Volume 15, Issue 3, Fall 2008

Vital Link

The professional journal of the Canadian Association of Naturopathic Doctors

Identifying the Root Cause of Disease

www.cand.ca

Feature Articles:

Genetics and Environmental Toxins
Dr. Chris Spooner, BSc, ND

A TCM Perspective on Identifying the Root Cause of Disease
Dr. Neemez Kassam, MSc, ND, RAc

The Root Cause of Disease is Never a Symptom
Dr. Iva Lloyd, RPP, ND

Identifying the Root Cause of Disease is not a Destination, but a Journey
Dr. Chris Mazzuchin, BSc, BScPT, ND

Plus:

ECOHOLIC Contest Winners

CNME's Role in the Naturopathic Medical Profession in Canada

Naturopathic News:

President's Corner

Government Relations Report

Communications and Media Update

Association, Regulatory Board and Academic Updates

Membership Benefits:

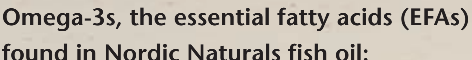
Managing Your Insurance Risks:
Who is Responsible for Patient Files?

Business Tips: Marketing to Your Patient Base

MediDirect Health Trust

Omega-3s

The Natural Solution



Omega-3s, the essential fatty acids (EFAs) found in Nordic Naturals fish oil:

- Provide essential nutrients crucial for neurological development and nerve health*
- Support memory, learning, focus, and concentration*
- Support positive mood and behavior*
- Promote healthy immunity*
- Maintain optimal metabolism body composition*

Nordic Naturals recognizes the importance of omega-3 fish oil for all children.

In a 2005 study, children that had difficulty with communication, relationships, and behavior took one Nordic Naturals ProEFA™ *(equivalent to two ProEFA Junior™)* soft gel a day, for 90 days, and showed significant improvement in language and learning skills.[1]

Nordic Naturals is committed to improving children's health worldwide, and continues to support the research of the relationship between EFAs and autistic disorders. Nordic Naturals is recommended by respected medical professionals and used by leading research institutions including Duke University, Cedars-Sinai Medical Center, and Massachusetts General Hospital.

Nordic Naturals' raw material is harvested from some of the cleanest waters in the world. All Nordic Naturals products are third party tested and show no detectable levels of heavy metals and environmental toxins.

For research on fish oil, visit: **omega-research.com**

1. The effect of essential fatty acid supplementation on language development and learning skills in autism and Asperger's syndrome. *Autism-Asperger'sDigest* Jan/Feb 2005:36–37.

Distributed by **EcoTrend**. For more information, please contact: **800.665.7065** • email: **info@ecotrend.ca**

ESSIAC®

From Renemcaisse®

Original Herbal Formula

Trusted Worldwide Since 1922

Powder Formula

Extract Formula

Vegicap Formula

Immune System Support

- Premium Quality Herbs
- c G.M.P. compliance
- Made only in Canada
- Exported worldwide

Herbal Supplement

BEWARE OF COUNTERFEITS

ESSIAC® Canada International

P.O. Box 23155, Ottawa, Ont., Canada K2A 4E2

Tel.: (613) 729-9111 • Fax: (613) 729-9555

e-mail: info@essiaccanada.ca

COPYRIGHT © 2007 - ALL RIGHTS RESERVED - AUTHORIZED USER OF ESSIAC® TRADEMARK

The Preferred Multivitamin Formula for Thousands of Health Professionals

***Nutrient 950® without iron**

is a complete hypo-allergenic, bioavailable, high potency multi-vitamin/mineral supplement. It offers an advanced chelated mineral delivery system and the activated coenzyme forms of B vitamins to promote optimal absorption of the nutrients. Naturally derived vitamin C, vitamin E, beta carotene, lycopene, lutein, and zeaxanthin provide crucial antioxidant support. This gentle, vegetarian formula is well tolerated by sensitive individuals.

Contact us for a free sample today

*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.

†Ratings based on results of the 2008 ConsumerLab.com Survey of Supplement Users. More information at www.consumerlab.com.

— Your Trusted Source —

TO ORDER: **866-856-9954** • FAX: 888-220-9441 • info@purecaps.ca

552 Newbold St., London, ON N6E 2S5

CAND Board of Directors 2008

Chair: Dr. Jason Boxtart, ND

Vice Chair: Dr. Jennifer Salib Huber, ND

Past Chair: Dr. Iva Lloyd, ND

Treasurer: Dr. Leshia Ferguson, ND

Secretary: Dr. Jodi Meacher, ND

Dr. Patricia Wales, ND

Dr. Cory Storm, ND

Dr. Heidi Armstrong, ND

Dr. Blossom Bitting, ND

Dr. Anne-Hélène Genné, ND

CAND Staff

Executive Director,
Director of Government Relations: Shawn O'Reilly

Manager of Finance: Heather Fleck

Marketing and Publications: Alex McKenna

Communications Officer: Lisa Westlake

Operations and Membership Services: Stuart Watson

CAND Corporate Partners 2008

Gold
CN Nutrition
Rocky Mountain Analytical

Silver
Bio Lonrenco – Dr. Reckeweg Canada
Biomed International
Cyto-Matrix
Douglas Laboratories
Integra Nutrition
Ferlow Botanicals

Bronze
Boiron Laboratories
Doctors Data
EcoTrend Ecologics
Heel Canada
Metagenics Canada
Pascoe Canada
Promedics Nutraceuticals
Purity Professionals
Seroyal International
Vitazan Professional

Affiliate
Attogram Corp.
Aviva Canada
Essiac Canada International
Partners Indemnity Insurance Brokers

CONTENTS

Feature Articles

31 Genetics and Environmental Toxins: Xenobiotic-Induced Illnesses Associated with Single Nucleotide Polymorphisms of Cytochrome P450 and Conjugation Enzymes
Dr. Chris Spooner, BSc, ND

41 A TCM Perspective on Identifying the Root Cause of Disease
Dr. Neemez Kassam, MSc, ND, RAc

45 The Root Cause of Disease is Never a Symptom
Dr. Iva Lloyd, RPP, ND

52 Identifying the Root Cause of Disease is not a Destination, but a Journey
Dr. Chris Mazzuchin, BSc, BScPT, ND

Plus

11 ECOHOLIC Contest Winners

23 CNME's Role in the Naturopathic Medical Profession in Canada

Naturopathic News

7 President's Corner

9 Government Relations Report

11 Communications and Media Update

19 Association, Regulatory Board and Academic Updates

CAND Membership Benefits

15 Managing Your Insurance Risks: Who is Responsible for Patient Files?

17 Business Tips: Marketing to Your Patient Base

54 Aviva Home & Auto Insurance Program

13 MediDirect Health Trust

ISO 9001 certified company

NHPD Site Licensed

We Turn The World's Latest Scientific Discoveries Into Health Opportunities...

We provide you with the best quality health supplements. We have been in business for over 18 years. Our products are sold in 22 different countries worldwide.

✓ We are SITE LICENCED by HEALTH CANADA.
✓ All Organika® products are manufactured under government regulations and Canadian cGMP, Current Good Manufacturing Practices.
✓ Each product has a Certificate of Analysis, a truthful declaration of what we claim on the label is actually in the bottle.
✓ Products are tested and validated by independent laboratories repeatedly for QUALITY, PURITY AND POTENCY.
✓ Organika® products are NPN Compliant.
✓ Our commitment is to provide you with excellent customer service.
✓ ISO 9001 certified company.

Living Healthy with ORGANIKA® Health Products.

www.organika.com

Toll free: 1-800-663-8880

Vital Link

Volume 15, Issue 3, Fall 2008 – Identifying the Root Cause of Disease

Managing Editor, Advertising Manager
Alex McKenna • amckenna@cand.ca

Naturopathic Editors
Dr. Iva Lloyd, BScH, RPP, ND, CAND Chair
Dr. David Lescheid PhD, ND
Dr. Sanjay Mohan Ram, ND
Dr. Dugald Seely, ND, MSc

Contributing Editor
Shawn O'Reilly

Mailing Address
Vital Link c/o Alex McKenna
CAND 1255 Sheppard Ave. E. • Toronto, Canada M2K 1E2
Phone 416-496-8633 • Fax 416-496-8634 • www.cand.ca

The *Vital Link* is the professional journal of the Canadian Association of Naturopathic Doctors (CAND). It is published primarily for CAND members and features peer-to-peer research-based articles, relevant naturopathic information and news and events that affect CAND members and the naturopathic profession in Canada. The *Vital Link* has an outreach to other health care professions and promotes licensed naturopathic doctors to corporations, insurance companies and the Canadian government.

Circulation

The *Vital Link* is published three times per year and is distributed to over 1,150 licensed Canadian NDs; over 600 students of CNME accredited naturopathic programs in Canada and the U.S., and the CAND corporate partners. The *Vital Link* is also distributed in the CAND's media kit.

Advertising

Professional vendors that provide NHPD-compliant products or other services to NDs are encouraged to advertise in the *Vital Link*. The CAND's advertising partners enjoy unequalled exposure to licensed Canadian naturopathic doctors.

©1994–2008 Canadian Association of Naturopathic Doctors. All rights reserved. Opinions expressed in this journal are not necessarily those of the editors, the CAND or its Board of Directors. No part of the editorial content of this publication may be reprinted without the editor's express written permission. All advertising is subject to the editor's approval. Such approval does not imply any endorsement of the products or services advertised. The CAND reserves the right to edit or refuse advertising or submissions that do not meet its standards.

Mixed Sources
Product group from well-managed forests and other controlled sources
www.fsc.org Cert no. SGS-COC-004132
© 1996 Forest Stewardship Council

Cover designed by Jesse Edwards
Printed by Pulsar Printing

Upcoming Themes:

Winter 2009 – Stimulating the Healing Power of Nature
Summer 2009 – Treating the Whole Person
Fall 2009 – Nature Cure
Winter 2010 – Environmental Medicine Part II

Submissions

When writing for the *Vital Link*, keep in mind its broad readership and outreach to other professions. Your contribution to the *Vital Link* will benefit the naturopathic profession as a whole and provide you with personal professional exposure. Previously unpublished material is preferred. Please contact the editor for submission guidelines.

PRESIDENT'S CORNER

Dr. Iva Lloyd, RPP, ND

October, 2008

This is my last President's Corner as my three-year term as the CAND chair ends in November. It has been a wonderful experience that has provided me with the opportunity to understand our profession at a very different level. I have been able to travel and represent naturopathic medicine and the CAND both nationally and internationally. When I reflect on the evolution of our profession it is wonderful to see the growth and to witness so many positive changes. The profession has shifted from fighting for its survival to carving out its place in the Canadian health care system.

There can always be improvements in every aspect of a profession, but we have good reason to be very proud of our profession, of what the founders, elders, and dedicated practitioners and staff over the years have created. Our naturopathic education is on par with other medical systems and the accredited naturopathic schools are a good example of how to support and work together. The wealth of knowledge and experience within the profession with respect to legislative issues is immense. Many practitioners have spent years fighting for, lobbying for, and ensuring a scope of practice that is the envy of many other health professionals.

Over a year ago the CAND established the Canadian Naturopathic Coordinating Council (CNCC) which has representatives from every provincial association, regulatory board, accredited school, and the CAND. The aim of the CNCC is to support the growth of the profession collectively and to ensure optimum communication and cooperation on key initiatives.

As a profession grows the focus of the national and provincial associations naturally expands to include more marketing, awareness, and educational initiatives. We will always need those who work to optimize the naturopathic educational standards and those that continue to ensure our scope of practice and our access to substances, but now is the time when we can, and need to, increase our media presence.

The aim of the CAND is to position naturopathic doctors as the leaders of natural medicine. With that in mind, the CAND has recently hired Lisa Westlake as Communications Officer, who has an extensive background in media, communications and fundraising. She has the experience and many new ideas that will assist the CAND in being much more active and directed in its marketing and communications. Turn to page 11 for Lisa's official introduction. In many ways, naturopathic doctors have always been thought of as the 'leaders of natural medicine', yet our media response in the past has often been passive and cautious. Now is the time for naturopathic doctors to take a stronger position on key health topics and to ensure our voice is heard.

The CAND was asked to take on the two-year project of compiling a book looking at the history and development of naturopathic medicine in Canada. As my mother has a history of doing genealogy work, we took on that project. Compiling this book has involved reading many articles, reports and documents outlining not only the growth and development of naturopathic medicine, but also other health care professions. The project has provided me with a very strong appreciation for the insight and guidance of our elders, and it has provided a perspective of professional development that has helped me understand the struggles and chaos of our profession over time. The history book will be delivered to the publishers by the end of the year and will be launched at Health Fusion 2009. The aim of the history book is three fold: to acknowledge and capture the work of the elders of our profession, to provide a chronological look at the significant events that have happened, and to provide a resource for prospective patients and government that shows the strength of the principles and philosophy of naturopathic medicine.

This is a wonderful time to be involved in the profession. I encourage you to read the monthly e-Link newsletter and stay informed about all the new initiatives. We also encourage you to continue providing feedback to the CAND. We welcome your recommendations, ideas and participation in any of the CAND's initiatives or on any of its committees.

The wait is finally over

AORpro has arrived. The quality and effectiveness you've come to expect from Canada's leading supplement manufacturer - exclusively for health professionals.

14 new products based on the latest science with all the information required for their appropriate use.

Please visit **aorpro.ca** or email gopro@aor.ca for more information.

FALL 2008

GOVERNMENT RELATIONS REPORT

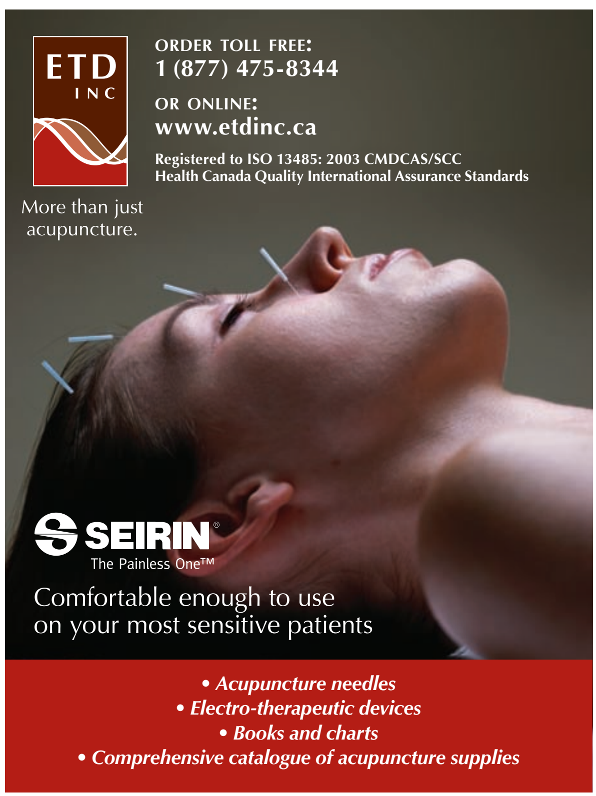
Shawn O'Reilly, CAND Executive Director, Director of Government Relations

On September 7, 2008 Prime Minister Harper dissolved parliament and called an election for October 14, 2008. With the dissolution of parliament all Bills that were before the House of Commons died, including perhaps the most contentious Bill brought to the House in 2008, Bill C-51 - an Act to Amend the Food and Drugs Act. As a result of the media attention garnered by the Bill the CAND participated in over two dozen interviews. NDs appeared on TV, radio and in national newspapers across Canada. The CAND Government Relations Committee met with Health Minister Clement's senior staff, Opposition Health Critics and members of the Standing Committee on Health. Our issues were raised in the House of Commons by both the Liberals and the NDP and now form part of the official record of the debate. Thank you to all members who utilized the letter templates to voice your concerns to MPs, contacted the CAND with questions, media requests and the feedback you received from your MPs. The information you provided helped inform our discussions with government, opposition parties and other stakeholders. As a result of our concerns around C-51 and our meetings with government, the CAND was asked to participate in a multi-stakeholder reference group with respect to the development of the regulatory framework that would be required to align with a modernized Food and Drug Act. This work has been put on hold as a result of the election call. Following the election, the CAND will continue to work with government and other stakeholders in addressing our concerns regarding access to substances.

On July 18, 2008 the First Ministers issued a communiqué announcing changes to the Agreement on Internal Trade (AIT) with respect to Chapter 7 – Labour Mobility. The Premiers directed that the amendments be made by January 1, 2009 and compliance by April 1, 2009. The latter date may be extended. The amendments provide that, "Any worker certified for an occupation by a regulatory authority of one province or territory shall be recognized as qualified to practice that occupation by all other provinces and territories; and such recognition shall be granted expeditiously without further material training, examinations or assessment requirements."

While jurisdictions can file "legitimate objectives" the amendments present issues for the profession due to the different scopes of practice in regulated jurisdictions and the potential for unqualified practitioners to become regulated in as yet unregulated jurisdictions. In order to comply with Chapter 7 of the AIT, the profession developed a Mutual Recognition Agreement (MRA) in 2001. The MRA was signed by all regulatory boards as well as the CAND and the provincial associations in unregulated provinces. The First Ministers have now removed the emphasis on MRAs as a Chapter 7 compliance tool. The signatories to the naturopathic MRA met in September, along with government representatives, to discuss the impact of the amendments on the profession and to develop a strategy for moving forward. A further meeting is planned for early in the New Year.

With the election call all work on Government Committees, Advisory Panels and Review Boards in Ottawa ceased. By the time you receive this issue of the *Vital Link*, we will know the results of the October 14th election and the CAND will be engaged in renewing and/or developing relationships with the Minister of Health, Opposition Party Health Critics and MPs.



Dr. Zoltan Rona MD, medical editor of the Encyclopedia of Natural Medicine. "I love my **SaunaRay**. It has helped my patients to overcome chronic illnesses where other methods did not work."

Dr. Alan C. Logan ND, Harvard Medical School, recommends only **SaunaRay** infrared saunas in his book, The Brain Diet 2006

Dr. Alison Bested MD, Fibromyalgia specialist. Trusts her patients in **SaunaRay**. "This company specifically manufactures infrared saunas with materials friendly to chemically sensitive, chronic fatigue, and fibromyalgia patients." From her new book, Hope and Help for Chronic Fatigue Syndrome and Fibromyalgia. 2006

Proven Results for Heart Disease, Fibromyalgia, Chemical Sensitivities, Asthma, Arthritis, and Psoriasis.

SaunaRay

Far Infrared Saunas

Medical-Grade Saunas
Manufactured by hand in Canada.

1-877-992-1100 www.saunaray.com

COMMUNICATIONS AND MEDIA UPDATE

Lisa Westlake, CAND Communications Officer

It is a pleasure to be on board as a member of your team. My name is Lisa Westlake and in August, I began a new and exciting position as the Communications Officer for the CAND. I've been asked to tell you a little bit about myself here and, I am more than pleased to do so and let you know what we have in store with our communications and marketing plan.

As an accomplished Journalist and Public Relations Professional, I bring with me more than eight years in television news, four years in Public Relations for the corporate sector and over ten years in event management and fundraising for both the profit and non profit sectors. My career highlights include successful fundraising events, increasing public visibility and support for corporate and non profit organizations and, to date, I have managed more than 25 large scale events including profit sector events with attendance levels of over 20 thousand.

As a former News Anchor and Producer, I have a clear understanding and 'know how' when it comes to generating media interest. I graduated from Brock University's Communications program and pursued additional studies in broadcast journalism and layout and design. I also freelance as a professional photographer and videographer… a hobby I began about five years ago.

Since September, I have been sifting through CAND and naturopathic medicine materials in general, to grasp a feel and understanding for our existing means of communication with the public, media and with Naturopathic Doctors. I have come across an extensive amount of information that has been simply fascinating and intriguing. In September, I was also able to meet the provincial and regulatory board representatives of the CNCC. I have found, the introduction to the two, have made my position all the more exciting.

I am eagerly looking forward to assisting the CAND with its communications efforts. Further updates on our communication schedule will be available in our monthly e-link.

ECOHOLIC CONTEST WINNERS

Last issue we asked ND members to send us their top five recommendations for encouraging patients to become more environmentally conscious and/or the top five things they are doing to make their clinic or workspace more environmentally sound.

CAND members from all over the country submitted a wide spectrum of eco-tips, ranging from helpful recommendations for patients to employing more advanced measures of conservation within their clinics.

The "top five" entries are listed to the right. Each winner will receive a copy of NOW Magazine columnist Adria Vasil's important book, *ECOHOLIC [when you're addicted to the planet]*.

The fact that we received so many excellent suggestions made selecting the winners difficult. The CAND will be listing all contest responses on the environmental resource page in the members-only portion of the CAND website. We thank everyone who responded and encourage you to keep up the excellent eco-friendly work! Stay tuned for more CAND member contests.

"Place a 'no junk mail/no ad mail' sign on your mailbox and confirm with Canada Post that you do not want to receive junk/ad mail. Most households dispose of 88% of the mail they receive!" – Elisabeth Bastos, ND

"Regular power outages! Practicing on occasion by candlelight can be interesting as well as environmentally friendly!" – Tamsyn Freeman, ND

"All of our paint and flooring is of the highest environmental caliber, low VOC water based paints and sea grass flooring. My desk, recycling bin and garbage pail are made of reclaimed wood." – Howard Owens, ND

"[Our clinic provides] maps of our county's local growers and organic growers when reviewing diet diary [a patient put together the map]." – Paul Saunders, ND

"Switch your alarm clock for the old school tickers. This reduces the amount of electrical energy in your bedroom and minimizes the stress on the nervous system by waking up to that awful buzzing sound!" – Jennifer Tanner, ND

Think blue!

At **BIOMED**, we are proud to lead the industry with new and exciting educational programs

- **BIOPUNCTURE AND ISOPATHICS**
- **UNDERSTANDING FUNDAMENTALS OF MILIEU THERAPY AND PLEOMORPHISM**
- **INTRODUCTION TO PSYCHOSOMATIC ENERGETICS - LEVEL I**
- **TELEWEBS**

Watch for upcoming seminar dates near you.

Call us NOW to reserve your seat!

