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## Iron Protocol

Have bloods taken to assess ferritin, B12, and folate at the very least. Your goal is ferritin >50 ng/ ml, B12 > 600 pg/ ml (or preferably over the mid-normal in the recommended range) and folate mid to high normal.

Other iron markers such as Haemoglobin, Serum iron, Transferrin saturation %, Transferrin, Haematocrit, Total iron binding capacity, Mean corpuscular volume, Mean corpuscular haemoglobin, etc. prove useful to aid diagnosis.

**Never self prescribe iron without first confirming deficiency and secondly before assessing B12 and folate.**

**WARNING:** Iron is extremely toxic in large quantities. Excessive use of supplements can lead to iron overload, possibly resulting in abdominal pain, nutritional imbalances, digestive problems, or even in death, especially in children. Supplements pose a particular threat to people with the inherited disorder haemochromatosis; a disorder that is very common in Irish persons/ persons of Northern European descent. **Haemochromatosis** is often not diagnosed until relatively late in life and so it is important to never take iron without first confirming iron deficiency in case you are an undiagnosed carrier or sufferer of this condition. Consult a qualified physician or nutritional therapist before you start any treatment involving iron supplements.

**Many factors can interfere with ferritin as it is an acute phase reactant. I usually recommend that blood tests are interpreted by someone qualified and experienced to do so, and that all factors are taken into consideration in their interpretation. Also, follow up tests are recommended in one to three months to reevaluate levels, reassess diagnosis and importantly to assess treatment success/ failure.**

**It crucial then to investigate all possible causes for your low iron state/ low iron stores/ anaemia:**

- **Malabsorption**
- **Increased iron loss**
- **Increased iron requirements**
- **Dietary inadequacies**
- **Is the reason for poor haemoglobin production related to B12, folate or copper deficiencies?**

1. **Assess digestive function and commence HCl support and digestive enzymes if indicated; adequate levels of stomach acid are necessary for iron absorption.**

One common reason for low serum iron/ ferritin and / or B12, is poor gastrointestinal absorptive function related to low stomach acid (HCl) secretion. Iron and B12 are not converted into their more active forms and hence, absorption is blunted. It is crucial to restore physiological levels of stomach acid and digestive enzymes to improve iron and B12 (and other nutrient) absorption.

**Take the HCl acid test.....**

**HCl test Instructions; to do this test you will need to order a test pack of Digest Force 2.0 (you will be provided with a copy of the instructions)**

Start at the next meal and ensure that the meal contains a moderate serving of protein. Eat your protein first, (eat approximately half the meal) and then take ONE Digest Force 2.0 capsule. Then finish your meal. Wait for 15 minutes to observe response. If you have a positive response you will feel a warm feeling/ slight burn in your stomach (similar to when you drink a cup of hot tea). You can stop the test.

If you do not feel the warm feeling, then take TWO capsules midway through your next meal and wait 15 minutes.

Repeat this process by increasing the dose by one capsule at each subsequent meal until you can feel warmth in your stomach (e.g. try THREE, FOUR, FIVE, SIX and so on test capsules mid-way through the meal as instructed above). DO NOT EXCEED SEVEN CAPSULES.

Once you've determined the dose that produces a warm sensation, you now know that similar sized meals require one less tablet than that dose. You have now determined how much acid your body should be producing on its own, but isn't (i.e. the dose that you take with every meal). Smaller meals might require less and larger meals might require more. You should immediately notice changes like a decrease in bloating, belching, and less indigestion. You need to supplement with the Digest Force 2.0 supplements until gastric function is healed.

Once your initial dose creates the warm sensation then once again cut the number of caps taken by -1. Continue decreasing your dose as response dictates until full gastric function recovered.

If you reached 7 capsules then you must order Poliquin Ultra HCl 4.0 capsules and follow the instructions provided with them.

Vegetarians tend to be more HCl deficient than omnivores. Probably due to their low protein and meat diet.

