The Use of

Amygdalin

in

Metabolic Cancer Therapy

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Introduction

- In recent years a significant reassessment of the nature and causes of cancer has taken place. Cancer was formerly believed to be a localized disease, characterized by a lesion, usually in the form of a growth, which appeared at some specific part of the body. This localized lesion was thought to be the result of activity produced by an invading virus, carcinogenic agent, or some form of trauma such as a blow.

- Today, there is a growing conviction among researchers and physicians that cancer is a complex disease that is the end result of a disturbed metabolism (body chemistry). It is an insidious disease that involves the entire body; the nervous system, digestive track, pancreas, lungs, excretory organs, endocrine system and the entire defense mechanism. The frequent reoccurrence of a malignancy after treatment with the conventional methods of surgery, radiation and/or chemotherapy, results because the basic underlying metabolic cause of the cancer is rarely considered and consequently remains uncorrected.

Cancer Etiology

- In the human body there are many thousands of cells that are arrested, during development, at an embryonic stage. These cells are called mesenchymal cells, fibroblasts, neoblasts, etc. Their primary function is repair. When a bone is broken, these cells can develop into bone cells. If blood is lost, these same cells are able to transform into blood cells.

- They are truly pluripotential and can react to any number of morphogenetic stimuli. The same cells, when subjected to carcinogens (cancer causing chemicals) develop into cancer cells. Each day, in every human being, large numbers of these normal embryonic cells become cancerous. They rarely, however, become the disease that we call cancer due to a remarkable system called the immune system. The function of this system is to destroy or neutralize all foreign material in the body. Once an embryonic cell becomes a cancer cell it is, from a biochemical view, foreign to the body. We, therefore, continue to remain healthy because the lymphocytes, macrophages and other components of the immune system are able to neutralize or destroy these cells and prevent their spreading and multiplication. These cancer cells are normally destroyed by our bodies defense mechanisms within a few hours.

Cancer Etiology

- If the immune system, however, is weakened from poor nutrition, excessive environmental pollutants or a continuing debilitating stress, the cancer cells are uninhibited and will multiply rapidly forming the symptomatic growth of cancer.

- Our immune system generally weakens with advancing age. This increases the possibility of degenerative metabolic diseases occurring.

- One of the primary objectives of all metabolic therapy is to revitalize the body's immune system, to restore it to a fully functional condition. Accomplishment of this goal permits the immune system to eliminate or otherwise negate the cancer cells before they can begin an invasive growth.

- Metabolic physicians and researchers believe that we can remain healthy if we supply the individual cells of the body with the proper amounts of oxygen, nutrients, enzymes, minerals, aminoacids and other essential nutrients from both our diet and nutritional supplements. Of equal importance is the ability of the body to eliminate the waste products of cellular metabolism through proper bowel movements, efficient breathing, normal excretion, etc.

- Treatments must be provided which will help the body detoxify itself by eliminating harmful pollutants.

- This, in essence, is the heart of metabolic therapy. It is a multi-faceted program incorporating numerous related elements, each of which plays an important role in the success of the complete therapy.

Amygdalin's Mode of Action

- Amygdalin is a relatively simple compound found in much of our food supply. It is most abundant in the seeds of non-citrus fruits. Most commercially prepared amygdalin is extracted from the seeds of the apricot.

- Amygdalin is composed of two molecules of glucose (a sugar), one molecule of hydrocyanic acid (an anti-neoplastic compound), and one molecule of benzaldehyde (an analgesic).

- In metabolic therapy, the amygdalin is broken down into its component parts as a result of the action of beta-glucosidase. This enzyme is found in abundance in cancer cells, and is relatively deficient in normal cells.

- Consequently, the cyanide is released only where there is an active cancer lesion. This liberation of cyanide under controlled and safe conditions insures that an adequate dosage can be administered without the threat of toxic side effects. This absence of cyanide toxicity is further insured by the action of rhodanese, another enzyme. This enzyme is present in large quantities in normal cells but in very small amounts in cancer cells.

- Detoxification of cyanide occurs, therefore, in normal mammalian tissue through the action of this rhodanese which, in the presence of sulfur- bearing compounds, converts free cyanide to thiocyanate, a perfectly non-toxic compound. The thiocyanate is excreted in the urine.

