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Hypertension:

A nutritional perspective on prevention and treatment

Outline

- Setting that stage
- Risk factors of hypertension
- Reducing the risk factors
- Obesity, balanced meals and portion control
- Salt and Hypertension, hidden forms of salt
- Legislation and manufacturing
- Guidelines to reducing salt intake and substitutes
- DASH diet, Fat recommendation
- Alcohol and hypertension, Exercise
- Positive approach

Setting the stage

- Non-communicable disease (NCD) are on the increase world wide with 35 million deaths – 60 % of all global deaths are caused by NCD (WHO 2008).

- **S**outh **A**frican **D**emographic and **H**ealth **S**urvey **(SADHA)** -1998

  ~ 25 % of adult men & woman had a BP>140/90 mmHg

  ~ Only 26% of hypertensive men & 38% of hypertensive women had their BP controlled

- CVD is the second leading cause of death, after HIV/AIDS.

Setting the stage

- Hypertension is consider the "silent killer" as it can remain asymptomatic and undetected
- Hypertension can contribute to:
  - ~ Heart attacks
  - ~ Strokes
  - ~ Left ventricular hypertrophy
  - ~ Renal disease
  - ~ Blindness
- Up to 80% of heart diseases, stroke and Type 2 DM could be prevented by eliminated risk factors.

Risk factors of hypertension

- Genetic predisposition
- Obesity
- High salt intake
- Low potassium intake
- Smoking
- Excessive alcohol consumption
- Stress and tension
- Physically inactive
- Pregnancy
- Aging

