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SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
FORM ~~10-KSB~~ AR/S

[X] ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For Fiscal Year ended June 30, 2003

[] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____.

PROCESSED
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THOMSON FINANCIAL

Commission File Number 0-14983

NUTRITION 21, INC.
(Exact Name of Registrant as Specified in its Charter)

New York	11-2653613
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

4 Manhattanville Road, Purchase, New York 10577-2197
(914) 701-4500

Securities registered pursuant to Section 12(b) of the Act:
None

Securities registered pursuant to Section 12(g) of the Act:
Common Stock (par value $.005 per share)
Title of Class

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding twelve (12) months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past ninety (90) days.
Yes __X__ No ___

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the registrant's best knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [X]

Indicate by check mark whether the registrant is an accelerated filer (as defined in Exchange Act Rule 12b-2). Yes____ No __X___

The aggregate market value of voting stock held by non-affiliates of the Registrant was approximately $29,640,281 as of October 14, 2003.

The number of shares outstanding of Registrant's Common Stock as of October 14, 2003: 37,986,988.

FORM 10-K REPORT INDEX

Disclosures in this Form 10-K/A contain certain forward-looking statements, including without limitation, statements concerning the Company's operations, economic performance and financial condition. These forward-looking statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. The words "believe," "expect," "anticipate" and other similar expressions generally identify forward-looking statements. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates. These forward-looking statements are based largely on the Company's current expectations and are subject to a number of risks and uncertainties, including without limitation, changes in external market factors, changes in the Company's business or growth strategy or an inability to execute its strategy due to changes in its industry or the economy generally, the emergence of new or growing competitors, various other competitive factors and other risks and uncertainties indicated from time to time in the Company's filings with the Securities and Exchange Commission. Actual results could differ materially from the results referred to in the forward-looking statements. In light of these risks and uncertainties, there can be no assurance that the results referred to in the forward-looking statements contained in this Form 10-K/A will in fact occur. The Company makes no commitment to revise or update any forward looking statements in order to reflect events or circumstances after the date any such statement is made.

PART I

Item 1. BUSINESS

The Company

The Company is a New York corporation that was incorporated on June 29, 1983 as Applied Microbiology, Inc.

The Company initially focused on the development and commercialization of antibacterial technologies for new drugs and has since licensed those technologies. Beginning in 1995, the Company shifted its focus to developing and marketing nutrition products and ingredients. In 1997, as part of the purchase of Nutrition 21 LLC, a San Diego based mineral ingredient business, the Company acquired a comprehensive chromium-based patent portfolio based on a picolinate form of chromium that was invented and researched by the United States Department of Agriculture.

A USDA composition-of-matter patent, exclusively licensed to Nutrition 21 expired in August 2000, limiting the Company's royalties associated with the manufacturing and distribution of chromium picolinate in the U.S. However, the Company owns the exclusive rights to 24 U.S. chromium patents, and various foreign patents, including composition of matter patents for novel chromium picolinate complexes and their uses. Three U.S. patents for the accepted essential nutritional uses of chromium picolinate for glucose control, for managing cholesterol, and for increasing lean body mass and reducing body fat are in force through 2009.Patents for improved chromium picolinate complexes containing combinations of chromium and various nutrients for enhancing the benefits of chromium picolinate, are in force into the year 2017. More recently, the Company has secured the patent rights to the uses of all forms of chromium in the treatment

of depression and other mood disorders, rights that are in force through 2018. Several patent applications are also in process. See "Proprietary Rights."

The Company continues to derive royalties and revenues associated with its three patents covering the basic nutritional uses of chromium picolinate in the U.S. vitamin and mineral market, but is now transitioning to a new business model as it prepares to commercialize its expanded patent estate. Through strategic alliances, the Company plans to market and distribute distinct branded therapeutic products for people with diabetes and other conditions associated with insulin resistance. As many as one in four Americans are estimated to be insulin resistant.

Chromium was first identified as a potential factor in improving glucose control in animal studies conducted in the 1950's. In 1997, the FDA established a Reference Daily Intake (RDI) for chromium, an essential mineral required for the proper function of insulin, the body's master metabolic hormone. Insulin regulates the body's ability to process carbohydrates, fats and protein. Proper insulin function is therefore important to the healthy function of virtually every cell in the body.

Beginning in 2001, the Company made a three-year research commitment to a research program to explore the role of chromium in insulin function, expand its patent portfolio and create a strong body of peer-reviewed supporting clinical evidence supporting the use of chromium picolinate supplementation in the management of diabetes. Diabetes is a debilitating and chronic disease condition estimated to affect 150 million people globally

The Company's research program is designed to further 1) establish a correlation between chromium deficiency and impaired glucose metabolism; 2) build a body of peer-reviewed evidence demonstrating the clinical superiority of the picolinate form of chromium in improving insulin function and glucose metabolism in people with impaired insulin function, including diabetics 3) develop a better understanding of chromium picolinate's mechanism of action; and 4) generate more data associated with long term use.

Today, there is a significant body of peer-reviewed research and yet to be published data, which address these research objectives. The Company's growth will depend upon its ability to successfully communicate chromium picolinate's health benefits to the medical community, and then to expand that endorsement to its new and improved portfolio of products. As the Company's research program unfolds, Nutrition 21 should be in a position to participate in the burgeoning healthcare markets associated with insulin resistance.

Therapeutic Branded Products

In September 2002, the Company adopted a business strategy to develop and market therapeutic branded nutrition products by way of strategic alliances and to use revenues from its ingredients business to fund research and development for this program. In formulating its new business growth strategy, the Company has built on its core competencies in conducting pharmaceutical-type clinical research, patenting the results of the clinical research, and licensing and co-marketing proprietary products.

The Company's first branded product, Diachrome™, will be positioned to aid in the dietary management of diabetes and will be marketed with the support of healthcare professionals. Diachrome™ is a patented combination of Chromax chromium picolinate and biotin; these are nutritional ingredients that work synergistically to enhance blood sugar control and improve blood cholesterol profiles. Building on pre-clinical and early clinical research, the Company has formed a strategic alliance with Diabetex, a leading diabetes disease management company, to further validate Diachrome's ability to significantly improve blood sugar control in people with type 2 diabetes. Together, the companies are conducting a 600 patient double-blind placebo controlled trial aimed at demonstrating the pharmacoeconomic benefits associated with the use of Diachrome as a nutritional adjunct to current diabetes management protocols. The Diachrome study is expected to be completed by the end of fiscal year 2004 and, assuming positive results, Diachrome will be aggressively marketed to the diabetes healthcare market under the Nutrition 21 label.

Through its alliance with Diabetex, the Company will also seek to include the Diachrome product on the Medicare formulary, and demonstrate the product's ability to improve patient outcomes and lower the cost of care. The Company plans a targeted direct-to-consumer marketing program to managed diabetic populations. The Company plans to build consumer awareness for its products through a media campaign that leverages research outcomes, in combination with consumer and physician testimonials. Communication of scientific findings will be used to build consensus within the healthcare community regarding the inherent value of the Company's products.

The Company intends to market its patented products as nutritional supplements under the Dietary Supplement Health and Education Act ("DSHEA") regulations and in certain instances will seek to secure a FDA approved health claim. See "Governmental Regulation."

While the Company's initial entry into the therapeutic market is focused on diabetes, the Company's research pipeline also includes products for other closely related conditions in large and growing markets addressing cardiovascular disease, depression and women's health. The Company has already made a significant investment in clinical research to further validate the findings of a Duke University study published in December 2002 that evaluated the benefits of chromium supplementation in atypically depressed populations.

The Company will be required to raise additional capital to the extent that internally generated funds from the Company's other businesses are insufficient to finance its development and marketing costs for its therapeutic branded products.

Ingredients

In parallel with its new business strategy, the Company aims to strengthen its ingredients business through an expanded licensing effort, and by offering current and prospective licensees access to new formulas and or products developed with the Company's proprietary ingredients.

Since 1997, the Company's primary business has been to develop and market proprietary ingredients to the vitamin and supplement market for both human and animal applications. Today, Chromax® chromium picolinate is the Company's flagship ingredients product. Early clinical evidence dating back to the 1980's demonstrated potential efficacy for Chromax

chromium picolinate as a weight loss supplement, and it is still one of the most widely used ingredients in supplements marketed for weight control.

The current US retail market for chromium mineral supplements is estimated to be $87 million, only a 10th as large as the US retail calcium market. More than 85% of US chromium mineral supplements are formulated with the Company's proprietary Chromax chromium picolinate, while the rest are manufactured using chloride, polynicotinate or other forms. The Company's ingredient customers distribute Chromax either under the Chromax name under license from the Company, or under their own private labels. A license from the Company is required for all chromium picolinate products that are sold in the US and formulated at an effective dose for glucose control and its derivative benefits. The royalties and ingredient sales associated with the use of Chromax in the US chromium retail market constitute a significant share of the Company's revenues.

Additional revenues are derived from the sale and licensing of Chromax to customers who incorporate it and other of the Company's ingredients into over 900 finished multi-ingredient products. These include vitamin/mineral formulas, weight loss and sports nutrition supplements, baked goods, beverages and other products. These products are sold by the Company's customers under a variety of brands throughout the world through natural/health food stores, supermarkets, drug stores, and mass merchandisers, and also through direct sales and catalogue sales.

The Company has undertaken an independent research effort to identify patentable ingredient combinations that build on its understanding of chromium's wide ranging effects in human metabolism. In late fiscal 2003, the Company launched a new chromium ingredient combination, Chromax chromium picolinate combined with conjugated linoleic acid called Zenergen®, which potentiates glucose uptake in muscle cells in the absence of insulin stimulation. Promising pre-clinical research indicates that this combination enhances the independent benefits of each ingredient, and promotes healthy weight loss in people who are insulin resistant.

Chromax chromium picolinate is also used for managing the health of breeding sows and their offspring, where it has been shown to improve glucose control in gestating swine. Research outcomes include improved fertility, productivity and recovery for the sows and stronger more resilient offspring. In fiscal year 2003, Prince Agri Products, the Company's exclusive distributor in the animal health market accounted for approximately 18.9% of the Company's consolidated revenues.

Pharmaceutical Products and Alliances

The Company has infectious disease drug technology for diseases in humans, centered around the compound nisin, a member of the lanthocin class of peptides, as a potential treatment for infections of the colon, and lysostaphin, an enzyme, as a potential treatment for endocarditis, and lysostaphin and antibiotic compositions to treat infections while suppressing the formation of staphylococcal and antibiotic resistance. The Company determined that it did not have the resources necessary to take these pharmaceutical products for the treatment of infectious diseases from the development stage through regulatory filings and ultimately to the marketplace, should a product be proven to be safe and efficacious. In March 1996, the Company entered into an exclusive Agreement with AZWELL, Inc. (formerly Nippon Shoji Kaisha, Ltd. of Osaka, Japan), under which AZWELL received exclusive rights to develop and

market certain nisin-based drug products as a treatment of infections of the colon and nosocomial infections in Japan, certain Asian countries, Australia and New Zealand.

In August 2000, the Company exclusively licensed to Biosynexus the Company's remaining rights to nisin and lysostaphin antibacterial technologies for development and marketing of new drugs for human uses. The Company received a payment of $1.4 million, and the license provides for milestone payments of up to $14 million, and royalties. The Company also received warrants to acquire common stock of Biosynexus, currently a privately held company. The Company also has infectious disease technology centered on nisin and lysostaphin for the treatment of diseases in animals, including a moistened towel using a nisin-based formulation for mastitis prevention that is used for preparing dairy cows for milking. The Company launched the product under its trademark Wipe Out® Dairy Wipes in April 1996. On December 30, 1999, the Company sold its Wipe Out Dairy Wipes business to ImmuCell Corporation ("ImmuCell"). On April 12, 2000, the Company exclusively licensed to ImmuCell worldwide rights to develop and market new antibacterial drugs for animals using the Company's technologies.

Consumer Products

In 1999, the Company acquired the Lite Bites product line from Optimum Lifestyles, Inc. In August of 2003, the Company discontinued its investment in the Lite Bites product line and recorded a $4.4 million charge relating to the discontinuance.

Research and Development

The Company's chromium-based research and development program aims to discover and substantiate the efficacy and safety of ingredients and products that have a significant nutritional therapeutic value to consumers. The primary research focus over the past few years has been in the area of diabetes and cardiovascular health. Discovering the mechanism of action of chromium picolinate and further confirming the beneficial effects of chromium picolinate in people with diabetes have been critical objectives. Other therapeutic areas currently being researched include: obesity, depression, bone and joint health, and women's health.

Publications and presentations communicating the results of the research have involved an intensified effort to achieve more widespread support from major research, academic and government groups. These efforts are conducted in cooperation with leading clinicians and academic institutions including Harvard School of Public Health, Penn State University, University of Alberta, Northern General Hospital, UK, Warneford Hospital at Oxford University, University of Miami, Purdue University, University of Pennsylvania, Jefferson University, Duke University, Oakland Children's Hospital, SUNY Stony Brook University, UCLA, University of Connecticut, Baylor College of Medicine, University of Massachusetts, Pennington Biomedical Research Center, Sansum Medical Research Foundation and University of Vermont. During the fiscal years ended June 30, 2003, 2002 and 2001, approximately $2.2 million, $1.0 million, and $1.9 million, respectively, were spent on research and development by the Company. This research is in support of marketing opportunities that can be captured through the existing DSHEA regulatory channels to enhance the speed and reduce the costs associated with new product introductions.

In addition, in the past year the National Institutes of Health (NIH) has granted two human clinical grants to support additional research in evaluating the beneficial effects of chromium

picolinate in people with diabetes or a pre-diabetic condition called the Metabolic Syndrome. NIH research grants were awarded to the Pennington Biomedical Research Institute and to the University of Pennsylvania for this research. Nutrition 21 is providing Chromax chromium picolinate for use in these studies.

This research effort has enabled the Company to identify patentable new combinations of chromium and new uses for chromium, and new food systems that can be enhanced by the inclusion of its ingredient systems.

The Company is also applying its model of developing uniquely patentable nutritional products supported by peer-reviewed research to other mineral technologies within its intellectual property portfolio, including arginine- silicate- inositol and calcium- taurate.

Ongoing Clinical Research Studies - 2003

Chromax: Evaluation of the Effect of Chromium Picolinate in People with Type 2 Diabetes. - Investigator: William Cefalu, MD, *University of Vermont* (Study funded in part by the American Diabetes Association and by N21).

Chromax: Chromium and Insulin Action. - Investigator: William Cefalu, MD, *Pennington Biomedical Research Institute* (Study funded by the NIH-NIDDK).

Chromax: A Double Blind, Randomized Controlled Clinical Trial of Chromium Picolinate on Clinical and Biochemical Features of the Metabolic Syndrome. - Investigator: Philippe Szapary, MD, *University of Pennsylvania* (Study funded by the NIH).

Chromax: A Double Blind, Placebo Controlled Trial of Chromium Picolinate in Atypical Depression. - Investigator: Dr. David Sack, *Comprehensive Neuroscience, Inc.* (Study funded by N21).

Chromax: Chromium in the Treatment of Schizophrenia. - Investigator: Phil Cowen, MD, *Oxford University* (Study product provided by N21).

Chromax based multi-ingredient weight loss product: A Double Blind Placebo Controlled Clinical Trial Evaluating The Effects Of A Weight Loss Supplement In Healthy Overweight/Moderately Obese Volunteers – Investigator: Jeff Geohas, MD. *Radiant Research* (Study funded by N21).

Diachrome: A Randomized, Double Blinded, Placebo Controlled, Parallel Arm, Multicenter Study to Evaluate the Improvement in Glycemic Control, Lipid Levels, Quality of Life and Healthcare Costs After Daily Administration of Chromium Picolinate and Biotin in Patients With Type 2 Diabetes Mellitus. – Investigators: Burch Fuqua, MD; Cesar Albarracin, MD. *Diabetex Corporation* (Study funded by N21).

Diachrome: Chromium Picolinate And Biotin Supplementation To Diminish Glycation In Children And Adults With Type 2 Diabetes. – Investigator: Paul Harmatz, MD. *Children's Hospital Oakland* (Study funded by N21).

Studies Completed in 2003

Chromax: Primary Screening of Enzyme or Receptor Binding Assays Relating to Depression and Alzheimer's Disease with Chromium Picolinate. - Investigators: Juturu V, Komorowski JR and Chiu P (Study funded by N21).

Chromium Picolinate: Effects of Chromium Treatment in Patients with Poorly Controlled, Insulin-Treated Type 2 Diabetes Mellitus. A Randomized, Double Blind, Placebo-Controlled-Trial. – Investigators: Houweling, ST, Kleefstra N, Jansman FGA, Bakker SJL, Groenier, KH, Meyboom-de Jong, B and Bilo HJG, *Department of Internal Medicine, Isala Clinics, The Netherlands.*

Chromium: Toenail Chromium Levels and Risk of Coronary Heart Disease Among Normal and Overweight Men Eric B. Rimm, Eliseo Guallar, Edward Giovannucci, Alberto Ascherio, Meir J. Stampfer, Walter C. Willett, & Frank B. Hu. *Department of Nutrition, Harvard School of Public Health, and Johns Hopkins Medical Institutions.* (Funded in part by research grant from N21).
Chromium: Toenail Chromium Status and Cardiovascular Disease Risk in Europe. – Investigator: Eliseo Guallar, MD, DrPh. *Johns Hopkins University.*

Zenergen: Effects of chromium picolinate, conjugated linoleic acid and CLA isomers on 3T3-L1 adipocyte differentiation and PPARs activation (alpha, beta and gamma) – Investigators: Dr. Jack Vanden Heuvel, *Penn State University & Exygen, Inc.* (Study funded by N21).

Arginine-Silicate-Inositol: Effect of Arginine silicate inositol complex on vascular function and bone health markers. - Investigator: James C Russell, *University of Alberta* (Study funded by N21).

Arginine-Silicate-Inositol: Evaluation of Arginine inositol potassium silicate in the Ames bacterial reverse mutation test. Investigators: Juturu V, Komorowski JR and Rao KS (Study funded by N21).

Arginine-Silicate-Inositol: Evaluation of Arginine Inositol Silicate tested for LD50 Investigators: Juturu V, Komorowski JR and Devine J (Study funded by N21).

Presentations and Publications in 2003

Juturu V, Komorowski JR. Chromium supplements, glucose and insulin responses. *Am J Clin Nutr. 77* :1, 2003

Juturu V, Komorowski JR. Chromium compounds: cytotoxicity and carcinogenesis. *Toxicology.* Apr 15; 186(1-2): 171-3, 2003

Davidson JR, Abraham K, Connor KM, McLeod. Effectiveness of Chromium in Atypical Depression: A Placebo- Controlled Trial. *Biol Psychiatry.* 53, 261-264, 2003

Juturu V. and Komorowski JR. Chromium and Cardiovascular Disease. *Advances in Heart Failure.* [Intern. Acad. Cardiology]. Ed. Asher Kimchi. 279-282, 2003

Juturu V., Komorowski JR, Devine J et al. Absorption and Excretion of Chromium from orally administered: Chromium Chloride, Chromium Acetate and Chromium Oxide in rats. *Intern J Trace Elements and Electrolytes.20 (1), 23- 28, 2003*

Juturu V. and Komorowski, JR. Fatty Acids And Insulin Resistance. *AOCS, 2003*

Juturu V. and Komorowski, JR. Different Forms of Chromium: A Critical Evaluation of Absorption and Excretion. *FASEB, 2003*

Juturu V., Komorowski JR, Greenberg D, Maki KC, Rosenblatt S. Chromium with Biotin Decreases coronary risk lipids and lipoproteins in people with Type 2 Diabetes ingesting moderate carbohydrate nutritional beverages. *FASEB 2003*

Komorowski JR., Juturu V, Wang ZQ., Zhang XH., and. Cefalu WT. Glucose uptake of Chromium Picolinate, Chromium Polynicotinate and Niacin. *FASEB, 2003*

Juturu V. and Komorowski JR. Consumption of selected food sources of chromium in the diets of American Adults: *Based on the CSFII database 1994-1996. FASEB, 2003*

Wang ZQ, Zhang XH, Baldor LC, and Cefalu WT. Chromium picolinate increases skeletal muscle PI-3 Kinase activity in obese, hyperinsulinemic JCR:LA-Corpulent (JCR:LA-Cp) Rats*63rd Annual Meetings &Scientific Sessions, ADA, 2003*

Wang Z, Zhang X, Komorowski JR, Juturu V and Cefalu WT. Enhancement of Glycogen accumulation in human skeletal muscle culture: Conjugated linoleic acid, CLA isomer t10c12 and chromium picolinate, *63rd Annual meetings and scientific sessions, ADA 2003*

Ghosh D, Bhattacharya B, Mukherjee B, Manna B, Sinha M, Chowdhury J, Chowdhury S. Role of chromium supplementation in Indians with type 2 diabetes mellitus. J Nutr Biochem. Nov;13(11):690-697, 2002.

Juturu, V and Komorowski, JR. Chromium And Cardiovascular Disease. *8th World Congress on Heart Failure. Washington DC, July 13-16, 2002*

Juturu, V, and Komorowski, JR. Antimutagenic Activity of Chromium Picolinate in the Salmonella Assay. *XIV World Congress of Pharmacology. July 7-12, 2002.*

Studies Completed in 2002

Diachrome: Chromium with Biotin Decreases coronary risk lipids and lipoproteins in people with Type 2 Diabetes ingesting moderate carbohydrate nutritional beverages. Investigator: Kevin Maki, PhD *Chicago Center for Clinical Research* (Study funded by N21).

Zeramax: Effectiveness of Chromium Picolinate in Atypical Depression: A Placebo-Controlled Clinical Trial. Investigator: Jonathan Davidson, MD, *Duke University* (Study funded by N21).