Clinical Factors that determine dosage adjustment

- During the course of treatment with amygdalin it is sometimes advisable to alter the dosage. The sense of well-being of a patient is probably the best practical guide in deciding whether or not a change in dosage is indicated. This subjective "good" feeling is influenced by the patients' ability to dispose of the toxic products that result from tumor breakdown and in the overall condition of the organ systems of the body.

- When drainage from a cancer area is inadequate, or detoxification and excretion are impaired, the toxins released by lysed cancer cells may cause an occasional episode of weakness, dizziness, increased body temperature or other symptoms of toxemia such as nausea, vomiting, diarrhea, fever and mental confusion. Such toxemia is usually temporary, lasting from a few hours to one day, and subsides as detoxification and elimination adjust to the rate of tumor breakdown. In the event the symptoms persist the patient's dosage level should be decreased. Once the toxemia abates, the dosage should be increased.

- In cases in which extensive radiation has taken place, or chemotherapeutic drugs have been used, the toxic effects of those treatments may mask the evidence of toxemis from cancer cell destruction.

- The destruction of the cancerous process in leukemia with amygdalin does not lead immediately to a reduction in quantity or quality of circulating "leukemia" cells. In fact, there may be an initial, although moderate, increase. The best criterion for adequate dosage is the patient's sense of well being over a period of many months and possibly years. During this time frame the gradual decrease of circulating white cells may be followed clinically.

Maintenance Dosage

- The time needed to develop the maximum response is four months to over a year. If a good response is obtained within the first three weeks (either at the clinic or in the physician's office) the dosage may be reduced or the clinical schedule of administration changed to suit the convenience of the patient.

- A severe cancer crisis that has been brought under control may be maintained in a quiescent state by the oral administration of 1 gram (2 tablets 500 mg each) daily. Some patients, however, claim to feel "better" or "safer" with 1.5 to 2.0 gms (3 or 4 tablets 500 mg each) of amygalin daily. Such dosage is determined through assessment of the patient's blood tests, gain in strength, increase in appetite, weight gain and psychological improvement. Reduction of anxiety and nervousness with exhibition of a more nearly normal degree of optimism an interest in his condition are obvious clues to psychological improvement.

- Abnormal situations, stress or ill health of any kind, have, on occasion, precipitated a renewed outbreak of the cancer process in some patients. The attending physician should be aware of these possibilities in those patients in whom the cancer has been under control. The patient may not be a reliable guide during the times of unrelated stress. In this situation the physician must rely on his own observations in judging whether or not the patient is over-extending his physiological resources.

- Once a cancer crisis has been successfully controlled for more than 2 years, with the patient showing good objective responses, the physician may reduce the maintenance dosage to a dietary level of amygdalin, equal to approximately 500 mg of amygdalin per day. Indicators of a good objective response include, but are not limited by the following:
- 1.- Gain in weight
- 2.- Increased strength
- 3.- Return to a more normal state of vigor
- 4.- Negative CEA and other blood test
- 5.- Improved in x-rays and other clinical evidence.

Administration of Amygdalin

I.- ***Slow Drip Infusion.*** The most efficacious mode of administration is through the slow-drip infusion technique which was developed at the Manner Clinic in Tijuana, Mexico. It became apparent that the breakdown of amygdalin and its subsequent detoxification was very rapid. If it were to be administered over a longer period of time, this could be overcome. In addition, the amygdalin must pass through many biological membranes in order to reach its site of action. This can be accomplished by combining the amygdalin with Dimethylsulfoxide (DMSO). Finally, as vitamin C is known to slow the growth of tumors, it is added to allow the amygdalin and the rest of the metabolic therapy more time to work.

- The following formula was developed:

  a). - 250 cc 5% Dextrose solution

  b). - 25 grams Vitamin C

  c). - 10 cc DMSO (99% surgical grade)

  d). - 9 grams of powdered amygdalin.

  The amygdalin should be added just prior to injection to insure maximum potency.

  This complete infusion is administered intravenously over a 2 to 3 hour period.

  More rapid administration can result in a localized burning sensation due to the large amounts of Vitamin C. This infusion is administered daily over the first 21 days of metabolic therapy.

