AIDS Research & Assistance Institute

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Flax Hull Lignan Study Results 2003 – 2006 and Flax studies...

FLAX HULL LIGNAN U.S. & AFRICAN STUDIES AIDS RESEARCH & ASSISTANCE INSTITUTE

AIDS Research & Assistance Institute has been involved in an ongoing study and implementation campaign with Flax Hull Lignans since 2002. Our organizational goals with this program are two fold:

1. To find all natural foods, supplements and substances that can be used to strengthen the immune system and help battle the physical ramifications of AIDS/HIV and the associated diseases that come as a by-product of a stripped autoimmune system.

2. To make provision of these all-natural products so that the poor, needy and destitute in 3rd world nations can be given hope, quality of life and better physical health while they struggle with AIDS/HIV. Our main focus is HIV Pos. children and orphans in the 3rd world. We started with 3 rounds of studies, with 100 people in each round taking the product for a 90 day period. Round 1 and 2 were done in the U.S. in 03', with round 3 done in South Africa and Swaziland in 04'. Through the gracious donation process of North Dakota Innovations flax hull producers, we were able to supply the studies with adequate product. Due to the complex nature of clinical studies, the huge costs in double blind studies, and the huge gap between normalized clinical studies and 3rd world availabilities, ARAI uses anecdotal studies which bring a general understanding of a product's capabilities, as perceived by those taking the product and those administering the product.

Round 1 & 2

U.S. based, 90 days, 100 individuals with various diseases and ailments including HIV/AIDS, various cancers including breast cancer, prostate cancer, Lymphoma, bone cancer, arthritis, diabetes, hepatitis C, athlete's foot and more.

Round 1 & 2 consisted of implementing 2 scoops of product (scoop enclosed in canister) per day in water, cereal, foods,etc. Patients filled out a full health survey concerning their current ailments, physical and mental condition, pain levels and hopes for what Flax Hull Lignans could help accomplish by strengthening the immune system. Patients agreed to not change medications or lifestyle during the 90 day process. Patients delivered a 30, 60 and 90 day report giving any noticed changes in health, condition of ailments, etc. During round 1, we realized that 15% of the patients were experiencing constipation with the fibrous content of Flax Hull Lignans. Those 15% either found a way to increase daily water consumption or they backed down to 1 scoop of product per day. 76% of patients studied found some type of positive response to the product study within 30 days, many responses were dramatic. 52% of patients had a positive response within the first 30 days, and 91% of patients studied had a positive response to the product study within 90 days. Responses included dramatic reduction in size of cancers, reduction in insulin needs with diabetics and blood sugar levels coming into order, HIV/AIDS symptoms decreasing or disappearing, general feeling of vitality, HIV CD4 counts strengthening and viral loads diminishing. 10% of patients noticed no change in health during the 90 day study.

Round 2 brought about 1 change only. During round 1, we noticed that among those who backed down their dosage to 1 scoop per day because of constipation issues, those patients still had very positive responses to the product. Therefore, the second 100 patients on Round 2 received only 1 scoop of product per day for 90 days. The results came in exactly the same with 55% of patients having a positive response within the first 30 days, and 90% having a positive response within 90 days, and 0% constipation issues in the group. It was further realized through Round 1 and 2, that those whom had dramatic changes in health during the first 30 days maintained those changes in health through the entire 90 day period, and most of the impact occurred within the first 30 days of the study. Those with dramatic 30 day results had only minimal continued change through the 60 and 90 day period, but maintained the result gained within the first 30 days. Most changes that were going to occur within the 90 day period - did indeed occur for those patients within the first 30 days.

Round 3 was performed in Durban, South Africa, Piet Retief, South Africa and Swaziland *(highest AIDS pandemic areas globally).* The 90 day study included 1 scoop of product per day for adults and 1/2 scoop of product per day for children 12 and under. All 100 patients were HIV Positive and 75% experienced AIDS symptoms including (cancer, thrush, mental fatigue and lack of focus, diminished strength, swelling of glands and other various AIDS related symptoms). The African people responded more quickly to the study, with 64% having a health change within the first 30 days, and 97% noticing a positive health change within the 90 day study.

The higher levels of response were very interesting, and our group could only suppose that the powerful nutritional values of the flax lignan product helped them to increase weight and height, as well as recover from many symptoms of HIV/AIDS.

We are pleased to announce that after 3 rounds of loosely knit studies, we are absolutely confident in the power of FlaxHull Lignans, and their ability to do what we had supposed in the beginning. ARAI has continued to ship flax lignans intothe hardest hit rural areas of South Africa and Swaziland with future plans of distribution in other areas of Africa as supply and funding permits.

IMPACT ON APATHETIC AFRICAN SOCIETY

The impact of Round 3 study on the African people was dramatic. Both those who were a part of the Round 3 program, and those who administered the program became intensely interested in how to get increased amounts of this product. The general mindset of the grass roots African

society is one of apathy concerning HIV/AIDS because there seems to be absolutely "NO" cure, help or reasonable treatment to help one afflicted. ARAI representatives have noticed the following in Africa:

1. HIV/AIDS is truly at pandemic level in the continent of Africa with societies such as South Africa dealing with multiplied millions infected including millions of children/orphans, spanning from tribal Zulu's to middle and upper class college students in larger cities. The nation of Swaziland is faced with the challenge of national extinction by 2050 if some answer is not delivered before then. Other nations face the same horrific futures if an answer is not given.

2. The medications that have been made available by the U.S. and other nations are not reasonable for impoverished rural South Africans infected because:

a. The reduced cost of the anti-retroviral meds still have a cost to the rural individual, which is up to 3 times the monthly income of an infected rural South African (if they are able to work). Therefore the meds aren't being distributed because they're unaffordable or the rural people don't know that they're available.

b. The power of the meds requires adherence to time sensitive administration and proper storage of some of the meds. Many of those infected don't have a watch, let alone operate by an hourly – time sensitive mind set.

3. The main program model that seems to be predominant in the African nations is one of "education". While this is extremely important to curb the pandemic from spreading to non-infected, there is a huge gap which millions are falling into after they've been infected with HIV. It seems that as long as a person is not infected with HIV, there are resources and education available to help a person or community understand how to "not" get HIV. However, for those millions already infected, there is little hope, little resource and seeming little attention given - as they're the ones with the death sentence written.

a. There is a huge clash between the current educational programs and the Zulu nation historic beliefs and traditions. Many won't adhere to the educational programs because of long time traditional beliefs and lifestyle among many, therefore the infection rates continue to increase.