**If you have very weak digestive function then I recommend taking a broad spectrum digestive enzyme (e.g. Poliquin Omnizymes, Jarrow Formulas Jarro-Zymes Plus) in addition to your HCl support from Poliquin Digest Force 2/ Ultra HCL 4.0 until function is healed; this is best done under guidance, please contact [achealthsolutions@eircom.net](mailto:achealthsolutions@eircom.net).**

**2. Assess for gastric inflammation and treat if present.**

Many athletes suffer slight gastric bleeding or inflammation related to their intensive training schedule and this is made worse by a poor diet. An inflamed gastrointestinal tract may compromise nutrient absorption and contribute to poor iron and B12 status. If you suffer with numerous digestive symptoms including heartburn then it is best to contact the clinic for a more thorough evaluation. If you note significant discomfort after taking the first test enzyme when doing the HCl test then it may be due to the presence of gastric inflammation. If inflammation is present then it is important to follow a gastro healing programme to stimulate healing of the stomach lining before we reassess gastric HCl function. In some cases medical endoscopy may be recommended to rule out significant inflammation. Contact [achealthsolutions@eircom.net](mailto:achealthsolutions@eircom.net) for advice and recommendation.

**3. Do you frequently take aspirin, ibuprofen / Nurofen or NON-steroidal anti-inflammatory painkillers (NSAIDS) frequently?**

These may be a cause of minor gastric irritation and bleeding, which if chronic may lead to iron loss. If you suspect this please contact your doctor.

**4. Rule out gut parasites.**

If you have had problems with your iron levels for a long time and have a history of foreign travel, gastroenteritis, food poisoning, water poisoning, or multiple antibiotic use then it is recommended that you book an appointment to investigate/ rule out possible gut parasites. Usually gastrointestinal symptoms will be present, but not always! Don't worry; we frequently see problems related to picking up unwanted bugs in the travelling athlete. Once the problem identified it is easily treated; getting a proper diagnosis is the biggest hurdle.

**5. Rule out more sinister causes of iron loss.**

**Internal bleeding** is unlikely in the healthy athlete but is always important to keep at the back of your mind as a potential cause and should be thoroughly investigated by your doctor should suspicions occur. Similarly frequent **heavy menstrual blood loss** requires further investigation and medical and nutritional support in the heavily training female athlete. A family history of **Gluten intolerance or Coeliac disease** should also prompt investigations should you be having problems maintaining optimum ferritin and iron levels when diet, lifestyle, digestion and training have been assessed and ruled out as causative.

**6. Is there any chance that you have been exposed to metals, solvents or radiation?** Agreed this is a more unusual cause for problems retaining iron; but it is one cause for problems maintaining iron stores that we have seen in our clinic.

**7. Do you have elevated requirements for the methyl factors including B12 and folate?** Certain members of the population have elevated requirements for methyl factors and if dietary intake of B12, folate, B6 and other methyl factors is low in these people, they may have problems with low iron and/ or anaemia. Speak to us at A-C Health Solutions for further assessment should you have problems maintaining healthy iron levels as you may require supplements of B12, B6 and Folate in their active forms. A family history of migraine, cancer, heart disease, stroke, depression and cognitive illness such as dementia or Alzheimer's may be an indication of genetic methylation problems.

**8. Assess your antioxidant intake.**

**Athletes that are involved in long and intense training** have high requirements for antioxidants (especially athletes that hit the ground hard with their feet ⇒ foot strike haemolysis). Antioxidants protect the cell membrane of the cell from free radical damage. Exercise raises free radical activity and low antioxidant reserve may leave the red blood cell more susceptible to free radical related damage.

I recommend that you consider the following antioxidant strategy:

- a. Consume six to ten portions of fruit and vegetables daily; ideally 6 from vegetables and 4 from fruit on most days. Soups, juices, stir-fries, casseroles, salads, roasted vegetables, vegetable snacks, and smoothies are all practical ways to achieve this.
- b. Add herbs such as parsley, rosemary, oregano, coriander, thyme, basil, rocket, ginger and so on to meals frequently. They are rich in antioxidants.
- c. I highly recommend the use of powdered greens and superfood drinks to improve your intake of a variety of plants, fruits and phytonutrients that are naturally rich in antioxidants.
- d. Phyto-nutrient supplements such as lutein, beta-carotene, zeaxanthin, grape-seed extract, green tea, ginger, turmeric, and so on may play a very useful role in the athlete's diet. I highly recommend that you frequently chop and change the antioxidant taken to provide variety and balance in your regime. Consider using several (plant based) supplements at one time and alternating the one you take on a daily basis (i.e. mix it up).
- e. Antioxidants such as Alpha lipoic acid, Cysteine, N-Acetyl Cysteine, and Co-Enzyme Q 10 may play an important strategic role in the athlete's regime.