II.- ***Intravenous Injection.*** In some instances where the slow drip infusion is not practical, intravenous administration of amygdalin can be used. This method provides the same high concentration in the blood as the slow drip infusion. Three vials (3 gram each) are administered in a slow intravenous push, usually in the brachial vein just proximal to the elbow. Preferably this administration should be between meals. The intravenous administration should be daily.

III.- ***Oral Ingestion.*** This is the most convenient and most frequently used method of amygdalin administration. The patients leaving the clinic are placed on oral amygdalin. Also, because of the difficulty for some patients in going to the physicians office daily, many doctors prefer this method.

- For treatment: The tablet size is 500 milligrams. Two of these tablets should be given 3 times a day. If patients have difficulty in swallowing, the tablets may be broken up and added to soft food. the patient should take 1 tablet six times a day.

- As a preventive: The tablet size is 100 mg. One or two tablets should be taken daily.

Note:

The data provided here are for informational purposes only. We recommend to follow your Doctor's instructions

Cyto Pharma's Amygdalin

- Cyto Pharma de Mexico S. A. is a company that has been in the market since 1971, we are a well known pharmaceutical company world wide, and, proud of our manufacturing process we can say that we produce the best amygdalin you can get.
- We are a leader in the field of amygdalin process and our research staff is constantly working to upgrade our products.
- Cyto Pharma de Mexico offers amygdalin in the following presentations:

  500 mg Tablets (bottle of 100 tablets)

  100 mg tablets (Bottle of 100 tablets)

  3g/10 cc inyectable solution(Box of 10)

  3g inyectable powder (Box of 10)

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B-17 (AMYGDALIN/LAETRILE): Nature's Own Chemotherapy for Cancer

The term laetrile was coined by Ernest T. Krebs, Jr. in the late 1940s as an acronym to describe a purified derivative of amygdalin laevo rotatory in polarized light that was chemically a mandelontrile. The Laetrile patented by Krebs and later successfully synthesized by an FDA-Johns Hopkins team in 1977 is spelled with an upper case L. It differs slightly from the more common, lower case version, laetrile, which is synonymous with amygdalin.

Amygdalin, however, is the principal constituent in Laetrile and is a naturally occurring cyanoglucoside. It can be obtained from various plant sources (vetches, clovers, sorghums, cassava, lima beans, acacia) and, most notably, the tiny seeds inside the pits of edible fruits and berries (apricots, peaches, plums, chokeberries). Amygdalin received legitimate status in the ninth edition of *The Merck Index* (Rahway, NJ, Merck & Co., 1976), a well-respected encyclopedic reference of chemicals and drugs, but only after years of considerable controversy surrounding it.

Amygdalin, under its more common name of laetrile, dominated news headlines from about 1977 to 1981. Two sides were fiercely pitted against each other in bitter confrontations. On one side were tens of thousands of cancer victims and alternative therapists, who believed that laetrile could really do something to help get rid of this dreaded disease. On the other side were scientists, doctors, and politicians who were equally determined that the public would never have access to what they viewed as a bogus remedy and potential poison.

But several things happened along the way that turned the tide very much in laetrile's favor. One precedent-setting case involved a then 58-year-old farmer from Wichita, Kansas named Glen L. Rutherford. In 1971 he was diagnosed with cancer of the rectum. When standard treatments proved ineffective, he went to alternative cancer clinics in Tijuana, Mexico for laetrile. Apparently it cured his cancer. On his return to his home state, he continued to get amygdalin from an illegal source who subsequently was arrested on account of the ban against it by the Food and Drug Administration (FDA). The feisty Kansas farmer went to the U.S. District Court in Kansas City and sued for an order prohibiting the FDA from interfering with his right to treat his own body in his own way.

"You [meaning the medical profession] set yourselves up as God and Jesus Christ all in one!" he barked out to the applause of an enthusiastic crowd at the federal government's first public hearings on the drug. "If I lost my laetrile, you would read my obituary in eight to ten months," he shouted with anger. "Give me the right to choose the way I want to die. It is not your prerogative to tell me how, only God can tell me that!" The courtroom audience hissed and loudly booed when physicians testified against laetrile and called it "sugar-coated cyanide."

