



WAPHA
WA Primary Health Alliance

phn

PERTH NORTH, PERTH SOUTH,
COUNTRY WA

An Australian Government Initiative

Primary Health Network Persistent Pain Program presents



'Turning Pain into Gain'

Welcome to TOPIC FOUR

The role of food in persistent pain



Food is our fuel

- * **Food is the source of energy and nutrients to sustain life**
- * Food helps us to:
 - * **Function (energy, thinking)**
 - * **Grow (bone, skin, blood, muscle)**
 - * **Heal (immunity)**



What type of fuel will you use?

Not all fuels are equal ...

There are different types of fuels...

- * Carbohydrates
- * Fats
- * Proteins
- * (Alcohol)

The other essentials...

- Vitamins
- Minerals
- Antioxidants
- Pre- and probiotics

Glycaemic Index (GI)

LOW GI foods

Carbohydrate absorbs slowly →
better maintains blood sugar levels
E.g. porridge, banana, grainy bread

HIGH GI foods

Carbohydrate absorbs quickly →
fast rise in blood sugar levels
E.g. jelly beans, potato, white bread

Glycemic Index

Low

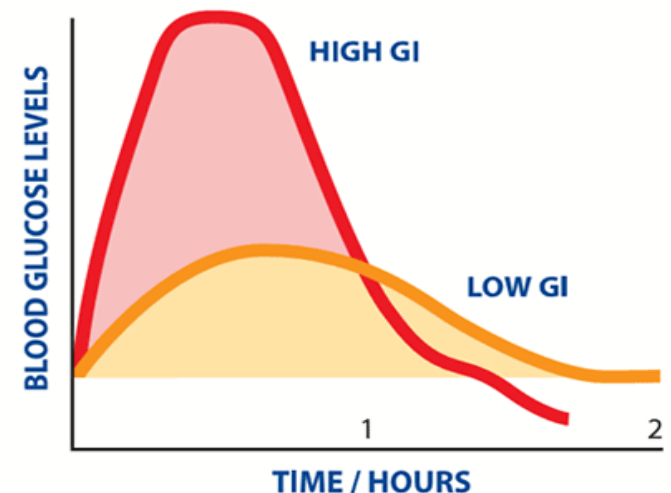
≤ 55

Medium

56 to 69

High

≥70



	Low GI 😊	High GI ☹️
Cereal	Porridge , All bran , Special K Untoasted Muesli	Coco Pops, Quick Oats Cornflakes, Rice Bubbles Sultana Bran, Just Right
Rice, Pasta	Basmati, Doongara, Wild rice Wheat/Wholemeal Pasta Quinoa, Pearl Cous Cous Barley, Semolina	Jasmine rice Brown rice Cous Cous Polenta
Legumes & Lentils	All Dried and Canned	Broad Beans
Starchy Veg	Carisma, Sweet Potato, Corn	White potato
Fruit	Apples, Apricots, Bananas, Berries, Cherries, Orange, Kiwi fruit, mandarin, mango, nectarines, pineapples, plums	Watermelon, Lychee and Rockmelon
Dairy	All dairy products	Condensed milk, Rice Milk
Biscuits	Vita Weat 9 Grain, Ryvita	Rice cakes, corn thins, water crackers
Treats	Arnott's Snack Right Biscuits Low Fat Ice cream Some Chocolate	Sweet biscuits, gelato

Understanding dietary fats

- * **Polyunsaturated fats** – reduce LDL “bad” cholesterol
 - * Oily fish, walnuts, hazelnuts, brazil nuts, sunflower/grapeseed oil, sunflower, tahini, flaxseeds, chia seeds
- * **Monounsaturated fats** – reduce LDL “bad” cholesterol
 - * Olive oil, canola oil, avocado, almonds, peanuts, cashews
- * **Saturated fats** – increase LDL “bad” cholesterol
 - * Animal products, coconut oil, biscuits, chocolate



A word about protein

- * *Every* cell in the body requires protein
 - * Including the immune system!
- * **Plant foods:** legumes/beans, nuts, seeds, *whole* grains, tofu/tempeh
- * **Animal foods:** fish and seafood, yogurt, cheese, milk, eggs, chicken/poultry, red meat

Putting it all together

- * Make it **colourful**
- * Eat plenty of vegetables and legumes, fruits, grains, and protein foods
- * Drink plenty of water



Australian Guide to Healthy Eating

Enjoy a wide variety of nutritious foods from these five food groups every day.
Drink plenty of water.



