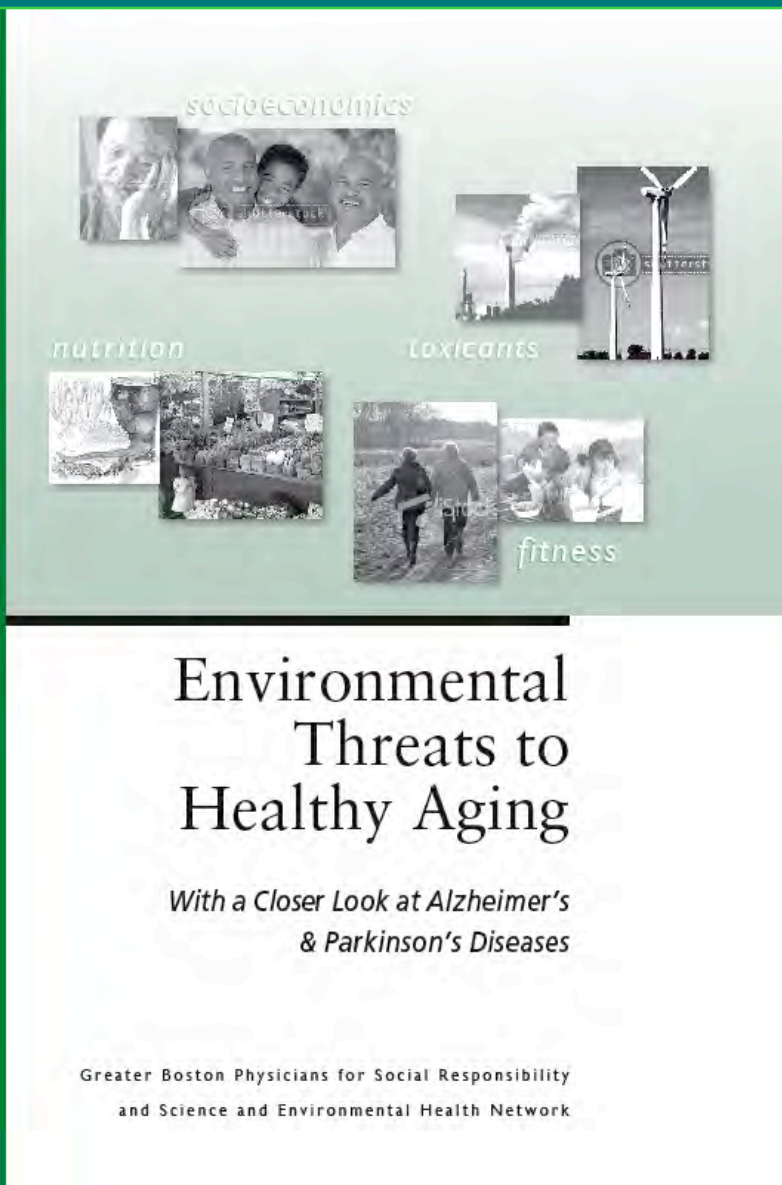


Environmental Drivers of Chronic Disease (*& the Climate Crisis*)

Based on
Environmental Threats
to Healthy Aging
by *Jill Stein MD, Ted Schettler MD, MPH,
Maria Valenti and Ben Rohrer*

*Greater Boston Physicians
for Social Responsibility (GBPSR)*
www.psr.org/Boston
and
*The Science and Environmental
Health Network*

Slides created by the Mass. Coalition for Healthy
Communities, GBPSR, and National PSR.