- f. Should you decide to take nutritional antioxidants such as Vitamin C, Vitamin E, Vitamin A and so on, take them smartly and safely as part of a balanced structured supplement plan to prevent inadvertent overdose or nutrient imbalances. Antioxidants work in balance; it is important to balance your intake of water and fat soluble antioxidant nutrients.

*Speak to a specialist and remember that investigating the cause of your low iron, and then working on your diet are the first port of call.*

9. **Altitude training will alter blood test results and also raise your requirements for iron so that your body can respond physiologically to the increased demands for oxygen.** It is recommended that you seek specialist advice so that you can implement a programme to prepare you for altitude training and optimise adaptation while training at altitude.
10. Iron injections are generally NOT recommended unless absolutely necessary. Aside from the higher risk of side-effects, iron injections cause a high free radical load which can increase cellular damage and so are not recommended unless absolutely necessary. Should injections be required then I highly recommend taking a broad spectrum antioxidant (orally) before and following your iron injection to quench this free-radical induced effect.

### **Diet strategies**

- ▶ Increase your intake of antioxidants as discussed above; remember the rule of thumb: **the darker the colour of the fruit, vegetables, herbs or beans, the richer the antioxidant content.... Choose colours from all colours of the spectrum and vary them!**
- ▶ Consume lean red meat more frequently; accompanied with foods rich in Vitamin C. Excellent meats include game such as bison, veal, venison, and ostrich, steak, and beef. Occasional black pudding (good quality; no rubbish ingredients) and liver are also very helpful sources of iron.
- ▶ Choose cuts of poultry and fish that are high in iron content:
  - Thigh or dark meat on fish, turkey and poultry
  - Darker fish and shellfish such as mackerel, salmon, herring, anchovy, haddock, prawns, trout, canned sardines, cockles, mussels and tuna.
- ▶ Spices such as turmeric, ground thyme, curry powder, ground cinnamon and rosemary are helpful flavour enhancers that add not only iron but antioxidants to your meal.
- ▶ Do not drink coffee, tea, or soft (fizzy) drinks with meals as these inhibits the absorption of iron.
- ▶ Home-made juices containing citrus aid the absorption of iron. Choosing ingredients such as rocket, kale, parsley, carrots, oranges, lemons and limes will result in a juice not only rich in Vitamin C but also rich in iron!
- ▶ Vegetarian and vegan diets can be very low in iron and B12 if extra attention is not paid to the foods chosen. Furthermore vegetarians and vegans are frequently found to have weak digestive function further compounding the problem.... Seek specialist nutritional advice if you choose a vegetarian/ vegan way of life.
- ▶ Avoid excess consumption of foods high in Oxalic acid and phytates: rhubarb, spinach, beans and bran (bran is high in most home-made Irish brown breads). These are foods that interfere with the iron absorption.
- ▶ Do not take calcium, vitamin E, zinc, or antacids at the same time as iron supplements. These interfere with the iron absorption.

**Iron Content of Selected (vegetarian) Foods, in Milligrams per 3 ½ oz (100 g) Serving.**

Kelp	100.00	Cashew nuts	3.8	Tofu	2.1
Brewer's Yeast	17.3	Raisins	3.5	Green peas	1.8
Blackstrap molasses	16.1	Jerusalem artichoke	3.4	Brown rice	1.6
Wheat bran	14.9	Brazil nuts	3.4	Olives, ripe	1.6
Pumpkin seeds	11.2	Beet greens	3.3	Artichoke	1.3
Wheat germ	9.4	Swiss Chard	3.2	Mung bean sprouts	1.3
Liver, beef	8.8	Walnuts	3.1	Broccoli	1.1
Sunflower seeds	7.1	Dates	3.0	Currants	1.1
Millet	6.8	Beans, cooked dry	2.7	Whole-wheat bread	1.1
Parsley	6.2	Sesame seeds	2.4	Cauliflower	1.1
Clams	6.1	Pecan nuts	2.4		
Almonds	4.7	Lentils	2.1		
Prunes	3.9	Peanuts	2.1		

