Rosh Pinah zinc

RPZC LEAD MANAGEMENT PROGRAMME

RECIPE BOOK

- The following recipes are filled with nutrients and minerals suitable for reducing Lead levels in the body
- Try them and change them around, as long as the ingredients remain the same
- If some ingredients are not available, try alternatives that carry the same nutrient/mineral value

Source: recipes obtained from https://leadalliance.com.au/health-risks-and-prevention/diet-lead-absorption/

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RECIPES WITH IRON

1. Spinach Omellete
2. Peanut Butter Bread
3. Vegetable lasagna
4. Scrambled eggs
5. Cottage pie

- Iron supports transport of oxygen in red blood
- Lead acts like iron in the body, allowing it to use the same "gates" to enter the body
- When there is enough iron in the body, the body prioritizes it, and lead absorption decreases

1. SPINACH OMELLETE

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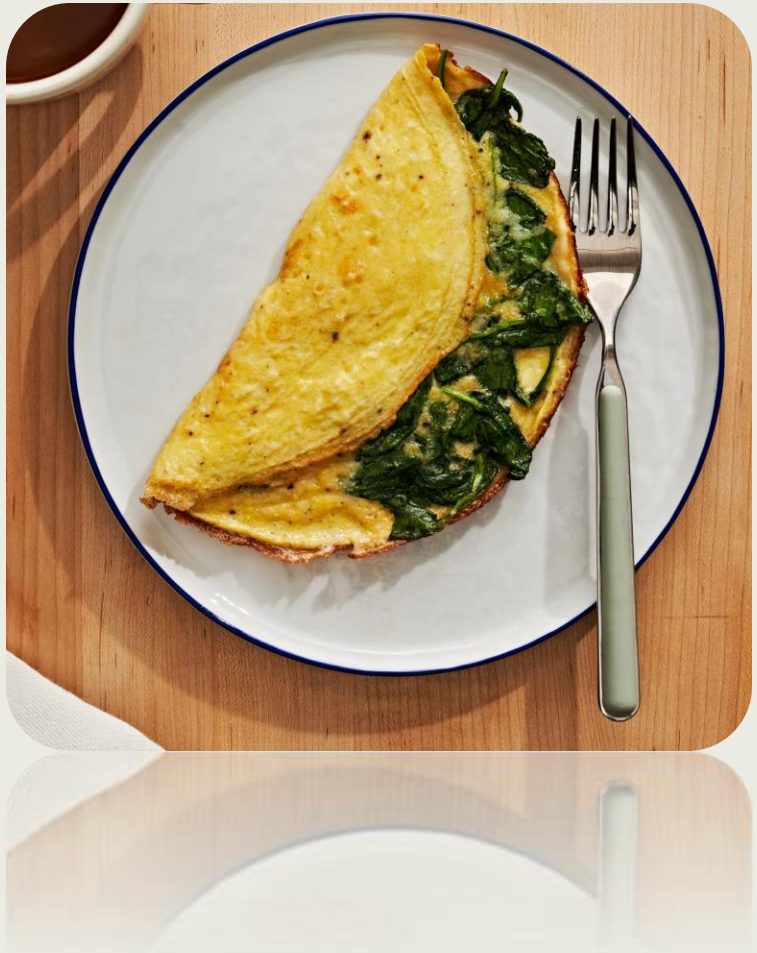
Ingredients:

- 400g fresh spinach
- 1/2 onion, diced small
- 4 large eggs
- salt and pepper
- 2 blocks of butter



Instructions:

- Wash and put the spinach in salted boiling water for approximately 5 minutes. Drain and squeeze dry.
- Melt one block of butter in frying pan on medium heat and fry the onions until golden, remove and mix with the spinach. Season with salt and pepper.
- Beat the eggs in a small bowl. Melt the remaining butter on a medium heat in the frying pan. Pour in the eggs, stir them with a fork as they cook for the first minute.
- Lower the heat and add the spinach to the omelette, stir twice then leave mix to cook and set.
- Serve and enjoy.

Ingredients/food items containing Iron in this recipe (highest to lowest):

- Spinach – highest amount of iron
- Egg yolk – small amounts of iron
- Onions – very small amounts of iron

2. PEANUT BUTTER BREAD

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Ingredients:

- 2 cups whole-meal flour
- 1/3 cup sugar
- 1 egg
- 2 tsp baking powder
- 1 pinch salt
- 1 cup low fat milk
- 3/4 cup creamy peanut butter
- Jam or marmalade, optional

Instructions:

- In a bowl, combine flour, sugar, baking powder and salt.
- Add egg, milk and peanut butter, stir until just combined.
- Pour mixture into greased loaf tin.
- Bake at 160c for 50—60mins or until a toothpick inserted comes out clean.
- Cool for 10mins before removing from tin. Serve with jam.

