

## 2009 Orthomolecular Medicine Hall of Fame

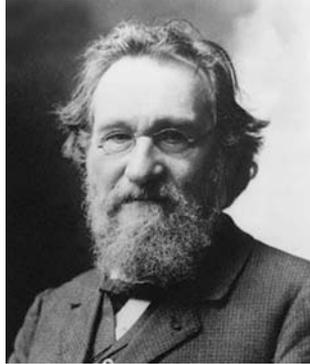
The following is excerpted from introductory remarks by Andrew Saul. For the full text of his presentation, please visit [www.doctoryourself.com/2009HOF.html](http://www.doctoryourself.com/2009HOF.html)

“Welcome to the Sixth Annual Orthomolecular Medicine Hall of Fame inductions. I am representative of the malnourished generation. Typically, our mothers consumed too little folic acid while they were carrying us. We were bottle-fed on formula containing no biotin. Vitamin E wasn’t even listed as an RDA item until 1968. We chowed down on “Wonder Bread,” which supposedly, somehow built strong bodies 12 ways. We ate a lot of frankfurters. For dinner, our mom opened canned vegetables and then cooked them. On the other hand, my mother was at least partly orthomolecular. Having opened the cans, she drank the juice the vegetables were packed in, or put it into homemade soups. We were compelled to eat liver. My brothers and I each had to take a multivitamin every day, long before it was popular. We never had a day without orange juice, nor a day without whole grain cereals at breakfast.

And, we rarely went to the doctor; at five dollars a visit, it was “too damned expensive.” When we did go, it usually had to be for a condition serious enough to require a tetanus shot, or an antibiotic.

Speaking of antibiotics, not everyone knows that Alexander Fleming, M.D., wrote, “Penicillin sat on my shelf for 12 years while I was called a quack. I can only think of the thousands who died needlessly because my peers would not use my discovery.”

Orthomolecular researchers, educa-



Ilya Metchnikov, Ph.D.



T. L. Cleave, M.R.C.P.

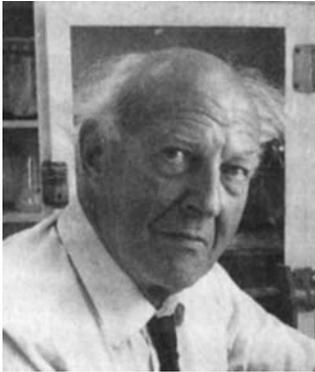
tors and practitioners understand this all too well. Acceptance of nutrient-based therapeutics has been decades-long in coming. Tonight’s honorees have been criticized, even ridiculed, in their time. These five very important gentlemen are being enrolled in our Hall of Fame not just because they were unappreciated, but because they were right.

Perhaps we are what we eat after all. Dr. Abram Hoffer and I, in our new book *Orthomolecular Medicine for Everyone*, note that the average age of Orthomolecular Medicine Hall of Fame inductees is about 80 years of age. Nobel Laureate Dr. Albert Schweitzer was right: “Not only is example the best way to teach, it is the only way.” Tonight we offer five outstandingly good examples.

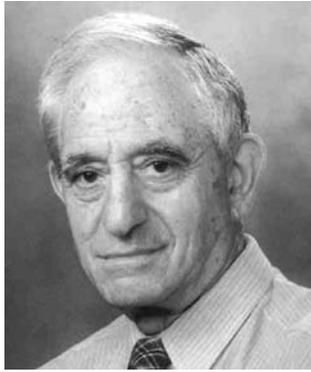
### Ilya Metchnikov

*“Death begins in the colon.”*

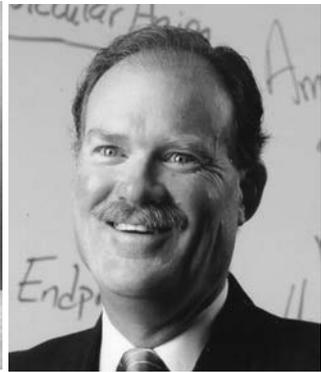
Born in 1845 in Ukraine, Ilya Metchnikov studied natural sciences at the University of Kharkov and pioneered research in immunology. In 1904, he became the deputy director at the Pasteur Institute laboratory in Paris from where he discovered the process of phagocytosis which demonstrated how specific white blood cells can engulf and destroy harmful bacteria in the body. His theories were radical and the “sophisticated” microbe hunters in the West – Pasteur, Behring and others – scorned the Russian and his humble theory.