Use small amounts



Only sometimes and in small amounts



Enjoy a wide variety of nutritious foods from these five food groups every day.

Drink plenty of water.

Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties



Vegetables and legumes/beans



Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans



Milk, yoghurt, cheese and/or alternatives, mostly reduced fat



Fruit



Effect of low quality diet

- * A **low** quality diet includes **highly processed foods and limited fibre, fruits and vegetables**
- * Increases **inflammation** and risk of heart disease and diabetes
 - * Too much energy, not enough vitamins/minerals
 - * Excessive alcohol
 - * Saturated fats
 - * Refined carbohydrates



Anti-inflammatory foods

- Wholegrains
- Vegetables (esp. tomato, dark leafy greens)
- Fruits
- Nuts and seeds
- Oily fish (omega-3 fatty acids)
- Legumes (as meat replacement)
- Fermented dairy
- Extra Virgin Olive Oil (EVOO)
- Garlic (sulfur compounds)
- Onion (quercetin)
- Ginger (gingerol)
- Black pepper (piperine)
- Turmeric (curcumin)
- Green and black tea
- Chilli (capsaicin)
- Cloves (eugenol)
- Rosemary, thyme, oregano
- Cacao (flavanoids)

What's the hype about Omega fats?

Omega-3 Fatty acids

- * Incorporated into cell membranes for flexibility
- * Anti-inflammatory

- * **Humans cannot produce omega-3 fatty acids!**

- * EPA and DHA (mackerel, salmon, sardines, meat and eggs)

- * ALA (flaxseed/linseed, olive, canola, walnuts, dark green veg)

Omega-3 rich foods



SALMON 1,200 –
2,400
mg per 4 oz serving



BRUSSELS SPROUTS 280
mg per cup

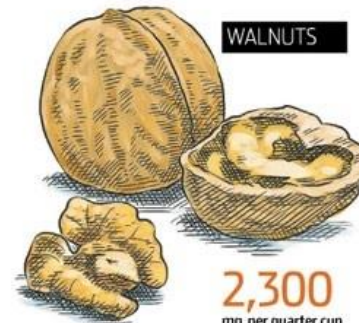


Olive oil



FLAX SEEDS

1,700
mg per tablespoon



WALNUTS

2,300
mg per quarter cup



REGULAR EGG

35
mg each

'OMEGA-3 EGG'

(from specially fed chickens)

75 - 600
mg each

What's the hype about Omega fats?