**Foods rich in folate:** Green and leafy green vegetables, Brewer's yeast, beans and lentils, wheatgerm, and nuts.

Black eyed peas, beans, and lentils are good sources of foliate.

**To safeguard B<sub>12</sub>,** eat the following foods: organic liver (beef, lamb, and chicken), oysters, sardines, trout, salmon and tuna, eggs, and cottage cheese.

**Vitamin C Content of Selected Foods, in Milligrams per 3 ½ oz (100g) Serving**

Peppers, red chilli	369	Kiwi fruit	60	Liver, beef	31
Guavas	242	Strawberries	59	Okra	31
Peppers, red sweet	190	Papaya	56	Tangerines	31
Kale leaves, raw	186	Spinach	51	Oysters	30
Parsley	172	Oranges and juice	50	Black-eyed peas	29
Peppers, green sweet	128	Cabbage	47	Soybeans	29
Lrg glass Ribena	120	Lemon juice	46	Lima beans, young	28
Blackcurrants, stewed	115	Grapefruit and juice	38	Lrg glass apple juice	28
Broccoli	113	Elderberries	36	Green + other peas	27
Brussels sprouts	102	Liver, calf	36	Potato chips	27
Spring greens	97	Turnips	36	Radishes	25
Lrg glass orange juice	80	Mangoes	35	Chinese cabbage	25
Watercress	79	Asparagus	33	Yellow courgette	25
Cauliflower	78	Cantaloupe	33	Loganberries	24
Kale, boiled	71	Swiss chard	32	Sweet potato, boiled	23
Persimmons	66	Green onions	32	Honeydew melon	23
Cabbage, red	61			Tomatoes	23
				Potato, new boiled	15

*Vitamin C is mainly found in fruits and vegetables. Rich fruit sources include guava, cantaloupe melon, grapefruit, honeydew melon, kiwi, mango, blackberries and black currants, orange and citrus fruits, papaya, strawberries, tangerine, and watermelon. Fruit juices containing Vitamin C in abundance include pomegranate, grapefruit and orange juices. Several fruit juices are fortified with vitamin C, including apple, cranberry and grape juices. Rich vegetable sources of vitamin C include asparagus, peppers (all), parsley, broccoli, watercress, Brussels sprouts, cabbage (red especially), spinach, cauliflower, kale, sweet potatoes, all forms of peas, tomatoes and tomato juice.*

### Provitamin A Carotenoids and Food Sources – antioxidant rich foods

Beta-carotene	Green plants, carrots, sweet potatoes, squash, spinach, apricots, green peppers
Alpha-carotene	Green plants, carrots, squash, corn, water-melons, green peppers, potatoes, apples, peaches
Gamma-carotene	Carrots, sweet potatoes, corn, tomatoes, watermelons, apricots
Beta-zeacarotene	Corn, tomatoes, yeast, cherries
Cryptoxanthin	Corn, green peppers, persimmons, papayas, lemons, oranges, apples, apricots, paprika, poultry
Beta-apo-8'-carotenal	Citrus fruit, green plants
Beta-apo-12'-carotenal	Alfalfa meal

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### Nonprovitamin A carotenoids and food sources

Lycopene	tomatoes, carrots, green peppers, apricots, pink grapefruit
Zeaxanthin	spinach, paprika, corn, fruits
Lutein	green plants, corn, potatoes, spinach, carrots, tomatoes, fruits
Canthaxanthin	mushrooms, trout, crustaceans
Capsanthin	red peppers, paprika

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### Vitamin E – food sources; in descending order of content (approximately)

