



**Clark Chiropractic**  
health newsletter

**Did you know...**

*Doctors of Chiropractic receive about the same number of classroom hours of training as medical practitioners? After completing a pre-med education, today's Doctor of Chiropractic receives an average of 4,500 hours of accredited post-graduate classroom study. Chiropractic doctors are well educated.*



**Ask the Doctor**

*Dr. Clark urges patients to contact him directly with any questions or concerns you may have. Contact Dr. Clark personally via email at: [drclark6@comcast.net](mailto:drclark6@comcast.net)*

**Slowing the Aging Process**



While aging is inevitable, scientific knowledge of the processes that cause our bodies to age has increased dramatically. And along with that knowledge comes the opportunity to minimize those processes in our bodies.

What we now know is that aging takes place on a cellular level, primarily due to free radical damage to the DNA of both the nucleus of each cell, and the DNA of the mitochondria (the energy factories) in each cell. An interesting fact is that while your nuclear DNA is inherited from both parents, your mitochondrial DNA comes exclusively from your mother. So if you're lazy and have no energy,

it's your mom's fault (yes, I'm kidding).

Except for our brain and spinal cord, our bodies are constantly replacing dying cells with new cells, and the DNA in our nuclei orchestrates this process. So when our nuclear DNA is damaged, we repair our bodies with inferior cells, tissues, and organs. When our mitochondrial DNA is damaged, those cells become less and less

efficient. As this process accelerates, this damage manifests itself more and more obviously.

So where do these free radicals (also know as reactive oxygen species, or ROS) come from? They come from energy production in our bodies, which, as mentioned, happens in the mitochondria of our cells. The mitochondria take glucose and oxygen, and convert them to adenosine triphosphate (ATP), which is the "fuel" for everything our bodies do. If you

were paying attention in biology class, you'll remember that they do this both through a series of steps called the Krebs' cycle, and a process called the electron transport chain, or ETC.

Unfortunately, an unavoidable byproduct of ATP production is the production of free radicals/ROS. These free radicals then damage both the DNA of the mitochondria and the DNA of the cell nucleus. The mitochondrial DNA sustains a much higher rate of damage (about 15x as much) as the nuclear DNA for a couple of reasons: The first is the proximity...the free radical is looking for an electron to steal, and the mitochondria is the closest and easiest place to grab one. In addition, the nuclear DNA is both better protected, and better able to repair itself.

So the more metabolically active a tissue, the more free radical production, and the more

*Continued on page 2*

**Your Kids and Chiropractic**

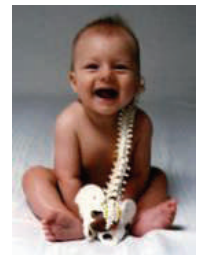
When I ask patients about bringing their kids in for a chiropractic checkup, I often get quizzical looks. Whether they verbalize it or not, I can tell they're thinking "Why would I bring my kids in...they don't have any spinal problems?"

The truth is that many of the problems we experience as adults can have their beginnings in childhood. Many things, including the birth process, bumps and falls as they learn to walk, biking or other accidents, sports injuries, poor posture, and hours in front of a TV or computer screen, can all have profound effects on a growing child's spine.

Just as you take your child to the dentist for checkups, so should you take your child to your chiropractor. Kids

respond extremely well to chiropractic treatment, and usually a few treatments are all that is needed to restore optimum function to their spines.

A personal experience many years ago convinced me of the value of chiropractic care for kids. My



*Continued on page 3*





## Slowing the Aging Process *continued*

damage. And what are the most metabolically active tissues in our bodies? Our brain, followed by our heart, liver, and finally our skeletal muscle! This is also why people who exercise a lot need to be extra vigilant about protecting themselves from free radical damage!

When we are young, our mitochondrial DNA is very efficient at producing ATP from glucose and oxygen...about 96% ATP and 4% free radicals. As mitochondria sustain damage, they become less and less efficient, and the percentage of free radicals they produce increases exponentially, as does the damage they do. This is why aging is not a linear process. If you think about how much aging occurs between 20 and 40, 40 and 60, and between 60 and 80, it is obvious that this is true.

So now that we've plowed through the science of aging, let's look at what we can do to keep it to a minimum. The obvious answer is that we need to do as much as we can to neutralize the free radicals that we produce before they're able to do their damage. This is what antioxidants do, and there are 2 ways to maximize them in our cells. We can maximize endogenous antioxidant production (antioxidants that our bodies produce naturally), and we can supplement with exogenous antioxidants.

We produce several endogenous antioxidants, with glutathione being one of the most important. Fortunately, there are several things we can do to increase glutathione levels in our cells. Undenatured whey protein and n-acetyl cysteine (NAC) both significantly raise endogenous glutathione levels.

Exogenously, fresh fruits and vegetables are our best sources of natural antioxidants. Berries are hard to beat. Heat destroys food's antioxidant properties, so raw or lightly cooked is always best. Vitamins C, E, A (Beta Carotene form), and the mineral selenium all have potent antioxidant properties. And there are many good antioxidant formulas and preparations on the market as well. But any time you can get your antioxidants from fresh food, it is preferable. And taking a good multi vitamin and mineral supplement should ensure that you are not deficient in any of the many micronutrients essential to the mitochondrial energy pathways in your body.