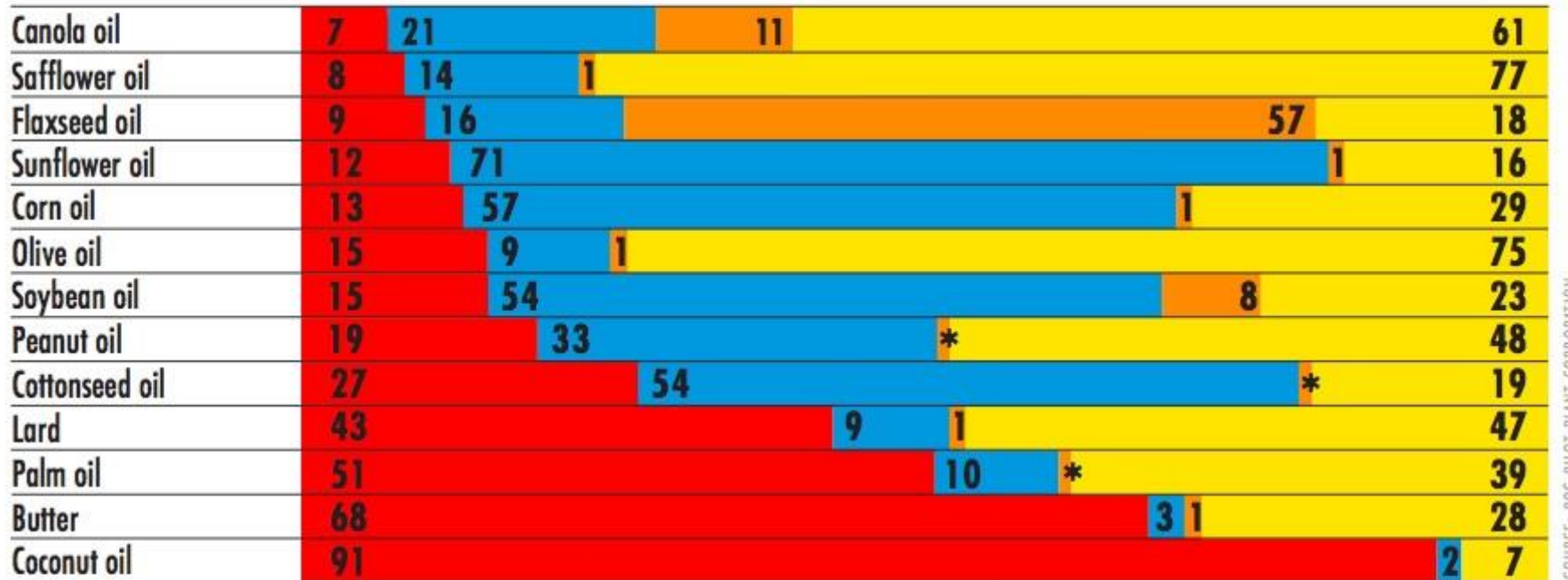
Omega-6 Fatty acids and relationship with omega-3

Omega- 3 : Omega-6



Comparison of Dietary Fats

DIETARY FAT



SOURCE: POS PILOT PLANT CORPORATION

SATURATED FAT



POLYUNSATURATED FAT



linoleic acid
(an omega-6 fatty acid)



alpha-linolenic acid
(an omega-3 fatty acid)

MONOUNSATURATED FAT



oleic acid
(an omega-9 fatty acid)

*Trace

Fatty acid content normalized to 100%

Food group	Food	Serving size	ALA mg/serve
Nuts and seeds	Walnuts	30 g	1,884
	Pecan nuts	30 g	186
	Hazelnuts	30 g	36
	Tahini	30 g	36
	Chia seeds	15 g	2,685
	Flaxseeds or linseeds	1 tsp (4 g)	922
Fats and oils	Canola oil	1 tbs (20 g)	1,820
	Soybean oil	1 tbs (20 g)	1,434
	Vegetable oil	1 tbs (20 g)	1,458
	Olive oil	1 tbs (20 g)	92
	Flaxseed/linseed oil	1 tbs (20 g)	10,918
	Margarine spread, regular polyunsaturated	1 tbs (20 g)	282

Food group	Food	Serving size	ALA mg/serve
Dairy products	Cheddar cheese	40 g	112
	Cheddar cheese, reduced fat	40 g	72
	Cottage cheese	40 g	28
Meat, eggs and poultry	Lamb, lean	100 g	99
	Beef, lean	100 g	31
	Chicken breast, no skin	100 g	10
	Eggs	2 eggs (60 g each)	72
	Omega-3 enriched eggs	2 eggs (60 g each)	240
Breads and cereals	Bread, soy and linseed	2 slices (80 g)	2,480

Benefits of Extra Virgin Olive Oil

- * 75% is monounsaturated fat (Oleic acid) → Reduces inflammation
- * Resistant to heat up to 220°C
- * Choose *extra virgin* for more antioxidants
- * Buy local
- * Harvest and best before dates

