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Definitions

- **Methomyl:** A chemical used to kill insects, which can also affect the liver and overall metabolism.
- **N-Methyl Carbamate:** A group of insecticides that includes methomyl.
- **Hepatic Steatosis:** The buildup of fat in the liver, also known as fatty liver disease.
- **Glucose Tolerance Test (GTT):** A test to see how well the body processes sugar.
- **Glutathione (GSH):** A molecule in the body that helps prevent damage to cells.

Key Findings

- Methomyl exposure leads to significant changes in liver metabolism and structure.
- High doses of methomyl reduce body weight and improve glucose tolerance.
- Methomyl exposure increases fat buildup in the liver without causing liver injury.

Introduction

The study investigates how the insecticide methomyl affects the liver and metabolism in mice. Methomyl is commonly used in agriculture, and understanding its effects on the liver can help us know more about its potential health risks.

Main Content

Background

Methomyl is an insecticide that can disrupt normal body functions. This study aims to see how methomyl affects the liver, especially in terms of fat buildup and sugar processing.

Methods

- **Animal Studies:** Mice were given different doses of methomyl for 18 days.
- **RNA Analysis:** Checked changes in liver genes related to metabolism.
- **Blood and Tissue Tests:** Measured body weight, liver fat, and blood sugar levels.

Results

- **Body Weight and Glucose Tolerance:**

- Mice exposed to high doses of methomyl lost more body weight.
- High doses of methomyl improved how mice processed sugar.
- **Liver Fat and Structure:**
 - High doses of methomyl increased fat in the liver.
 - Liver structure showed signs of increased fat but no damage or inflammation.
- **Oxidative Stress:**
 - Methomyl did not increase liver oxidative stress.
 - Levels of protective molecules like glutathione were higher.

Conclusion

Methomyl exposure affects the liver by increasing fat buildup and changing how the body processes sugar. These changes can happen without causing immediate liver injury. Understanding these effects is important for assessing the potential health risks of methomyl and similar chemicals. Further studies are needed to explore long-term impacts and mechanisms.

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