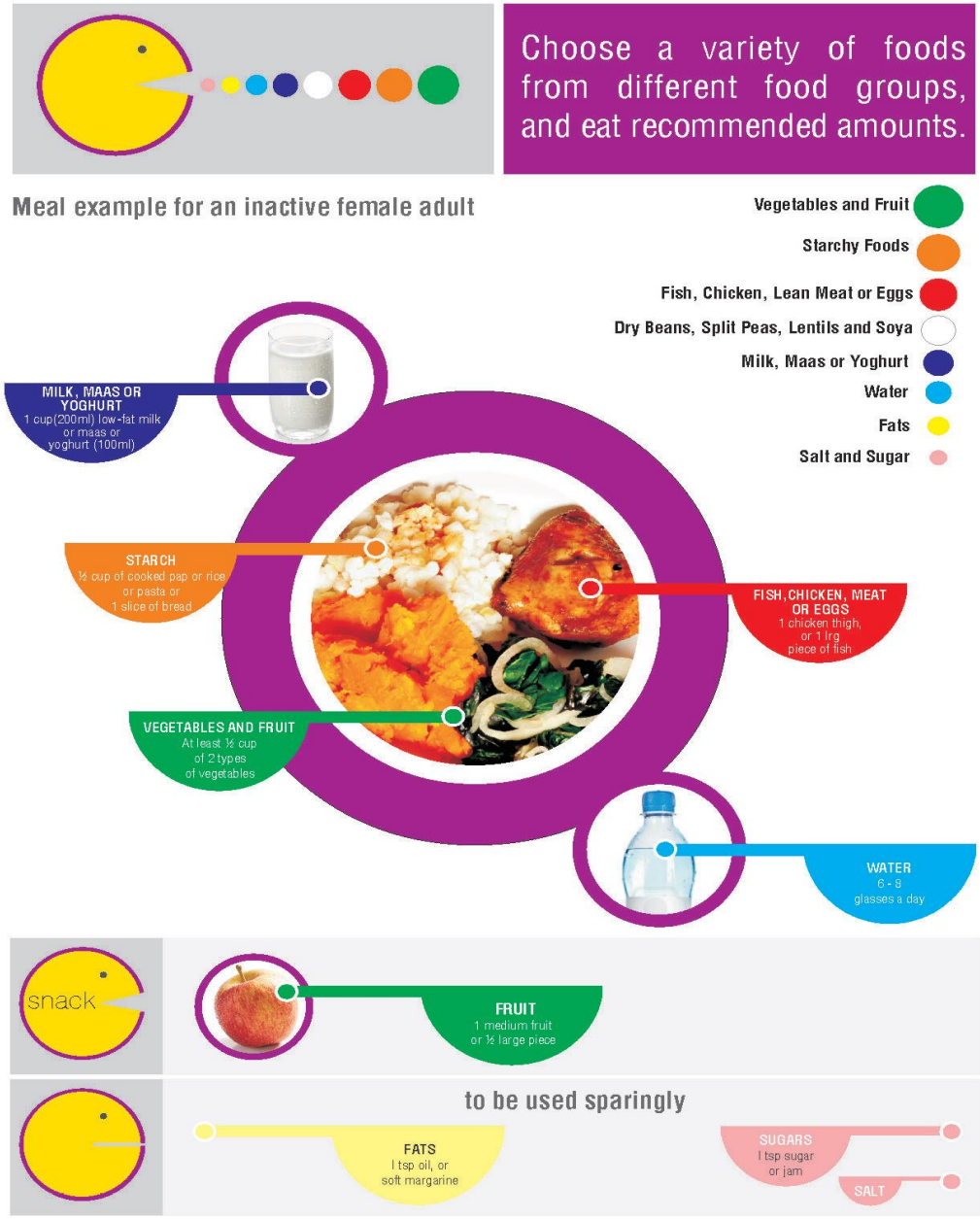
Reducing the risk factors

- The **S**outh **A**frican **N**ational **H**ealth and **N**utrition **E**xamination **S**urvey **SANHNES**(2013).
- **Lifestyle modification**
  - ~ reduce blood pressure
  - ~ reduce the rate at which it progresses with age
- **Interventions**
  - ~ Weight loss (Maintaining optimal BMI)
  - ~ Reduce salt intake
  - ~ Adoption of **D**ietary **A**pproaches to **S**top **H**ypertension diet **(DASH diet)**
  - ~ Regular exercise and limit alcohol intake