Metabolic Syndrome

At the Crossroads of the Western Disease Cluster

Environmental Factors

- Food System/Diet
- Built-environment/transportation
- Fossil fuel energy
- Toxic Chemicals
- Socioeconomic stress



Altered Pathways

- Inflammation
- Oxidative Stress
- Disrupted Insulin Signaling



Metabolic Syndrome



Diabetes



CV disease



Obesity



Abnormal lipids

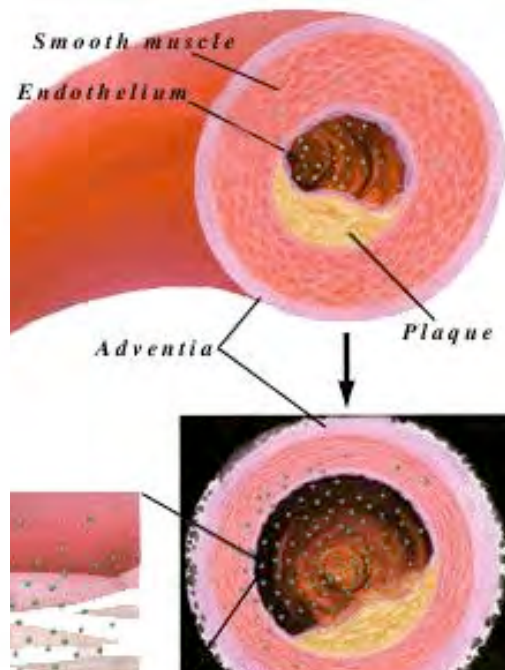
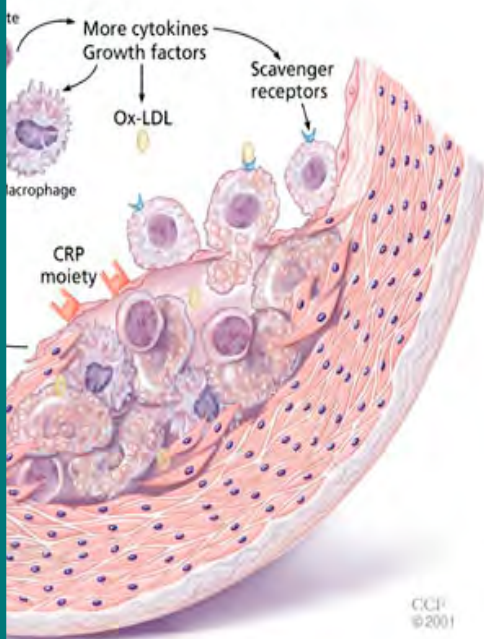


Public Health Significance

- ◆ Obesity/overweight – 2/3 US adults
- ◆ Pre/Diabetes - 40% US adults Cowie 09 CDC.
<http://apps.nccd.cdc.gov/DDTSTRS/default.aspx>
- ◆ Cardiovascular disease – still leading cause of death. HT increasing.
- ◆ Metabolic syndrome - >1/3 adults, 60% > 65 yrs old.
- ◆ Alzheimer's disease – 1/2 >84 yrs old, 5.3M

