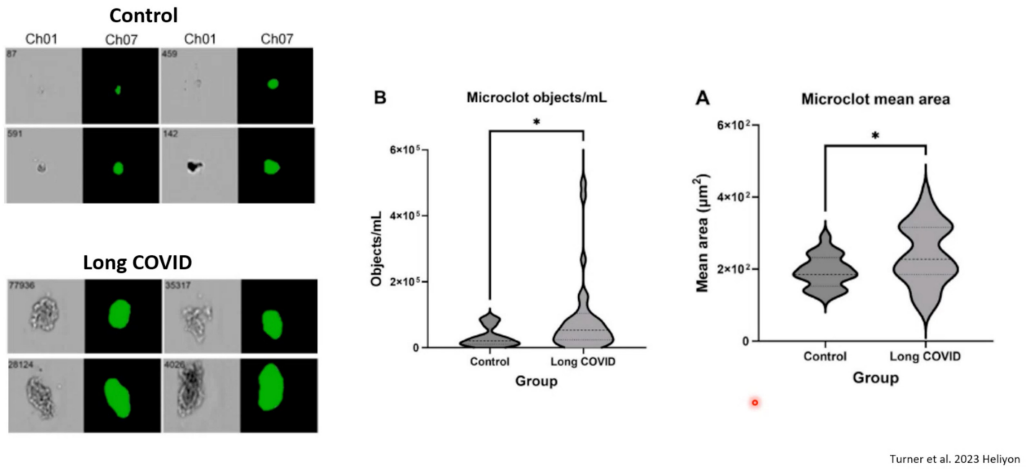
Long COVID and Microclot formation

Long COVID Patients Have More and Bigger Microclots Compared to Control Group



Turner et al. 2023 Heliyon

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CHOLESTEROL – Blessing or Curse

Holistic considerations on fat metabolism

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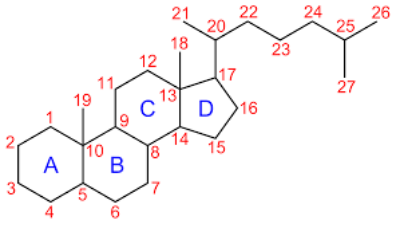
CHOLESTEROL Facts (I)



- Comes from χολή cholé (bile) and στερεός stereós (solid).
- The human body contains about 140 g of cholesterol (20% of which is in the brain).
- Over **95% of cholesterol is found within cells and cell membranes.**
- Precursor or building block for all steroids (sex and adrenal hormones) and bile acids.

from WIKIPEDIA „Cholesterol“

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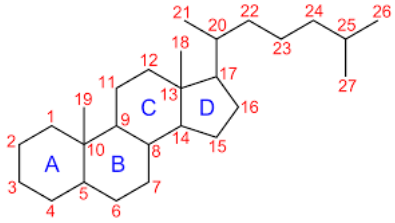
CHOLESTEROL Facts (II)



- **88% of cholesterol is produced in the liver**, and only 15% is supplied through food (autologous synthesis 1-2 g/day).
- Cholesterol is necessary for vitamin D production through the intermediate 7-dehydrocholesterol.
- The body uses cholesterol for the biosynthesis of cardioactive glycosides.

from WIKIPEDIA „Cholesterol“

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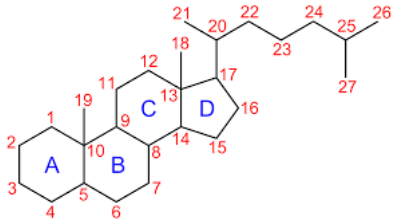
CHOLESTEROL Facts (III)



- In the blood, cholesterol is bound to lipoproteins.
- Lipoproteins are classified according to their density:
  - VLDL (= chylomicrons)
  - LDL (transport to the periphery)
  - HDL (removes cholesterol from dead cells)
  - Lipoprotein A

from WIKIPEDIA „Cholesterol“

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There is NO BAD CHOLESTEROL

- HDL cholesterol absorbs dietary cholesterol, but whether it can break down cholesterol deposits from blood vessels and organs is not scientifically proven.
- 80% of HDL cholesterol complex is broken down into bile acids in the liver, and 20% is resynthesized.
- LDL cholesterol is formed from VLDL cholesterol produced in the liver and transports 80% of the cholesterol produced in the liver to all body cells.
- The LDL cholesterol complex ensures the maintenance of many cellular functions and membrane stabilization.

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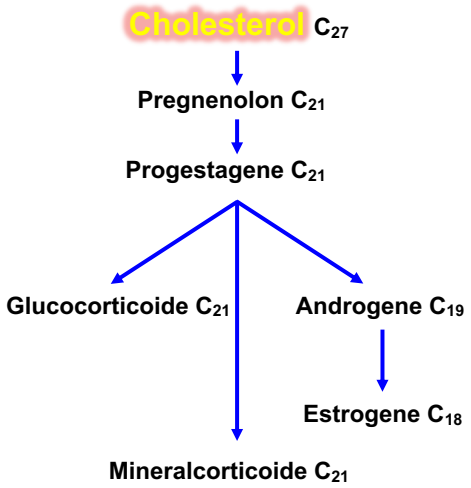
CHOLESTEROL Facts (IV)



- Metabolism
- Salt & Water Balance
- Temperature Regulation
- Body Circulation
- Bone Growth
- Growth, Puberty,
- Reproductive Maturity
- Sexuality, Reproduction
- Hunger, Thirst
- Psychology, Depression
- Concentration
- Short-Term Memory
- Dexterity & Motor Skills
- Sleep & Wake Times

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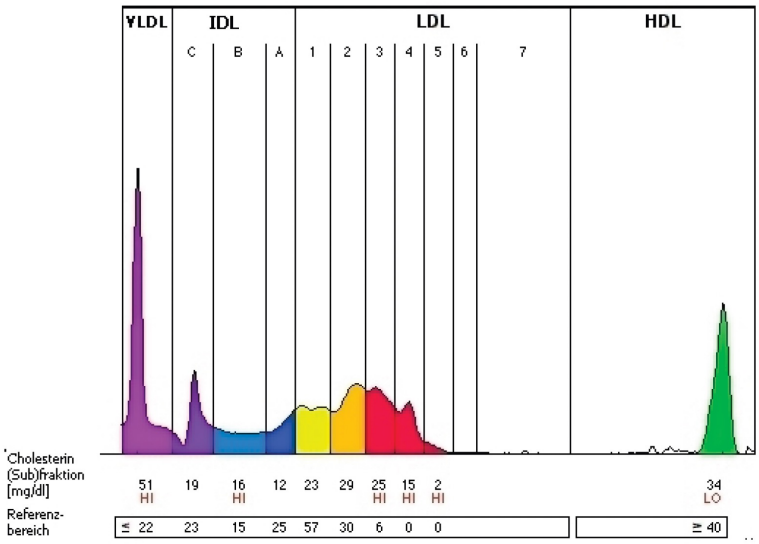
CHOLESTEROL – more facts