Ingredients/food items containing Iron in this recipe (highest to lowest):

- Whole-meal flour and Peanut butter – highest amount of iron
- Egg yolk – small amounts of iron
- Milk, sugar, etc. – very small amounts of iron

Note: If you are unable to bake the bread, you can simply put peanut butter on brown or wholewheat bread and enjoy it with a glass of fresh juice

3. VEGETABLE LASAGNA

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Ingredients:

- Wholemeal lasagne sheets or pasta (macaroni or spaghetti)
- 2 carrots diced
- 2 celery sticks diced (if available)
- 440g tin mixed beans
- 1 onion diced
- 1 zucchini diced (if available)
- 1 large tin tomatoes
- 2 tbsp mixed herbs/spices
- crushed garlic
- 3 cups of grated cheese
- Cooking oil

Instructions:

- Combine oil, and vegetables - tomatoes, beans, garlic and herbs/spices in a large pan, simmer until combined and sauce is thick.
- Grease the baking dish and cover base with lasagne sheets or pasta, spread some of the vegetables mix over lasagne and top with cheese.
- Add another layer of lasagne sheets and repeat with vegetables and cheese for two more layers, finish with cheese.
- Bake in oven at 180'C for 30 to 40 minutes, serve with salad.

Ingredients/food items containing Iron in this recipe (highest to lowest):

- Mixed beans and combined veggies – highest amount of iron
- Cheese – small amounts of iron

Note: You may use macaroni or spaghetti if you do not have lasagna sheets. You may also add other vegetables such as spinach.

4. PAN-SEARED LIVER WITH MASHED POTATOES

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Ingredients:

For the Liver & Onions:

- 450g Beef liver, sliced into ½-inch strips
- 2 cups of milk (for soaking)
- 2 large Yellow onions, thinly sliced
- ½ cup All-purpose flour
- 4 tbsp Butter (split)
- 1 tbsp Cooking oil
- Seasonings: 1 tsp salt, ½ tsp black pepper, ½ tsp garlic powder

For the Mashed Potatoes:

- 700g potatoes, peeled and cubed
- 3 tbsp Butter
- ½ cup Milk (warmed)
- Salt and pepper to taste

Instructions:

- Rinse the liver with water and cover with milk in a plate - soak for 30 minutes to reduce bitterness.
- Cut potatoes into blocks and cook in salted water for 12–15 minutes until soft.
- Fry onions in butter with a pinch of salt for 8–10 minutes until golden.
- Separately drain potatoes, add butter and warm milk, and mash until smooth.
- Drain the liver from the milk and fry in oil for about 2 minutes per side until browned and ready.
- Add cooked onions to the liver and fry together.
- Serve on a plate with the mashed potato and enjoy.

Ingredients/food items containing Iron in this recipe (highest to lowest):

- Liver– highest amount of iron
- Potatoes and onions – small amounts of iron

5. COTTAGE PIE

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Ingredients:

- 2 teaspoons of oil
- 400g lean beef mince
- 1 carrot, grated
- Peas and corn, use vegetables you have
- 1 x 250g can of diced tomatoes or fresh tomatoes cut up.
- 1 medium onion, chopped
- 1 beef stock cube in ½ cup of hot water
- 600g peeled potatoes
- ¼ cup milk

Instructions:

- Heat oil in non-stick fry pan, add mince and fry for 5 minutes until browned. Stir in carrots, tomatoes, peas, carrots, onion, tomato paste and stock. Reduce heat, cover and cook, stirring often for 15 minutes.
- Chop potatoes, place in saucepan and add water to cover. Boil for 10 minutes then drain off the water. Add milk to potatoes and mash.
- Place mince mixture into a casserole dish and arrange mashed potato over the top.
- Grill in the over for 2 -3 minutes or until the potato is golden brown and serve.