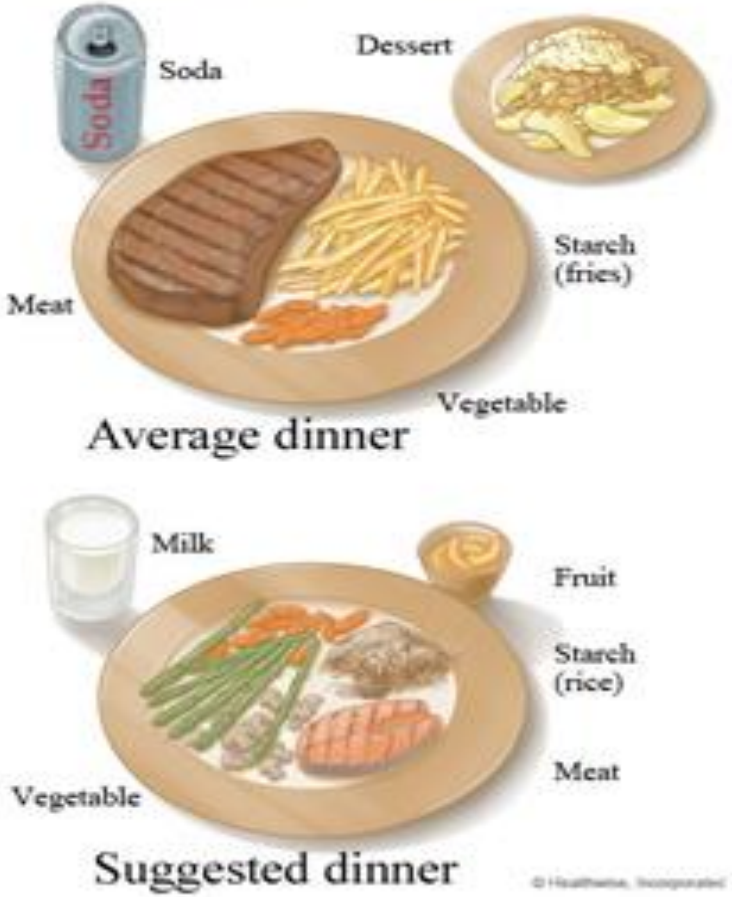
Obesity

- Obesity is defined as

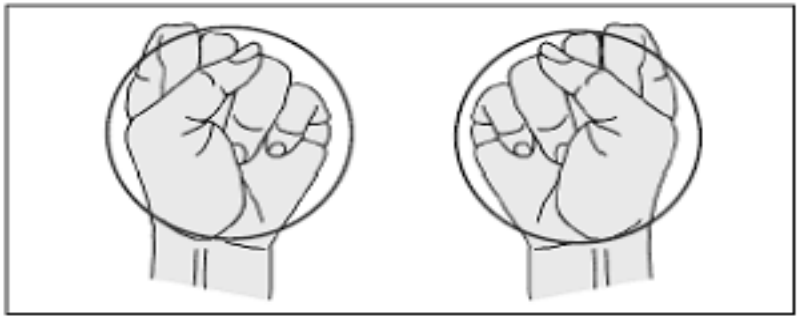
  ~ Body Mass Index BMI > 30 Kg/ m²
- 47.3 % men and 79.7% women with hypertension were obese (SANHNES 2013).
- **SA Food Based Dietary Guidelines (FBDG)**
- Education regarding portion control
- National campaign "Choose your portion with caution"
- Balanced low kilojoule diet ~ low fat and sugar
- Increase physical activity
- When in doubt, refer to a Dietitian!


Choose a variety of foods from different food groups, and eat recommended amounts.
Meal example for an inactive female adult
Vegetables and Fruit
Starchy Foods
Fish, Chicken, Lean Meat or Eggs
Dry Beans, Split Peas, Lentils and Soya
Milk, Maas or Yoghurt
Water
Fats
Salt and Sugar
MILK, MAAS OR YOGHURT
1 cup(200ml) low-fat milk or maas or yoghurt (100ml)
STARCH
½ cup of cooked pap or rice or pasta or 1 slice of bread
FISH, CHICKEN, MEAT OR EGGS
1 chicken thigh, or 1 lrg piece of fish
VEGETABLES AND FRUIT
At least ½ cup of 2 types of vegetables
WATER
6 - 8 glasses a day
snack
FRUIT
1 medium fruit or ½ large piece
to be used sparingly
FATS
1 tsp oil, or soft margarine
SUGARS
1 tsp sugar or jam
SALT

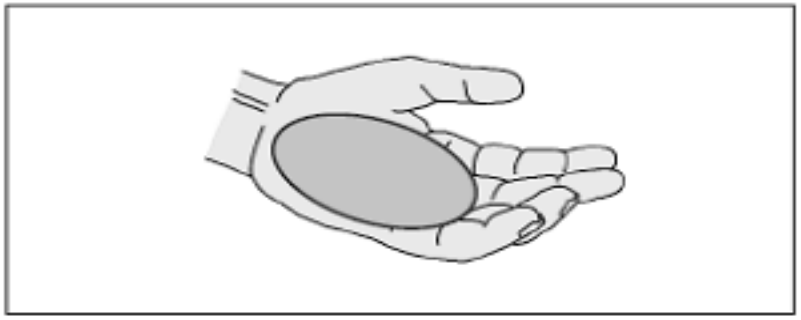
Balanced meals



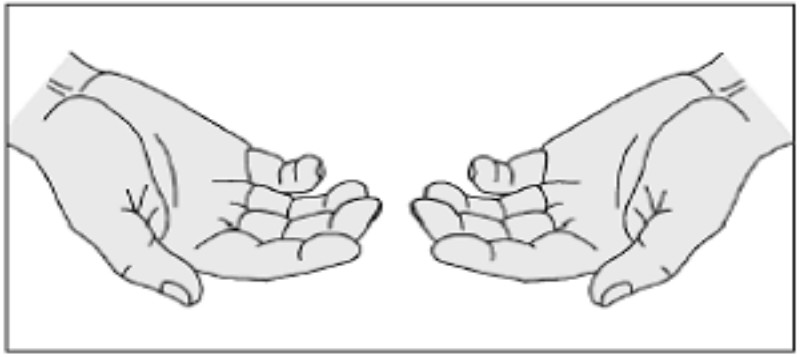
Portion control



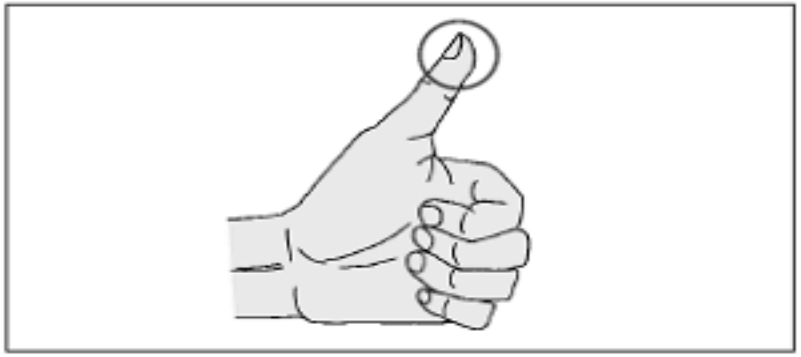
Carbohydrates (starch and fruit): Choose an amount the size of your 2 fists.