The Lipoprotein Profile

- Only LDL fractions 4-7 promote atherosclerosis -> corresponds to phenotype B
- LDL fractions 1-3 and HDL are more vascular-protective
- VLDL can be broken down to LDL
- IDL (intermediate LDL) is a short-lived intermediate with a transport function, a breakdown product of VLDL

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CHOLESTEROL is age-dependend

Age	Mean	Upper limit	Therapy only off
10 - 19	175 mg/dl	230 mg/dl	>300 mg/dl
25 – 39	198 mg/dl	270 mg/dl	>350 mg/dl
40 – 59	250 mg/dl	350 mg/dl	>400 mg/dl
60 - 85	leicht abnehmend	330 mg/dl	>400 mg/dl

Conversion:
100 mg/dl = 2.59 mmol/l
200 mg/dl = 5.18 mmol/l
300 mg/dl = 7.77 mmol/l

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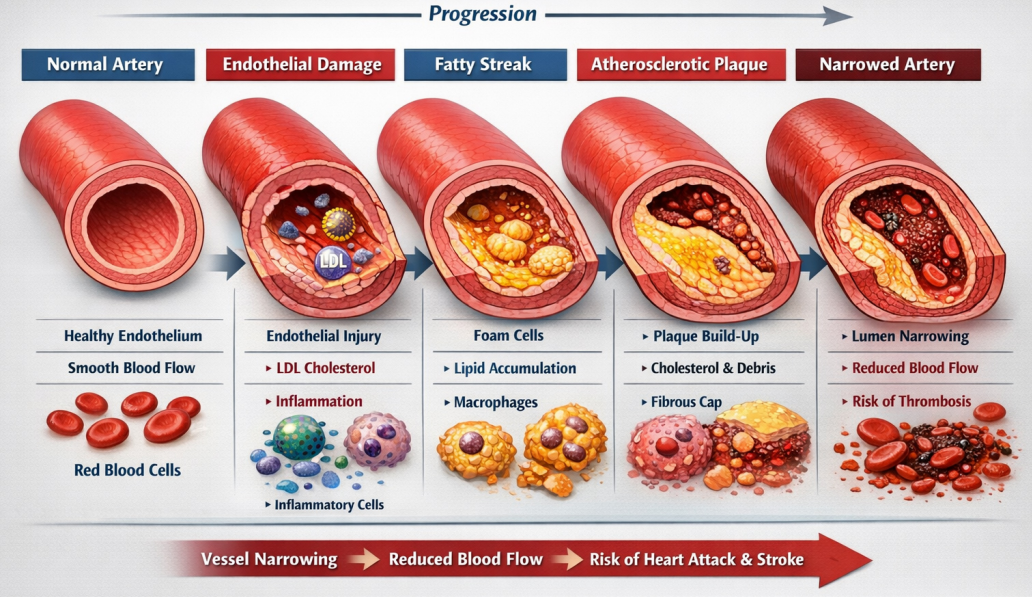
Pathogenesis of Arteriosclerosis



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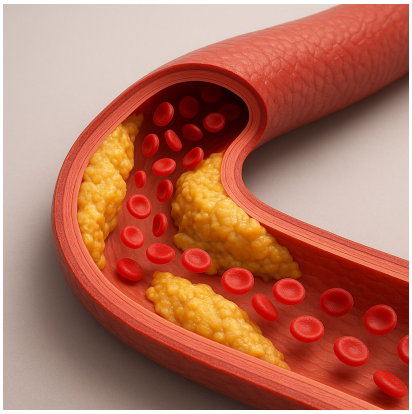
Cholesterol and Arteriosclerosis

- The cholesterol content in arteriosclerotic plaques is less than 1% (!!).
- The true causes are
  - *genetic predispositions,*
  - *nicotine and alcohol abuse,*
  - *hypertension,*
  - *chronic stress,*
  - *obesity,*
  - *homocysteinemia,*
  - *gout,*
  - *lack of movement,*
  - *toxicity and*
  - *diabetes mellitus.*



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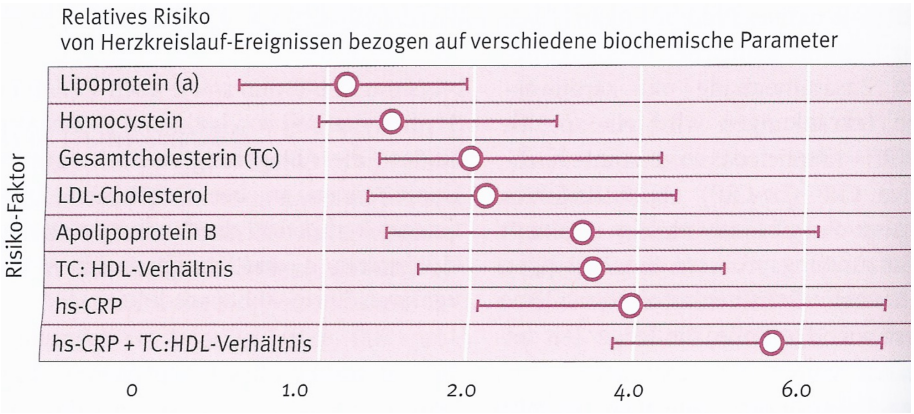
Cholesterol and cardio-vascular risk in Laboratory

- Lipoprotein A (a), homocysteine, total cholesterol (TC), apolipoprotein B, TC to HDL ratio and high-sensitivity C-reactive protein (hs-CRP)

from Osiecki et al: Alter. Med. Rev. 9 (2004) 32-53



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CHOLESTEROL
and scientific studies

Relative and absolute ...

CTT-Meta analysis (USA, 2010)

- 129,526 participants received 40 mg of CSE over an observation period of 4.8 years (2 groups).
- Reduction in first major vascular events of 2.77% and in all-cause mortality of 1.91% with an LDL reduction of 1.0 mmol/L.
- Absolute reduction in cardiovascular events only 2–3%.
- **The usual figures for cholesterol risk are based on the relative risk reduction determined in the studies (by what percentage the risk is reduced by an intervention; e.g., a change in mortality from 2% to 1.6% is a change in relative risk of 20%).**

from WIKIPEDIA „Statins“

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CSE – Inhibitors
Side effects

- Toxic myopathy (structural and functional changes in skeletal muscle)
  - Extreme case: Rhabdomyolysis (destruction of striated muscle; 3,350 cases were described by 2008, with more than 100 deaths associated with Lipobay)
- Common side effects:
  - Myopathies and fatigue (disruption of the citric acid cycle)
  - Decreased cognitive function
  - Hormonal imbalances, impotence, and loss of libido
  - Reduced stress tolerance, irritability
  - Increased risk of diabetes
  - Kidney dysfunction
  - Reduction of CoQ10, vitamin D, and vitamin C
  - Constipation

from WIKIPEDIA „Statins“

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Congenital, familiar Hyper-CHOLESTEROLemia

- There is no correlation between cholesterol production and uptake.
- Defect due to a lack of receptors for LDL proteins.
- The liver produces cholesterol, but it doesn't reach the cells.
- These cells degenerate prematurely because cell function control is lacking.
- Cholesterol deposits in the blood vessels are only observed in the final stages.
- Incidence in our population is only 0.25%.
- CSE inhibition does not increase the number of LDL receptors!