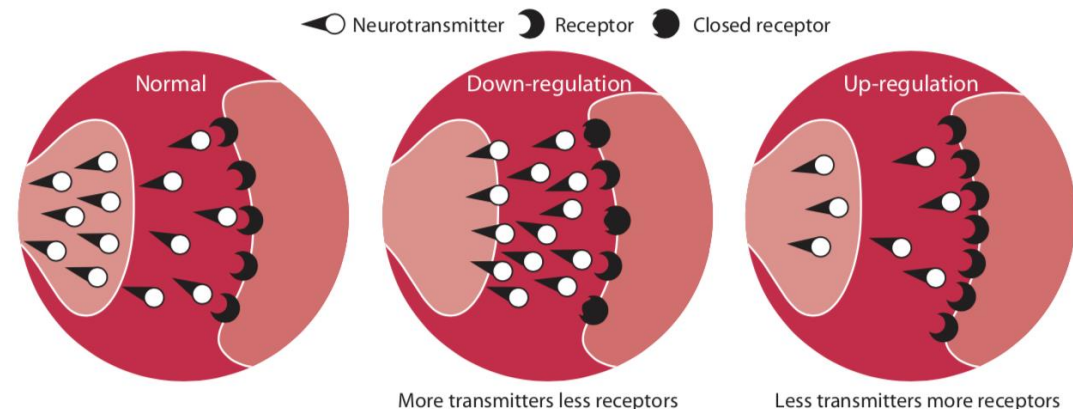


Food and Mood



- **Four neurotransmitters affect mood and behavior**
 - Acetylcholine
 - Serotonin
 - Dopamine/adrenaline/noradrenaline
 - GABA
- **Function:** contentment, anxiety, memory and thinking

- **Foods that trick:**
caffeine, chocolate, excess sugar, refined carbs



Neurotransmitter	Effects of deficiency	Foods to avoid	Foods to consume
Acetylcholine	Deterioration of memory and imagination Fewer dreams Increased confusion, forgetfulness and disorganisation	Sugar Deep-fried food Junk foods Refined and processed foods Cigarettes Alcohol	Organic/free-range eggs Organic or wild fish – especially salmon, mackerel, sardines and fresh tuna*
Serotonin	Low mood Difficulty sleeping Feeling 'disconnected' Lacking joy	Alcohol	Fish Fruit Eggs Avocado Wheatgerm Low-fat cheese Lean, organic poultry
Dopamine	Lacking drive, motivation and/or enthusiasm Crave stimulants	Tea & coffee Caffeinated drinks & pills	Regular, balanced meals Fruits and vegetables high in Vitamin C Wheatgerm Yeast spread
GABA	Hard to relax Can't switch off Anxious about things Irritable Self-critical	Sugar Alcohol Tea & coffee Caffeinated drinks	Dark green vegetables Seeds & nuts Potatoes Bananas Eggs

* Recent and current trends in the fishing industry have led to significant concerns about social, economic and environmental sustainability of fish stocks. If you do eat wild fish, choose only those sources that are certified with the MSC-Label, which ensures your fish came from a sustainably managed source. If you choose to purchase farmed fish, make it organically farmed fish²⁹.

The SMILE trial

- * 67 participants, Mediterranean diet and regular support from a dietitian
- * After 12 weeks there were reductions in depressive symptoms and 30% had remission from depression

Daily Checklist:

- ✓ 5- 8 serves wholegrains
- ✓ 6 serves vegetables
- ✓ 3 serves of fruit
- ✓ 3 serves low-fat dairy foods
- ✓ 1 serve raw unsalted nuts
- ✓ 3 tbsp of olive oil
- ✓ up to 200ml wine (preferably red)

Weekly checklist:

- ✓ 3-4 serves legumes
- ✓ 2+ serves fish
- ✓ 3-4 serves lean red meat
- ✓ 2-3 serves chicken
- ✓ up to 6 eggs
- ✓ Less than 3 serves 'extras' e.g. sweets, refined cereals, fried foods, processed meats, sugary drinks, other alcohol

Antioxidants

- * Cell metabolism produces oxidants
- * The inflammatory response involves these oxidants
- * Antioxidants can mop up oxidants – And have been used for many centuries to reduce inflammation

- * Found in many foods:
 - * Skin of red grapes (red wine)
 - * Skin of blueberries and cherries
- * **Keep your diet COLOURFUL!!**



Anti-inflammatory

Curcumin (Turmeric)

- * Used by Indians for centuries – used to relieve arthritis and swelling
- * It is an antioxidant and anti-inflammatory
- * Try it out in your cooking!