The New Face of Inflammation

Indications of a heart attack include sweating, anxiety and chest pains

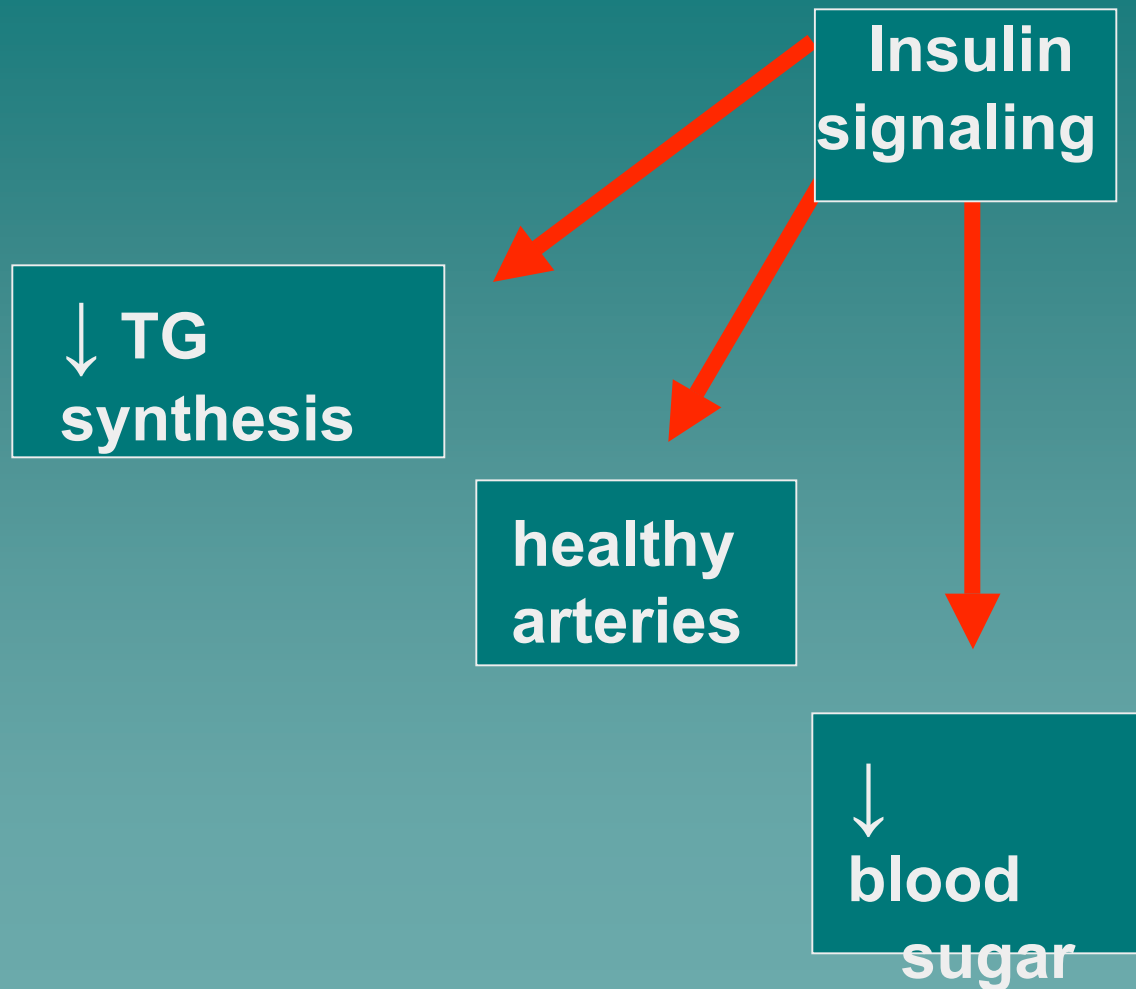