4. The age ranges most affected by this pandemic include the working class age group, leaving behind only the elderly and orphans - as is the case of Swaziland which faces extinction in 2025 if an answer is not provided.

ANSWERS:
ARAI believes that with the implementation of Flax Hull Lignans into the diet of HIV/AIDS patients, as well as the entire general population for increased immune system strength, that the overall immune health of all involved would strengthen, production levels would increase among the work force and market place, AIDS symptoms would diminish and those who are currently being discarded with no hope could find a place of increased auto-immune health, vitality and a return to social productivity.

Currently, in association with North Dakota Innovations, ARAI is shipping flax lignans into South Africa and Swaziland, with future shipments to include Zimbabwe. Product is being given free of charge to orphans and children with AIDS, as well as HIV pos parents who have children depending on their health and income for living.

ARAI has multiple relationships with governing officials, health practitioners, business owners, corporate CEO's, and relief organizations in the African nations who are moving forward in belief that the answers are "AT HAND AND AVAILABLE".

Flax Hull Lignans are a part of that answer to restore health to the African populations.

For further information on ARAI health programs and initiatives, please contact Dr. Daniel Daves atdaniel@aidshivawareness.org or 314-397-2580. WEB SITE: www.aidshivawareness.org

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Supplemental Information on Flaxseed Lignans (Secoisolariciresinol diglucoside - SDG)

Flaxseed lignans have been studied with much enthusiasm for having many potential health benefits. Among them, and one of the most widely studied, include its anti-tumor effects. Flaxseed is the richest plant source of lignan precursors (otherwise known as Secoisolariciresinol diglucoside or SDG) and the Natural Excellence line of lignan products contains the highest level of certified organic lignans available in any health product. Below is a collection of research abstracts that pertain to lignans and cancer research. A subset of the abstracts also provides information related to lignans and its effects on diabetes and coronary heart disease.

ABSTRACTS

1. Since lignans have been suggested to have some cancer-protective effects, flaxseed**, the most abundant source of** lignan precursors**, was** tested for its effect on early markers of risk for mammary carcinogenesis**.**
Supplementation of a high-fat diet with flaxseed flour (FF) or defatted flaxseed meal (FM) (5% or 10%) reduced the epithelial cell proliferation by 38.8-55.4% and nuclear aberrations by 58.8-65.9% **in female rat mammary gland, with optimum effects seen with the 5% FF. These protective effects were accompanied by increases in urinary lignan excretion indicating that they may be related to the ability of flaxseed to provide lignan precursors. (Serraino M & Thompson L, Cancer Lett, 60:135, 1991)**

2. Flaxseed ingestion produces potentially anticarcinogenic lignans in the colon. **This study determined that** flaxseed decreases the risk for colon carcinogenesis**. In the descending colon of supplemented groups, the total number of aberrant crypts and foci were significantly reduced by 41-53% and 48-57%, respectively.** Flaxseed may reduce the risk for colon carcinogenesis. **(Serraino M & Thompson L, Cancer Lett, 63:159, 1992)**

3. Flaxseed lignans have antitumor, antimitotic, antioxidant and weak estrogenic activities, are potentially the richest source of phytoestrogens in the human diet and may be linked to a low incidence of breast and colon cancer.
Secoisolariciresinol was discovered to be a very potent antioxidant similar to BHA. No toxicity **was found in the lignans. (Obermeyer W, et al (US Food and Drug Administration, Center for Food Safety and Applied Nutrition, Div. Contaminants Chem., Natural Products Branch), Meeting Of The Federation Of American Societies For Experimental Biology On Experimental Biology March/April, 1993, Faseb J (Fed Am Soc Exp Biol), A863, 1993)**

4. Flaxseed SDG may have a **therapeutic role in lupus nephritis**. (Clark W, et al Lupus, 9(6): 429, 2000)

5. Dietary estrogens, such as **lignan-rich flaxseed**, are similar in structure to endogenous sex steroid hormones and act
in vivo to alter hormone metabolism and **reduce subsequent cancer risk in postmenopausal women.** (Hutchins A, Cancer Epidemiol Biomarkers Prev, 9(10): 1113, 2000)

6. Asian men have much lower incidences of prostate cancer and possibly of benign prostatic hyperplasia (BPH) than their Western counterparts. **Vegetarian men also have a lower incidence of prostate cancer than omnivorous males**.
Plant lignans give rise to the mammalian lignans, enterodiol and enterolactone; **the richest source** is linseed (**flaxseed**). In addition to their oestrogenic activity, these plant compounds can interfere with steroid metabolism and bioavailability, and also inhibit enzymes, such as tyrosine kinase and topoisomerase, which are crucial to cellular proliferation and hence **may contribute to lower incidences of prostate cancer.** (Eur Urol, 35(5-6): 377, 1999)

7. Flaxseed ingestion produces large amounts of mammalian lignans with weak estrogenic/anti-estrogenic properties reduced adult relative prostate weight and cell proliferation, suggesting potential protection against prostatic disease, without affecting sex hormone levels. (Tou J, et al, J Toxicol Environ Health, 56(8): 555, 1999)

8. SDG is a plant lignan isolated from flaxseed. Lignans are platelet-activating factor-receptor antagonists that inhibit the production of oxygen radicals by polymorphonuclear leukocytes. SDG is an antioxidant. Antioxidants studied thus far are known to reduce hypercholesterolemic atherosclerosis. **Research suggests that SDG reduces hypercholesterolemic atherosclerosis and that this effect is associated with a decrease in serum cholesterol, LDL-C, and lipid peroxidation product and an increase in HDL-C and antioxidant reserve.** (Prasad K, Circulation, 99(10): 1355, 1999)

9. Phytoestrogens are diphenolic compounds that are present in several plants eaten by human beings. **Flaxseed is a particularly abundant source of phytoestrogens.** When ingested in relatively large amounts, phytoestrogens have been shown to have significant estrogen agonists/antagonists effects in animals and humans. **There is epidemiological, laboratory and clinical evidence which indicates that phytoestrogens, like certain selective estrogen receptor modulators, have an antiproliferative effect on the breast, and positive effects on the lipoprotein profile and bone density.** They might also improve some of the climacteric symptoms. (Brzezinski A & Debi A, Eur J Obstet Gynecol Reprod Biol, 85(1): 47, 1999)