1.800.665.8308

For more information, log on to www.biomedicine.com

* BIOMED seminars are eligible for CE Credits

Biomed Supplements • Nestmann Pharma • Sanum Remedies • Rubimed Remedies • Food State Nutrients Series

INNOVATIVE, DIVERSE, EFFECTIVE

The choice of health professionals

Work and life demands

Job and personal resilience

As Naturopathic Doctors, you advocate preventive and complimentary health practices aimed at preventing stress related illness. MediDirect® is the only program that covers wellness procedures and treatments recommended by Naturopathic Doctors. While we can't change your work and life demands, we can help by turning wellness expenses into 100% business deductions.

Toll Free 1-866-234-5162
www.medidirect.ca

MediDirect® is a third party administrator of Private Health Services Plans (Health Spending Accounts) for your business or organization in compliance with Canada Revenue Agency regulations

Progressive®

Introducing Our New Look!

- Professionally formulated and energetically tested
- Contain a wide array of both isolated and botanical nutrients including Green Food Concentrates, Mineral Citrates & Bioperine®
- Specifically designed for an individual's age, gender and activity level
- Packed in 100% pure vegetable capsules

Formulated By Mikhael Adams, B.Sc., N.D.

Mikhael Adams, B.Sc., N.D. has been involved in the development and formulation of vitamin and mineral supplements for over 20 years. Mikhael lectures throughout North America on a variety of wellness related topics and is the co-founder of the Renascent Integral Health Centre.

www.progressivenutritional.com

Canadian Association of Naturopathic Doctors
Professional Liability Insurance Program

OUR PROGRAMS ARE DESIGNED
TO MEET THE SPECIFIC NEEDS OF CAND MEMBERS.

We offer:

- Professional Liability Insurance *(Malpractice)*
- Commercial General Liability
- Small Business Package – for independent NDs

- Clinic Professional Liability Insurance *(Malpractice)*
- Clinic/Office Business Package

Whether you are a sole practitioner operating out of multiple locations or own and operate your own Clinic, our plans provide the professional insurance coverage you need.

Insurance Brokers Ltd.
Established 1923

Partners …. We've got you covered!

10 Adelaide Street East, Suite 400
Toronto, Ontario, M5C 1J3
Telephone: 416.366.5243 Toll Free: 1.877.427.8683
Fax: 416.862.2416
Contact: jfox@partnersindemnity.com

PHARMAZEUTISCHE FABRIK
DR.RECKEWEG&CO GMBH
BENSHEIM
Manufactured in Germany since 1947

R105 Cineraria Maritima

Eye Drops without alcohol – 10 ml

Nutritively supports the cornea, lens and vitreous body; anti-bacterial action.

Effective in conditions of:

- Cataracts
- Corneal opacities
- Conjunctivitis
- Overstrained eyes
- Inflammatory eye diseases

Can be used in conjunction with **R78**

R78 Conjunctivitis, cataracts

Oral administration – 50 ml

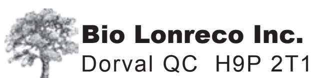
Contains 15 homeopathic remedies that have definitive affinities for effecting conditions of the eye:

- Conjunctivitis
- Cataracts
- Glaucoma symptoms
- Inflammatory signs
- Stabbing, burning pains
- Eyestrain
- Styes; redness, burning

Dr. Reckeweg also offers a wide array of homeopathic specialties which can help alleviate health conditions, such as:

- Cold & Flu
- Allergies
- Skin problems
- Lack of energy
- Fever, inflammation
- Headaches, migraines
- Musculoskeletal
- Digestion

Full time **health care professionals on staff** to answer your questions. For more information or to receive a product catalogue, please call us at:



Tel: 800.361.6663
514.631.6627

WHO IS RESPONSIBLE FOR PATIENT FILES

MANAGING YOUR INSURANCE RISKS:

Hal Huff, Managing Partner, Partners Indemnity Insurance Brokers

Who should have possession of patient files and what is the impact on an naturopathic doctor who does not have the file, should there be a patient complaint and/or a resulting malpractice claim?

The following questions have been arising at an increasing rate among NDs:

1. Who should possess the patient files?
2. How long should the patient files be maintained?
3. What should you do as an ND if you are leaving a clinic?

The attending ND should be responsible for maintaining their patient files. Depending on the jurisdiction of practice, the statutory period ranges from seven to ten years from the last patient visit. In Ontario recent changes to legislation with respect to the health records of children states that once a child turns 18, health care professionals are required to maintain the files for an additional period of 10 years. As an ND, it is incumbent upon you to be aware of the legislation regarding health records in your jurisdiction in addition to any record keeping requirements of your regulatory board or college.

The more complex question is what to do as an ND if you leave a clinic? Who is responsible for the patient files if you leave and what about the employer or partnership agreement in place at the clinic where you worked at the time of the treatment? The simple answer is that the burden of responsibility for maintaining patient file belongs to the attending ND.

To assist our clients in answering this complex question, Partners requested the assistance of British Columbia Legal firm Dolden Wallace Folick LLP, and Echelon Insurance Company, the underwriter of the CAND group malpractice insurance. Based on the review of existing case law, the requirements of regulatory boards and the underwriter we are able to provide the following information.

In Ontario, the BDDT-N requires that the attending ND maintain their patient files. These files are separate from any patient files that may already exist in the case of a multi practitioner clinic. We believe this is standard for most regulated provinces. The case law in British Columbia does favour the right of a departing professional to take their own records with them or least a copy. The issue of more then one practitioner working with one patient has not been addressed.

It is important to note that signing a contractual agreement can change the common right of a professional to ownership of the records they maintain. If an ND signs an agreement that all records are the property of the employer (or clinic) they cannot later assert their common law rights. This can lead to serious consequences if a patient files a complaint once the ND has left the clinic.

In our opinion the onus of responsibility must remain with the attending ND. In Ontario in the case of a complaint, the BDDT-N requires that the ND provide the original copy of the file. We can conclude that in the case of a complaint, life could become more complicated for the ND if he or she were unable to produce the original file. Therefore, it is advisable that the attending ND keep the original copy. This leaves open what to do in a case where more than one ND is attending to the patient.

Summary recommendations:

1. The attending ND retains the original copy of the patient file. This could be either hand written or electronic files depending on jurisdictional requirements.
2. In the case where more then one ND has attended the patient they should retain the original copy of their own notes to file.
3. The clinic should maintain a copy of the file.
4. Although the BC courts allow for the ND to contractually agree to give up the files, this is not recommended.
5. In the case of a complaint the original copy of the patient's file is required. While it could be obtained through Direction provided by the patient, this could prove awkward.
6. In the case of an insurance claim, insurers, their solicitors and the courts prefer original notes. Therefore make sure that you retain the files or have legal access to them.

Kaprex®

Targeted Joint Relief.*

EXPRESSYN™

Metagenics®
Genetic Potential Through Nutrition

Want to offer your patients an effective, safer way to target joint relief? Then recommend Kaprex.

Cell proteomic research, safety evaluations, human ex vivo research, and clinical studies suggest Kaprex provides effective relief of minor pain—without serious adverse effects.*[1-3]

- Shown to be comparable in PGE_2 modulation to a leading conventional approach, with a high degree of predicted safety for the heart, kidneys, GI tract, and liver*
- Modulates PGE_2 activity in vitro more effectively than many natural competitive ingredients*

Give your patients worry-free joint relief—order Kaprex today!*

East Coast **800.638.2848**, Chicago **874.438.9420**, Canada **800.268.6200** all other areas **800.692.9400**

1. Desai A, Konda VR, Hall A, Bland J, Tripp M. Comparison of anti-inflammatory activity of two selective kinase response modulators (SKRMs), *rho*-iso-alpha acids (RIAA) and tetrahydro-iso-alpha acids (THIAA), in lipopolysaccharide (LPS) mediated inflammation in RAW 264.7 macrophages. *The FASEB Journal* . 2007;21:702.
2. Lerman RH, Liska D, Tripp M, et al. Summary of effects of a reduced iso-alpha acid (RIAA) rosemary extract, and oleanic acid supplement on parameters of cardiovascular health. *Proprietary Clinical Research Report*. Gig Harbor, WA: Functional Medicine Research Center;2004.
3. Minich DH, Bland JS, Katke J, et al. Clinical safety and efficacy of NG440: a novel combination of *rho* iso-alpha acids from hops, rosemary, and oleanolic acid for inflammatory conditions. *Can. J. Physiol. Pharmacol*. 2007;85:872-883.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, or prevent any disease.

†U.S. Patent nos. 7,195,785; 7,205,151.

© 2008 Metagenics, Inc.

BUSINESS TIPS

MARKETING TO YOUR PATIENT BASE

Dr. Kim Bretz, ND

Naturopathic doctors often forget about the marketing that can be done within a practice – to existing patients – rather than focusing solely on new business.

Marketing to retain existing patients should be done for a couple of reasons. Firstly, your existing patient base can be a free – and deep – referral pool. Patient enthusiasm can provide your practice with momentum; just a few passionate fans can be the source of more referrals than you could have imagined. Secondly, you will always make more money from your existing patient base. Marketing to new patients, be it buying space in the Yellow Pages or local newspaper, will cost more money than keeping your current base. It doesn't mean that you shouldn't advertise to new patients, however, it's generally recommended that half of your marketing budget go to maintaining what you already have.

Consider adding the following items into your marketing plan:

Acknowledgement of the Little Things

This is a simple and usually inexpensive method that can include calls around major events – like a surgery – and thank you cards, especially for referrals. These little things remind patients that you think of them as an individual and can go a long way.

Information Sheets

All of your patients should be informed about each of the services you offer. Most patients will know your prices for a visit or acupuncture, but do they know you also offer a Heart Healthy program, including a ten-year cardiovascular risk profile with a follow-up cholesterol panel? What about food allergy testing, detoxification plans, injections, PAP smears or candida testing?

I went through a long time when I would see patients for successive visits and only by accident would information about an additional service I offered come up. The patient would give me a shocked look and comment on not knowing that a naturopathic doctor could provide these additional services. Never assume that your patients are aware of all your services. Be sure to educate them on everything you offer.

Provide all patients with an information sheet on joining the practice (if they didn't receive the info sheet on becoming a patient provide it during a follow-up visit), have more detailed information posted in your office and make it a priority for you, the other practitioners and clinic staff to INFORM patients of their options. It is your job.

I set a recommended treatment plan for all patients, including their future options such as food allergy testing, microbiology stool analysis or a follow-up blood test for ferritin or blood sugar readings. Your patients will make the choice as to whether they'll follow your plan, but you have to inform them of their choices, both for their health and to improve your practice.

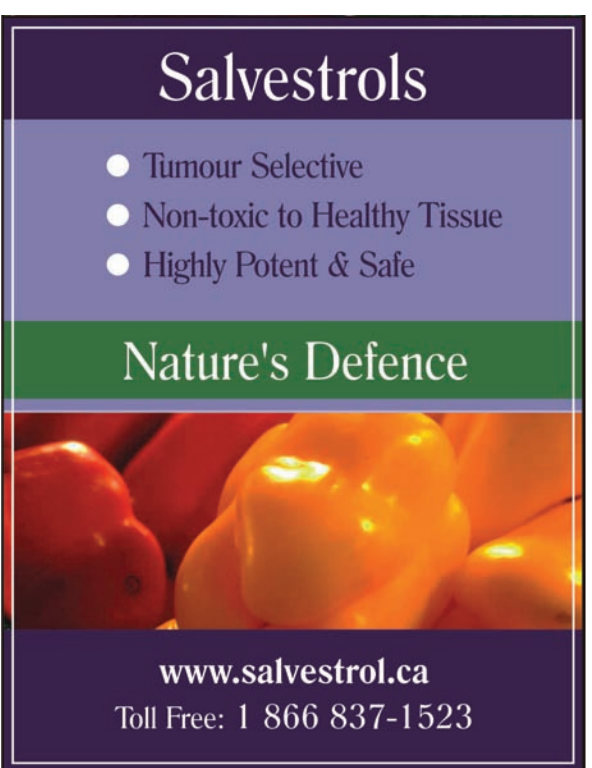
Newsletters & Blogs

Another great method of promoting within your business and informing patients of what you do, newsletters can also get your name out and provide information on your values and ideas. This can include recipes, ways to be more environmentally active or promoting other practitioners or businesses who are complimentary to you. Newsletters can be done as part of a website, emailed, mailed or posted in the office. You just need to ensure the information is reaching your target market; otherwise it's just an added cost without benefit.

As your practice grows, referrals will drive your practice, but to remain a strong businessperson as well as a fantastic and responsible naturopathic doctor, don't neglect to inform and market to your existing patient base.

About the Author

Kim Bretz graduated from CCNM and has practiced in Waterloo since 2002. In addition to her practice she has taught GI physiology and endocrinology for the Canadian College of Massage and Hydrotherapy, speaks for universities and corporations and is a regular contributor on women's health issues for the CHUM radio show Human Nature Network.



Some products cover up muscle pain.

Traumeel® works deep down to treat the cause.

Relieves pain caused by inflammation:

- Muscular pain
- Backaches
- Bruises
- Sports and repetitive stress injuries

For a free Traumeel sample or for more information, contact us at 1 888 879-4335 or at info@heel.ca.

www.heel.ca

ASSOCIATION UPDATES

ACADEMIC, REGULATORY BOARD AND

Canadian Naturopathic Foundation – www.cand.ca/index.php?id=cnf

A new board of directors and a new direction…

The Canadian Naturopathic Foundation held their annual general meeting in April and the new board of directors are: Dr. John Cosgrove, ND, President and Treasurer, Dr. Wayne Steinke, ND, Vice-President, Dr. Sherry Ure, ND, Secretary and Dr. Karina Wickland, ND, Board Member.

The CNF, originally operated as a BC Society, is now being restructured in order to operate as a national charitable foundation so as to benefit the growing naturopathic profession across Canada. Two board meetings have been held to discuss nationalizing the CNF by-laws since the AGM.

The CNF, with the assistance of the CAND, is also developing a marketing strategy to assist NDs, their patients and supporters. Stay tuned for updates.

In Memory of Dr. Larry F. Schnell DC, NMD

Dr. Lawrence "Larry" Frank Schnell, passed away on August 7, 2008 at the age of 78. Dr. Schnell practiced naturopathic and complementary medicine for over 50 years in both Canada and the United States. He graduated from the National College of Drugless Physicians, with a Doctor of Naturopathy and from the National College of Chiropractic with a Doctor of Chiropractic both in 1951. He owned and operated the Foothills Naturopathic Clinic, one of the largest naturopathic clinics in North America in Calgary Alberta for 28 years. He left Canada in 1988 and for the past 20 years practiced in Escondido, California.

Throughout his dedicated career, Dr. Schnell made numerous contributions to both the naturopathic and chiropractic professions. Highlights of his naturopathic career include: serving as President of the Canadian Naturopathic Association (now the CAND) from 1968 to 1974, Editor of the Canadian Naturopathic Journal from 1965 to 1968, lecturing at the CNA Annual Convention as well as authoring many documents and government briefs for both the Canadian Naturopathic Association and Journal.

Dr. Schnell was a licensed private pilot, a member of the Knights of Columbus and also sang in the choir at San Rafael Catholic Church for 18 years. His hobbies included medical and nature photography, skiing and fishing. He is survived by Donna, his wife of 56 years, six children, 14 grandchildren and five great grandchildren. He will be greatly missed by the many whose lives he touched both inside and outside of the naturopathic profession.

Saskatchewan Association of Naturopathic Physicians – www.sanp.ca

The Saskatchewan Association of Naturopathic Practitioners enjoyed another productive quarter. This spring saw a successful Naturopathic Medicine Week, as Dr. Wendy Presant-Jahn, ND was featured in a Regina news publication, naturopathic doctors Jonathan Bablad and Julie Zepp saw great turnouts for their lectures at Chapters in Regina. In Swift Current, Dr. Leshia Ferguson, ND hosted an open house in her clinic. Regina and Saskatoon mayors both officially declared May 4-11 Naturopathic Medicine Week showing the province's continued support of our medicine.

We also held our AGM in May and an SANP student representative – ND candidate Christian Gleisburg – will now be representing SANP at CCNM. We look forward to growing our student membership in the years to come as a way to entice new grads to set up practice in this growing province where naturopathic medicine is in great demand. Dr. Alana Barmby, ND will remain as president, Dr. Tim Mrazek, ND as vice president, Dr. Jacquie Fleury, ND as treasurer, Dr. Tanya Gokavi, ND as secretary. We are pleased to welcome Dr. Vanessa DiCicco, ND into the position of registrar.

Manitoba Naturopathic Association – www.mbnd.ca

The Manitoba Naturopathic Association is currently heavily involved in regulatory issues affecting the profession in our province. We are currently updating our regulations, and continuing to work with government departments and the profession at a national level on upcoming umbrella health legislation, the Mutual Recognition Agreement, and ensuring compliance with upcoming Fair Practices legislation in Manitoba. Our fundraising efforts are currently focused on the sale of our cookbook, written by MNA members. Our semiannual general meeting was held on June 14, 2008 and the MNA AGM was held November 1, 2008. We would like to welcome our 21st member, Dr. Sara Korsunsky, ND to the community!

Ontario Association of Naturopathic Doctors – www.oand.org

Naturopathy Act Update

The Transition Council to establish the new College of Naturopaths of Ontario is expected to be appointed this fall. The College, and new rules for the profession, are likely to be in place by 2010. The OAND will be actively engaged in providing the Transition Council with the perspective of the profession.

Prescribing Rights

Ontario is reviewing prescribing rights for non-physician practitioners, including Naturopathic Doctors. Given the importance of prescribing rights, Ontario's naturopathic stakeholders are collaborating on the profession's response. The review will be completed by March 31, 2009.

Business Excellence Initiative
The OAND is increasing efforts to support the success of ND practices with an expanded Business Excellence Initiative. This includes they annual business symposium this fall, and two new business e-learning modules on business planning and marketing naturopathic clinics. These modules are available to OAND members at no extra charge.

Graduate Assistance Program
The OAND's new Graduate Assistance Program targets support for new practitioners with a program providing guidance on the registration process, 5 mentoring teleconferences with experienced NDs, a comprehensive set of insurance solutions and the MAP program providing significant savings on services that NDs use everyday. For a full explanation of the benefits of GAP go to http://www.oand.org/Naturopathic-Graduates.

Quebec Association of Naturopathic Medicine – www.qanm.org

The QANM will hold its Annual General Meeting on Wednesday November 5th, 2008. In order to realize our vision of a professional order for naturopathic doctors we will be planning strategies for increasing the number of NDs in Quebec, increasing public awareness of the profession and educating the government on the importance of regulating the practice. Please contact Stephanie Ogura at sogura@sympatico.ca if you are able to join us.

Nova Scotia Association of Naturopathic Doctors – www.nsand.ca

NSAND continues its hard work implementing Bill 177, which provides legal recognition to naturopathic doctors as a health profession, valuing naturopathic medicine and the professional skills required to deliver naturopathic treatment. It is a multi-stage implementation process and the Government Affairs committee, led by Dr. Jyl Bishop-Veale, ND, has provided countless hours of behind-the-scenes work. With each week we get closer to our goal of protecting Nova Scotians from misrepresentation.

NSAND is also busy planning our AGM, which promises two days of team building and continuing education. We have invited Dr. Katherine Willow, ND of Carp Ridge Natural Health Clinic to speak about New German Medicine and to lead a forum of our Integrative Oncology cases. With sponsorship from Cyto-Matrix and local, vegetarian food provided by Local Source Catering it should prove to be a wonderful weekend for NSAND.

The New Brunswick Association of Naturopathic Doctors – www.nband.ca

NBAND has been busy over the past several months preparing an application to the New Brunswick Minister of Health for legislation within the province. NBAND is working together with a lawyer who has helped other health professions gain licensure in the maritime provinces. It is an exciting time for us: membership continues to grow, with ten NDs actively practicing in the province.

Newfoundland and Labrador Association of Naturopathic Doctors

Dr. Kathleen Mercer, BSc, ND remains the only Naturopathic Doctor in Newfoundland and Labrador with hopes of soon attracting more NDs to the region. During the past season Kathleen has been involved with the MRA/AIT development with the BDDT-N, CNCC and CAND.

Currently there is no legislation for naturopathic medicine in the province, however Kathleen is in the process of preparing information of the province's needs and hopes to meet with the Minister of Health in the New Year. The CAND, other provincial associations and governing bodies have been helpful in sharing information. An NLAND website will be launched soon. Out of province members are welcome to join as of January 2009.

Boucher Institute of Naturopathic Medicine – www.binm.org

It gives me great pleasure to share some changes and opportunities that are happening at the Boucher Institute of Naturopathic Medicine (BINM). We are going through a positive and thoughtful transition in leadership. Our current President and Executive Director, Dr. Patricia Wolfe, ND will be moving into the position of President Emeritus in September 2009. This opens up the position of Executive Director of the school.

BINM has built a strong foundation based on quality and naturopathic values since it was established in 2000. We are now entering a new phase of growth that will continue to be rooted in this foundation. With the responsibility for the overall leadership and direction of the Institute, the Executive Director we are looking for will embody our past values and lead us into the future of the naturopathic medical community with professionalism and high-quality standards.

We would like to share our gratitude and appreciation for Dr. Patricia Wolfe, ND who has contributed so much to making this opportunity possible. We are looking forward to her continued involvement in her future role as President Emeritus and anticipate further growth for the Boucher Institute of Naturopathic Medicine based on this expansion.

Cheryl-Dean Thompson
Chair of the Board of Governors

Canadian College of Naturopathic Medicine – www.ccnm.edu

Farewell to the Class of 2008

On Friday, May 23, CCNM honoured its 2008 graduating class at the College's 28th convocation at the University of Toronto's Convocation Hall.

"The individuals who sit in their gowns before us have the knowledge, skills and abilities to profoundly improve the lives of their patients, and of society," says President and CEO Bob Bernhardt.

"I have never been prouder to be associated with any institution than I am with CCNM, and these graduates are the best prepared that CCNM has ever produced. I believe they will change the future of health care and I am very proud to be associated with them, and feel so blessed to have interacted with them."

Graduates and guests were treated to an address by Susan Langley, M.S.Ed., who received the Honorary Doctor of Naturopathic Medicine Diploma. Susan sat on the CCNM Board of Governors for six years and was Chair of the Board during her last two years.