Cold-pressed oils ([sunflower](#), [wheatgerm](#), extra-virgin olive, [flax](#); unprocessed, un-heated, unexposed to light or air)  
Seeds – in their natural state; not heated or roasted  
Tahini paste  
Nuts – freshly cracked and in their natural state; not heated, roasted or processed. Hazelnuts are particularly high in Vit E content  
Organic unprocessed nut butters such as Almond nut butter, peanut butter, cashew/ brazil nut butter  
Wheatgerm  
Sweet potatoes  
Some breakfast cereals especially muesli containing nuts and seeds  
Avocado  
Asparagus  
Berries  
Green leafy vegetables  
Tomatoes

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### Useful sources of copper include:

Oysters  
Whole grain cereals; especially buckwheat/ soba (try the noodles and use the flakes mixed into porridge), rye (try rye bread or porridge made with rye flakes), barley (add to soups etc.), millet (try millet pasta or use millet flakes in your breakfast cereal or porridge)  
Shellfish  
Dark green leafy vegetables  
Dried legumes; especially split peas, and beans  
Nuts; especially Brazil nuts, almonds, hazelnuts, walnuts, and pecans  
Extra virgin olive oil  
Carrots  
Coconut flakes (add to breakfast, pancakes or yoghurt, etc.)  
Garlic

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## Nutrition and Supplement recommendations:

### Supplement strategies

Iron  
 B<sub>6</sub> (preferably as pyridoxal-5-phosphate)  
 Biotin may be helpful  
 Copper may also be required

B<sub>12</sub> (preferably as methylcobalamin or adenosylcobalamin)  
 Folic acid (preferably as 5-methyltetrahydrofolate)  
 Vitamin C

Additional dietary Vitamin A, Beta carotene, and Vitamin E provide antioxidant support

Don't forget that adequate protein (amino acids), healthy fats and sufficient energy are also crucial for healthy iron and haemoglobin metabolism.

See catalogue for Antioxidants for antioxidant formula product recommendations.

### Methyl factors:

#### Poliquin Methylator Plus 3.0/ 3E

Serving Size: 1 tablet

Amount per serving:

- Riboflavin..... 5mg
- Vitamin B6 (as pyridoxine HCl)..... 25mg
- Folate (as folic acid and L-5-methyl tetrahydrofolate).... 800mcg
- Vitamin B12 (as cyanocobalamin)..... 500mcg
- Zinc (as zinc glycinate)..... 5mg
- Trimethylglycine..... 500mg
- Choline (as choline bitartrate)..... 100mg
- Intrinsic Factor..... 20mg



**Methylator Plus 3.0** is a comprehensive formula that features L-5-methyl tetrahydrofolate --a body-ready, nature identical folate-- along with vitamins B6 and B12, trimethylglycine, and choline. Together, these nutrients support methylation, which promotes healthy homocysteine metabolism. Completing the formula are intrinsic factor, which promotes absorption of vitamin B12, and a patented form of zinc as an amino acid chelate, for added support in maintaining healthy homocysteine levels.

#### Jarrow Formulas Homocysteine PF

**Homocysteine PF® (Protection Factors)** contains methyl group (CH<sub>3</sub>) donors from methyl B12, TMG and folic acid, plus vitamin B6 for additional reduction of homocysteine.\* Methyl groups convert homocysteine, a toxic amino acid, into methionine, which is an essential amino acid.\* Methylation is inhibited by such factors as poor diet, smoking and genetic predisposition. Impaired methylation elevates homocysteine levels. Methylcobalamin (methyl B12) is better absorbed, retained and utilized than cyanocobalamin, the typical form of vitamin B12.\* Methylfolate transfers a methyl group to cobalamin to form Methylcobalamin via the enzyme methionine synthetase. Therefore, methyl B12 is the most active and most important form of B12.\*

<b>Supplement Facts</b>		
Serving Size 1 Tablet		
	Amount Per Tablet	% DV
Vitamin B <sub>6</sub> (as pyridoxine HCl)	15 mg	750%
Methyl B <sub>12</sub> (as methylcobalamin)	250 mcg	4167%
Folic Acid	400 mcg	100%
Trimethylglycine (TMG) (anhydrous betaine)	500 mg	*

\* Daily Value not established.