A federal judge in Oklahoma City by the name of Luther Bohanon agreed with Rutherford and certified the man's class action lawsuit as meriting a ruling from the bench. His decision was to circumvent the FDA ban against laetrile and permit access to any cancer patients who wanted the substance. In his April 8, 1977 opinion, he stated that "many intelligent . . . citizens . . . have made a . . . decision . . . to employ an unproven and largely unrespected treatment in an effort to comfort, if not save, lives that orthodox [medicine] tells them have already been lost. They do so with an acute awareness of professional medicine's assessment of their choice. *Their decision should be respected!*"

The second setback for the laetrile opposition was a confusing series of statements issued by top officials at the Sloan-Kettering Institute in New York City, totally obfuscating its own research that supported amygdalin's anticancer properties. Considered by many to be one of the nation's premier centers for cancer research and treat-

ment, it derived its name from Alfred Sloan and Charles "Boss" Kettering, two top executives of General Motors.

These men led the corporate movement in the 1940s to provide stepped-up private funding for medical and drug research. The Rockefeller family of Exxon Oil (formerly Standard Oil) fame became heavy investors later on. For over half a century Sloan-Kettering has tested thousands of chemicals and drugs provided by the pharmaceutical industry.

In 1972 President Richard M. Nixon was deluged with tens of thousands of petitions from ordinary citizens everywhere demanding clinical trials for laetrile. These demands were forwarded to his cancer advisor, Benno Schmidt, an investment banker and a vice chairman of Sloan-Kettering.

When Schmidt consulted all of his medical colleagues about laetrile, he found them vehemently opposed to it. But, interestingly enough, as he told reporters later on, "I couldn't get anybody to show me scientific proof that the stuff didn't work." Schmidt, therefore, encouraged Sloan-Kettering to test laetrile, hoping to put to rest once and for all the claims of its purported value. He got more than he bargained for in the process.

The task fell to one of the world's most respected cancer chemotherapy researchers, a Japanese scientist by the name of Kanematsu Sugiura. In 1972, when he began testing laetrile on rodents in his second-floor facilities at Sloan-Kettering's Walker Laboratories in suburban Rye, New York, he was a 55-year loyal employee and senior staff scientist. A fellow researcher from the former Soviet Union described the man's meticulous work this way: "When Dr. Sugiura publishes, we know we don't have to repeat the study for we would obtain the same results as he has reported." Put another way, Sugiura's reputation for absolute scientific integrity was unimpeachable.

What started out as routine testing ended up becoming a public relations quagmire for Sloan-Kettering. Dr. Sugiura expected laetrile to fail, but it *didn't*. In the first several tests conducted with mice having a genetic predisposition for tumors, he found that cancer spread in only 20 percent of those receiving laetrile injections, compared to a whopping 80 percent for untreated rodents. He

reported these findings to his superiors, who called in other researchers to assist him in duplicating more of the same tests.

Again and again, the same results kept coming back: laetrile manifested *significant* effects against cancer! Totally frustrated by the same thing turning up in six separate experiments spread over a five-year period, the hierarchy of Sloan-Kettering decided not to report the positive findings in sworn testimony before a United States Senate committee investigating the merits of laetrile in July, 1977: "There is not a particle of scientific evidence . . . to suggest that laetrile possesses any anticancer properties at all."

Thus began the medical world's version of politics' Watergate. Sloan-Kettering officials fairly muzzled Dr. Sugiura and kept him away from the press. But in private with other respected scientists, he would declare that laetrile is "a useful preventive agent" and something that "really stops the spread of cancer." Someone in his lab (but not himself) leaked evidence of his positive research in support of laetrile to the outside press. An unsigned letter written on Sloan-Kettering stationery read: "Here are some of the results of Sloan-Kettering's continuing experiments with laetrile. Due to political pressure, these results are being suppressed. Please do your best to bring these important findings to the attention of the people." The letter was accompanied by photocopies of Dr. Sugiura's original hand-written lab reports, listing experimental results of the laetrile tests, day by day, mouse by mouse; included were Sugiura's summaries, as well as other supporting documentation.