Ingredients/food items containing iron in this recipe (highest to lowest):

- Beef mince – highest amount of iron
- Vegetables (potatoes, carrots, onions, tomatoes etc.) – small amounts of iron

6. SCRAMBLED EGGS

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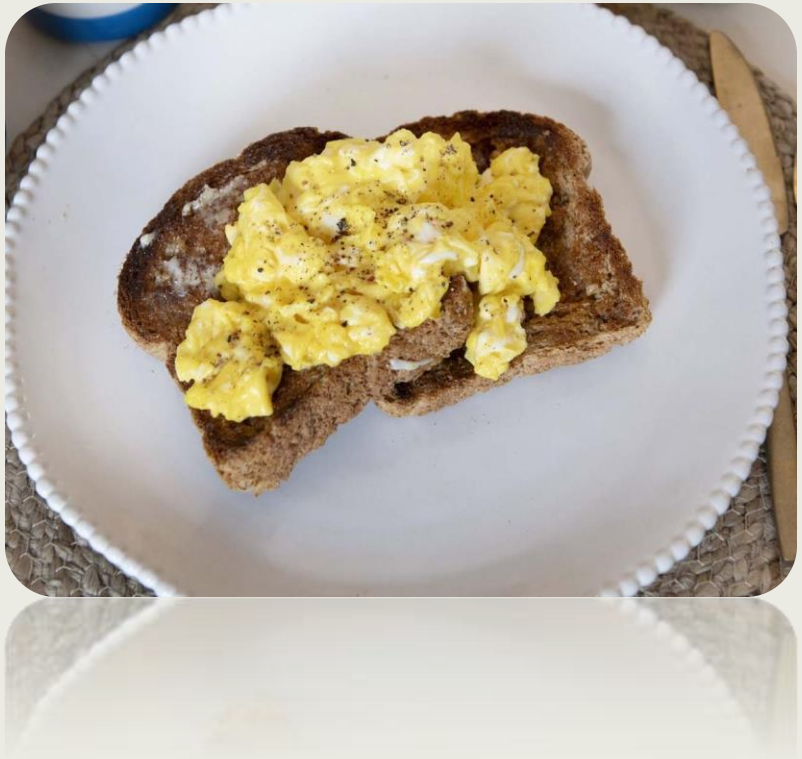
Ingredients:

- 4 eggs
- 1/4 cup milk
- 1 tbsp margarine/butter
- Salt and pepper
- 4 slices brown or whole grain bread
- Sprinkle of parsley



Instructions:

- Use a fork to whisk the eggs and milk together and season with salt and pepper.
- Melt the margarine or butter in a small non-stick frying pan. Once foaming, pour in the eggs.
- Use a wooden spoon to stir for 4-5 minutes or until almost set.
- Remove pan from heat.
- Meanwhile, toast then butter the bread, top with scrambled eggs, sprinkle with parsley and serve.

Ingredients/food items containing Iron in this recipe (highest to lowest):

- Eggs – highest amount of iron in this recipe
- Whole grain or brown bread and parsley– small amounts of iron

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RECIPES WITH CALCIUM

1. Spinach Omellete
2. Peanut Butter Bread
3. Vegetable lasagna
4. Scrambled eggs
5. Cottage pie

- Eating calcium-rich foods protects the body against lead by reducing its absorption in the stomach and preventing it from being stored in bones.
- When calcium levels are high, the body binds with calcium, leaving less room for lead to be absorbed.

1. FRUIT YOGHURT SMOOTHIE

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Ingredients:

- 200g tub fruit yoghurt (any of your choice)
- 1/2 cup milk
- 1/2 cup chopped strawberries or blue berries, or other fruits (mango, banana, grapes)

Instructions:

- Blend ingredients together until smooth.
- Pour into a chilled tall glass and serve with a straw.
- Kids will adore slurping other fruit flavours such as banana, pineapple, peaches, apricots and fresh mango.
- Try freezing this mixture in ice cube trays for icy treats.

Ingredients/food items containing calcium in this recipe (highest to lowest):

- Milk and yoghurt– highest amount
- Fruits (strawberries, blue berries, or other fruits such as mango, banana, grapes) - small amounts

2. CHICKEN WRAPS

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Ingredients:

- 10g Butter
- 400g chicken thigh fillets, cut into strips
- 1 tablespoon BBQ sauce
- 2 tablespoons tomato sauce
- 1/4 cup tomato puree
- 8 tortillas/wraps, warmed
- 8 lettuce leaves
- 2 tomatoes, chopped
- 1/2 cup grated cheddar cheese

Instructions:

- Heat butter in a frying pan and cook chicken in batches until golden and cooked through.
- Return all chicken and juices to pan and add sauces and tomato puree. Cook until thickened slightly.
- Top warm tortillas/wraps with lettuce, chicken, tomatoes and cheese and roll up and serve.