Vitamin B12

- * Part of the B group vitamins
 - * Helps to protect the 'skin' around nerves, supports brain function and red blood cell production
 - * Check levels in blood test
- * Food sources:
 - * Fish, eggs, meat
 - * Dairy products
 - * Fortified breakfast cereals



Nutrients in a bottle or real food?



- * Be wary of the media hype
- * Choose **food first** to obtain your vitamins and minerals
- * If necessary then a high quality supplement **recommended by your doctor** specifically for your needs
- * Need to check medication interactions!

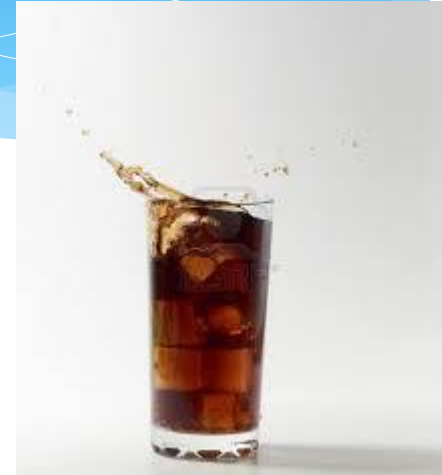


Be aware of caffeine

Cola drinks / chocolate

- * Contain caffeine
- * Stays in body 10-12 hours and may disturb sleep
- * Excessive amounts weakens bones and cause headaches

- * **No more than 2-3 cups of coffee a day**



Foods to limit

Aspartame

- Artificial sweetener
- Classed as an excitotoxin (overstimulate nerve receptors, eventually leading to death of the nerve cells)
- Can stimulate pain
- Try stevia instead if you must have a sweetener

MSG (monosodium glutamate)

- In flavourings
- Classed as an excitotoxin
- Can stimulate pain



Food intolerance / sensitivity

Food chemicals

- * Natural/ added chemicals in food that provide taste, smell and colour
- * Food sensitivity is sometimes seen in fibromyalgia patients, resulting in irritable bowel symptoms

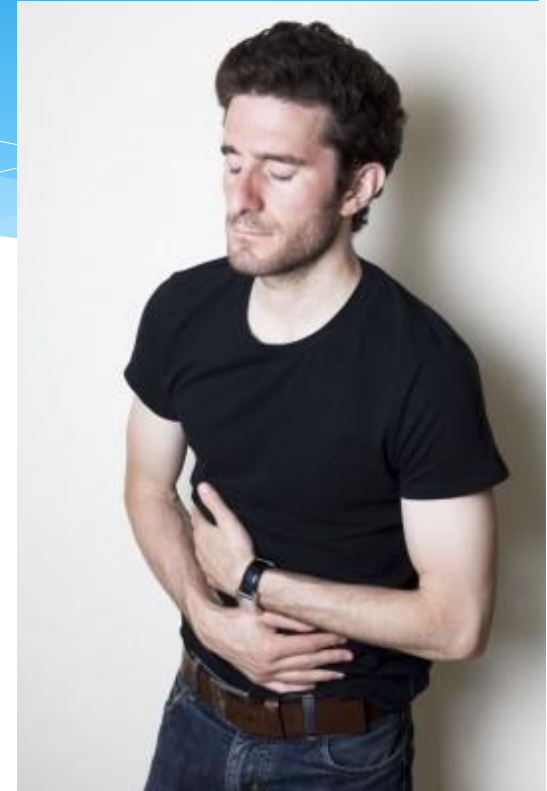
FODMAPS

- * Fermentable carbohydrates
- * Both can irritate the nerves that surround the gut → **amplify** pain sensations
- * Best to speak to your dietitian for individualised advice

Food intolerance / sensitivity:

Some people may get symptoms of:

- * Abdominal cramping/ bloating.
- * Back pain
- * Constipation
- * Diarrhoea
- * Energy loss
- * Fatigue
- * Gas / flatulence
- * Mouth sores or cracks in the corners
- * Muscle cramping (especially in the hands and legs)
- * Weakness and lethargy



Combat Fatigue

- * Meal and food preparation
- * Regular meals and snacks
- * Low GI foods
- * Unlimited vegetables
- * Hydration
- * Limit processed foods
- * Limit caffeine
- * Pay attention to sugar
- * Don't cut out food groups

Swap it!

