Lead and home-grown produce in Port Pirie

Eating home and locally grown produce can be a source of lead exposure which, together with other sources of lead exposure around Port Pirie, can cause elevated blood lead levels. There are some simple things you can do to reduce or prevent this source of exposure.

Why is home-grown produce a concern?

Food grown or produced in Port Pirie may contain lead. There are many benefits growing and producing food at home, but eating produce that contains even small amounts of lead can be a health risk. This risk is easily avoided by choosing commercially-produced vegetables, fruit and eggs, or produce grown outside of Port Pirie.

Pregnant women and young children should avoid eating home-grown produce (including eggs) from Port Pirie. This is especially important if the produce makes up a large part of their diet.

Is there lead in my soil?

You should assume that all soil in Port Pirie contains some lead. Levels vary considerably across the city depending on wind direction, distance from the smelter and soil depth. The highest soil lead levels are generally in the areas closest to the smelter.

How do plants get contaminated?

Plants can become contaminated by lead in the air and soil in the following ways:

- Lead in the air is the greatest risk for plants in Port Pirie, especially leafy vegetables like lettuce and spinach. Dust containing lead can land on plants, contaminating the leaves and allowing small amounts of lead to be absorbed or taken up into the leaves and move into other parts of the plant.
- Lead in the soil can stick to the edible roots of plants (e.g. carrots) or can dissolve into moisture in the soil and be taken up by the roots. Lead-contaminated soil can also be stirred up by the wind, by digging or weeding, and contaminate nearby plants.

What produce is most likely to contain lead?

The risk of being exposed to lead from eating home-grown produce depends on the type of plant, which parts you eat and how much of the plant you eat.

- Leafy vegetables (e.g. lettuce, spinach, cabbage, silver beet, cauliflower, broccoli and herbs) have large surfaces that are easily contaminated with dust containing lead that is difficult to wash off their leaves. It is recommended that you do not grow these vegetables in Port Pirie.
- Root and tuber vegetables (e.g. potatoes, carrots, beets and radishes) can take up lead from the soil into the edible flesh, while the vegetable skin can be contaminated from the soil they are grown in. You can eat these vegetables if they are grown in clean soil and the skins are peeled.
- Fruiting vegetables (e.g. beans, tomatoes and zucchini) tend to have lower lead levels than leafy, root and tuber vegetables but skin can be contaminated by lead dust, so you need to wash or peel produce before use.

What other produce may contain lead?

Eggs can also contain low levels of lead if chickens forage or are housed in areas with contaminated soil or plants, or if they are fed contaminated scraps or drink rainwater. Other foods (e.g. honey, mushrooms and nuts) grown or produced in Port Pirie can also contain lead. It is important to remember this if you are buying any food products from local markets or swapping produce with friends that may be consumed by pregnant women or young children.

Are there national standards or maximum levels for lead in food?

Food Standards Australia and New Zealand (FSANZ) lists the requirements for food sold in Australia, including the maximum level of contaminants allowed in food in the Australia New Zealand Food Standards Code. The FSANZ Food Standards Code for Contaminants and Natural Toxicants can be found on the Federal Register of Legislation website.

How can I reduce the amount of lead in my home-grown produce?

In the garden:

- Growing leafy vegetables (e.g. lettuce, spinach, cabbage, silver beet, broccoli and herbs) is not recommended.
- Produce should be grown in raised garden beds with clean soil (at least 30 cm above the natural soil level) keeping in mind:
  - Shallow-rooted plants (e.g. capsicums, beans, garlic, celery and radishes) do not require as deep soil or containers as medium-rooted plants (e.g. tomatoes, zucchinis and cucumbers) – which need to be grown in deeper soil, barrels or tubs.
  - Soil pH should be as high as practical. Adding lime can reduce the amount of lead plants take up from the soil but may affect plant growth above pH 6.5.
  - Add organic matter (e.g. commercial compost and mulch) to help reduce the uptake of lead by plants. However, do not use lawn clippings, plants grown locally or local chicken or horse manure for compost because these may contaminate the clean soil with lead.
- If raised garden beds are not available, you should remove and dispose of old soil and place a permeable fabric barrier (e.g. geotextile fabric) into the hole and fill with uncontaminated new soil. The barrier will help stop old contaminated soil mixing with new soil.
- Soil should be replaced regularly because it can be re-contaminated over time by lead emitted from the smelter and from contaminated dust and soil blowing around the area.
- Water regularly with mains water to encourage root growth into clean soil.
- Rainwater should not be used to water vegetables or as drinking water for chickens because it is likely to contain lead.
- Do not grow produce around the drip line of your house or shed as soil in these areas can have the highest lead levels.
- Put a wind break around plants (e.g. a solid barrier or shade cloth) to reduce the amount of lead dust blowing onto plants.
- Cover bare soil in your yard with non-edible plants, grass, pavers, pine chips, mulch or gravel to create a barrier between soil and children.
- Wear gloves when you are gardening and take off your shoes and gardening clothes before going inside. Gardening clothes should be washed separately to other clothes.
- Wash and dry your hands and the hands of children after being in the garden.

Preparing food:

- Wash all produce before storing, cooking or eating
  - Washing in a mixture of water and vinegar (10mL vinegar with 1L water) is the best way to remove surface lead.
  - Rinsing only removes a small amount of contamination
  - Detergent washing only removes some of the surface lead and is not as effective as a water vinegar wash.
- Peel fruit and vegetables (including zucchini and cucumber) to remove contaminated skin. This is especially important for root vegetables (eg carrots and potatoes).
- Remove and discard the outer leaves of plants before bringing inside.

Keeping chickens:

- It is recommended that chicken enclosures (particularly where chickens are fed) have concrete floors covered with sawdust or straw litter that is replaced every 6-9 months. Outdoor free-ranging areas should also have clean soil (to a depth of approximately 30 cm) that is replaced at least every 2-3 years if you live in a suburb close to the smelter.
- Non-commercial chicken feed (e.g. home-grown vegetable scraps, plant or lawn clippings) and rainwater should not be given to poultry as they may be contaminated with lead.

Do I need my soil tested?

Staff at the Environmental Health Centre (Telephone: 08 8638 4100) can tell you more about how to be lead-aware when gardening, or digging soil, and how often you should replace soil in vegetable gardens or chicken enclosures. Soil testing can be arranged privately through a laboratory accredited to test for lead by the National Association of Testing Authorities. Laboratories can be found in the Yellow Pages under Analysts. Your soil may need to be tested regularly because lead levels in soil change over time.

DO:

- Wash ALL produce before eating
- Peel fruit and vegetables
- Remove and discard outer leaves of produce
- Use raised garden beds with clean soil
- Add organic compost matter that is not locally grown
- Cover bare soil
- Choose produce that has been grown outside of Port Pirie for a healthy balanced diet if you are pregnant or feeding young children

DONT:

- Grow and eat leafy vegetables
- Grow produce around the drip line of home
- Use rainwater on vegetables

Scan the QR code to view more information from the Environmental Health Centre on being lead-aware in Port Pirie.

For more information

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