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CHOLESTEROL
and biological medicine

Principles

- Treatment only if age-related normal values are exceeded when measured correctly
- Dietary changes (pay attention to eating habits, natural, alkaline, hypoallergenic and nutrient-rich foods, plant-based oils)
- Sufficient exercise, recreational sports
- Stress reduction, sufficient sleep
- Intestinal cleansing, liver and gallbladder detoxification
- Supplements
- Natural remedies
- Lipid-Apheresis

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CHOLESTEROL
reduce by biological medicine(I)

Supplements

- B-Vitamins (B6, B12, B2 and folic acid) & Niacin (300 – 500 mg)
- Vitamin C (1-3 g)
- Vitamin E (200-400 mg)
- Chromium (200 µg)
- Magnesium (400-600 mg)
- Selenium (200 µg)
- Coenzyme Q10 (75-100 mg)
- Carnithine (1-2 g)
- Arginine (2-4 g)
- Omega 3 fatty acids (e.g. 1,5 g EPA, fish oil, KRILL oil)
- Gamma-linoic acid (2-3 g EPO evening primerose oil)
- Melatonin (2-10 mg)

aus Burgerstein „Handbuch Nährstoffe“ HAUG

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CHOLESTEROL
reduce by biological medicine (II)

- **Phytotherapeutics**
  - Cynara (Artischocke)
  - Taraxacum (Dentalion)
  - Gentiana lutea (Enzian)
  - Red rice extract
- **Spagyrics**
  - Mouth spray „Cholesterol“
- **Classic Homeopathy**
  - Calc., Dulc., Lyc., Sulf., Tub.
- **Intestinal therapeutics**
  - Cholestyramin (Cholesterol binder), e.g.. Quantalan®
  - Zeolithe (vulcano stone powder)
  - Activomin® (humic acids)

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CHOLESTEROL
reduce by biological medicine

Actual case report:

- 64-year-old female patient
- Taking statins (CSE) for 5 years due to high cholesterol
- Increasing performance decline, weakness, fatigue, nightmares, constipation
- Laboratory analysis conducted at our facility after 4 weeks of discontinuing statins:

Triglyceride	mmol/l			2			2.45
Cholesterin	mmol/l			5			8.68
Cholesterin/HDL-Cholesterin				5			8.2
HDL-Cholesterin	mmol/l	1					1.06
LDL-Cholesterin	mmol/l			3.1			6.32

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CHOLESTEROL
reduce by biological medicine

Actual case report:

- Therapy and its outcome:
  - Comprehensive nutritional counseling – dietary changes
  - Prescription: Mirachol 3.0 gold (Biogena), Cynara Ceres 3x3 drops, homeopathic constitutional remedy CALC CARB
  - Email after 2.5 months:

Dear Mr. Oettmeier,
Here are my current lab results:
HDL 1.27,
LDL 3.84,
Total cholesterol 6.01,
Cholesterol/HDL ratio 4.73,
Triglycerides 1.96
I owe this success to you! Therefore, my heartfelt thanks.
It's wonderful that even the more "challenging" patients can achieve such positive results. I'm looking forward to the appointment in January. I hope you also received my email with the DNA results.
Wishing you a happy holiday season and a happy New Year.
Kind regards,

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Saturated and unsaturated Fatty acids

Holistic considerations on fat metabolism

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Fatty acid profile (I)

Saturated fatty acids				
Myristic acid C14:0 (MYR)	11.1	µmol/l	(6.3-26.6)	7.0 – 20.0
Pentadecanoic acid C15:0 (PEN)	10.7	µmol/l	(4.0-14.0)	4.5 – 12.0
Palmitic acid C16:0 (PALMI)	1'374	µmol/l	(660-1'490)	600 – 1'250
Stearic acid C18:0 (STEA)	644	µmol/l	(318-727)	350 – 610
Monoinsaturated fatty acids				
Palmitoleic acid C16:1 n7 (PALMO)	8.4	µmol/l	(7.4-47.0)	8.4 – 35.0
Cis-vaccenic acid C18:1 n7 (CVAC)	59.7	µmol/l	(32.0-80.0)	34.0 – 70.0
Oleic acid C18:1 n9 (OLE)	297	µmol/l	(215-565)	260 – 520
Trans monoinsaturated fatty acids				
Trans-vaccenic acid C18:1 tr7 (TVAC)	5.6	µmol/l	(2.5-13.6)	3.0 – 12.0
Trans-Elaidic acid C18:1 tr9 (TELA)	1.7	µmol/l	(1.0-5.9)	1.0 – 4.2

Palmitic acid C16:0

Result: high
Palmitic acid has properties favouring hypercholesterolemia (if > 8.7% of the total energy intake) and can be an athero-thrombogenic risk factor.

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Fatty acid profile (II)

Omega-6 polyinsaturated fatty acids				
Linoleic acid C18:2 n6 (LIN)	946	µmol/l	(470-1'160)	470 – 850
Gamma-linolenic acid C18:3 n6 (GLA)	1.4	µmol/l	(1.3-9.3)	2.5 – 6.5
Dihomo-g-linolenic acid C20:3 n6 (DGLA)	*56	µmol/l	(57-213)	80 – 200
Arachidonic acid C20:4 n6 (ARA)	475	µmol/l	(260-735)	275 – 475
Omega-3 polyinsaturated fatty acids				
Alpha-linolenic acid C18:3 n-3 (ALIN)	9.0	µmol/l	(2.3-14.5)	6.0 – 14.0
Eicosapentaenoic acid C20:5 n3 (EPA)	53.9	µmol/l	(18.0-140.0)	40 – 130
Docosapentaenoic acid C22:5 n3 (DPA)	37.5	µmol/l	(24.0-75.0)	30 – 52
Docosahexaenoic acid C22:6 n3 (DHA)	*342	µmol/l	(105-290)	125 – 280
Omega 6/Omega 3 ratio (6/3)	3.3		(2.0-7.5)	2.00 – 5.00
Omega 3 Index (INDO3)	7.8	%		4.00 – 8.00

Linoleic acid C18:2 n6

Result: high
An excess of linoleic acid can have consequences favouring inflammation and platelet aggregation and have a thrombogenic action. It favours blood viscosity, vasoconstriction and oxidation of LDL. It is positively correlated to coronary risk. It also inhibits the synthesis of eicosapentaenoic and docosahexaenoic (omega 3) acids. Linoleic acid is an essential fatty acid. It is therefore not synthesized by the system and is supplied only by food : safflower, grape seed, sunflower, walnut, soy, maize and peanut oils, certain cooking margarines, peanuts and almonds.