Presentations and Publications in 2002

Cefalu WT, Wang ZQ, Zhang XH, Baldor LC and Russell JC. Oral Chromium Picolinate Improves Carbohydrate and Lipid Metabolism and Enhances Skeletal Muscle Glut-4 Translocation in Obese, Hyperinsulinemic (JCR-LA Corpulent) Rats. The Journal of Nutrition 132(6):1107-14. June 2002

Davidson J, Abraham K, Connor K and McLeod MN. Effectiveness of Chromium Picolinate in Atypical Depression: A Placebo-Controlled Clinical Trial. Journal of Biology Psychiatry (In Press) 2002

Feng J, Lin D, Zheng A, Cheng N. 2002. Chromium picolinate reduces insulin requirements in people with type 2 diabetes mellitus. Diabetes 51(S2):A469

Juturu V, Komorowski JR, and Devine J et al. Absorption and Excretion of Chromium from Orally Administered Chromium Chloride, Chromium Acetate and Chromium Oxide in Rats. Intern Journal Trace Elements and Electrolytes. (In Press) 2002

Juturu V. Lite Bites case study: A Total Lifestyle System for Weight Management. Weight loss Foods and Supplements Conference, Chicago, Il Feb 2002

Juturu V and J Komorowski JR. Is Chromium Needed for Individuals with Cardiovascular Disease? FASEB, Experimental Biology 16(4)2002

Rimm EB, Guallar E, Giovannucci E, AshcerioA, Stampfer MJ,. Willet WC and Hu F. Toenail Chromium Levels and Risk of Coronary Heart Disease Among Normal and Overweight Weight Men. 42nd Annual Conference on the Epidemiology and Prevention of Cardiovascular Disease and Obesity. American Heart Association, April 2002

Juturu, V, and Komorowski, J.R. Chromium In the Management of Improving Insulin Sensitivity. TEMA II June 2-6, CA., 2002. The Journal of Nutrition (suppl). 2002

Juturu V and Komorowski JR. Chromium: A Systematic Overview and Meta Analysis. 62nd Annual Meeting & Conferences. American Diabetes Association, June 2002

Juturu V and Komorowski JR. Conjugated Linoleic Acid and Metabolic Syndrome: An overview. ISSFAL, Quebec, Canada May 2002

Juturu V and Komorowski JR. Antimutagenic Activity of Chromium Picolinate in the Salmonella Assay. XIV World Congress of Pharmacology, July 2002.

Juturu V and Komorowski JR. Reply to Althuis MD. Glucose and Insulin responses to dietary chromium supplements: A Meta-Analysis. (In Press) The American Journal Clinical Nutrition 2002.

Studies Completed in 2001

Diachrome: Chromium Picolinate with Biotin Attenuates Elevation in Blood Glucose Levels in People with Type 2 Diabetes Ingesting Medium Carbohydrate Nutritional Beverages. Investigators: Greenberg D, Komorowski JR and Maki KC (CRO)

Lite Bites: Effect Of A Dietary Supplement Added to a Low Calorie Diet and Exercise Program on Bone Mass. Investigators: Greenberg D, Komorowski JR (CRO)

Zenergen: Enhancement of Glucose Uptake In Human Skeletal Muscle Culture: Conjugated Linoleic Acid, CLA Isomer t10 cis12, and Chromium Picolinate. Investigators : Juturu V, Komorowski JR, Cefalu WT *et al.*, University of Vermont 2001

Chromium: Absorption and Excretion of Chromium from Orally Administered Chromium Chloride, Chromium Acetate and Chromium Oxide in Rats. Investigators: Juturu V, Komorowski JR, Devine J (CRO).

Presentations and Publication in 2001

Komorowski JR, Greenberg D, Wang ZQ, Cefalu WT *et al.* Chromium Picolinate and Alpha Lipoic Acid act Synergistically to Enhance 2 DG Uptake in Human Skeletal muscle culture. FASEB, Orlando, FL April 2001

de la Harpe J, Greenberg D, Komorowski JR, Wang ZQ, Cefalu WT *et al.* Chromium Picolinate and CLA Act Synergistically to Enhance Glucose Uptake in Human Skeletal Muscle Culture. FASEB, Orlando, FL April 2001

Sherman W, Zhang XH, Man Kim DD and Wang ZQ. Chromium Picolinate Improves Fatty Acid –Induced Inhibition of Glucose Transport in Human Skeletal Muscle culture. ADA, 61st Scientific Session. Philadelphia, PA June 2001

Komorowski JR, de la Harpe J, Cefalu WT *et al.* JCR:LA-cp Rats show Improved Lipid Profiles in Response to Diets Containing Chromium Picolinate and Biotin. Society for the Study of Ingestive Behavior, Philadelphia, PA June 2001

Greenberg D, Komorowski JR, Maki K. Chromium Picolinate with Biotin Attenuates Elevation in Blood Glucose Levels in People with Type 2 Diabetes Ingesting Medium Carbohydrate Nutritional Beverages. Journal of the American College of Nutrition Orlando, FL Sep 2001

Greenberg D and Komorowski JR. Effect Of A Dietary Supplement Added To A Low Calorie Diet And Exercise Program On Bone Mass. NAASO, Montreal, Canada Oct 2001

Juturu V and Komorowski JR. Is Chromium Supplementation needed in People With Diabetes Mellitus? Diabetes Workshop. West Virginia, Oct 2001

Governmental Regulation

Dietary Supplements and Pharmaceuticals

Depending upon the ingredients of a specific product, some nutrition products can be marketed in the U.S. under DSHEA or the Orphan Drug Act. The Company's human nutrition products fall in regulatory categories that, in some circumstances, may require FDA approval for marketing. In addition to FDA regulations, the Federal Trade Commission ("FTC") regulates product-advertising claims. Prior to the Company's acquisition of Nutrition 21, Nutrition 21 and the FTC entered into a consent agreement, which culminated in an FTC order that, among other things, requires that claims for dietary supplements be supported by competent and reliable scientific evidence. Independent of this order, the Company maintains a commitment to validating its product claims through double-blind placebo controlled clinical trials.

In 2002, chromium picolinate was certified as generally recognized as safe for use in foods (GRAS) by an expert panel, which reviewed a substantial dossier of clinical evidence confirming the safety of chromium picolinate. In addition to sales for human consumption, the Company sells chromium picolinate for use in certain animal feed applications, having been approved by the FDA for use as a supplement in animal feed for swine in 1996.

The Company currently markets its products as dietary supplements. Going forward, Nutrition 21 intends to continue to market its products as nutritional supplements. The existing product portfolio will continue to be marketed as Dietary Supplements under the DSHEA regulations, and in certain circumstances, the Company will seek to secure a FDA approved health claim. The new product marketing strategy will focus on the clinical value of proprietary formulations, like Diachrome, which are expected to be marketed as a physician-recommended nutrition therapy for people with diabetes and/or impaired insulin function.

Diachrome has been clinically shown to improve various diabetes endpoints including glycated hemoglobin as well as fasting and postprandial glucose levels. However, the current regulatory environment for dietary supplements does not allow reference to diabetes or the health parameters defining this condition (e.g. healthy blood glucose metabolism). As such, the Company initially plans to market Diachrome within the regulatory context of a dietary supplement while relying in part on the support of third party experts and the promotion of peer-reviewed research to quantify product benefits. Upon completion of its large-scale clinical trial with Diabetex, a leading diabetes disease management company, the Company plans to secure a FDA approved health claim.

Proprietary Rights

Trademarks

Chromax, Diachrome, Selenomax, SelenoPure, Zinmax, Zenergen and Magnemax are among the more well known trademarks owned by Nutrition 21: Chromax for chromium picolinate; Diachrome for chromium picolinate and biotin; Selenomax for high selenium yeast, SelenoPure for yeast-free selenium; Zinmax for zinc picolinate; Magnemax for manganese picolinate, and Zenergen for chromium picolinate and conjugated linoleic acid. Brite Bites, Cardia, Lite Bites, Lite Bites Fat-Fighting System Chewies, and Metabolic Makeover are trademarks for its consumer products in the US, while Brite Bites is a UK trademark.

Nutrition Patents

The Company invests a substantial amount of time, effort, and resources in developing and validating novel nutritional technologies. To prevent others from copying and/or taking advantage of the Company's extensive investment in research and innovation, the Company has incorporated the strategic use of intellectual property ("IP"), principally patents, into its overall business plan.

The Company enforces its patent rights to exclude others from copying the Company's patented technology. The Company also licenses its patent rights to others in exchange for royalties or access to complementary technology. The strategic use of patents protects the Company's initial investment in innovation as well as generates additional monies, which can be used to fund additional research and development of new products.

The nutritional supplement industry had traditionally viewed patent protection as a marketing tool, not as a strategic tool providing a competitive advantage. Patent rights were rarely, if ever, enforced. In this environment, smaller companies were less likely to invest in innovation, knowing that larger companies with greater manufacturing and marketing capacity could freely copy its products. However, the Company has used its IP strategically to protect its investment and the investments of its customers.

The Company has demonstrated its ability to both monitor and enforce its patent portfolio, having settled several cases whereby the Company's patents were being infringed. Settlements of these suits have made a significant financial contribution to Company operations and have helped reinforce industry compliance with respect to the Company's proprietary rights.

In 2003, the Company settled a patent dispute with Lonza Inc., in which Lonza agreed to license the Company's glucose control patents for marketing Lonza's proprietary combination of carnitine and chromium picolinate for swine feed applications. No other rights were granted to Lonza to sell chromium picolinate, alone or in other combinations, for human or other animal applications.

The Company presently has 36 issued US patents and 13 pending US patent applications with foreign equivalents covering novel compositions and therapies directed towards significant health conditions such as cardiovascular disease, depression, polycystic ovary syndrome, both type 1 and type 2 diabetes, and sports nutrition.

The pending applications build upon the Company's expertise in technology areas such as nutritional mineral supplements and demonstrate the Company's commitment to expand into complementary technologies. As a leader in therapeutic chromium research, the Company enjoys a prominent patent position in the area of nutritional supplementation with chromium picolinate. The Company's research has further enhanced this position by generating discoveries directed towards the synergistic effects of combining chromium with compounds such as biotin, alpha lipoic acid, conjugated linoleic acid (CLA), and CLA isomers. Most notable among these are issued patents and pending patent applications covering the positive effects of chromium and biotin on type 2 diabetes and which further protect unauthorized copying of the Diachrome product. Outside of the chromium arena, the Company continues to develop the area of arginine silicate, a patented compound that has shown great promise in therapies for bone and joint health, cardiovascular disease, and glucose metabolism. In addition to holding patents covering

the compound, methods for making the compound, and various therapeutic uses, the recent discovery of a novel method for producing commercial quantities of arginine silicate may facilitate bringing the benefits of arginine silicate closer to market.

The Company maintains non-disclosure safeguards, including confidentiality agreements, with employees and certain consultants. There can be no assurance, however, that others may not independently develop similar technology or that secrecy will not be breached despite any agreements that exist.

Pharmaceutical Patents

The Company owns more than 200 patents relating to, among other things, the expression and production of proteins by recombinant Bacillus strains; plasmid vectors and methods of construction; expression and production of recombinant lysostaphin; novel bacteriocin compositions and their use as broad spectrum bactericides; the use of bacteriocin compositions to treat bovine mastitis; the use of bacteriocin compositions in oral healthcare; the use of bacteriocin compositions on skin for healthcare and hygiene; and the use of bacteriocin compositions in gastrointestinal healthcare. These patents are licensed to AZWELL Inc, Biosynexus Incorporated, and ImmuCell Corporation.

The Company maintains trade secret protection for bacterial strains, technical know-how, and other information it considers proprietary and beneficial for the manufacture, use, regulatory approval, and marketing of the Company's products.

Competition

The nutritional products industry is intensely competitive. Competitors include major companies with raw materials and finished product divisions that also engage in the development and sale of dietary supplements. Many of these competitors have financial and technical resources as well as production and marketing capabilities substantially greater than those of the Company. In addition, many of the Company's competitors have experience significantly greater than that of the Company in the development and testing of new or improved products.

The Company believes that its success in competing with others will in part be based on enforcing its patent portfolio and on using its clinical research for competitive advantage.

Although the Company holds exclusive rights to basic patents covering the nutritional uses of chromium picolinate and its other chromium-based supplements, the industry does not always recognize the value of a patented position. The industry is fragmented, and both foreign and domestic companies appear willing at times to disregard patent rights.

Manufacturing

Contractors manufacture the Company's products to Company specifications, sometimes using the Company's proprietary technology. The Company believes that it has adequate inventory of products to accommodate a suspension in the manufacture of any of its products. There are numerous sources of supply for all of the raw materials used in the manufacture of the Company's products.

The Company plans to continue to outsource its manufacturing and packaging needs as it expands its business to include the marketing and distribution of branded therapeutic supplements, utilizing best of class vendors who can satisfy the Company's strict quality standards.

Employees

As of June 30, 2003, the Company had 27 full-time employees, of whom 3 were executive employees, 8 were administrative, 11 were engaged in marketing and sales, and 5 were involved in research, process and product development, and manufacturing. The Company does not have a collective bargaining agreement with any of its personnel and considers its relationship with its employees to be satisfactory.

Item 2. PROPERTIES

Since September 1998, the Company maintains its headquarters pursuant to a seven and one-half year lease at 4 Manhattanville Road, Purchase, New York 10577-2197 (Tel: 914-701-4500). In fiscal 2002, the Company's surrendered a portion of its leased premises, and received a reduction in its annual rental for its headquarters location from $589,420 to $370,443 which sum is due in monthly installments. The rent is subject to annual increases over the term of the lease based on increases in certain building operating expenses.

Item 3. LEGAL PROCEEDINGS

Andrew Wertheim (a former Executive Officer) has demanded arbitration of whether he is entitled to severance benefits under the terms of his employment agreement. The Company believes that Mr. Wertheim has no entitlement, and has not provided any severance benefits. The Company in the ordinary course of its business has brought patent infringement actions against companies that are selling chromium picolinate in violation of the Company's patent rights. As of this date, no actions are ongoing, and the Company, which intends to vigorously protect its proprietary rights, is evaluating bringing other patent infringement actions. Various actions have been terminated on terms that the Company believes will protect its rights. In addition, the Company has brought an action against a competitor for false and misleading advertising.

Item 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

No matters were submitted to the Company's shareholders during the fiscal quarter ended June 30, 2003.

PART II

Item 5. MARKET PRICE OF REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

Matters Relating to Common Stock

The Company's Common Stock trades on the Nasdaq SmallCap Market System under the symbol "NXXI".

The Company has not paid a cash dividend to its public shareholders on its Common Stock. The Company intends to retain all earnings, if any, for the foreseeable future for use in the operation and expansion of its business and, accordingly, the Company does not contemplate paying any cash dividends on its Common Stock in the foreseeable future.

The following table sets forth the high and low sales prices as reported by the Nasdaq Market for the Common Stock.

	Common Stock	
Fiscal Quarter Ended	High	Low
September 30, 2001	$1.70	$0.74
December 31, 2001	$0.96	$0.60
March 31, 2002	$0.98	$0.63
June 30, 2002	$0.74	$0.54
September 30, 2002	$0.40	$0.37
December 31, 2002	$0.64	$0.48
March 31, 2003	$0.38	$0.35
June 30, 2003	$0.48	$0.44

As of September 23, 2003, there were approximately 470 holders of record of the Common Stock. The Company believes that the number of beneficial owners is substantially greater than the number of record holders, because a large portion of its Common Stock is held of record in broker "street names."

Adoption of Shareholders Rights Plan

The Company adopted a Shareholder Rights Plan on September 12, 2002. Under this plan, the Company distributed, as a dividend, one preferred share purchase right for each share of Common Stock of the Company held by stockholders of record as of the close of business on September 25, 2002. The Rights Plan is designed to deter coercive takeover tactics, including the accumulation of shares in the open market or through private transactions, and to prevent an acquiror from gaining control of the Company without offering a fair price to all of the Company's stockholders. The Rights will expire on September 11, 2012.

Each Right entitles stockholders to buy one one-thousandth of a share of newly created Series H Participating Preferred Stock of the Company for $3.00 per share. Each one one-thousandth of a share of the Preferred Stock is designed to be the functional equivalent of one share of Common Stock. The Rights will be exercisable only if a person or group acquires beneficial ownership of 15% or more of the Company's Common Stock (30% in the case of a person or group that is currently a 15% holder) or commences a tender or exchange offer upon consummation of which such person or group would beneficially own 15% or more the Company's Common Stock.

If any person or group (an "Acquiring Person") becomes the beneficial owner of 15% or more of the Company's Common Stock (30% in the case of a person that is currently a 15% holder), then (1) the Rights become exercisable for Common Stock instead of Preferred Stock, (2) the Rights held by the Acquiring Person and certain affiliated parties become void, and (3) the Rights held by others are converted into the right to acquire, at the purchase price specified in the Right, shares of Common Stock of the Company having a value equal to twice such purchase price. The Company will generally be entitled to redeem the Rights, at $.001 per Right, until 10 days (subject to extension) following a public announcement that an Acquiring Person has acquired a 15% position.

Item 6. SELECTED FINANCIAL DATA

The following tables summarize selected consolidated financial data that should be read in conjunction the more detailed financial statements and related footnotes and management's discussion and analysis of financial condition and results of operations included herein. Figures are stated in thousands of dollars, except per share amounts.

Selected Statement of Operations Data:	Year Ended June 30, 2003[3]	2002[2]	2001	2000	1999[1]
Total Revenues	$10,615	$14,668	$23,252	$32,814	$28,301
Gross Profit	6,486	10,324	17,036	27,034	23,519
Operating (Loss) Income	(11,081)	(7,789)	(955)	7,041	6,469
(Loss) Income Before Taxes	(11,050)	(6,011)	1,400	7,004	6,347
Income Taxes	(544)	--	335	523	482
Net (Loss) Income	(10,506)	(6,011)	1,065	6,490	5,865
Diluted (Loss) Earnings per Share	(0.32)	(0.19)	0.03	0.20	0.19

Selected Balance Sheet Data:	At June 30, 2003	2002	2001	2000	1999
Working Capital	$4,146	$8,002	$6,392	$6,486	$1,879
Total Assets	18,920	28,100	38,887	41,085	34,541
Total Liabilities	3,484	2,151	6,495	10,430	12,950
Long-Term Obligations	--	--	122	1,278	3,807
Redeemable Preferred Stock	--	--	418	676	921
Stockholders' Equity	15,436	25,949	31,974	29,979	20,670

(1) Consolidated Statements of Operations include the operations of the Lite Bites business from January 1, 1999, the effective date of acquisition.

(2) Consolidated Statements of Operations include a $7.1 million non-cash charge for the impairment of goodwill.

(3) Consolidated Statements of Operations include a $4.4 million non-cash charge for the impairment of intangibles.

Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion should be read in conjunction with the Consolidated Financial Statements and related notes thereto of the Company included elsewhere herein.

Overview

The following table sets forth items in the Consolidated Statements of Operations as a percent of revenues:

	Fiscal Year Percent of Revenues		
	2003	2002	2001
Total Revenues	100.0%	100.0%	100.0%
Gross profit*	59.8	69.7	70.1
Selling, general and administrative expense	77.3	50.1	44.4
Research and development expense	21.0	6.9	8.4
Operating (loss)	(104.4)	(53.1)	(4.1)
Net (loss) income	(99.0)	(41.0)	4.6

*Based upon percent of net sales

Results of Operations

1. Year ended June 30, 2003 vs. Year ended June 30, 2002

Revenues

Net sales of $10.3 million for fiscal year 2003 declined $4.0 million when compared to net sales of $14.3 million for fiscal year 2002.

The decline in revenues primarily reflects unsatisfactory results in the marketing of the Company's Lite Bites product line. Lower sales to the QVC channel can be partially attributable to increased competition in the nutrition bar category and a general decline in the weight-loss supplement market related to negative press associated with the ephedra controversy. Softer sales resulted in more limited airtime driving the Lite Bites business on QVC into further decline. In parallel during fiscal year 2003, the Company continued to explore alternative cost-effective channels of distribution for the Lite Bites brand that, prior to this year, was by agreement sold exclusively through QVC, Inc. The Company tested the proposition of taking Lite Bites into retail distribution though an alliance with Leiner Health Products, one of the largest and most reputable supplement distributors in the U.S. The resulting feedback indicated that the brand would require a much larger investment in marketing than the Company believed was justified. Therefore, the Company has made the decision to no longer invest in the Lite Bites product line. As a result, the Company determined that a $4.4 million non-cash charge associated with the long-lived assets related to the Lite Bites product line was warranted. The

Company will consider a sale of the Lite Bites assets. Any returns realized will be reinvested in the expansion of the Company's chromium-derived business opportunities.

Lower weight-loss and sports nutrition supplement sales have led to commensurate reductions in revenues from ingredient sales.

Other revenue from license fees for fiscal year 2003 and fiscal year 2002 was $0.4 million.

Cost of Goods Sold

Cost of goods sold in fiscal year 2003 of $4.1 million declined $0.2 million when compared to $4.3 million in fiscal year 2002. A reduction in cost of goods sold, which is directly related to lower sales in fiscal year 2003, was partially offset by a charge of $0.2 million for slow-moving inventory of the Lite Bites product line. Gross margin on product sales was 59.8% in fiscal year 2003, compared to 69.7% in fiscal year 2002. The decline was due primarily to product mix and charges to cost of goods sold for slow-moving inventory.

Selling, General and Administrative

Selling, general and administrative expense for fiscal year 2003 of $8.2 million increased $0.9 million when compared to $7.3 million for fiscal year 2002. Charges for marketing, as well as personnel and personnel-related costs associated with organizational expansion to support the Company's planned launch of new chromium based therapeutic products were the primary reasons for the increase.

Research and Development

Research costs of $2.2 million for fiscal year 2003 increased $1.2 million when compared to $1.0 million in fiscal year 2002. The increase is due primarily to spending to validate new chromium product applications in diabetes and depression.

The Company's therapeutic strategy for the past year includes a larger commitment to spending on research and development and is targeted at further validating earlier findings focused on disease specific conditions in the areas of diabetes and depression.

