**SUMMARY OF EVIDENCE FOR ROLE OF ENVIRONMENTAL FACTORS**

1. TIME TRENDS CANCER MORTALITY
2. GEOGRAPHIC VARIATIONS & MIGRANT STUDIES
3. IDENTIFICATION OF SPECIFIC CAUSES
   - (CIGARETTE SMOKING, OCCUPATIONAL FACTORS, DRUGS, ETC.)
4. GENETIC STUDIES

_Evidence is consistent with multifactor etiology (environment + genetic)_
### Occupationally Related Cancers

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Causative Agent</th>
<th>Cancer Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiebich dye industry</td>
<td>6-aminohippuranil</td>
<td>Bladder</td>
</tr>
<tr>
<td>Chemical industry</td>
<td>3-naphthylamine</td>
<td>Bladder</td>
</tr>
<tr>
<td>Chemical industry</td>
<td>Benzene</td>
<td>Myeloid leukemia</td>
</tr>
<tr>
<td>Paint industry</td>
<td>Vinyl chloride</td>
<td>Hepatic angiosarcoma</td>
</tr>
<tr>
<td>Mining</td>
<td>Radon</td>
<td>Large cell lung</td>
</tr>
<tr>
<td>Milling</td>
<td>Cadmium</td>
<td>Prostate</td>
</tr>
<tr>
<td>Shipbuilding industry</td>
<td>Asbestos</td>
<td>Mesothelioma</td>
</tr>
<tr>
<td>Furniture manufacturing</td>
<td>Wood dust</td>
<td>Nasal sinus adenocarc.</td>
</tr>
<tr>
<td>Farming/construction</td>
<td>Gaslight (UV-radiation)</td>
<td>Skin</td>
</tr>
</tbody>
</table>

### Cancer Castration: Occupational and Environmental Chemicals

Over 50 specific chemicals or chemical processes are known to be carcinogenic in humans.

May account for 5–20% of all cancers.

Preventable and requires ongoing surveillance.
Nongenotoxic Agents Can Enhance Carcinogenesis

Examples:
- Asbestos
- Hormones
- Tumor promoters: Phenobarbital
- TCDD
- Various halogenated compounds

Note that of 125 tested carcinogens in the NTP database, 33% are nongenotoxic.

Diet and Cancer

- Risk Factors
  - Positive energy balance (not necessarily high dietary fat)
  - Physical inactivity
  - Increased consumption of red meats
  - Excessive alcohol consumption

- Protective Factors
  - Fruits and vegetables
  - Folic acid
  - Physical activity
  - Weight control


Diet and Human Cancer

Liver
- Hepatitis B/EBV toxin
- Alcoholism
- Alcohol related""
Cancer is likely to arise from combinations of etiological factors

In Lanzhou, a region in northern China, circumstances are as follows:

1. The incidence of gastric cancer is high.
2. Helicobacter pylori infection is prevalent.
3. The year-round diet contains a high proportion of salted & spiced foods.
4. Consumption of vegetables is seasonal.

Diet and Cancer

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AMERICAN CANCER SOCIETY
DIETARY GUIDELINES

1. Avoid obesity.
2. Cut down on total fat intake.
3. Include a variety of vegetables and fruits in the daily diet.
4. Eat more high fiber foods, such as whole grain cereals, vegetables, and fruits.
5. Limit consumption of alcoholic beverages, if you drink at all.