**Vascular Senescence**

ROS-induced oxidative damage to DNA

**CONDUCTING ARTERIES**
- non-atherosclerotic lesions (common carotid artery)
- atherosclerotic lesions (aorta, common carotid, renal, pulmonary, mesenteric)

**Progressive lumen occlusion**
- Fibrous-cap plaques
  - (cap - connective tissue with foamy macrophages - necrotic lipid core)
  - (15- to 20-week-old)
- Intermediate lesions
  - (10- to 15-week-old)
- Monocytes → scavenger cells → foamy macrophages
  - (8- to 10-week-old)
- Lipid and lipoprotein oxidation through ROS
- Monocyte attachment to endothelium
  - (6- to 8-week-old)

**CONDUCTING ARTERIES**
- non-atherosclerotic lesions (common carotid artery)

**RESISTANCE ARTERIES**
- non-atherosclerotic lesions

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**Plasma lipid profiles**

<table>
<thead>
<tr>
<th>Plasma Lipid Profiles</th>
<th>Regular Diet</th>
<th>Western Diet</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG</td>
<td>1.8</td>
<td>1.3</td>
</tr>
<tr>
<td>PC</td>
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<td>14</td>
</tr>
<tr>
<td>VLDL+IDL</td>
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<td>30</td>
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<tr>
<td>LDL</td>
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<td>9</td>
</tr>
<tr>
<td>HDL</td>
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</tr>
</tbody>
</table>

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**Western Diet NO production**

**Uncoupled eNOS**

**ADMA**

**BH₄ oxidation**

**NADPH oxidase**

**Endothelial NO bioavailability**

**Endothelin production**

**Impaired vascular responsiveness** (Endothelial dysfunction)

**O₂⁻ production**

**ROS**

**Aging**

**CONDUCTING ARTERIES**
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