Mary Choi, this year's valedictorian, delivered a heartfelt speech that had all in attendance laughing as well as shedding a few tears. Daria Love, DC, ND, vice-chair of the CCNM Board of Governors, served as the master of ceremonies.

Boucher Naturopathic Students Association – www.binm.org

Our student body has reached near maximum capacity, with three full classes. We welcomed the CNME at the end of October for a site visit to review our eligibility for full accreditation.

Faculty and students alike are working hard on a variety of projects, one being the rooftop garden. The goal is to provide a medicinal herb garden and green space to enhance the educational, social and aesthetic experience for students, staff and the greater community of BINM. We are currently in stages of planning, designing and fundraising and are deeply thankful to the CAND for a $3000 grant that has helped support our vision.

This past summer the first Boucher Student Brigade traveled to Nicaragua to volunteer for the organization Natural Doctors International (NDI). NDI has established a medical clinic on the island of Omotepe, where naturopathic doctors provide free health care. Student brigades will assist NDs and bring much-needed medical supplies. A second brigade is gearing up for March of 2009.

Lani Nyklichuk
BNSA-CAND student representative

Naturopathic Students Association (CCNM) – www.nsa-ccnm.com

It's a new year, a new season, and a fresh start to life at CCNM again. With a new year comes a new group of first year students to embark on a fantastic journey towards our naturopathic profession. Unity Summit found its way to YMCA Geneva Park in Orillia this year where the first years for to bond, play cooperative games and come up with plays. They also had the pleasure of hearing from graduates of our school, naturopathic doctors Jason Lee and Kavita Sharma, who gave inspiring stories, words and wisdom to help carry the first year students onward in the program. The third years arrived back waiting on the arrival of NPLEX 1 exam marks, which may students wrote this summer. The grades arrived recently and we hope everyone was pleased with their grades. Best of luck to everyone in the new school year from all of us on the NSA.

Shawn Manske
NSA-CAND student representative

The following associations did not submit an update: BCNA, CNPBC, AANP, BDDT-N, PEIAND, YNA

Activated Air Machine ▲ Arpadol ▲
AveoTSD : Anti-snoring aid ▲ Aurum Liquidum ▲
Biovera ▲ BIO WISDOM ▲ Canplex ▲
CITRICIDAL ▲ Core Cellular Cleanse
▲ ElevateMe! Protein & Fruit Energy Bars ▲
Honso Kampo TCM ▲ Integrative Naturals ▲
Latero-Flora ▲ Liv H17 ▲
L-O-M Multi-Carotenoids ▲
Mauve Laboratories ▲ NORDIC NATURALS ▲
Natren ▲ Neprinol ▲ Nueva Hair Formulas ▲
Omega 7 ▲ PEKANA ▲ Radiant Health Saunas ▲
Rowan All Natural ▲ Santevia Water Systems ▲
Spatone ▲ Sterol 117 ▲ Torfspa ▲ Well Wisdom ▲
Wise Woman Herbals ▲ Zero Smoke

WE STAND UP.

For equality, sustainability, love and care for the planet.

So do our suppliers.

Ecotrend . . . A Conscious Company.

EcoTrend Ecologics Ltd. 125 West 3rd Avenue, Vancouver, BC Canada V5Y 1E6 Toll Free: 1.800.665.7065 Fax: 604.876.9846 email: info@ecotrend.ca www.ecotrend.ca

Patients in the know, know Complementary Therapies for HIV.

Tell your patients about CATIE: 1-800-2631638 or www.catie.ca

We have resources to help your patients get up to speed on alternative and complementary therapies. We can help your patients make informed decisions, with you, about their health.

Tous les services de CATIE sont offerts en français et en anglais.

CATIE

THE CNME'S ROLE IN THE NATUROPATHIC MEDICAL PROFESSION IN CANADA

Daniel Seitz, CNME Executive Director
Brian Henderson, CNME Vice President and Public Member, Perth, Ontario

The Council on Naturopathic Medical Education (CNME) plays an essential role in the ongoing development of naturopathic medicine in Canada. All regulated provinces require ND applicants to graduate from CNME accredited programs. And all CNME accredited programs in Canada and the U.S. must demonstrate on an ongoing basis that they meet the standards of the Council. (A full revision of those standards, which will place a greater emphasis on competency and outcomes based education, is close to being ready to distribute for public comment).

The Council is the only recognized accrediting agency for four-year, residential doctoral-level naturopathic medicine educational programs in Canada and the U.S. Its mission is to set the standards for naturopathic medical education and to ensure that the ND programs attain and maintain these standards. By ensuring high quality professional education, the Council also provides an important public service: patients seeking naturopathic care can be assured access to well-trained naturopathic doctors. The CNME was founded in 1978 and is incorporated as a not-for-profit organization. It currently recognizes two ND programs in Canada and five in the U.S., and as an organization has a strong bi-national identity and mission.

The Council is an essential cornerstone of the naturopathic medical profession's efforts in Canada to gain widespread recognition and licensure. Because it is the only recognized accrediting agency for our field, CNME accreditation plays a central role in establishing the credibility of naturopathic medicine with both provincial and federal legislators and regulators. CNME accreditation provides the only reliable basis upon which to distinguish between schools offering rigorous doctoral-level programs and those offering online and abbreviated programs—not to mention "diploma mills." If our field did not have a trustworthy accreditation process, it would be difficult, if not impossible, to gain external recognition for our profession.

A quick word on accreditation: accreditation is recognition granted to educational institutions such as colleges and universities ("institutional accreditation"), or to specialized and professional programs offered by educational institutions ("programmatic accreditation"), signifying attainment of a specified level of quality and integrity its programs and operations. This recognition entitles programs and institutions to gain the confidence of the general public, the educational community, governmental agencies, and other agencies and organizations. This recognition is extended primarily through private, independent entities such as the CNME. These accreditors establish educational standards and other criteria for accreditation, conduct on-site visits to assess compliance with the standards and criteria, and decide whether to recognize the institutions or the specialized and professional programs that have applied. Once recognized, the institutions and programs are monitored and periodically re-evaluated by their accreditors. CNME is primarily a programmatic accreditor, but it also evaluates the entire institution in order to verify that the interests of the naturopathic educational program are appropriately reflected within institutional processes of planning, decision-making and resource allocation.

The Council's decision-making body is the Board of Directors, which determines policy and procedures, evaluates and monitors naturopathic medicine programs, and makes decisions about accreditation and candidacy status (the initial step towards accreditation). The Board is composed of naturopathic doctors, representatives from accredited naturopathic programs, and representatives of the public. Currently, four of the twelve members of the Board are Canadian citizens. If you would like to find out more about the Council, check its website: www.cnme.org. If you are interested in becoming involved with the Council, one good way is to become trained to serve as a member of a team that visits naturopathic programs to assess compliance with CNME's standards (contact the Council directly if you are potentially interested in serving in this role or in some other way). If you are involved in legislative efforts involving naturopathic medicine, the Council is an excellent resource for information on educational standards and the accreditation process.

Run free,
live free...
of pain and
inflammation.
PROFESSIONAL QUALITY
Alpha Science Laboratories
INFLAM-FX
Anti-inflammatory Formula
500ml
GMP STANDARD
Inflam-FX
Liquid
Anti-Inflammatory
Formula
INTEGRA NUTRITION INC.
Integrative to Your Approach Integral to Your Success Integrity of Service
To Order Call Toll Free: 1-888-566-8297 www.integranutrition.com

PRODUCT BENEFITS

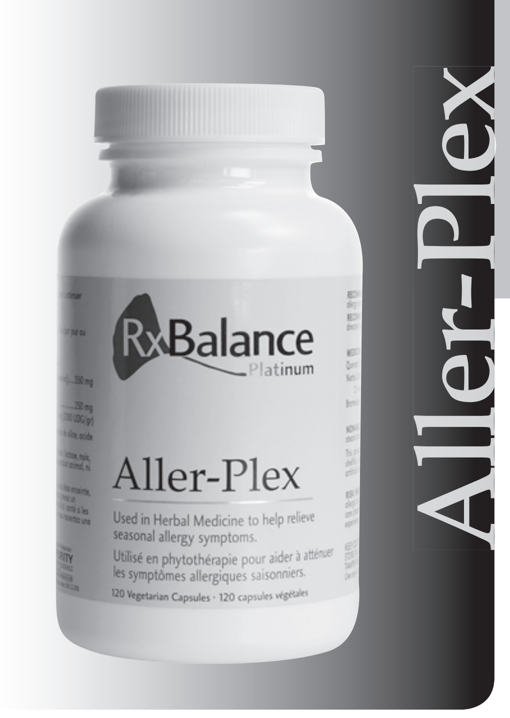
Used in herbal medicine to help relieve seasonal allergy symptoms. Combines the best available ingredients aimed at allergic rhinitis, allergies, and adjuvant symptoms.

Features:

Quercetin acts as an inhibitor of mast cell secretion by decreasing the release of tryptase, MCP-1, and IL-6; and downregulating histidine decarboxylase mRNA from mast cell lines.

Nettle has been traditionally used for the relief of seasonal allergy symptoms.

Bromelain is an anti-inflammatory proteolytic enzyme, thought to inhibit the generation of bradykinin at the inflammatory site via depletion of the plasma kallikrein, that activates quercetin.



Ingredients: Medicinal

Each capsule contains:

Ingredient	Amount
Quercetin (from pagoda *[Sophora japonica]* bud)	350 mg
Nettle (*Urtica dioica*) aerial parts 2:1 extract equivalent to 500 mg	250 mg
Bromelain (*Ananas comosus*) fruit	100 mg (2,000 GDU/gram)

Ingredients: Non-medicinal

Hypromellose, silicon dioxide, stearic acid.

Aller-Plex – 120 Vegetarian Capsules

Product # 403 198

Free Aller-Plex Monograph

Product # .403L58

ORDERING AND INFORMATION

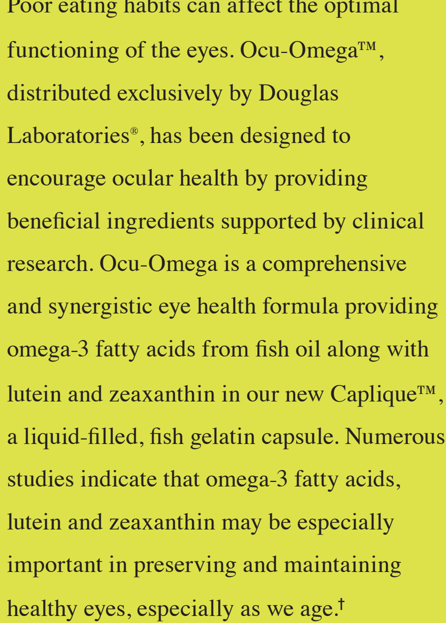
Tel: 1-866-831-4035
Fax: 1-866-358-6612
info@purityprofessionals.com

www.purityprofessionals.com

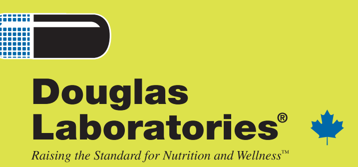
DOUGLAS LABORATORIES® PRESENTS...

Ocu-Omega™

RAISING THE STANDARD FOR OPTIMAL EYE HEALTH SUPPORT.


Poor eating habits can affect the optimal functioning of the eyes. Ocu-Omega™, distributed exclusively by Douglas Laboratories®, has been designed to encourage ocular health by providing beneficial ingredients supported by clinical research. Ocu-Omega is a comprehensive and synergistic eye health formula providing omega-3 fatty acids from fish oil along with lutein and zeaxanthin in our new Caplique™, a liquid-filled, fish gelatin capsule. Numerous studies indicate that omega-3 fatty acids, lutein and zeaxanthin may be especially important in preserving and maintaining healthy eyes, especially as we age.†

People who have more omega-3 fatty acids in their diet are 40% less likely to develop Age-related Macular Degeneration (AMD), a common cause of blindness in older people.
—Archives of Ophthalmology



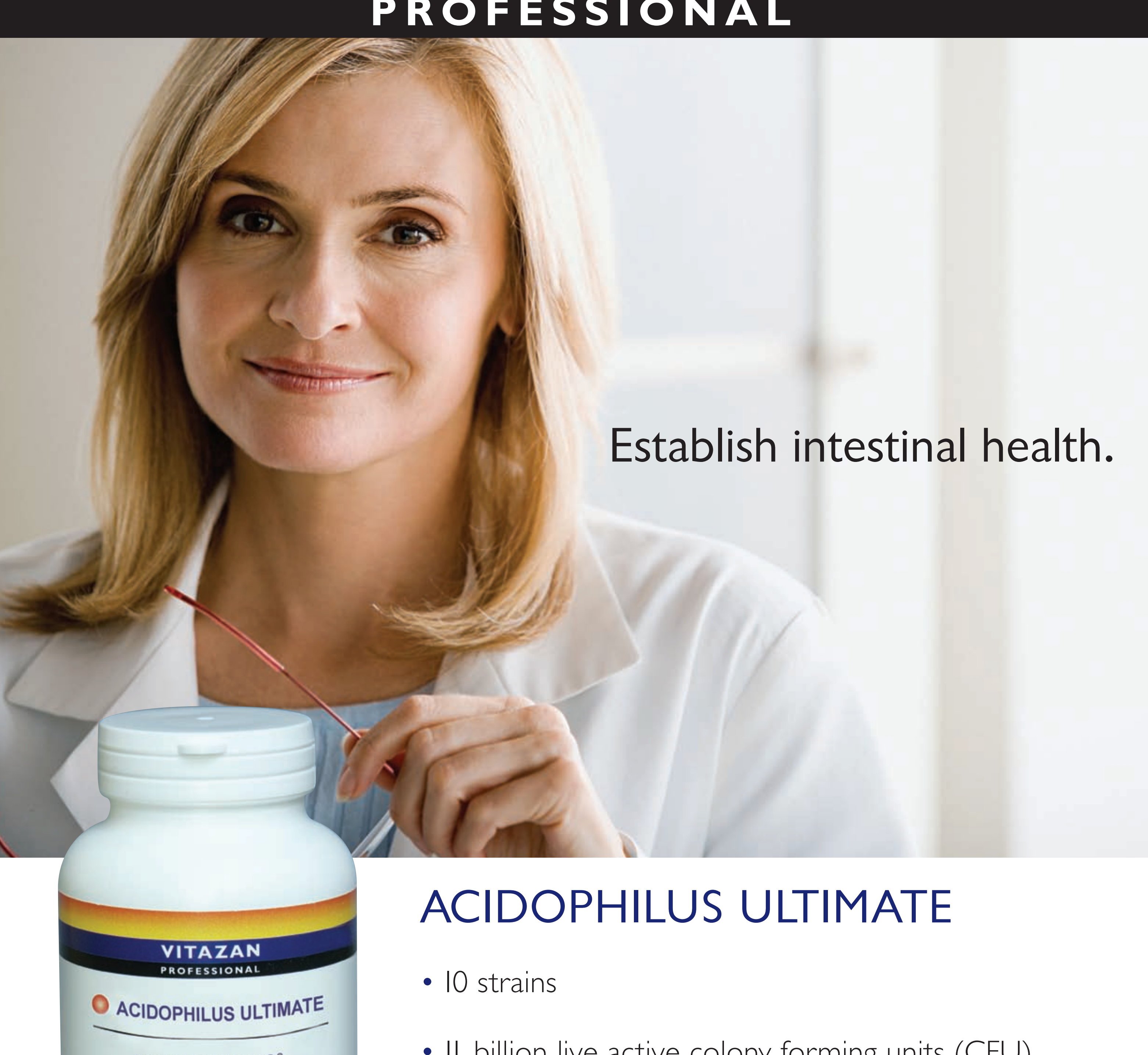
† These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Call today 866-856-9954 or 519-439-8424
522 Newbold Street • London, Ontario N6E 2S5 Canada • Fax: 888-220-9441 or 519-432-0071

www.douglaslabs.ca

VITAZAN

PROFESSIONAL



ACIDOPHILUS ULTIMATE

- 10 strains
- 11 billion live active colony forming units (CFU)
- Enteric coating to ensure safety of capsule contents
- Dual layered enteric coating opens only at the right pH and enzymatic intestinal environment

3405 F.X. Tessier, Vaudreuil-Dorion, QC, J7V 5V5 | T. 1.888.863.9274 | F. 1.800.676.8902 | info@vitazan.com

Natural Quality • Natural Quality • Natural

Astragalus Combo™

all the Balance You'll Ever Need.

Astragalus Combo™, a top seller, has just become more available!

Introducing Astragalus Combo™ Capsules used primarily for the following indications:

- To improve immune function and decrease the tendency to frequent colds, flu and infections.
- As a *qi tonic* for fatigue and exhaustion.
- As an adjunctive during radiation and chemotherapy to mitigate immune depression.

St. Francis Herb Farm encapsulates dried extracts rather than compromise the quality of liquid Astragalus Combo™.

P.O. Box 29, Combermere, ON K0J 1L0 • 1-800-219-6226 • www.**stfrancis**herbfarm.com

Astragalus Combo™

By Terry Vanderheyden, ND

Traditional Chinese medicine (TCM) has always recognized the value of tonics. TCM classifies tonic herbs according to their effects on the body—by the organ or system they address, for instance, and by their impact on the counter-balancing yin and yang types. Several herbs act to tonify a person's level of *qi* and are known as *qi* tonics. St. Francis Herb Farm® Inc., formulates just such a tonic— Astragalus Combo™ —that promotes overall health and stimulates immunity.

Qi tonics are valuable to anyone who wants greater energy, a stronger immune system and increased resistance to the flu, colds and other infections. The herbs in Astragalus Combo™ stimulate the adrenal gland to improve stamina, overcome fatigue and help the body cope with stress, overwork and chronic illness. This highly effective product is now available in vegicaps in convenient twice-daily dosages.

TCM practitioner and herbalist Subhuti Dharmananda, PhD, maintains that the use of *qi* tonic herbs is of primary benefit in adjunctive cancer treatments and for treating immune disorders in TCM. This method of therapy is called 'Fu Zheng' therapy, meaning 'to support normality' according to Dharmananda. "Virtually all the *qi* tonics have the ability to enhance production of white blood cells and enhance immune attack … The use of *qi* tonics in cancer therapy arises both from a traditional approach and from modern experimentation. From the traditional view, both the systemic and local abnormalities that develop with cancer are thought to be due to weakness and pathology of the *qi*. Thus, treatment is based on tonifying the *qi* and clearing the pathological *qi*."[1]

Proven effective during more than 20 years of clinical use, Astragalus Combo™ has garnered glowing reviews from naturopathic doctors nationwide. A British Columbia naturopathic doctor points out that: "Astragalus Combo™ is a wonderful formula for treating burnout, frequent infections of any kind, and those who are having a hard time getting over infections of any kind. Usually patients are feeling better in one week." An Ontario ND states further that, "I use Astragalus Combo™ extensively in my practice. I find it very useful for chronic allergies, auto immune and chronic immune deficiency."

Marketed to health food stores and natural pharmacies as Deep Immune , our Astragalus Combo™ formula is now available in both liquid tincture (1:4) form and as an encapsulated powder extract in a 5:1 ratio. St. Francis Herb Farm has chosen to encapsulate this as a dried extract as a way of maintaining the quality of the liquid version without compromise.

A meta-analysis of the effects that astragalus-based products have on the immune function of lung-cancer patients undergoing chemotherapy was published in 2006. The analysis concluded that astragalus-based herbal formulas definitely improve immune function and reduce the side effects of chemotherapy. This finding validates the use of astragalus in traditional Chinese medicine and helps explain the beneficial effects of Astragalus Combo™.[2]

This means that the essential ingredients are extracted from the herbs and dried to retain their medicinal potency. In contrast, many other manufacturers follow a different approach. What they do is make a powder by grinding up the herbs, roots and all. Since roots are difficult to digest, the active ingredients are poorly absorbed by the body.

There are several reasons that St. Francis Herb Farm® began to produce a dry, vegi-cap version of its best-selling Astragalus Combo™ liquid extract:

- Many people prefer the taste and convenience of capsules.
- Some people avoid products that contain alcohol (a component of most liquid herbal products) for a variety of reasons.
- Twice-daily capsules provide an optimal daily dose of a high-quality herbal product in an organic, affordable form.

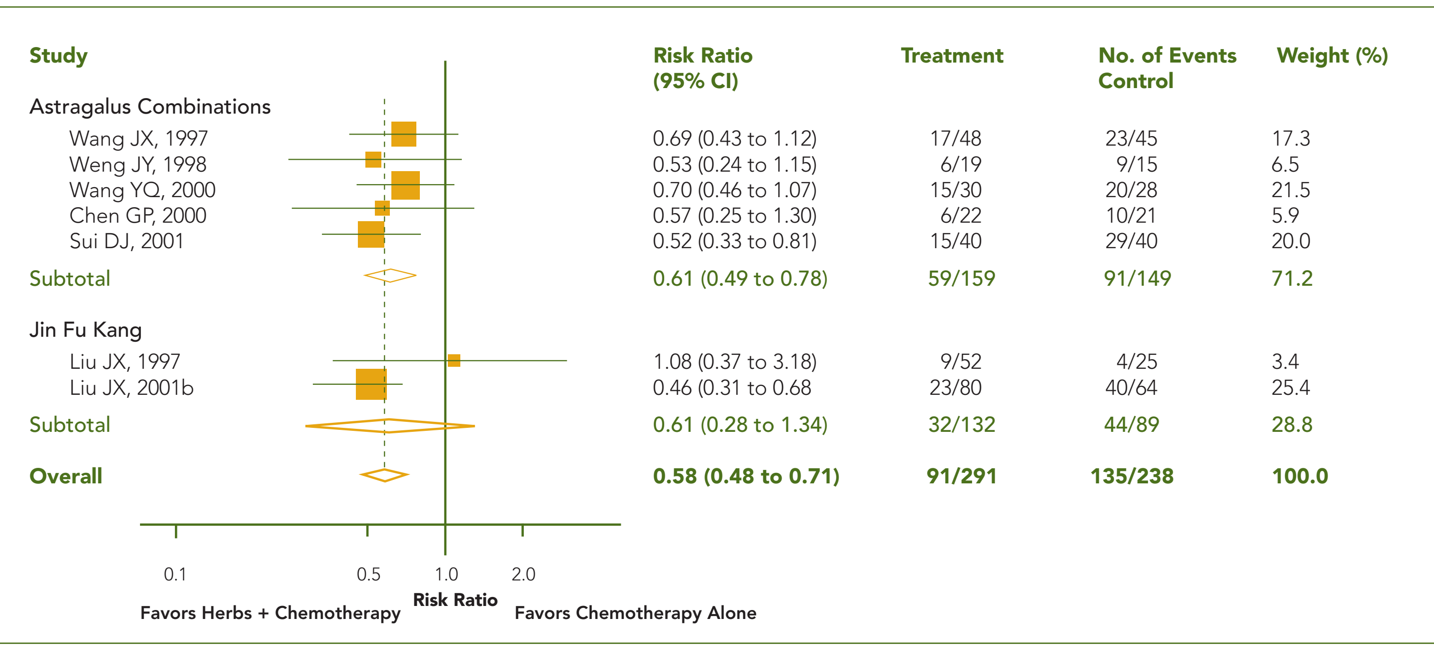
All our products, including Astragalus Combo™, are thoroughly tested for contaminants, including pesticide residues and heavy metals, and for microbial content.