Ingredients/food items containing calcium in this recipe (highest to lowest):

- Cheddar cheese and butter – highest amount of calcium
- Chicken fillet, lettuce and tomatoes– small amounts of iron

3. CABBAGE, BACON & POTATO SOUP

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Ingredients:

- 1/2 white cabbage, shredded or cut small
- 250g bacon, diced
- 1 onion, diced
- 1 carrot, diced
- 2 large potatoes, peeled, cut into chunks
- 1 tablespoon cooking oil
- 6 cups chicken stock/soup
- 1 x 400g can beans of your choice
- Salt and pepper

Instructions:

- Heat oil is large saucepan over medium heat, add onion and bacon, cook stirring for 3 minutes.
- Add carrot, cabbage and potatoes cook for 2 minutes.
- Add stock and beans, reduce heat and simmer for 15 minutes until potato is tender.
- Season with salt and pepper. Serve. Serves 4-6.

Ingredients/food items containing calcium in this recipe (highest to lowest):

- Beans, cabbage – highest amount of calcium
- Vegetables (potatoes, carrots, onions) – small amounts of calcium

4. MACARONI CHEESE

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Ingredients:

- 2 cups uncooked macaroni
- 2 carrots, grated
- 1 tbsp margarine/butter
- 3 cups milk
- 4 tbsp wholemeal flour
- 1 tsp mustard (optional)
- 1 and 1/2 cups grated cheese
- 1/2 cup dried breadcrumbs (optional)

Instructions:

- Cook macaroni in boiling water until soft, drain and set aside.
- Melt margarine/butter in saucepan, add grated carrot and cook for 2 minutes.
- Add flour and stir to form a paste, slowly add milk while stirring to a thick sauce.
- Add mustard and cheese, stir and cook over low heat until cheese is melted, Stir in the macaroni then pour into a baking dish.
- Sprinkle with breadcrumbs and bake at 180°C for 20minutes. Serve with salad or vegetables.

Ingredients/food items containing calcium in this recipe (highest to lowest):

- Milk and Cheese – highest amount of calcium
- Carrots and macaroni – small amounts of calcium

5. CREAMY RICE PUDDING

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Ingredients:

- 1 cup dry or cooked rice
- 1 and 1/4 cups skim milk powder or fresh milk
- 1/4 cup brown sugar
- 2 tsp vanilla essence
- 4 cups water

Instructions:

- Combine all ingredients in a large saucepan.
- Bring to the boil, stirring often.
- Reduce heat to low and simmer gently for 1/2 an hour, stirring often.
- Serve hot or cold with fresh fruit or raisins.

Ingredients/food items containing calcium in this recipe (highest to lowest):

- Milk – highest amount of calcium
- Rice– small amounts of calcium

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RECIPES WITH VITAMIN C

- Spinach Omellete
- Peanut Butter Bread
- Vegetable lasagna
- Scrambled eggs
- Cottage pie

- Foods with Vitamin C protect the body against lead by reducing its absorption in the intestines and helping the body remove it
- Vitamin C works with calcium and iron to lower the amount of lead the body takes in.
- As an antioxidant, it helps protect cells from damage caused by heavy metals.

1. FRESH FRUIT SALAD

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Ingredients:

- 1 red apple
- 1 mandarin/naartjies/orange
- 1 kiwi fruit (optional)
- Pineapple pieces (canned is fine too)
- Fresh strawberries or grapes

Instructions:

- Chop all fruit into chunks and mix together in a bowl and serve
- Try adding your choice of juice or yoghurt to your fruit salad
- Use whatever fruit is cheap and in season, e.g. apples, oranges, bananas, pears and mangos.

Ingredients/food items containing Vitamin C in this recipe (highest to lowest):

- Mandarin / orange (naartjie), Kiwi fruit, Strawberries and pineapple – highest amount of Vitamin C
- Apples and grapes– lower amounts of Vitamin C

Note: You can mix and match the fruits. Focus on the fruits in season.

2. TOMATO SOUP

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Ingredients:

- 1/4 cup margarine/butter
- 1/4 cup flour
- 1 tsp curry powder
- 1/4 tsp onion powder or onion spice
- 1 can tomato juice (optional)
- 1/4 cup sugar

Instructions:

- Melt margarine/butter in a large saucepan. Stir in flour, curry powder and onion powder/spice until smooth.
- Gradually add tomato juice and sugar.
- Cook uncovered, until thickened and heated through, serve with wholegrain or multigrain bread.