10. The antioxidant activities of the **flaxseed lignan secoisolariciresinol diglycoside** (SDG) and its mammalian lignan
metabolites, enterodiol (ED) and enterolactone (EL), were evaluated in both lipid and aqueous in vitro model systems. All three lignans significantly ($p < or = 0.05$) **inhibited the linoleic acid peroxidation** at both 10 and 100 microM over a 24- 48 h of incubation at 40 degrees C. **The efficacy of SDG and particularly the mammalian lignans ED and EL to act as antioxidants in lipid and aqueous in vitro model systems, at relatively low concentrations** (i.e. 100 microM), **potentially achievable in vivo, is an evidence of a potential anticarcinogenic mechanism of flaxseed lignan SDG and its mammalian metabolites ED and EL.** (Kitts D, et al, Mol Cell Biochem, 202(1-2): 91, 1999)

11. Flaxseed, the richest known source of plant lignans, has been shown to **have chemo-protective effects** in animal and cell studies. Some of its effects may be mediated through its influence on endogenous hormone production and metabolism. Flaxseed supplementation significantly increased urinary 2-OHEstrogen excretion ($p < 0.0005$) and the urinary 2/16 alpha-OHE1 ratio ($p < 0.05$) in a linear, dose-response fashion. These results suggest that **flaxseed may have chemo-protective effects in postmenopausal women.** (Haggans C, et al, Nutr Cancer, 33(2): 188, 1999)

12. Flaxseed is high in secoisolariciresinol diglycoside (SDG), the precursor of mammalian lignans, which can affect mammary gland structures**. Lifetime or gestation and lactation exposure to 5 or 10% flaxseed** induce structural changes in the mammary gland that **may potentially reduce**
mammary cancer risk. (Tou J & Thompson L, Carcinogenesis, 20(9): 1831, 1999)

13. Flaxseed and SDG, regardless of dose, appeared to delay the progression of MNU-induced **mammary tumorigenesis**. (Rickard S, et al, Nutr Cancer; 35(1): 50, 1999)

14. Dietary supplementation with flaxseed or its lignan SDG has reduced induced mammary tumor size and number in rats. There was a dose-dependent effect of SDG on tumor multiplicity, lowest in the HSDG group (high SDG 5%) and highest in the LSDG (low SDG 2.5%) group throughout treatment, indicating that HSDG inhibited, whereas LSDG promoted, MNU-induced
mammary tumor development. **Tumor invasiveness and grade were decreased in all treatment groups compared with the BD (basal diet). Flaxseed and SDG treatment, regardless of dose, appeared to delay the progression of MNU-induced mammary tumorigenesis.** (Rickard S, et al,
Nutr Cancer; 35(1): 50, 1999)

15. Because **flaxseed and its lignans are colon cancer protective**, it is concluded that, in contrast to other studies, beta-glucuronidase activity may play a beneficial role in their presence by increasing mammalian lignan absorption and enterohepatic circulation. (Jenab M, et al, Nutr Cancer, 33(2): 154,1999)

16. Flax seed is the richest source of omega-3 fatty acid and lignans. Omega-3 Fatty acid suppresses the production of interleukin-1 (IL-1), tumor necrosis factor (TNF) and leukotriene B4 (LTB4), and of OFRs by polymorphonuclear leukocytes (PMNLs) and monocytes. **Lignans possess anti-platelet activating factor (PAF) activity and are antioxidant**. PAF, IL-1, TNF and LTB4 are known to stimulate PMNLs to produce OFRs. **Flaxseed would, therefore, reduce the levels of OFRs and hence would prevent the development of hypercholesterolemic atherosclerosis.** In rabbits, flax seed reduced the development of aortic atherosclerosis by 46% and reduced the PMNL-CL without significantly lowering the serum cholesterol. Flax seed in normocholesterolemic rabbits increased serum total cholesterol and decreased PMNL-CL without significantly affecting the serum TG. **Modest dietary flax seed supplementation is effective in reducing hypercholesterolemic atherosclerosis markedly without lowering serum cholesterol.** Its effectiveness against hypercholesterolemic atherosclerosis could be due to suppression of enhanced production of OFRs by PMNLs in hypercholesterolemia. **Dietary flax seed supplementation could, therefore, prevent hypercholesterolemia-related heart attack and strokes.** (Ogborn M, et al, Kidney Int 55(2): 417, 1999)

17. Dietary supplementation with secoisolariciresinol diglycoside (SDG), a lignan precursor isolated from **flaxseed, significantly reduced pulmonary metastasis of melanoma cells and inhibited the growth of metastatic tumors that formed in the lungs**. (Li D, et al, Cancer Lett, 142(1): 91, 1999)

18. Flaxseed, the richest source of lignans reduces metastasis and inhibits the growth of the metastatic secondary tumors in animals. **Flaxseed may be a useful nutritional adjuvant to prevent melanoma metastasis in cancer patients**. (YanL, et al, Cancer Lett, 124(2): 181, 1998)

19. Flaxseed contains lignans that have antioxidant activites and inhibit platelet-activating factor (PAF). **Pretreatment with flaxseed attenuated endotoxin induced cardiac dysfunction and cellular damage. Flaxseed antioxidant and anti-PAF agents may be effective in the treatment of ET shock**. (Pattanaik U & Prasad K, J Cardiovasc Pharmacol Ther, 3(4): 305, 1998)

20. The mammalian lignans enterolactone (EL) and enterodiol (ED) derived from precursors in foods, particularly flaxseed, have been shown to reduce the mammary tumor growth due to their antiestrogenic properties. Lignans are growth inhibitors of colon tumor cells and they may act through mechanism(s) other than antiestrogenic activity. (Sung

M, et al, Anticancer Res 18(3A: 1405, 1998)

21. Flax seed is the richest source of omega-3 fatty acid and lignans. Omega-3 fatty acid suppresses the production of interleukin-1 (IL-1), tumor necrosis factor (TNF) and leukotriene B4 (LTB4), and of OFRs by polymorphonuclear leukocytes (PMNLs) and monocytes. Lignans possess anti-platelet activating factor (PAF) activity and are antioxidant. PAF, IL-1, TNF and LTB4 are known to stimulate PMNLs to produce OFRs. **Flaxseed would, therefore, reduce the levels of OFRs and hence would prevent the development of hypercholesterolemic atherosclerosis. Flax seed reduced the development of aortic atherosclerosis by 46% and reduced the PMNL-CL without significantly lowering the serum cholesterol. Modest dietary flax seed supplementation is effective in reducing hypercholesterolemic atherosclerosis markedly without lowering serum cholesterol. Dietary flax seed supplementation could, therefore, prevent hypercholesterolemia-related heart attack and strokes**. (Prasad K, Atherosclerosis, 132(1): 69, 1997)