* Sugar

- * Fruit (e.g. pears or apples) or Stevia
- * Eat fruit and honey in moderation as 'natural' sugar is still sugar



* Salt

- * Flavour with herbs, spices, vinegar, pepper, garlic and onion



* Saturated Fat

- * Use olive oil to cook, spread with avocado/nut butter



Eat well for less

- * Don't buy into the 'healthy' price tag
- * Cook and prepare as much as possible
- * Use lentils to make meat go further
- * Tinned, frozen and seasonal fruit and veg
- * Tinned and frozen fish
- * Herbs instead of packaged sauces



Cheap and nutritious breakfasts

- * High fibre cereals: rolled oats, weetbix/vitabrits, plain muesli
- * Eggs
- * Wholegrain bread
- * Smoothies
- * Peanut butter - no added sugar and salt
- * Baked beans
- * Homemade and wholegrain pancakes
- * Add nuts, seeds, fruit and vegetables where possible!

Cheap and easy lunches

Make your own from:

- * Salads and leaves
- * Tinned legumes/lentils
- * Nuts and seeds
- * Dressings
- * Cheese
- * Avocado
- * Wholegrains (cooked, bread or crackers)
- * Tinned fish

Simple dinners

- * Base on vegetables
- * Meat-free days – legumes!
- * Fishmongers
- * ‘Flavour’ with meat from butchers – lean and slow cook
- * Keep staples in stock: rice, potato, pasta, canned beans/legumes, tinned tuna, frozen veg, buy in bulk, dried herbs



Reading food labels

- * Look at the per 100g column to compare products

Fibre	More than 3-6g per serve
Saturated Fat	Less than 3g per 100g
Sugar	Less than 15g per 100g
Sodium	Less than 400mg per 100g (okay option) Less than 120mg per 100g (best option)

Nutritional Information (Average)

Serving Size - 30g

Servings Per Pack - 30

	Per Serving	Per 100g
Energy (kJ)	447	1490
Calories (Cal)	107	356
Protein (g)	3.7	12.4
Fat, total (g)	0.4	1.4
- saturated (g)	0.3	0.3
Carbohydrate (g)	20.1	67
- sugars (g)	1.1	3.3
Fibre (g)	3.3	11
Sodium (mg)	87	290
Potassium (mg)	102	340
Thiamin (Vitamin B1) (mg)	0.55 (50%)*	1.8
Riboflavin (Vitamin B2) (mg)	0.43 (25%)*	1.4
Niacin (Vitamin B3) (mg)	2.5 (25%)*	8.3
Folate (µg)	100 (50%)*	333
Iron (mg)	3 (25%)*	10
Magnesium (mg)	32 (10%)*	107
Zinc (mg)	1.8 (15%)*	6

Saturated fat < 3g/ 100g TICK

Sugar <15g per 100g

**Fibre > 3g per 100g,
should probably be
>5g/ 100g**

Sodium < 400mg per 100g

Be wary of advertisements!

Reduced fat/salt	25% less fat/salt than the original product of the same brand
Cholesterol free	Does not mean 'low fat'
'Lite' or 'Light'	Does not refer to fat/calorie content – it could be the colour!
No added sugar	No sugars are added – does not mean it is low in sugar
Source of Fibre	>1g fibre/ 100g
High fibre	>3g fibre/ 100g

Resources and Apps

- * Food Switch App
- * Easy Diet Diary
- * Nourishly
- * Am I Hungry?
- * VegEze

- * Glycaemic Index: www.glycemicindex.com
- * Diabetes QLD/Aus
- * Heart Foundation
- * Arthritis Australia
- * Oldways Nutrition www.oldwayspt.org/recipes

- * Most importantly.. your treating team!



THANK YOU!