The Company entered into an agreement with Diabetex, Inc., a diabetes disease management company, and is funding a large-scale trial in managed patient populations to evaluate Diachrome's effect as a nutritional adjunct to standard care for people with diabetes. The clinical trial is planned to complete by the close of fiscal year 2004.

The Company also entered into an agreement with Comprehensive NeuroSciences, Inc., a contract research organization in the neurosciences field, to perform studies related to the Company's anti-depressant technology. The Company expects that the first phase of its study will be completed during fiscal year 2004.

The Company expects to launch these products under the Dietary Supplement Health and Education Act (DSHEA) regulatory pathway that is less costly and less time consuming than that required for drug development. These large-scale studies are being conducted to secure medical

acceptance and adoption for the Company's products as standard treatment protocols. The Company's spending in these areas of new technology is discretionary and is subject to the availability of funds. There can be no assurances that the Company's disease specific product development efforts will be successfully completed or that the products will be successfully manufactured or marketed.

Impairment of Intangibles

In October 2001, the FASB issued SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets." This statement supercedes FASB Statement No. 121, "Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of." The statement requires the Company to review its long-lived assets whenever events or changes in circumstances indicate that impairment might exist. During fiscal year 2003, the Company decided to discontinue investing in its Lite Bites product line. As a result of a review of current and forecasted operating cash flows and the profitability of this line, the Company determined that a $4.4 million non-cash impairment charge was warranted. The Company used a discounted cash flow analysis for purposes of estimating the fair value of its reporting unit.

Income Taxes

The effective tax rate for fiscal year 2003 was a benefit of 5% compared to 0% for fiscal year 2002. For fiscal year 2003, the benefit was recorded up to the extent of the Company's net operating loss carryback. The difference between the federal statutory rate of 34% and the actual rate is primarily due to changes in the deferred tax asset valuation allowance.

Results of Operations

2. Year ended June 30, 2002 vs. Year ended June 30, 2001

Revenues

Net sales of $14.3 million for fiscal year 2002 declined $6.5 million when compared to net sales of $20.8 million for fiscal year 2001. The decline is primarily due to softness in retail sales of vitamin and mineral supplements, industry consolidation, and a shortfall in sales of consumer products as a result of a short-term quality control issue at the Company's supplier of Lite Bites products.

Other revenues for fiscal year 2002 of $0.4 million declined $2.0 million when compared to $2.4 million of other revenues for fiscal year 2001. Fiscal year 2001 included $1.9 million of license fees earned from Biosynexus Incorporated in accordance with a License Agreement entered into on August 2, 2000 and ImmuCell Corporation in accordance with a License Agreement entered into on April 12, 2000.

Cost of Goods Sold

Cost of goods sold in fiscal year 2002 of $4.3 million declined $1.9 million when compared to $6.2 million in fiscal year 2001. The reduction in cost of goods is directly related to lower sales in fiscal year 2002. Gross margin on product sales of 69.7% in fiscal year 2002 declined 0.4%

when compared to 70.1% in fiscal year 2001. The decline is due primarily to product mix, with lower margin consumer products accounting for a greater proportion of the Company's revenues.

Selling, General and Administrative

Selling, general and administrative expense for fiscal year 2002 of $7.3 million decreased $3.0 million when compared to $10.3 million for fiscal year 2001. The decrease is due primarily to cost savings attributable to a restructuring undertaken by the Company during the second quarter of fiscal year 2001, reductions in advertising and consulting expenditures, and containment of non-strategic expenditures.

Research and Development

Research costs of $1.0 million for fiscal year 2002 decreased $0.9 million when compared to $1.9 million for fiscal year 2001. The decrease principally reflects cost savings attributable to the restructuring undertaken by the Company in the second quarter of fiscal 2001 and the Company's decision to terminate its Internet business at that time.

Goodwill Impairment

The Company adopted SFAS No. 142 effective July 1, 2001. Under SFAS No. 142, goodwill is no longer amortized but reviewed for impairment annually, or more frequently if certain indicators arise. The Company is required to complete the initial step of a transitional impairment test within six months of adoption of SFAS No. 142 and to complete the final step of the transitional impairment test by the end of the fiscal year. The initial step was completed in the first quarter of fiscal 2002. In addition, the Company assesses the impairment of identifiable intangible assets and goodwill whenever events or changes in circumstances indicate that the carrying value of the relevant assets may not be recoverable. Management's judgment regarding the existence of impairment is based on factors such as significant changes in the manner or the use of acquired assets or the Company's overall business strategy; significant negative industry or economic trends; significant declines in the Company's stock price for a sustained period and the Company's market capitalization relative to book value. Upon adoption, goodwill in the amount of $4.1 million included in patents and trademarks since acquisition (although accounted for separately by the Company and included therein because of its estimated economic life) has been reclassified in the accompanying balance sheets in accordance with the requirements of SFAS No. 142. Due to declining market conditions, as well as a change in business strategy, it was determined that a $7.1 million impairment charge was warranted. The Company used a discounted cash flow analysis for purposes of estimating the fair value of its reporting unit.

Other Income

Other income of $1.8 million in fiscal year 2002 and $2.3 million in fiscal year 2001, was due primarily to amounts earned on the settlement of patent infringement lawsuits.

Income taxes

The effective tax rate for fiscal year 2002 was 0.0% compared to 24.0% in fiscal year 2001. The difference between the effective rate and the federal statutory rate of 34% is due primarily to changes in the deferred tax valuation allowance, non-deductible amortization and impairment charges.

Nutritional Products

1. Year ended June 30, 2003 vs. Year ended June 30, 2002

Nutritional products revenues of $10.2 million for fiscal year 2003 declined $4.0 million when compared to $14.2 million in fiscal year 2002. The decline is primarily due to a softness in sales of Lite Bites nutrition bars and related dietary supplements sold through QVC, as noted above.

Nutritional products operating loss for fiscal year 2003 was $11.3 million, including a $4.4 million non-cash charge for impairment of long-lived assets, compared to an operating loss of $8.0 million in fiscal year 2002, which included a $7.1 million non-cash charge for impairment of goodwill.

2. Year ended June 30, 2002 vs. Year ended June 30, 2001

Nutritional products revenues of $14.2 million for fiscal 2002 decreased $6.9 million, when compared to nutritional products revenues of $21.1 million for fiscal year 2001. The decrease in revenues is primarily due a royalty reduction associated with the expiration of the Company's chromium picolinate composition of matter patent in August of 2000, softness in retail sales of vitamin and mineral supplements, and continuing industry consolidation.

Nutritional products operating loss for fiscal year 2002 was $8.0 million, which included a $7.1 million non-cash charge for impairment of goodwill, compared to $2.9 million in fiscal year 2001.

Pharmaceutical Products

1. Year ended June 30, 2003 vs. Year ended June 30, 2002

Pharmaceutical products revenues for fiscal years 2003 and 2002 were $0.4 million. License fee income accounted for the revenue in both years.

Pharmaceutical products operating income for fiscal years 2003 and 2002 was $0.3 million, respectively.

2. Year ended June 30, 2002 vs. Year ended June 30, 2001

Pharmaceutical products revenues for fiscal year 2002 of $0.4 million decreased $1.7 million when compared to $2.1 million for fiscal year 2001. License fees earned from users of the Company's patented technologies in fiscal year 2001 did not recur in fiscal 2002.

Pharmaceutical products operating income of $0.2 million for fiscal year 2002 decreased $1.7 million when compared to $1.9 million in fiscal year 2001. The primary reason for the decline was no significant license fees were earned in fiscal year 2002.

Liquidity and Capital Resources

Cash and cash equivalents at June 30, 2003 of $4.1 million declined $0.9 million when compared to $5.0 million at June 30, 2002. As of June 30, 2003, the Company had a working capital surplus of $4.1 million, compared to a working capital surplus of $8.0 million as of June 30, 2002.

Net cash used in operating activities for fiscal 2003 was $0.3 million compared to cash provided by operating activities of $4.5 million in fiscal year 2002. Operating losses in fiscal year 2003 account for the majority of the difference.

Net cash provided by investing activities for fiscal year 2003 was $0.5 million compared to cash used in investing activities of $4.2 million in fiscal year 2002. A lower contingent payment for acquisitions was the primary reason for the change. In addition, $1.0 million invested in short-term instruments in fiscal year 2002 matured in fiscal year 2003.

Net cash used in financing activities was $58 thousand compared to $1.7 million in fiscal year 2002. Debt repayments in fiscal year 2003 were eliminated, as well as the lack of redemption of preferred stock account for the change.

The Company's primary source of financing is cash generated from continuing operations. The Company believes that cash on hand and cash generated from operations will provide sufficient liquidity to fund continuing operations for the next twelve months.

Future increases in marketing and research and development expenses over the present levels and any acquisition activities will require additional funds. The Company intends to seek any necessary additional funding through arrangements with corporate collaborators, through public or private sales of its securities, including equity securities, or through bank financing arrangements. The Company does not currently have any specific arrangements for additional financing and there can be no assurance that additional funding will be available at all or on terms acceptable to the Company.

Critical Accounting Policies and Estimates

The preparation of the consolidated financial statements requires the Company to make estimates and judgments that affect the reported amounts of assets, liabilities and expenses. On an on-going basis, the Company evaluates its estimates, including those related to uncollectible accounts receivable, inventories, goodwill, intangibles and other long-lived assets. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

The Company believes the following critical accounting policies affect its more significant judgments and estimates used in the preparation of its consolidated financial statements:

- The Company maintains allowances for uncollectible accounts receivable for estimated losses resulting from the inability of its customers to make required payments. If the financial condition of the Company's customers were to deteriorate, resulting in an impairment of their ability to make payments, additional allowances may be required.

- The Company carries inventories at the lower of cost or estimated net realizable value. If actual market conditions are less favorable than those projected by management write-downs may be required.

- Property, plant and equipment, patents, trademarks and other intangible assets owned by the Company are amortized, over their estimated useful lives. Useful lives are based on management's estimates over the period that such assets will generate revenue. Intangible assets with definite lives are reviewed for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. Future adverse changes in market conditions or poor operating results of underlying capital investments or intangible assets could result in losses or an inability to recover the carrying value of such assets, thereby possibly requiring an impairment charge in the future.

Significant Accounting Pronouncements

In June 2001, the Financial Accounting Standards Board issued Statements of Financial Accounting Standards No. 141 "Business Combinations", and No. 142 "Goodwill and other Intangible Assets", effective for fiscal years beginning after December 15, 2001. Under the new rules, goodwill is no longer amortized but is subject to annual impairment tests in accordance with the Statement No. 142. Other intangible assets will continue to be amortized over their useful lives. See Note 18 for further discussion on the impact of SFAS No. 142 on Nutrition 21's 2002 financial position and results of operations for the year ended June 30, 2002.

In October 2001, the FASB issued SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets." The FASB's new rules on asset impairment supersede SFAS No. 121, "Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to be Disposed of," and is effective for the Company's fiscal year beginning July 1, 2002. (See Note 9 for impairment discussion).

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market risk represents the risk of changes in value of a financial instrument, derivative or non-derivative, caused by fluctuations in interest rates, foreign exchange rates and equity prices. The Company has no financial instruments that give it exposure to foreign exchange rates or equity prices.

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The financial statements are included herein commencing on page F-1.

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

At a meeting held on July 29, 2003, the Audit Committee of the Board of Directors of the Company approved the engagement of J. H. Cohn LLP as its public accountants for the fiscal year ending June 30, 2003 to replace the firm of Ernst & Young LLP, who were dismissed as auditors of the Company effective July 31, 2003.

The audit reports of Ernst & Young LLP on the consolidated financial statements of Nutrition 21, Inc. and subsidiaries as of and for the years ended June 30, 2002 and 2001, did not contain an adverse opinion or a disclaimer of opinion and were not qualified or modified as to uncertainty, audit scope, or accounting principles. There were no disagreements between the Company and Ernst & Young LLP on any matter of accounting principles or practices, financial statement disclosure or auditing scope or procedure, which, if not resolved to Ernst & Young LLP's satisfaction, would have caused Ernst & Young LLP to make reference to the subject matter of such disagreements in connection with its report.

Item 9A. CONTROLS AND PROCEDURES

The Company maintains disclosure controls and procedures designed to ensure that information required to be disclosed in reports filed under the Securities Exchange Act of 1934, as amended, is recorded, processed, summarized and reported within the specified time periods. As of the end of the period covered by this Annual Report on Form 10-K, the Company's Chief Executive Officer and Chief Financial Officer evaluated, with the participation of the Company's management, the effectiveness of the Company's disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)). Based on the evaluation, which disclosed no significant deficiencies or material weaknesses, the Company's Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures are effective. There were no significant changes in the Company's internal controls over financial reporting that occurred during the Company's most recent fiscal quarter that have materially affected or are reasonably likely to materially affect the Company's internal control over financial reporting.

PART III

Item 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

Officers and Directors

The officers and directors of the Company are as follows:

Name and Age	Year Joined Company	Position
Gail Montgomery (50)	1999	President, Chief Executive Officer, and Director
John H. Gutfreund (73)	2000	Chairman of the Board
P. George Benson, PhD (57)	1998	Director
Warren D. Cooper, MD (50)	2002	Director
Audrey T. Cross, PhD (58)	1995	Director
Paul Intlekofer (35)	2002	Chief Financial Officer and Senior Vice President, Corporate Development
Marvin Moser, MD (79)	1997	Director
Robert E. Pollack, PhD (63)	1995	Director
Benjamin T. Sporn (65)	1986	Senior Vice President, General Counsel, and Secretary

Gail Montgomery has been President, Chief Executive Officer and a Director of the Company since September 29, 2000, when she succeeded Fredrick D. Price. From July 1999 to September 2000, she served the Company's Nutrition 21 subsidiary in various capacities, most recently as Vice President and General Manager. From November 1998 to July 1999, Ms. Montgomery was President of Health Advantage Consulting, a consulting firm, which provided strategic planning, new product introduction, and market development services to the nutrition industry. From 1992 to 1998 she worked for Diet Workshop, a diet franchise network, most recently as President and CEO. From 1979 to 1992, Ms. Montgomery has served in various capacities in the health and fitness sector. She received a BA from Douglas College of Rutgers University in communications.

P. George Benson, PhD, was elected a Director of the Company in July 1998. Dr. Benson is Dean of the Terry College of Business and holds the Simon S. Selig, Jr. Chair for Economic Growth at the University of Georgia. Dr. Benson was previously the Dean of the Faculty of Management at Rutgers University and a professor of decision sciences at the Carlson School of Management of the University of Minnesota. In 1997, he was appointed by the U.S. Secretary of Commerce to a three-year term as one of the nine judges for the Malcolm Baldrige National

Quality Award. In 1996, Business News New Jersey named Dr. Benson one of New Jersey's "Top 100 Business People". He received a BS from Bucknell University and a PhD in business from the University of Florida.

Warren D. Cooper, MD was elected a Director of the Company in April 2002. Dr. Cooper is president and founder of Coalesence, Inc., a consultancy focused on business and product development for the pharmaceutical and healthcare industries. From 1995 to 1999, Dr. Cooper was the business unit leader of Cardiovascular Business Operations at AstraZeneca Pharmaceuticals LP. For three years before that he was executive director of the Medical Affairs & Drug Development Operations in the Astra/Merck Group of Merck & Co. Over a five-year period from 1987 to 1992, Dr. Cooper served as executive director for Worldwide Clinical Research Operations and as senior director for Clinical Research Operations (Europe) at Merck Research Laboratories. He was with Merck, Sharp & Dohme, U.K., from 1980 to 1987, first as a clinical research physician and later as director of medical affairs. Dr. Cooper is a member of the Medical Advisory Board of Zargis Medical Corp. (a Siemens joint venture). He also holds memberships in the American Association of Pharmaceutical Physicians, the American Society of Hypertension and the International Society of Hypertension. He received a B. Sc. in physiology and an M.B. B.S. (U.K. equivalent to U.S. MD) form The London Hospital Medical College, University of London.

Audrey T. Cross, PhD, was elected a Director of the Company in January 1995. Dr. Cross has been Associate Clinical Professor at the Institute of Human Nutrition at the School of Public Health of Columbia University since 1988. She also works as a consultant in the areas of nutrition and health policy. She has served as a special assistant to the United States Secretary of Agriculture as Coordinator for Human Nutrition Policy and has worked with both the United States Senate and the California State Senate on nutrition policy matters. Dr. Cross received a BS in dietetics, a Master of Public Health in nutrition and a PhD from the University of California at Berkeley, and a JD from the Hastings College of Law at the University of California at San Francisco.

John H. Gutfreund was elected a Director of the Company in February 2000 and Chairman of the Board in September 2001. Mr. Gutfreund is Senior Managing Director and Executive Committee Member of C. E. Unterberg, Towbin, investment bankers, and President of Gutfreund & Company, Inc., a New York-based financial consulting firm that specializes in advising select corporations and financial institutions in the United States, Europe and Asia. He is the former chairman and chief executive officer of Salomon Inc., and past vice chairman of the New York Stock Exchange and a past board member of the Securities Industry Association. Mr. Gutfreund is active in the management of various civic, charitable, and philanthropic organizations, including the New York Public Library, Montefiore Medical Center, The Brookings Institution, Council on Foreign Relations, Honorary Trustee, Oberlin (Ohio) College, and Chairman of the Aperture Foundation. Mr. Gutfreund is also a director of AccuWeather, Inc., Ascent Assurance, Inc., Evercel Inc., LCA-Vision, Inc., Maxicare Health Plans, Inc., The LongChamp Core Plus Fund Ltd., and The Universal Bond Fund. He received a BA from Oberlin College.

Paul Intlekofer was elected Chief Financial Officer and Senior Vice President, Corporate Development, on January 17, 2003. From June 2002 to January 2003, he served the Company in varying capacities. From September 2001 to June 2002, Mr. Intlekofer was Senior Vice President of Planit, Inc., which provided strategic planning, capital formation, M&A, marketing and new product development services to the healthcare and financial industries. From 1998 to

2001 he was Senior Vice President of Corporate Development for Rdental LLC, the exclusive technology alliance of the American Dental Association and oral health content provider of WebMD. From 1995 to 1997 he was Director of Strategic Operations/Business Development for Doctors Health, a practice management and health insurance company. Early in his career, he practiced corporate and securities law for Venable, Baetjer & Howard. Mr. Intlekofer received his MBA and Juris Doctor from the University of Maryland and BA from the Johns Hopkins University.

Marvin Moser, MD was elected to the Board of Directors in October 1997. He is clinical professor of medicine at Yale and senior medical consultant at the National High Blood Pressure Education Program of the National Heart, Lung and Blood Institute. Dr. Moser's work has focused on various approaches to the prevention and treatment of hypertension and heart disease. He has published extensively on this subject with over 400 publications. He has authored or contributed to more than 30 books and numerous physician and patient education programs. He is editor–in chief of the Journal of Clinical Hypertension. Dr. Moser is also a member of the Board of The Third Avenue Value Funds and the Trudeau Institute. Dr. Moser holds a BA from Cornell University and an MD from Downstate University College of Medicine.

Robert E. Pollack, PhD, was elected a Director of the Company in January 1995. Dr. Pollack has been a Professor of Biological Sciences at Columbia University since 1978. In addition, from 1982 to 1989 he was Dean of Columbia College. Prior thereto he was Professor of Microbiology at the State University of New York School of Medicine at Stony Brook, Senior Scientist at Cold Spring Harbor Laboratory, Special NIH fellow at the Weizmann Institute in Israel, and NIH Fellow in the Department of Pathology at New York University School of Medicine. He is the author of more than one hundred research papers on the molecular biology of viral oncogenesis, a dozen articles in the popular press, and three books. He received a BA in physics from Columbia University and a PhD in biology from Brandeis University.

Benjamin T. Sporn has been legal counsel to the Company since 1990 and has served as Secretary of the Company since 1986, and was appointed Senior Vice President and General Counsel in February 1998. He was an attorney with AT&T from 1964 until December 1989 when he retired from AT&T as a General Attorney for Intellectual Property Matters. Mr. Sporn was a director of the Company from 1986 until 1994. He received a BSE degree from Rensselaer Polytechnic Institute and a JD degree from American University.

The Directors serve for a term of one year and until their successors are duly elected and qualified. Officers serve at the discretion of the Board of Directors, subject to the provisions of the employment agreements described below. Except for Mr. Paul Intlekofer, who is first cousin to Ms. Gail Montgomery, there are no family relationships among directors or executive officers.

Arrangements Regarding the Election of Directors

So long as Burns Philp & Company Limited (an owner of 22.89% of the Company's outstanding common shares) owns at least 20% of the Company's outstanding common stock, BP is entitled to nominate one member for election to the Company's Board. Currently, BP has not nominated a member for election to the Company's Board. See Item 13. Certain Relationships and Related Transactions.

Committees of the Board of Directors

The Company has an audit committee consisting of Dr. Benson, Dr. Cooper, and Mr. Gutfreund. In addition, the Company has a compensation committee consisting of Dr. Cross, Mr. Gutfreund, and Dr. Pollack. During the year ended June 30, 2003, the audit committee met four times, and the compensation committee met one time.

Item 11. EXECUTIVE COMPENSATION

The following table sets forth the compensation paid or accrued by the Company during the periods indicated for (i) the chief executive officer during fiscal year 2003 and (ii) certain other persons that served as executive officers in fiscal year 2003 whose total annual salary and bonus was in excess of $100,000.