Several other events of equal magnitude occurred separately within the same approximate time period. Dr. Chester Stock, Sugiura's immediate superior at Sloan-Kettering, told the *Medical World News* in August 1975 (more than a year after the Japanese researcher had completed six positive laetrile experiments): "We have found amygdalin (laetrile) negative in all the animal systems we have tested." Similar statements were made by other top-ranking officials as well. Dr. Lewis Thomas, president of Memorial Sloan-Kettering Cancer Center, allegedly told reporters: "Laetrile has shown after two years of tests to be worthless in fighting cancer." And Dr. Robert Good, president and director of the Sloan-Kettering Institute where Sugiura worked, said in his own press conference: ". . . There is no evidence that laetrile has an effect on cancer."

Not all institute employees, however, were willing to line up behind these confusing statements. One man, Dr. Ralph Moss, who was the assistant director of public affairs at Sloan-Kettering, held his peace for awhile as his different bosses continued massaging the media and the public with their statements. But when they reportedly hinted to nice and gentle Dr. Sugiura that he might have to take an "early" retirement (by then he was 85 and still working six full days a week) if he ever spoke the truth about laetrile, Dr. Moss had had enough. He convened a press conference at the Hilton Hotel in Manhattan on November 17, 1977, and came forward with the truth. He was promptly fired the next working day. He teamed up with Gary Null on WMCA's "Natural Living" program to inform the listening public and information-hungry journalists about the alleged deception at Sloan-Kettering.

Well, everything good seems to need a catalyst or two behind it to get things moving. Between the Sloan-Kettering public relations mess and Judge Bohanon's decision in favor of the Kansas farmer, there were enough other events to help the laetrile movement gain much greater momentum than it ever had before. Numerous journalists, politicians, and judges were favorably swayed in the other direction now. It wasn't too long until almost 30 states had passed independent legislation permitting the importing and medical use of laetrile within their boundaries. So, while most doctors and scientists and the FDA may have won the war over laetrile's lack of scientific proof, the public eventually won its hard-fought battle to gain access to something people truly believed would work in the prevention and treatment of cancer.

One of the things that really riled the opponents of laetrile was when its supporters started referring to it as vitamin B-17. According to *Clinical Toxicology* (17(1):94;1980), the reasoning behind this was the fact that amygdalin is abundant in trace amounts in many foods growing throughout tropical countries, where cancer rates have historically been much lower. Among the supporters who lined up behind laetrile's obvious nutritive value were some highly educated, scientific professionals who were well connected academically and politically. Two of these were the late Dean Burk, Ph.D. and the late Harold Manner, Ph. D. Burk was head of cytochemistry at the National Cancer Institute (NCI) for many years and one of NCI's orig-

inal cofounders. Early on as the laetrile controversy started brewing and percolating on the back burner of public opinion, he entered the fray with calm dignity and announced with great confidence that "amygdalin qualifies as a vitamin by the very definition of one."

Next in line came Dr. Harold Manner, the controversial head of Loyola University's Biology Department in Chicago. I knew this man personally and met him a number of times at different National Health Federation conventions around the country during the 1980s, where we both spoke frequently. Dr. Manner considered amygdalin "a unique *vitamin* but not in the sense of what we know a vitamin to be." By technical definition, a vitamin is an organic substance, "present in minute amounts in natural foodstuffs, that is essential to normal metabolism." Furthermore, an "insufficient amount in the diet may cause deficiency diseases." That last part was what Manner took an exception to. "There exists little or no evidence," I remember him saying during one of several conversations we had together on the subject of laetrile, "to show that *without* adequate laetrile you're going to get cancer." But it certainly fit the rest of a vitamin's description of occurring in food and being necessary to normal metabolism. He regarded laetrile as "a unique nutritive factor for the immune system" that had yet to be fully understood.

Dr. Linus Pauling, the "father of vitamin C" and twice Nobel Laureate (the only man ever in Nobel history to win the same prize twice), supported the use of laetrile. His letter to this effect was published in the July 8, 1982 issue of *The New England Journal of Medicine*. "It is my opinion," Pauling wrote, "that there probably was a beneficial effect, including prolongation of survival" in laetrile therapy. He noted cancer patients treated with the substance and metabolic diet therapy survived an average of almost five months. He said that other studies had demonstrated that people with incurable cancer ordinarily survive for just under two months. He assigned nutritive properties to laetrile.