Hugh MacDonald Sinclair, Ch.B.



Archie Kalokerinos, M.D.



Jeffrey Bland, Ph.D.

Nevertheless, history vindicated Metchnikov's brilliant theory and he was awarded the Nobel Prize for medicine in 1908. Although references to the nutritional power of fermented foods date back thousands of years, Metchnikov is regarded as the father of modern probiotics. He made a landmark observation that the regular consumption of lactic acid bacteria in fermented dairy products, such as yogurt, was associated with enhanced health and longevity in Bulgarian peasant populations. He linked this to the "Bulgarian bacillus" and he later demonstrated how healthy bacteria in yogurt helped digestion and improved the immune system. The reduction of the harmful bacteria coupled with the increase in good bacteria in the intestines appear to improve the immune system and reduce the burden on the cleansing organs such as the kidneys and liver.

The scientific rationale for the health benefit of lactic acid bacteria was provided in his book *The Prolongation of Life* published in 1907, in which he asserted that some of the bacterial organisms present in the large intestine were a source of toxic substances that contributed to illness and aging. This book also delved into the potential life-lengthening properties of lactic acid bacteria. He suggested that "The dependence of the intestinal microbes on the food makes it possible to adopt measures to modify the flora in our bodies and

to replace the harmful microbes by useful microbes." He wrote two more books: *Immunity in Infectious Diseases* (1905) and *The Nature of Man* (1938).

In recognition of Metchnikov's place in the probiotic realm, the International Dairy Federation (IDF) created, in 2007, "The IDF Ilya Metchnikov Prize" to recognize outstanding scientific discoveries in the fields of microbiology, biotechnology, nutrition and health with regard to fermented milk products.

#### T. L. Cleave

*"Cleave saw that many of the diseases of civilization could be explained as the consequences of eating refined carbohydrate, pointing out the crucial fact that refined foods are an artefact of technological civilization."*

—Kenneth Heaton

Thomas Latimer Cleave was born in Exeter and entered the Bristol Medical School at the age of sixteen, finished his training at St. Mary's Hospital and went straight into the Royal Navy. There he was a medical specialist in various hospitals at home and abroad, ending up as surgeon captain and director of medical research until he retired in 1962.

After working in obscurity for many years, in the 1970s Cleave received international acclaim as the father of the dietary fibre hypothesis. His great vision was to see

that the human body was maladapted to the refined foods of civilization, primarily carbohydrates, sugar and white flour. He reasoned that if man avoided unnatural foods he would avoid unnatural diseases which were generally absent in wild animals or primitive communities. He spent his life gathering evidence and developing arguments to support this view, which culminated in his grand hypothesis that a range of diseases—from obesity, to diabetes, coronary heart disease, ulcers, dental caries, constipation and appendicitis—were caused by maladaptation to foods containing refined carbohydrates. Since they all had a common cause he viewed them as a single master disease, he called “the saccharine disease.” His book of the same name, published in 1974, sold thousands of copies and was written in laymen’s language that the public could readily grasp. In 1986, the British Medical Association finally answered Cleave’s voice in the wilderness in its report *Food, Nutrition and Health*, which recommended an increase in consumption of fresh food and vegetables and whole grains.

One of Cleave’s most effective advocates was Dr. Denis Burkitt, the legendary cancer researcher, and their collaboration was turning point in the fortunes of Cleave’s hypothesis. Burkitt’s connections with 150 third world hospitals enabled him to confirm many of Cleave’s epidemiological observations. Burkitt acknowledged his debt to his friend, stating “Cleave was one of the most revolutionary and far-sighted medical thinkers of the twentieth century, seeing far beyond the small vision of intricate details of individual diseases.”

### **Hugh Macdonald Sinclair**

*“He may prove to be one of those people whose long term influence is far greater than ever seemed likely while he was alive”*

—David Horrobin

Hugh Macdonald Sinclair, was one of the twentieth century’s outstanding ex-

perts in human nutrition. He was born in Duddington House, Edinburgh, Scotland, and went to Oriel College, Oxford to study Animal Physiology. He was appointed Departmental Demonstrator in Biochemistry, before going on to study Clinical Medicine at University College Hospital Medical School, London. Sinclair spent most of his working life as a Fellow of Magdalen College, Oxford, though he made many forays into a wider world, notably during the Second World War when he was involved in planning how the British could be properly nourished and in famine relief in the Netherlands and Rhineland.