SUMMARY COMPENSATION TABLE (1)(2)

Name and Principal Position	Annual Compensation			Long-Term Compensation	All Other Compensation
	Period	Salary ($)	Bonus ($)	Securities Underlying Options/SARs (#)	($)
Gail Montgomery, President, Chief Executive Officer and Director	7/1/00 - 6/30/01	257,307	275,000	200,000	
	7/1/01 – 6/30/02	275,000		500,000	
	7/1/02 – 6/30/03	275,000		1,175,000	
Paul Intlekofer, Chief Financial Officer and Senior Vice President, Corporate Development	7/1/02 – 6/30/03	190,731		1,050,000	37,500 (3)
Alan J. Kirschbaum, Vice President, Finance and Treasury	7/1/00 - 6/30/01	150,000	30,000	75,000	
	7/1/01 – 6/30/02	150,000			
	7/1/02 – 6/30/03	150,000		30,000	
Benjamin T. Sporn, Senior Vice President, General Counsel and Secretary	7/1/00 - 6/30/01	207,500	66,688	165,000	
	7/1/01 – 6/30/02	207,500			
	7/1/02 – 6/30/03	207,500		225,000	
Andrew Wertheim, Chief Operating Officer (4)	7/1/02 – 6/30/03	162,211		675,000	

(1) The above compensation does not include the use of an automobile and other personal benefits, the total value of which do not exceed as to any named officer or director, the lesser of $50,000 or 10% of such person's annual salary and bonus.

(2) Pursuant to the regulations promulgated by the Securities and Exchange Commission (the "Commission"), the table omits a number of columns reserved for types of compensation not applicable to the Company.

(3) Fees earned in a consulting capacity during fiscal year 2003.

(4) Employment terminated February 14, 2003.

None of the individuals listed above received any long-term incentive plan awards during the fiscal year.

Employment and Consulting Agreements

The Company has entered into a three-year employment agreement with Gail Montgomery as President and Chief Executive Officer, effective as of September 1, 2002. The agreement provides for an annual salary of $275,000, $300,000, and $325,000 in the successive years under the agreement, and for performance bonuses based on achieving defined revenue targets. Ms. Montgomery is also entitled to additional payments equal to one year's salary plus an additional month of salary for defined years of service, if her employment is terminated without cause before the agreement expires, or if the Company fails to offer to enter into a new one-year agreement upon expiration. If Ms. Montgomery's employment is terminated or she resigns within six months after a change of control (as defined) the Company will pay to her 2.99 times her annual salary and previous year's bonus plus certain gross-ups, but these payments will be reduced to the extent necessary to prevent the application of Section 280G of the Internal Revenue Code.

Effective as of September 16, 2002 the Company entered into a three-year employment agreement with Paul Intlekofer, who has served as Chief Financial Officer and Senior Vice President, Corporate Development since January 17, 2003. The agreement provides for an annual salary of $200,000, $225,000, and $250,000 in the successive years under the agreement, and for performance bonuses based on achieving defined revenue targets. Mr. Intlekofer is also entitled to additional payments equal to one year's salary, if his employment is terminated without cause before the agreement expires. If Mr. Intlekofer's employment is terminated or he resigns within six months after a change of control (as defined) the Company will pay to him 2.99 times his annual salary and previous year's bonus plus certain gross-ups, but these payments will be reduced to the extent necessary to prevent the application of Section 280G of the Internal Revenue Code.

The Company entered into a four-year agreement with Benjamin Sporn effective, September 1, 2002, which provides for his services as Senior Vice President, General Counsel, and Secretary as an employee during the first two years of the term, and as General Counsel as a consultant during the balance of the term. Mr. Sporn's salary and fees will be $207,500, $225,000, $150,000 and $100,000 in successive years under the agreement, plus performance bonuses based on achieving defined revenue targets. Mr. Sporn is also entitled to additional payments equal to two years' salary if his employment is terminated without cause before the agreement expires. If Mr. Sporn's employment is terminated or he resigns within six months after a change of control (as defined) the Company will pay to him 2.99 times his annual salary and previous

year's bonus plus certain gross-ups, but these payments will be reduced to the extent necessary to prevent the application of Section 280G of the Internal Revenue Code.

The following tables set forth information with regard to options granted during the fiscal year (i) to the Company's Chief Executive Officer, and (ii) to other officers of the Company named in the Summary Compensation Table.

OPTION/SAR GRANTS IN LAST FISCAL YEAR (1)

Individual Grants					Potential Realizable Value At Assumed Annual Rates Of Stock Price Appreciation For Option Term	
Name	Number Of Securities Underlying Options/SARs Granted (#)	Percent Of Total Options/SARs Granted To Employees In Fiscal Year	Exercise Of Base Price ($/Sh)	Expiration Date	5% ($)	10% ($)
A. Paul Intlekofer	550,000 500,000	30.3%	$0.40 $0.31	9/16/12 10/18/12	$138,537 $ 97,749	$350,623 $247,030
B. Alan J. Kirschbaum	30,000	0.89%	$0.38	5/22/13	$7,169	$ 18,169
C. Gail Montgomery	850,000 325,000 SAR's	24.5% 100%	$0.39	7/31/12	$208,478 $ 79,712	$528,326 $202,007
D. Benjamin T. Sporn	225,000	6.5%	$0.39	7/31/12	$ 55,186	$139,850
E. Andrew Wertheim	675,000	19.5%	$0.36	(2)	$152,281	$387,279

(1) Consists of stock options except for 325,000 SARs shown for Gail Montgomery.
(2) Expired by reason of termination of employment on February 14, 2003.

AGGREGATED OPTION/SAR EXERCISES IN LAST FISCAL YEAR AND FISCAL YEAR-END OPTION VALUES

Individual Grants						
Name	**Shares Acquired in Exercise (#)**	**Value realized ($)**	**Number of Unexercised Options/SARs at FY-End (#)**		**Value of Unexercised In-the-Money Options/SARs at FY-End**	
			Exercisable	Unexercisable	Exercisable	Unexercisable
Paul Intlekofer	0	0	60,000	1,000,000	$2,500	$95,000
Alan J. Kirschbaum	0	0	79,000	101,000	$0	$4,200
Gail Montgomery	0	0	435,000	1,465,000	$0	$87,900
Benjamin T. Sporn	0	0	188,500	284,000	$0	$13,500
Andrew Wertheim (1)	0	0	0	0	0	0

(1) Stock Options expired by reason of termination of employment.

Pension Plans

Nutrition 21, Inc.

Eligible employees of the Company are entitled to participate in the Burns Philp Inc. Retirement Plan for Non-Bargaining Unit Employees, a non-contributory pension plan (the "Pension Plan") maintained by Burns Philp as long as Burns Philp maintains the Pension Plan and owns at least 20% of the Company's outstanding Common Stock. At June 30, 2003, Burns Philp held approximately 24% of the Company's outstanding Common Stock. Assuming retirement at age 65, the Pension Plan provides benefits equal to the greater of (a) 1.1% of the employee's final average earnings multiplied by the number of years of credited service plus 0.65% of the employee's final average earnings in excess of the average of the contribution and the benefit bases in effect under Section 230 of the Social Security Act for each year in the 35-year period ending with the year in which the employee attains the Social Security retirement age as calculated under Section 401(l)(5)(E) of the Code and Table I of IRS Notice 89-70, multiplied by

the employee's years of credited service up to 35, minus any predecessor plan benefit in the case of an employee who participated in a predecessor plan or (b) $24 multiplied by the number of years of credited service up to 25 years plus $12 multiplied by the years of employment from 26-40 years, minus any predecessor plan benefit in the case of an employee who participated in a predecessor plan. The "final average earnings" are the average earnings during the five highest-paid consecutive calendar years within the last ten calendar years of credited service with the Company. Earnings include the salary and bonus listed in the summary compensation table. Earnings, which may be considered under the Pension Plan, are limited to $200,000 per year subject to annual cost of living adjustments as determined by the IRS.

The following table sets forth estimated annual benefits payable upon retirement, assuming retirement at age 65 in 2003 and a single life annuity benefit, according to years of credited service and final average earnings. The benefits listed are not subject to any deduction for Social Security or other offset amounts.

Years of Credited Service

Final average earnings	15	20	25	30	35
$25,000	$4,320	$5,760	$7,200	$8,160	$9,600
$50,000	$8,760	$11,760	$14,640	$17,640	$20,520
$75,000	$15,360	$20,520	$25,960	$30,720	$35,080
$100,000	$21,960	$29,280	$36,600	$43,920	$51,240
$150,000	$35,040	$46,680	$58,440	$70,080	$81,840
$200,000 and up	$48,120	$64,200	$80,280	$96,360	$112,440

Paul Intlekofer, Alan J. Kirschbaum, Gail Montgomery, and Benjamin T. Sporn each have 0.8, 4.5, 3.9, and 11 years, respectively, of credited service under the Pension Plan as of June 30, 2003, and, at age 65, would have approximately 30, 11, 19, and 11 years of credited service, respectively.

Certain Other information

In 2002, the Board of Directors adopted a 2002 Inducement Stock Option Plan under which the Company can issue options to purchase up to 2,500,000 common shares to induce individuals to become employed by the Company.

Director Compensation

Non-management Directors each receive a quarterly director's fee of $1,800 and the Chairman of the Board receives a quarterly director's fee of $3,600. Each also receives $500 for each meeting of the Board attended in person, $250 for each meeting of the Board attended telephonically, and each receives options to acquire 15,000 shares of Common Stock. Such options granted to Directors during the fiscal year ended June 30, 2003, were granted at an exercise price of $0.60.

Compliance with Section 16(a) of the Securities Exchange Act of 1934

Section 16(a) of the Securities Exchange Act of 1934 requires the Company's officers and directors, and persons who own more than ten percent of a registered class of the Company's equity securities, to file reports of ownership and changes in ownership with the Securities and Exchange Commission. Officers, directors and greater than ten-percent shareholders are required by SEC regulation to furnish the Company with copies of all Section 16(a) forms they file.

Based solely on review of the copies of such forms furnished to the Company, or written representations that no Forms 5 were required, the Company believes that during the period from July 1, 2002 through June 30, 2003, all Section 16(a) filing requirements applicable to its officers, directors and greater than ten-percent beneficial owners were complied with.

Compensation Committee Interlocks and Insider Participation

The Board of Directors determines executive compensation taking into consideration recommendations of the Compensation Committee. No member of the Company's Board of directors is an executive officer of a company whose compensation committee or board of directors includes an executive officer of the Company.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth, as of September 19, 2003, information regarding the beneficial ownership of the Company's Common Stock based upon the most recent information available to the Company for (i) each person known by the Company to own beneficially more than five (5%) percent of the Company's outstanding Common Stock, (ii) each of the Company's executive officers and directors and (iii) all executive officers and directors of the Company as a group. Unless otherwise indicated, each stockholder's address is c/o the Company, 4 Manhattanville Road, Purchase, New York 10577-2197.

Shares Owned Beneficially and of Record (1)

Name and Address	No. of Shares	% of Total
P. George Benson (2)	85,000	*
Warren D. Cooper (3)	25,000	*
Audrey T. Cross (4)	109,000	*
John H. Gutfreund (5)	105,000	*
Paul Intlekofer (6)	295,383	*
Alan J. Kirschbaum (3)	100,500	*
Gail Montgomery (7)	834,933	2.41
Marvin Moser (8)	170,000	*
Robert E. Pollack (3)	115,000	*
Benjamin T. Sporn (9)	350,125	1.00
Andrew Wertheim	0	*
Wyeth (10) 5 Giralda Farms Madison, NJ 07940	3,478,261	10.24
Burns Philp & Company Limited (11) 7 Bridge Street Sydney, NSW 2000, Australia	7,763,837	22.87
All Executive Officers and Directors as a Group (9 persons) (12)	1,293,959	6.10

* Less than 1%

(1) Unless otherwise indicated, each person has sole investment and voting power with respect to the shares indicated. For purposes of this table, a person or group or group of persons is deemed to have "beneficial ownership" of any shares as of a given date, which such person has the right to acquire within 60 days after such date. For purposes of computing the percentage of outstanding shares held by each person or group of persons named above on a given date, any security which such person or group of persons has the right to acquire within 60 days after such date is deemed to be outstanding for the purposes of computing the percentage ownership of such person or persons, but is not deemed to be outstanding for the purpose of computing the percentage ownership of any other person.

(2) Includes 75,000 shares issuable upon exercise of currently exercisable options under the Company's Stock Option Plans.

(3) Consists of shares issuable upon exercise of currently exercisable options under the Company's Stock Option Plans.

(4) Includes 105,000 shares issuable upon exercise of currently exercisable options under the Company's Stock Option Plans.

(5) Includes 55,000 shares issuable upon exercise of currently exercisable options under the Company's Stock Option Plans.

(6) Includes 283,333 shares issuable upon exercise of currently exercisable options under the Company's Stock Option Plans.

(7) Includes 745,833 shares issuable upon exercise of currently exercisable options under the Company's Stock Option Plans.

(8) Includes 160,000 shares issuable upon exercise of currently exercisable options under the Company's Stock Option Plans.

(9) Includes 316,000 shares issuable upon exercise of currently exercisable options under the Company's Stock Option Plans.

(10) Formerly American Home Products Corporation.

(11) Consists of shares owned by subsidiaries.

(12) Includes 1,740,166 shares issuable upon exercise of currently exercisable options under the Company's Stock Option Plans.

Equity Compensation Plan Information

The following table sets forth securities authorized for issuance under equity compensation plans as of June 30, 2003.

Equity Compensation Plan Information

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	4,931,002	$1.34	258,500
Equity compensation plans not approved by security holders	(1) 1,583,000 (2) 0 (3) 845,000	$0.38 $2.33	3,417,000
Total	7,359,002		3,675,500

(1) 2001 Stock Option Plan to provide non-executives, who render services to the Company additional incentives to advance the interests of the Company. Neither directors nor executive officers of the Company may be granted Stock Options under the Plan (Exhibit 10.70).

(2) 2002 Inducement Stock Option Plan to inducement an individual to be come an employee of the Company, and provide additional incentives to advance the interests of the Company. Neither directors nor executive officers of the Company may be granted Stock Options under the Plan (Exhibit 10.71).

(3) Warrants granted from time to time as an inducement to various persons or entities to enter into transactions with the Company.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

On December 12, 1996, the Company completed the sale of its UK-based food ingredients subsidiary, Aplin & Barrett Limited ("A&B"), to Burns Philp & Company Limited ("BP") for $13.5 million in cash and the return to the Company of 2.42 million shares of the Company's Common Stock held by BP. The sale included the Company's nisin-based food preservative business. In connection with the transaction, the Company and A&B entered into two License Agreements. Pursuant to the first License Agreement, the Company is exclusively licensed by A&B for the use of nisin generally in pharmaceutical products and animal healthcare products. Pursuant to the second License Agreement, A&B is exclusively licensed by the Company generally for the use of nisin as a food preservative and for food preservation. As long as BP owns at least 20% of the Company's outstanding common stock, BP is entitled to nominate one member for election to the Company's Board. BP has not nominated a member for election to the Company's Board. The amount of consideration for the sale was arrived at through arms-length negotiation and a fairness opinion was obtained. As of June 30, 2002, BP owned 7,763,837 shares of Common Stock, and continues such Common Stock ownership as of the date hereof.

In October 1998, the Company issued 3,478,261 shares of Common Stock to Wyeth for $4.0 million. At June 30, 2003, Wyeth held approximately 10.75% of the Company's outstanding Common Stock. Under a separate agreement in October 1998, Wyeth paid the Company $1.0 million for exclusive rights to sell the Company's Cardia Salt in retail markets in the United States. During fiscal 2001, Wyeth made payments to the Company of $500,000.

On July 1, 2000, the Company licensed its remaining rights to sell lysostaphin for research purposes, to Benjamin T. Sporn, its senior vice president, for $300,000, payable in cash over a three-year period. Payment of the $300,000 has been made. The price and other terms of the transaction were established through arms-length negotiations.

Item 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

1. Information Concerning Fees Paid to Independent Auditors for the fiscal year ended June 30, 2003.

Set forth below is certain information concerning audit services rendered to the Company by J.H. Cohn LLP and Ernst & Young LLP for the fiscal year ended June 30, 2003. As indicated below, in addition to reviewing financial statements, J.H. Cohn LLP and Ernst & Young LLP provided other services in the fiscal year ended June 30, 2003. The Audit Committee has determined that the provision of these other services is compatible with maintaining the independence of both firms.

Audit Fees. Ernst & Young LLP billed the Company for aggregate fees of approximately $85,370 for (1) audit services for the fiscal year ended June 30, 2003, up to their dismissal on July 31, 2003, and (2) the reviews of the financial statements included in the Company's quarterly reports on Form 10-Q for periods within the fiscal year ended June 30, 2003. In addition, the Company incurred fees by J.H. Cohn LLP of approximately $60,000 for audit services rendered for the fiscal year ended June 30, 2003.

Audit related fees. None

Tax Fees. Ernst & Young LLP billed the Company for aggregate fees of approximately $25,975 for other services rendered in the fiscal year ended June 30, 2003, consisting primarily of tax compliance fees. In addition, the Company incurred fees by J.H. Cohn LLP of approximately $10,000 for other services rendered for the fiscal year ended June 30, 2003, consisting primarily of tax compliance fees.

All other fees. None

2. Information Concerning Fees Paid to the Company's Auditors for the fiscal year ended June 30, 2002.

Set forth below is certain information concerning fees billed to the Company by Ernst & Young LLP in respect of services provided in the fiscal year ended June 30, 2002. As indicated below, in addition to auditing and reviewing financial statements, Ernst & Young LLP provided other services in the fiscal year ended June 30, 2002. The Audit Committee has determined that the provision of these other services is compatible with maintaining the independence of Ernst & Young LLP.

Audit Fees. Ernst & Young LLP billed the Company for aggregate fees of approximately $214,000 for (1) professional services rendered for the audit of the Company's annual financial statements for the fiscal year ended June 30, 2002 and (2) the reviews of the financial statements included in the Company's quarterly reports on Form 10-Q for periods within the fiscal year ended June 30, 2002.

Audit related fees. None

Tax Fees. Ernst & Young LLP billed the Company for aggregate fees of approximately $39,191 for other services rendered in the fiscal year ended June 30, 2002 consisting primarily of tax compliance fees.

All other fees. None

PART IV

Item 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES, AND REPORTS ON FORM 8-K

(a) 1. Financial Statements

The financial statements are listed in the Index to Consolidated Financial Statements on page F-1 and are filed as part of this annual report.

2. Financial Statement Schedules

The following financial statement schedule is included herein:

Schedule II – Valuation and Qualifying Accounts

All other schedules are not submitted because they are not applicable, not required, or because the information is included in the Consolidated Financial Statements.

3. Exhibits

The Index to Exhibits following the Signature Page indicates the Exhibits, which are being filed herewith, and the Exhibits, which are incorporated herein by reference.

(b) Reports on Form 8-K

The Company filed one Report on Form 8-K during the fiscal quarter ended June 30, 2003.

1. Report dated May 16, 2003 furnishing a copy of a press release of financial results for the fiscal quarter ended March 31, 2003.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

NUTRITION 21, INC.

By: /s/ Gail Montgomery
Gail Montgomery, President,
CEO and Director

Dated: October 15, 2003

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed below as of October 15, 2003 by the following persons on behalf of Registrant and in the capacities indicated.

/s/ Gail Montgomery
Gail Montgomery, President,
CEO and Director

/s/ John H. Gutfreund
John H. Gutfreund,
Chairman of the Board

/s/ P. George Benson
P. George Benson, Director

/s/ Warren D. Cooper
Warren D. Cooper Director

/s/ Audrey T Cross
Audrey T. Cross, Director

/s/ Marvin Moser
Marvin Moser, Director

/s/ Robert E. Pollack
Robert E. Pollack, Director

/s/ Paul Intlekofer
Paul Intlekofer, Chief
Financial Officer

EXHIBITS

3.01	Certificate of Incorporation (1)
3.01a	Certificate of Amendment to the Certificate of Incorporation (2)
3.01b	Certificate of Amendment to the Certificate of Incorporation (3)
3.01c	Certificate of Amendment to the Certificate of Incorporation (11)
3.01d	Certificate of Amendment to the Certificate of Incorporation (11)
3.01e	Certificate of Amendment to the Certificate of Incorporation (12)
3.02	Amended and Restated By-laws (2)
10.01	Form of Incentive Stock Option Plan (8)
10.02	Form of Non-qualified Stock Option Plan (8)
10.02a	Form of 1989 Stock Option Plan (1)
10.02b	Form of 1991 Stock Option Plan (1)
10.02c	Form of 1998 Stock Option Plan (15)
10.24	Exclusive Option and Collaborative Research Agreement dated July 1, 1988 between the Company and the University of Maryland (4)
10.25	License and License Option Agreement dated December 15, 1988 between the Company and Babson Brothers Company (4)
10.36	Agreement, dated October 6, 1992 between the Company and PHRI (5)
10.47	Employment Agreement dated August 30, 1994 between the Company and Fredric D. Price, as amended and restated (6)
10.48	Lease dated as of February 7, 1995, between the Company and Keren Limited Partnership (7)
10.49	Share Purchase Agreement dated as of December 12, 1996, by and among Applied Microbiology, Inc., Aplin & Barrett Limited and Burns Philp (UK) plc. (9)
10.50	License Agreement dated as of December 12, 1996 between Licensee Applied Microbiology, Inc. and Licensor Aplin & Barrett Limited. (9)
10.51	License Agreement dated as of December 12, 1996 between Licensee Aplin & Barrett Limited and Licensor Applied Microbiology, Inc. (9)
10.52	Supply Agreement dated as of December 12, 1996 between Aplin & Barrett Limited and Applied Microbiology, Inc. (9)
10.53	Investors' Rights Agreement dated as of December 12, 1996 between Applied Microbiology, Inc. and Burns Philp Microbiology. Pty Limited. (9)

10.54 Revolving Loan and Security Agreement dated as of December 12, 1996 between Burns Philp Inc. as Lender and Applied Microbiology, Inc. as Borrower. (9)

10.55 Stock and Partnership Interest Purchase Agreement dated as of August 11, 1997, for the purchase of Nutrition 21. (10)

10.57 Sublease dated as of September 18, 1998, between the Company and Abitibi Consolidated Sales Corporation (12)

10.58 Stock Purchase Agreement dated as of September 17, 1998 between American Home Products Corporation and AMBI Inc. (13)*

10.59 License, Option, and Marketing Agreement dated as of September 17, 1998 between American Home Products, acting through its Whitehall-Robins Healthcare division, and AMBI Inc. (13)*

10.60 Amended and Restated Revolving Credit and Term Loan Agreement dated as of January 21, 1999 between State Street Bank & Trust Company as Lender and the Company and Nutrition 21 as Borrower. (14)

10.61 Agreement of Purchase and Sale of Assets made as of January 19, 1999 by and among Dean Radetsky and Cheryl Radetsky, Optimum Lifestyle, Inc. and AMBI Inc. (14)

10.62 Strategic Alliance Agreement dated as of August 13, 1999 between AMBI Inc. and QVC, Inc. (15)*

10.63 Asset Purchase Agreement made as of December 30, 1999, by and between ImmuCell Corporation and AMBI Inc. (16)

10.64 License Agreement entered into as of August 2, 2000 between AMBI Inc. and Biosynexus Incorporated. (17)*

10.65 License and Sublicense Agreement entered into as of August 2, 2000 between AMBI Inc. and Biosynexus Incorporated. (17)*

10.66 Amendment effective as of June 30, 2000, to the Amended and Restated Revolving Credit and Term Loan Agreement dated as of January 21, 1999 between Citizens Bank of Massachusetts (successor in interest to loans originally made by State Street Bank & Trust Company) as Lender and the Company and Nutrition 21 as Borrower. (17)

10.67 Employment Agreement dated as of October 16, 2000 between AMBI Inc. and Gail Montgomery. (18)

10.68 Consulting Agreement entered into as of September 29, 2000 between AMBI Inc. and Fredrick D. Price. (19)

10.69 Amended and Restated By-laws, and Rights Agreement adopted September 12, 2002 (20)

10.70 Nutrition 21, Inc. 2001 Stock Option Plan. (21)

10.71 Nutrition 21, Inc. 2002 Inducement Stock Option Plan. (21)

10.72 Nutrition 21, Inc. Change of Control Policy adopted September 12, 2002. (21)

10.73 Employment Agreement entered into as of September 1, 2002 between Nutrition 21, Inc. and Gail Montgomery. (21)

10.74 Employment Agreement entered into as of August 5, 2002 between Nutrition 21, Inc. and Andrew Wertheim. (21)

10.75 Employment Agreement entered into as of September 1, 2002 between Nutrition 21, Inc. and Benjamin Sporn (21)

10.76 Employment Agreement entered into as of September 16, 2002 between Nutrition 21, Inc. and Paul Intlekofer (22)

23.1 Consent of J.H. Cohn LLP (22)

23.2 Consent of Ernst & Young LLP (22)

31.1 Certification of President and Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (22)

31.2 Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (22)

32.1 Certification of President and Chief Executive Officer and Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (22)

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(1) Incorporated by reference to the Company's Report on Form 10-K for 1991.