Inflammation- Classical Concept

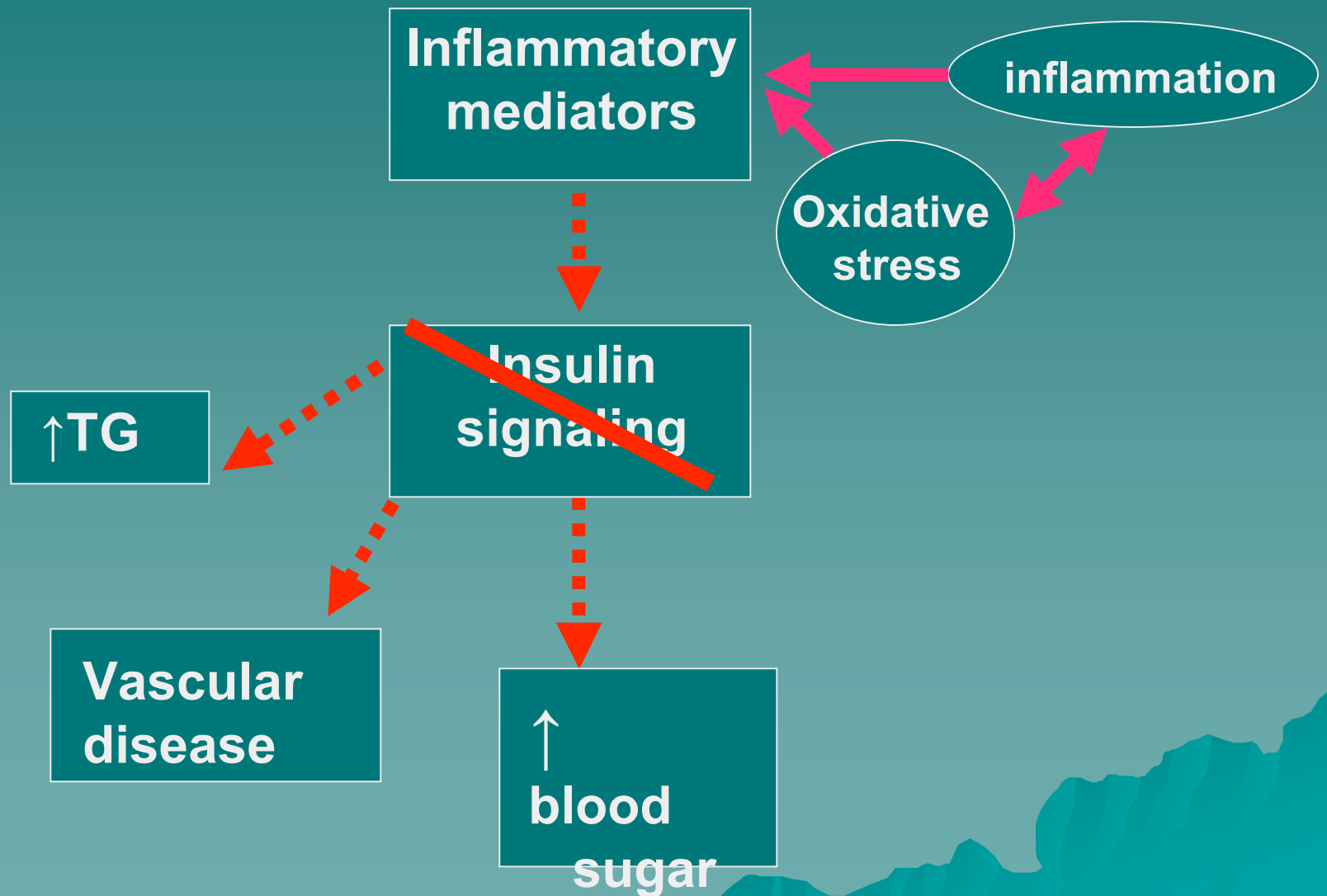
Defined by appearance.
"Calor, dolor, rubor, tumor."
Heat, pain, redness, swelling.



