Nutritious & Delicious

HEALTH MATTERS!

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Inflammation and Diet

What is Inflammation?

Inflammation is the body's attempt at self-protection. It is defined as a localised reaction of tissue to irritation, injury [i.e. to a joint], or infection and is a necessary, normal bodily function. When inflammation occurs, chemicals from the body's white blood cells are released into the blood or affected tissues to protect your body from foreign substances (infection). This release of chemicals (such as histamine & cytokines) increases the blood flow to the area of injury or infection, and may result in redness and warmth. Some of the chemicals cause a leak of fluid into the tissues, resulting in swelling. This protective process may stimulate nerves and cause pain.

Symptoms of inflammation include pain, swelling, red coloration to the area (a cut or sore), and sometimes loss of movement or function (a bone break). Inflammation can either be acute or chronic.

Acute inflammation - rapid onset and quickly becomes severe. Signs and symptoms are only present for a few days, but in some cases may persist for a few weeks and include:

- Bronchitis
- Sore throat
- A Cut or Sore
- Appendicitis

Chronic inflammation - long-term, lasting for several months and even years, resulting from:

- Failure to eliminate whatever was causing an acute inflammation
- An autoimmune response to a self-antigen - the immune system attacks healthy tissue, mistaking it for harmful pathogens.
- Exposure to environmental toxins, a microbial or viral infection, poor nutrition, stress, and processes related to aging.
- A chronic irritant of low intensity that persists such as a food like gluten. **The following conditions are examples:**

- Asthma
- Arthritis
- Chron's Disease
- Psoriasis

Chronic inflammation is activated when the mechanisms of acute inflammation fail to arrest infection or heal an injury. When unchecked, prolonged chronic inflammation generates a series of destructive reactions that damage cells and eventually lead to the clinical symptoms of disease. Ultimately, chronic inflammation is a failure of the body's immune [innate and adaptive] system to maintain a healthy homeostatic state.

Inflammation and Disease

If the mechanisms of innate and adaptive immunity ineffectively combat an infection, prolonged inflammation can result in illness. The progression of chronic inflammation to disease is a complex process involving many different biological pathways. Repeated or uncontrolled inflammatory processes unleash a host of defensive responses, including leukocyte proliferation, angiogenesis, oxidative reactions, and tissue fibrosis, that ultimately disturb the normal function of cells and set the stage for disease development.

With respect to diet and inflammation, certain foods (listed below) have been identified as triggers that can continually affect the immune system - seen in diseases such as diabetes, PCOS and those listed above. These pro-inflammatory foods will increase inflammation, increase your pain from inflammation and may also raise your risk for chronic disease.

Foods that aggravate inflammation:

- Simple sugars e.g. sugar in tea, sweets, syrup etc
- Refined carbohydrates - white pasta, pastries, couscous, cakes, potato snacks etc
- Products with added sugar – juices, sauces, processed foods/ready meals etc
- Red meat
- Alcohol
- Sugary and fizzy drinks e.g. Coke, Squash, Fanta
- Large quantities of fruit, fruit juices, canned fruit
- Processed potatoes e.g. snacks, packet mash, gnocchi,
- Animal fats (Saturated Fats) e.g. dairy, meat fats
- Trans fats and hydrogenated fats
- Caffeinated drinks e.g. tea, coffee, coke, Red Bull, guarana, mate, other stimulating drinks
- Cigarettes/recreational drugs
- Excessive stress

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Foods That May Help Reduce Inflammation:

Complex Carbohydrates: Whole grains, beans and pulses and starchy vegetables are excellent sources of fibre and a high fibre diet can help reduce inflammation. **Good sources include:**

- **Whole grains** - quinoa, whole wheat pasta, amaranth, rye bread, brown rice, pearl barley, wholegrain cereals (no added sugar), porridge, oatcakes.
- **Beans/pulses** - butter, flageolet, soya, kidney, cannellini, aduki, split peas, lentils.

Eat a Rainbow: Brightly coloured fresh fruit and vegetables are important as sources of dietary fibre, which helps the body to remove toxins, improves gut health and encourages regular bowel movement. They are also are packed with vitamins, minerals and plant chemicals [antioxidants] vital for the body to run healthily and efficiently and to help reduce inflammation.

- **Brightly coloured fresh vegetables (at least 3 portions per day)**
  - i.e. rocket, parsley, coriander, carrots, broccoli, courgettes, green beans, onion, leeks, celery, parsnips, beetroot, squash, peas, broad beans, tomatoes.
- **Leafy Greens (at least 3 portions per day)**
  - i.e. kale, spinach, greens, chard, watercress etc.
- **Highly coloured fresh fruit (2-3 portions per day)**
  - i.e. apples, pears, apricots, plums, grapes, strawberries, melon, citrus fruits, berries.

Protein: This is needed by your body to build healthy tissues, support immunity and to make the chemical messengers involved in running the body. Without enough protein some of the body systems may not operate efficiently. Aim to eat protein at every meal or snack and eat a wide variety. **Good sources are:**

- Lean poultry (e.g. chicken, turkey, pheasant), lean game e.g. venison, rabbit.
- Fish and seafood.
- Legumes e.g. chickpeas, lentils, different varieties of beans (pulses).
- Nuts and seeds (unsalted / non roasted), nut butters.
- Soy products such as beans, tofu, and soya milk /yoghurt.

Fats and Oils: Omega-3 essential fatty acids are very powerful anti-inflammatory and immune supporting agents. **You find high amounts in:**

- **Oily fish**: Salmon, trout, anchovy, fresh tuna, mackerel, herring, sardines.
- **Nuts and seeds:** Walnuts, linseeds (flaxseeds) and pumpkin seeds.
- **Oils:** rice bran oil, rapeseed oil, flaxseed oil (flax oil) and walnut oil.
  - Use ONLY olive / coconut oil for shallow (low temperature) frying.

Fermented vegetables and traditionally cultured foods: Optimising your gut flora is important for a well-functioning immune system, and helps ward off chronic inflammation. Fermented foods help reseed your gut with beneficial bacteria. **Good sources are:** kefir, natto, kimchee, miso, tempeh, pickles, sauerkraut, olives etc.

Drinks: It is important to keep well hydrated to keep the body working efficiently. Water is also vital for removing toxins both in the urine and in faeces. Dehydration can make you tired and dizzy and can lead to constipation causing a build up of toxins, which will increase inflammation in the body.

- Replace tea and coffee with herbal teas or water and water down fruit juices.
- Drink 1.5–2 litres of water a day by sipping water throughout the day. Increase as required for exercising and hotter environments.

Herbs and spices: Ginger, cloves, rosemary, turmeric and garlic all have good anti-inflammatory properties.

Please Note: This handout should only be used as a guide to help inform you as to the foods that **may** help to deal with inflammation. It **should not** be used as definitive guide to inflammation, or inflammatory conditions. If you think you may have an inflammatory condition then please contact you medical doctor.