

From: <http://www.americanhealthcarefoundation.org/cervical-cancer-md/GSH.cfm>

## **The Role of GSH in Cervical Cancer Glutathione (GSH)**

**Jimmy Gutman, MD, commenting on Cervical Cancer in his new book 'GSH, Your Body's Most Powerful Protector', states:**

"There are many types of cancer, and perhaps hundreds of potential causes, but most cases are accompanied by poor antioxidant defenses."

" To make matters worse, most anti-cancer therapies place an enormous burden on the body and may deplete whatever natural defenses remain."

"Elevated glutathione replenishes antioxidant defenses, contributes to synthesis and repair of DNA and helps detoxify numerous carcinogens and mutagens."

Cervical cancer usually begins with changes, known as cervical dysplasia, in the cervical cells. The main risk factor in developing cervical dysplasia, which can develop into cervical cancer, is infection with the human papillomavirus (HPV).

"Cervical cancer sufferers must place themselves in the best possible medical hands, but must also take care of their nutrition."

The wealth of medical articles describing the role of GSH in Cervical Cancer prevention and treatment – fall into three main groups:

### **1) Prevention:**

- antioxidation
- detoxification of carcinogens
- heightened immune response

### **2) Therapeutic:**

- anti-tumor methodologies
- malnutrition and wasting

### **3) Chemotherapy and Radiotherapy:**

- enhancing effectiveness
- cells vulnerable to therapy
- minimizing side-effects:
  1. less depression
  2. vomiting
  3. hair loss
  4. shortness of breath
  5. neurotoxicity

## **Prevention**

GSH plays a crucial role in *protecting you from cervical cancer*.

Cell damage occurs when free radical oxidants are being formed at a rate greater than *anti* - oxidant systems can fight. GSH is the cells primary antioxidant protector.

For example, exposure to cigarette smoke would necessitate tissue cells to synthesis GSH in response to the oxyradical threat.

Cigarette smoke (including 2nd hand smoke) causes up to one million oxyradicals per inhalation.

On sunny days, GSH in our skin cells - must protect us from UV radiation – which produces oxyradicals that wreak havoc inside us.

Such threats that, if left unchecked will corrupt the cell DNA – initiating a cancer.

If the cells have low GSH levels - then damage goes '*undefended*' - impairing effective cell replication, placing the cell on the path towards tumor formation.

When your cells are glutathione deficient, your body's natural antioxidant defense systems cannot protect, (external antioxidant's C & E only work partially without the support of GSH),because GSH has been found to be the principal free radical scavenger and antioxidant.

Low levels of GSH signify that none of the *cancer safeguarding* needing to be done - gets done.

Commenting on the protective role of GSH, James R. Balch, MD., author of 'The Super Antioxidants – How They Will Change the Face of Healthcare in the 21 st Century', noted, “This means that lipid peroxidation goes wild, other toxins attack the cell, radiation damage is not repaired, and there is no regulation of antioxidant activity or DNA replication.”

He concludes, “In other words, it is a cancer *waiting to happen*.”

Of specific interest in cervical cancer prevention – is that high levels of GSH have been found to protect against the carcinogenic properties of cigarette smoke.

The Institute of the Netherlands were so excited by the effects of raised GSH, they regard it as a most promising cancer chemo-preventative agent.”

## **Detoxification**

Low intracellular GSH levels are a clear risk factor, especially for cervical cancer.

When a cell in your body turns cancerous, your body deploys its natural defenses to remove the toxin.

Dr. Balch reports, “Environmental carcinogens, such as carbon monoxide and heavy metals... have been identified as being susceptible to attack from glutathione.”

Many combustion products, such as hydrocarbons found in traffic haze and air pollution, are cancer causing with the cervical cells susceptible to considerable oxidative stress.

The more we are subjected to inhaling carcinogenic substances – the greater our reliance on our GSH detoxification mechanism.

When GSH clears the cells of cancer causing toxins, it bonds with them... to neutralize the poison, and then leaves the cell to be eliminated in the bile or urine.

Your body has been able to naturally *defend* and *cleanse* itself.

## **Therapeutic**

One of glutathione's effects upon our immune system is to control and balance the growth of T-cell lymphocytes (white blood cell), thereby strengthening the immune system.

Glaxo Wellcome Research and Development scientists showed that high GSH levels act against tumors by elevating TNF. In the laboratory they halted tumor growth in more than one third of mice injected with cancer cells.

University of Utah researchers had similar success in suppressing tumor growth by raising GSH to stimulate IL2 - a promoter of white blood cell activity.

Commenting on the anti-tumor function of GSH, Dr. Alan Pressman, in 'The GSH Phenomenon', explains, “If your antioxidant levels are high, your immune system will function optimally – and destroy the renegade cells quickly.”

However, if your GSH levels are low, because free radical oxidants are being formed faster than *anti* -oxidant systems can fight – cancerous cells may not be detected.

This unchecked cell forms into a mass (tumor) that develops its own blood supply.

Even then, Dr. Pressman notes, “even after a tumor has formed, high levels of GSH... in your blood could keep it under control by slowing its growth rate and activating your immune system to fight back.”

