**Introduction**

**Part I:**

**The Reality of an Incurable Disease**

Marilyn Morris has had an unbelievable life filled with pain, suffering, and little hope. From September 29th to October 22nd, 1995, this 42-year-old mother of three children somehow survived five surgeries, three standard chemotherapy treatments, and CAT scans of her heart, chest, abdomen, and bones. By the end, she had lost significant weight, her scalp was bald to the veins, and the tremendous agony seemed endless. Her bone marrow had to be withdrawn from her hip, and she was ordered to drink sulfate causing excruciating stomach cramps and severe diarrhea. Marilyn?s doctors treated her like she was ?so much tissue without a personality? (Heinerman?s Encylcopedia of Juices, Teas, and Tonics). Throughout the incessant treatments and procedures, Marilyn had become the victim, and cancer had become the vicious culprit. This story is one of countless; in fact, very few families remain who have not yet been affected by this disease. One out of every three U.S. citizens will develop cancer at one point in his or her life. It has been with us since ancient Egypt when the pharaohs were found to be plagued with various assortments of enigmatic tumors. Now, almost half a million people in this country are face to face with the enemy.

The types of cancers out there are innumerable; some include: breast cancer, brain cancer, kidney and pharynx cancer, leukemia, mouth cancer, prostate cancer, and colon cancer; each with its own multitude of symptoms. Cancer results when a group of cells grows and multiplies in uncontrolled and disorganized ways. The primary site or primary tumor is the beginning of the life-threatening condition and the cells there reproduce every 2-6 weeks, breaking down the normal barriers that keep the body?s cells in order. Secondary tumors will then form and soon the inevitable occurs; the cancer has spread throughout the entire being, taking away any optimism for recovery.

Conventional treatment is of course the standard approach for one who has been diagnosed with any form of cancer because the fear of death is so great, anything else seems irrational. After Marrie and Pierre?s discovery of radium and the findings of mustard gas?s potential, following World War II, radiotherapy and chemotherapy became the most popular means of dealing with cancer; however, the truth of these processes is only revealed in the real-life, human stories such as Marilyn?s. Alan Levin, M.D., of the University of California Medical School, points out that ?women with breast cancer are likely to die faster with chemotherapy than without it? (?Alternative Medicine?). In addition, John Cairns, M.D., of the Harvard University School of Public Health notes that ?of the approximately half a million people who die each year of cancer, only about 2 to 3 percent of them actually gain any benefit from chemotherapy? (?Alternative Medicine?). Even Dr. Julie Gralow, an oncologist at the Fred Hutchinson Cancer Research Center in Seattle admits ?We may be far over treating our patients? (Gorman). Intense nausea, vomiting, diarrhea, hair loss, and extreme fatigue are only the basic side affects of these medications that are supposedly helpful to those that are diagnosed with the disease. It is no wonder that so many respected doctors and scientists are looking to new, natural ways of conquering the illness since the torture implemented by common practice seems ironic to its purpose. With an array of alternative medicines to choose from, grape seed extract seemed the most valuable and supported starting point.

**Part II:**

**Why Grape Seed Extract?**

Plant extracts are mankind?s oldest medicines. One third of all the prescription drugs in the US are based on plant extract. Common botanicals used to fight cancer include: ginseng, green tea, mistletoe, polyphenols (found in grape seed extract), carotenoids, bioflavonoids (also found in grape seed extract), garlic, echinecea, and much more. Grape seed extract, one of the most powerful antioxidants, was discovered in 1534 by the French explorer, Jacques Cartier, when Canadian natives showed him how to make a nourishing tea from pine tree bark and needles. Despite the fact that very little was known about this naturally occurring substance, it mysteriously kept Cartier?s crew from dying of scurvy. Grapes were first cultivated near the Caspian Sea for the use of food. Eventually, their use spread throughout the Mediterranean. Ancient Greeks once believed that wine (derived from grape juice) had wonderful health benefits. Inevitably, their beliefs were confirmed by modern science. The ground seeds of the common red grapes processed for wine production are the main source for the extract (sometimes the skins are used). Over the years, grape seed extract has become a very popular and important dietary supplement.