22. Flaxseed, the richest source of mammalian lignan precursors, such as secoisolariciresinol diglycoside (SD), has been shown over the short term to decrease some early markers of colon cancer risk. This study determined that **flaxseed has a colon cancer protective effect**, that it is due,
in part, to SD and that the protective effect of flaxseed is associated with increased betaglucuronidase activity. (Jenab M & Thompson L, Carcinogenesis, 17:1343, 1996)

23. Secoisolariciresinol diglucoside (SDG)**, an antioxidant in flaxseed, is metabolized in the body and these metabolites have antioxidant activity which are even more potent than SDG. The effectiveness of SDG in hypercholesterolemic atherosclerosis, diabetes, and endotoxic shock could be due to these metabolites. (Prasad K, Int. J. Angiol, 9(4): 220, 2000)**

24. Secoisolariciresinol diglycoside (SD), a mammalian lignan precursor found in flaxseed and tested for effects on mammary tumorigenesis, resulted in a 37% reduction ($p < 0.05$) in the number of tumors per tumor-bearing rat and a 46% reduction ($p < 0.05$) in the number of tumors per number of rats in each group. This study showed, for the first time, that SD **has an antitumor effect when provided at the early promotion stage of tumorigenesis.** (Thompson L, et al, Nutr Cancer, 26:159, 1996)

25. Flaxseed 18-3 (n-3) alpha-linoleic acid showed a marked immunomodulatory effect on the exhaustive exercise-related immunosuppression, as compared to the effects of other PUFA. (Benquet C, et al, J Toxicol Environ Health, 43: 225, 1994)

26. Reactive oxygen species (ROS) have been implicated in the development of diabetes mellitus. SDG isolated from flaxseed is an antioxidant. An investigation was made of the effects of SDG on the development of diabetes in rat, to determine if SDG can prevent/reduce the development of diabetes and if this prevention/reduction is associated with reduction in oxidative stress. RESULTS: **SDG prevented the development of diabetes by 75%.** (Prasad K, et a, Mol Cell Biochem, 206(1-2): 141, 2000; Prasad K, Mol Cell Biochem, 209(1-2): 89, 2000)

27. Flaxseed and its lignan secoisolariciresinol diglycoside (SDG) inhibit mammary tumor development in rats. Increased plasma insulin-like growth factor I (IGF-I) concentrations **are associated with increased breast cancer risk.**
The anticancer effect of flaxseed and SDG may be related, in part, to reductions in plasma IGF-I. (Rickard S, et al, Cancer Lett, **8; 161(1): 47, 2000)**

28. Vitamin E-deficient diets containing 5 to 20% ground flaxseed protected mice against the malarial parasite Plasmodium voelii as shown by decreased parasitemia and enhanced survival. (Levander O, et al, (USDA/ARS Human Nutrition Research Center, Vitamin Mineral Nutrition Laboratory), Nutrition Research, 11, 1991)

29. Flaxseed, a rich source of mammalian lignan precursor secoisolariciresinol-diglycoside (**SD**) **and alpha-linolenic acid (ALA), has been shown to be protective at the early promotion stage of carcinogenesis.** In conclusion, the **SD lignans in flaxseed appears to be beneficial throughout the promotional phase of carcinogenesis whereas the oil component is more effective at the stage when tumors have already been established.** (Thompson L, et al, Carcinogenesis, 17:1373, 1996)

30. Clinical Trial with Prostate Cancer Patients. Dietary fat and fiber affect hormonal levels and may influence cancer progression. **Flaxseed is a rich source of lignan and omega-3 fatty acids and may thwart prostate cancer. The potential effects of flaxseed may be enhanced with concomitant fat restriction.** We undertook a pilot study to explore whether a flaxseedsupplemented, fat-restricted diet could affect the biomarkers of prostatic neoplasia.
CONCLUSIONS:
These pilot data suggest that a flaxseed-supplemented, fat-restricted diet may affect prostate cancer biology and associated biomarkers. Further study is needed to determine the benefit of this dietary regimen as either a complementary or preventive therapy.

31. The Phipps Study. Abstract. Lignans are a group of phytochemicals shown to have weakly estrogenic and antiestrogenic properties. Two specific lignans, enterodiol and enterolactone, are absorbed after formation in the intestinal tract from plant precursors particularly abundant in fiber-rich food and are excreted in the urine. We evaluated the effect of the ingestion of **flax seed powder**, known to produce high concentrations of urinary lignans, on the menstrual cycle in 18 normally cycling women, using a balanced randomized cross-over design. Each subject consumed her usual omnivorous, low fiber (control) diet for 3 cycles and her usual diet supplemented with flax seed for another 3 cycles. The second and third flax cycles were compared to the second and third control
cycles. Three anovulatory cycles occurred during the 36 control cycles, compared to none during the 36 flax seed cycles. Compared to the ovulatory control cycles, the ovulatory flax cycles were consistently associated with longer luteal phase (lp) lengths (mean +/- sem, 12.6 +/- 0.4 Vs. 11.4 +/- 0.4 Days; p = 0.002). There were no significant differences between flax and control cycles for concentrations of either estradiol or estrone during the early follicular phase, midfollicular phase, or lp. Although flax seed ingestion had no significant effect on lp progesterone concentrations, the lp progesterone/estradiol ratios were significantly higher during the flax cycles. Midfollicular phase testosterone concentrations were slightly higher during flax cycles. Flax seed ingestion had no effect on early follicular phase concentrations of dhea-s, prl, or sex hormone-binding globulin. **Our data suggest a significant specific role for lignans in the relationship between diet and sex steroid action, and possibly between diet and the risk of breast and other hormonally dependent cancers**. (Phipps W, et al, J Clinl Endocrinol Metab, 77(5), 1993)

MISCELLANY
Note: A.R.A.I. lignan products contains only the hulls of the flaxseed plant. This portion of the seed contains the highest concentration of SDG in the entire plant. Additionally, much of the fat has been removed to promote the shelf life of the product (approx. 1 year 3 months). The process and mechanisms used are proprietary.