For more information, see Dr. Anthony Godfrey's book, Deep Immunity. *An audio CD of the same is also available at no charge, upon request. Both can be obtained from* St. Francis Herb Farm *at:* www.stfrancisherbfarm.com.

References:

1. Dharmananda, Subhuti Ph.D. *The Treatment of Gastro-Intestinal Cancers with Chinese Medicine.* Portland, OR: Institute for Traditional Medicine, 2007. Accessed on-line from www.itmonline.org

2. McCulloch M, et al. "Astragalus-based Chinese herbs and platinum-based chemotherapy for advanced non-small-cell lung cancer: meta-analysis of randomized trials." *J Clin Oncol* 24(3), 2006:419-30.



Study	Risk Ratio (95% CI)	Treatment	No. of Events Control	Weight (%)
Astragalus Combinations				
Wang JX, 1997	0.69 (0.43 to 1.12)	17/48	23/45	17.3
Weng JY, 1998	0.53 (0.24 to 1.15)	6/19	9/15	6.5
Wang YQ, 2000	0.70 (0.46 to 1.07)	15/30	20/28	21.5
Chen GP, 2000	0.57 (0.25 to 1.30)	6/22	10/21	5.9
Sui DJ, 2001	0.52 (0.33 to 0.81)	15/40	29/40	20.0
Subtotal	0.61 (0.49 to 0.78)	59/159	91/149	71.2
Jin Fu Kang				
Liu JX, 1997	1.08 (0.37 to 3.18)	9/52	4/25	3.4
Liu JX, 2001b	0.46 (0.31 to 0.68	23/80	40/64	25.4
Subtotal	0.61 (0.28 to 1.34)	32/132	44/89	28.8
Overall	**0.58 (0.48 to 0.71)**	**91/291**	**135/238**	**100.0**

Fig 1. Six-month survival with *Astragalus*-based herbs and platinum-based chemotherapy versus platinum-based chemotherapy alone.[2] Reprinted with permission.
© 2008 American Society of Clinical Oncology. All rights reserved.

MEDI HERB®

Herbs for Supporting Adrenal Health

Stress is a reality of modern living, having both physical and emotional impact on our day to day life. MediHerb offers a great range of products to help your patients manage stress.

Tribulus Forte

- Maintains normal male and female physiology and function. It may also promote endurance, stamina and general well-being
- Standardized to contain 110 mg of furostanol saponins as protodioscin per tablet

Echinacea Premium

- Used traditionally to fight off colds, flus and infections
- MediHerb's Echinacea Premium combines the roots of *Echinacea angustifolia* and *Echinacea purpurea* to deliver 5.15 mg of alkylamides per tablet

Withania Complex

- Contains Withania, Licorice, Skullcap and Korean Ginseng
- May help increase endurance, stamina and general well-being
- Beneficial during times of stress

St John's Wort

- Traditionally used as a sedative for relief of restlessness or nervousness
- Standardized to contain 990 mcg of hypericin and 18 mg of flavonoid glycosides per tablet

Nevaton

- Combines St John's Wort, Schizandra, Damiana and Skullcap
- Helps relieve nervous tension, irritability, stress, mild anxiety, sleeplessness and insomnia

Valerian Complex

- Combines Valerian, Passionflower and Zizyphus
- For relief of irritability, anxiety and during times of stress

Premium Quality Liquid Extracts

MediHerb liquid extracts are manufactured to pharmaceutical GMP standard using our unique method of extraction. The **MediHerb 1:2 Cold Percolation** method is unlike any other herbal extraction process; no heat or concentration is used, both of which may cause damage to the delicate plant material.

- **Licorice High Grade 1:1**
- **St John's Wort High Grade 1:2**
- **Tribulus 2:1**
- **Withania 1:1**
- **Echinacea Premium 1:2**
- **Chamomile High Grade 1:2**
- **Skullcap 1:2**

Contact ProMedics to place your order today!

MH/769-CA

Toll Free: 877-268-5057 **Phone:** (604) 261-5057 **Fax:** (604) 730-7186
www.promedics.ca www.mediherb.ca

FEATURED PAPER

Xenobiotic-Induced Illnesses Associated with Single Nucleotide Polymorphisms of Cytochrome P450 and Conjugation Enzymes

Dr. Chris Spooner, BSc, ND

The complete mapping of the human genome in 2001 has lead to a significant amount of anticipation of the development of specific gene therapies and genetically tailored medications to address chronic illness. However, even given the completion of this monumental task, there is still the complex interaction between the genome and the environment that needs to be accounted for in the pathology of numerous disease processes. What is becoming apparent in an ever-increasing body of research is that different environments involving myriad factors such as dietary composition and supplements, environmental pollutants, and even social group interaction, family dynamics, and maternal nurturing are able to alter gene expression and change phenotype.

From a perspective that evaluates the effects of low dose, chronic exposure to commonly occurring environmental toxins (xenobiotics), there are two important DNA-environment interactions to evaluate.

The first is genetic variability in the enzymatic mechanisms directly associated with the elimination of xenobiotics, the cytochrome P450 enzyme system and the phase 2 conjugation enzymes. Genetic polymorphisms of these enzyme systems can affect the ability to clear xenobiotics resulting in increased risks for numerous conditions such as cancer, cardiovascular disease, diabetes, obesity, autoimmune conditions, endocrine disorders, and neurological conditions.[1,2,3]

The second DNA-environment interaction involves alteration in the mechanisms that control gene expression. This is referred to as environmental epigenomics and involves changes in DNA expression that take place without a change in DNA sequence. Epigenetic changes encompass an array of molecular modifications to both DNA and chromatin. The most studied of these are DNA methylation and changes to the chromatin packaging of DNA by histone modifications.[4,5]

This paper will review the major genetic polymorphism in the phase 1 and 2 enzyme systems that have been associated with increased risk for specific conditions and provide some clinically relevant observations. Epigenomics is a fascinating topic but due to space constraints is beyond the scope of this discussion.

Phase 1 and Phase 2: A Review

After entry to the body, the ***majority*** of xenobiotics undergo metabolic changes whereby lipid-soluble compounds are converted into polar, water-soluble products to aid in excretion from the body. During this process, xenobiotics are converted to more potent or less potent compounds than the parent compounds to render them ready for the next stage of processing. This system has evolved to accommodate the wide range of chemical compounds present in the environment and demonstrates a high degree of adaptability with levels of specific enzymes increasing or decreasing in response to gene activation or inhibition.

Many disease condition such as cancer, cardiovascular disease, diabetes, obesity, autoimmune conditions, endocrine disorders, and neurological conditions[6,7,8] can arise from the unregulated production of electrophilic reactive species that are generated during the biotransformation process. These electrophiles are chemically reactive with the basic cellular constituents protein, RNA and DNA, and may lead to disruption of normal cellular function, including causing greater toxicity and carcinogenicity.

The biotransformation and detoxification process takes place in two major phases.

Phase 1:
In phase 1 detoxification, the cytochrome P450 enzyme system uses oxygen to modify toxic compounds, drugs, or steroid hormones. This process is referred to as functionalization.

Phase 2:
During phase 2 or conjugation, metabolites produced in phase 1 are combined with endogenous molecules and are made less toxic and more water soluble and readily excretable through bile and/or urine.

Genetic variations, referred to as single nucleotide polymorphism (SNPs) in the genes coding for a particular enzyme can result in an increase or, more commonly, a decrease in the activity of that enzyme. Phase 1 and phase 2 reactions must be in balance. An increase or decrease in the activity of either enzyme system can be potentially harmful. Increased phase 1 clearance without a concomitant increase in phase 2 can lead to the production of intermediates that may be more toxic than the original toxin. Examples of this include benzo (a) pyrene, a polycyclic aromatic hydrocarbon that is a common product of combustion and is a highly carcinogenic compound, and acetaminophen (Tylenol). Both of these substances require activation by cyp450 enzymes.

At the other end of the spectrum is a decrease in phase 1 clearance. Reduction in phase 1 activity permits greater distribution of a xenobiotic throughout the body and increases the time that the substance has to interact with tissues and cellular elements. Numerous

adverse drug reactions result from a decreased capacity for the body to clear drugs them from the system.

Cytochrome P450 Phase 1 Enzymes

Cyp450 refers to a collection of enzymes that have been classified into 10 families based on amino acid sequences, 58 of which are found in humans.[9] They are designated by a family number followed by a subfamily letter which may be followed by the number for an individual enzyme form i.e. cyp450-3A4. The multiple forms of cytochrome P450 can be differentiated by apoprotein moeities and substrate specificities. In mammals cytochrome P450 enzymes are found in the endoplasmic reticulum of the liver, kidney, small intestine, lung, adrenal glands, and all other tissues except striated muscle and RBCs.

The level of cytochrome P450 in the liver can be **increased** by the administration of **inducers**, which stimulate de novo protein synthesis. This process requires gene transcription and a longer period of time. A listing of the most common cytochromes with their substrates (which medical drugs are cleared by which cyp) as well as inducers and inhibitors can be found at www.drug-interactions.com.

Phase 2 Conjugation Enzymes

The conjugation process transforms xenobiotics to water-soluble polar compounds. The process requires energy in the form of ATP and the presence of a conjugating agent (usually a nucleotide). Examples include UDP-Glucuronic acid, which enzymatically reacts with a number of nucleophiles. The tripeptide glutathione GSH, through action of enzymes (GSH tranferases) reacts with numerous electrophiles; the products of which are excreted in urine as mercapturic acid. Any change in the capacity to carry out these steps has a profound effect on the biological activity of toxic compounds.

Conjugation is almost exclusively observed for foreign chemicals, with oxidation, reduction, and degradation usually used for breakdown and incorporation or nutrients. Types of conjugation include:

1. Acetylation
2. Acylation (peptide conjugation with amino acids)
3. Sulfur conjugation (with sulfates, GSH, and rhodenase)
4. Methylation
5. Glucuronic acid conjugation

Pollutant overload, which may initially stimulate these processes, may eventually overstrain or even stop the phase 2 process.

Genetic Polymorphisms

SNPs in phase 1 and phase 2 enzymes are extremely common. The presence of one or more SNPs can have profound implications for the risk of developing certain diseases when there is exposure to one or more xenobiotics. It is important to recognize that a given SNP does not imply that the individual is doomed. On the contrary, this knowledge can prove to be a valuable tool in avoiding numerous serious implications ranging from developing a specific pathology to adverse drug reactions. Relevant to the practice of naturopathic medicine is the clinician's ability to affect the activity of phase 1 and phase 2 enzymes and decrease the hazards to toxic intermediates through the application of specific foods and nutrients.

Numerous plant-based phytochemicals have demonstrated the ability to effect phase 1 enzymes. Plants from the cruciferous family, (broccoli, brussel sprouts, cauliflower, watercress, and cabbage) garlic, onions, soy, grapes, berries, green and black tea, and herbs such as rosemary, basil, turmeric, cumin, poppyseed and black pepper have been found to either improve phase 1 and/or phase 2 enzyme activity.

At this point a brief summary of the substrates, inducers, and inhibitors is warranted for specific cyp450 and conjugation enzymes. Through directed inquires during the patient interview it is possible to assess unique or idiosyncratic reactions to specific medications, supplements, and xenobiotics. This provides the clinician with an opportunity to evaluate potential SNPs. Ultimately, genomic profiling can determine this conclusively, however, physicians familiar with the specifics of cyp450 and conjugation SNPs will find that they are better able to implement traditional naturopathic 'detoxification' regimens ensuring improved clinical outcomes.

Phase 1 Substrates, Inducers and Inhibitors

An understanding of the interaction between cyp450 enzymes, substrates, inducers, and inhibitors can prove clinically useful when confronted with complex symptom pictures.

The level of cytochrome P450 in the liver can be increased by the administration of inducers, which stimulate gene transcription and de novo synthesis, or decreased via direct inhibition with inhibitors. Table 1 summarizes the major action and clinical implication of the major cytochrome p450 enzymes.

Alterations in enzyme activity can present as adverse reactions to various compounds, be they pharmaceutical or naturally derived. Investigation of patients' reactions to medications, supplements, and other chemicals can provide clues to the activity of both Phase 1 and Phase 2 enzymes. Inhibition of an enzyme can prolong a medication's half-life resulting in adverse reactions to medications that are metabolized by that enzyme.

Table 2, adapted from http://medicine.iupui.edu/flockhart/table.htm lists the major substrates, inhibitors, and inducers of the major cyp450 enzyme. Briefly, the CYP1 family of enzymes detoxifies polycyclic aromatic hydrocarbons (PAHs) that are produced by the combustion of organic materials. Examples include exhaust fumes and charbroiled meats. Enzymes from the 1B family are involved in the 4-hydroxylation of estrogen. CYP2A6 detoxifies nitrosamines and nicotine. CTP2C19 detoxifies proton pump inhibitors such as Prilosec and many anticonvulsants such as Valium. CYP2D6 detoxifies approximately 20% of all prescription drugs, including tricyclics, MAOIs, SSRIs opiates, anti-arrythmic agents, opiates, beta blockers, and cimetidine. CYP2E1 detoxifies nitrosamines and ethanol. CYP3A4 detoxifies over 50% of all prescription medications and most steroid hormones.

Genetic polymorphisms become relevant in this discussion as they determine the effectiveness of the specific enzyme to metabolize various xenobiotics.

Table 1. Cytochrome P450 Phase 1 Enzymes: Function and Clinical Implications of Polymorphisms

	Summary	Clinical Significance
CYP1	Cytochrome P450 1A1 is responsible for detoxifying many polycyclic aromatic hydrocarbons (PAHs) produced from the combustion of organic materials (cigarette smoke, charbroiled foods). These polymorphisms are easily induced by moderate exposure to PAHs. Hyperinduction can generate mutagenic metabolites and oxidative stress, increasing risk of developing colon, lung, & breast cancers.	• Polymorphisms convey a higher capacity for induction with toxic exposure (2X) [11045797 – Observational] • Moderate increased risk of tobacco-related cancers (lung, esophagus, head & neck) [10667460 – Review] • Ovarian CA risk elevated in smokers with MspI [11303589 –CC study] • DNA adducts increase in smokers with breast cancer but not in non-smokers (additive effect with GST null and NAT slow) [11872636 – observational] • Low birth weight in infants born to maternal smokers (compounded ~3X with GSTT1 null) [11779261 – Case controlled] – no effect on non-smokers. • Systemic Lupus Erythematosis (SLE) (I462V) □ OR=2.59 [S von Schmiedeberg et al. RheumaDerm, ed Mallia and Uitto; Kluwer Academic/Plenum; NY, 1999] • Colorectal Cancer (sporatic): CYP1A1 Val allele conferred an increased OR = 1.57 [10769717 – CC]
CYP1B1	Cytochrome P450 1B1 is responsible for the 4-hydroxylation of estrogens. Polymorphisms have an increased catalytic efficiency, resulting in increased 4-hydroxylation, and may predispose the individual to estrogen-mediated carcinogenicity. Also used for detoxifying many polycyclic aromatic hydrocarbons (PAHs) produced from the combustion of organic materials (cigarette smoke, charbroiled foods).	• Breast CA V432L Leu/Leu OR=2.3; post menopausal OR=3.1 [10698474 – CC] - All SNPs showed an increased conversion rate of 4-hydroxylation (but as well 2-OH) of estradiol (2.4-3.4 increased catalytic efficiency – however, the ratio of 4-OH:2-)H was 3.0-3.8 compared to 2.0 for wildtype; • higher tissue levels of 4-OH estradiol. [10910054 – in vitro] • Ovarian CA increased odds ratio [11303589 –CC study] • V/V genotype also had a higher incidence or estrogen sensitive breast CA [12010864 – nested CC; 9823305 – CC] • 4-OH:2-OH ratio higher in Val variants over Leu variants, BUT • Oxidation of benzo-a-pyrene higher in Leu variants [11465393 – in vitro] • Head and Neck CA in Smokers (V432L) - Smokers vs non-smokers OR=4.53 - 20X more likely to have mutations in p53 gene - Increased OR if combined with GSTM1 or GSTT1 (12.8 and 13.4) [11389067 – CC]
CYP2A6	Metabolism of nicotine, nitrosamines, aflatoxin B1, halothane (a fluorinated anesthesia), disulfram (Antabuse); possibly protective for lung CA (weak association) since poor metabolizers need to smoke less for the same buzz.	• Reduced nicotine clearance in L160H [10663384 – in vitro] • Review of implications for nicotine/tobacco addiction [11805739] • Inhibition of 2A6 reduced lipid peroxidation secondary to halothane reduction [11506127 – in vitro] • Homozygous mutants had a 50% decreased risk of lung cancer; heterozygotes had no decreased risk [10739167 – small CT]
CYP2C9	Metabolism of many drugs including coumadin. Polymorphisms may cause significant adverse drug reactions.	• CYP2C9 SNPs (slow) eliminated the benefits of aspirin in reducing colon adenoma risk, but did not affect protective effects of other NSAIDS [11325819 – CC] • CYP2C9 metabolizes S-warfarin, the most active form – SNPs that reduce activity may explain a lot of coumadin toxicity. Patients with SNPs should begin at a lower therapeutic dose [11213860 – review]
CYP2C19	Cytochrome p450 2C19 is involved in the metabolism of H2 blockers (e.g., prilosec) and many anticonvulsants (e.g., valium). Slow metabolizers usually require substantially lower doses of these drugs for therapeutic effectiveness.	• Poor metabolizers had far greater treatment success in eradicating H. pylori (97.8%) than either heterozygotes (92.1%) or extensive (72.7%) metabolizers. Presumably, because of 2C19's role in proton pump inhibitor metabolism [11240980, 11434512 – clinical trial] • CYP2C19 polymorphisms affect action of PPIs by affecting clearance rates [11736724 – CT] • Scleroderma: 10X increased risk [2401127; cited in 11263781] • Acute Leukemia (AML and ALL) in slow metabolizers: OR=1.68 [11037802 – Observational]
CYP2D6	Metabolizes ~25% of all prescription drugs [Benet 1996, referenced in 9012401] ,including codeine, statin drugs, many anti-depressants (tricyclics, MAOIs, SSRIs), beta-blockers, and anti-psychotics.	• Acute Leukemia in slow metabolizers: OR=1.69; AML OR=2.38 for people >40 [11037802 – Observational] • Cholesterol lowering effect of simvastatin depends on CYP2D6 genotype. Slow metabolizers have more adverse reactions to statins, and in ultra rapid metabolizers, simvastatin has little effect on cholesterol levels, even at maximal doses [11753271 – CT]. Statins have affinity for 2D6, 3A4, and 2C9 • Multiple cutaneous basal cell carcinomas: number of lesions associated with 2D6 extensive metabolizers (*1) and with GSTT1 null (GSTM1 AB is protective) [9950241 – Observational] • Smoking: OR = 4.2 for ultra rapid metabolizers for heavy smoking vs. never smoking. Poor metabolizers were more common in non-smokers (3.6%) than in heavy smokers (2.0%) [10739167 – CT] • Poor metabolizers may have a slight protective effect for lung CA (OR=0.69) and a mild increased risk of developing Parkinson's disease (OR=1.32) [10739167 – meta analysis] however, the studies have yielded contradictory results and increased or decreased risk is quite small
CYP2E1	CYP2E is involved in the activation of nitrosamines, i.e., converting nitrates and nitrites in smoked meats to the pro-carcinogens nitrosamines.	• Colorectal Cancer (sporatic): CYP2E1*2 conferred an increased OR = 1.91 [10769717 – CC] • Hodgkin's and Non-Hodgkin's Lymphomas risk – and grading of NHL [11406608 –CC] • CYP2E1*2: Contributes to excessive alcohol consumption in men with wildtype alcohol dehydrogenase (ALDH2*1) • Esophageal Cancer and Dysplasia: CYP2E*1 (WT) conferred an OR = 3.2 and 3.1, secondary to increased nitrosamine activation
CYP3A4	CYP3A4 is used in the metabolism of • >50-60% of all drugs • expression can vary ~10-fold in vivo between individuals • Organophosphate insecticides (e.g., parathion) • Steroid hormones Individuals with polymorphisms have decreased detoxification capacity and are may be more susceptible to drug toxicity as well as prostate and breast cancer.	Enzyme Activity (assessed via 6□-hydroxy cortisol:cortisol ratio): Breast CA in Chinese Women: OR = 6.0 for women >45 and 2.2 for women <45, comparing highest: lowest activity of CYP3A4 (using 6-hydroxy cortisol:cortisol ratio). • Ratio 31.3% higher in CA patients > 45 • Putative Mechanism: CYP3A4 catalyzes the formation of 16-hydroxyestrone. CYP3A4 is involved in the 2-, 6-, and 15-hydroxylation of testosterone. 6-hydroxylation accounted for ~75% of steroid metabolites. 2- accounted for ~10% and 15- accounted for 3-4%