(2) Incorporated by reference to the Company's Report on Form 8-K dated September 4, 1992.

(3) Incorporated by reference to the Company's Registration Statement on Form S-8 dated August 8, 1996, file No. 333-09801.

(4) Incorporated by reference to the Company's Report on Form 10-K for 1988.

(5) Incorporated by reference to the Company's Report on Form 10-K for the fiscal period January 31, 1992 through August 31, 1992.

(6) Incorporated by reference to the Company's Report on Form 10-K for 1994.

(7) Incorporated by reference to the Company's Report on Form 10-K for 1995.

(8) Incorporated by reference to the Company's Registration Statement on Form S-1 originally filed April 15, 1986, file No. 33-4822.

(9) Incorporated by reference to the Company's Report on Form 8-K dated December 27, 1996.

(10) Incorporated by reference to the Company's Report on Form 8-K dated August 25, 1997.

(11) Incorporated by reference to the Company's Report on Form 10-K/A2 for 1997.

(12) Incorporated by reference to the Company's Report on Form 10-K/A for 1998.

(13) Incorporated by reference to the Company's Report on Form 10-Q for the quarter ended September 30. 1998.

(14) Incorporated by reference to the Company's Report on Form 8-K dated February 3, 1999.

(15) Incorporated by reference to the Company's Report on Form 10-K for 1999.

(16) Incorporated by reference to ImmuCell Corporation's Report on Form 8-K dated January 13, 2000.

(17) Incorporated by reference to the Company's Report on Form 10-K for 2000.

(18) Incorporated by reference to the Company's Report on Form 10-Q for the quarter ended December 31. 2000.

(19) Incorporated by reference to the Company's Report on From 10-K for 2001.

(20) Incorporated by reference to the Company's Report on Form 8-K dated September 18, 2002.

(21) Incorporated by reference to the Company's Report on From 10-K for 2002.

(22) Filed herewith.

* Subject to an order by the Securities and Exchange Commission granting confidential treatment. Specific portions of the document for which confidential treatment has been granted have been blacked out. Such portions have been filed separately with the Commission pursuant to the application for confidential treatment.

NUTRITION 21, INC.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

FILED WITH THE ANNUAL REPORT OF THE

COMPANY ON FORM 10-K

JUNE 30, 2003

REPORT OF INDEPENDENT PUBLIC ACCOUNTANTS

Stockholders and Board of Directors
Nutrition 21, Inc.

We have audited the accompanying consolidated balance sheet of Nutrition 21, Inc. and subsidiary as of June 30, 2003, and the related consolidated statements of operations, stockholders' equity and cash flows for the year then ended. Our audit also included the 2003 consolidated financial statement schedule listed in the Index at Item 15(a). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and schedule based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of Nutrition 21, Inc. and subsidiary as of June 30, 2003, and their consolidated results of operations and cash flows for the year then ended, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the consolidated financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

/s/ J.H. COHN LLP

Roseland, New Jersey
September 26, 2003

REPORT OF INDEPENDENT AUDITORS

Stockholders and Board of Directors
Nutrition 21, Inc.

We have audited the accompanying consolidated balance sheet of Nutrition 21, Inc. (the "Company") as of June 30, 2002, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the two years in the period ended June 30, 2002. Our audits also included the related financial statement schedule (for the 2002 and 2001 information), listed in the index at Item 15(a). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Nutrition 21, Inc. at June 30, 2002, and the consolidated results of its operations and its cash flows for each of the two years in the period ended June 30, 2002, in conformity with accounting principles generally accepted in the United States. Also, in our opinion, the related financial statement schedule (for the 2002 and 2001 information), when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

/s/ ERNST & YOUNG LLP

Stamford, Connecticut
August 16, 2002,
except for the first paragraph of Note 12, Note 13 and
the first, second and third paragraphs of Note 21, as to which the date is
September 12, 2002

NUTRITION 21, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands)

	June 30, 2003	June 30, 2002
ASSETS		
Current assets:		
Cash and cash equivalents	$4,059	$ 3,974
Short-term investments	--	1,000
Accounts receivable (less allowance for doubtful accounts and returns of $430 in 2003 and $19 in 2002)	1,140	2,219
Other receivables	1,100	1,097
Inventories	1,135	1,075
Prepaid expenses and other current assets	196	788
Total current assets	7,630	10,153
Property and equipment, net	479	654
Patents, trademarks and other intangibles (net of accumulated amortization of $13,334 in 2003 and $12,721 in 2002)	10,612	17,073
Other assets	199	220
TOTAL ASSETS	$18,920	$ 28,100

See accompanying notes.

NUTRITION 21, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

	JUNE 30, 2003	JUNE 30, 2002
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued expenses	$3,456	$2,102
Contingent payments payable	26	43
Preferred dividends payable	2	6
TOTAL LIABILITIES	3,484	2,151
Commitments and contingent liabilities		
STOCKHOLDERS' EQUITY		
Preferred stock, $0.01 par value, authorized 5,000,000 shares Series G convertible preferred, 1,769 shares issued, 188 and 471 shares outstanding at June 30, 2003 and 2002, respectively (aggregate liquidation value $193)	188	471
Common stock, $0.005 par value, authorized 65,000,000 shares; 33,602,990 and 33,048,655 shares issued and outstanding at June 30, 2003 and 2002, respectively.	168	165
Additional paid-in capital	64,103	63,936
Accumulated deficit	(49,023)	(38,501)
Less: treasury stock, at cost, 136,000 shares of common stock at June 30, 2002	--	(122)
TOTAL STOCKHOLDERS' EQUITY	15,436	25,949
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$18,920	$28,100

See accompanying notes.

NUTRITION 21, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except share and per share data)

	YEAR ENDED JUNE 30,		
	2003	2002	2001
Net sales	$10,265	$14,314	$20,809
Other revenues	350	354	2,443
TOTAL REVENUES	10,615	14,668	23,252
Cost of goods sold	4,129	4,344	6,216
GROSS PROFIT	6,486	10,324	17,036
Selling, general & administrative expense	8,201	7,349	10,321
Research & development expense	2,232	1,017	1,946
Depreciation & amortization expense	2,691	2,619	3,359
Restructuring & other charges	----	----	2,365
Charges for impairment of intangibles	4,443	7,128	---
OPERATING (LOSS)	(11,081)	(7,789)	(955)
Interest income	64	94	304
Interest (expense)	(33)	(110)	(291)
Other income	----	1,794	2,342
(LOSS) INCOME BEFORE INCOME TAXES	(11,050)	(6,011)	1,400
Income taxes (benefit)	(544)	--	335
NET (LOSS) INCOME	$(10,506)	$(6,011)	$1,065
Basic (loss) earnings per share	$(0.32)	$(0.19)	$0.03
Diluted (loss) earnings per share	$(0.32)	$(0.19)	$0.03
Weighted average number of common shares – basic	33,309,371	32,621,918	31,781,403
Weighted average number of common shares and equivalents - diluted	33,309,371	32,621,918	31,879,614

See accompanying notes.

NUTRITION 21, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands, except share data)

	Preferred Stock Series G		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Treasury Stock	Total
	Shares	$	Shares	$	$	$	$	$
Balance at June 30, 2000	663	663	31,581,427	158	62,291	(33,133)	---	29,979
Conversion of Series E preferred stock to common stock	--		231,136	1	236	--	---	237
Cancellation of stock exercise	--	--	(315,408)	(2)	2	--	---	--
Premium on redemption of Series F preferred stock	--	--	--	--	--	(110)	---	(110)
Issuance of warrants	--	--	--	--	8	--	---	8
Preferred stock dividends declared	--	--	--	--	--	(146)	---	(146)
Preferred stock issued for Optimum Lifestyle, Inc. contingent payment	941	941	--	--	--	--	---	941
Conversion of Series G preferred stock to common stock	(663)	(663)	845,663	4	659	--	---	--
Net income for the year	--	--	--	--	--	1,065	---	1,065
Balance at June 30, 2001	941	941	32,342,818	161	63,196	(32,324)	---	31,974
Conversion of Series E preferred stock to common stock	--	--	155,605	1	193	--	---	194
Issuance of warrants	--	--	--	--	80	--		80
Preferred stock dividends declared	--	--	--	--	--	(51)	---	(51)
Premium on redemption of Series F preferred stock	--	--	--	--	--	(115)	---	(115)
Conversion of Series G preferred stock to common stock	(470)	(470)	686,232	3	467	--	---	--
Repurchase of common stock for treasury	--	--	(136,000)	--	--	--	(122)	(122)
Net loss for the year	--	--	--	--	--	(6,011)	---	(6,011)
Balance at June 30, 2002	471	471	33,048,655	165	63,936	(38,501)	(122)	25,949
Preferred stock dividends declared	--	--	--	--	--	(16)	--	(16)
Issuance of warrants	--	--	--	--	47	--	--	47
Conversion of Series G preferred stock to common stock	(283)	(283)	654,335	4	279	--	--	--
Repurchase of common stock for treasury	--	--	(100,000)	--	--	--	(38)	(38)
Retirement of treasury stock	--	--	--	(1)	(159)	--	160	--
Net loss for the year	--	--	--	--	--	(10,506)	--	(10,506)
Balance at June 30, 2003	188	$188	33,602,990	$168	$64,103	$(49,023)	$ --	$15,436

See accompanying notes.

NUTRITION 21, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	YEAR ENDED JUNE 30,		
	2003	2002	2001
Cash flows from operating activities:			
Net (loss) income	$(10,506)	$ (6,011)	$1,065
Adjustments to reconcile net (loss) income to net cash (used in)/provided by operating activities:			
Depreciation and amortization	2,691	2,619	3,359
Impairment write-off	4,443	7,128	--
Deferred taxes	--	(725)	(298)
(Gain) loss on disposal of equipment	7	(55)	(23)
Issuance of warrants	47	80	8
Changes in operating assets and liabilities:			
Accounts receivable	1,079	1,744	624
Other receivables	(3)	710	(1,186)
Inventories	(60)	231	60
Prepaid expenses and other current assets	591	26	540
Other assets	21	96	46
Accounts payable and accrued expenses	1,354	(1,391)	(563)
Net cash (used in)/provided by operating activities	(336)	4,452	3,632
Cash flows from investing activities:			
Contingent payments for acquisitions	(135)	(2,770)	(4,637)
Purchases of property and equipment	(86)	(274)	(167)
Payments for patents and trademarks	(350)	(336)	(209)
Proceeds from sale of equipment	50	200	32
Proceeds (purchase) of investments	1,000	(1,000)	--
Net cash provided by/ (used in) investing activities	479	(4,180)	(4,981)
Cash flows from financing activities:			
Debt repayments	--	(1,125)	(1,500)
Purchase of common stock for treasury	(38)	(122)	--
Redemption of redeemable preferred stock	--	(345)	(177)
Preferred stock dividends paid	(20)	(61)	(107)
Net cash used in financing activities	(58)	(1,653)	(1,784)
Net increase (decrease) in cash and cash equivalents	85	(1,381)	(3,133)
Cash and cash equivalents at beginning of year	3,974	5,355	8,488
Cash and cash equivalents at end of year	$4,059	$3,974	$ 5,355

See accompanying notes.

Note 1: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

a) Consolidation

Effective March 8, 2001, Nutrition 21, Inc. (the "Company") changed its name from AMBI Inc. The consolidated financial statements include the results of operations of the Company, and its wholly owned subsidiary, Nutrition 21, LLC. All intercompany balances and transactions have been eliminated in consolidation.

b) Use of Estimates

The preparation of the consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements. Estimates also affect the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

c) Cash Equivalents

The Company considers all liquid interest-earning investments with a maturity of three months or less when acquired to be cash equivalents. Investments with maturities beyond one year may be classified as short-term based on their highly liquid nature and because such marketable securities represent the investment in cash that is available for current operations. All short-term investments are classified as available for sale and are recorded at market value using the specific identification method: unrealized gains and losses would be reflected in Accumulated Comprehensive Income. Cash equivalents included in the accompanying financial statements include money market accounts, bank overnight investments and commercial paper.

d) Inventories

Inventories are carried at the lower of cost (on a first-in, first-out method) or estimated net realizable value.

e) Property and Equipment

Property and equipment are stated at cost less accumulated depreciation. Depreciation is provided using the straight-line method over the related assets' estimated useful lives. The estimated useful lives are as follows:

Leasehold improvements	--	Term of lease
Furniture and fixtures	--	7 years
Machinery and equipment	--	5 to 7 years
Office equipment	--	3 to 5 years
Computer equipment	--	3 to 5 years

f) Patents and Trademarks

The Company capitalizes certain patents and trademarks. Patents and trademarks are amortized over their estimated useful lives, ranging from 3 to 15 years.

g) Revenue Recognition

Sales revenue from proprietary ingredient products is recognized when title transfers, upon shipment of the product. Sales revenue from finished nutritional products are also recognized when title transfers, which is upon delivery at the customer site. There are no customer acceptance provisions to lapse before the recognition of any product revenue. Only revenue where collectability of accounts receivables is probable is recognized. Other revenues are comprised primarily of license and royalty fees recognized as earned in accordance with agreements entered into by the Company when there is no further involvement required by the Company. The Company accrues for related product returns based on historical activity.

Note 1: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES, (continued)

h) Research and Development

Research and development costs are expensed as incurred.

i) Income taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for future tax consequences attributable to the temporary differences between the financial statement carrying amounts of assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the period that includes the enactment date. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized.

j) Stock-based Compensation

The Company continues to account for employee stock-based compensation using the intrinsic value method prescribed in Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees". Compensation cost for stock options, if any, is measured as the excess of the quoted market price of the Company's stock at the date of grant over the amount an employee must pay to acquire the stock.

Statement of Financial Accounting Standards ("SFAS") No. 123, "Accounting for Stock-Based Compensation," established accounting and disclosure requirements using a fair-value method of accounting for stock-based employee compensation plans. The Company has elected to remain on its current method of accounting as described above, and has adopted the disclosure requirements of SFAS No. 123.

k) Impairment of Long-Lived Assets and Long-Lived Assets to be Disposed

The Company reviews long-lived assets and certain identifiable intangibles for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future undiscounted cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the fair value. Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to sell.

l) Recently Issued Accounting Standards

In December 2002, the FASB issued SFAS No. 148, "Accounting for Stock-Based Compensation-Transition and Disclosure- an Amendment of FASB Statement No 123." SFAS No. 148, provides alternative methods of transition for a voluntary change to the fair value based method of accounting for stock-based employee compensation. In addition, SFAS No. 148 requires prominent disclosures in both annual and interim financial statements about the method of accounting for stock-based employee compensation and the effect of the method used on reported results. The Company adopted the disclosure provisions of SFAS No. 148 effective December 31, 2002.

In October 2001, the FASB issued SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets." The FASB's new rules on asset impairment supersede SFAS No. 121, "Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of," and became effective for the Company's fiscal year beginning July 1, 2002.

Note 1: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES, (continued)

m) Advertising costs

Advertising costs are expensed as incurred. The amount charged to expense during fiscal years 2003, 2002 and 2001was $0.6 million, $0.4 million and $0.8 million, respectively.

n) Reclassifications

Certain reclassifications have been made to prior years' financial statement amounts to conform to the 2003 presentation.

Note 2: ACQUISITION

In 1999, the Company acquired the Lite Bites product line from Optimum Lifestyles, Inc. Contingent payments in conjunction with this acquisition are made to the former owners of Optimum Lifestyles, Inc. ("OLI") depending primarily on sales levels of the Lite Bites Business achieved during the five year period following closing and/or the availability of Lite Bites products through certain distribution channels in the future as follows: a maximum of $3.0 million in cash and/or Nutrition 21 common stock, at the option of the former owners of OLI, payable $1.0 million on each of the first three anniversaries of the acquisition; $3.0 million in newly issued Nutrition 21 preferred stock, payable $1.5 million, subject to adjustment for the achievement of net sales levels, on each of the first two anniversaries of the acquisition, in newly issued Nutrition 21 preferred stock; and a single payment of $1.0 million in cash, subject to achieving certain sales levels in new markets, prior to the fifth anniversary of the acquisition. During fiscal 2002, the Company, in satisfaction of the contingent payment requirement paid $1.0 million in cash resulting in an increase in goodwill. During fiscal 2001, the Company, in satisfaction of the contingent payment requirement, paid $1.0 million in cash and issued 941 shares of its Series G Preferred Stock, which resulted in an increase in goodwill of $1.9 million. During fiscal years ended June 30, 2003, 2002 and 2001, respectively, the Company recorded approximately $0.4 million in amortization expense related to other intangible assets.

Note 3: SHORT-TERM INVESTMENT

	June 30, 2003	2002
Available for sale:		
3.10% corporate bond, maturing 12/05/03 (in thousands)	$-----	$1,000

Note 4: INVENTORIES

The components of inventories at June 30, 2003 and 2002 are as follows (in thousands):

	2003	2002
Raw materials	$ --	$ 444
Finished goods	1,135	631
Total inventories	$1,135	$1,075

Note 5: STOCK-BASED COMPENSATION

The Company applies the intrinsic value method pursuant to APB Opinion No. 25 in accounting for its employee stock option plans and, accordingly, no compensation cost has been recognized in the consolidated financial statements for its employee stock options, which have an exercise price equal to the fair value of the stock on the date of the grant. Had the Company determined compensation cost based on the fair value at the grant date for its stock options under SFAS No. 123, the Company's net income (loss) would have been reduced (increased) to the pro forma amounts indicated below (in thousands, except per share data) (see Note 12):

	Year-ended June 30,		
	2003	2002	2001
Net (loss) income as reported	$(10,506)	$(6,011)	$1,065
Deduct: total stock-based employee compensation expense determined under fair value based method for all awards	(256)	(383)	(432)
Pro forma net (loss) income	$(10,762)	$(6,394)	$ 633
(Loss) earnings per share			
Basic – as reported	$(0.32)	$(0.19)	$0.03
Basic – pro forma	$(0.32)	$(0.20)	$0.02
Diluted – as reported	$(0.32)	$(0.19)	$0.03
Diluted – pro forma	$(0.32)	$(0.20)	$0.02

The effects of applying SFAS No. 123 in this pro forma disclosure are not necessarily indicative of future amounts because the calculation does not take into consideration pro forma compensation expense related to grants made prior to 1995.

Note 6: FAIR VALUE OF FINANCIAL INSTRUMENTS

The fair value of cash and cash equivalents, short-term investments and accounts receivable approximate carrying amounts due to the short maturities of these instruments.

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist principally of cash and cash equivalents and accounts receivable. Concentrations of credit risk with respect to accounts receivable are limited as the Company performs on-going credit evaluations of its customers and maintains credit insurance on customers' balances. On a periodic basis, the Company evaluates its accounts receivable and establishes an allowance for doubtful accounts, based on a history of past write-offs and collections and current credit considerations. Management does not believe that significant credit risk exists at June 30, 2003. The Company places its cash primarily in market interest rate accounts, overnight investments and short-term investments. The Company had $0.7 million in overnight investments and $3.4 million invested in mutual money market funds at June 30, 2003. The Company had $0.9 million in overnight investments; $3.0 million in invested money market funds and $1.0 million in short term investments at June 30, 2002.