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Healthy diet for Heart and Vessels

In general

- Avoid allergens
- Healthy eating culture
- More vegetables
- organic agriculture
- Avoid fast food

Special support for kidneys and adrenals

- AVOID: Sugar, gluten, caffeine, dried fruit, white flour
- Drink plenty of fluids: tea, water, a pinch of herbal or Himalayan salt
- Avoid cow milk and dairy milk products
- Eat more protein and good fats: building amino acids, protective fats optimized according to their fatty acid profile; avocados, coconut, nuts, seeds, and sprouts are good options
- Nutritious foods: bone broth, algae Strengthen your gut: chamomile and sage tea, probiotics, fermented drinks
- Prebiotics: flaxseed, artichoke, onion, Jerusalem artichoke
- Pay attention to the time: a hearty breakfast is especially important

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Epigenetics and Fat Metabolism

Holistic considerations on fat metabolism

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Analysis Fat Metabolism- EPIGENETICS

dnahealth®

Lipid metabolism

Heart health depends on a complex balance of environmental, dietary and genetic factors. Certain genes influence LDL and HDL cholesterol levels; higher levels of LDL, or 'bad' cholesterol, and lower levels of HDL or 'good' cholesterol, are associated with a higher risk of heart disease.

Gene Name	Genetic Variation	Your Result	Gene Impact
LPL	1595 C>G	CG	✓
CETP	279 G>A	AG	●
APOC3	3175 C>G	CG	●
APOE	E2/E3/E4	E4/E3	●●●
PON1	A>G	AA	○

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Analyse Fettstoffwechsel - EPIGENETIK

APOE E2/E3/E4

Apolipoprotein E has a multi-functional role in lipoprotein metabolism and is essential for the normal catabolism of triglyceride-rich lipoprotein constituents. Two SNPs result in three allelic isoforms, affecting the protein conformation and thus the receptor binding activity and lipoprotein preference of the APOE protein.

YOUR RESULT: **E4/E3** ●●●

The E4 isoform contributes toward a 40 to 50% increased risk of CVD, which is due to higher levels of total- and LDL cholesterol. E4 carriers are hyper-responsive to toxins such as alcohol and smoking, as well as the total fat and fatty acid content of the diet. E4 individuals have a greater anti-oxidant requirement. Reduce the total fat, specifically saturated fat, intake in the diet. Increase anti-oxidant intake and reduce oxidative stress (Decrease alcohol intake, cessation of smoking, weight loss).

APOC3 3175 C>G

Apolipoprotein C3 plays an important role in cholesterol metabolism. It inhibits lipoprotein lipase and hepatic lipase, delaying catabolism of triglyceride-rich particles.

YOUR RESULT: **CG** ●

The G allele is associated with elevated plasma triacylglycerol, cholesterol, and APOC3 concentrations. Carriers of the G variant have an approximate 4-fold increased risk of hypertriglyceridemia. They are however responsive to dietary intervention. Decrease saturated fat and increase MUFA. If triglycerides are raised, modify CHO intake. Carriers of the G variant may also show enhanced benefit to statin therapy.

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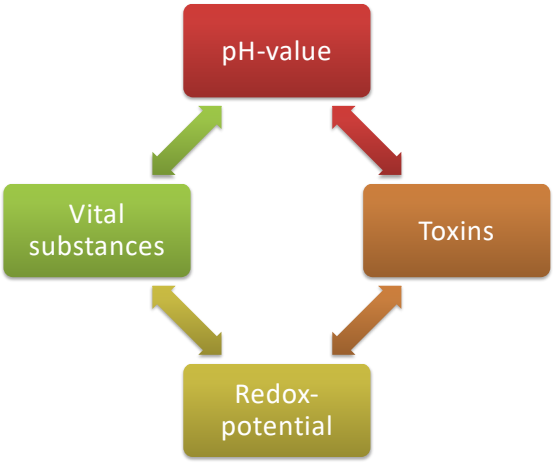
Terrain factors (chemical)
The square of life



1. **Acid-Base Household** (pH-value, base excess, minerals, ammonia)
2. **Oxidative Stress** (free radicals, Nitrothyrosin, Peroxynitrit)
3. **Vital substances** (vitamins, minerals, trace elements, fatty acids, amino acids)
4. **Toxins** (toxic metals, organic toxins, endotoxins incl. emotionals)

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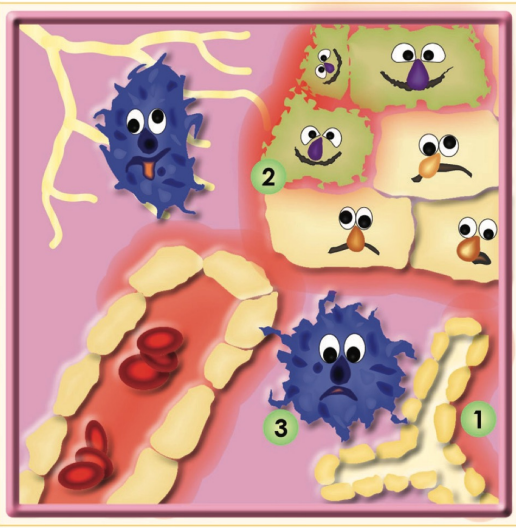
Important causative factors for chronic diseases and cancer

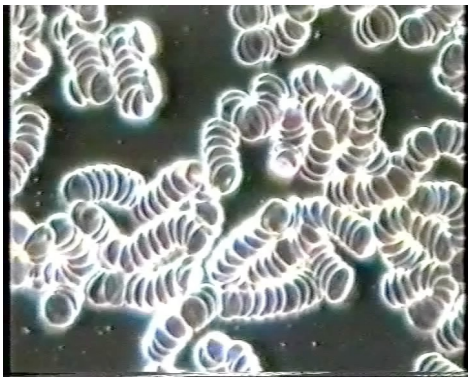


1 - Increasing hyperacidity in the tissue, the farther away it is from the blood vessel