So, does amygdalin or vitamin B-17 "cure" cancer? Well, a lot depends on what it's taken with. Two examples of well-known screen actors serve to illustrate this. Steve McQueen developed a rare form of lung cancer due to smoking. He entered a Tijuana cancer clinic (Plaza Santa Maria Hospital) about 75 miles south of San Diego sometime in November 1980 for two months of alternative

treatments that included lots of laetrile injections, massive amounts of coffee enemas, an array of vitamin supplements, and injections of animal cells. This regimen of "metabolic therapy" had been devised by the man in whose hands McQueen had placed himself, William Kelly, a Texas dentist whose license to practice in his home state had previously been suspended.

In the beginning things looked up for McQueen. After a month on this strict regimen, McQueen "looked and felt better" than he had in some months prior to coming there. "His attitude was very upbeat." Kelly, ever eager for media attention, scheduled a hastily arranged news conference to show off the "new" McQueen. At the same time, he and his staff claimed that the actor's tumor had "shrunk decisively." But just a month later, after an operation in Mexico to remove the same tumor, McQueen was dead.

Back in those days I was a regular speaker at the Cancer Control Society in Los Angeles and would regularly meet Kelly or some of his staff people. While I never cared much for the man's style myself, I will have to say in his defense that he wasn't to blame for McQueen's sudden health reversals. Once his patient started feeling better and x-rays showed a definite reduction in tumor size, McQueen went right back to his old habits of questionable lifestyle choices. "He was always a nervous sort anyhow," one of Kelly's staff people told me. "We strongly urged him to stick with our program for a few months longer, just to make sure the tumor didn't return. But, no, he wasn't going to sit in a Mexican clinic all day taking it easy. He said he was going to get out and 'live a little' and 'celebrate' his cure." The rest is history, as they say. McQueen failed to understand that when you go against the laws of nature, nature will come roaring back quite ferociously every single time! And that is what happened to him.

Contrast that with what happened to Fred MacMurray. He was a veteran actor of Walt Disney films and TV star of the long-running hit series, "My Three Sons." At age 69, he contracted throat cancer due to years of pipe smoking. He commenced radiation treatments at the urging of his doctors in February 1977 at St. John's Hospital in Santa Monica, California. The therapy lasted seven weeks. His radiologist at the hospital, Dr. Alfred Schmitz, spoke somewhat

confidently, saying that the movie star's outlook "was good" that the cancer wouldn't return.

But come back it did within a very short time. This time the actor and his wife June flew to Hanover, Germany and consulted with Dr. Hans Nieper, a famous European doctor who treated patients using natural principles. (He had cured the wife of comedian Red Buttons of the very same type of throat cancer some time before this.)

Nieper's regimen for MacMurray included laetrile, a diet of organic foods, vitamins, minerals, enzymes, some medicinal herbs, and no red meat or alcohol. In place of the last two items, "lots of fish and organic carrot juice" were substituted. The fish was to be steamed or baked, *never* fried, deep-fried, or broiled. MacMurray was instructed by Nieper to drink carrot juice twice a day with a little cream in it.

He and his wife returned home where he spent several months at their ranch, leisurely resting up and having fun together. He soon put on weight, showed a healthy skin tone, and eventually tested negative for any further signs of cancer. Fred MacMurray lived for another 14 years after this, dying in November 1991 of pneumonia. Fred MacMurray worked in harmony with nature and was very cooperative with it in all aspects of his life. He took it easy and maintained a conservative lifestyle at all times. As a result, nature and Providence granted him many additional years of a wonderful life that was very fulfilling as a reward for his diligent efforts.

Food Sources

Amygdalin, as stated in the beginning, is a cyanogenic compound. When thoroughly hydrolyzed within the stomach by certain enzymes, amygdalin releases *very minute* traces of hydrogen cyanide, which some scientists believe accounts for its remarkably strong anticancer properties. According to a lengthy report in *Economic Botany* (30:395-407, 1963), there are about "200 species of plants from 45 families" growing in the Northeastern United States (and elsewhere) that contain amygdalin or closely-related compounds "capable of liberating hydrogen cyanide upon hydrolysis." This is the reference I

worked from to present a variety of potential food and herb sources for amygdalin as found in the accompanying list.