Nutritional profile of whole flaxseeds
Two (2) tablespoons provide the following naturally occurring fatty acids, lignin fiber and lignan:
Alpha Linolenic Acid (**Omega-3**) .....**1,710 mg**
Linoleic Acid (Omega-6) .....……480 mg
Oleic Acid (Omega-9) .....……540 mg

Lignin Fiber .....…1,003 mg
Lignan .....…13.6 mg
Nutrients per 100 gr of flax: Thiamin - .03 mg; Riboflavin - .1 mg; Niacin - 5 mg; Pyridoxine - 10 mg; Pantothenic Acid - 7 mg; Calcium - 410 mg; Phosphate - 880 mg; Sodium - 32 mg; Potassium – 880 mg; Iron - 8.3 mg; Magnesium - 750 mg; Zinc - 12 mg; Copper - 1 mg; Manganese - 2.1 mg; Boron 3 mg; Chromium - 0.5 mg; Vitamin E - 0.6 I.U.; Vitamin A - 10 I.U. Protein: Alamine - 4.0 g; Arginine - 10.8 g; Aspartic Acid - 10.0 g; Cystine - 3.8 g; Glutamic - 20.2 g; Glycine - 6.0 g; Histidine - 2.9 g; Isoleucine - 4.6 g; Leucine - 6.2 g; Lysine - 3.9 g; Methionine - 2.3 g; Phenylalanine - 4.5 g; Proline - 4.5 g; Serine - 3.2 g; Threonine - 4.6 g; Tryptophan - 2.3 g; Tyrosine - 2.7 g; Valine - 5.2 g.

FLAXSEED COMPOSITION
Linum usitatissimum
Nutrient Units
1 cup

155.000 g
Proximates
Water g 13.562
Energy kcal 762.600
Energy kj 3191.450
Protein g 30.225
Total lipid (fat) g 52.700
Carbohydrate, by difference g 53.087
Fiber, total dietary g 43.245
Ash g 5.425
Minerals
Calcium, Ca mg 308.450
Iron, Fe mg 9.641
Magnesium, Mg mg 561.100
Phosphorus, P mg 771.900
Potassium, K mg 1055.550
Sodium, Na mg 52.700
Zinc, Zn mg 6.463
Copper, Cu mg 1.614
Manganese, Mn mg 5.086
Selenium, Se mcg 8.525
Vitamins
Vitamin C, ascorbic acid mg 2.015
Thiamin mg 0.264
Riboflavin mg 0.248
Niacin mg 2.170
Pantothenic acid mg 2.372
Vitamin B-6 mg 1.437
Folate mcg 430.900
Vitamin B-12 mcg 0.000
Vitamin A, IU IU 0.000
Vitamin A, RE mcg_RE 0.000
Vitamin E mg_ATE 7.750
Lipids
Fatty acids, saturated g 4.954
4:0 g 0.000
6:0 g 0.000
8:0 g 0.000
10:0 g 0.000
12:0 g 0.000

14:0 g 0.000
16:0 g 2.793
18:0 g 2.161
Fatty acids, monounsaturated g 10.645
16:1 g 0.000
18:1 g 10.645
20:1 g 0.000
22:1 g 0.000
Fatty acids, polyunsaturated g 34.782
18:2 g 6.693
18:3 g 28.089
18:4 g 0.000
20:4 g 0.000
20:5 g 0.000
22:5 g 0.000
22:6 g 0.000
Cholesterol mg 0.000

USDA Nutrient Database for Standard Reference, Release 12 (March 1998)

Cancer Research References

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ABSTRACTS and SUMMARIES

1. Since lignans have been suggested to have some cancer-protective effects, flaxseed, the most abundant source of lignan precursors, was tested for its effect on early markers of risk for mammary carcinogenesis. Supplementation of a high-fat diet with flaxseed flour (FF) or defatted flaxseed meal (FM) (5% or 10%) reduced the epithelial cell proliferation by 38.8-55.4% and nuclear aberrations by 58.8-65.9% in female rat mammary gland, with optimum effects seen with the 5% FF. These protective effects were accompanied by increases in urinary lignan excretion indicating that they may be related to the ability of flaxseed to provide lignan precursors. (Serraino M & Thompson L, Cancer Lett, 60:135, 1991)

2. Flaxseed ingestion produces potentially anticarcinogenic lignans in the colon. This study determined that flaxseed decreases the risk for colon carcinogenesis. In the descending colon of supplemented groups, the total number of aberrant crypts and foci were significantly reduced by 41-53% and 48-57%, respectively. Flaxseed may reduce the risk for colon carcinogenesis. (Serraino M &Thompson L, Cancer Lett, 63:159, 1992)

3. Flaxseed lignans have antitumor, antimitotic, antioxidant and weak estrogenic activities, are potentially the richest source of phytoestrogens in the human diet and may be linked to a low incidence of breast and colon cancer. Secoisolariciresinol was discovered to be a very potent antioxidant similar to BHA. No toxicity was found in the lignans. (Obermeyer W, et al (US Food and Drug Administration, Center for Food Safety and Applied Nutrition, Div. Contaminants Chem., Natural Products Branch), Meeting Of The Federation Of American Societies For Experimental Biology On Experimental Biology March/April, 1993, Faseb J (Fed Am Soc Exp Biol), A863, 1993)

4. Flaxseed SDG may have a therapeutic role in lupus nephritis. (Clark W, et al Lupus, 9(6): 429, 2000)

5. Dietary estrogens, such as lignan-rich flaxseed, are similar in structure to endogenous sex steroid hormones and act in vivo to alter hormone metabolism and reduce subsequent cancer risk in postmenopausal women. (Hutchins A, Cancer Epidemiol Biomarkers Prev, 9(10): 1113, 2000)

6. Asian men have much lower incidences of prostate cancer and possibly of benign prostatic hyperplasia (BPH) than their Western counterparts. Vegetarian men also have a lower incidence of prostate cancer than omnivorous males. Plant lignans give rise to the mammalian lignans, enterodiol and enterolactone; the richest source is linseed (flaxseed). In addition to their oestrogenic activity, these plant compounds can interfere with steroid metabolism and bioavailability, and also inhibit enzymes, such as tyrosine kinase and topoisomerase, which are crucial to cellular proliferation and hence may contribute to lower incidences of prostate cancer. (Eur Urol, 35(5-6): 377, 1999)

7. Flaxseed ingestion produces large amounts of mammalian lignans with weak estrogenic/antiestrogenic properties reduced adult relative prostate weight and cell proliferation, suggesting potential protection against prostatic disease, without affecting sex hormone levels. (Tou J, et al, J Toxicol Environ Health, 56(8): 555, 1999)

8. SDG is a plant lignan isolated from flaxseed. Lignans are platelet-activating factor-receptor antagonists that inhibit the production of oxygen radicals by polymorphonuclear leukocytes. SDG is an antioxidant. Antioxidants studied thus far are known to reduce hypercholesterolemic atherosclerosis. Research suggests that SDG reduces hypercholesterolemic atherosclerosis and that this effect is associated with a decrease in serum cholesterol, LDL-C, and lipid peroxidation product and an increase in HDL-C and antioxidant reserve. (Prasad K, Circulation, 99(10): 1355, 1999)