Recently doctors have been turning to alternative forms of medicine when presented with the dilemma of cancer. One of these holistic types of medicine is believed to be grape seed extract. The chemicals found in grape seed extract are currently being studied for possible uses in the prevention and treatment of cancer and other illnesses.

Grape seed extract contains polyphenols (from the phytochemicals family), which are chemicals that kill viruses and destroys free radicals (substances that are believed to damage cells through oxidation, impair the immune system, and contribute to infectious or degenerative diseases, such as cancer). Grape seed extract is also comprised of a group of compounds called the bioflavonoids (flavonoids with biological activity) that work together with Vitamin C to stimulate the detoxification of drugs by the liver enzymes. Dr. Morton Walker, from the Medical Journalists? Report of 1991 stated, ?Although bioflavonoids are not true vitamins in the strictest sense, collectively they are sometimes referred to as Vitamin P...They are powerful antioxidants and free radical quenchers.? (Graedon).

All of the chemicals found in grape seed extract fall under the common category of compounds known as antioxidants. Antioxidants are an essential composite for the body because they are said to control the formation of dangerous substances in the body called free radicals. This statement is supported by numerous medical experts from all over the world. For example, cancer specialists, Davis W. Lamson and Matthew S. Bringall, stated, ?Antioxidants have been shown to have anti-tumor properties,? (?Beating Cancer with Nutrition?), in their article for the Alternative Medicine Review Journal.

Free radicals are produced from normal oxygen metabolism within the body; and from exposure to certain chemicals, environmental pollutants, sunlight, radiation, burns, cigarette smoke, drugs, alcohol, viruses, bacteria, parasites, dietary fats, and more. Grape seed extract is believed to be an antioxidant that neutralizes these free radical atoms. Perhaps one of the most powerful and potent forms of an antioxidant found in grape seed extract is a bioflavonoid complex known as ?Proanthocyanidin?, or more commonly called PCOs (Procyanidolic Oligomers). The name was originally given to this complex by Dr. Jacques Masquelier in the 1940s. Grape seed extract has the highest concentration (95%) of the PCO complex extract. PCO extracts (such as grape seed extract) have been scientifically studied and used for medical purposes in Europe since the 1950s. Some of the observed benefits include:

\*enhanced capillary strength and vascular function (helps the heart, decreases: PMS problems, bruising, edema from injury or trauma, leg swelling, and much more)

\* better immune resistance

\* increased peripheral circulation; improves vision

\* decreases allergic and inflammatory responses (by inhibiting the release and synthesis of certain compounds such as histamine, serine protease, prostaglandins, and leukotrienes)

\* reduces chances of skin aging and loss of elasticity (by stabilizing collagen and elastin)

\* prevents the stickiness of blood platelets which lead to blood clots and strokes; reduces blood pressure and cholesterol levels

\* benefits the circulatory system (a 1995 study called ?Circulation?, published in the journal of the American Heart Association, showed that six glasses of grape juice were as effective as two glasses of wine in preventing heart disease.)

\* helps in healing ulcers (by reducing histamine secretion and by binding to and protecting connective tissue in mucous membranes)

\* although it is not considered a cure for cancer in its entirety, experimental evidence shows that antioxidants greatly reduce all types of cancer (by protecting cellular DNA from oxidative damage and cell mutations which can lead to cancer)

\* can prevent cataract progression; helps in the prevention and treatment of glaucoma

\* helps protect the skin from UV radiation (which lead to wrinkles and skin cancer)

\* has the ability to reduce progressive symptoms of Multiple Sclerosis in patients

\* is effective in treating asthma (by reducing coughing, wheezing, weakness, mucous and respiratory infections)

In short, clinical studies showed that people using grape seed extract have improved the following conditions:

- allergies

- arthritis

- asthma

- blocked coronary arteries

- diabetes (insulin dependence)

- high cholesterol

- blood circulation

- hemorrhoids

- joint inflammation

- skin problems (brown spots, cellulite, scars, etc.)

