

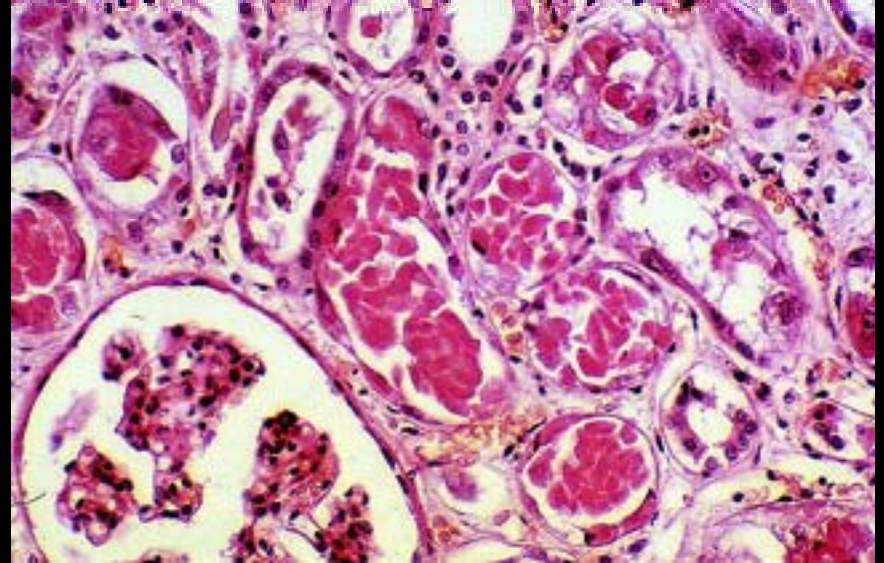


*Toxic Effects  
of Mercury (Hg)*

# Toxic Effects of Mercury Exposure

- **Mercury poisoning**, also known as mercurialism, is the phenomenon of toxication by contact with mercury.

Pure elemental mercury  
is a cumulative  
heavy-metal poison



- ❖ moderately absorbed through the skin,
- ❖ rather poorly absorbed through the gastrointestinal tract
- ❖ readily absorbed as vapor through the lungs.

# Toxicity



- Compounds of mercury tend to be much more toxic than the element itself, and organic compounds of mercury are often extremely toxic.
- Dimethylmercury, for example, is a potent neurotoxin that is lethal in amounts of a fraction of a milliliter.

- Mercury damages the central nervous system, endocrine system, kidneys, and other organs, mouth, gums, and teeth.
- Exposure over long periods of time or heavy exposure to mercury vapor can result in brain damage and death. Mercury and its compounds are particularly toxic to fetuses and infants.



# Is it reversible?

- Some of the toxic effects of mercury are reversible, either through specific therapy or through natural elimination of the metal after exposure has been discontinued.
- However, heavy or prolonged exposure can do irreversible damage, particularly in fetuses, infants, and young children. Exposure to certain highly toxic compounds of mercury such as dimethylmercury can be fatal within hours or less.

# Case Studies



- From 1932 to 1968 methyl mercury was released into the sea around the city of Minamata, Japan.
- The toxin bioaccumulated in fish, which when eaten by the local population caused the largest case of mercury poisoning known
- Minamata disease caused the deaths of over 1000 people and permanently disabled a great many more.



- Another case of widespread mercury poisoning occurred in rural Iraq in 1971-1972, when grain treated with a methylmercury-based fungicide was used by the rural population to make bread.





# Case Studies

- In December 1997, a chemistry professor, Karen Wetterhahn, at Dartmouth College was contaminated with dimethylmercury when she spilled a drop on her latex glove.
- China's first emperor of unified China, Qin Shi Huang Di, was driven insane and killed by mercury pills intended to give him eternal life.



# Symptoms

1. *Psychological disturbances*
2. *Oral Cavity problems*
3. *Digestive tract problems*
4. *Cardiovascular problems*
5. *Respiratory problems*
6. *Neurological Problems*