Numbers in brackets indicate references by PubMed ID #

Table 2. Cytochrome P450 Enzyme Substrates, Inhibitors and Inducers

	Substrate	Inhibitor	Inducer
CYP1	Chlorinated Benzenes Coumarin activation	Propofol N_20	PAHs: Cigarette Smoke Charbroiled Foods
CYP1B1	4-0H Estorgen		
CYP2A6	Nicotine Nitrosamines Halothane - anesthesia Methoxyflurane Valproic Acid Disulfram (Antabuse) Aflatoxin B1	Grapefruit juice Hepatitis A	
CYP2C9	Amitriptyline (Elavil) (demethylation) **Angiotensin II Blockers:** Losartin Coumadin S-Warfarin (active) Sulfa Drugs Imipramine (Tofranil) Isoniazid Hyzaar NSAIDS: Ibuprofin Oral Hypoglycemics: Tolbutamide Glipizide Phenobarbital Phenytoin (Dilantin) Tamoxifen Torsemide (Demadex) THC (marijuana) Viagra	Azole Antifungals: Itraconazole (Sporonox) Ketoconazole (Nizoral) Fluconazol (Diflucan) Metronidazole (Flagyl) Cimetadine (Tagamet) Disulfram Retonavir (Norvir) Gemfibrozil Valproic Acid	Rifampin
CYP2C19	Clomipramine (Anafranil)*, Diazepam (Valium)*, Dilantin, Imipramine (Tofranil)* **Proton Pump Inhibitors:** Omeprazole (Prilosec), Propanolol (Inderal)*, Premarin, Prevacid	Fluoxetine (Prozac) Fluvoxamine Omeprazole (Prilosec) Retonavir (Norvir) Sertraline (Zoloft)	
CYP2D6	Cimetadine (Tagamet), Codeine and Hydrocodone, Fexofenadine (Allegra), Loratadine (Claritin), Tamoxifen **Statins:** Simvastatin **Antidepressants:** **SSRIs & Tricyclics** Amytriptiline (Elavil), Clomiproamine (Anafranil), Doxepin (Sinequan), Fluoxetine (Prozac), Imipramine (Tofranil)*, Nortriptyline (Pamelor), Paroxetine (Paxil), Venlafaxine **Antipsychotics:** Haloperidol (Haldol), Perphenazine (Etrafon, Trilafon), Riperidone (Risperdal) Thioridazine (Mellaril) **Beta-Blockers:** Metoprolol (Lopressor), Penbutolol (Levatol), Propanolol (Inderal)*, Timolol (Blocadren)	Paroxetine (Paxil) Fluoxetine (Prozac) Sertraline (Zoloft) Fluvoxamine (Luvox) Nefazodone (Serzone) Venlafaxine (Effexor) Clomipramine (Anafranil) Cimetadine (Tagamet) Prolixin Haloperidol (Haldol) Perphenazine (Etrafon, Trilafon) Riperidone (Risperdal) Thioridazine (Mellaril) Thioridazine (Mellaril) Quinidine Ritonavir (Norvir)	
CYP2E1	Nitrates → Nitrosamines Acetaminophen Alcohol (ethanol) → acetaldehyde Ketones **Organic Solvents:** Benzene, Isoniazid (Laniazid)	Disulfram (Antabuse) Black Tea Broccoli	Alcohol (ethanol) Isoniazid (Laniazid)
CYP3A4	**Steroids:** Coricosteroids Testosterone, Estraderm, Estrace **Benzodiazopines:** Alprazolam (Xanax) Triazolam (Halcion) **Ca^{++} Channel Blockers:** Carbamazepine (Tegritol) Cisapride (Propulsid) **Macrolide Antibiotics:** Clarithromycin Erythromycin (NOT Azithromycin) **HMG CoA Reductase Inhibitors:** Atorvastatin, Cerivastatin, Lovestatin (Mevacor) **Protease Inhibitors:** Ritonavir (Norvir), Saquinavir (Invirase), Indinavir (Crixivan), Nelfinavir (Viracept) **Miscellaneous:** Amytriptyline (Elavil)*, Dexamethasone (Decadron), Diazepam (Valium)*, Glyburide (Micronase), Ketoconazole (Nizoral), Terfinadine (Seldane), Verapamil (Calan, Isoptin), Sertraline (Zoloft), Ventlafaxine (Effexor)	**Azole Antifungals:** Itraconazole (Sporonox) Ketoconazole (Nizoral) Fluconazol (Diflucan) Metronidazole (Flagyl) **Antibiotics:** Clarithromycin Erythromycin Cyclosporine Ritonavir Verapamil Grapefruit Juice Milk Thistle	Carbamazepine Dexamethasone Phenobarbital Phenytoin (Dilantin) Rifampin St John's Wort

SNPs – Specific Effects on CYP Function

CYP1A1

Cytochrome P450 1A1 is responsible for detoxifying many polycyclic aromatic hydrocarbons (PAHs) produced from the combustion of organic materials (cigarette smoke, charbroiled foods). Polymorphism in this enzyme results in more rapid inductions by moderate exposure to PAHs. Hyperinduction can generate mutagenic metabolites and oxidative stress, increasing the risk of developing colon, lung, and breast cancer.[10,11,12,13,14]

CYP1B1

1B1 is responsible for the 4-hydroxylation of estrogens. Polymorphisms have an increased catalytic efficiency, resulting in increased 4-hydroxylation, and may predispose the individual to estrogen-mediated carcinogenicity. CYP1B1 also detoxifies many polycyclic aromatic hydrocarbons (PAHs) produced from the combustion of organic materials (i.e. from cigarette smoke and charbroiled foods).

CYP1A2

1A2 is needed for oxidation of many carcinogens, dietary heterocyclic aromatic amines, aromatic arylamines, and tobacco-specific nitrosamines. This enzyme is only found in the liver and has shown a 70-fold variation in activity. Measuring caffeine clearance tests the function of 1A2.

CYP2C19

Polymorphisms in this enzyme group may cause significant adverse drug reactions. Individuals with this can also have poor metabolism of omeprazole, diazepan, proguanil, chlorproguanil, propranolol, citalopram, imipramine, amitryiptyline, mephobarbital, and hexobarbital.

CYP2D6

CYP2D6 metabolizes approximately 25% of all prescription drugs, including codeine, statin drugs, many anti-depressants (tricyclics, MAOIs, SSRIs), beta-blockers, and anti-psychotics. 2D6 is involved in the metabolism of over 30 widely used cardiac medications. 7-10% of caucasians have the “poor metabolizer” phenotype. These poor metabolizers have been associated with lower risk of developing lung cancer. Poor metabolizers are also less likely to become dependant upon codeine, dextromethorphan, and tobacco. These individuals smoke fewer cigarettes and can quit more easily[15]. Other variants lead to “ultrarapid metabolizers”[16] which has been linked to increased risk of smoking-related lung cancer.[17]

CYP2E1

2E1 metabolizes benzene, styrene, xylene, toluene, ethers, trichloroethylene, acetaminophen, methyl tert-butyl ethers, alcohols, halogenated anesthetics, fluoxetine, sulfadiazine, theophylline, and nitrosamines found in diet and cigarettes.[18] A ten-fold variation in 2E1 levels in human livers has been documented.[19] Higher rates of alcoholic liver disease among Caucasian drinkers are also found, as is fatal hepatotoxicity from acetaminophen overdose. Those with this polymorphism appear much more likely to be dependent upon alcohol.[20]

CYP3A4

CYP3A4 is the enzyme responsible for metabolizing the majority of prescription drugs and is important to consider in potential herb-drug interactions. 3A4 is the major enzyme responsible for activation of parathion and other organophosphates. The polymorphism leads to higher rates of tumor lymph node metastasis in prostate cancer.[21] The expression of CYP3A4 varies 40-fold in individual human livers, and metabolism of CYP3A4 substrates varies at least 10-fold in vivo. When groups were studied for single nucleotide polymorphisms (SNPs) of CYP3A4, five were found that caused metabolic changes with an incidence in different ethnic populations of between 2-4%.[22]

Phase 2 Polymorphism

Glutathione-S-Transferases (GST)

Glutathione-S-Transferases provide protection against oxidative stress (especially hydrogen peroxides from SOD activity, and regeneration of oxidized vitamins C and E) and detoxification of electrophilic compounds including oxidized products of free radical reactions (e.g., lipid peroxides, damaged DNA[23] and proteins), solvents[24], herbicides[25], fungicides, polycyclic aromatic hydrocarbons[26,27], and heavy metals (Hg, Pb, Cd). Decreased glutathione conjugation capacity may increase toxic burden and increase oxidative stress[28] resulting in a greater risk for various cancers [29,30,31,32,] neurological conditions[33], and fatigue syndromes.

N-acetyltransferases

N-acetyltransferase 1 is found in extra-hepatic tissues, while NAT2 is found predominantly in the liver and the gut. Both are used in the phase 2 acetylation of numerous xenobiotics, including heterocyclic aromatic amines. Slow acetylators do not clear toxins well[34], yet rapid acetylators increase O-acetylation of toxins that can actually make them more reactive.

If exposed to xenobiotics or other toxins, the risk of several cancers may increase, including lung, colon, breast, bladder[35], head and neck cancers, due to a decreased efficiency with which toxins are conjugated.[36,37]

Sulfotransferases (SULTs)

SULT1A1 acts to inactivate estrogens to water-soluble and biologically inactive estrogen sulfates. SULT1A1 also participates in the activation of some procarcinogens (heterocyclic amines and PAHs). Their sulfate esters bind tightly to DNA to form adducts.

SULT1A1 – His (low activity enzyme) was found in 41.6% of a study population. These women had higher rates of breast cancer with increased estrogen exposure.

SULT1A1 – Arg (normal activity level) showed increased rates of breast cancer with increased doneness level of red meat.[38]

Paraoxanase 1

Human serum Paraoxanase (PON1) is produced by the liver and is carried in the blood by HDL. PON1 hydrolyses the active CYP-produced oxon metabolites of organophosphate pesticides. This is the primary pathway for oxon clearance and infusions of PON1 in rats gives protection against organophosphate poisoning.[39] Unfortunately children have lower levels of PON1 when under the age of two and are, therefore, more susceptible to the adverse effects of organophosphates.[40]

Table 3. Phase 2 Conjugation Enzymes: Function and Clinical Implications of Polymorphisms

	Summary	Clinical Implications
GST	Protection against oxidative stress (especially hydrogen peroxides from SOD activity, and regenerating oxidized vitamins C and E) and detoxification of electrophilic compounds including oxidized products of free radical reactions (lipid peroxides, damaged DNA, proteins, etc.), solvents, herbicides, fungicides, polycyclic aromatic hydrocarbons, and heavy metals (Hg, Pb, Cd). Decreased glutathione conjugation capacity may increase toxic burden and increase oxidative stress resulting in a greater risk for various cancers and fatigue syndromes.	• GST polymorphisms should be seen as disease-modifying rather than disease-causing, likely via their role in cellular protection against cellular oxidative stress – a risk that appears to be additive with increasing numbers of polymorphisms to various isozymes. Thus, cancer susceptibility will be dependent not only on GST polymorphisms, but also on carcinogen exposure. Consistently, stronger data exists for cancer and chronic disease long-term prognosis based on GST genotype rather than on cancer/disease incidence, since most studies cannot control for toxic exposure. This relationship is seen in - Multiple sclerosis (GSTM1 and GSTP1 I104V; OR=5.0) [10680782—CT]; - Ovarian CA (poor survival with GSTM1 or GSTT1 null; and unresponsiveness to chemotherapy – 0% of patients with mutations survived past 42 months vs. 43% survival in patients with no GST polymorphisms)[10680782 – CT]; - Higher correlation with multiple lesions in basal cell carcinoma rather than with single lesion BCC (effect additive with CYP2D6 extensive metabolizers(wild type) [10680782 – Observational]; - Severity in cystic fibrosis [10195071 – Observational] • GST null: Squamous cell carcinoma of head and neck OR = 3.1 in light smokers; 3.9 in moderate smokers and 16.2 in heavy smokers with deletions [10506106 – CC] • GST Null: Mild increased risk of many cancers, especially with increased xenobiotic exposure [9298582 – REV] • GST Null: DNA adducts increase in smokers with breast cancer but not in non-smokers (additive effect with CYP1A1 and NAT slow) [11872636 – Observational] • GST null and Breast CA: increased level of BDA-PAH adducts in women with GSTM1 null genotype [10195071 – CC] • GSTT1 wild type and smoking increased risk of prostate CA -- ~30% of prostate CA risk attributable to the GSTT and smoking interaction[11142418 – Case matched] NB: GSTT1 has high expression in the prostate [10207629] • GSTT1 wild type and Prostate CA (OR=1.83) [10952095—CC] • Low birth weight in infants born to maternal smokers (compounded ~3X with CYP1A1) [11779261 – Case controlled] – no effect on non-smokers. Malignant Melanoma in Blond and Red-haired people ONLY. OR=2.2 for M1 null and OR=9.5 for both M1 and T1 null [10207629 – Case matched • GSTP1 A113V: Hodgkin's and Non-Hodgkin's Lymphomas – V/V genotype conferred an OR = 2.08; and higher in females, OR = 2.97 [11406608 –CC] • GSTP1 I104V – Severity of asthma and bronchial hyperresponsiveness (BHR) with the I allele (wild type) frequency being associated with increasing severity in lifetime smokers; the 104V/V genotype had a 9X lower risk of asthma (possibly due to a higher catalytic efficiency toward lipid peroxides, therefore reducing the ability of these ROS mobilizing arachidonic acid) [10806136 – obs]
NAT1 & NAT2	N-acetyltransferase 1 is found in extra-hepatic tissues, while NAT2 is found predominantly in the liver and the gut. Both are used in the Phase II acetylation of numerous xenobiotics, including heterocyclic aromatic amines. Slow acetylators do not clear toxins well, yet rapid acetylators increase O-acetylation of toxins that can actually make them more reactive. If exposed to xenobiotics or other toxins, the risk of several cancers may increase, including lung, colon, breast, bladder, and head and neck cancers, due to a decreased efficiency with which toxins are conjugated. [10667461 – review]	Systemic Lupus Erythematosis (SLE) (I462V) OR=2.59 [S von Schmiedeberg et al. RheumaDerm, ed Mallia and Uitto; Kluwer Academic/Plenum; NY, 1999] • Rapid acetylation; breast CA and well-done meat (OR =7.6) [11008907 – CC] • Lung CA (wild type, OR = 1.0; homozygous rapid, OR =4.0; hetero rapid, OR =6.4; hetero slow = 11.7) [9731715 – CC] • Lung CA rapid acetylators have relatively increased risk in heavy smokers; whereas the risk is greater in slow acetylators who are light smokers – both effects are increased with a concomitant GSTM1 null allele [11219770 – CC] • Breast CA and smoking; rapid acetylators have increased risk over slow acetylators (OR = ~10 vs. ~3) [10933269 – CC] • Bladder CA and smoking or occupational exposure and slow acetylators (OR= 1.42), but only with exposure [11751441 – CC] [meta analysis confirming data 11751441] • Colorectal CA and rapid acetylators: no association until fried meat intake was factored OR=6.04 [9230278 – CC]; similarly red meat RR= 5.82 [9699660 – prospective CT]
SOD1 & SOD2	SOD1 is found in the cytosol and uses copper and zinc as co-factors. SOD2 is found in the mitochondria and uses manganese as a cofactor. Both SOD enzymes convert reactive oxygen species into less reactive hydrogen peroxide. In both cases, the mutations are quite rare.	• SOD1 polymorphisms (nearly 70 identified) are associated with familial ALS [8446170 – obs]. Researchers speculate that the mutant SOD1 acts through a toxic gain of function which may involve generation of free radicals [8875253]. Review: 11467054. • Ala SOD2 is associated with - Parkinson's disease (19.3 vs 12.1%) [8806673 – obs] - Breast cancer in pre menopausal women (4X) and in post-menopausal women (2X) but ONLY IN WOMEN BELOW THE MEDIAN OF FRUIT AND VEGETABLE CONSUMPTION (vitamin E and C supplementation also eliminated the risk) [9973207 – obs] - Motor neuron disease (OR=2.9) (esp. sporadic ALS, OR=3.8) [10529750 – obs] • Val SOD2 is associated with an increased risk of idiopathic cardiomyopathy in Japanese men (OR=2.3) [10425186 – CC]
COMT	Catechol-O-methyltransferase (COMT) inactivates catecholamines and catechol drugs such as L-DOPA, epinephrine and norepinephrine. Reduced activity of COMT may play a role in neuropsychiatric disorders [8807664 – obs]	• 158M associated with velo-cardio-facial syndrome (VCFS) – 85-90% of people with VCFS are homozygous [8886163 – observational] • Alcoholism (type 1 – late onset): higher frequency of 158M allele in alcoholics. MM homozygote vs. wildtype OR = 2.51 [10395222 – CC] No association with early onset alcoholism [10898913 – obs] • SNP associated with increased anti-social behavior in schizophrenics [9109174; 9619160 – obs] and with suicide attempts [11204347 – obs] • WT (increased activity) associated with increased risk of chronic substance abuse [9259381—obs] • Ultra rapid cycling bipolar disorder associated with low activity (158M homozygous) [9702745 – obs]
SULT1A1	SULT1A1 acts to inactivate estrogens to water-soluble and biologically inactive estrogen sulfates. SULT1A1 also participates in the activation of some procarcinogens (heterocyclic amines and PAHs). Their sulfate esters bind tightly to DNA to form adducts. SULT1A1 – His (low activity enzyme) was found in 41.6% of a study population. These women had higher rates of breast cancer with increased estrogen exposure. SULT1A1 – Arg (normal activity level) showed increased rates of breast cancer with increased doneness level of red meat. [11219777]	
PON1	Human serum Paraoxanase (PON1) is produced by the liver and is carried in the blood by HDL. PON1 hydrolyses the active CYP-produced oxon metabolites of organophosphate pesticides. This is the primary pathway for oxon clearance and infusions of PON1 in rats gives protection against organophosphate poisoning. [1690462] Unfortunately children have lower levels of PON1 when under the age of two and are therefore more susceptible to the adverse effects of organophosphates. [4734200]	
Numbers in brackets indicate references by PubMed ID #		

SNPs of PON1 lead to increased toxicity from organophosphate pesticides.[41,42] PON1 is known to prevent peroxide accumulation on LDL both *in vivo* and *in vitro*.[43] While no clear association has been reached between the presence of atherosclerois and PON1 polymorphisms, there is an association with reduced PON1 activity and heart disease.[44]

Table 3 provides a thorough description of the phase 2 conjugation enzymes including the implications of genetic polymorphisms of these enzymes.

Summary

Detoxification is a basic tenet of naturopathic medicine and is one of the long held traditions of the profession. Long derided by the conventional medical model, it is becoming obvious that the observations made by our naturopathic predecessors have once again proven to be prescient. The growth of the field of toxicogenomics and pharmacogenetics is clearly a testament to the growing recognition that alterations in the ability of the body to remove xenobiotic compounds is a significant factor in disease pathology.

When confronted by patients presenting with complex issues, a careful history evaluating the timing of onset of symptoms and reactions to xenobiotics can prove highly useful. The inhibition and induction of phase 1 enzymes by medications and the symptoms that result can provide valuable clues about the genetic makeup of an individual. By utilizing the resources outlined in table 2, variations in an individual's capacity to metabolize xenobiotics as well as the potential for SNPs can be evaluated. Such information is useful when evaluating potential health issues for patients.

While the allopathic paradigm looks to improve the effectiveness of pharmacological agents and reduce adverse reactions, naturopathic physicians can use this information to expand on the naturopathic therapies that have served our patients so well and refine the effectiveness of our detoxification/cleansing regimens. This level of understanding of the interaction of environmental pollutants and genetics of phase 1 and 2 pathways can assist the conscientious physician in tailoring treatment plans to meet the unique needs of each patient and provide specific recommendations for disease prevention.

About the Author

Dr. Spooner received a B.Sc. in Biology from the University of Victoria in 1991 and his ND from the Canadian College of Naturopathic Medicine in 1998.

In 2003 Dr. Spooner applied for and was accepted to the position of Post Doctoral Fellow in Environmental Medicine at the Southwest College of Naturopathic Medicine Environmental Medicine Center of Excellence under the directorship of Dr. Walter Crinnion. After completing the fellowship in 2005 he continued instructing at SCNM as an Assistant Professor, teaching courses in toxicology, environmental medicine, nutrition and supervising student clinical rotations at the Southwest Naturopathic Medical Center.

He has been an advisor on CAM therapies to the board of directors of the American Association of Occupational Health Nurses. In addition he worked at the Phoenix Fire Department Medical Center where he was responsible for creating depuration programs and providing naturopathic health care the 3000 firefighters of the greater Phoenix area

Currently, Dr. Spooner is in private practice in Vernon BC. He continues to lecture across North America at naturopathic colleges and medical conferences.

References

1 Yajnik, C. S. Early life origins of insulin resistance and type 2 diabetes in India and other Asian countries. *J. Nutr.* **134**, 205–210 (2004).

2 Gluckman, P. D., Hanson, M. A. & Beedle, A. S. Early life events and their consequences for later disease: a life history and evolutionary perspective. *Am. J. Hum.* Biol. **19**, 1–19 (2007).

3 Lichtenstein p. et al . Environmental and Heritable Factors in the Causation of Cancer — Analyses of Cohorts of Twins from Sweden, Denmark, and Finland. NEJM. Volume 343:78-85 (2000)

4 Li, E. Chromatin modification and epigenetic reprogramming in mammalian development.Nature Rev. Genet. 3, 662–673 (2002).

5 Klose, R. J. & Bird, A. P. Genomic DNA methylation: the mark and its mediators. Trends Biochem. Sci. 31, 89–97 (2006).

6 Yajnik, C. S. Early life origins of insulin resistance and type 2 diabetes in India and other Asian countries. *J. Nutr.* **134**, 205–210 (2004).

7 Gluckman, P. D., Hanson, M. A. & Beedle, A. S. Early life events and their consequences for later disease: a life history and evolutionary perspective. *Am. J. Hum. Biol.* **19**, 1–19 (2007).

8 Lichtenstein p. et al . Environmental and Heritable Factors in the Causation of Cancer — Analyses of Cohorts of Twins from Sweden, Denmark, and Finland. NEJM. Volume 343:78-85 (2000)

9 http://drnelson.utmem.edu/cytochromeP450.html

10 Crofts F, Taioli E, Trachman J, Cosma GN, Currie D, Toniolo P, Garte SJ. Functional significance of different human CYP1A1 genotypes. Carcinogenesis 1994;15:2961-2963.