Ingredients/food items containing Vitamin C in this recipe (highest to lowest):

- Tomato juice, puree and fresh tomatoes – highest amount of Vitamin C
- Curry powder, onion powder/spice – small amounts of Vitamin C

Note: *You can blend tomatoes to replace tomato juice*

3. VEGETABLE AND TUNA PASTA

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Ingredients:

- 500g packet of pasta of your choice
- 1 tsp crushed garlic,
- 2 onions, diced
- 1 green pepper, diced
- 3 carrots, peeled and diced
- 2 celery sticks, diced (optional)
- 1 tsp dried mixed herbs
- 2 tbsp tomato paste
- 2 x 400g tins whole peeled tomatoes (fresh tomatoes are fine too)
- 1 425g tin tuna
- 1 cup frozen corn/maize
- Cooking oil for greasing baking dish
- 1 and 1/2 cups grated cheese

Instructions:

- Preheat oven to 160ºC.
- Cook pasta according to packet instructions.
- In a large pan, cook garlic, onion, green pepper, carrot, and celery on a medium heat until cooked but still firm.
- Add mixed herbs, tomato paste and tomatoes and cook on a low heat for 2 minutes. Add drained tuna, corn and cooked drained pasta and mix together and place in baking dish, cover with cheese and bake for 20mins until browned and serve.

Ingredients/food items containing Vitamin C in this recipe (highest to lowest):

- Tomatoes (tinned or fresh), green peppers and carrots – highest amount of Vitamin C
- Onions, garlic, corn/maize – small amounts of Vitamin C

4. BEAN & SAUSAGE HOTPOT

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Ingredients:

- 8 thick beef sausages
- 1 tablespoon cooking oil
- 1 onion, chopped
- 1 clove garlic, crushed
- 2 x 400g cans chopped tomatoes (or fresh blended tomatoes)
- 140g tomato paste
- 400g can butter beans

Instructions:

- Heat oil in a large pan over medium heat, cook sausages for 8 minutes until browned, remove from pan and set aside.
- Add onion and garlic to pan, cook stirring for 2 minutes until soft.
- Return sausages back to pan, tomato paste and tomatoes.
- Rinse and drain beans and add to pan, cover and cook over low heat for 20-30 minutes.
- Serve and enjoy. Serves 4-6.

Ingredients/food items containing Vitamin C in this recipe (highest to lowest):

- Tomatoes – highest amount of Vitamin C
- Butter beans, onion, garlic – small amounts of Vitamin C

Note: *You can add cut up potatoes to add more thickness*

5. PUMPKIN PUDDING

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Ingredients:

- 700g pumpkin
- 3 eggs, separated
- 1/2 cup low fat milk
- 1/2 cup cheese, grated
- 1/2 cup raisins

Instructions:

- Preheat oven to 200°C. Lightly grease small oven dish or pie dish.
- Peel, de-seed and cut pumpkin into cubes, place in saucepan of water.
- Bring to the boil, then reduce heat and simmer for 15 minutes until tender. Drain and mash.
- Whisk together egg yolks, milk and cheese, in a bowl, add to pumpkin with raisins. Beat egg whites to soft peaks, add to pumpkin mixture, mix well.
- Place into oven proof dish and bake for 30 minutes until set.
- Serve and enjoy. Serves 4-6.

Ingredients/food items containing Vitamin C in this recipe (highest to lowest):

- Pumpkin– highest amount of Vitamin C
- Raisins, milk, eggs, cheese – small amounts of Vitamin C

Note: *You can use butternut as well instead of pumpkin*

SOME LOCAL FOODS AND THEIR NUTRITIONAL CONTENT

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- Mutete
- 5-years spinach
- Green cabbage
- All kinds of beans Beans
- Nuts e.g. efukwa, peanuts
- Mahangu
- Maize meal
- Mopane worms

