

This Free E-Book is brought to you by [Natural-Aging.com](http://Natural-Aging.com).

**100% Effective Natural Hormone Treatment**  
**Menopause, Andropause And Other Hormone Imbalances**  
**Impair Healthy Healing In People Over The Age Of 30!**

**ADHD and Iron Deficiency**

**By Anthony Kane, MD**

**ADHD and Iron Deficiency**

by: **Anthony Kane, MD**

About 8% of children, ages 4 years and under, are deficient in iron. Between the ages of 5 and 12, the percentage rises to 13%, and then settles back to 8% in people above the age of 15. Anemia is the best-known repercussion of iron deficiency. However, even minor deficiencies in iron may weaken the immune system, affect the thyroid, and impair general physical performance. Iron deficiency has also been implicated in a number of psychiatric and neurological conditions, including learning disabilities and ADHD.

Iron is a co-enzyme in the anabolism of catecholamines. That means it is essential for the creation of certain neurotransmitters. It helps to regulate the activity of the neurotransmitter dopamine, which probably accounts for the association of iron deficiency with neurological problems. It makes sense that supplementing ADHD children, who have some level of iron deficiency, might have some effect on their ADHD. However, what makes sense in theory, does not always work in practice. Unfortunately, there have been very few studies done testing the effects of iron supplementation on ADHD.

One study, done in Israel, evaluated 14 ADHD boys for the effect of short-term iron administration on behavior. Each boy received iron daily for 30 days. Both parents and teachers assessed the behavior of the children. The parents found significant improvement in the behavior of the children. However, the teachers noticed no improvement.

In a second study, 33 iron-deficient, but otherwise normal, children were given an iron supplement. The children became less hyperactive. This study suggests that iron deficiency may cause hyperactive behavior in some children and that hyperactive behavior is reversible when the deficiency is treated.

A third study tested the affects of iron supplementation on a group of teen-aged high school girls who were determined to be iron deficient. At the end of the 8-week study, the researchers found that girls who received iron supplementation performed better on verbal learning and memory tests than those who did not.

## ADHD and Iron Deficiency

This is about all the evidence we have. It's not a lot and it's not very impressive. None of the studies were double-blind studies, which means we cannot really rely on them all that much.

If this were the only consideration, I would say you should definitely try to treat your child for iron deficiency. The reason is that hyperactive children are more likely to be iron deficient than other children. Also, there is a possibility that your child has a higher than average iron requirement. That means that he might test normal on all the iron blood tests and still be iron deficient because he requires more than the average amount of iron.

So why not just give your child iron supplements and see what happens? Because iron functions in the body like a two edged sword.

Iron exists in the body in two chemical forms. There is the ferrous form, where the iron atom will bond

to two electrons and the ferric form where the atom will bond to three electrons. Iron can go back and forth between these two forms. This is the property of iron that allows it to play a role in carrying oxygen as part of hemoglobin. However, it also makes iron an active player in oxidation-reduction reactions. What that means is that iron has the ability to act like a free radical and cause significant damage to tissues. Whenever iron is not bound to hemoglobin or to some other carrier protein, it travels around the body as free iron and can cause damage anywhere it goes. To further exacerbate the problem, excess iron is not eliminated well by the body. Most of the iron in the body gets recycled. Therefore, not only is excess iron toxic, but also once you have excess iron in your body, it is going to stick around for a long time. High amounts of iron have been ! found in the brains of people with Parkinson's disease. It is very likely that excess iron can aggravate, if not cause, other neurological problems as well.

With that in mind we have to approach iron supplementation with caution. My feeling is that if your child turns out to be one of the 8-13% that is deficient in iron, it is worth giving iron supplements. I doubt that it will help much with his ADHD, but it should help with his general health. This advice applies to your non-ADHD children, also.

How should you test iron deficiency? The hemoglobin and hematocrit counts that come as part of the standard complete blood count (CBC) are good for diagnosing anemia. They do not really give you accurate information about the body's iron status. The best test for iron status is the serum ferritin test, which measures how much iron is stored in your body. It will be low if you are deficient and high if you are overloaded.

If you find your child has an iron deficiency problem, there are several approaches to treat it. Probably the safest is by giving him more iron-containing foods. You can serve him red meat several times a week. Liver is an excellent source, if you can get him to eat it. You can enhance dietary absorption by supplementing with vitamin A (about 10,000 IU) and vitamin C (about 500mg) with the meals.