2 - Cancer cells with an acidic mantle

3 - Dysfunctional lymph cells in an acidic environment

Dysbalanced Acid-Based Household



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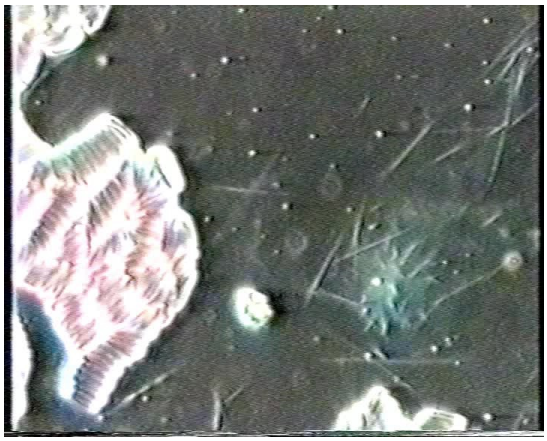
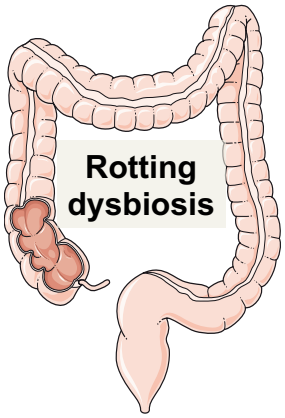
Reason: Too much, non-degraded Protein



Extreme roleaux phenomena, clumping, sludge syndrome
x 500



- Overload and incorrect digestion with animal protein
- Gastric hypoacidity (also with proton pump blockers)
- Hepato- and pancreatopathy
- Dysbiosis with elevated pathogens in the colon (e.g., Clostridium, Enterobactericae, Citrobacter)
- Colon alkalization (pH> 6.5)
- Formation of ammonia and biogenic amines (cadaverine, putrescine)
- Formation of enterotoxins (esp. Citrobacter and Klebsiella)

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ALPSTEINCLINIC

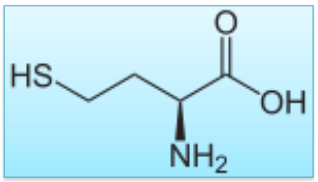
Diagnostics – Laboratory (I)

Klinische Chemie

Homocystein	+ 12.3	µmol/l	< 12

Erhöhte Homocysteinwerte werden bei Mangel an Vitamin B12 und Folsäure gefunden. Auch geringfügig erhöhte Homocysteinspiegel sind durch die Bildung hochreaktiver Radikale mit einem deutlich erhöhten Atheroskleroserisiko assoziiert.

- Formed by demethylation of L-methionine in the liver.
- Elevated levels promote vascular disease and dementia.
- Regulated with adequate intake of vitamins B6, B12, betaine, and folic acid.
- Elevated levels occur more frequently with alcohol consumption, smoking, frequent coffee consumption, lack of exercise, and obesity.
- Thus, it is an **indirect indicator of vitamin B intake**.



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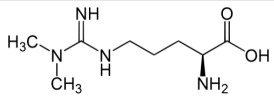
Diagnostics – Laboratory (II)

- Methylated derivative of the amino acid L-arginine
- **Risk marker for arteriosclerosis**
- There is a close relationship between plasma ADMA levels and the thickness of the tunica media and intima of the common carotid artery.
- Elevated levels are found in:
- Arteriosclerosis
- Diabetes mellitus
- Hypertension
- Chronic kidney disease
- **Important surrogate parameter** for risk assessment (also in the context of follow-up care after myocardial infarction and stroke)

Strukturformel

Allgemeines
Name: asymmetrisches Dimethylarginin
Andere Namen: • *N,N*-Dimethylarginin • *N,N*-Dimethyl-L-arginin • Guanidin-*N,N*-dimethylarginin

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ALPSTEINCLINIC

Diagnostics – Laboratory (III)

CRP sensitiv	H	**5.5**	mg/l	<3 niedriges KHK Risiko: <1.0 mg/l mittleres KHK Risiko: 1.0 - 3.0 mg/l hohes KHK Risiko: 3.1 - 10.0 mg/l
Herz- und Skelettmuskel				
NT-pro-BNP	H	**2323**	pg/ml	<334

CRP sensitive

- = C-reactive protein, or CRP for short, is a plasma protein produced in the liver and is one of the so-called acute-phase proteins and **inflammatory markers.** Furthermore, CRP, along with IL-6, is classified as a risk indicator for arteriosclerosis, insulin resistance, and metabolic syndrome.

NT-pro-BNP

- = BNP is a polypeptide used as a cardiac marker in the diagnosis of heart failure. BNP acts as a cardiac hormone that is released when the ventricle is stretched, e.g., due to excessive plasma volume, and stimulates natriuresis as part of a regulatory loop. BNP also has a vasodilating effect. **BNP levels are elevated in heart failure** and correlate with the stages of the NYHA classification.

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ALPSTEINCLINIC

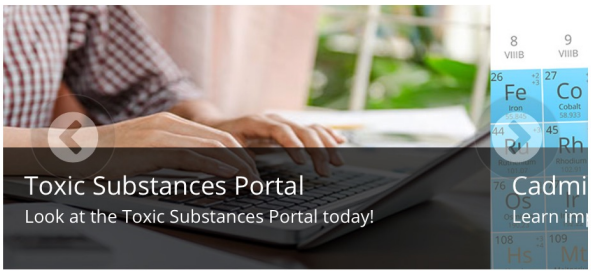
Cardiovascular diseases and toxins

ATSDR Agency for Toxic Substances and Disease Registry

A-Z In

Search

Agency for Toxic Substances and Disease Registry



The **Agency for Toxic Substances and Disease Registry (ATSDR)**, based in Atlanta, Georgia, is a federal public health agency of the **U.S. Department of Health and Human Services**. ATSDR protects communities from harmful health effects related to exposure to natural and man-made hazardous substances. We do this by responding to environmental health emergencies; investigating emerging environmental health threats; conducting research on the health impacts of hazardous waste sites; and building capabilities of and providing actionable guidance to state and local health partners.

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ALPSTEINCLINIC

Most diseases are caused by toxic stress!!

ATSDR Agency for Toxic Substances & Disease Registry

SEARCH SEARCH

A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

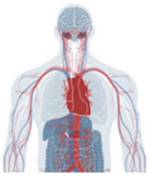
Toxic Substances Portal

- Toxic Substances Portal
- Substances List
- Substances Resources
- Substances Map
- **Health Effects of Exposure to Substances and Carcinogens**
- Chemical Classifications
- Community Members
- Emergency Responders
- Medical Education and Training
- Toxicological and Health Professionals

Toxic Substances Portal

Health Effects of Exposure to Substances and Carcinogens

An organ system is a structure that is found inside a human or animal. It is made of cells or tissues that perform a specific function. When exposed to a hazardous substance, the organ that the substance affects at the lowest dose is called the *target organ*. Development is the process in which an individual or animal matures until puberty. Click on a target organ system below to see an overview of the system and a list of substances that can harm it.