See nutritional information on the next pages

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Food item	Nutritional info
Mutete	**High Vitamin C:** Mutete is exceptionally high in Vitamin C (ascorbic acid), which boosts the immune system, promotes healthy skin, and helps in iron absorption. **Rich in Minerals**: It is a valuable source of essential minerals, particularly iron (supporting blood health), calcium (for strong bones), and potassium. **Antioxidants:** The plant contains significant amounts of antioxidants to reduce cellular damage. **Protein and Fiber:** The leaves contain valuable protein and dietary fiber, which aids in digestion and helps regulate blood sugar levels.
5-years spinach	**Vitamin K**: Crucial for blood clotting and bone health. **Vitamin A**: Important for vision and immune function. **Vitamin C**: Promotes immune health and skin collagen. **Folate (B9)**: Important for cell function and tissue growth.
Green cabbage	**Vitamin C** – Boosts immunity, helps heal wounds, improves iron absorption **Vitamin K** – Supports blood clotting and strengthens bones **Vitamin B6** – Helps brain function and energy metabolism **Folate (Vitamin B9)** – Supports cell growth and is important during pregnancy **Potassium** – Helps control blood pressure and supports heart health **Calcium** – Builds strong bones and teeth **Magnesium** – Supports muscles, nerves, and energy production **Iron (small amounts)** – Helps form healthy red blood cells **Dietary Fiber** – Aids digestion, prevents constipation, supports gut health

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Food item	Nutritional value
All kinds of beans Beans (white, black, red etc.)	**Iron** – Helps prevent anemia and supports healthy blood (very important for energy) **Magnesium** – Supports muscles, nerves, and heart health **Potassium** – Helps regulate blood pressure and supports heart function **Zinc** – Supports immunity and wound healing **Protein (plant-based)** – Builds and repairs body tissues (great meat alternative) **Dietary Fiber** – Improves digestion, prevents constipation, helps control blood sugar **Antioxidants** – Protect the body from disease and reduce inflammation **Folate (Vitamin B9)** – Supports cell growth, important for pregnancy and blood health **Vitamin B6** – Helps brain function and energy production **Thiamine (Vitamin B1)** – Helps convert food into energy and supports the nervous system
Nuts e.g. Efukwa and peanuts	**Healthy fats** – Good for heart health and brain function **Protein** – Helps build and repair body tissues **Dietary Fiber** – Supports digestion and gut health **Antioxidants** – Help protect the body from disease Also contains various **Vitamins and minerals**
Mahangu (prepared softly or slightly stiff with savoury sauce and a protein)	**Complex carbohydrates** – Provide long-lasting energy **Dietary Fiber** – Aids digestion and keeps the gut healthy **Protein (moderate amount)** – Helps build and repair body tissues **Antioxidants** – Help protect the body from disease High iron, magnesium, phosphorus, as well as vitamin B variants.

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Food item	Nutritional value
Maize meal (prepared softly or slightly stiff with savoury sauce and a protein)	**Carbohydrates** (main nutrient) – Provides quick energy Minerals such as iron, magnesium and phosphorus for strengthening the immune system.
Mopane worms	High in protein, iron, fiber, calcium and various vitamins
Red meat	High in protein, iron, zinc, fats, and various vitamins
Chicken	Very good source of protein, minerals such as phosphorus and zinc. Also contains various vitamins.

Where to find nutritious food products in and around Rosh Pinah

- Local grocery stores
- Local food stalls in and around town
- Fresh produce vendors
- Fresh produce delivered every week from suppliers such as OMDis
- Individuals who sell meat, chicken and eggs, such as the Obib project, where eggs and chicken can be purchased
- Local butchery

FINAL IMPORTANT NOTES

- Breakfast is the most important meal of the day. A child who does not eat breakfast can absorb up to seven times more lead than a child who does eat breakfast.

- Eat plenty of washed fruit and vegetables. Always wash fruit and vegetables before eating them, especially if grown at home.

- Eating smart means eating less fat. High fat foods cause your body to absorb more lead. Try to eat less of things like butter, cream, takeaway food, cakes and chocolate.

- Watch out for pica. Pica is the habit of eating non-food items such as soil and paint flakes. If your child shows signs of doing this, please provide a clean eating space and discourage them from doing this. If they have been doing this for a long time, discuss this with your doctor as soon as possible, to make a plan to eliminate this habit and reduce the impact.

TALK TO US IF YOU HAVE ANY QUESTIONS, CONCERNS OR SUGGESTIONS:

Suggestion / grievance mechanism:

At Rosh Pinah Zinc, we work hard to be good neighbours and responsible miners. However, concerns will inevitably arise from time to time.

We care about our local communities and take any concerns and suggestions seriously. We welcome feedback to help us improve the way we work.

There is a variety of ways to submit your concerns and suggestions:

- You can scan the QR code on this page, which will take you to a form to fill in.
- Over the phone by calling 063 274 225/238
- In person at any of our community events
- In suggestion boxes at the mine entrance, RoshSkor office in Tutungeni and Police Station

“Eating a balanced mix of these nutritious foods every day is key to keeping individuals, families, and communities healthy and resilient.”

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