9. Phytoestrogens are diphenolic compounds that are present in several plants eaten by human beings. Flaxseed is a particularly abundant source of phytoestrogens. When ingested in relatively large amounts, phytoestrogens have been shown to have significant estrogen agonists/antagonists effects in animals and humans. There is epidemiological, laboratory and clinical evidence which indicates that phytoestrogens, like certain selective estrogen receptor modulators, have an antiproliferative effect on the breast, and positive effects on the lipoprotein profile and bone density. They might also improve some of the climacteric symptoms. (Brzezinski A & Debi A, Eur J Obstet Gynecol Reprod Biol, 85(1): 47, 1999)

10. The antioxidant activities of the flaxseed lignan secoisolariciresinol diglycoside (SDG) and its mammalian lignan metabolites, enterodiol (ED) and enterolactone (EL), were evaluated in both lipid and aqueous in vitro model systems. All three lignans significantly ($p < or = 0.05$) inhibited

the linoleic acid peroxidation at both 10 and 100 microM over a 24-48 h of incubation at 40 degrees C. The efficacy of SDG and particularly the mammalian lignans ED and EL to act as antioxidants in lipid and aqueous in vitro model systems, at relatively low concentrations (i.e. 100 microM), potentially achievable in vivo, is an evidence of a potential anticarcinogenic mechanism of flaxseed lignan SDG and its mammalian metabolites ED and EL. (Kitts D, et al, Mol Cell Biochem, 202(1-2): 91, 1999)

11. Flaxseed, the richest known source of plant lignans, has been shown to have chemo-protective effects in animal and cell studies. Some of its effects may be mediated through its influence on endogenous hormone production and metabolism. Flaxseed supplementation significantly increased urinary 2-OHEstrogen excretion ($p < 0.0005$) and the urinary 2/16 alpha-OHE1 ratio ($p < 0.05$) in a linear, dose-response fashion. These results suggest that flaxseed may have chemo-protective effects in postmenopausal women. (Haggans C, et al, Nutr Cancer, 33(2): 188, 1999)

12. Flaxseed is high in secoisolariciresinol diglycoside (SDG), the precursor of mammalian lignans, which can affect mammary gland structures. Lifetime or gestation and lactation exposure to 5 or 10% flaxseed induce structural changes in the mammary gland that may potentially reduce mammary cancer risk. (Tou J & Thompson L, Carcinogenesis, 20(9): 1831, 1999)

13. Flaxseed and SDG, regardless of dose, appeared to delay the progression of MNU-induced mammary tumorigenesis. (Rickard S, et al, Nutr Cancer; 35(1): 50, 1999)

14. Dietary supplementation with flaxseed or its lignan SDG has reduced induced mammary tumor size and number in rats. There was a dose-dependent effect of SDG on tumor multiplicity, lowest in the HSDG group (high SDG 5%) and highest in the LSDG (low SDG 2.5%) group throughout treatment, indicating that HSDG inhibited, whereas LSDG promoted, MNU-induced mammary tumor development. Tumor invasiveness and grade were decreased in all treatment groups compared with the BD (basal diet). Flaxseed and SDG treatment, regardless of dose, appeared to delay the progression of MNU-induced mammary tumorigenesis. (Rickard S, et al, Nutr Cancer; 35(1): 50,
1999)

15. Because flaxseed and its lignans are colon cancer protective, it is concluded that, in contrast to other studies, beta-glucuronidase activity may play a beneficial role in their presence by increasing mammalian lignan absorption and enterohepatic circulation. (Jenab M, et al, Nutr Cancer, 33(2): 154, 1999)

16. Flax seed is the richest source of omega-3 fatty acid and lignans. Omega-3 Fatty acid suppresses the production of interleukin-1 (IL-1), tumor necrosis factor (TNF) and leukotriene B4 (LTB4), and of OFRs by polymorphonuclear leukocytes (PMNLs) and monocytes. Lignans possess anti-platelet activating factor (PAF) activity and are antioxidant. PAF, IL-1, TNF and LTB4 are known to stimulate PMNLs to produce OFRs. Flaxseed would, therefore, reduce the levels of OFRs and hence would prevent the development of hypercholesterolemic atherosclerosis. In rabbits, flax seed reduced the development of aortic atherosclerosis by 46% and reduced the PMNL-CL without significantly lowering the serum cholesterol. Flax seed in normocholesterolemic rabbits increased serum total cholesterol and decreased PMNL-CL without significantly affecting the serum TG. Modest dietary flax seed supplementation is effective in reducing hypercholesterolemic atherosclerosis markedly without lowering serum cholesterol. Its effectiveness against hypercholesterolemic atherosclerosis could be due to suppression of enhanced production of OFRs by PMNLs in hypercholesterolemia. Dietary flax
seed supplementation could, therefore, prevent hypercholesterolemia-related heart attack and strokes. (Ogborn M, et al, Kidney Int 55(2): 417, 1999)

17. Dietary supplementation with secoisolariciresinol diglycoside (SDG), a lignan precursor isolated from flaxseed, significantly reduced pulmonary metastasis of melanoma cells and

inhibited the growth of metastatic tumors that formed in the lungs. (Li D, et al, Cancer Lett, 142(1): 91, 1999)

18. Flaxseed, the richest source of lignans reduces metastasis and inhibits the growth of the metastatic secondary tumors in animals. Flaxseed may be a useful nutritional adjuvant to prevent melanoma metastasis in cancer patients. (Yan L, et al, Cancer Lett, 124(2): 181, 1998)

19. Flaxseed contains lignans that have antioxidant activites and inhibit platelet-activating factor (PAF). Pretreatment with flaxseed attenuated endotoxin induced cardiac dysfunction and cellular damage. Flaxseed antioxidant and anti-PAF agents may be effective in the treatment of ET shock. (Pattanaik U & Prasad K, J Cardiovasc Pharmacol Ther, 3(4): 305, 1998)

20. The mammalian lignans enterolactone (EL) and enterodiol (ED) derived from precursors in foods, particularly flaxseed, have been shown to reduce the mammary tumor growth due to their antiestrogenic properties. Lignans are growth inhibitors of colon tumor cells and they may act through mechanism(s) other than antiestrogenic activity. (Sung M, et al, Anticancer Res 18(3A: 1405, 1998)