In winter, when fresh fruits and vegetables are more difficult and expensive to come by, it makes good sense to supplement with dehydrated fruit and vegetable powders, which you mix with water and drink. This ensures that you are getting a healthy dose of antioxidants daily. I do this personally, and we carry the brand I use for your convenience.

It is also important to be aware of things that increase free radical production in our cells. These include inflammation (due to

injury or excessive omega-6 intake), illness, stress, smoking, pesticide residues, mercury, arsenic (used in chicken feed to increase appetite), and many other environmental toxins. And, ironically, vigorous exercise.

Any article on slowing the aging process would be lacking without stating the common sense necessity of regular exercise. Although exercise does increase free radical production, without it you're looking at obesity, a weak heart, inefficient lungs, sluggish bowels, and a steady buildup of toxins in your body. Your circulatory system has your heart, of course, to pump the blood through your body. But did you know that the lymph system, which drains and filters waste products from the body, has no pump. It needs muscular contraction to help it do its job. Just remember to bump up your antioxidants before and after you exercise. An example would be to eat some berries or other fresh fruit before exercising, and have a shake containing undenatured whey protein afterwards.

So to sum up some of the most important and effective ways to slow the aging process:

- Exercise regularly
- Eat lots (and a variety) of raw fruits and raw or lightly cooked vegetables (buy locally and organically when possible).
- Supplement with a good antioxidant formula containing Vits. A, C, E, and selenium
- Take n-acetyl cysteine (600 mg/day)
- Take undenatured whey protein (40g/day)
- Don't smoke
- Avoid inflammatory foods (especially processed vegetable oils, fat from grain-fed meat or farm-raised fish)
- Avoid sugar, flour products, and processed foods in general
- Laugh frequently, and keep a positive attitude!

I hope this has been informative and helpful!

*For our patients: We are not in the business of selling supplements. But because there is so much misinformation and useless or poor quality garbage out there, we carry a select group of top-quality products for the convenience and health of our patients. Some of them are available only to health professionals, with most offices selling them at twice what they pay. I want you to know that we make no money on these products, but pass them on to you at cost.*

*Dr. Clark*

Contact Clark Chiropractic Center to Make an Appointment at 443-637-4936 or visit us on the web at [www.clarkchirocenter.com](http://www.clarkchirocenter.com)



## Your Kids and Chiropractic continued

second son, Keith, was what is commonly know as a colicky baby. Basically, he cried a lot! One of our friends suggested we have him checked by her chiropractor. I was in chiropractic school at the time, and wasn't very comfortable adjusting

adults, much less a newborn! So we took her advice, and had him checked. The chiropractor found a problem in the top of his neck, and adjusted him. The result was dramatic...Keith was much calmer afterwards. We took him back a couple more times, and that was enough. The difference in his temperment was amazing. And since then, I have always checked my 3 kids periodically, even when they seem perfectly fine.

Kids' bodies are very flexible and adaptable, and many problems fly under the radar for years. And even when their problems are obvious and they complain, most parents don't think about taking them to a chiropractor. But research has shown chiropractic care to be helpful for many childhood complaints...headaches, sinus problems, asthma, even bed wetting. And probably the most wonderful experience I have had personally as a chiropractor was helping an autistic child. No, he didn't become perfectly normal, but the improvement was as close to a miracle as I'll probably ever see.



My attitude is that chiropractic is always a good place to start. And chiropractors are well trained to be able to recognize when a problem is beyond their scope of practice, and are glad to refer to another specialist.

So how often should a child be checked? That will vary, depending on the child's age, history, and activity level. I think a minimum for very young children would be 2-3 times a year. And as children grow, 3-4 times a year is probably better. And any time your child has an obvious trauma, such as an injury or fall, they should be checked as soon as possible.

The old saying "as the twig is bent, so grows the tree" has a lot of validity when it comes to kids and chiropractic. Keeping your children's spines and bodies functioning optimally is one of the best things you can do for their immediate and long-term health.

We love kids, and welcome them at our office. And on a pragmatic note, nearly all insurance carriers cover chiropractic check-ups and treatment for kids. So do them a favor, and make an appointment to have them checked. Its one of the most important gifts you could give them!

## Recommended Products

Available for Sale at Clark Chiropractic Center

**Premium Red Vegetarian Powder**      **\$34**



**Premium Greens Vegetarian Powder**      **\$31**



**N-Acetyl Cysteine**      **\$14**



## Patient Testimonials

Before I started seeing Dr. Clark, I was having migraine headaches 5-7 days a week for over 6 years due to a car accident. I had to take migraine medicine at least once a day to be able to function, and to do everyday things. I did physical therapy for about a year but really didn't have anything to brag about with my results. But after being treated by Dr. Clark for about 2 months, I've maybe had 5 migraines! And during the first 3 weeks of treatment no migraines at all! I know that I will not be healed overnight, but during the short time I have been seeing Dr. Clark, and with the huge improvements that I've seen so far, I know there is a light at the end of my tunnel!

Thanks so much to Dr. Clark and his team!

Amber Wasiljov

Contact Clark Chiropractic Center to Make an Appointment at 443-637-4936 or visit us on the web at [www.clarkchirocenter.com](http://www.clarkchirocenter.com)