Cancer Classification

- NTP: Known to be a Human Carcinogen
- NTP: Reasonably Anticipated to be a Human Carcinogen

Effects of Toxic Substances on Organ Systems and their Development

- Cardiovascular (Heart and Blood Vessels)
- Dermal (Skin)
- Developmental (effects while organs are developing)
- Endocrine (Glands and Hormones)
- Gastrointestinal (Stomach and Intestines, part of the digestive system)
- Hematological (Blood Forming)
- Hepatic (Liver)
- Immunological (Immune System)
- Musculoskeletal (Muscles and Skeleton)
- Neurological (Nervous System)
- Ocular (Eyes)
- Renal (Urinary System or Kidneys)
- Reproductive (Producing Children)
- Respiratory (From the Nose to the Lungs)

Text size: S M L XL

Print page

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Contact Us:

Agency for Toxic Substances and Disease Registry
4770 Buford Hwy NE
Atlanta, GA 30341

800-CDC-INFO
(800-232-4636)
TTY: (888) 232-6348

New Hours of Operation
8am-8pm ET/Monday-Friday
Closed Holidays
Contact CDC-INFO

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Cardiovascular (Heart and Blood Vessels)

The heart and blood vessels (arteries, capillaries, and veins) are called the **cardiovascul system**. The cardiovascular system carries blood throughout the body. The heart pump called "arteries" and then through smaller blood vessels called "capillaries" to each orga blood feeds each organ and tissue. Blood adds or removes gases, nutrients, hormones, each organ to carry out metabolic processes (to keep the body alive). The capillaries the that flow back to the heart to be recirculated.

Click on a substance to go to the health effects chapter in the toxicological profile. Then, system to find the health effects information on that system.

Please Note: The following links point to PDFs containing the information defining the h substance. This PDF format requires Adobe Acrobat Reader , which can be downloa site.

Substances Listing

- 1,1-Dichloroethane
- 1,2,3-Trichloropropane
- 2,4-Dichlorophenoxyacetic Acid (2,4-D)
- Antimony
- Arsenic
- Atrazine
- Barium
- Carbon Disulfide
- Carbon Monoxide
- Cyanide
- Dinitrocresols
- Ethylene Glycol
- Fluorides, Hydrogen Fluoride, and Fluorine
- Fuel Oils / Kerosene
- Mercury
- Nitrate and Nitrite
- Perfluoroalkyls
- Selenium
- Thallium
- Toluene
- White Phosphorus

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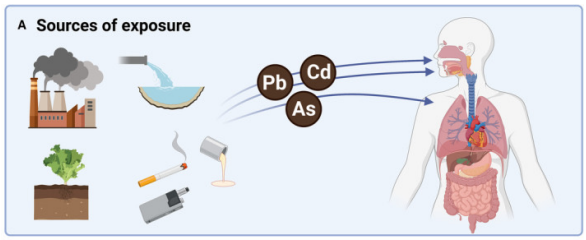
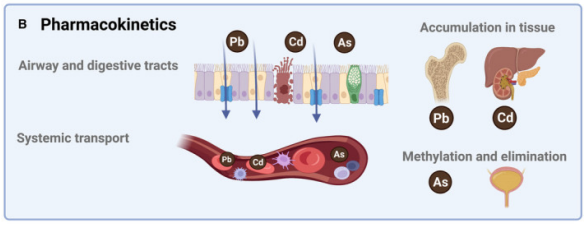
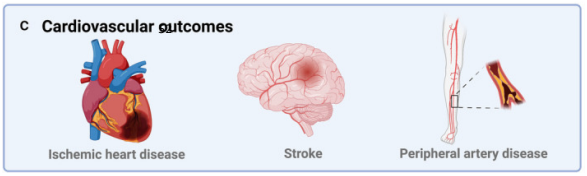
ALPSTEINCLINIC

Heavy metals and cardio-vascular diseases – the challenge







J Am Heart Asso . 2023 Jul 4;12(13):e029852. doi: 10.1161/JAHA.123.029852. Epub 2023 Jun 12.
Contaminant Metals as Cardiovascular Risk Factors: A Scientific Statement From the American Heart Association

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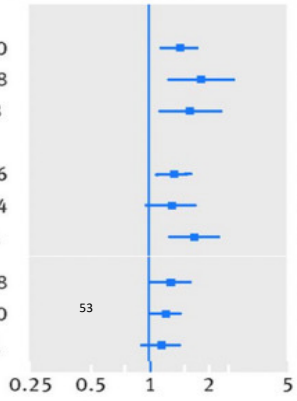
Heavy metals and cardio-vascular diseases – the challenge

Metals	No. studies	No. participants	No. events	Relative risk (95% CI)
Lead				
Cardiovascular disease	10	110 382	4970	1.43 (1.16–1.76)
Coronary heart disease	8	91 779	2228	1.85 (1.27–2.69)
Stroke	6	89 494	518	1.63 (1.14–2.34)
Cadmium				
Cardiovascular disease	6	50 674	3756	1.33 (1.09–1.64)
Coronary heart disease	5	32 070	1654	1.29 (0.98–1.71)
Stroke	3	9123	601	1.72 (1.29–2.28)
Arsenic				
Cardiovascular disease	7	135 943	3208	1.30 (1.04–1.63)
Coronary heart disease	8	190 816	4640	1.23 (1.04–1.45)
Stroke	4	134 526	961	1.15 (0.92–1.43)



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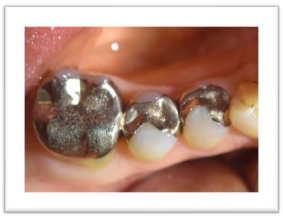
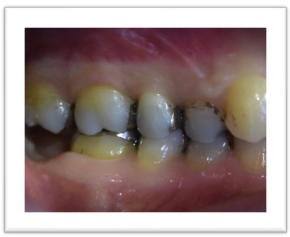
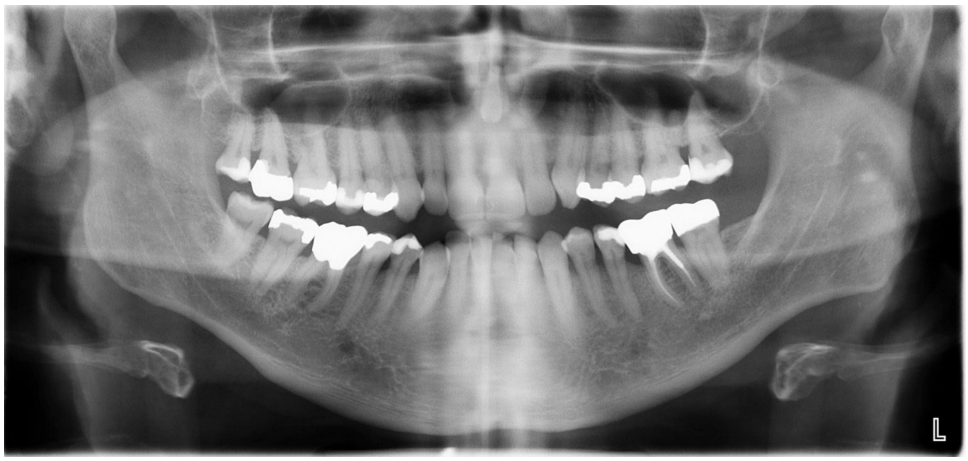
Dental interferance fields and metals