21. Flax seed is the richest source of omega-3 fatty acid and lignans. Omega-3 fatty acid suppresses the production of interleukin-1 (IL-1), tumor necrosis factor (TNF) and leukotriene B4 (LTB4), and of OFRs by polymorphonuclear leukocytes (PMNLs) and monocytes. Lignans possess anti-platelet activating factor (PAF) activity and are antioxidant. PAF, IL-1, TNF and LTB4 are known to stimulate PMNLs to produce OFRs. Flaxseed would, therefore, reduce the levels of OFRs and hence would prevent the development of hypercholesterolemic atherosclerosis. Flax seed reduced the development of aortic atherosclerosis by 46% and reduced the PMNL-CL without significantly lowering the serum cholesterol. Modest dietary flax seed supplementation is effective in reducing hypercholesterolemic atherosclerosis markedly without lowering serum cholesterol. Dietary flax seed supplementation could, therefore, prevent hypercholesterolemia-related heart attack and strokes. (Prasad K, Atherosclerosis, 132(1): 69, 1997)

22. Flaxseed, the richest source of mammalian lignan precursors, such as secoisolariciresinol diglycoside (SD), has been shown over the short term to decrease some early markers of colon cancer risk. This study determined that flaxseed has a colon cancer protective effect, that it is due, in part, to SD and that the protective effect of flaxseed is associated with increased beta-glucuronidase activity. (Jenab M & Thompson L, Carcinogenesis, 17:1343, 1996)

23. Secoisolariciresinol diglucoside (SDG), an antioxidant in flaxseed, is metabolized in the body and these metabolites have antioxidant activity which are even more potent than SDG. The effectiveness of SDG in hypercholesterolemic atherosclerosis, diabetes, and endotoxic shock could be due to these metabolites. (Prasad K, Int. J. Angiol, 9(4): 220, 2000)

24. Secoisolariciresinol diglycoside (SD), a mammalian lignan precursor found in flaxseed and tested for effects on mammary tumorigenesis, resulted in a 37% reduction ($p < 0.05$) in the number of tumors per tumor-bearing rat and a 46% reduction ($p < 0.05$) in the number of tumors per number of rats in each group. This study showed, for the first time, that SD has an antitumor effect when provided at the early promotion stage of tumorigenesis. (Thompson L, et al, Nutr Cancer, 26:159, 1996)

25. Flaxseed 18-3 (n-3) alpha-linoleic acid showed a marked immunomodulatory effect on the exhaustive exercise-related immunosuppression, as compared to the effects of other PUFA. (BenquetC, et al, J Toxicol Environ Health, 43: 225, 1994)

26. Reactive oxygen species (ROS) have been implicated in the development of diabetes mellitus. SDG isolated from flaxseed is an antioxidant. An investigation was made of the effects of SDG on the development of diabetes in rat, to determine if SDG can prevent/reduce the

development of diabetes and if this prevention/reduction is associated with reduction in oxidative stress. RESULTS: SDG prevented the development of diabetes by 75%. (Prasad K, et a, Mol Cell Biochem, 206(1-2): 141, 2000; Prasad K, Mol Cell Biochem, 209(1-2): 89, 2000)

27. Flaxseed and its lignan secoisolariciresinol diglycoside (SDG) inhibit mammary tumor development in rats. Increased plasma insulin-like growth factor I (IGF-I) concentrations are associated with increased breast cancer risk. The anticancer effect of flaxseed and SDG may be related, in part, to reductions in plasma IGF-I. (Rickard S, et al, Cancer Lett, 8; 161(1): 47, 2000)

28. Vitamin E-deficient diets containing 5 to 20% ground flaxseed protected mice against the malarial parasite Plasmodium voelii as shown by decreased parasitemia and enhanced survival. (Levander O, et al, (USDA/ARS Human Nutrition Research Center, Vitamin Mineral Nutrition Laboratory), Nutrition Research, 11, 1991)

29. Flaxseed, a rich source of mammalian lignan precursor secoisolariciresinol-diglycoside (SD) and alpha-linolenic acid (ALA), has been shown to be protective at the early promotion stage of carcinogenesis. In conclusion, the SD lignans in flaxseed appears to be beneficial throughout the promotional phase of carcinogenesis whereas the oil component is more effective at the stage when tumors have already been established. (Thompson L, et al, Carcinogenesis, 17:1373, 1996)
30. Clinical Trial with Prostate Cancer Patients. Dietary fat and fiber affect hormonal levels and may influence cancer progression. Flaxseed is a rich source of lignan and omega-3 fatty acids and may thwart prostate cancer. The potential effects of flaxseed may be enhanced with concomitant fat restriction. We undertook a pilot study to explore whether a flaxseed-supplemented, fat-restricted diet could affect the biomarkers of prostatic neoplasia.

CONCLUSIONS: These pilot data suggest that a
flaxseed-supplemented, fat-restricted diet may affect prostate cancer biology and associated biomarkers. Further study is needed to determine the benefit of this dietary regimen as either a complementary or preventive therapy. (Denmark-Wahnefried W, et al. Urology. 58:47-52, 2001.)

31. The Phipps Study. Abstract. Lignans are a group of phytochemicals shown to have weakly estrogenic and antiestrogenic properties. Two specific lignans, enterodiol and enterolactone, are absorbed after formation in the intestinal tract from plant precursors particularly abundant in fiber-rich food and are excreted in the urine. We evaluated the effect of the ingestion of flax seed powder, known to produce high concentrations of urinary lignans, on the menstrual cycle in 18 normally cycling women, using a balanced randomized cross-over design. Each subject consumed her usual omnivorous, low fiber (control) diet for 3 cycles and her usual diet supplemented with flax seed for another 3 cycles. The second and third flax cycles were compared to the second and third control cycles. Three anovulatory cycles occurred during the 36 control cycles, compared to none during the 36 flax seed cycles. Compared to the ovulatory control cycles, the ovulatory flax cycles were consistently associated with longer luteal phase (lp) lengths (mean +/- sem, 12.6 +/- 0.4 Vs. 11.4 +/-
0.4 Days; p = 0.002). There were no significant differences between flax and control cycles for concentrations of either estradiol or estrone during the early follicular phase, midfollicular phase, or lp. Although flax seed ingestion had no significant effect on lp progesterone concentrations, the lp progesterone/estradiol ratios were significantly higher during the flax cycles. Midfollicular phase testosterone concentrations were slightly higher during flax cycles. Flax seed ingestion had no effect on early follicular phase concentrations of dhea-s, prl, or sex hormone-binding globulin. Our data suggest a significant specific role for lignans in the relationship between diet and sex steroid action,and possibly between diet and the risk of breast and other hormonally dependent cancers. (Phipps W, et al, J Clinl Endocrinol Metab, 77(5), 1993)

This report is made on the anecdotal information obtained from the Flax Hull Lignan study conducted by AIDS Research & Assistance Institute. The study was originally started to test healthy individuals and others with health issues such as high blood pressure, diabetes, heart disease, hormone specific issues as breast lumps, perimenopausal and postmenopausal problems, prostate issues, high cholesterol and autoimmune diseases like arthritis and HIV/AIDS.