Note 6: FAIR VALUE OF FINANCIAL INSTRUMENTS (continued)

The Company sells its products to customers in the Americas and Europe. The Company performs ongoing credit evaluations of its customer's financial condition and limits the amount of credit extended as deemed appropriate, but generally requires no collateral. The Company maintains reserves for credit losses and, to date, such losses have been within management's expectations.

In fiscal year 2003, two customers accounted for approximately 27% of net sales. For fiscal years 2002 and 2001, one customer accounted for 28% and 29% of net sales, respectively. In addition, two customers accounted for 40% of accounts receivable, net at June 30, 2003, and one customer accounted for 23% of accounts receivable, net at June 30, 2002.

Note 7: RELATED PARTY TRANSACTIONS

On September 17, 1998, the Company commenced a strategic alliance with Wyeth (formerly American Home Products Corporation) ("Wyeth") for retail distribution of the Company's proprietary nutrition products. As part of the alliance, Wyeth's Whitehall-Robins Healthcare Division was granted an exclusive license to sell the Company's Cardia® Salt in retail markets in the United States and received a first negotiation option for exclusive rights and licenses for additional nutrition products for retail distribution in the United States. The Company retained the exclusive rights to market its products in both direct response and ingredient channels. On October 8, 1998, the Company received a non-refundable payment of $1.0 million for the rights granted to Wyeth. Also on October 8, 1998, Wyeth paid $1.15 per share or a total of $4.0 million for 3,478,261 shares of the Company's Common Stock. For the fiscal year ended 2001, the Company received approximately $0.5 million in license fees from Wyeth.

A former officer's employment with the Company terminated on September 29, 2000. Effective as of such date, the Company entered into a consulting agreement with the former officer. The agreement is for the period from October 1, 2000 through June 30, 2004, and provides for payment of $206,250 for the period from October 1, 2000 through June 30, 2001, and a fee at an annual rate of $100,000 thereafter. All of the former officer's stock options (900,000 shares) became fully vested and became exercisable until June 30, 2004. Upon the occurrence of a change of control (as defined in the agreement), the agreement terminates and the Company is required to pay to the former officer a lump-sum payment equal to the fees that would have been paid to him over the remaining term of the agreement had the change of control not occurred.

On July 1, 2001 the Company licensed its remaining rights to sell lysostaphin for research purposes, to one of its senior vice presidents, for $300,000, payable in cash over a three-year period. As of June 30, 2003, all payments have been made.

Note 8: PROPERTY AND EQUIPMENT, NET

The components of property and equipment, net, at June 30, 2003 and 2002 are as follows (in thousands):

	2003	2002
Furniture and fixtures	$422	$ 422
Machinery and equipment	135	135
Office equipment & leasehold improvements	542	561
Computer equipment	766	732
	1,865	1,850
Less: accumulated depreciation and amortization	(1,386)	(1,196)
Property and equipment, net	$479	$ 654

Note 9: PATENTS AND TRADEMARKS, NET

During fiscal year 2003, changes in intangible assets relate to the investment of $0.5 million in existing patents, which will be amortized over the remaining life of the patents, as well as a $4.4 million impairment charge relating to the discontinuance of the Lite Bites product line. No significant residual value is estimated for these intangible assets. Intangible asset amortization expense was $2.5 million for fiscal year 2003, $2.4 million for fiscal year 2002 and $2.7 million for fiscal year 2001. The components of intangible assets were as follows (in thousands):

	June 30,			
	2003		2002	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Patents and licenses	$9,069	$(6,346)	$9,228	$(5,582)
Trademarks, trade names and other	14,877	(6,988)	20,566	(7,139)
Intangible assets	$23,946	$(13,334)	$29,794	$(12,721)

Amortization expense for the net carrying amount of intangible assets at June 30, 2003 is estimated to be $2.1 million in fiscal years 2004 through 2007, respectively.

Note 10: ACCOUNTS PAYABLE AND ACCRUED EXPENSES

The following items are included in accounts payable and accrued expenses at June 30, 2003 and 2002 (in thousands):

	2003	2002
Accounts payable	$1,903	$1,115
Consulting and professional fees payable	109	46
Accrued compensation and benefits	160	109
Taxes payable	--	725
Other accrued expenses	1,284	107
	$3,456	$2,102

Note 11: REDEEMABLE PREFERRED STOCK

During fiscal year 2002, all remaining shares of the Company's E Preferred Stock plus accrued dividends on these shares were converted into Common Stock.

During fiscal year 2001, 285 shares of the Company's E Preferred Stock plus accrued dividends on these shares were converted into 231,136 shares of Common Stock.

During fiscal year 2002, 227 shares of the Company's F Preferred Stock plus accrued dividends on these shares were redeemed for $0.3 million.

During fiscal year 2001, 116 shares of the Company's F Preferred Stock plus accrued dividends on these shares were redeemed for $0.2 million.

Note 12: STOCKHOLDERS' EQUITY

Inducement Plan

The Company adopted a 2002 Inducement Stock Option Plan (the "Inducement Plan"). The Inducement Plan provides for the grant of options to purchase shares of the Company's common stock to induce individuals to become employed by the Company. The aggregate number of shares of common stock, which may become subject to options shall not exceed 2,500,000.

Approximately 2,500,000 options remain available for grant under the Inducement Plan at June 30, 2003.

Note 12. STOCKHOLDERS' EQUITY (continued)

Series G Convertible Preferred Stock

In January 1999, the Company created a non-voting Series G Convertible Preferred Stock ("G Preferred") with a par value of $0.01 per share. The G Preferred bears dividends of $50 per share per annum. The G Preferred is convertible into Common Stock at the average closing price of the Common Stock during the 10 days immediately preceding conversion. The G Preferred is subject to mandatory conversion after three years from the date of issuance. During the fiscal year ended June 30, 2003 and 2002, 283 and 470 shares, respectively, of the Company's G Preferred were converted into 654,335 and 686,232 shares, respectively, of the Company's common stock. On February 12, 2001, the Company issued 941 shares of G Preferred, and converted 663 shares of G Preferred into 845,663 shares of the Company's Common Stock.

Warrants

The Company, from time to time, issues warrants to purchase Common Stock to non-employees for services rendered. Warrants are granted to purchase the Company's Common Stock with exercise prices set at fair market value on the date of grant. The terms of the warrants vary depending on the circumstances, but generally expire in three to five years.

The Company had outstanding warrants for the purchase of its Common Stock as follows:

	Number of warrants	Exercise price per share
Outstanding at June 30, 2000	1,348,926	$1.25-$6.75
Issued	50,000	$0.89
Exercised	(8,265)	$2.72
Cancelled	(258,524)	$1.25-$6.75
Outstanding at June 30, 2001	1,132,137	$0.89-$6.30
Issued	160,000	$0.63-$0.74
Exercised	--	--
Cancelled	(482,137)	$1.25 -$6.30
Outstanding at June 30, 2002	810,000	$0.63-$3.65
Issued	105,000	$0.40-$0.57
Exercised	--	--
Cancelled	(70,000)	$2.59-$3.62
Outstanding at June 30, 2003	845,000	$0.40-$3.65

The warrants expire between 2003 and 2012. Certain of the warrants include anti-dilution clauses.

Warrants outstanding and exercisable at June 30, 2003, are as follows:

	Warrants Outstanding			Warrants Exercisable	
Range of Exercise Prices	Number Outstanding	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price	Number Exercisable	Weighted Average Exercise Price
$0.40 – $0.89	315,000	3.43	$0.70	290,000	$0.73
$1.38 – $1.50	80,000	4.29	$1.42	70,000	$1.43
$3.26 – $3.65	450,000	1.30	$3.63	450,000	$3.63
	845,000			810,000	

The Company recorded compensation expense associated with the issuance of warrants to third parties of $47 thousand, $80 thousand and $8 thousand during fiscal years 2003, 2002 and 2001, respectively.

Note 12: STOCKHOLDERS' EQUITY (continued)

Options

In addition, the Company had adopted five other Stock Option Plans ("Plans") whereby options to purchase an aggregate of 8,750,000 shares of the Company's common stock may be granted to employees, consultants and others who render services to the Company. The exercise price per share for the options granted under these Plans may not be less than the fair value of the Company's Common Stock on the date of grant. The options issuable pursuant to the Plans expire between 2004 and 2013. Approximately 1,175,500 options remain available for grant under these Plans.

A summary of stock option activity related to the Company's stock option plans is as follows:

	Number of options	Exercise price per share
Outstanding at June 30, 2000	2,649,391	$0.75 - $7.56
Issued	1,280,889	$0.81 - $2.63
Exercised	-	-
Cancelled	(978,181)	$0.75 - $5.00
Outstanding at June 30, 2001	2,952,099	$0.81 - $7.56
Issued	1,230,000	$0.55 - $1.23
Exercised	--	--
Cancelled	(542,110)	$0.69 - $7.56
Outstanding at June 30, 2002	3,639,989	$0.55 - $5.63
Issued	3,466,000	$0.31 - $0.71
Exercised	--	--
Cancelled	(591,987)	$0.37 - $3.50
Outstanding at June 30, 2003	6,514,002	$0.31- $5.63

Each of these options is entitled to one share of common stock. Stock options generally vest ratably over five years from the date of grant and expire within five years from the date of vesting.

Options outstanding and exercisable at June 30, 2003 are as follows:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price	Number Exercisable	Weighted Average Exercise Price
$0.31 - $0.94	3,860,000	9.05	$0.44	551,700	$0.73
$1.09 - $1.44	1,032,402	7.58	$1.21	660,998	$1.22
$1.50 - $2.94	996,600	2.80	$2.11	916,400	$2.13
$3.00 - $5.63	625,000	1.79	$3.49	612,200	$3.50
	6,514,002			2,741,298	

The per share weighted-average fair value of stock options granted during fiscal years 2003, 2002 and 2001 was $0.06, $0.15 and $0.20, respectively, on the date of grant using the Black Scholes option-pricing model with the following weighted-average assumptions:

	2003	2002	2001
Risk-free interest rate	2.2%	3.8%	5.2%
Expected life-years	2.5	2.0	2.5
Expected volatility	45.4%	45.6%	45.8%
Expected dividend yield	--	--	--

Note 13: SHAREHOLDER RIGHTS PLAN

The Company adopted a Shareholder Rights Plan on September 12, 2002. Under this plan, the Company will distribute, as a dividend, one preferred share purchase right for each share of Common Stock of the Company held by stockholders of record as of the close of business on September 25, 2002. The Rights Plan is designed to deter coercive takeover tactics, including the accumulation of shares in the open market or through private transactions, and to prevent an acquirer from gaining control of the Company without offering a fair price to all of the Company's stockholders. The Rights will expire on September 11, 2012.

Each Right initially will entitle stockholders to buy one one-thousandth of a share of newly created Series H Participating Preferred Stock of the Company for $3.00 per share. Each one one-thousandth of a share of the Preferred Stock is designed to be the functional equivalent of one share of Common Stock. The Rights will be exercisable only if a person or group acquires beneficial ownership of 15% or more of the Company's Common Stock (30% in the case of a person or group that is currently a 15% holder) or commences a tender or exchange offer upon consummation of which such person or group would beneficially own 15% or more the Company's Common Stock.

If any person or group (an "Acquiring Person") becomes the beneficial owner of 15% or more of the Company's Common Stock (30% in the case of a person that is currently a 15% holder), then (1) the Rights become exercisable for Common Stock instead of Preferred Stock, (2) the Rights held by the Acquiring Person and certain affiliated parties become void, and (3) the Rights held by others are converted into the right to acquire, at the purchase price specified in the Right, shares of Common Stock of the Company having a value equal to twice such purchase price. The Company will generally be entitled to redeem the Rights, at $.001 per right, until 10 days (subject to extension) following a public announcement that an Acquiring Person has acquired a 15 % position.

Note 14: (LOSS) EARNINGS PER SHARE

Basic and diluted (loss) earnings per share for the fiscal years ended June 30, 2003, 2002 and 2001 are as follows (in thousands, except share and per share amounts):

The following table sets forth the computation of basic and diluted (loss) earnings per share for the periods indicated.

	Year ended June 30,		
	2003	2002	2001
Basic (loss) earnings per share:			
Net (loss) income	$(10,506)	$(6,011)	$1,065
Less: Dividends on preferred shares	(16)	(51)	(146)
Premium on redemption of preferred stock	--	(115)	(110)
(Loss) income applicable to common stockholders	$(10,522)	$(6,177)	$809
Weighted average shares	33,309,371	32,621,918	31,781,403
Basic (loss) earnings per share	$(0.32)	$(0.19)	$0.03
Diluted (loss) earnings per share:			
(Loss) income applicable to common stockholders	$(10,522)	$(6,177)	$809
Weighted average shares	33,309,371	32,621,918	31,781,403
Plus incremental shares from assumed conversions of stock options	--	--	98,211
Adjusted weighted average shares	33,309,371	32,621,918	31,879,614
Diluted (loss) earnings per share	$(0.32)	$(0.19)	$0.03

Note 14: (LOSS) EARNINGS PER SHARE (continued)

Diluted (loss) earnings per share for the fiscal years ended June 30, 2003, 2002 and 2001, do not reflect the incremental shares from the assumed conversion of preferred stock (127,150, 377,181 and 833,313 shares, respectively) as the effect of such inclusion would be anti-dilutive.

Note 15: RESTRUCTURING AND OTHER CHARGES

The Company recorded $2.4 million for restructuring and other non-recurring charges, relating to its Nutritional Products segment, in the second quarter of fiscal 2001. A $1.6 million restructuring charge was recorded as part of the Company's initiative to reduce costs and to create a more flexible and efficient organization. Included in the restructuring charge were $0.7 million of cash termination benefits associated with the separation of twenty employees. All of the affected employees left their positions with the Company as of June 30, 2001. All of the termination benefits were paid. This cash outlay was funded through cash from operations. Approximately $0.9 million of the restructuring charge relates to the Company's decision to discontinue its efforts to launch NO YO, a consumer weight loss product intended for the retail channel and to consolidate certain of the Company's facilities. At June 30, 2001, all restructuring charges accrued during the fiscal year 2001 had been paid.

Other charges of $0.7 million include a non-cash write off of the carrying value of the website development costs related to NutritionU.com, the Company's online nutrition education internet company. The Company believes that since sufficient uncertainty surrounds the ability of the Company to find strategic partners for NutritionU.com, there will be no substantive future benefit to be derived from the website development costs. In addition, other charges include $0.1 million for the write- off of the remaining carrying value of a license fee for one of its products.

Note 16: OTHER INCOME

During the fiscal year 2001, the Company recorded as other income $1.8 million from the settlement of patent infringement claims related to chromium picolinate as well as a sale of assets.

Note 17: SEGMENT REPORTING

Effective in fiscal year 1999, the Company adopted FASB Statement No. 131 "Disclosures about Segments of an Enterprise and Related Information" which established revised standards for reporting information about operating segments. Pursuant to Statement No. 131, the Company's reporting segments are nutritional products and pharmaceutical products.

The Company's Nutritional Products segment develops and markets proprietary essential trace elements to the vitamin supplement market for both human and animal applications. The Company's Pharmaceutical Products segment includes all licensing activities related to certain antibacterial technologies.

A summary of business data for the Company's reportable segments for the fiscal years 2003, 2002, and 2001 follows. Information by business segment (in thousands):

Note 17:SEGMENT REPORTING (continued)

	2003	2002	2001
Revenues			
Nutritional Products	$10,220	$14,237	$21,127
Pharmaceutical Products	395	431	2,125
	$10,615	$14,668	$23,252
Operating (loss) Income			
Nutritional Products	$(11,331)	$(8,046)	$(2,876)
Pharmaceutical Products	250	257	1,921
	$(11,081)	$(7,789)	$(955)
Depreciation and Amortization			
Nutritional Products	$2,577	$2,497	$3,216
Pharmaceutical Products	114	122	143
	$2,691	$2,619	$3,359
Segment Assets			
Nutritional Products	$18,149	$27,186	$37,698
Pharmaceutical Products	771	914	1,189
	$18,920	$28,100	$38,887
Capital Expenditures			
Nutritional Products	$571	$3,380	$5,013
Pharmaceutical Products	--	--	--
	$571	$3,380	$5,013

Geographic information about the Company's revenues, which is based on the location of the buying organization, for the fiscal years 2003, 2002 and 2001 is presented below (in thousands):

	2003	2002	2001
Revenues			
United States	$10,560	$13,950	$21,526
United Kingdom	55	718	1,726
	$10,615	$14,668	$23,252
Property and equipment, net			
United States	$479	$654	$633
United Kingdom	--	--	--
	$479	$654	$633

One nutritional product segment customer accounted for approximately 19%, 28% and 29% of the segment revenue in fiscal years 2003, 2002 and 2001, respectively.

Presented below is a reconciliation of total business segment operating (loss) income to consolidated (loss) income before income taxes for the fiscal years 2003, 2002 and 2001(in thousands):

	2003	2002	2001
Total segment operating (loss)	$(11,081)	$(7,789)	$(955)
Other, net	31	1,778	2,355
(Loss) income before income taxes	$(11,050)	$(6,011)	$1,400

Note 18: GOODWILL

The Company adopted SFAS No. 142 effective July 1, 2001. Under SFAS No. 142, goodwill is no longer amortized but reviewed for impairment annually, or more frequently if certain indicators arise. The Company was required to complete the initial step of a transitional impairment test within six months of adoption of SFAS No. 142 and to complete the final step of the transitional impairment test by the end of the fiscal year. The initial step was completed in the first quarter of fiscal 2002. In addition, the Company assesses the impairment of identifiable intangible assets and goodwill whenever events or changes in circumstances indicate that the carrying value of the relevant assets may not be recoverable. Management's judgment regarding the existence of impairment is based on factors such as significant changes in the manner or the use of acquired assets or the Company's overall business strategy; significant negative industry or economic trends; significant declines in the Company's stock price for a sustained period and the Company's market capitalization relative to book value. Upon adoption, goodwill in the amount of $4.1 million included in patents and trademarks since acquisition (although accounted for separately by the Company and included therein because of its estimated economic life) was reclassified in the accompanying balance sheets in accordance with the requirements of SFAS No. 142. Due to declining market conditions, as well as a change in business strategy, it was determined that a $7.1 million impairment charge was warranted in fiscal year 2002. The Company used a discounted cash flow analysis for purposes of estimating the fair value of its reporting unit. Had the Company been accounting for its goodwill under SFAS No. 142 for all periods presented, the Company's net (loss) income and (loss) earnings per share would have been as follows(in thousands, except share data):

	Year-ended June 30,		
	2003	2002	2001
Reported net (loss) income:	$(10,506)	$(6,011)	$1,065
Add back goodwill amortization, net of tax	---	---	475
Adjusted net (loss) income	$(10,506)	$(6,011)	$1,540
Basic (loss) earnings per share:			
Reported net (loss) income	$(0.32)	$(0.19)	$0.03
Goodwill amortization, net of tax	---	---	0.02
Adjusted net (loss) income	$(0.32)	$(0.19)	$0.05
Diluted earnings per share:			
Reported net (loss) income	$(0.32)	$(0.19)	$0.03
Goodwill amortization, net of tax	---	---	0.02
Adjusted net (loss) income	$(0.32)	$(0.19)	$0.05

Note 19: PENSION PLAN

Eligible employees of the Company are entitled to participate in the Burns Philp Inc. Retirement Plan for Non-Bargaining Union Employees (the "Pension Plan"), a defined benefit pension plan, as long as Burn Philp maintains the Pension Plan and owns at least 20% of the Company's outstanding Common Stock. At June 30, 2003, Burns Philp held approximately 24% of the Company's outstanding Common Stock.

During fiscal years 2003, 2002, and 2001, the Company made contributions to the Pension Plan of $131 thousand, $106 thousand and $100 thousand, respectively.

Note 20: INCOME TAXES

The provisions for income taxes for the fiscal years ended June 30, 2003, 2002 and 2001 consist of the following (in thousands):

	2003	2002	2001
Current	$(1,182)	$725	$633
Deferred	638	(725)	(298)
	$(544)	$ ---	$335

Income taxes attributed to pre-tax (loss) income differed from the amounts computed by applying the US federal statutory tax rate to pre-tax income as a result of the following (in thousands):

	2003	2002	2001
Income taxes at U.S. statutory rate	$(3,757)	$(2,044)	$476
Increase/(reduction) in income taxes resulting from:			
Change in valuation allowance	4,184	1,607	(263)
Goodwill book basis in excess of tax	-	263	---
State taxes, net of federal	(663)	(268)	26
Other items	(308)	442	96
	$(544)	$ ---	$ 335

The tax effects of temporary differences that give rise to deferred taxes and deferred tax assets and deferred tax liabilities at June 30, 2003 and 2002 are presented below (in thousands):

	2003	2002
Deferred tax assets:		
Net operating loss carryforwards	$2,920	$ 515
Accrued expenses	580	234
Allowance for doubtful accounts	8	8
Inventory reserve	95	--
Intangible assets	2,188	1,370
Other	-----	118
Total gross deferred tax assets	5,791	2,245
Less valuation allowance	(5,791)	(1,607)
Net deferred tax assets	$ ---	$638

Deferred tax assets are included in other receivables.

At June 30, 2003, the Company has available, for federal and state income tax purposes, net operating loss carry forwards of approximately $7.0 million and $9.0 million, respectively, expiring through 2023. Ultimate utilization of such net operating loss carryforwards may be significantly curtailed if a significant change in ownership of the Company were to occur. A valuation allowance is provided when it is more likely than not that some portion or all of the deferred tax assets will not be realized.