54-year-old patient: state after heart attack, headache, eczema, chronic gastritis

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Toxin Analysis

Chelate (DMPS and EDTA) Mobilization Test (urine)

Analyt	Messwert aktuell		Chelatspezifische Toxizitätsschwellen *
Kreatinin [g/l]	0,44	(0,40 - 2,78)	
Essential trace elements (µg/g Creatinine)			
Bor	1607		
Chrom	1,59		< 3
Eisen	498		< 700
Kobalt	1,36		
Kupfer	559		< 1500
Lithium	113509		< 145
Mangan	20,0		< 110
Molybdän	28,6		
Selen	21,8		
Vanadium	1,36		
Zink [mg/g Krea]	32,05		< 32

Demonstrates, if the test is working

Toxic metals (µg/g Creatinine)		
Aluminium	99,8	< 450
Antimon	0,45	< 0,3
Arsen	18,9	< 100
Barium	3,86	
Beryllium	< NWG	
Bismut	1,82	< 0,4
Blei	38,0	< 14
Cadmium	1,36	< 1,5
Cäsium	11,4	
Gadolinium	1,36	< 0,3
Gold	< NWG	
Nickel	15,5	< 12
Palladium	< NWG	< 0,0001
Platin	< NWG	< 0,0001
Quecksilber	36,1	< 8
Silber	< NWG	
Strontium	300	
Thallium	0,23	
Titan	25,9	
Uran	0,23	
Zinn	4,77	< 5
Zirkonium	< NWG	

*) Toxizitätsschwellen für Ca-EDTA + DMPS, nach dem Protokoll der Ärztegesellschaft für Klinische Metalltoxikologie.

Toxicity treshhold according the International Society for Metal Toxicity

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Toxin Analysis

Whole Blood analysis (example INUS-laboratories CH)

Heavy metals

Parameter	Reference	Measurement	Unit	Comment
Aluminium	20.5*	109.2	µg/l	Very high
Antimony	0.20	8.60	µg/l	Very high
Arsenic	1.00	2.45	µg/l	Very high
Barium	2.9	194.7	µg/l	Very high
Bismuth	0.2	0	µg/l	N.D.
Blei	30.0*	15.8	µg/l	Moderate
Cadmium	0.05*	0	µg/l	N.D.
Caesium	1.50 - 6.70*	6.07	µg/l	Moderate
Chromium	0.90	0	µg/l	N.D.
Cobalt	0.05	0	µg/l	N.D.
Copper	654 - 1320	1059	µg/l	Moderate
Gadolinium	0.05*	0	µg/l	N.D.
Gallium	0.05	0	µg/l	N.D.
Gold	0.05	0.17	µg/l	Very high
Indium	0.05	0.10	µg/l	Very high
Iridium	0.05	0.04	µg/l	Moderate
Manganese	5.0 - 13.5	11.5	µg/l	Moderate
Mercury	0.9	5.0	µg/l	Very high
Molybdenum	0.2 - 1.3	12.2	µg/l	Very high
Nickel	3.3*	0	µg/l	N.D.
Palladium	0.05	4.44	µg/l	Very high
Platinum	0.05	0.45	µg/l	Very high
Rubidium	900 - 4145*	6771	µg/l	High
Ruthenium	0.05	0.19	µg/l	Very high
Silver	0.40	0	µg/l	N.D.
Strontium	9 - 41*	159	µg/l	Very high
Tantalum	0.05	0.02	µg/l	Moderate
Tellurium	0.05	0	µg/l	N.D.
Thallium	0.05	0	µg/l	N.D.
Tin	2.0	1.8	µg/l	Moderate
Titanium	3.0	9.0	µg/l	Very high
Uranium	0.05	0	µg/l	N.D.
Vanadium	0.80*	0	µg/l	N.D.
Zinc	4080 - 7870	1524	µg/l	Deficiency
Zirconium	0.20	0	µg/l	N.D.
Sum		**358.03**	**µg/l**	

This is an element/environment analysis and does not represent a medical finding.
The relevance of the results in the medical sense and in relation to a therapy requires the assessment of a treating physician.

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Detox instead of Intox!

- **Testing of toxic load and intestinal situation** (dark field microscopy, stool analysis, DMPS/EDTA mobilization test, Oligoscan, hair or Skin multielemental analysis, IGL environmental toxins in lymphocytes)
- **General Detox Measures**
- **Specific Removal and Detox Techniques**
  - Liver cleansing, fasting, diet, colonics
  - Detox using biological remedies (plants, homotoxicologics, homeopathic remedies, Spagyric, anthroposophic and isopathic remedies)
  - Whole body hyperthermia, Sauna, IR-cabine
  - Detox infusions
  - INUSpheresis®
- **„psycho-mental detox“** and **Selfcare**

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ALPSTEINCLINIC

Protective measures for metal removal & detoxification

! Interdisciplinary work between Doctor and Dentist !


Rubberdam & clean up suctioner


Oxygen


Na -Selenite


Solidago


Na - Thiosulfate


Cilantro

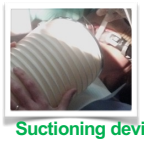

Pear shaped rough diamond, water, low rpm (15-20)

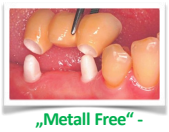
Dental Metals


Protective gear


Holistic Detox and/or Build Up Infusions with Vitamins, Minerals and antioxidants, chelating agents for any dental intervention


Chlorella


Suctioning device


„Metall Free“ - Ceramics


DMPS - Chelation Therapy

From: Reuter, Oettmeier and Vizkelety: Say YES to LIFE

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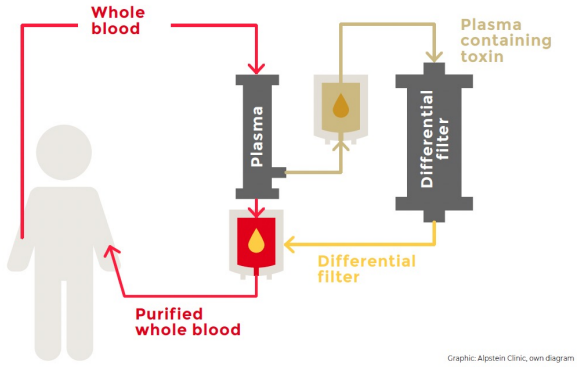
Functional Scheme of INUSpheresis®

How INUSpherese® works at the Alpstein Clinic



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Research about the Efficiancy of different INUS filter types

INUSpheresis®

Precision Medicine Approach for Cardiometabolic Risk Factors in Therapeutic Apheresis

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Key words
extracorporal apheresis, proteomics analysis, cardiovascular risk factors, precision medicine