Never underestimate your body's power to fight back – when given the raw material it requires.

Many years ago studies showed that oral supplementation with the right nutritional material consistently raised and sustained GSH levels to reduce or eliminate various tumor/cancer growths and dramatically improve the immune function.

Of particular note in the current research, is the underlying fact that any form of cancer depletes or ‘exhausts’ your GSH antioxidant protection.

Cells constantly bombarded by high levels of oxidative stress generated by cervical cancer cannot function properly.

### **Supports Chemotherapy**

Chemotherapy and radiation therapy generate massive amounts of oxidative stress on your body.

Your cells are especially vulnerable at this stage. This is not the time to go ‘undefended’ during a free radical attack.

This is the time to ensure your antioxidant protection systems are capable of counteracting this increased attack on your cells.

This should be of utmost importance, as numerous studies have shown that patients with high GSH levels experience fewer and less side effects.

In addition, American and European researchers have successfully shown high levels of GSH are effective in slowing and reducing the growth of tumors.

Significantly, the researchers found patients who raised their GSH levels are less likely to have reoccurrence or secondary cancers later.

### **Cancer Cells Vulnerable**

One of the challenges of Oncology is how to deplete tumor cells of glutathione, making them *more susceptible* to the effects of chemotherapeutic drugs - while at the same time allowing healthy cells to remain unaffected.

Clinical studies have shown that tumor cells are ‘smart’ – in that they mobilize and *elevate their own GSH levels*. This effectively allows GSH to ‘protect’ a cancerous cell from radiation and provide resistance to chemotherapy drugs.

A German study found that cancer cells *resistant* to apoptosis (cell death) had *higher GSH levels* .

Depletion of GSH in these tumor cells made them more vulnerable to the effects of chemotherapy.

The researchers concluded that apoptosis resistance in tumor cells depends, in part, on high GSH levels.

A Clinical Study published in Anticancer Research, showed a nutraceutical supplement, while synthesizing GSH in healthy cells - selectively *lowered cancer cells of their glutathione*, thus rendering them more vulnerable to radiation and chemotherapy.

Paradoxically, the nutraceutical while raising GSH levels in healthy cells – triggered the opposite reaction in cancer cells.

A research team from Saskatchewan gave toxic doses of chemotherapy to patients with *advanced progressive cancer* – plus raised their GSH levels.

They hoped that raising GSH in normal cells only – and their results bear them out. *More than half the patients* showed either improvement or stabilization.

These findings are collaborated with other studies showing cancer patients were more likely to respond to chemotherapy and radiation therapy – when their GSH levels were raised.

The Cancer Letter reports, Spanish researchers found that elevated GSH levels induced a swift and direct apoptosis mechanism in tumor cells, enhancing the efficiency of chemotherapy.

### **Fewer side effects**

In addition, patients with higher GSH levels in normal cells, experience *far fewer* side effects from chemotherapy and radiation therapy.

Radiotherapists studying the protective role of GSH have linked patients who raised their GSH levels before undergoing treatment – with having been 'protected' from radiation burns and greater tolerance to therapy.

A University of California at San Diego study showed subjects who raised their GSH levels in combination with standard chemotherapy, were able to take higher doses, while experiencing fewer side-effects.

A large Scottish study of one hundred and fifty women with cancer, being treated with standard chemotherapy cisplatin, were supplemented to raise their GSH levels.

They were compared to a second group without raised GSH levels.

The first group who raised their GSH, had statistically less:

- depression
- vomiting
- hair loss
- shortness of breath
- neurotoxicity
- wasting

In addition, their mental concentration and kidney function improved measurably and there was a distinct trend toward a healthier outcome.

Due to the huge amounts of oxidative stress generated by chemotherapy and radiation treatments, if your GSH protection systems don't counteract this increase in free radical damage, – your side effects will grow worse.

### **Hair Loss**

Researchers at the University of Miami and others have demonstrated that elevated GSH levels can protect from the baldness caused by commonly used chemotherapy agents.

### **Loss of Appetite**

Weight loss, lack of appetite, and lack of energy because of chemotherapy and radiation therapy – are unavoidable. However, keeping your GSH elevated may slow this process.

Every cancer case is unique and must be treated individually. If you are about to begin cancer therapy, we recommend you discuss raising your GSH levels with your physician or oncologist.

If they recommend you – “wait to see how the cancer treatment progresses – “things are under control”, we recommend you seek advice from another physician – who is more open minded, or a physician familiar with GSH therapy as an adjunct to cancer treatment.

### **Anti-Inflammatory Effect**

Inflammation is in itself, an indication of a high degree of oxidative damage.

Samples of inflamed tissue show consistent evidence of severe oxidative stress, where the degree of oxidative damage has been correlated to the degree of inflammation.

Australian researcher G.D. Buffington studying inflamed tissue noted the significant depletion of Glutathione within the tissue. <sup>24</sup>

Of all the antioxidants that can prevent or retard the pain response, GSH has been identified as the central one.