Most people do very well on a typical pharmacy iron brand such as galfer, ferrograd or ferrous gluconate, if so choose these less expensive products. The best time to take iron is on an empty stomach at night with some fruit juice. If this upset your stomach then take with a meal instead.

## Gentle Iron formulas

*The following brands are recommended for person's sensitive to iron or suffering continual problems with low iron status as they are gentler on the stomach and in more bioavailable absorbable forms.*

### Jarrow Formulas IronSorb

<b>Supplement Facts</b>		
Serving Size 1 Capsule		
	<b>Amount Per Capsule</b>	<b>% DV</b>
Iron	18 mg	100%
(from 360 mg Iron Protein Succinylate)		



**IronSorb™** is a gentle non-constipating form of iron, that contains **Iron Protein Succinylate (IPS)**, an iron complex that is specially prepared to reduce irritation of the stomach in comparison to other forms of iron.\* **IPS** is gentle to the stomach because it dissolves in the intestine.\*

Iron is an essential trace mineral required as a component of hemoglobin and myoglobin for transport of oxygen to tissues.

### Thorne Research Ferrasorb

Ferrasorb is a complete blood-building formula

- folate, B12, and iron supplement
- superior blood-building effect\*
- provides the active forms of vitamin B12 (adenosylcobalamin and methylcobalamin) and folate (folinic acid and 5MTHF)
- includes well-absorbed, non-constipating iron picolinate\*



Hematinic formulas provide the nutrients needed for creating new red blood cells. Studies indicate that a hematinic formula using a combination of folate, vitamin B12, and iron is superior to a formula using any one of these nutrients alone. Each of these nutrients is dependent upon the other for proper red blood cell formation.\* Ferrasorb combines the two active forms of vitamin B12 adenosylcobalamin and methylcobalamin and the two active forms of folate folinic acid and L-5-methyl-tetrahydrofolate, with well-absorbed iron picolinate for a superior hematinic product.\*

Individuals who might benefit from a hematinic formula include those with a greater need for iron, those who tend to lose iron chronically, and those who do not absorb iron well.\* Such individuals include teenage girls, pregnant women, women of childbearing age (particularly if they have heavy menses), individuals with malabsorption syndromes (Crohn's disease or Celiac disease), elderly patients with low hydrochloric acid secretion, and individuals with poor kidney function.\*

An iron deficiency can manifest as weakness, fatigue, shortness of breath on exertion, dizziness, tinnitus, spots before the eyes, drowsiness, irritability, infrequent menses, and loss of libido.\*

What is picolinic acid? Picolinic acid is a metabolite of tryptophan, is similar to niacin, and is naturally produced in the pancreas. Picolinic acid can bind to minerals in the gastrointestinal (GI) tract and facilitate their absorption into the bloodstream.\* Conventional iron supplementation, including forms such as ferrous sulphate, can cause GI side effects including nausea, vomiting, constipation, diarrhoea, and dark-coloured stools because these conventional forms are poorly absorbed

#### **Ingredients**

##### **One Capsule Contains:**

Folate (200 mcg as Calcium Folate and 200 mcg as 5-Methyl-tetrahydrofolate)	400 mcg.
Vitamin B12 (150 mcg as Adenosylcobalamin and 150 mcg as Methylcobalamin)	300 mcg.
Iron (as Iron Picolinate)	25 mg.

**Suggested Use:** One capsule once to three times daily, or as otherwise directed by a health-care practitioner.

Be aware that many multi nutrient formulas already contain methyl factors and possibly even iron. It is important to first assess are these in absorbable forms; i.e. is the supplement any good or are you wasting your money?  
Finally be careful to assess your nutrition strategy carefully to prevent inadvertent double dosing or over-dosage if you are considering taking several products!

## Thorne Research Iron Picolinate

For enhanced iron absorption without GI side effects

- non-constipating, well-absorbed form of iron\*
- essential mineral for red blood cell formation\*
- without preservatives, magnesium stearate, or other lubricants and diluents
- available exclusively from Thorne Research



What is picolinic acid? Picolinic acid is a metabolite of tryptophan, is similar to niacin, and is naturally produced in the pancreas. Picolinic acid can bind to minerals in the gastrointestinal (GI) tract and facilitate their absorption into the bloodstream.\* Conventional iron supplementation, including forms such as ferrous sulfate, can cause GI side effects - including nausea, vomiting, constipation, diarrhoea, and dark-colored stools - because these conventional forms are poorly absorbed.