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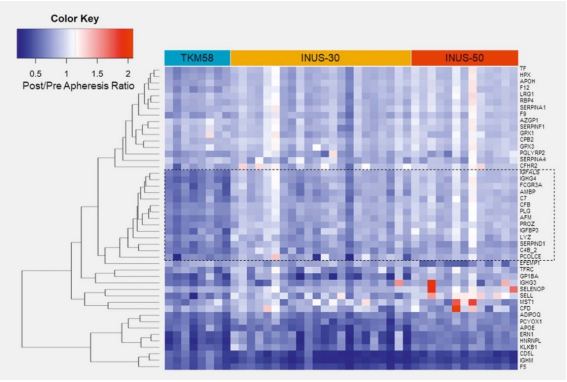
ABSTRACT

Lipoprotein apheresis (LA) is currently the most powerful intervention possible to reach a maximal reduction of lipids in patients with familial hypercholesterolemia and lipoprotein(a) hyperlipidemia. Although LA is an invasive method, it has few side effects and the best results in preventing further major cardiovascular events. It has been suggested that the highly significant reduction of cardiovascular complications in patients with severe lipid disorders achieved by LA is mediated not only by the potent reduction of lipid levels but also by the removal of other proinflammatory and proatherogenic factors. Here we performed a comprehensive proteomic analysis of patients on LA treatment using intra-individually a set of differently sized apheresis filters with the INUSpheresis system. This study revealed that proteomic analysis correlates well with routine clinical chemistry in these patients. The method is eminently suited to discover new biomarkers and risk factors for cardiovascular disease in these patients. Different filters achieve reduction and removal of proatherogenic proteins in different quantities. This includes not only apolipoproteins, C-reactive protein, fibrinogen, and plasminogen but also proteins like complement factor B (CFAB), protein AMBP, afamin, and the low affinity immunoglobulin gamma Fc region receptor III-A (FcγRIIIa) among others that have been described as atherosclerosis and metabolic vascular diseases promoting factors. We therefore conclude that future trials should be designed to develop an individualized therapy approach for patients on LA based on their metabolic and vascular risk profile. Furthermore, the power of such cascade filter treatment protocols may improve the prevention of cardiometabolic disease and its complications.



The efficiency of multi-cascade filtration with the TKM58 system (INUS) is significantly superior to other filter types and removes not only cardiovascular risk factors but also a wide range of toxic substances..

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Lipidapheresis with the INUS-System

Main Indications

1. **Severe LDL elevation**
   - despite conservative therapy, especially familial hypercholesterolemia, including homozygous FH (hoFH), when LDL target values cannot be achieved despite drug therapy.
2. **Elevated lipoprotein(a)**
   - with progressive atherosclerosis Lp(a) is an established intervention for lowering Lp(a); its use is described in guidelines/standard texts, especially in progressive vascular disease.
3. **Severe hypertriglyceridemia / chylomicronemia**
   - Described as an option in selected situations (e.g., therapy-refractory), alongside strict baseline therapy.

Filter: INUS 30
Device: INUSpheresis®
Per. session: reduction of LDL and Lipo (a) for about 50-60%

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INUSpheresis and Blood Fats

Before INUSpheresis 16.12.23

Lipide / Kardiovaskuläres Risiko				
Triglyceride	H	**2.2**	mmol/l	<2.0
Cholesterin	H	**6.5**	mmol/l	<5
HDL-Cholesterin		1.08	mmol/l	>1.00
Non-HDL-Cholesterin (berechnet)	H	**5.5**	mmol/l	<3.9 Ersetzt Cholesterin/HDL-Cholesterin-Ratio. Zielwert für Non-HDL-Cholesterin für Patienten mit hohem/sehr hohem KHK-Risiko: < 3.4 / < 2.6 mmol/l
LDL-Cholesterin	H	**5.2**	mmol/l	<3.0 Zielwert für LDL-Cholesterin für Patienten mit hohem/sehr hohem KHK-Risiko: <2.5/<1.8 mmol/l
Homocystein		10.4	µmol/l	<15 Idealwert: <10 µ mol/l tolerabel: 10 - 12 µ mol/l Bestimmung von Folsäure und Vitamin B12 ab >12 µ mol/l empfohlen.
Lipide / Kardiovaskuläres Risiko				
Lipoprotein (a)		17	mg/l	<300
CRP sensitiv	H	**3.6**	mg/l	<3 niedriges KHK Risiko: <1.0 mg/l mittleres KHK Risiko: 1.0 - 3.0 mg/l hohes KHK Risiko: 3.1 - 10.0 mg/l

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INUSpheresis and Blood Fats

After INUSpheresis 6.1.24

Lipide / Kardiovaskuläres Risiko				
Triglyceride		0.6	mmol/l	<2.0
Cholesterin		3.4	mmol/l	<5
HDL-Cholesterin	L	**0.72**	mmol/l	>1.00
Non-HDL-Cholesterin (berechnet)		2.7	mmol/l	<3.9 Ersetzt Cholesterin/HDL-Cholesterin-Ratio. Zielwert für Non-HDL-Cholesterin für Patienten mit hohem/sehr hohem KHK-Risiko: < 3.4 / < 2.6 mmol/l
LDL-Cholesterin	H	**3.4**	mmol/l	<3.0 Zielwert für LDL-Cholesterin für Patienten mit hohem/sehr hohem KHK-Risiko: <2.5/<1.8 mmol/l
Homocystein		6.4	µmol/l	<15 Idealwert: <10 µ mol/l tolerabel: 10 - 12 µ mol/l Bestimmung von Folsäure und Vitamin B12 ab >12 µ mol/l empfohlen.
Lipoprotein (a)		<13	mg/l	<300
CRP sensitiv		2.4	mg/l	<3 niedriges KHK Risiko: <1.0 mg/l mittleres KHK Risiko: 1.0 - 3.0 mg/l hohes KHK Risiko: 3.1 - 10.0 mg/l

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INUSpheresis and Lipoprotein (a)

Blood findings before and after INUSpheresis

Dossier No: **3401627721** Gesendet am: 09.05.2025 11:38

Analyse	Befund	Referenz	Vorresultate
Administration			
Lipide / Kardiovaskuläres Risiko			
LDL-Cholesterin	● 4.6 mmol/l	<3.0	● 3.0 07.11.2024 09:00
Kommentar zum Normbereich: Zielwert für LDL-Cholesterin für Patienten mit hohem/sehr hohem KHK-Risiko: <2.5/<1.8 mmol/l			
Lipoprotein (a)	● 1084 mg/l	<300	! ● 2232 06.05.2025 10:30
Diese Bestimmung wurde ausnahmsweise im Unterauftrag durchgeführt.			

Patn. S.F., 64 years old, familial hyperlipoproteinemia, incipient arteriosclerosis of the cerebral vessels (carotid artery)

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Interested?

We would be happy to advice you!

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