Note 21: COMMITMENTS AND CONTINGENT LIABILITIES

The Company entered into a three-year employment agreement with Gail Montgomery as President and Chief Executive Officer, effective as of September 1, 2002. The agreement provides for an annual salary of $275,000, $300,000, and $325,000 in the successive years under the agreement, and for performance bonuses based on achieving defined revenue targets. Ms. Montgomery is also entitled to additional payments equal to one year's salary plus an additional month of salary for defined years of service, if her employment is terminated without cause before the agreement expires, or if the Company fails to offer to enter into a new one-year agreement upon expiration. If Ms. Montgomery's employment is terminated or she resigns within six months after a change of control (as defined) the Company will pay to her 2.99 times her annual salary and previous year's bonus plus certain gross-ups, but these payments will be reduced to the extent necessary to prevent the application of Section 280G of the Internal Revenue Code. The Company in July 2002 granted to Ms. Montgomery options to purchase an aggregate of 850,000 shares of common stock at $0.39 per share, and 325,000 stock appreciation rights ("SAR") on the same general terms as the option grant, except that upon exercise of the SAR the Company will pay to her the SAR's in-the-money value in cash or common stock.

The Company entered into a three-year employment agreement with Andrew Wertheim as Chief Operating Officer, effective as of August 5, 2002. The agreement provides for an annual salary of $225,000, $250,000, and $275,000 in the successive years under the agreement, and for performance bonuses based on achieving defined revenue targets. Mr. Wertheim is also entitled to additional payments equal to one year's salary, if his employment is terminated without cause before the agreement expires. If Mr. Wertheim's employment is terminated or he resigns within six months after a change of control (as defined) the Company will pay to him 2.99 times his annual salary and previous year's bonus plus certain gross-ups, but these payments will be reduced to the extent necessary to prevent the application of Section 280G of the Internal Revenue Code. The Company in August 2002 granted to Mr. Wertheim options to purchase an aggregate 675,000 shares of the Company's Common Stock at $0.36 per share. On February 14, 2003, Mr. Wertheim's employment with the Company was terminated. As a result, his stock options terminated. Mr. Wertheim has demanded arbitration of whether he has any entitlements under his employment agreement. As of June 30, 2003, the Company did not provide for any termination benefits.

The Company entered into a four-year agreement with Benjamin Sporn effective as of September 1, 2002, which provides for his services as Senior Vice President, General Counsel, and Secretary as an employee during the first two years of the term and as General Counsel as a consultant during the balance of the term. Mr. Sporn's salary and fees will be $207,500, $225,000, $150,000 and $100,000 in successive years under the agreement, plus performance bonuses based on achieving defined revenue targets. Mr. Sporn is also entitled to additional payments equal to two years' salary if his employment is terminated without cause before the agreement expires. If Mr. Sporn's employment is terminated or he resigns within six months after a change of control (as defined) the Company will pay to him 2.99 times his annual salary and previous year's bonus plus certain gross-ups, but these payments will be reduced to the extent necessary to prevent the application of Section 280G of the Internal Revenue Code. The Company in July 2002 granted to Mr. Sporn options to purchase an aggregate of 225,000 shares of the Company's Common Stock at $0.39 per share.

Effective as of September 16, 2002, the Company entered into a three-year employment agreement with Paul Intlekofer, who has served as Chief Financial Officer and Senior Vice President, Corporate Development since January 17, 2003. The agreement provides for an annual salary of $200,000, $225,000, and $250,000 in the successive years under the agreement, and for performance bonuses based on achieving defined revenue targets. Mr. Intlekofer is also entitled to additional payments equal to one year's salary if his employment is terminated without cause before the agreement expires. If Mr. Intlekofer's employment is terminated or he resigns within six months after a change of control (as defined) the Company will pay to him 2.99 times his annual salary and previous year's bonus plus certain gross-ups, but these payments will be reduced to the extent necessary to prevent the application of Section 280G of the Internal Revenue Code. The Company, in accordance with the agreement, granted to Mr. Paul Intlekofer options to purchase an aggregate 550,000 shares of the Company's common stock at $0.40 per share.

Note 21: COMMITMENTS AND CONTINGENT LIABILITIES (continued)

In October 1995, the Company entered into an exclusive license agreement whereby the Company received a license to sell a patented salt alternative in the United States. During the term of the license, the Company agreed to pay a royalty of 4.5% of net sales of the salt alternative. The Company is required to make royalty payments quarterly through 2007. In connection with this agreement, the Company recorded royalty expense of $2 thousand for the fiscal year ended June 30, 2003; $0.2 million for the fiscal year ended June 30, 2002 and $0.5 million for the fiscal year ended June 30, 2001.

The Company has entered into various research and license agreements with certain universities to supplement the Company's research activities and to obtain for the Company rights to certain technology. The agreements generally require the Company to fund the research and to pay royalties based upon a percentage of product sales.

The Company leases certain office space in the United States. The lease expires in the year 2006. Payments under this lease were approximately $0.4 million in fiscal year 2003, $0.5 million in fiscal year 2002, and $0.7 million in fiscal year 2001. Future non-cancelable minimum payments under this lease are as follows (in thousands):

Year	Amount
2004	$ 370
2005	370
2006	261
Total	$1,001

Note 22: SUPPLEMENTAL CASH FLOW INFORMATION

	Year ended June 30,		
	2003	2002	2001
Supplemental disclosure of cash flow information (in thousands)			
Cash paid for interest	$ 33	$ 62	$ 243
Cash paid for income taxes	41	504	146
Supplemental schedule of non-cash financing activities:			
Obligation for purchase of property & equipment	--	--	152
Obligation for N21 contingent payment	26	369	1,938
Obligation for Lite Bites contingent payment	--	589	970
Issuance of common stock for Series E conversion	--	--	237
Issuance of common stock for Series G conversion	283	----	663
Issuance of Series G preferred stock for Optimum Lifestyle, Inc. contingent payment	--	--	941

Note 23: RISKS AND UNCERTAINTIES

The Company buys certain of its inventories from single suppliers. Management believes that other suppliers could provide similar products at comparable terms. As a result, management believes a change in suppliers would not disrupt on-going operations and would not affect operating results adversely.

Note 24: QUARTERLY FINANCIAL INFORMATION (unaudited)

In thousands, except per share data	First Quarter	Second Quarter	Third Quarter	Fourth Quarter (a)
Fiscal Year 2003				
Revenues	$3,315	$2,334	$3,132	$1,834
Gross Profit	2,506	1,352	2,115	513
(Loss) before Income Taxes	(112)	(2,270)	(1,449)	(7,219)
Net (Loss)	(112)	(2,270)	(1,143)	(6,981)
Net (Loss) per common share:				
Basic	$(0.00)	$(0.07)	$(0.03)	$(0.22)
Diluted	$(0.00)	$(0.07)	$(0.03)	$(0.22)
Fiscal Year 2002				
Revenues	$3,949	$2,912	$3,987	$3,820
Gross Profit	2,709	2,041	2,713	2,861
Income (loss) before Income Taxes	1,996	(627)	(297)	(7,083)
Net Income (loss)	1,277	(375)	(197)	(6,716)
Net Income (loss) per common share:				
Basic	$0.04	$(0.02)	$(0.01)	$(0.20)
Diluted	$0.04	$(0.02)	$(0.01)	$(0.20)

(a) The fourth quarters of fiscal years 2003 and 2002 include $4.4 million and $7.1 million, respectively, of non-cash charges for impairment of intangibles.

Note 25: SUBSEQUENT EVENT

On August 28, 2003, the remaining 188 shares of Series G preferred stock were converted into 316,498 shares of the Company's Common Stock.

Schedule II

NUTRITION 21, INC.
VALUATION AND QUALIFYING ACCOUNTS

Accounts ($ in thousands)	Balance Beginning of Year	Additions: Charged to Cost and Expense	Additions: Charged to Other Accounts	Deductions	Balance End of Year
Year ended June 30, 2003					
Allowance for Doubtful Accounts	19	--	--	--	19
Deferred Tax Valuation Allowance	1,607	4,184	--	--	5,791
Allowance for returns and allowances	140		920		1,060*
Allowance for inventory obsolescence	1	236	--	--	237
Year ended June 30, 2002					
Allowance for Doubtful Accounts	45	--	--	(26)	19
Deferred Tax Valuation Allowance	1,360	--	247	--	1,607
Allowance for returns and allowances	117		23	0	140*
Allowance for inventory obsolescence	31	(30)	--	--	1
Year ended June 30, 2001					
Allowance for Doubtful Accounts	134	1	--	(90)	45
Deferred Tax Valuation Allowance	1,623	--	--	(263)	1,360
Allowance for returns and allowances	112	--	5	--	117*
Allowance for inventory obsolescence	136	(105)	--	--	31

*Included in accounts receivable, net and accrued expenses in the consolidated balance sheets.

CORPORATE INFORMATION

Directors

John H. Gutfreund
Chairman of the Board
Nutrition 21, Inc.
Senior Managing Director,
C. E. Unterberg, Towbin, and
President, Gutfreund & Company, Inc.

Gail Montgomery
President and Chief Executive Officer
Nutrition 21, Inc.

P. George Benson, PhD
Dean of Terry College of Business
University of Georgia

Warren D. Cooper, MD
President, Coalescence Inc.

Audrey T. Cross, PhD
Associate Clinical Professor
School of Public Health
Columbia University

Marvin Moser, MD
Clinical Professor of Medicine
Yale University School of Medicine

Robert E. Pollack, PhD
Professor of Biological Sciences and
former Dean of Columbia College,
Columbia University

Officers

Gail Montgomery
President and Chief Executive Officer

Paul Intlekofer
Chief Financial Officer and Senior Vice President,
Corporate Development

Benjamin T. Sporn
Senior Vice President, General Counsel and Secretary

Corporate Headquarters
Nutrition 21, Inc.
4 Manhattanville Road
Purchase, New York 10577

Stockholders' Inquiries
Inquiries regarding transfer requirements, lost certificates, and changes of address should be directed to the transfer agent.

Transfer Agent and Registrar
American Stock Transfer & Trust Company
59 Maiden Lane – Plaza Level
New York, New York 10038

Stock Listing
Nasdaq under symbol "NXXI"

SEC Form 10-K/A
A copy of the Company's annual report to the Securities and Exchange Commission on Form 10-K/A is available without charge upon written request to the Investor Relations Department.

Auditors
J. H. COHN LLP
75 Eisenhower Parkway
Roseland, New Jersey 07068

Gail Montgomery
President & CEO

Phone 914 701-4501
Fax 914 696-0862
Email gmontgomery@nutrition21.com

October 21, 2003

Dear Shareholder:

Nutrition 21 continues to carve out a unique position as an industry leader in using pharmaceutical quality research to substantiate the health benefits of nutritional supplements.

Each new clinical milestone that we achieve moves us closer to our goal of launching our first branded product, Diachrome™. Our strategic alliance with Diabetex, a leading disease management company, will enable us to evaluate the pharmacoeconomic benefits associated with Diachrome supplementation. Diabetex is spearheading a pilot project with the federal government designed to improve the quality and lower the cost of Medicare's diabetes population. With positive results of our joint study, we will be well positioned to achieve our objective of having Diachrome included as part of the Medicare formulary. We want to use the enthusiasm we are generating to develop a network of allied healthcare providers who will support the use of Diachrome as part of the standard of care in diabetes management.

To date our successes include:

- Presentation of data compiled through the Company's Patient Experience Program at the 18th International Diabetes Federation Congress showing that Diachrome supplementation, as part of a patient care program, significantly decreased average glycosylated hemoglobin, or HbA1c, levels from 8.53% to 7.45% ($p<0.005$) in people with type 2 diabetes over a 12-week period.

- Presentation of additional data generated through the Company's Patient Experience Program at the 2003 North American Association for the Study of Obesity (NAASO) Annual Scientific Meeting, jointly sponsored by the American Diabetes Association, showing that Diachrome supplementation, as part of a patient care program, significantly decreased post-prandial glucose levels from 191 to 163 mg/dL ($p<0.01$) and fasting blood glucose levels from 158 to 137 mg/dL ($p<0.05$) in people with type 2 diabetes.

- Initiation and rapid enrollment of our 600-patient trial with Diabetex, planned for completion in June 2004 to further confirm the ability of Diachrome to lower HbA1c levels.

Our fiscal 2004 objectives include:

- Presenting additional animal data that show Diachrome's ability to lower oxidative stress
- Presenting interim analysis of the Diabetex trial
- Initiating and completing of a trial measuring Diachrome's effect on glycemic response
- Publicizing key chromium findings to include:
    - Harvard research on the link between chromium deficiency and the incidence of diabetes and cardiovascular disease
    - Johns Hopkins research exploring a similar correlation
    - Basic research into chromium picolinate's mechanism of action
    - Follow-on study to the Duke trial in atypical depression.
- Forging additional strategic alliances

- Expanding consumer and trade coverage of breakthrough findings
- Securing medical consensus for the use of Chromax chromium picolinate and Diachrome in insulin resistant populations

We are using funds generated by our ingredients business to pay for Diachrome research and market development activities. These research investments in turn enable us to develop expanded licensing opportunities for new ingredient applications for Chromax chromium picolinate in the food and supplement industries.

To generate more immediate returns associated with our patent estate, we are taking steps to restructure the licensing agreements that support the use of our Chromax ingredient. Key elements of the new licensing program include:

- Increased royalties based on broader market potential as a result of new clinical findings
- More tightly regulated use to protect against infringement
- Brand identification
- Exclusive options for new applications and distribution channels

In parallel, we are supporting the growth of the chromium category through a public relations and public affairs program. We will also initiate a direct marketing effort to support the Chromax brand.

Last year, we planned to take our Lite Bites® consumer weight loss product into retail distribution. However, the media coverage of the ephedra controversy contributed to waning sales of all consumer weight loss products. Increased competition, higher costs and loss of consumer confidence were factors in our decision to discontinue the product line and record a $4.4 million non-cash charge related to the discontinuance.

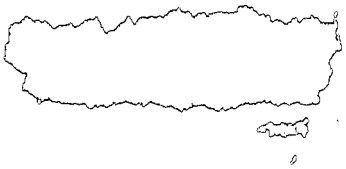
Despite disappointing fiscal 2003 results, we continue to hold firm in our belief that our comprehensive chromium-based patent portfolio will yield significant returns for our shareholders. More importantly, we are creating believers outside the Company. Just this month, we secured $3.25 million in equity financing through a private placement. This financing will be used primarily for Diachrome research and market development. And, as you know, we successfully maintained our NASDAQ SmallCap listing.

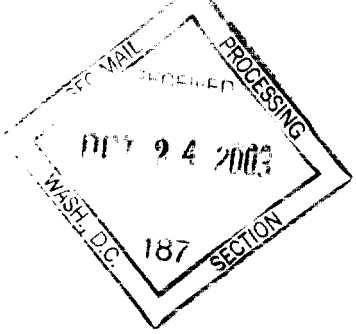
We are working to build a chromium mineral category that has the potential to rival the calcium market. We also believe that our branded therapeutic supplements will earn a place as part of the standard of care in the treatment of diabetes. The diabetes and obesity epidemic poses an overwhelming financial burden to our already strained healthcare system. As the search for effective and affordable solutions for these diseases escalates, Nutrition 21 is uniquely positioned to benefit.

We will continue to unlock the value of our chromium patent portfolio by demonstrating the promise of Nutrition 21 brands to contribute to the health of people worldwide. We look forward to doing so with a singular focus and with the support of an expanding network of academic, institutional and business allies and investors.

Sincerely,

Gail Montgomery





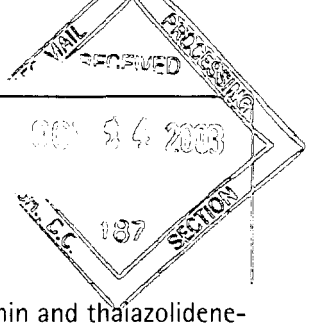
A SCIENTIFIC REVIEW:

THE ROLE OF CHROMIUM IN INSULIN RESISTANCE

Introduction

Introduction

by Dr. Peter J. Havel



This in-depth scientific review presents the case for dietary chromium supplementation in the management of type 2 diabetes and other insulin resistant conditions. While its specific mechanism(s) of action are not well understood, it is clear that chromium has effects which potentiate the action of insulin to stimulate glucose transport into cells. Recent data suggests that chromium may facilitate insulin signaling by activating Akt, an intracellular protein involved in insulin signal transduction (Cefalu, EASD Abstract, 2003). Chromium is found in a number of foods, particularly in brewer's yeast, and is available as a supplement in several forms. Of these, chromium picolinate is considered to be the most bioavailable and therefore appears to be the most active form of chromium. The lack of clear standardized measures of chromium status has been an impediment to determining the impact of chromium supplementation on chromium levels and their relationship to glucose homeostasis. In most studies conducted in nondiabetic subjects with normal insulin sensitivity and glucose tolerance, chromium supplements have only modest or no effects on insulin and glucose levels. This is not surprising in that insulin sensitizers would not be expected to have more than modest effects in insulin sensitive subjects. In fact, plasma glucose levels are tightly regulated to protect against hypoglycemia such that it is very difficult to produce a sustained reduction in overall glucose concentrations in normoglycemic individuals.

In contrast, a significant number of randomized clinical trials (RCTs) have shown that chromium supplements lower circulating glucose and insulin levels in subjects with type 2 diabetes or other insulin resistant states. The lowering of fasting plasma insulin levels suggests that chromium supplementation improves systemic insulin resistance. Accordingly, chromium supplementation may be useful as an adjunct therapy to standard antidiabetic drugs such as insulin sensitizers (metformin and thaiazolidenediones) and insulin secretagogues (sulfonylureas and meglitinides) in the management of insulin resistance and type 2 diabetes. However, approximately one third of the RCTs (although only one utilizing chromium picolinate) did not report significant beneficial effects of chromium in patients with type 2 diabetes or glucose intolerance. Thus, while the present available data are intriguing, additional carefully designed and executed new clinical trials are needed to definitively establish the effectiveness of chromium supplementation in the management of insulin resistance and type 2 diabetes.

There are several additional points that should be considered in the design and implementation of new clinical trials:

1) Measures of chromium status and the impact of chromium supplementation on these indices need to be incorporated into the studies.
2) In addition to type 2 diabetes, it would be of interest to investigate the effects of chromium in patient populations with syndromes of insulin resistance such as polycystic ovarian syndrome, gestational diabetes, and lipodystropy disorders.
3) Because inflammation is implicated in both diabetes/insulin resistance and cardiovascular disease, inflammatory markers such as C-reactive protein, interleukin-6, tumor necrosis factor-alpha, and plasminogen activator inhibitor-1 should be examined.
4) Since chromium may have beneficial effects on lipid metabolisms as well as on insulin sensitivity, cardiovascular risk factors such as apolipoprotein B, lipoprotein A, and LDL particle density should be measured.
5) The addition of biotin has been shown to increase the insulin sensitizing effects of chromium picolinate *in vitro* and in animals. Therefore, clinical trials with this combination supplement would appear to be warranted.

What is Chromium?

Chromium is an essential trace mineral required by the human body for normal carbohydrate and lipid metabolism.[1] Nutritional chromium, also known as Chromium III (III indicates the state of oxidation), is found in foods and supplements. It is the most stable form of chromium[2] and is considered one of the least toxic nutrients.[3,4] The normal range of chromium in whole blood is 0.12 to 0.67 mcg/L and it appears to be most concentrated in the liver, spleen, kidney and bone.[5,6]

Chromium is considered essential because, like all basic elements, it is not made in the body and a certain level is needed in the diet to maintain health.

Industrial chromium, also referred to as Chromium VI, is a by-product of manufacturing steel, pigments, chemicals and a variety of other products, and is toxic. Chromium VI can cause cancer if inhaled.[6] Chromium VI should not be confused with nutritional chromium, which is a safe and essential nutrient. Chromium III cannot be converted to Chromium VI in food or by the body.

Chromium's Functions in the Body

Chromium potentiates the biological actions of insulin,[7] a hormone that is critical for the normal regulation of carbohydrate, lipid and protein metabolism.[8] Evidence of chromium's role was first suggested in 1957 when a "glucose tolerance factor" (GTF), found in brewer's yeast, prevented an age-related decline of glucose tolerance in rats. Chromium III was identified shortly after as the active ingredient of GTF.[7] Chromium was declared an essential nutrient in 1977, after significant elevations in blood sugar levels were first observed in a hospitalized patient receiving total parenteral nutrition devoid of chromium.[6,9] Blood sugar levels returned to normal after the addition of chromium to her diet.

More recently, studies have begun to reveal the mechanism of chromium's actions. Research has suggested that after chromium is absorbed into the body, the chromium ions bind to an oligopeptide in order to become biologically active.[10] The chromium-bound peptide complex then binds to the insulin-receptor and activates the activity of the insulin receptor tyrosine kinase, thereby amplifying insulin action.[10] Chromium also has been shown to stimulate intracellular activity leading to enhanced glucose uptake in muscle cells.[10] As a cofactor of insulin, the actions of chromium are all consistent with the enhancement in insulin sensitivity.

Insulin Resistance as a Disease Risk Factor

Impaired insulin function, or insulin resistance, is a common factor in a growing number of health concerns. It is well established that insulin resistance is the forerunner of elevated triglycerides, reduced HDL, hypertension, metabolic syndrome (also known as insulin resistance syndrome or Syndrome X)[11] and type 2 diabetes, all of which are associated with an increased risk of cardiovascular disease. Several factors underlie the development of insulin resistance, including obesity, physical inactivity, and genetic factors. Other factors that may affect the degree of insulin resistance include diet, aging, and hormones.