Keep in mind that while elevated concentrations (anything over 100 parts per million) of hydrogen cyanide in an *isolated* form is certainly going to produce obvious health problems, nothing serious should ever occur when amygdalin in very *minute* amounts (somewhere between 15 and 43 parts per million) is ingested in food form surrounded by a number of other protective vitamins, minerals, amino acids, enzymes, sugars, and fiber. This is really the right way to take amygdalin instead of through pills or injections. At least this way, you know that the negative effects of hydrogen cyanide will be of extremely low impact upon the system. But, at the same time, this trace amount of hydrogen cyanide is always on patrol, making sure that cancer cells never develop or that existing tumor cells eventually meet a quiet chemical death within the circulating blood plasma.

The taste buds along either side of the tongue can readily detect vitamin B-17 in natural foodstuffs that are well chewed or swirled around inside the mouth for a few moments before being completely swallowed. The flavor thus yielded has a slightly bitter quality to it, signifying the presence of this presumed member of the B-complex group.

Plant Foods with Known Vitamin B-17 Contents
(*Indicates higher amounts of amygdalin than usual, but not exceeding 100 ppm.)

American mannagrass (cereal or salad/cooked vegetable)

Apple seed (snack/tea)

Apricot kernel, crushed (tea)*

Barley (cereal/breadstuff)

Bitter almond (snack/tea)*

Black cherry bark (tea)*

Black nightshade (fluid extract/tea)*

Borage (tea)*

Buttercup (salad/vegetable/tea)

Canadian thistle (salad/cooked vegetable)*

Cassava (cooked vegetable/stew)*

Corn (cereal/breadstuff)
European black currant (snack/preserve/juice)
Garden pea (salad/cooked vegetable)
Gram chickpea (soup/stew)
Hawthorn berry (tea/preserve)
Hyacinth bean (soup/stew)
Jimson weed (tea)*
Mexican tea (tea)*
Oats (cereal/breadstuff)
Passionflower (tea/fluid extract)
Peach kernel, crushed (tea)*
Peanut (snack/butter)
Perennial pepperweed (food condiment)
Plum pit, crushed (tea)*
Pyracantha bush (tea)*
Red clover (tea)*
Rye (cereal/breadstuff)*
Serviceberry (snack/preserve/juice)
Sorghum (molasses)
Sprouted seeds: alfalfa, garbanzo, mung, wheat (snack/salad or sandwich vegetable)
Sweet and sour cherry pits, crushed (tea)*
Watercress (salad vegetable)*
Wheat (cereal/breadstuff)
White clover (tea)
Wild cabbage (salad/cooked vegetable)
Wood sorrel (salad/cooked vegetable)
Yew bark (tea)*

Recommended Daily Intake

In the media heyday of laetrile of the 1970s, there was extensive information appearing fairly regularly in the medical literature per-

taining to the potential harm that this substance could cause if taken in large enough quantities. Those opposing vitamin B-17 attempted to incite fear in the public mind by presenting unrealistic figures that they claimed represented legitimate human intake.

But it's one thing to overload small rodents with generous doses of laetrile and quite another to expect the same fatal results from large human beings. Take, for instance, the brief summary of a medical report that appeared in *Science News* (116:39, July 21, 1979). Researchers from Evanston (Illinois) Hospital and Northwestern Medical School gave varying doses of vitamin B-17 to rats that corresponded with the sizes of their individual tumors.

The result, of course, was the anticipated deaths in more than 50 percent of the rats they tested. The dosages ranged from 250 to 750 milligrams per kilogram of body weight per day for five days. The scientists conducting this fairly routine experiment drew some rather absurd conclusions, however, from their data. They argued that such high doses given to the rodents were "realistic in terms of human ingestion."

They would have been better off traveling to Tijuana first and visiting a few Mexican cancer clinics before making such a preposterous statement. At least then their educated ignorance wouldn't have been showing so much. Those familiar with the laetrile routinely administered by responsible therapists know that the normal range is usually *below* 250 milligrams as a rule. 'Nuff said on that!