11 Ibid 9 (Eaton DL 2000)

12 Okada T, Kawashima K, Fukushi S, Minakuchi T, Nishimura S. Association between a Cytochrome P450 CYP1A1 genotype and incidence of lung cancer. Pharamacogenetics 1994;4:333-340.

13 Pastorelli R, Guanci M, Cerri A, Negri E, La Vecchia C, Fumagalli F, Mezzetti M, Cappelli R, Panigalli T, Fanelli R, Airoldi L. Impact of inherited polymorphisms in glutathione S-transferase M1, microsomal epoxide hydrolase, cytochrome P450 enzymes on DNA, and blood protein adducts of benzo(a)pyrene-diolperoxide. Canc Epidem Biomark Prev 1998;7:703-709.

14 Moysich KB, Shields PG, Freudenheim J, Schisterman E, Vena J, Kostyniak P, Greizerstein H, Marshall J, Graham S, Ambrosone B. Polychlorinated biphenyls, Cytochrome P4501A1 polymorphism, and postmenopausal breast cancer risk. Canc Epid Biomark Prev 1999;8:41-44.

15 Sellers E, Tyndale RF. Mimicking gene defect to treat drug dependence. Ann NY Acad Sci. 2000;909:233-46.

16 Ingelman-Sundberg M. Functional consequences of polymorphism of xenobiotic metabolizing enzymes. Toxicol Letters 1998;102-103;155-160.

17 Caporaso N, DeBaun MR, Rothman N. Lung cancer and CYP2D6 (the debrisoquine polymorphism): sources of heterogeneity in the proposed association. Pharmacogenetics 1995;5(S129): 115-125.

18 Tanaka E, Terada M, Misawa S. Cytochrome P450 2E1: its clinical and toxicological role. J Clin Pham Therap 2000;25:165-175.

19 Seaton MJ, Schlosser PM, Bond JA, Medinshy MA. Benzene metabolism by human liver microsomes in relation to cytochrome P450 2E1 activity. Carcinogenesis 1994;15: 1799-1806.

20 Howard LA, Ahluwalia JS, Lin SK, Sellers EM, Tyndale RF. CYP2E1*1D regulatory polymorphism: association with alcohol and nicotine dependence. Pharmacogenetics. 2003, 13(6):321-8.

21 Hashimoto H, Toide K, Kitamura R, Fujita M, Tagawa S, Itoh S, Kamataki T. Gene structure of CYP3A4, and adult-specific form of Cytochrome P450 in human livers, and its transcriptional control. Euro J Biochem 1993;218:585-595.

22 Dai D, Tang J, Rose R, Hodgson E, Bienstock RJ, Mohrenweiser HW, Goldstein JA. Identification of variants of CYP3A4 and characterization of their abilities to metabolize testosterone and chlorpyrifos. J Pharmacol Exp Therap. 2001, 299:825–831.

23 Sorsa M, OstermanGolkar S, Peltonen K, Saarikoski ST, Sram R. Assessment of exposure to butadiene in the process industry. Toxicology 1996:113:77-83.

24 Soderkvist P, Ahmadi A, Akerback A, Axelson O, Flodin U. Glutathione S-transferase M1 null genotype as a risk modifier for solvent-induced chronic toxic encephalopathy. Scand J Work Environ Health 1996;22:360-363.

25 Birner G, Werner M, Rosner E, Mehler C, Dekant W. Biotransformation, excretion, and nephrotoxicity of the hexachlorobutadiene metabolite (E)-N-acetyl-S-(1, 2, 3, 4, 4-pentachlorobutadienyl)-L-cysteine sulfoxide. Chem Res Toxicol 1998;11:750-757.

26 Hirvonen A, Nylund L, Kociba P, Husgrafvel P-K, Vainio H. Modulation of urinary mutagenicity by genetically determined carcinogen metabolism in smokers. Carcinogenesis 1994;15:813-815.

27 Grinberg-Funes RA, Singh VN, Perera FP, Bell DA, Young TL, Dickey C, Wang LW, Santella RM. Polycyclic aromatic hydrocarbon-DNA adducts in smokers and their relationship to micronutrient levels and the glutathione-S-transferase M1 genotype. Carcinogenesis 1994;15(11):2449-54.

28 Topinka J, Binkova B, Mrackova G, Stavkova Z, Peterka V, Benes I, Dejmek J, Lenicek J, Pilcik T, Sram RJ. Influence of GSTM1 and NAT2 genotypes on placental DNA adducts in an environmentally exposed population. Environ Mol Mutagen 1997;30(2):184-95.

29 Nakachi K, Imai K, Hayashi SI, Kawajiri K. Polymorphisms of the CYP1A1 and glutathione S-transferase genes associated with susceptibility to lung cancer in relation to cigarette dose in Japanese population. Cancer Res 1993;53:2994-2999.

30 Bruning T, Lammert M, Kempkes M, Their R, Golka K, Bolt HM. Influence of polymorphism of GSTM1 and GSTT1 For risk of renal cell cancer in workers with long-term high occupational exposures to trichloroethene. Arch Toxicol 1997;71:596-599.

31 Kelsey KT, Spitz MR, Zuo ZF, Wiencke JK. Polymorphisms in the glutathione S-transferase class mu and theta genes interact and increase susceptibility to lung cancer in minority populations (Texas, United States). Canc Cases Contr 1997;8:554-559.

32 Matthias C, Bockmuhl U, Jahnke V, Harries LW, Wolf CR, Jones PW, Alldersea J, Worrall SF, Hand P, Fryer AA, Strange RC. The glutathione S-transferase GSTP 1 polymorphism: effects on susceptibility to oral/ pharyngeal and laryngeal carcinomas. Pharmacogenetics 1998;8:1-6.

33 Stroombergen MC, Waring RH. Determination of glutathione S-transferase mus and theta polymorphism in neurological disease. Hum Exp Toxicol 1999 18(3):141-5.

34 Ladona M, Izquierdo-martinez M, de la Paz MP, de la Torre R, Ampurdanes C, Segura J, Sanz E. Phamacogenetic profile of xenobiotic enzyme metabolism in survivors of the Spanish Toxic Oil Syndrome. Environ Health Perspect 2001;109(4):369-375.

35 Puga A, Nebert DW, McKinnon RA. Menon AG. Genetic polymorphisms in human drug-metabolizing enzymes: potential uses or reverse genetics to identify genes of toxicological relevance. Crit Rev Toxicol 1997;27(2):199-222.

36 Brockmoller J, Cascorbi I, Kerb R, Sachse C, Roots I. Polymorphism in xenobiotic conjugation and disease predisposition. Toxicol Lett 1998;102-103:173-183.

37 Hein DW, Doll MA, Fretland AJ, Leff MA, Webb SJ, Xiao GH, Devanaboyina US, Nangju NA, Feng Y. Molecular genetics and epidemiology of the NAT1 and NAT2 acetylation polymorphisms. Cancer Epidemiol Biomarkers Prev. 2000 Jan;9(1):29-42

38 Zheng W, Xie D, Cerhan JR, Sellers TA, Wen W, Folsom AR. Sulfotransferase 1A1 polymorphism, endogenous estrogen exposure, well-done meat intake, and breast cancer risk. Canc Epidem Biomark Prev 2001;10:89-94.

39 Costa LG. Serum paraoxanse and its influence on paraoxon and chlorpyrifos oxon toxicity in rats. Toxicol Appl Pharmacol 1990;103:66-76.

40 Echobichon JD, Stephens DS. Perinatal development of human blood esterases. Clin Pharmacol Therap 1973;14(10:41-47.

41 Lee BW, London L, Paulauskis J, Myers J, Christiani DC. Association between human paraoxonase gene polymooprhism and chronic symptoms in pesticide-exposed workers. J Occup Environ Med 2003;45:118-122.

42 Cherry N, mackness M, Durrington P, Povey An, Dippnall M, Smith T, Mackness B. Paraoxonase (PON1) polymorphisms in farmers attributing ill health to sheep dip. Lancet 2002;359:763-64.

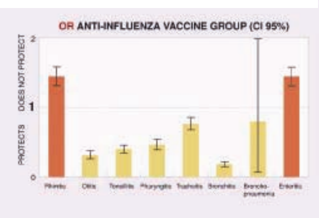
43 Watson AD, Berliner JA, Hama SY, La Du BN, Faull KR, Fogelman AM, Navab M. Protective effect of high density lipoprotein associated Paraoxanase: inhibition of the biological activity of minimally oxidized low-density lipoprotein. J Clin Invest. 1995;96:2882-2891.

44 Mackness B, Davies GK, Turkie W, Lee E, Roberts DH, Hill E, Roberts C, Currington PM, Mackness MI. Paraoxanase status in coronary heart disease, are activity and concentration more important than genotype?. Arterioscler Throm Basc Biol 2001;21:1451-1457.

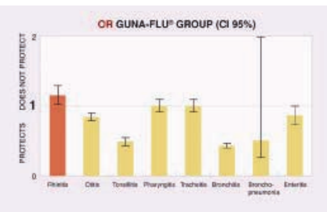
Simple & Effective Cold & Flu Solutions

Comparative evaluation of GUNA-Flu vs Flu vaccine for the prevention of influenza syndrome in pediatrics

This study highlights the important role of **GUNA-Flu** for influenza & para-influenza infections, even in cases of frequent antigenic drifts peculiar to the influenza virus.

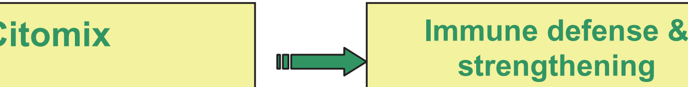


Diseases recorded with Flu Vaccine



Diseases recorded with GUNA-Flu

Contact GUNA Canada for a copy of the full study & a special offer.
1-877-486-2226



Stage	Product	Indication
Before	Citomix	Immune defense & strengthening
Before	GUNA-Flu	Influenza & Cold prevention
Before	GUNA-Tonsils	Recurrent tonsillitis & adentonsilar
Before	GUNA-Cell	Stimulates cellular metabolism
During	GUNA-Flu	Cold & Flu, chills, fever, body aches & fatigue
During	GUNA-Flam	Pharyngitis, laryngitis, otitis, bronchitis, fever
During	GUNA-Cough	Dry & productive cough
During	GUNA-Rhino Spray	Cold & allergic rhinitis
During	GUNA-Sinus Spray	Chronic & acute sinusitis
During	GUNA-Throat Spray	Sore throat & acute tonsilitis
During	GUNA-Virus	Viral respiratory & intestinal symptoms
During	GUNA-Cell	Stimulates cellular metabolism
During	GUNA-React	Infectious viral or bacterial inflamation
After	GUNA-Cell	Stimulates cellular metabolism
After	Citomix	Strengthens immune defense in recurrent illness

These statements have not been approved by any health authority

Vibrant Health / **GUNA Canada**, 600 Wilfrid Laurier Blvd, Mont St Hilaire, Qc, J3H 4X6
Tel: **1-877-486-2226** (877-GUNA Can), Fax: 450-536-1294, Info@GunaCanada.com, www.GunaCanada.com

Osteo SAP-90

- Osteo SAP supplies a compatible and complementary blend of New Zealand bovine microcrystalline hydroxyl appetite (MCHC) calcium, minerals, vitamins and amino acids to enhance bone building osteoblasts, cells from which bones are formed.
- Osteo SAP contains the ideal elemental 2:1 ratio of calcium and magnesium with other cofactors to enhance calcium uptake for the prevention of osteoporosis.

- Osteo SAP supplies the most readily absorbable form of calcium (MCHC), the form found in human bones clinically proven to restore bone loss. It is free from pesticides, hormones, antibiotics and animal feed.

All ingredients are guaranteed free from heavy metals, pesticides, volatile organics and impurities.

3405 F.-X. Tessier, Vaudreuil-Dorion, QC, J7V 5V5
Tel. 1 866 510-3123 • Fax. 1 866 510-3130
www.nfh.ca

FEATURED PAPER

A TCM PERSPECTIVE ON IDENTIFYING THE ROOT CAUSE OF DISEASE

Dr. Neemez Kassam, MSc, ND, RAc

Balance is the key to any Traditional Chinese Medicine (TCM) diagnosis and treatment. Beginning with the Taoist philosophy of harmony through balance and centering, TCM has always strived to treat the cause of imbalance in order to restore harmony, and therefore effectively treat the patient. In health care the cause of disease is not always identified by only considering the current symptom picture, but rather through looking at the entire history of symptoms and the pattern(s) of disorder.

"(Just) as grass has its roots, so disease has its roots. If one cuts off the leaves without eradicating the root, the grass will still stand there. Treating disease is like weeding. Treating a bowel when the disease is in the viscus or attacking the interior when the disease is in the exterior can not only mutilate and plunder the stomach qi but also enrich and assist the disease evil. How can (such) a physician be called a physician?"[1] This quote from *Extra Treatises Based on Investigation and Inquiry* describes the approach a TCM physician should use in his or her practice when trying to treat the cause. It outlines how location of the disease is not only important for treatment but also for preventing further damage to the body. The treatment is only as good as the understanding of the patient's condition. Thus, it is imperative that the differentiation be made between the root and branch of a condition.

In a naturopathic clinical practice we search for the instigating factor(s) by taking a detailed history, complaint-oriented physical, running blood work and other labs. In TCM the largest pool of information comes from the patient's symptoms. Inquiry is the best way to understand the severity of the condition, the strength of various organ systems, and the pathogenesis of the disorder. Inspection of the tongue and palpation of the pulses are the second most important tools to the less experienced practitioner. The understanding of pulse and tongue diagnosis takes years of practice and apprenticeship in order to properly diagnose without taking the symptom picture into consideration. Therefore it is through the patient's understanding of their own condition that we can better understand the nature of the disease and the abilities of the organ systems. It is important to remember to take an in-depth and thorough history of both physical and mental/emotional symptoms, including potentially damaging/traumatic events in the patient's life, intensity levels of all major symptoms (physical/mental/emotional), and a timeline of the symptoms as they appeared in chronological order. This knowledge will give a practitioner the basic information necessary to effectively assess the condition.

In TCM there are two terms used to identify the symptoms seen in practice: *Ben* and *Biao*. Ben is the primary, while biao is the secondary.[2] Some have extrapolated the two terms to mean root for the former, and branch for the latter. This interpretation is an oversimplification since the ben, or primary, generally refers to the set of current symptoms or the pattern of disease that created the disorder. It is, therefore, not always representative of the root. For example, a patient who complains of a common cold likely has an external pathogenic invasion. The pathogen and its associated symptom picture would be called the ben/primary. If this patient was susceptible to the pathogen due to an underlying deficiency in zheng qi or anti-pathogenic qi, the deficiency would be called the biao/secondary. In this example, the pathogen was labelled ben/primary because it unveiled the biao/secondary. It would be nearly impossible to identify the underlying weakness in zheng qi without having it challenged by an external pathogen. If you were to treat the ben/primary in this case, you would only be treating the branch and not the root. Therefore, treating the ben/primary in this case would lead to resolution of the current condition but would likely not prevent another attack.[2] It is not easy to find the ben and/or biao when dealing with multiple organ pathologies but with the correct tools, it is possible.

The TCM interpretation of symptoms is based closely on the eight principles: interior, exterior, cold, hot, excess, deficiency, Yin, and Yang. Interior/exterior refers to location, cold/hot refers to nature, excess/deficiency refers to intensity, and Yin/Yang refers to character. The location of the condition informs you where to treat and with which type of herbs and/or acupuncture points. Yin is an all encompassing term for cold, chronic, deficiency, and interior, while Yang is for hot, acute, excess, and exterior. An example would be a zang-fu diagnosis of chronic excess of damp-heat in the spleen and stomach. Zang-fu diagnoses take into account the eight principles and the organ dysfunction seen in the patient. Zang refers to dense/Yin organs while Fu refers hollow/Yang organs. While not all cases are strictly Yin or Yang in nature, they usually exhibit predominance in one or the other. This example has chronic, damp, and interior as Yin, plus excess and heat as Yang. The question in this condition is what to treat first and what is the root?

In any treatment plan, the digestive and urinary systems are often the first areas that need to be addressed. "If a patient suffers from febrile disease, which then turns into other pathologic

manifestations, treat the original febrile disease. But if a patient has febrile disease first, and then manifests fullness and stagnation in the middle jiao, treat the new symptom first. This is because a stomach that malfunctions cannot absorb food or herbs, and thus any treatment that neglects the stomach is wasted." [2] This last statement from the *Yellow Emperor's Classic of Medicine* is reiterated throughout the chapter on Biao and Ben, but the single most important statement from the chapter is: "When a condition is of mild nature, one can treat the biao/secondary and ben/primary simultaneously. When a condition is severe, determine a single approach of treating the ben/primary or the biao/secondary. If one sees obstruction of the bowels or urine, always treat these first." [2] When we fix the digestive and urinary systems, the patient should be able to absorb and metabolize the medications and eliminate toxins. But if we don't treat the gastrointestinal (GI) and genitourinary (GU) systems it will likely result in the condition worsening.

Once the GI or GU blockages have been identified and treated, the root cause of the imbalance can be more easily identified. A good history taking will reveal whether the patient had a spleen/stomach imbalance before the current set of symptoms arrived. If the imbalance existed prior to the new symptoms, then the spleen/stomach imbalance would be the root and the damp-heat symptoms would be the branch. The root condition of a spleen/stomach imbalance should be treated; however, it is not quite as simple in a case such as this where the severity/intensity of the symptoms supersedes the imbalance. If the organ imbalance was treated while the damp-heat symptoms were intense, the patient might not get better since the damage from damp-heat would likely worsen while the underlying spleen/stomach dysfunction was being treated. If the symptoms of damp-heat were mild, both conditions could be treated simultaneously or more of the organ imbalance treated, as the threat of damage from damp-heat would be less likely due to the symptoms being weaker.

The above example takes into account the severity of the symptoms/condition, the location of the disease, and the level of dysfunction of the organs involved. Assuming the damp-heat symptoms were not severe and the spleen/stomach dysfunction was the root of the problem, the practitioner would need to take the history further back to understand what could have initially caused the imbalance. In order to do this the function of the organ, in this case the spleen and stomach must be taken into account. Their main function is to extract Qi from food and fluids and distribute it to the body. Therefore, an in-depth diet history is necessary to determine the cause of spleen/stomach imbalance. The quality of food consumed, the characteristics of the food, the timing of the meals, and emotional state of the patient are of utmost importance. By correcting the underlying dietary dysfunction we will be treating the root and correcting the imbalance.

In order to assess each case individually, the practitioner should be able to critically evaluate the information given by the patient and assign them the characteristics of Yin and Yang, Biao and Ben and the nature of disease, taking into account the eight principles and the organ function. Once this information is categorized the status of the GI and GU systems can be assessed. If they are blocked treat them first. If they are not blocked evaluate the severity of the symptoms of the biao and the ben. If the biao symptoms are severe, treat the biao. If the biao is weak, treat both biao and ben, or treat the ben more than the biao.

The practice of TCM relies on trust between the patient and practitioner. The patient must be able to disclose all of their symptoms, social background, stressors, and fears. The modern day patient is usually looking for a "quick fix", or only wants to work on one area of the body and is reluctant to discuss other areas. Although the mental and emotional disposition of the patient is crucial to the treatment as a whole, patients are often reluctant to reveal their true feelings. This combination can make it difficult to find the cause even if the right questions are posed. However, successful treatment may be reached, even without a complete history, by adhering to the principle of searching for the root of the imbalance. For example, during my training I had a patient who took eight months to tell me he had erectile dysfunction and a low libido because he felt embarrassed to reveal it to anyone, even though he had already disclosed much of his traumatic emotional history including abuse. Despite having been asked about his sexual function in detail during various visits, he only felt it necessary to tell me when his partner was arriving from out of town. Was this information critical or just something added to the case? Without knowing about his sexual dysfunction, I had already suspected he had a kidney dysfunction based on his other symptoms. It was because I had enough information from his history that I was able to find the cause of the imbalance and track it as it moved from organ to organ. Since I was already treating the root of the problem, he had experienced an improvement in his sexual dysfunction despite my not knowing about it. Treating the root can resolve the underlying condition without knowing the full details of the case.

The search for the cause of disorder in TCM is not an easy one. However, various tools such as history of symptoms, symptom severity, pattern of disorder, and tongue and pulse assessment can help identify the cause. By applying the zang-fu diagnosis to the symptoms, one can ultimately determine the underlying imbalance. The proper sequence of treatment is then essential for restoring balance.

About the Author

Dr. Neemez Kassam is a licensed naturopathic doctor and is currently the owner of the West Coast Wellness Centre in Toronto, Ontario, where he practices with a group of NDs. He is also an associate professor as well as the department head of Asian medicine at the Canadian College of Naturopathic Medicine. He is a graduate of CCNM and received his Master of Science degree in acupuncture from Bastyr University in Seattle, Washington. His areas of special interest are infertility, musculoskeletal/sports injuries, as well as gastrointestinal disorders.

References

1 Yang Shou-zhong, Duan Wu-jin. 1994. Extra Treatises Based on Investigation & Inquiry: A Translation of Zhu Dan-xi's Ge Zhi Yu Lun. Blue Poppy Press. Pg 9.

2 Ni, Maoshing. The Yellow Emperor's Classic of Medicine. Random House Inc. 231-234.

Visit us online at easterncurrents.ca

Eastern Currents Vancouver Office
9109 Shaughnessy Street, Vancouver BC, V6P 6R9
TEL TOLL FREE: 1-800-667-6866 LOCAL: 604-263-5042
FAX TOLL FREE: 1-877-660-6866 LOCAL: 604-263-8781

Doctor's Data, Inc. (DDI) and Anamol Laboratories are pleased to announce their recent combination. Anamol's customers will now benefit from DDI's 35 years of experience and wide array of functional testing, including - elemental analyses in Hair, Urine, Whole Blood, Red Blood Cells, Serum and Stool; Urine & Plasma Amino Acid Analyses; and a complete line of Gastrointestinal Stool analyses with bacteriology, parasitology, mycology, biochemistry, immunology and inflammatory markers. For more information, please contact our customer service department.