The most likely the reason that your child is deficient is because he is a poor eater; so, dietary intervention may not be practical. A second and far inferior source of iron is through supplements. The primary difficulty of iron supplements is that they do not get into the body. Fortifying foods with

iron in general does not work. Many foods bind iron and, as a result, the iron is excreted rather than absorbed. The best form of supplemental iron is Ferrochel. Ferrochel is an amino acid chelated iron, which is highly bio-available and is not affected by foods that bind iron.

Most iron supplements have a ten percent absorption rate. That means if you take 10 mg of the supplement, your body absorbs 1 mg. Ferrochel is different. Ferrochel has a 75% absorption rate. That means 1.5 mg of Ferrochel provides more iron to your body than 10 mg of other supplements.

That is an interesting fact, but it is not why I am recommending it. The more important property of Ferrochel is that since it is already amino acid bound, it does not become free iron in the body. That means it does not have the dangers and side effects of other iron supplements. The FDA has given Ferrochel the designation of GRAS, (generally regarded as safe). No other iron supplement has this designation.

The take home message is that iron deficiency may be the cause of hyperactivity in some children. It is worth your while to have your child tested. If for some reason you suspect your child is iron deficient, the best approach is to increase your child's iron intake through his diet. If that doesn't work and you need to use supplements, the best supplemental iron is Ferrochel.

Anthony Kane, MD  
ADD ADHD Advances

Anthony Kane, MD is a physician, an international lecturer, and director of special education. He is the author of a book, numerous articles, and a number of online programs dealing with ADHD (

) treatment, ODD, parenting issues (

), and education. You may visit his website at

. To sign up for the free ADD ADHD Advances online journal send a

blank email to:

### **Iron deficiency in dogs and cats**

**By Nick Carmichael**

#### **Iron deficiency in dogs and cats by Nick Carmichael**

We have recently seen a number of cases of iron deficiency anaemia, both in cats and dogs. In iron deficiency, red cells do not develop the normal complement of iron-containing haemoglobin and the cells that form in the bone marrow are small (microcytic, low MCV) and hypochromic (low MCH and MCHC). The process of red cell maturation becomes prolonged so young red cells no longer contain large amounts of RNA and therefore do not appear polychromatic. As a result the anaemia is non-

## ADHD and Iron Deficiency

regenerative, with inappropriately low reticulocyte counts. There is often a marked increase in variation in red cell shape (poikilocytosis) and red cell fragments (schistocytes) are often seen, as above.

In cats, the red cells are often so small that platelets appear larger than red cells and this overlap in sizing can contribute to apparently very high platelet counts as some automated counters include some small red cells in the platelet count.

Iron deficiency anaemia reflects chronic external blood loss, either through the gut associated with bleeding tumours or ulcers or occasionally with severe flea burdens and parasitic blood loss.

Serum iron, iron panels (including serum iron, total iron binding capacity, transferrin and % saturation) and occasionally staining bone marrow for iron, can all be useful in investigating these cases in addition to a full blood count (which must include smear evaluation since not all cases have a low MCV and MCHC). Occult faecal blood testing, after a minimum of three days off all red meat, is useful to check for blood loss in cases where blood loss is not detectable grossly.

While most non-regenerative anaemias have a poorer outlook, iron deficiency responds excellently and quickly to treatment that is aimed at stopping the blood loss and providing oral iron supplementation. Our current crop of iron deficiency anaemia cases all appear to be doing well now that they are on treatment.

For more information on iron deficiency anaemia visit [www.ctdslab.co.uk](http://www.ctdslab.co.uk)

Nick graduated from Edinburgh Veterinary School in 1980 with an Honours degree in Pathological Sciences and in 1982 as a Bachelor of Veterinary Medicine and Surgery. In 2003 Nick became a diplomate of the Royal college of Pathologists in veterinary clinical pathology.

Related Content:

Read more Content at

Related Products:

: A genuine resource center for Quality Ebooks and Softwares



This Free E-Book has been brought to you by [Natural-Aging.com](http://Natural-Aging.com).

**[100% Effective Natural Hormone Treatment](#)**  
**Menopause, Andropause And Other Hormone Imbalances**  
**Impair Healthy Healing In People Over The Age Of 30!**