Protein: Choose an amount the size of the palm of your hand and the thickness of your little finger.



Vegetables: Choose as much as you can hold in both hands. Choose low-carbohydrate vegetables (e.g. green or yellow beans, broccoli, lettuce).



Fat: Limit fat to an amount the size of the tip of your thumb.

Drink no more than 250 mL (8 oz) of low-fat milk with a meal.

Salts and hypertension

- Na+ is an essential mineral in the diet required in the muscle and nervous system.
- Salt is used to flavour foods, preserve and improve texture and appearance.
- Salt is used for food fortification.
- Excess consumption will elevated blood pressure
- Recommendation: > 5 g/day – 1 tsp of salt (WHO).
- 1 tsp of salt = 2353 mg of sodium
- African descent consumed 7.8 g salt per day.
- Mixed race ancestry consumed 8.5g salt per day.
- European descent had the highest intake at 9.5 g of salt per day. (NSSA 2013)

Salts and hypertension

- Many so-called "health foods" are high in sodium
- Most of the salt in our diet is found in processed foods.
- Bread is the single highest contributor to the total salt intake of South Africans, seconded by cereals.
- The WHO sees hypertension as a bigger health risk than smoking.
- A high-salt diet is a leading cause of high blood pressure and high blood pressure is the single most important risk factor for stroke.
- A reduction of salt intake by 2 grams per day reduces cardiovascular events by 20%

A typical SA's daily intake:

	Food item	Sodium content (mg)	Salt content (g)	Teaspoons (tsp) of salt
Breakfast	A bowl (40g) of cornflakes with milk	547	1.4	Almost 1/4
Lunch	A sandwich on white bread with hard margarine (10g), polony (32g) and cheese (30g)	1175	2.9	Almost 1/2
Snack	1 small (40g) packet crisps	427	1.1	Almost 1/5
Dinner	Stiff porridge and boerewors (90g)	2480	6.2	More than 1
TOTAL		**4629**	**11.6**	**Almost 2**
Recommended intake		Less than 2000	Less than 5	Less than 1

Hidden forms of salt

- Apart from added salt at the table and cooking, many of the foods we eat daily contain hidden forms of salt.
- Research has shown that less than 40% of the salt we eat comes from salt that you add yourself, either during cooking or at the table. This means that **MORE THAN HALF** of our salt intake is from processed foods.
- Processed, cured and smoked meats
- Pre-packaged and convenience meals, tinned foods
- Stock cubes and packet soups
- Salty snacks and cheese's
- Hard margarine or salted butter
- Salad dressings, seasonings and sauces

Legislation and manufacturing

- In 2010 the World Health Organization (WHO) and the United Kingdom Food Standards Agency (FSA) jointly convened on "Creating an Enabling Environment for Population-based Salt Reduction Strategies."
- Various stakeholders will need to collaborate to form specific policies to help consumers make appropriate choices to reduce the total sodium content of their diet.

Legislation and manufacturing

- Department of Health - Foodstuffs, cosmetics and disinfectants act (ACT 54 of 1792) – No. R. 214 (2013)
- Reducing maximum sodium content of foods / 100g
- Bread - 400 mg (30 June **2016**)
  - 380 mg (30 June **2019**)
- Breakfast cereals - 500 mg (30 June **2016**)
  - 400 mg (30 June **2019**)
- Snacks - 800 mg (30 June **2016**)
  - 700 mg (30 June **2019**)
- The collaborative effort of DOH with manufactures is will guarantee the success of this national initiative.

Guidelines to reducing salt intake

- **Read labels** and shop smart!
- **Taste** food before adding salt
- **Cook Smart!** If you use salt in food preparation, do not add extra salt at the table.
- **Avoid** known forms a salt and **processed foods**.
- Our taste buds get use to lower salt taste after a few weeks.
- Learn to use herbs and spices instead of salt.

Beef: black pepper, mustard, masala, vinegar, onion and tomato.

Chicken: garlic, ginger, lemon juice, paprika, parsley, curry powder.

