

GLYCAEMIC INDEX AND THE ATHLETE

You can significantly improve your performance by eating the right mix of complex and simple carbohydrates. Getting the right balance will give you an energy boost just when you need it and it is not as hard to achieve as it might sound. All you have to know is a food's glycaemic index.

What is the glycaemic index (GI)?

Glycaemic index (GI) is a numerical system that tells you how fast a particular food triggers a rise in your blood sugar levels. A food with a high GI will cause a fast rise in blood sugar while a food with a low GI will bring about a slower rise.

Why is this important for the athlete?

Getting the balance between complex and simple carbohydrates right can significantly influence performance.

Many experts recommend a low glycaemic index meal two to four hours before an exercise session. It is thought that the slower, more consistent, release of energy will improve performance by delaying fatigue. It has also been found that low GI meals produce higher blood sugar and fatty acid levels during the latter stages of exercise. For endurance sports, this is very advantageous.

During exercise, when blood sugar levels need to be maintained, one way to achieve this is to drink an isotonic sports drink. This will provide glucose, which is quickly absorbed, fluid and also sodium.

After exercise, however, when muscles' stores of sugar (glycogen) need to be quickly restored, a high GI food is a good choice. This is because the simple sugars contained in a high GI food are rapidly absorbed into the blood stream. In turn, this rapid absorption stimulates insulin release and that results in increased uptake by the muscle cells of glucose and their manufacture of glycogen.

So, knowing the GI of various foods can clearly help you plan your diet in a way that will help to optimise your performance.

Glycaemic index and carbohydrate content of some common foods

Below are three tables (divided into high, moderate and low GI foods) which give the GI values for a range of common foods – use these lists to help you select the appropriate foods for you training/competition preparation.

High GI foods (GI=60-100)

Food	Portion size	Glycaemic index (GI)	Carbohydrate (g) per portion	KCals per portion
Breakfast cereals				
Cornflakes	1 small bowl (30g)	84	26	108
Rice Crispies	1 small bowl (30g)	82	27	111
Cheerios	1 small bowl (30g)	74	23	111
Shredded Wheat	2 (45g)	67	31	146
Weetabix	2 (40g)	69	30	141
Grains/pasta				
Couscous	5 tbsp (150g)	65	77	341
Brown rice	6 tbsp (180g)	76	58	254
White rice	6 tbsp (180g)	87	56	248
Breads				
Bagel	1 (90g)	72	46	241
Croissant	1 (60g)	67	23	216
Baguette	3 inches long (40g)	95	22	108
White bread	1 large slice (38g)	70	18	85
Wholemeal bread	1 large slice (38g)	69	16	82
Pizza	1 large slice (115g)	60	38	288
Crackers and biscuits				
Puffed crispbread	1 slice (10g)	81	7	32
Ryvita	1 slice (10g)	69	7	32
Water biscuit	1 (8g)	78	6	35
Rice cakes	1 (8g)	85	6	28
Shortbread	1 (13g)	64	8	65
Baked potato	1 medium (180g)	85	22	94
Boiled new potato	7 small (175g)	62	27	116

Claire Lane - IOC Diploma Sports Nutrition; BASES Accredited Sports Scientist (Physiology)

Information taken from:

http://www.bupa.co.uk/health_information/html/healthy_living/lifestyle/exercise/diet_exercise/glycaemic.html

Food	Portion size	Glycaemic index (GI)	Carbohydrate (g) per portion	KCals per portion
Vegetables				
Parsnip	2 tbsp (65g)	97	8	43
Mashed potato	4 tbsp (180g)	70	28	188
Chips	average (165g)	75	59	450
Swede	2 tbsp (60g)	72	1	7
Broad beans	2 tbsp (120g)	79	7	58
Fruit				
Cantaloupe melon	1 slice (200g)	65	6	26
Pineapple	1 slice (80g)	66	8	33
Raisins	1 tbsp (30g)	64	21	82
Watermelon	1 slice (200g)	72	14	62
Dairy products				
Ice cream	1 scoop (60g)	61	14	62
Drinks				
Fanta	375 ml can	68	51	191
Lucozade	250 ml bottle	95	40	150
Isostar	250 ml can	70	18	68
Gatorade	250 ml bottle	78	15	56
Squash (diluted)	250ml glass	66	14	54
Snacks and sweets				
Tortilla/Corn chips	1 bag (50g)	72	30	230
Mars bar	1 standard (65g)	68	43	287
Muesli bar	1 (33g)	61	20	154
Sugars				
Glucose	1 tsp (5g)	100	5	19
Sucrose	1 tsp (5g)	65	5	19
Maltodextrin	1 tsp (5g)	105	5	19