Insulin resistance is considered the common denominator in a cluster of metabolic markers that defines the condition known as metabolic syndrome.[12,13] Metabolic syndrome is a collection of risk factors that includes visceral obesity (central body fat distribution), elevated blood sugar, elevated triglycerides, low HDL and elevated blood pressure. When at least three of these factors are present, the diagnosis is metabolic syndrome.[14] Visceral obesity (central body fat distribution) and its consequences impose the greatest risk for insulin resistance and metabolic disease. More than one in five Americans have metabolic syndrome. The incidence increases with age, affecting more than 40% of people in their 60s and 70s.[15]

Research has found that coronary heart disease, myocardial infarction and stroke are two-to-three times more common in people with metabolic syndrome than in those who do not have the condition. Insulin resistance, without the other markers of metabolic syndrome, increases risk by 1.5-to 2-fold over that in subjects with normal insulin sensitivity as assessed by fasting insulin concentrations.[13]

Insulin resistance is often the forerunner of type 2 diabetes,[16] which has long been known to result from a combination of resistance to the actions of insulin and a relative deficiency of insulin secretion. The risk of diabetes rises relative to the degree of insulin resistance.[17]

In addition to diabetes and metabolic syndrome, a number of other conditions also have been associated with insulin resistance. Polycystic ovarian syndrome (PCOS) is a complex endocrine disorder that interferes with ovulation and can cause infertility.[18] Insulin resistance affects about 50% to 70% of women with PCOS[19] and women with PCOS are at high risk of developing type 2 diabetes. The use of insulin-sensitizing agents used as treatments for diabetes also have been effective as a treatment for PCOS and its complications.[20]

Supplemental Chromium and Effects on Insulin Resistance and Type 2 Diabetes

Some investigators established correlations between low circulating ("body pool") levels of chromium and the presence, or incidence, of type 2 diabetes, and predict that large losses of chromium, over many years, "may exacerbate an already compromised chromium status in [non-insulin-dependent diabetes mellitus] patients and might contribute to the developing insulin resistance seen in patients with type 2 diabetes."[21]

continued

A number of human and animal studies have found that chromium supplementation can improve insulin sensitivity and blood sugar control in animals and humans with insulin resistance, elevated blood sugar levels, impaired glucose tolerance and diabetes. In one study, rats which were bred to become obese and insulin-resistant, and to develop elevated insulin and triglyceride levels, received supplementation with chromium picolinate. The supplemented rats demonstrated significantly lowered fasting insulin levels and significantly improved blood sugar levels.[5] Similar benefits have been reported in people with insulin resistance and diabetes.

Reviews evaluating the benefits of chromium supplementation have reported mixed conclusions.[22,23,24,25] One meta-analysis concluded that chromium supplementation had no effect in people with normal blood sugar levels and had inconclusive effects in people with diabetes.[25] However, this analysis has been criticized since it did not include most of the studies using chromium picolinate and focused on the studies with poorly absorbed forms of chromium. Another review also suggested limitations to the beneficial effects seen with chromium supplementation.[26]

The apparent inconsistency in effects may be attributed to the form of chromium used. While some studies utilizing less bioavailable forms of chromium have not shown significant benefits, almost all of the studies using chromium picolinate (considered more bioavailable) have demonstrated increases in insulin sensitivity and improved glucose control. A listing of chromium supplementation studies in people with insulin resistance or diabetes is shown in **Table 1**.

Nine of 15 randomized, controlled trials evaluating chromium's efficacy in people with diabetes or impaired glucose showed significant benefits in increasing insulin sensitivity and improving blood sugar control. Eight of nine open label (non-RCT) studies also indicated beneficial effects of chromium supplementation. Studies using chromium picolinate as the source of supplemental chromium had a greater rate of success with six of seven RCTs, and 11 of 12 total studies showing significant positive effects.[26,27,28,29,30,31,32,33,34,35,36,37] Supplementation with 200-1,000 mcg of chromium per day, as chromium picolinate, has consistently improved glucose tolerance and lowered circulating insulin levels.[38]

In the largest clinical study testing chromium,[26] 180 diabetic patients received chromium picolinate (200 mcg or 1000 mcg Cr/day) or placebo for four months. Insulin sensitivity and blood sugar control improved significantly (assessed by FSIVGTT) with both chromium doses, but to a greater extent with the higher dose. Improvements were seen in fasting and two-hour blood glucose, fasting insulin and HbA1c levels.

In a study of 162 diabetic patients, supplementation with chromium picolinate (200 mcg of Cr/day) resulted in reduced need for insulin and glucose-lowering medications in 118 of the patients.[37] Two six-week, double-blind studies also found that chromium picolinate supplementation (200 mcg of Cr/day) resulted in significant decreases in fasting blood glucose and levels of glycosolated hemoglobin among volunteers with type 2 diabetes.[30] A double-blind, randomized, placebo-controlled 8-month trial of 29 subjects at risk for type 2 diabetes found that supplementing with chromium picolinate (1,000 mcg Cr/day) significantly improved insulin sensitivity compared to controls.[28] Chromium picolinate supplements also have been found to improve glucose tolerance and lower insulin levels in women with gestational diabetes.[32]

Table 1. Clinical Trials of Chromium Supplementation on Carbohydrate Metabolism in Subjects With Insulin Resistance/Type 2 Diabetes

Author	Year	Subjects	#	Design	Cr Form	Cr (mcg)	Results
Feng	2002	Type 2 DM	136	RCT	Cr Pic	500	↓ fasting & 2-hr glucose, ↓ insulin dose
Ghosh	2002	Type 2 DM	50	RCT, DB	Cr Pic	400	↓ fasting & postprandial glucose, ↓ HbA1c
Bahijiri	2000	Type 2 DM	76	RCT, DB	CrCl Cr Yeast	200 23	↓ fasting & 2hr glucose
Morris	2000	Type 2 DM	5	OL	Cr Pic	400	↓ insulin resistance (HOMA)
Rabinovitz	2000	Type 2 DM	39	OL	Cr Pic	400	↓ fasting glucose
Trow	2000	Type 2 DM	12	OL	Cr Yeast	100	No effects on fasting glucose & insulin
Bahadori	1999	Type 2 DM	16	OL	Cr Pic	1000	↓ fasting insulin
Cefalu	1999	Pre-diabetes	29	RCT, DB	Cr Pic	1000	↑ insulin sensitivity (FSIVGTT)
Cheng	1999	Type 2 DM	833	OL	Cr Pic	500	↓ fasting glucose
Jovanovic	1999	Gestational	20	RCT, DB	Cr Pic	300 - 800	↓ fasting & postprandial glucose & insulin, ↓ HbA1c
Ravina	1999	Steroid-Induced	44	OL	Cr Pic	300 - 600	↓ fasting glucose*
Anderson	1997	Type 2 DM	180	RCT, DB	Cr Pic	1000	↓ fasting glucose & insulin, ↓ HbA1c
Thomas	1996	Type 2 DM	5	RCT, DB	Cr Nic	200	No effect on fasting & postprandial glucose
Ravina	1995	Type 1 & 2 DM	162	OL	Cr Pic	200	↓ fasting glucose ↑ insulin sensitivity (glucose/insulin response)
Lee	1994	Type 2 DM	30	RCT, DB	Cr Pic	200	No effect on fasting glucose & HbA1c
Abraham	1992	Type 2 DM	25	RCT, DB	CrCl	250	No effect on fasting glucose
Uusitupa	1992	IGT	26	RCT, DB	Cr Yeast	160	No effect on fasting glucose & insulin
Evans	1989	Type 2 DM	11	RCT, DB	Cr Pic	200	↓ fasting glucose & HbA1c
Mossop	1983	Type 2 DM	26	OL	CrCl	600	↓ fasting glucose
Rabinowitz	1983	Type 2 DM	43	RCT, DB	CrCl Cr Yeast	150 13	No effect on fasting glucose
Uusitupa	1983	Type 2 DM	10	RCT, DB	CrCl	200	↓ 1-hr insulin
Offenbacher	1980	Type 2 DM	8	RCT, SB	Cr Yeast	10.8	↑ glucose tolerance, ↓ insulin levels
Sherman	1968	Type 2 DM	7	RCT, DB	CrCl	150	No effect on fasting and postprandial glucose
Glinsmann	1966	Type 2 DM	6	OL	CrCl	180 - 1000	↑ glucose tolerance

Table 1 Legend: RCT = randomized controlled trial; DB = double blinded; SB = single blinded; OL = open label
Cr Pic = chromium picolinate; CrCl = chromium chloride; Cr Yeast = chromium yeast;
Cr Nic = chromium nicotinate
HbA1c = glycosylated hemoglobin; HOMA = homeostasis model assessment;
FSIVGTT = frequently sampled intravenous glucose tolerance test
- Tabular references follow main bibliography.
- *Ravina citing unpublished data within manuscript.

Chromium's Role in Insulin Resistance and Cardiovascular Disease

As part of the long, ongoing Health Professionals Follow-up Study, researchers recently found an inverse relationship between toenail chromium levels and cardiovascular disease, particularly myocardial infarction.[39] The relationship was especially strong in subjects who were overweight. Toenail chromium may reflect long-term chromium status in the body.

Several studies now have demonstrated that chromium supplements, particularly chromium picolinate, enhance the metabolic action of insulin and lower some of the risk factors for cardiovascular disease. Supplementation with chromium picolinate may help in reducing the risk of early onset of coronary heart disease (CHD) by reducing the associated coronary risk factors (e.g., Apo-lipoprotein-B, LDL particle size, C-reactive protein, intreleukin-6, PAI-1).

Of five randomized, placebo-controlled, double-blind clinical trials, four found supplementation with chromium picolinate (200 to 1,000 mcg Cr/day) decreased total cholesterol and/or LDL cholesterol.[40] The one study that failed to demonstrate a similar outcome did show a reduction in serum triglycerides.[40] The average improvement in total cholesterol levels could, theoretically, provide a 15% reduction in CHD. The average increase in HDLs could be predicted to decrease risk by 2-3%.[40]

Recommended Intakes of Chromium

A recommended range of intake for chromium was first set by the National Academy of Sciences in 1980.[41] The most current recommended intakes were issued by the Institute of Medicine (IOM) in 2001.[6] The Institute concluded that there was not enough existing evidence to set Recommended Dietary Allowances (RDAs) for chromium and instead set Adequate Intakes (AIs), based on limited information regarding the amount of chromium that normal, healthy people currently consume. Based on that information alone, the AIs set by the IOM are 35 mcg of chromium a day for men and 25 mcg a day for women, 19 to 50 years of age. Based on the third National Health and Nutrition Examination Survey data, the median supplemental intake of chromium is 23 mcg/day, which is similar to the AI for the mineral.[6] The IOM set a lower AI for chromium for people over 50 years of age, 30 mcg a day for men and 20 mcg a day for women.[6]

A Daily Value (DV) for food and supplement labels was set in 1997. The current DV for chromium is 120 mcg per day, significantly more than the current AI.

Few serious adverse effects have been associated with excess intake of chromium in food or supplements.[4,6] Therefore, a tolerable Upper Intake Level (UL) was not established by the IOM.[6]

Food Sources of Chromium

Chromium is widely distributed throughout the food supply, but most foods with chromium only supply less than 1 to 2 mcg per serving (Table 2). Determining the exact chromium content in foods has proven to be difficult, in part because of a lack of standardized analytical methods. In addition, the chromium content of foods may increase or decrease with processing. Consequently, dietary chromium intakes cannot be accurately determined from any currently existing databases.[6]

Table 2. Chromium Content of Foods

Food	Serving size	Chromium per serving (mcg)
GRAINS		
Bagel	1	2.6
Corn flakes	1 cup	1.8
Whole wheat bread	1 slice	0.8-1.0
White rice	1/2 cup	0.6
Oatmeal	1/3 cup	0.3-0.4
MEAT, FISH, POULTRY		
Beef	3 oz	2
Turkey (light and dark)	3 oz	0.9-1.7
Baked fish (haddock)	3 oz	0.6-0.9
Chicken breast	3 oz	0.5
Eggs	1	Less than 0.5
DAIRY PRODUCTS		
American cheese	1 oz	0.6
Skim milk	1 cup	Less than 0.5
Butter	1 pat	0.1-0.3
Whole milk	1 cup	0.1
Margarine	1 pat	0.02-0.1
FRUITS AND FRUIT JUICES		
Apple, unpeeled	1 medium	1.4-7.5
Orange juice	1/2 cup	1.1
Banana	1 medium	1.0
Orange	1 medium	0.5
VEGETABLES		
Broccoli	1/2 cup	0.9-11.0
Green beans	1/2 cup	1.1
Tomato	1 medium	0.9
Carrots	1 medium	0.5
Celery	1 stalk	0.5
MISCELLANEOUS		
Red wine	3.5 oz	0.6-8.5
Champagne	3 oz	1.0-3.3
Tea and coffee	1/2 cup	4.0
Brewer's yeast	1 oz	3.3
Chocolate chip cookies	4 each	3.4

Chromium Absorption

Absorption of chromium has been shown to be inversely proportional to chromium intake, although at any intake, the body absorbs dietary chromium poorly.[10] Only about 0.4% to 2.5% of chromium taken in is actually absorbed.[6] The mechanisms of absorption and transport of chromium in the body are not completely known.

High fiber intake has been debated as a cause of decreased absorption of some nutrients, including chromium, but the effect of a high fiber intake on nutrient absorption has not been thoroughly investigated.[6]

Citing the work of Kamath and colleagues (1997), the Food and Nutrition Board has remarked that certain medications, such as aspirin or antacids, if taken on a regular basis, may also affect chromium absorption and retention by altering stomach acidity or inhibiting the production of gastrointestinal prostaglandins.[6]

Total body chromium concentrations decrease with age,[41] dropping by 25% to 40%, depending on the tissue being analyzed.[5] The increased incidence of impaired glucose tolerance with age suggests that the elderly might be more vulnerable to chromium depletion than younger adults.

A number of other factors affect how well chromium will be absorbed. Intakes of vitamin C, amino acids (the building blocks of protein) and oxalate (found in some vegetables and grains) have been found to enhance chromium absorption, while a diet high in phytate (found in cereals, legumes and vegetables) and simple sugars[42] appear to decrease chromium absorption. A 28% documented increase in consumption of added sugars (i.e., white sugar, brown sugar, etc.) from 1982 to 1987 could translate into an increased need for chromium because of this possible decrease in chromium absorption.

Chromium Supplementation Doses

The response of glucose, insulin and lipid levels to chromium supplementation is related to the amount and form of supplemental chromium, the degree of glucose intolerance, and the duration of the study.[3] Chromium supplements are generally available in a picolinate or chloride salt form or in a complex with nicotinic acid and amino acids.[5] The most stable and most bioavailable form of supplementation available appears to be chromium picolinate.[43] Nearly all of the studies using the more bioavailable chromium picolinate have reported positive effects in lowering elevated blood glucose, insulin or lipid levels in subjects with insulin resistance and type 2 diabetes.[3]

For people with glucose intolerance, the requirement for chromium may be related to the degree of glucose intolerance. An intake of 200 mcg per day of supplemental chromium has been found adequate to improve glucose variables in those who are mildly glucose intolerant. However, people with more overt impairments in glucose tolerance and diabetes usually require more than 200 mcg per day.[3] In most studies, chromium picolinate supplementation has had the most dramatic impact on risk factors in overweight subjects, who would be expected to be insulin resistant, suggesting that chromium supplementation will have the greatest benefit in overweight, insulin resistant individuals.

Chromium Safety

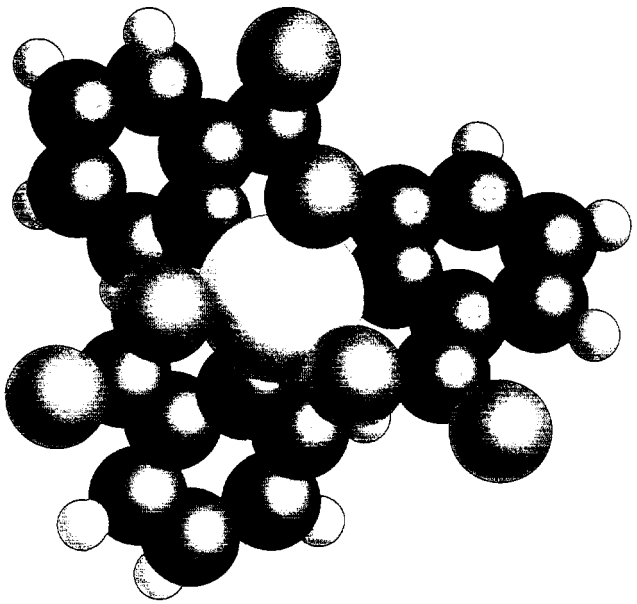
The safety margin for nutritional chromium is set at 350.[44] This indicates that a person would have to take approximately 350 times the common supplemental dose (200 mcg) of chromium before any harmful effects would be expected. Typical amounts of chromium picolinate used in multi-vitamin, multi-mineral dietary supplements range from 50 to 400 mcg Cr/day. Specialty dietary supplements may contain much more and may include other forms of chromium.[6] Chromium picolinate has been the subject of more than 30 clinical trials and 100 published research reports. However, there is limited safety information available on other chromium complexes.

Numerous studies have established that chromium is one of the least toxic trace elements and laboratory and animal studies support the safety of chromium picolinate,[45] even in animals fed levels several thousand times the upper limit of the safe intake for humans, relative to weight.[47]

The reproductive effects of chromium picolinate in swine have also been investigated, since their metabolic systems closely mirror those of humans. The researchers found that animals fed chromium picolinate (200-1000 ppb) experienced no negative effects. In addition, supplementation resulted in greater litter size and weight compared to controls.[47] In a twelve month study of 48,000 pigs having 100,000 litters with an average litter size of 10 piglets per litter, chromium picolinate significantly increased litter size compared to untreated pigs, with no reported adverse events to the sows or piglets.[48]

In more than 30 clinical trials with more than 2,000 subjects tested, there have been no reported adverse events related to chromium picolinate supplementation. The safety of chromium picolinate has been demonstrated in these clinical trials lasting up to 8 months.[49] There have been isolated case reports of liver damage and one case of kidney damage in people taking products that contained chromium picolinate,[50] but there was no conclusive evidence that the chromium picolinate was the direct cause of either event.

Although chromium picolinate has not been shown to be mutagenic or carcinogenic in human or animal trials, it has been reported to be mutagenic in cell cultures in *in vitro* studies and in fruit flies.[51,52,53] However, a study that examined the effect of chromium picolinate supplements on the bone marrow cells of rats, using a sensitive test for chromosomal damage, found no induction of chromosomal damage.[54] A clinical trial of ten obese volunteers taking 400 mcg a day for eight weeks found no oxidative DNA damage, suggesting that the dose typically used for supplementation is safe.[55]



Chemical structure of the chromium picolinate molecule. The combination of chromium with picolinic acid plays a key role in its high degree of bioavailability.

Summary

- Chromium is an essential mineral that appears to have a role in the regulation of insulin action and its effects on carbohydrate, protein and lipid metabolism.
- Chromium is an important factor for enhancing insulin activity.
- Studies show that people with type 2 diabetes have lower blood levels of chromium than those without the disease.
- Insulin resistance is the common denominator in a cluster of cardiovascular disease risk factors.
- One out of every five Americans has metabolic syndrome. It affects 40% of people in their 60s and 70s.
- Insulin resistance, with or without the presence of metabolic syndrome, significantly increases the risk of cardiovascular disease.
- Insulin resistance is present in two serious health problems in women; polycystic ovarian syndrome (PCOS) and gestational diabetes.
- Several studies have now demonstrated that chromium supplements enhance the metabolic action of insulin and lower some of the risk factors for cardiovascular disease, particularly in overweight individuals.
- Chromium picolinate, specifically, has been shown to reduce insulin resistance and to help reduce the risk of cardiovascular disease and type 2 diabetes.
- Dietary chromium is poorly absorbed.
- Chromium levels decrease with age.
- Supplements containing 200-1,000 mcg chromium as chromium picolinate a day have been found to improve blood glucose control.
- Chromium picolinate is the most efficacious form of chromium supplementation.
- Numerous animal studies and human clinical trials have demonstrated that chromium picolinate supplements are safe.

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Dr. Peter J. Havel

Peter J. Havel, D.V.M., Ph.D. is a Research Endocrinologist in the Department of Nutrition at the University of California, Davis. He received a B.S. in Zoology from the University of Washington, Seattle, WA, a D.V.M in Veterinary Medicine and Ph.D. in Endocrinology from the University of California, Davis.

Dr. Havel's research is focused endocrine regulation of energy homeostasis, adipocyte metabolism, and the pathophysiology of two interrelated diseases of major medical and economic importance, diabetes and obesity. His previous work investigated the role of the nervous system in regulating pancreatic hormone (insulin and glucagon) secretion and examined the mechanisms responsible for impaired defenses against hypoglycemia in humans and animals with diabetes. Hypoglycemia limits the ability to control blood sugar and reduce the long-term complications of diabetes.

Dr. Havel currently has several projects investigating the regulation of secretion and the actions of the adipocyte hormones, leptin and adiponectin, and gastrointestinal hormones such as ghrelin which are involved in the regulation of feeding behavior, energy metabolism, insulin sensitivity, and lipid metabolism. His work in this area includes nutritional studies in humans and animals as well as *in vitro* experiments. His current research focuses on the molecular and biochemical mechanisms regulating leptin and adiponectin production and the role of endocrine and dietary factors in the control of energy homeostasis, insulin action and in the development of obesity and type 2 diabetes.

Research conducted in Dr. Havel's laboratory demonstrated that leptin production by adipose tissue is regulated by glucose metabolism. Studies from his laboratory have shown that high fat or high fructose diets reduce circulating leptin concentrations in humans, a finding that has implications for the development of obesity and diabetes in animals and humans consuming diets high in fat and fructose. In addition, fructose increases circulating lipids and could increase the risk of cardiovascular disease.

Dr. Havel has published over 70 peer-reviewed articles related to diabetes and obesity in journals such as *Journal of Clinical Endocrinology and Metabolism, Endocrinology, Diabetes,* and *American Journal of Clinical Nutrition,* as well as a number of scientific reviews and book chapters. He has been awarded several honors including the Academic Federation Award for Excellence in Research, University of Davis, 2003, Shih-Chun Wang Award for Physiology Research from the American Physiological Society, 2000 and Outstanding Investigator Award from the American Federation for Medical Research, 1999.


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