Doctor's Data, Inc. ▪ 3755 Illinois Avenue ▪ St. Charles, IL ▪ 60174 ▪ U.S.A.
Tel. 800-323-8784 ▪ inquiries@doctorsdata.com ▪ www.doctorsdata.com

Introducing VIVIMIND™

A new generation of memory function protection

What is VIVIMIND™?

VIVIMIND™ is a natural health product that has been scientifically proven to protect memory function. VIVIMIND™ is based on the naturally occurring ingredient homotaurine, found in seaweed. The active ingredient in VIVIMIND™ is a synthetic form of homotaurine that is chemically and biologically identical to the natural compound.[1]

As a science-based natural health product, VIVIMIND™ has been shown to:[2,3]

- Protect the brain structure associated with memory and learning
- Preserve memory
- Sustain brain cell health
- Maintain verbal skills and comprehension ability
- Support planning and execution skills

How does VIVIMIND™ work?

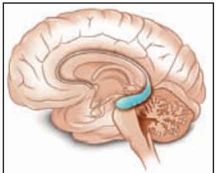
As we age, certain areas of the brain begin to shrink, reflecting a loss of brain cells.[4,5] Amyloid-beta (Aβ), a protein, is normally found in small quantities in the brain throughout life. As people age, these proteins may reach excessive toxic levels that cause neurons or brain cells to malfunction and die. Experts believe this loss of brain cells in the area of the brain known as the hippocampus is due to the build-up of these toxic proteins.[6,7] When brain cells are damaged or dead, signalling problems occur in the brain, ultimately affecting memory and learning abilities.[7]

VIVIMIND™ has been scientifically proven to bind to the Aβ-protein, to interfere with the amyloid cascade and reduce its toxic effects on brain cells, thereby protecting memory and learning functions.[2,6,7]

How effective is VIVIMIND™?

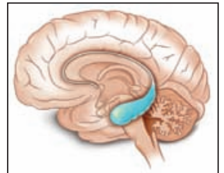
VIVIMIND™ was shown to significantly reduce the loss of volume in the hippocampus, a brain structure associated with memory and learning.[3] In fact, VIVIMIND™ preserved 68% more brain volume in the hippocampus when compared

Without VIVIMIND™



Shrinking hippocampus

With VIVIMIND™



Preserved hippocampus

to those taking placebo, over 18 months. VIVIMIND™ was also found to show 33% less decline regarding cognitive performance compared to placebo, at 12 months.[3] Individuals taking VIVIMIND™ performed better on memory and thinking tests (remembering test instructions, speaking ability, language comprehension and planning and executing tasks) compared to those taking placebo.[3]

Is VIVIMIND™ supported by evidence-based research?

Only VIVIMIND™ has over 15 years of rigorous scientific research, including clinical testing with over 2,000 individuals.[2] A significant North American clinical study involving 1,052 individuals, including 17 sites in Canada and 50 in the U.S., demonstrated a proven clinical benefit with VIVIMIND™ in protecting memory function.[3]

What about side effects?

VIVIMIND™ has been shown to be generally well tolerated in over 2,000 individuals over a period of three and a half years.[2] Some people may experience nausea, weight loss, dizziness or fainting. The recommended dose should not be exceeded, as more of these symptoms may be experienced. Certain symptoms, such as nausea, are generally transient and normally subside with consistent use. Metabolism studies suggest that interactions between VIVIMIND™ and other products are not likely to occur. However, no specific interaction studies have been conducted with other products.[1]

How is VIVIMIND™ taken?

VIVIMIND™ is recommended for adults aged 18 and over. VIVIMIND™ tablets should be taken daily and swallowed whole (not crushed, blended or mixed). The recommended adult dose is one to two tablets twice a day, preferably at mealtime (in the morning and evening).

With the help of a natural health product like VIVIMIND™, healthy memory function may be protected.

For more information, visit **www.vivimind.com**

OVOS Natural Health Inc. is a wholly owned subsidiary of BELLUS Health Inc. OVOS Natural Health's goal is to build a strong franchise with several products marketed to help brain function and subsequently expand to other conditions.

Contact Us: OVOS Natural Health Inc., 275 Armand-Frappier Blvd., Laval, Quebec, Canada H7V 4A7. Tel: 1-877-544-VIVI (8484) Email: info@ovos.com
VIVIMIND™ is a trademark of OVOS Natural Health Inc.

Sources: **1.** Data on file, BELLUS Health. **2.** North American and European Phase III clinical trials. Data on file, BELLUS Health. **3.** Post-hoc analysis of a 78-week Phase III study in 1,052 mild-to-moderate Alzheimer's disease patients 50 and older. Data on file, BELLUS Health. **4.** The Johns Hopkins White Papers. Rabins PV, MEMORY Johns Hopkins Medicine, Baltimore, Maryland, 2008. pp.1-70. **5.** Petersen RC, Jack CR Jr, Xu YC, *et al*. Memory and MRI-based hippocampal volumes in aging and AD. *Neurology* 2000;54(3):581-587. **6.** Gervais F *et al.* Targeting soluble Aß peptide with Tramiprosate for the treatment of brain amyloidosis. *Neurobiology of Aging* 2007;28:536-547. **7.** Aisen PS *et al*. A Phase II study targeting amyloid-ß with 3APS in mild-to-moderate Alzheimer disease. *Neurology* 2006;67:1757-1763.

FEATURED PAPER

THE ROOT CAUSE OF DISEASE IS NEVER A SYMPTOM

Dr. Iva Lloyd, RPP, ND

Identifying the root cause of disease has always been one of the key principles of naturopathic medicine. The importance of this principle is becoming increasingly important in this age of chronic illness, information overload and the onslaught of environmental and external factors. This is coupled with the deterioration and destruction of the food, air and water supplies. Even the increase in 'genetic' diseases to a large degree are a result of other, controllable factors.

Health and disease are natural, they occur for a reason. Recognizing and acknowledging that health and disease follow certain laws is essential to being able to systematically determine the root causes of disease. The belief that disease is random, and that it can happen to anyone at any time, is characteristic of the current fear-based conventional medical system. This erroneous belief separates patients from their lifestyle and environment; it takes away personal and environmental responsibility. It puts the emphasis of research for treatment instead of prevention, and the emphasis of treatment with drugs and medical interventions instead of lifestyle education and self-responsibility. The erroneous belief is intensified by labelling the cause of disease as its accompanying symptoms. For example, it is common to hear that the cause of cardiovascular disease is hypertension, or hypercholesteremia. Labelling the cause of disease as a symptom takes away the responsibility of the practitioner to look beyond the physical manifestation of disease at the real causal factors: lifestyle, environmental, external, or life situations that are actually causing the shift away from health.

Human Beings as Complex Systems

Human beings are complex systems that are able to adjust to a tremendous amount of internal and external stimuli while still maintaining a homeodynamic state. Symptoms and dis-ease arise when a patient is overwhelmed or exhausted and is no longer able to adapt and compensate to the disrupting factors. Symptoms are a message and provide a road map to the causal factors. 'Wholistic medicine focuses on body, emotions, mind, relationships and spirit. This extends the range of conceptualization of the causes of illnesses and of potential ways for dealing with them.'[1]

Recognizing that health and disease happen for a reason does not put it in the realm of linear causality. No one factor alone causes disease. Human beings are complex systems, with multiple levels of complexity and susceptibility. Additionally, thinking is contextual; it is based on the mutual relationship between the variables and the specific nuances and considerations of each specific time and place. The aim, during any assessment process, is to determine the variables that exist for each patient and to what degree they are a contributing factor.

The task of uncovering the variables that are impacting a patient's health often is daunting due to the unlimited number of variables and the constant increase in the number of factors contributing to disease. One hundred, even fifty years ago, the number of factors that impacted health was smaller and finding the root cause was simpler. The introduction of vaccinations, chemicals in personal care products, plastics, fillers and additives in food, substances used in dental procedures, cell phones, computers, pesticides and insecticides, has greatly increased the factors and variables that need to be considered in order to thoroughly assess any symptom or disease state.

Although the overall number of variables is unlimited, it is limited for each patient. The purpose of an intake is to determine the breadth of factors that need to be considered, i.e., only the pertinent modifiable risk factors. The family and lifestyle history and the pattern of onset of symptoms, in itself, assists in focusing the assessment in a specific direction. For example, smoking is a contributing factor, but only if a patient smokes or if they are around people who smoke. Each disease and symptom has a number of variables typically associated with its occurrence. For example, when a patient states that they have insomnia a practitioner will have a mental list of the factors that contribute to this symptom. What is changing is that the list is growing longer. It is often valuable to ask a patient about their current lifestyle and environment, and then ask about previous hobbies, jobs, trips, significant situations; types of houses that they have lived in and where they grew up. With many diseases, the contributing factor(s) often relate to earlier events or situations in a person's life.

Naturopathic Assessment Model

The following is an assessment model that is designed to structure the assessment process and to aid practitioners in identifying the root cause of disease. This model is based on the understanding that the psychological, functional, and structural aspects of a person are never the cause of disease, they simply mirror and manifest the imbalances in the body. It also recognizes the vitalistic aspect of individuals and the presence of a vital or personal essence. This model is based on the understanding that human beings are complex, dynamic systems; where every

aspect of the individual is interrelated, and human beings are a part of, and affected by, their environment.

For each causal factor, a specific aspect of the body will be primarily affected, and the impact will always show up in all three aspects to varying degrees. For example, a fall would primarily affect the structural body, but due to a misalignment of the body there will be functional changes and the impact of the fall will have a psychological influence. A stressful situation will primarily affect the psychological aspect of the body, but there are also functional changes such as muscle tension, increased heart rate, changes in breathing and structural changes such as a collapsed frame or a more rigid structure depending on the situation. No aspect of the body ever shifts in isolation, and the assessment of any symptom or disease involves the assessment of the psychological, functional and structural changes.

For example, a 58-year-old female patient with a history of a TIA and moderate hypertension presents with pain in the chest that is worse on exertion. Key information from the history reveals that the patient has been weaning off their blood pressure medication over the last four months, has recently started on a vegetarian diet, currently has mild stress, and has been active at work helping with a reorganization and move. Upon physical exam it is determined that the patient's blood pressure is 132/74. Historically, the increase in blood pressure had been primarily associated with dietary factors and unexpressed emotions when stressed. The patient has been instructed to take their blood pressure three times a week and reports that the blood pressure was not elevated during times of chest pain. Assessment of the patient's spine reveals fixation of the left mid-thoracic vertebrae. After adjustment of the vertebrae, the patient no longer experienced chest pain when sedentary or with exertion. It may be natural to assume that the chest pain was an indication of increased blood pressure and to look for dietary (lifestyle) factors or signs of stress, but the root cause was identified as improper twisting while lifting heavy boxes.

Causal Factors

The strength of the naturopathic assessment is the depth and breadth of the intake and the practitioner's attention to the patient's subjective experiences. The symptoms and disease will tell a practitioner what is going on, but only the patient can tell the practitioner why. It is the "why" that uncovers the root cause of disease. During an intake, patients reveal two things; the first being their story, the second being the manifestation and nature of their symptoms. A practitioner's role is to correlate the two, and to understand what information is missing or misleading. 'Good clinical skills convert subjective symptoms into objective signs. A physical examination yields more signs. Signs are not simply the product of observation; they also contain knowledge.'[2]

Determining the causal factors involves a practitioner paying attention to the onset of symptoms, their frequency, and their intensity. It involves a practitioner listening for somatic metaphors, paying attention to situations causing changes in a patient's affect, and also paying attention to how patients link symptoms and how they tell their story. A detailed history taking is essential, but the desire and skill to really listen to not only what a patient conveys, but also how they convey it is important.

The initial disruption of health arises due to three main factors:

(1) Disharmony between a patient's life and their personal essence;

(2) Disharmony in the building blocks to health;

(3) Exposure to disrupting external or environmental factors.

Personal Essence

The *personal essence* is a descriptive concept of an individual's vitality or life force. The collective life force, or vital force, is a common pool of subtle energy that connects everyone together and interconnects people to their environment.[3] Personal essence refers to an individual's life force or vital energy, which comes from the collective life force, but it is also individual and is, as such, impacted by personal factors. It recognizes the partial autonomy of the individual in the greater system of life.

The personal essence resides in the inner core and permeates the psychological, functional, and structural aspects. The personal essence acts as a guide and a filter on a person's life. It holds a person's deep core beliefs and their values. It is a person's blueprint and it determines what they look like, their susceptibilities and influences, and how they perceive their world and interact within it.

The stronger a patient's core, the more their life is in tune with their core, the greater the sense of health and stronger the healing potential of the body. Imbalance, lack of harmony or coherence in the personal essence is a precursor (even an actual cause) to subsequent disease.

When there is disharmony or incoherence with the personal essence, a patient might have periods of being 'okay', but a pattern or sense of un-fulfillment will continue to creep into their consciousness. There often is an unrelenting sense of being unsettled or dissatisfied and there tends to be chaos and disruption in accomplishing things. For example, a patient can find that they are no longer satisfied with their life, work, or relationships. There are situations that they were okay with in the past, but now bother them and they don't have the same sense of fulfillment. Ultimately it indicates that their 'measuring stick', that is their core, is not in line with their life. Sometimes disharmony at this level is addressed

by changing expectations and beliefs, other times is involves making life changes that are often drastic.

The Building Blocks to Health

The *building blocks* represent lifestyle and behavioural factors – nutrition, water, sleep, exercise, elimination, breathing, posture, fresh air, mental attitude - which provide a patient with the nutrients and qualities they require to sustain life. Both the quality and the quantity of the building blocks are important to health. The significance of any one of them is unique and depends on a patient's constitution. The building blocks are the foundation of disease prevention and health promotion. Many diseases, especially chronic diseases, are due to the wear-and-tear of having to cope with constant lifestyle excesses and deficiencies. For example, a history of eating poorly, insufficient water intake, being too sedentary, poor posture, ineffective breathing, inadequate fresh air or sleep and relaxation, or holding on to thoughts and emotions that are unhealthy can contribute to disease. 'We are medicating the effect of living disharmoniously. We are trying to treat the effects of disharmony rather than treating the cause of disharmony.'[4]

From a naturopathic perspective, assessing the building blocks to health and determining the role they play in maintaining health or contributing to disease is an essential aspect of every assessment. 'The average westerner has an unhealthy, disease-promoting lifestyle, but the tools that a typical medical doctor has (i.e. drugs and surgery) never address this underlying factor. Although effective when appropriately applied (such as surgery for appendicitis), drugs and surgery often have too many side effects to be used in the treatment of many early, common and/or recurring problems people have.'[5]

A healthy lifestyle also involves living a life that is in tune with the rhythms of nature. There is a rhythm to the seasons, to sunrise and sunset, the lunar cycle, birth and death. This rhythm is mirrored in the ebb and flow of the body and provides a guide for behaviour and lifestyle. For example, it is important to eat according to the seasons[6] as melatonin is the principle hormone responsible for synchronization of sleep and it follows a circadian cycle.[7] When a patient is living a lifestyle that is more in tune with the natural rhythms, health is more easily maintained and achieved.

When the building blocks to health are the cause of a patient's health concerns, the impact is usually gradual. The body has internal reserves when they become depleted or exhausted, a patient's strength and resilience decline. Addressing these building blocks is part of every treatment plan. In many situations, especially when the healing potential of a patient is high, the most efficient way to restore a homeodynamic state might be to simply address the building blocks.

Environmental and External Factors

The number of *external factors* and the degree of their impact is increasing all the time. The more aware an individual is of the health impacts of the external factors they encounter, the more options they have to lessen their negative impact. Environmental and external factors need to be included as part of every assessment. The following is a list of common external factors grouped according to five main categories: life events, social, environmental, external and medical factors.

Life events refer to the experiences that we have throughout our life. It refers to any accidents or injuries that we have had, the subsequent treatment, and result of those treatments. As a patient recalls the significant events in their life the practitioner listens for injuries that do not seem to have been resolved or situations where the patient is still emotionally 'triggered'. Any situation that continues to have a negative impact on a patient is detrimental to health.

Sometimes there is a direct correlation between a situation and the onset of symptoms in times of crisis, when there is an accident, or when we hear bad news. When a patient reports that their health has been worse ever since a specific date or period of time then it is likely that a specific event was the catalyst or it was due to the patient's response to an event. 'Man does not simply perceive things, but also perceives the meaning of things. Meaning precedes perception. That which does not mean anything is not, as a rule, perceived. Perception and retention are vital adaptive functions. They are not aimed at meaningless events.'[8]

The degree of impact is mirrored in the degree of shift away from health. How a patient handles a life event determines the ongoing impact that it will have on their healing potential and susceptibility to becoming overwhelmed in the future. If a patient becomes stuck in the situation – either due to not addressing the initiating factor, or choosing treatments that palliate and suppress versus cure – and the symptoms don't resolve, it creates or intensifies an area of susceptibility and increases the likelihood of recurring symptoms. For example, when a patient becomes "trapped" in grief, they are likely to be triggered to a greater degree when other situations of grief arise. If a patient remains angry because of an accident that was caused by a careless driver, they are more likely to be overly cautious or nervous when driving, and they are more likely to become angry in other situations that display a similar pattern; for example: a situation in which a stranger behaves carelessly, stepping in front of them because they are distracted while talking on their cell phone.

Social factors refer to the people in our lives that affect us. It relates to our family, community, and work environment. For others, it represents a cultural, age, or specific religious group. A community is a wider support network. Usually there is a common belief system, or a common focus and interest. Research shows a correlation with increased health, the feeling of being part of a community and the creation of health promoting settings.[9]

Social factors can have a beneficial or adverse impact on a person's health; it all depends on the history and dynamics. For many people, their primary support comes from their social network. The ability to love someone and feel loved is also important to health.

External and Environmental factors are increasing all the time. Many of today's diseases and health problems are linked to an over-burden of toxins in the body. Toxins and harmful chemicals are everywhere: car exhaust fumes, factory smoke, cigarette smoke, chemicals in personal care products, hair dyes, household and kitchen products, cleaning products, products for our lawns and homes, and products and chemicals used in manufacturing and industry. The body is constantly being bombarded with 'foreign' and toxic chemicals and substances that enter the body through the air we breathe, the water we drink, the food we eat and what we put on our skin. In normal internal functioning, the body will 'take-in' substances, keep what it needs and excrete the rest. The body is unfamiliar with many of these chemicals and unable to naturally excrete them. Foreign chemicals often result in modifications of body functions, such as the hormone disrupting impact of plastics (bisphenols or phthalates), or accumulation in tissues and organs disrupting the normal functioning of these body signals.[10, 11] 'It is also known that many toxins undergo bioaccumulation through the food chain and that synergistic effects can occur whereby combinations of toxins can be more potent than the sum of patient toxins.'[12] Nutritional status impacts susceptibility to chemical exposure and the presence of toxic chemicals is intensified by chronic dehydration and diets and lifestyles that are not conducive to aiding excretion, resulting in negative changes to health.[13]

Health hazards caused by heavy metals and chemicals have become a great concern to the population. Lead, mercury, arsenic, cadmium, chloride, fluoride, and bromide are the most important current global environmental toxicants. These toxins affect the functioning systems, including the central nervous system, circulatory, reproductive and urinary systems producing serious disorders.[14, 15] Screening for heavy metal accumulation is becoming a necessary part of treatment, especially for chronic diseases. Decreasing the concentration of heavy metals in the body can have a therapeutic effect on certain diseases.[16]

Other environmental influences that are impacting health are the abuse and over-use of computers, television, cell phones, and other EMF-producing devices. Spending hours in front of a computer or television often is correlated with being more sedentary, obesity, vision problems, and neck and low back pain.[17, 18] The use of computer games has been associated with hyperactivity disorders.[19] Cell phones and EMF (electromagnetic fields) devices are correlated with headaches, brain cancer and other health concerns.[20, 21]

Medical factors include all forms of treatment that a patient has undergone, such as surgery, chemotherapy, radiation, reconstructive surgery, and any drugs and supplements that a patient takes. Some medical interventions, such as surgery, are necessary to sustain life or to address serious or life-threatening disease states. From a naturopathic perspective, what is important is the intention and reasoning for the treatment, whether the root cause for the illness was ever addressed, and how the innate healing ability of the body has been impacted. Adverse-effects of medications are treated with additional drugs, which in turn often cause additional problems. When the symptoms are suppressed, versus the root causes addressed, the dis-ease is forced deeper into the body. The deeper within the body the dis-ease is, the greater the impact on health. The assessment of medical interventions, even naturopathic interventions, involves addressing the implications of drugs and nutrients, the impact of all treatments and procedures.

It is important to recognize the difference between supporting the healing ability of the body and overriding the wisdom of the body. Drugs and supplements often are prescribed based on symptomology and are only addressing the symptoms, instead of addressing the cause or the pattern of disharmony. The short-term and linear thinking of prescribing is dangerous to health and contributes to the progression of disease.

There are many unintended reactions to medications. As part of any assessment it is important to investigate the medications that patients are taking, their adverse effects and interactions, contraindications, and routes of elimination. Understanding the current health status of a patient, while on medications, involves addressing the impact of the medications on health and recognizing that the normal innate reactions and self-regulatory functions of the body do not operate the same when a patient is medicated.

Putting the logic and reason back into the process of health and disease is a much needed and valued skill that naturopathic practitioners are able to bring to patients. It is the search for and the curiosity of the root causes of diseases that will help to establish naturopathic doctors as the doctors of the future.

About the Author

Dr. Iva Lloyd, ND, RPP is a Naturopathic Doctor and Registered Polarity Practitioner. In 2002 she founded Naturopathic Foundations, an integrated clinic with four naturopathic doctors and other alternative health care providers that blend the naturopathic and energetic aspects of healthcare.

Dr. Lloyd teaches part-time at the Canadian College of Naturopathic Medicine. She is the author of three books: *Building a Successful Naturopathic Practice, Messages from the Body, a guide to the Energetics of health, and The Energetics of Health, a naturopathic assessment*. Dr. Lloyd writes for various journals and magazines and gives seminars on the naturopathic medicine, the role of the mind in healing and the building blocks to health. She currently is Past-Chair of the board for the Canadian Association of Naturopathic Doctors.