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Moderate GI foods (GI=40-59)

Food	Portion size	Glycaemic index (GI)	Carbohydrate (g) per portion	KCals per portion
Breakfast cereals				
All Bran	1 small bowl (40g)	42	19	104
Sultana Bran	1 small bowl (30g)	52	20	91
Porridge (with water)	1 small bowl (160g)	42	14	78
Muesli	1 small bowl (50g)	56	34	183
Grains/pasta				
Buckwheat	4 tbsp (80g)	54	68	292
Bulgar wheat	4 tbsp (56g)	48	44	196
Basmati rice	4 tbsp (60g)	58	48	215
Noodles	4 tbsp 230g cooked	46	30	143
Macaroni	4 tbsp 230g cooked	45	43	198
Spaghetti	4 tbsp 220g cooked	41	49	229
Breads				
Pitta bread	1 large (75g)	57	43	199
Rye bread	1 slice (25g)	41	11	55
Biscuits and cakes				
Digestive	1 (15g)	59	10	71
Oatmeal	1 (13g)	55	8	57
Rich Tea	1 (10g)	55	8	40
Muffin	1 (68g)	44	34	192
Sponge cake	1 slice (60g)	46	39	181
Vegetables				
Carrots	2 tbsp (60g)	49	3	14
Boiled potato	2 medium (175g)	56	30	126
Peas	2 tbsp (70g)	48	7	48
Sweetcorn	2 tbsp (85g)	55	17	94
Sweet potato	1 medium (130g)	54	27	109
Yam	1 medium (130g)	51	43	173
Pulses				
Baked beans	1 small tin (205g)	48	31	166

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Food	Portion size	Glycaemic index (GI)	Carbohydrate (g) per portion	KCals per portion
Fruit				
Apricots	1 (40g)	57	3	12
Banana	1 (100g)	55	23	95
Grapes	1 small bunch (100g)	46	15	57
Kiwi	1 (68g)	52	6	29
Mango	half (75g)	55	11	43
Orange	1 (208g)	44	12	54
Papaya	half (175g)	58	12	47
Peach	1 (121g)	42	8	36
Plum	1 (58g)	39	5	20
Sultanas	1 tbsp (18g)	56	12	50
Dairy products				
Custard	2 tbsp (120g)	43	20	140
Drinks				
Apple juice	1 glass (160ml)	40	16	61
Orange juice	1 glass (160ml)	46	14	58
Snacks and sweets				
Crisps	1 packet (30g)	54	16	159
Milk chocolate	1 bar (54g)	49	31	281
Sugars				
Honey	1 heaped tsp (17g)	58	13	49

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Low GI foods (GI=1-39)

Food	Portion size	Glycaemic index (GI)	Carbohydrate (g) per portion	KCals per portion
Breakfast cereals				
Pulses				
Butter beans	4 tbsp (120g)	31	22	124
Chick peas	4 tbsp (140g)	33	24	168
Red kidney beans	4 tbsp (120g)	27	20	124
Green/brown lentils	4 tbsp (160g)	30	28	164
Red lentils	4 tbsp (160g)	26	28	160
Soya beans	4 tbsp (120g)	18	6	169
Fruit				
Apples	1 (100g)	38	12	47
Dried apricots	5 (40g)	31	15	63
Cherries	1 small handful (100g)	22	10	39
Grapefruit	half (80g)	25	5	24
Peaches tinned	half tin (120g)	30	12	47
Pear	1 (160g)	38	16	64
Plum	1 (55g)	39	5	20
Dairy products				
Full cream milk	half pint (300ml)	27	14	198
Skimmed milk	half pint (300ml)	32	15	99
Yoghurt (low fat fruit)	1 carton (150g)	33	27	135
Snacks and sweets				
Peanuts	1 small handful (50g)	14	4	301
Sugars				
Fructose	1 tsp (5g)	23	5	19

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