- vision problems (glaucoma)

- and much more?

The advantages of PCO are the following:

\* is bioavailable and immediately absorbed from the stomach into the bloodstream

\* distributed to practically every organ / tissue; remains in the body for a period of 72 hours, before having to take the medication again

\* neutralizes free radicals; conserves and regenerates vitamins C & E; because vitamin E is used up quickly, PCO works with vitamin C to regenerate vitamin E

\* one of the very few antioxidants that crosses the blood / brain barrier (choroids plexus) to protect neural tissue

\* have been proven to be completely safe Dr. Liviero L. Puglist, from the Journal of Fitother 1994, declared, ?Proanthocyanidins obtained from vitis vinifera seeds were investigated in vitro for their antimutagenic affect. They resulted to be strong agents in counteracting spontaneous mutation, both at the mitochondrial and nuclear levels of the cells. This effect, at least in part, is due to the antioxidant properties of proanthocyanidins and could be a rational basis for their potential use in chemoprevention of several pathologic situations (i.e., cancer)? (Graedon)

Another common antioxidant found in grape seed extract is known as ascorbic acid (a.k.a. Vitamin C). Ascorbic acid is said to:

\* enhance the immune system

\* stimulate collagen formation necessary for ?walling off? tumors (?Alternative Medicine?)

\* inhibition of hyaluronidase (which keeps the ground substance around the tumor intact and prevents metastasis)

\* prevents oncogenic viruses from invading and attacking the body

\* neutralizes carcinogenic substances In a recent Alternative Medicine Review issue, Dr. Ewan Cameron stated, ?While Vitamin C alone may not be enough of an intervention in the treatment of most cancers, since it appears to improve quality of life and extend survival time, it should be considered as part of a treatment protocol for all patients with cancer, whether they have chosen a primary orthodox, alternative medical, or complementary approach.? (Miller).

While grape seed extract is proven to have positive effects on people?s health (by preventing and reducing the chances of a pathologic disease), there is not enough evidence that grape seed extract, in its entirety, can completely cure a disease, such as cancer. Experts recommend that people should follow a healthy, balanced diet, along with their clinical treatments, in order to avert the chances of a lethal disease like cancer, and retard its rapid growth. Data exists in scientific literature showing the reduction in the risk of tumor occurrence, achieved by the use of nutritional and other natural materials. The best available strategy for preventing common types of malignancy is by adhering to appropriate use of supplemental nutrition (such as grape seed extract) and diet, and avoiding dietary and lifestyle risk factors. In his book, Beating Cancer with Nutrition, Dr. Patrick Quillin, PhD, states,

?Chemotherapy, radiation, and surgery can temporarily reduce tumor burden, but these therapies do not change the underlying causes of the disease. Comprehensive cancer treatment must include an aggressive nutritional component, which can increase life expectancy by12 to 21 fold along with better chances for complete remission.? (Quillin).

Grape seed extract, the ideal dietary supplement, has been suggested by numerous medical doctors, to be used along with regular treatments, in order to lower or prevent the chances of cancer mutation.

**Part 3: Our choice: The Right Choice**

Cancer cells are analogous to root tip cells in that they both rapidly reproduce. Therefore, if the grape seed extract was found to have any effect, whatsoever, even if it was not the effect one was hoping for, one could assume it would have almost the same effect on cancer cells. Any vegetable with rapidly dividing cells in its root would have been just as excellent a candidate for our experiment, as radish seeds. However, the rate of growth, the optimal season for growth, and the environment the seeds grow in, had to be taken into account to achieve the best possible results. Radish seeds have the quickest growth rate and will most likely show clear and easily measured results.

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