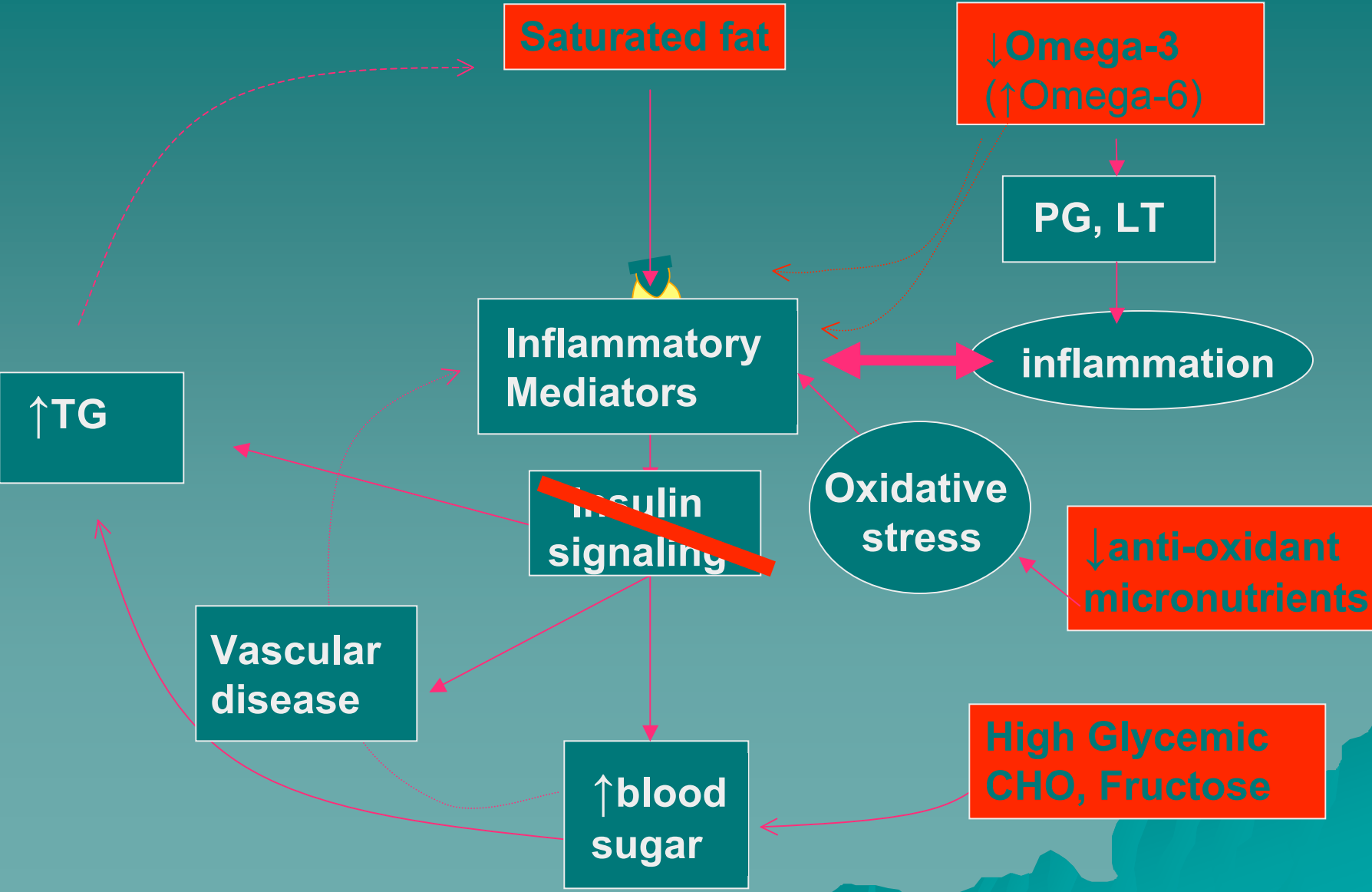
Insulin Action = Normal Metabolism



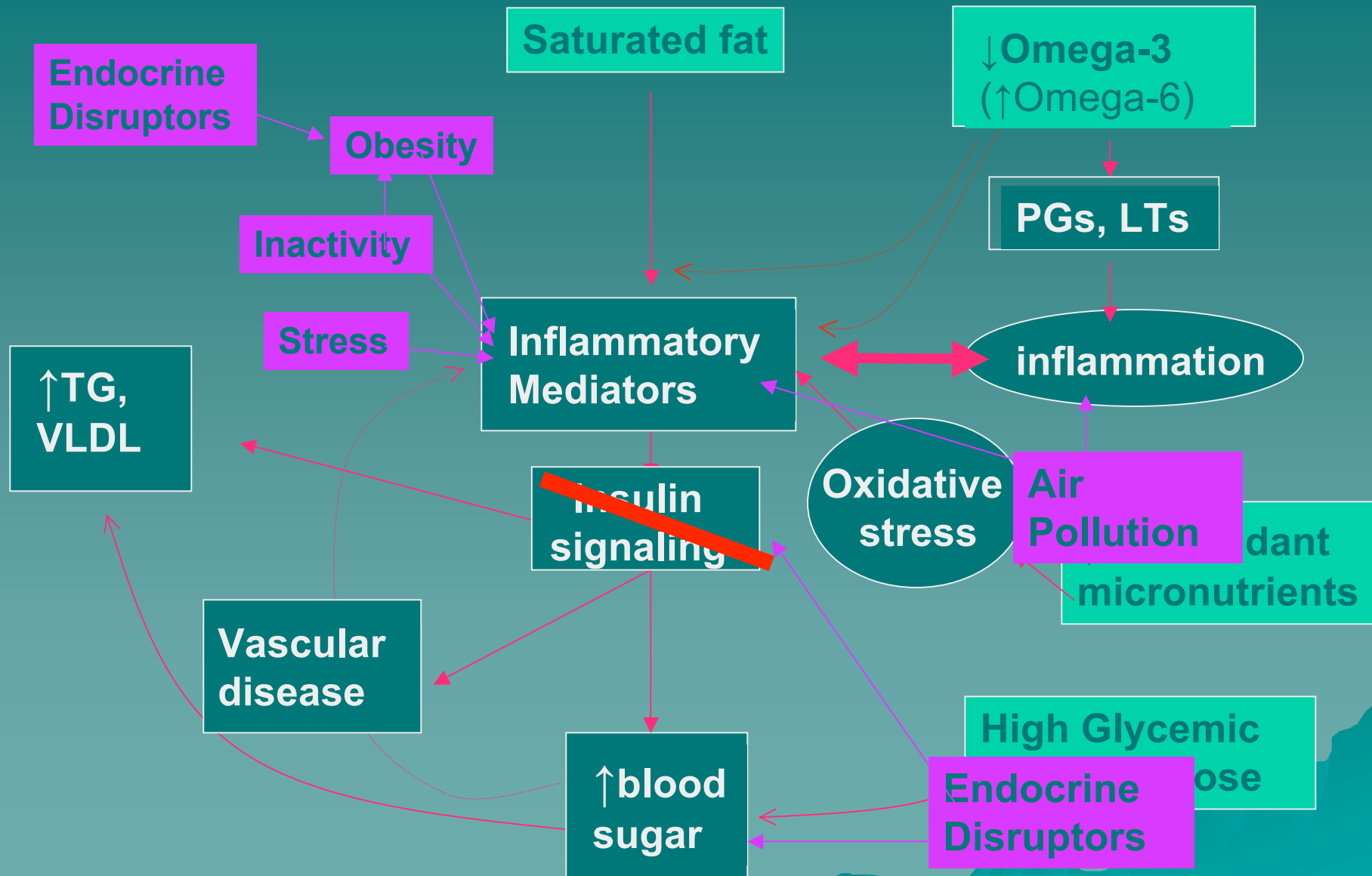
Inflammatory Mediators Disrupt Insulin Signaling-> Inflammatory Metabolism



Novel Nutrients Drive Inflammatory Metabolism



Toxicants, Inactivity, Obesity, & Stress Also Drive Inflammation, Inflammatory Metabolism



Origin of Problematic Novel Nutrients



NUTRIENT	ORIGIN
High glycemic carbohydrate	Food processing
Saturated fat, ↓ ω 3s, ↑ ω 6s	Animal confinement, over-feeding, grain feeding
↓ ω 3s	Long shelf-life, pasture → grain feeding
↑ ω 6s	Emergence of seed oils
Trans fat	Food processing (hydrogenation)
↓ Anti-oxidants, polyphenols	Lack of fresh fruits/vegetable

Influence of Nutritional Factors on chronic diseases

◆ Increase risks

- saturated and trans fats
- high glycemic carbohydrate
- lack of fruits/vegetables/omega 3s



◆ Reduce risks

- fruits, vegetables
- omega 3s, PUFAs
- low glycemic carbohydrate
- Mediterranean diet



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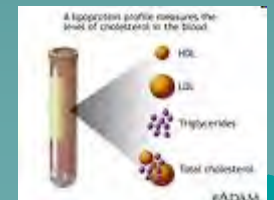
CV disease



Obesity



Abnormal lipids



Alzheimer's/
Dementia



Mediterranean diet