Evidence demonstrating the importance of combating oxidative stress with optimal GSH levels, for an anti-inflammatory effect throughout your body is consistent. <sup>2,10</sup>

[Read about Oxidative Stress](#)

GSH, by enhancing the immune system, could prevent many unnecessary visits to the doctor.

## **Raising GSH Levels**

Raising the level of GSH within each cell of your body is a safe method for patients with cervical cancer to prevent the recently identified source of disease and inflammation – oxidative free radicals.

The simple act of raising and sustaining your own cellular protective forces – is destined to change the paradigm in the medical community, which it already has in scientific circles.

As the result of many decades of research focused on how to modulate the immune system – there are now several manufacturers both in the USA and Canada providing proteins, high in undenatured cysteine that are biologically similar to the cysteine found in mother's milk.

As a patient with cervical cancer, we urge you to investigate the benefits of protecting each cell in your body – simply by adding these GSH precursors to you diet.



*[Fig 1: Source - FDA website](#)*

The FDA published a slide (Fig 1) showing some areas of how GSH is lowered.

It was found the decline in GSH levels begins to rapidly occur at age forty in the average population.<sup>24</sup> (see chart below)

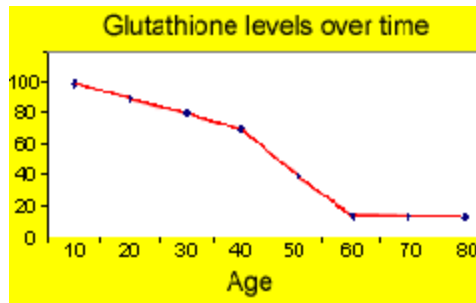


Fig 2: Source - Cellular Health Foundation

Clinical studies have proven that immune depressed individuals have lower GSH concentrations.

**The blood and tissues of people with Cervical Cancer are marked by critically low GSH levels.**

Research trials have revealed a correspondence between low GSH levels and higher complications.

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## What is Glutathione?

Glutathione (pronounced "gloota thigh own"), or GSH, a small protein, is an essential component of our immune system.

It is produced naturally by cells throughout our body, and plays a vital role in cancer as:

- A cell's most important **Antioxidant**
- An **Immune System** component
- A **Detoxifying** agent in our body

Research now demonstrates the correlation between a precipitous fall in this unique molecule – and cancer.

You've probably never heard of it because in supplement form it is useless to take.

Yet, almost half of the 'baby boomer' generation - individuals over 50 - are deficient in this molecule, leading to greater susceptibility to all kinds of disease.<sup>20</sup>



The FDA has published a list of everyday agents such as vigorous exercise, smoking, UV radiation, and coffee, which actually work to deplete this vital 'protector' from our bodies.

Clinical studies show that if you provide your body with 'specific building blocks', it will make a constant supply of this precious molecule for you. [2.3.4.9.14](#)

## **Critical Element Missing**

Glutathione must be made, or synthesized *within the cell* because GSH cannot be transported into cells in a supplement or 'pill' form. <sup>1</sup>

Each cell requires the three 'building blocks' or pre-cursors to enable the process to proceed. If only two of the three building blocks are present – *the building does not proceed – no matter how great the need* for GSH.

Two of the three, amino acids: glutamic acid and glycine are readily available in our diet.

Sadly, it is the availability of the third amino acid, *cysteine* – that limits the production of GSH.

This is because cysteine, although plentiful in raw milk and fresh eggs, is 'de-natured' in pasteurization and cooking.

In being denatured, any cysteine we receive in our diet is no longer biologically alive for the purposes of an effective 'building block'.

We have been unable to provide an un-denatured building block to our diets.

Why aren't we replacing GSH in our diet, especially considering it's a *naturally occurring protein* in each cell – giving us such fundamental protective value?

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## **Summary**

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Glutathione is the key protective molecule of your immune system.

For your cells to make GSH they require a regular source of natural cysteine.

The Foundation has identified several resources that are FDA recognized as food supplements to raise GSH levels. No prescriptions are necessary. Some are listed in the 2005 Physicians Desk Reference (PDR).

[Click for PDR extract](#)

One such natural supplement is now classified as a Nutraceutical and meets the criteria for Medicare / Medicaid reimbursement.

Although Medicare / Medicaid do not cover oral supplements, coverage is applicable for intravenous tube feeding in hospitals.

For 25 years hospital ER's have been injecting N-acetyl-cysteine (NAC), a synthetic form of cysteine, to quickly raise the GSH levels of a patient to temporarily boost the immune system.

Previous generations were not aware that our cells had such protective power.

Now, individually, we have been given the ability to give our cells the 'building blocks' they need.

Because of the research and scientific validation, we believe raising GSH levels – both naturally and even by synthetic means - will have major positive consequences for patients with cervical cancer.

The physician of the future will ask, "Let's take your blood pressure and check your glutathione levels".

Its adoption as standard healthcare practice is on the horizon.

We urge you to speak to your physician about raising your GSH level – in every cell of your body.

[Click here for References in the above article](#)



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**To request further resource information for different methods used to raise and sustain your GSH levels, please fill out the form in confidence.**