

Organic foods, Stanford study, pesticides and the brain

By Trudy Scott, Food Mood Expert and Certified Nutritionist,
author of *The Antianxiety Food Solution*



Conventional peppers are highly sprayed with pesticides

We should be concerned about non-organic produce and pesticides despite the recent research published by Stanford: Smith-Spangler C, Brandeau ML et al. 2012. [Are Organic Foods Safer or Healthier Than Conventional Alternatives?: A Systematic Review](#). *Annals of Internal Medicine*. 2012;157(5):348-366

There are two parts to this study:

- the study states there is no difference between the nutrient values in organic vs non-organic produce : “*The published literature lacks strong evidence that organic foods are significantly more nutritious than conventional foods.*” However it appears some studies that do show differences were not included in the review – see Jeff Cox’s blog below
- the study recognizes that pesticides are present in non-organic produce but that they are possibly nothing to be concerned about. I disagree with this and will show you the evidence.

The focus of this article is to address this statement in the conclusion: “*Consumption of organic foods may reduce exposure to pesticide residues...*” and why it’s important.

Let’s look at the some of the research around pesticide exposure and how this can affect the brain, cognition, ADHD, anxiety and depression in particular.

Mearns J, Dunn J et al. 1994. [Psychological effects of organophosphate pesticides: A review and call for research by psychologists](#). *Journal of Clinical Psychology* 50(2):286-294.

Organophosphates (a commonly used toxic pesticide) “*act directly on the nervous system by inhibiting the neurotransmitter acetylcholine.*” They have “*acute psychological and behavioral effects, such as anxiety, depression, and cognitive impairments.*” The researchers suggest that long-term psychological effects of low-level exposure have not been determined satisfactorily.

Mackenzie Ross SJ, Brewin CR et al. 2010. [Neuropsychological and psychiatric functioning in sheep farmers exposed to low levels of organophosphate pesticides](#). *Neurotoxicology and Teratology*.32(4):452-459.

In this study sheep farmers exposed to low levels of organophosphate pesticides experienced increased anxiety and depression, as well as worse cognitive function and memory.

Bouchard MF, Bellinger DC et al. 2010. [Attention-deficit/hyperactivity disorder and urinary metabolites of organophosphate pesticides](#). *Pediatrics* 125(6):e1270-1277.

More recently, this study found that even low levels of pesticides in conventionally grown vegetables and fruit increased the risk of developing attention deficit/hyperactivity disorder in 8 to 15 years of age.

Cherry N, Burstyn I et al. 2012. [Mental health in Alberta grain farmers using pesticides over many years](#). *Occup Med (Lond)* 62(6):400-6.

When it comes to elderly grain farmers in Alberta those “*with mental ill-health in hospital discharge records were more likely to have been exposed to phenoxy compounds for ≥ 35 years.*”

Coleman MD, O’Neil JD et al. 2012. [A preliminary investigation into the impact of a pesticide combination on human neuronal and glial cell lines in vitro](#). *PLoS One*. 7(8):e42768.

This study found that certain fungicides (pyrimethanil, cyprodinil and fludioxonil), alone and also in combination “*showed significant reductions in cellular ATP.*” “*The effects on energy metabolism were reflected in their marked toxic effects on mitochondrial membrane potential.*” There was also “*evidence of oxidative stress.*” The authors conclude: “*This report suggests that the impact of some pesticides, both individually and in combinations, merits further study in terms of their impact on human cellular health.*”

Braquenier JB, Quertemont E et al. 2010. [Anxiety in adult female mice following perinatal exposure to chlorpyrifos](#). *Neurotoxicol Teratol*. 32(2):234-9.

In this study “*chronic perinatal exposure to low doses*” of insecticides led to an increase in anxiety in the offspring of female mice. The authors suggest that “*the routes of administration and the duration of exposure during brain development may be factors to consider when studying the development of anxiety.*”

Malhotra A, Nair P et al. 2011. [Efficacy of zinc as a nutritional supplement in ameliorating chlorpyrifos-induced neurotoxicity in rats](#). *J Environ Pathol Toxicol Oncol*. 2011;30(3):225-33.