The goal was to see if adding the lignan product to their daily diet would boost their immune systems to fight these various problems. The fact that people with HIV/AIDS and cancer have problems with nutrition and with vomiting and diarrhea, the goal was to control those problems to stabilize their nutritional needs and to help the body's own defenses to fight back. Since organizational funds were limited and lab studies on individuals not included, ARAI had to rely on the participants to share any lab work their primary physicians or specialists ordered for them. Some did share their information. All participants agreed that if we gave them the flax product free, they would furnish ARAI with a testimonial report. Some participants did not follow through with the full 90 day agreement, and therefore we did not include them in the official reporting.

The instructions for taking the flax began with 2 scoops per day. 15% of the participants experienced constipation with this amount of high fiber flax lignan. Therefore, the dosage was immediately dropped to 1 scoop per day for all participants; 2 weeks after the trial began. 25% experienced "flu-like" symptoms that lasted only a few days.

Of the cancer patients who responded to the study, 100% did report a decrease in size or a total disappearance of tumors. However, the one patient with non Hodgkins lymphoma also had times of increasing then decreasing in tumor size. One breast cancer patient experienced a total disappearance of tumors as long as she continual to take the flax. A few months after stopping the flax, tumors came back once again. She recently reported that after she resumed taking the flax, the tumors are once again shrinking.

Of the HIV/AIDS patients, 85% reported feeling a lot more energetic, increased appetites with almost total cessation of nausea, vomiting and diarrhea. Of those which we were able to measure with their blood tests, 71% had a drop in viral loads over the 90 day period. 28% of those with blood tests reported a decrease to total non-detectable viral load and increase in CD4 values. With one international patient (India) during phase 1 testing, we could not measure response, but only to say he felt better and several of his KS lesions disappeared. There was a 71% drop in viral loads of those we could measure.

There were four people who wanted to take the flax but did not want to join the study. Each reported significant drop in blood glucose levels. One lady on an insulin pump happily reported her doctor told her that she had normal glucose readings for the first time in five years. Her cholesterol dropped and lipids panels showed normal triglycerides, LDL’s and HDL’s. One lady is now off all oral hypoglycemic. Her diabetes is now controlled by diet and exercise.

To say there was a 100% decrease in blood glucose needs to be understood that it required compliance with proper diet, exercise and pharmaceutical support. The same can be said for those with high cholesterol, hypertension, etc.

With these results and the reports ARAI is receiving from African studies, we see a definite correlation between using the flax lignans as a nutritional supplement and an increase in immune system response. Definite benefits for numerous other medical conditions are also noted.

Personal Note From M.J. Whaley, RN: *Thank you for allowing me the opportunity to run this study. I hope to see flax lignans being used in the near future in third world countries in an effort to help those afflicted with HIV/AIDS. I feel this would be an excellent adjunct therapy in the fight of these diseases.*

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To Whom It May Concern
My name is Margaret Whaley and I am the RN that worked on the Flax Lignan Study for ARAI. Let me start by saying Dr. Daves had approached me several times to ask me if I would "check out" different products that claimed to have healing properties for HIV/AIDS and cancer. He wanted my professional opinion before starting a study of any product on AIDS/HIV patients. Regarding various products, I returned to him with the answer, *"I can not verify the claims of these products and I am unable to find any research they claim that has been done. Therefore, I would not be willing to ask anyone to try this product."*

When he asked me to research the Flax Hull Lignans, I found the amount of research that has been done on flax to be extensive. It is well known that the lignans were the "super chargers" in the flax. I read about the effects on hypertension, high cholesterol, heart disease,diabetes, prostate problems and other hormone specific tumors as in breast cancer, endometrial, colon cancer, and menopausal issues. I was fascinated by what I read. I contacted Dr. Daves and said I would work on this project to check out the flax lignan product. The reason I am telling you this is that I am very particular about what and where my signature is associated. I won't do anything I feel is harmful to anyone. In the past, I had also gone through a life threatening illness and found myself being a "guinea pig" for various medical methods so to speak, and I refused to be a part of that with others.

The studies we performed were totally reliant on the participants and their willingness to provide 30, 60 and 90 day reports. The only problem I had with this study was having relying on others to share this information with me. Many would tell me of the different powerful changes in their lives, and some wouldn’t write the report to make it official. Of course, I was really excited by the written reports that did come in and all of the positive response that the participants were telling me. It made sense that this natural fiber worked so well on so many problems after reading all the research and what participants were telling me. Why wouldn't it work on HIV/AIDS, cancer and other diseases that destroyed the immune system? There were times I could do nothing but jump up and down and praise God when I received the reports. I truly believe in this product, I take the product, I have two siblings and a niece taking the product, and my in laws and many friends from church and in the community take the product.

One of the most remarkable things they see is, that when they stop taking the flax lignans, their cholesterol goes back up, prostate problems return with rising PSA's, blood glucose is not as easily controlled, or breast lumps return. In one participant, her malignant breast tumors went away when she was taking the flax and then they returned when she stopped taking the lignans. Her doctor compared it to Tamoxifen. She is once again taking the flax.

Karen R., with AIDS was the most remarkable participant. She was dying and on hospice care. Three weeks after starting the flax lignan product, she was cooking a chili dinner for ten people! Her viral load went from 360,000 to non-detectable shortly thereafter. She stopped taking the flax lignans faithfully after the study, and her viral loads re-appeared. She has had to return to maintenance doses of her anti-virals, but laughs because her doctor is telling her to walk more as she is gaining
too much weight. She did get married about a year after starting the flax lignan program.

I would gladly tell anyone my views on the flax lignans. I have seen it perform "miracles" in the U.S., and the reports from Africa verify what I have seen in this nation. The cost of the flax is so small compared to pharmaceuticals and it helps with so many disease processes. I feel it would help everyone - even healthy individuals could benefit from the flax. The only side effects I have noted were slight flu-like symptoms for the first few days when beginning the flax. I also noticed some constipation or diarrhea that remedied after making adjustments with fluid intake or increasing or lowering flax doses. I found that in severely ill people, one half (1/2) scoop every other day and then a gradual increase to one full scoop (one teaspoon) a day was just as effective as one or two scoopsdaily and caused less problems than asking them to just take 1 scoop per day from the start. This product also helps with nutritional stabilization by helping to stop the diarrhea and helps increase appetite for extremely ill people people. When nutritional support is high quality, the patient naturally gets better. It all works together to improve the immune system.

Sincerely,
Margarete Whaley, RN