References

1. Benor DJ. 2006. Wholistic Healing, The healing potential in a word – part III. Positive Health
2. Duffin J 2007 History of Medicine. University of Toronto Press, Toronto
3. McTaggart L 2002 The Field, the quest for the secret force of the universe. HarperCollins, Great Britian
4. Mitchell B 2007 The Vis Part 1 and 2. Presented at the First International Editors Retreat, Foundations of Naturopathic Medicine Project
5. Murray MT, Pizzorno JE 1991 Encyclopedia of Natural Medicine. Prima Publishing, California

6. Lad V 1998 Ayurveda The Science of Self-Healing. Motilal Banarsidass, Delhi

7. Smale L, Nunez AA, Schwartz MD 2008 Rhythms in a diurnal brain. Biological Rhythm Research 39(3):305-318

8. Thass-Theinemann T 1968 Symbolic Behavior. Washington Square Press, New York

9. Masotti P et al 2006 Healthy Naturally Occurring Retirement Communities: A Low-Cost Approach to Facilitating Healthy Aging. American Journal of Public Health 96(7):1164-1170

10. Calafat AM et al 2008 Exposure of the U.S. Population to Bisphenol A and 4-tertiary-Octylphenol:2003-2004. Environmental Health Perspectives 116(1):39-44

11. Bonefeld-Jørgensen EC et al 2007 Endocrine-disrupting potential of bisphenol A, bisphenol A dimethacrylate, 4-n-nonylphenol, and 4-n-octylphenol in vitro: new data and a brief review. Environmental Health Perspectives 115(1):69-76

12. Cohen M 2007 'Detox': science or sales pitch? Aust Fam Physician 36(12):1009-1010

13. Kordas K, Lönnerdal B & Stoltzfus RJ 2007 Interactions between nutrition and environmental exposures: effects on health outcomes in women and children. The Journal of Nutrition 137(12):2794-2797

14. De Burbure C et al 2006 Renal and neurologic effects of cadmium, lead, mercury, and arsenic in children: Evidence of early effects and multiple interactions at environmental exposure levels. Environmental Health Perspectives 114(4):584-590

15. Flora SJ et al 2007 Arsenic and lead induced free radical generation and their reversibility following Chelation. Cellular and Molecular Biology. 53(1):26-47

16. Lynes MA et al 2007 Heavy metal ions in normal physiology, toxic stress, and cytoprotection. Annals of the New York Academy of Sciences. 1113:159-172

17. Alricsson M et al 2008 Physical activity, health, BMI and body complaints in high school students. Minerva Pediatrica 60(1):19-25

18. Rey-López et al 2008 Sedentary behaviour and obesity development in children and adolescents. Nutrition, Metabolism, and Cardiovascular Diseases 18(3):242-251

19. Dworak M et al 2007 Impact of singular excessive computer game and television exposure on sleep patterns and memory performance of school-aged children. Pediatrics 120(5):978-985

20. Djeridane J, Touitou Y, de Seze R 2008 Influence of electromagnetic fields emitted by GSM-900 cellular telephones on the circadian patterns of gonadal, adrenal and pituitary hormones in men. Radiation Research 169(3):337-343

21. Hardell L, Sage C 2008 Biological effects from electromagnetic field exposure and public exposure standards. Biomedicine & Pharmacotherapy 62(2):104-109

WELLWISDOM™
Immune Enhancing Proteins

IN A CLASS OF ITS OWN

We produce the finest NATIVE WHEY PROTEINS.*

The only whey proteins that are not cheese by-products.

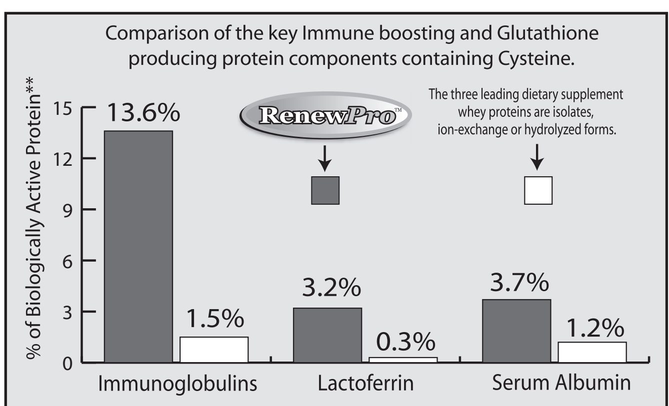
RenewPro™, the most potent, smooth mixing, great tasting whey protein.

Per 5 gram serving scoop:
520 mg Immunoglobulins • 125 mg Lactoferrin

Exceptional, affordable quality!

Available from:
ECOTREND ECOLOGICS LTD
Call 1-800-665-7065

From the makers of ImmunoPro Rx



* Native Protein: the naturally occurring conformation of a protein. Unaltered by heat, chemicals, enzyme action or processing. ** Analysis of protein as determined by an independent laboratory using the SDS PAGE Gel method. This is the industry accepted method to determine the actual biological activity of a milk protein.

Our quality is your peace of mind.

Pure
quality guaranteed

We hold ourselves responsible for the quality of our products. That's why **Pure Check** is our guarantee that every batch of NutraSea HP, "high-potency" concentrated high EPA omega-3 fish oil with enhanced benefits, is third-party tested and certified for quality, purity, and label claims. Quality test results for every product are available on our website: **ascentahealth.com**

ascentahealth.com 1.866.224.1775

NDASISST 2v8 - released Oct 17, 2008

Created in 2005, NDAssist continues to expand adding new features & content to provide naturopathic doctors with an indispensable tool for their practice.

Now over 70 catalogs can be searched electronically within NDAssist, including every major lab and supplement company.

In addition we have started adding **condition monographs** with research links. Send us your **clinical pearls** to share with your fellow NDs, for the next release.

Please contact us to receive the new update:

www.ndassist.com
info@ndassist.com

FEATURED PAPER

IDENTIFYING THE ROOT CAUSE OF DISEASE IS NOT A DESTINATION, BUT A JOURNEY

A Philosophical Paper

Dr. Chris Mazzuchin BSc, BScPT, ND

A man and his son were rock climbing on a particularly dangerous mountain when they slipped and fell. The man was killed, but the son lived and was rushed to hospital. The old surgeon looked at the young man and said, "I can't operate on this boy: he is my son." How could this be?

If you know the answer to this challenging situation then you have attained a better level of perspective than most. The better level I speak of is one of monitoring or understanding our own inherent ignorance. *Ignorance* is the lack of knowledge or education. Naturopathic medicine provides a knowledge base and education where its principles speak highly of the **healing power of nature, first do no harm, find the cause, treat the whole person, and preventive medicine**. The challenge for all health care providers is not necessarily directly found in their knowledge base, nor is it in the paradigm from which they practice, but rather is in their own mind. People - clinicians included - have a hard time separating themselves from their own minds. If someone were to tell you not to think about a maple leaf, the first thing your mind would do would be to conjure up an image of a maple leaf. The mind works when you are not looking, which is why it is separate from the will of the personality or the passions of the soul. The mind can only use what has previously been entered into it, through study or experience.

For example, a 25-year- old woman has strep throat and a medical history of several years of dysmenorrhea, low energy and pernicious anemia. She is single, works full time as an office administrator in a law firm and lives in an apartment in downtown Toronto. She has a history of cigarette smoking for the past seven years (one pack per week) and she occasionally uses marijuana for anxiety. A conventional medical doctor would perform an ear, nose and throat physical exam, suggest an oral antibiotic and send the patient home. A naturopathic medical doctor also would perform a physical exam, use an antibacterial botanical, perhaps a homeopathic, some lymphatic drainage, a probiotic and some diet/lifestyle recommendations. Some cognitive therapists, behavioral therapists or reiki practitioners might assess and treat the fifth chakra and help her with the causes of her anxiety and fears. Which treatment, then, is most practical and would be most effective at helping her, and most importantly what does she want help for?

Instead of looking at the differences in treatments, I would like to look at their similarities. I have often found that the truth to all problems, to remove my own ignorance and to find the answers to long lasting health and happiness, is found in what is common not in what is different.

Although a *differential* diagnosis can save lives, a commonality assessment can provide insight into wisdom, enlightenment, healing, cures and identifying the root cause. The above assessments and treatments have one thing in common: specialized knowledge. The practitioners all are knowledgeable about their respective field. So then, what is knowledge?

All knowledge is taught by using comparisons. We start this process by comparing *(differentiating)* shapes, colours and numbers to letters, for example, all so that we can learn. No matter how specialized one becomes in a profession there will always be something new to learn. This process of learning makes us vulnerable to creating ignorances (paradigms) because make assumptions. Primitively speaking, assumptions are created by the mind to achieve an understanding and make a quick decision. Take for example this sentence, '*mkaing snese from nsnsosne*'. Your educated brain makes the assumption that it reads 'making sense from nonsense' just like you might assume a frown means someone is in a bad mood. Assumptions that the rules we (as human beings) come up with are infallible. After all, it was thought after many measurements that water invariably freezes at zero degrees Celsius, until someone decided to measure it with a salt content, which lowers the freezing point of water. Another wonderful example of our fallibilities is found in Dr. Bruce Lipton's work. Dr. Lipton teaches that the command centre of all cells is not the nucleus but rather the cell membrane.[1] How many textbooks proudly announce the nucleus as the command center of a cell? Perhaps then, a frown can be a person's way of communicating 'hello,' and 'mkaing snese from nsnsosne' is my way of developing a new language that says 'thank you for listening'.

If effective learning requires comparisons, how can we learn without comparisons, so that we do not increase our ignorance and still maintain a healthy empirical study of health and happiness? To remove the ignorance in our knowledge base, we must look

at the intention behind the words, the motivation inside the medicine and the inspiration around our evolution as a people in our world and outside of ourselves.

Davenport and Prusak define knowledge as, "a fluid mix of framed experience, contextual information, values and expert insight that provides a framework for evaluating and incorporating new experiences and information."[2]

Tacit knowledge is personal knowledge embedded in individual experience and involves intangible factors, such as personal beliefs, perspective, and the value system. Based on this it could be said it is important to separate the subjective from the objective. When it comes to knowledge, attaining it and subsequently using it to understand the real or true experience, identifying the root cause becomes two separate tasks.

Language, communication and culture all provide a framework for subjectivity. Science works very hard to maintain objectivity. How then can conventional medicine share its objective strengths with complementary medicine's subjective talents so to better help others achieve optimal health and happiness? The one thing both paradigms have in common is the fact that they both value symptoms and causes. The terms *cause* and *symptom* must be defined because *health* itself is too poorly defined and very subjective.

What is a cause versus a symptom? We can take another example of someone who visits a doctor for a persistent headache. If the doctor just prescribes aspirin, (s)he is treating the symptom. If the practitioner does additional research and uncovers a more serious condition, then they would apply a different tactic to treat the cause of the headache.[3] A person could ask the same questions when comparing the terms *cure* and *healing*. Many people get cured every day, yet fail to heal. When a person gets a paper cut on her thumb and it is cured in three months, this does not mean she is healed. The fact is that her immune system and connective tissues, which should have fixed the cut in a week, worked sub-optimally. The cut was cured, however, the body has yet to heal. Cure is the body's destination and healing is the journey it goes through daily to balance all of the ailments or imbalances that lead to disease. Cure has an end point, where as healing is an ongoing process.

This is the reason cancer comes out of remission, why diabetes requires medications instead of only diet modifications and why people stay in abusive relationships.

The root cause of disease is harder to find because it is like trying desperately to find our glasses that inevitably pop up only when we look in the mirror to see them propped on our head in plain view. The root cause, like a plant's root system, is underground and out of sight, but easily within reach as long as we dig for it. Where and how to dig to find the root cause of a person's disease, though?

Most of the answer to that question can only be found in the person with the disease. Many just want the scratchy, itchy throat to be gone so they can get to work without a dirty look from fellow employees and a harsh comment from their boss and this is what conventional paradigms of treatment do well. It saves lives, but does it enhance lives? Does providing an anti-microbial botanical, removing sugar from the diet for two weeks and giving a high potency of hepar sulph and some soft tissue manipulation enhance the patient's life more? Would talking about the patient's unfulfilling job, or misunderstood emotions improve her swollen cervical glands, erythematous tonsils and lethargy?

Psychologist Daniel Gilbert writes in his book "Stumbling on Happiness", that animals must *experience* an event in order to learn about its pleasures and pains, but our powers of foresight allow us to imagine that which has not yet happened and hence, spare ourselves the hard lessons of experience.[4] The consequence to this, is that life is all about the experience. The lesson is the experience and if we skip either the lesson or the experience, we skip out on life and happiness.

Even though we can imagine what life would be like without a sore throat, living with a significant other, working in a healthy smoke free environment, without any menstrual irregularities and with a surplus of energy, does not mean it will magically appear. Part of the reason for this is in our belief system and another part of the reason is found in our inability to take action in our lives. Most importantly, however, is that we may need to still effectively learn something so to have mental, emotional, physical and spiritual resources to draw from to achieve the things we imagine. Pain and pathology are great teachers, and sometimes the only teachers. The teacher only appears when the student is ready to learn and that is what disease does: it prepares us to be students.

Ignoring, removing or not reflecting on pain prevents us from evolving. Pain motivates us to learn, however, sometimes we need interpreters. This is why we all need teachers, because it is sometimes hard for us to see our own lives objectively. The word "doctor" in Latin means "teacher." How many patients leave your office after each visit having learned something new about themselves, regardless of their pathology?

The lessons we teach as health care providers can help others achieve their expected level of health and happiness and absolve us of our own ignorant assumption that we know best and that there is not much else to learn. In order to teach patients about their disease, symptoms and themselves, we must listen to their whole story, read between the lines and honestly reflect what is important to them and others. This is what makes naturopathic medicine special. It gives us all an opportunity to use spirituality as an empirical tool to explain placebo, research disease and help others with long lasting medicine. It also helps us help ourselves.

Identifying the root cause of disease means to find what is common in us and with the rest of the world (our patients) and using that knowledge to wisely choose the best medicine for the disease at that time. The rest of the world is in each of us, clouded over with a host of emotions, ambitions, dreams and curiosities. We all share virtue but what makes us special and allows us to help the world go 'round is our uniqueness. Each discipline celebrates unique strengths even in the confines of its own paradigm. The root cause of all disease is found in the way you choose to live, learn about your life and harmonize it with your patients, your colleagues and your rivals.

Finding the root cause is not a destination it is a journey!

About the Author

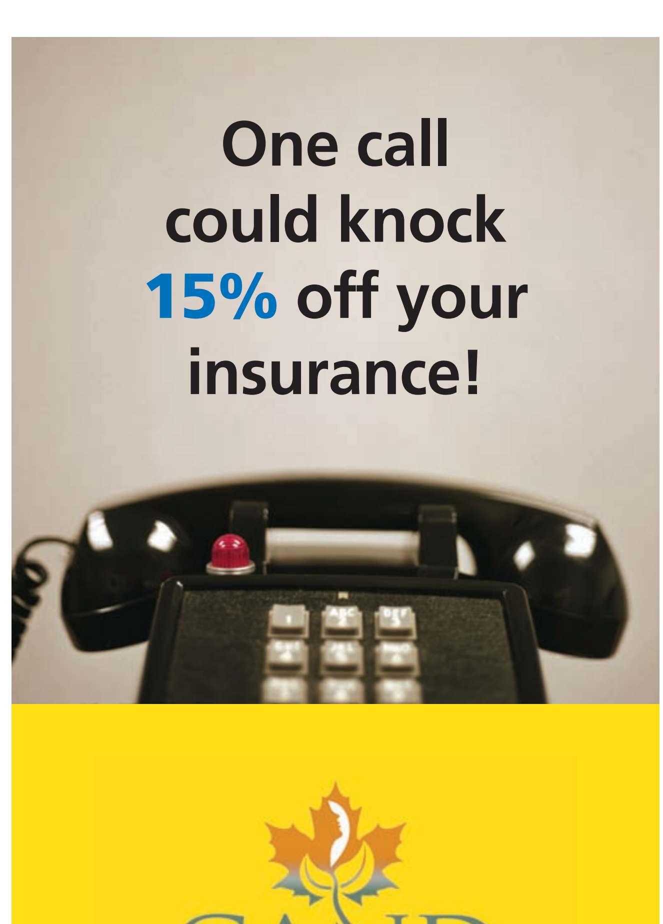
Dr. Chris Mazzuchin graduated with honors from the Canadian College of Naturopathic Medicine (CCNM) in 2003. He has a BSc in biochemistry and another one in physical therapy. He is on staff at the Northern Ontario School of Medicine and Laurentian University. He is currently the author of two books: *Ssshhh Listen! Natural Cures: A workshop for the soul* and *Sigmund & Me: A workbook of feelings* for children.

Ssshhh Listen! Natural Cures: A workshop for the soul can be found/purchased on both the amazon.com and Barnes and Noble websites.

Dr. Mazzuchin is the clinic director of a multidisciplinary clinic in Sudbury, ON called the Universal Medical Centre. Dr. Mazzuchin can be contacted directly at mazzuchin@bellnet.ca or 705.523.9100.

References

1. *Uncovering the Biology of Belief*, Bruce H. Lipton PhD, http://www.brucelipton.com/
2. *Working knowledge*, Davenport T., Prusak L. (1998). http://www.nwlink.com/~Donclark/knowledge/knowledge.html
3. *Using Analytics to Uncover the Cause vs. Treating the Symptoms* (audio seminar) Presented by: Debbie Mayville http://www.bettermanagement.com/seminars/seminar.aspx?l=14142
4. Gilbert, Daniel. *Stumbling on Happiness*. Toronto: Vintage Canada, 2007.



In partnership with CAND, Aviva Traders is pleased to provide group home and automobile insurance programs that offer preferred group rates and many other added insurance benefits.

For more information, call toll free **1-877-787-7021** or click **www.avivatraders.com/cand**.

CLASSIFIEDS

PRACTICE OPPORTUNITIES

Edmonton, AB
Busy, well-established, multi disciplinary practice in Edmonton seeks motivated associate ND interested in becoming successful. Practice is focused on treating causes and creating long-term health relationships. Our patients want naturopathic services, and can afford them. Office fully staffed, has a dispensary, and a furnished office that only needs a practitioner. Treatment rooms, detox room, IV room and lab all on site. Complete referral and marketing systems included. No specific practice focus required. Please contact Michael Nowazek, BSc, ND about this exciting opportunity at 780.485.9468 or gahealthcare@gmail.com.

Winnipeg, MB
Looking for a full time Naturopathic Physician to join our well established (1999) multi disciplinary clinic in Winnipeg, MB. Interested parties contact Debbie Schrader at 204-488-6528. www.naturalmedicine.mb.ca

Guelph, ON
Beautiful Natural Health Care facility located in downtown Guelph next to park requires a Naturopath to round out our team. Located in the lower level, office is large, bright and sunny. There is plenty of parking for patients and receptionist to take calls and welcome people to the practice when they arrive. Contact Kim Christopher at 519.822.4205 or kim.wcwg@gmail.com.

Oakville, ON
Full-time/part-time naturopathic doctor needed for busy wellness centre. Lots of walk-in patients and inter-office referrals. Beautiful room, designed for naturopathic practice. Contact Tara Pearce, 905.901.3402 or oakvillechiro@hotmail.com.

CONTINUING EDUCATION COURSES

Canadian College of Naturopathic Medicine

CPR Healthcare Provider
Saturday, January 31, 2009 (check website for additional dates)

Healthy Breast Teacher Training
Fri, Sat & Sun, January 23, 24 & 25, 2009 (three-day course)

Homeopathy – The Language of the Patient (Frederik Schroyens)
Sat & Sun, March 7 & 8, 2009 (two-day course)

Integra Practice Management Series
Marketing – Wednesday January 28, 2009
Accounting – Wednesday, March 25, 2009
Quickbooks – Wednesday, April 29, 2009
Advertising – Wednesday, May 27, 2009

Mindfullness-Based Wellness Education
Thursdays, April 23 – June 18, 2009
(eight-week program)

Parenteral Therapy (& Refresher)
Jan. 24, 25 and Feb. 7, 8, 2009 (four-day course)

For more information about CCNM's Continuing Education Program, please contact the new Coordinator Sasha Tahiliani, ND at (416) 498-1255 x255 or visit www.ccnm.edu.

Ontario Association of Naturopathic Doctors

Self-Imaging Therapy
with Dr. Nicola Bird PhD
November 18, 2008, Toronto
November 26, 2008, WEBINAR

OAND Business Symposium
November 27-28, 2008, Toronto

Environmental Medicine Certification Course
with Dr. Walter Crinnion ND (Arizona)
Nov 22-23/08, Mar 28-29/09, May 30-31/09, Toronto

Full details at: www.oand.org/events.

Senior Regulatory Affairs Associate, Natural Health Products

CanReg Inc. is Canada's largest regulatory affairs consulting company located in Hamilton Ontario. CanReg is focused on navigating our clients through the regulatory process in order to gain approval for their products with Health Authorities worldwide.

We are currently seeking candidates for the position of *Senior Regulatory Affairs Associate, Natural Health Products* for our Healthcare Products department. This position works on site in our Ontario office reporting to the Manager, Regulatory Services.

Responsibilities of this position will include: preparation of regulatory files in adherence to the Food & Drugs Act and Regulations for submission to various agencies (HPFB, FDA); facilitation of regulatory approvals for NHP's, DIN's, cosmetics and foods through effective negotiation with Agencies; review of product labeling for compliance; and conducting literature searches and preparing summary reports.

The ideal candidate will posses a B.Sc. with an advanced degree as a Naturopatic Doctor. Previous experience in regulatory affairs, NHP GMP or in a pharmaceutical setting is an asset. Excellent communication skills and knowledge of computer software (MS Word, Adobe Acrobat) is required.

Interested parties are requested to forward a resume and cover letter by email to canregresumes@canreginc.com with the position title as the subject line. We thank all applicants, however, only those considered for an interview will be contacted. ***No phone calls please***. Please visit our website at www.canreginc.com

Cyto-Matrix is committed to
being the most trusted professional
natural health products company
in Canada
PURITY
INTEGRITY
INNOVATION
CYTO•MATRIX
Improving health and wellness…naturally
Inquiries:
Tel.: (613) 599-1653
Fax: (613) 599-8029
Toll Free Order Desk:
Tel.: 1 866 783-7504
Fax: 1 800 786-1967
www.cyto-matrix.com
info@cyto-matrix.com
orders@cyto-matrix.com