Fish: lemon juice, onion, parsley, tomato, white pepper.

Pork: apple, cider, ginger, lime, orange.

Green vegetables: black pepper, lemon juice

Salad vegetables: olive oil, garlic, lemon juice, oregano and yoghurt

Rice: onion, red or green peppers.

What about salt substitutes?

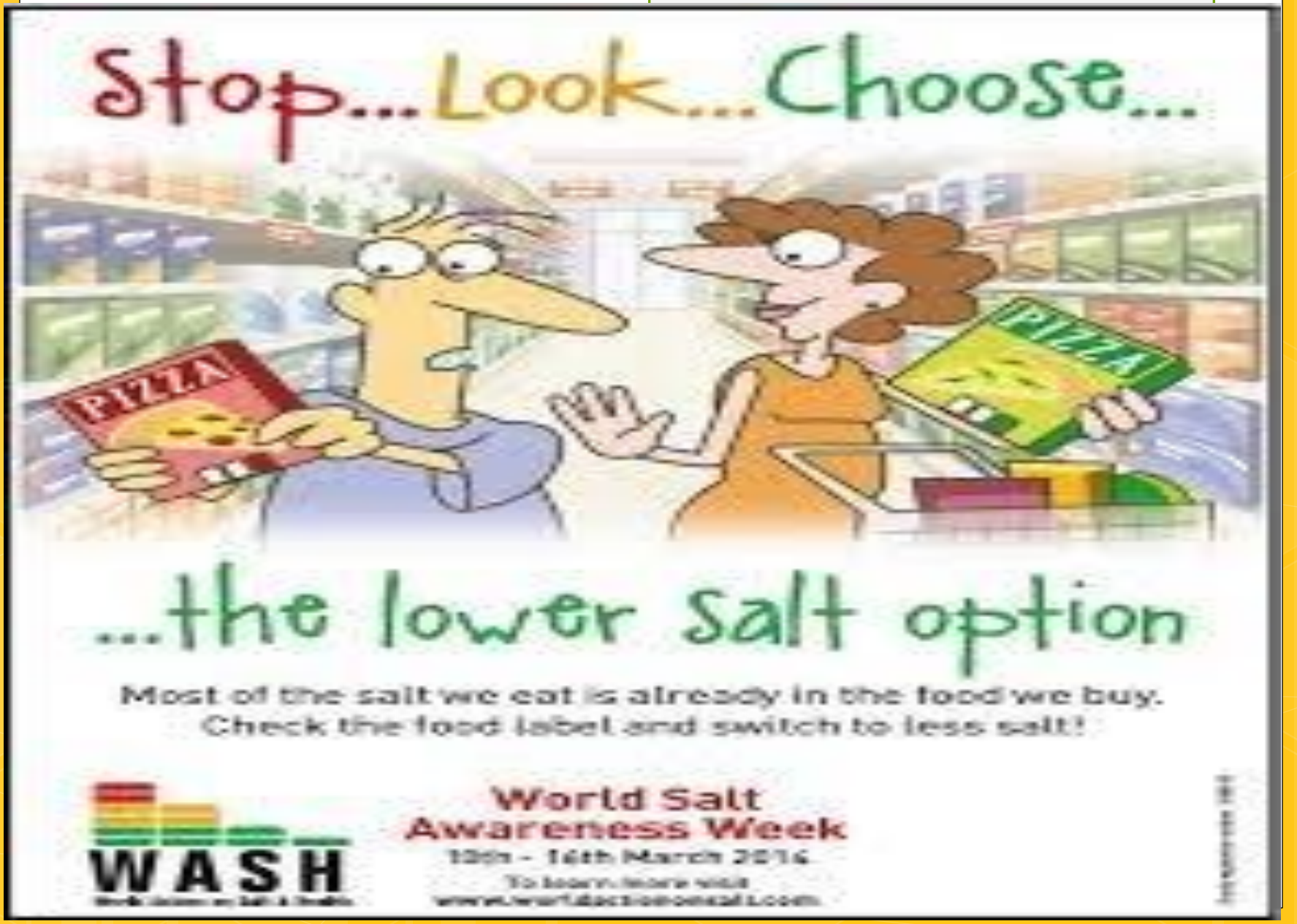
- **Low sodium salts** are available but contain plenty of potassium. Avoid using these products if you are **diabetic, have kidney disease or heart disease** as they may be harmful as a result of impaired potassium excretion.
- **Sea salt**, rock salt and have an equally high sodium chloride content as table and cooking salt.
- **Vegetable salts** like garlic or celery salt are made predominantly of table, rock or sea salt and are combined with small amounts of dried garlic or celery, so are generally high in salt and are not advisable.
- It is best to **wean** yourself off salty foods and allow yourself to adapt to alternative flavours. Hide that salt shaker – don't let yourself be tempted by leaving it on the table!
- Don't allow your **children** to become addicted!