This animal study found that pesticide exposure resulted in an “*increase in the levels of lipid peroxidation and reactive oxygen species in both cerebellum and cerebrum.*” Also, glutathione (a potent detoxifier) was decreased and anxiety levels were increased. The interesting thing is that researchers concluded that zinc (one of my favorite nutrients for anxiety and depression) “*has potential to act as a neuroprotectant against pesticide-induced neurodegenerative and behavioral disorders but further investigations need to be conducted to understand the exact mechanism of neuroprotection.*”

I’m encouraged by this research and look forward to further studies that will examine the impacts of pesticides on the nervous system. So yes, we obviously do need to be concerned about

pesticides in the produce we consume. This [August 2012 Neurotoxicology](#) paper states it well: *“The association between pesticide exposure and neurobehavioral and neurodevelopmental effects is an area of increasing concern .”*

Footnote and additional reading:

This is the headline of one of the [original Stanford blogs](#): **Little evidence of health benefits from organic foods, Stanford study finds.**

Much of the media used this and ran with it. Here is the [article on ScienceDaily.com](#) [NPR’s food blog](#). [The Salt](#) took the same approach as did Huffington Post and others.

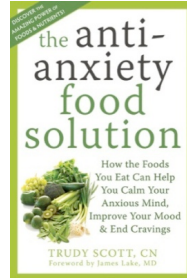
Thank you France Moore Lappe for your wisdom: [Stanford Scientists Shockingly Reckless on Health Risk And Organics](#). And [Mike Adams, the Health Ranger](#) writes: **Flawed organic foods study really just a media psyop to confuse the public about organics while pushing GMOs.** Jeff Cox, shares [some of the nutrient research that seems to be missing from the Stanford study](#) in his blog: **Monsanto’s Tricky Plan to Defeat GMO Labeling?**

This is from a blog post written by Trudy Scott on October 3, 2012.

We’d love to hear your thoughts and experiences - you can comment on this article here <http://www.everywomanover29.com/blog/organic-foods-stanford-study-pesticides-and-the-brain/>

I am Trudy Scott, a Food-Mood expert and nutritionist and I educate women about real whole food and finding natural solutions for anxiety and stress, depression and low motivation and other mood problems. I am so passionate about what I do because I used to suffer terribly from anxiety, unexplained fears, waking with a sense of doom and even panic attacks - and I have used gluten elimination and the amazing healing powers of foods and nutrients to completely heal.

You can read more about pesticides and food quality in my book ***The Antianxiety Food Solution: How The Foods You Eat Can Help You Calm Your Anxious Mind, Improve Your Mood and End Cravings***. You can also read about the other areas that may affect your mood: eating real whole food (including four unique antianxiety food solution diets), avoiding sugar and balancing blood sugar, avoiding caffeine and alcohol, optimizing digestion, food intolerances, balancing brain chemistry, addressing zinc and vitamin B6 deficiencies and lifestyle factors. You will be able to use this information to take charge of your mental and physical health – so you can feel on top of the world always!



I invite you to sign up for my twice-a-month ezine “*Food, Mood and Gal Stuff*” here www.antianxietyfoodsolution.com or here www.everywomanover29.com. You’ll get up-to-date information, new research, recipes, workshop, new product information and two free Special Reports “*5 Simple Steps to Reduce Anxiety Now*” and “*9 Great Questions Women Ask About Food, Mood and their Health*”. You can also find many great articles on my blog www.everywomanover29.com/blog

And if you need more help and one-one support, please contact me about a consultation. I do work with people all over the world and we start the process with a complimentary 15-minute phone consultation. Again, please just email me trudy@everywomanover29.com
To your health and happiness!

Trudy

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