Thorne Research's Iron Picolinate provides 25 mg of elemental iron per capsule reacted with picolinic acid for superior absorption in the GI tract, thus preventing the typical GI side effects.\*

### Ingredients

**One Capsule Contains:**  
**Iron (as Iron Picolinate)** 25 mg.

**Other Ingredients:** Hypromellose (derived from cellulose) capsule. May contain one or more of the following hypoallergenic ingredients to fill space – Aspartic Acid, Leucine, Silicon Dioxide.

**Suggested Use:** One capsule once to three times daily, or as otherwise directed by a health-care practitioner

## Ethic Sport FerroSport

NUTRITIONAL FACTS			
Nutritional Content	Per 100g	Per sachet	RDA per dose
Kcal	256.3	7.7	
Kj	1073.2	32.2	
<b>Average analysis</b>			
Proteins (N x 6.25)	g 3.82	g 0.11	
Carbohydrates	g 88.8	g 2.66	
Of which poly alcohols	g 88.56	g 2.65	
Fats	g 0.82	g 0.02	
Iron	mg 700	mg 21	150%
Vitamin C	mg 2,000	mg 60	100%
Calcium folate	mg 13.3	mg .0.4	n



FerroSport® is a food supplement containing Iron, Folic acid, and Vitamin C.

The optimal biochemical muscular functioning is strictly correlated to myoglobin in the muscle, and requires a continuous supply of highly bioavailable iron. Inorganic iron is poorly absorbable, whilst chelated iron as formulated in FerroSport®, mimics what happens in nature. Chelated iron is more bioavailable to the human organism and is better tolerated.

FerroSport® also contains vitamin C to improve the absorption and availability of iron.

## B12 and B complex formulas

### Jarrow Formulas Methyl B12 1000 mcg



<b>Supplement Facts</b>		
Serving Size 1 Lozenge    Servings Per Container 100		
	<b>Amount Per Lozenge</b>	<b>% DV</b>
Methylcobalamin (Methyl B <sub>12</sub> )	1000 mcg	16,666%

**Methylcobalamin (Methyl B-12)** is **better absorbed** and **retained** than other forms of B12 (e.g., cyanocobalamin).<sup>\*</sup> Methyl B-12 **protects nerve tissue** and **brain cells**, promotes better sleep, reduces toxic homocysteine to the essential amino acid methionine, and protects eye function against toxicity caused by excess glutamate.<sup>\*</sup> Also, vegetarians/vegans typically require B12 supplementation.<sup>\*</sup>

### Jarrow Formulas B-Right



<b>Supplement Facts</b>		
Serving Size 1 Capsule		
	<b>Amount Per Capsule</b>	<b>% DV</b>
Vitamin B <sub>1</sub> (as thiamine mononitrate)	25 mg	1667%
Vitamin B <sub>2</sub> (as riboflavin)	25 mg	1470%
Vitamin B <sub>3</sub> (as niacin)	25 mg	125%
Vitamin B <sub>3</sub> (as niacinamide)	100 mg	500%
Vitamin B <sub>5</sub> (as d-calcium pantothenate)	100 mg	1000%
Pantethine (vitamin B <sub>5</sub> derivative)	25 mg	-
Vitamin B <sub>6</sub> (as pyridoxine HCl)	25 mg	1250%
Vitamin B <sub>6</sub> (as pyridoxal 5-phosphate)	10 mg	500%
Vitamin B <sub>12</sub> (as methylcobalamin)	100 mcg	1667%
Folic Acid (folate)	400 mcg	100%
Biotin	300 mcg	100%
PABA (para-aminobenzoic acid)	30 mg	-
Choline (as choline bitartrate)	50 mg	-
Inositol	50 mg	-

<sup>\*</sup> Daily Value not established.