Alternative to salt

- **Recipe**

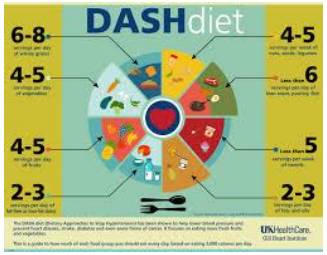
~ 15 ml / 1 Tbsp of dry mustard
~ 15 ml / 1 Tbsp of praprika
~ 15 ml / 1 Tbsp of garlic powder
~ 7 ml / 1½ tsp of black pepper
~ 5 ml / 1 tsp of basil
~ 5 ml / 1 tsp of thyme

Mix it together in a shaker and enjoy!


Stop...Look...Choose...
PIZZA
PIZZA
...the lower salt option
Most of the salt we eat is already in the food we buy.
Check the food label and switch to less salt!
WASH
World Salt
Awareness Week

DASH diet

- DASH diet is found to be more effective for preventing & treating pre-hypertension.
- Is a diet rich in **fruits**, **vegetables**, low fat dairy, low in total fat and in particular **low** in **saturated fats**.
- **5 servings** a fruit and vegetables per day
- Fruit and vegetables must be added at meal times and are the perfect low sodium snack.
- Choose low fat dairy products



DASH diet

- Calorie controlled meals will benefit weight loss or the maintenance of an ideal BMI

~ **Balanced meal and portion control**

- Reducing fat and sugar intake (food and drinks).
- Drink plenty of water and avoid sugar containing drinks
- Limit meat by incorporating some vegetarian meals
- Read labels regarding sodium content

Fat recommendations

May eat	May eat in small amounts	AVOID
Olive oil Canola oil Unsalted nuts Peanut butter Use low fat milk, skimmed milk or fat free	Sunflower oil Tub magarine	Fat on meat & chicken skin Hard magarine Full cream milk Butter , cheece Polony, viennas, take away, pizzas Sausages

Alcohol and Hypertension

- Alcohol interfere with the effectiveness of some blood pressure medication.
- It has empty calorie (low nutrient content) that contributes to unwanted weight gain.
- Causes constriction of the blood vessels and reduces the hearts ability to pump efficiently.
- Can contribute to enlargement of the heart muscle.
- Alcohol maybe consumed in moderation!

Alcohol and Hypertension

- **Alcohol is not recommended for HPT patients**
- **Alcohol consumption-** should be limited to two drinks or less per day

  - A standard drink is defined as:

    1 can (340 ml) of 5% beer

    1 glass (150ml) of 12% wine

    45ml of 40% spirits

Exercise

- Less active people have a 30-50% greater chance of developing hypertension therefore exercise is a form of prevention and treatment
- 2 Meta-analysis of clinical studies show:

~ Walking reduces BP by average of 2% in adults

~ Aerobic exercise on average reduces SBP by 4 mmHg and reduces DBP 2 by mmHg irrespective of weight change

- Recommendations: SAFBDG says "Be active"

~ 30 minutes intensive cardio-vascular activity daily

~ 40 minutes of brisk walking (Seedat & Rayner 2011)

Mineral supplementation

Increased Potassium intakes may reduce BP which lead to reduced stroke mortality.

- Increased dairy Calcium and intake can lead to the reduction in stroke risk
- Peptides from fermented milk products have been shown to act angiotensin converting enzymes which result in a lowered BP.
- Dietary intake of minerals remains the preferred method of intervention verses supplementation .

Positive approach

- **Health education** ~ avoid the negative approach
- Never use the words Can't, Restrict, Never and Diet!
- Food is either **GOOD** not **BAD** ~ Avoid labelling
- Alternatively use words like **"healthy"** or not so **"healthy"**
- Set a good example by embarking on good health choices of your own!

References

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Thank you

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