Sinclair is most widely known for claiming that “bad fats” worsened what he called “diseases of civilization”, such as coronary heart disease, cancer, diabetes, strokes and skin disease. He believed that diets deficient in essential fatty acids are the cause of most degenerative illnesses. Sinclair’s forceful arguments on this matter preceded firm scientific evidence, however. His self-experimentation, including the infamous 100 day seal-meat diet, dramatically demonstrated the importance of long-chain fatty acids of fish oils in decreasing the aggregation of platelets and thus the incidence of thrombosis. Sinclair recognized the central importance of nutrition to human life and, at a time when it had become unfashionable, he constantly emphasized the importance of the right food for proper health. In a famous letter to the *Lancet* in 1956, he made a particular contribution in identifying the crucial role of essential fatty acids in health, which readers classed as either visionary or lunatic, depending on their point of view. His letter foreshadowed half a century of research on a nutritional topic which is steadily increasing in importance.

Sinclair’s greatest dream was to establish an international centre for the study of human nutrition. He argued that nutrition is an important area of science in its own right, and that new insights into the relationships between food and human health

should guide developments in medicine, agriculture, and food technology. Many of his ideas have relevance for us today.

### Archie Kalokerinos

*"Any attempt to adequately write about Archie Kalokerinos would need a thousand pages and would incorporate many such adjectives as: far-sighted, intelligent, sensible, observant, honest, caring, altruistic, congenial, meticulous, brave, dogged, intrepid, and last but not least, the trite, but well-deserved, 'great.'"*

—Oscar Falconi

Archie Kalokerinos was born in Glenn Innes, Australia, in 1927 and took his MD degree from Sydney University in 1951. He was appointed Medical Superintendent of the hospital at Collarenebri, Australia, where he served until 1975. His practice is based on Linus Pauling's theory that many diseases result from excessive free radicals and can accordingly be prevented or cured by vitamin C.

Kalokerinos is well known worldwide as the doctor who spent much of his time fighting for the well-being of the Aboriginal inhabitants of Australia. He became very concerned about the high death rate of Aboriginal children in New South Wales and came to the conclusion that the infants had symptoms of scurvy, a deficiency of vitamin C. In his ground-breaking book, *Every Second Child*, he discovered that the acute vitamin C deficiency provoked by the vaccinations was the reason why, at a certain point, up to half of the vaccinated Aboriginal infants died. Instead of being rewarded for this lifesaving observation, Kalokerinos was harassed and his methods were disregarded by the authorities, probably because they were too simple, too cheap and too efficacious to be accepted by the vested interests of modern medicine. Besides, they were meant to protect a population which, in its own native county, is regarded by some as not worth taking the trouble for anyway. Dr. Kalokerinos, thought differently, and the

Nobel prize winner Linus Pauling, (who wrote the foreword to *Every Second Child*) endorsed his views.

Kalokerinos is a Life Fellow of the Royal Society for the Promotion of Health, of the International Academy of Preventive Medicine, of the Australasian College of Biomedical Scientists, of the Hong Kong Medical Technology Association, and a Member of the New York Academy of Sciences. In 1978 he was awarded the AMM (Australian Medal of Merit) for outstanding scientific research. He is an author of 28 papers listed in PubMed. He retired from full time practice in 1993 and spends most of his time doing private research.

### Jeffrey Bland

*"Jeff is the most important innovator and educator in natural medicine in North America."*

—Abram Hoffer

Jeffrey Bland was born in 1946 in Illinois, and grew up in Southern California, where he graduated from the University of California, Irvine, in 1967 with degrees in biology and chemistry. In 1971, he completed his doctorate degree in synthetic organic chemistry and began his career as a university professor and researcher at the University of Puget Sound with a dual appointment in Chemistry and Environmental Sciences. From 1976-1995, he served as a prominent educator for the natural foods and nutritional supplement industries and was involved in the founding of Bastyr University of Natural Health Sciences in Seattle, the first accredited university of naturopathic medicine in North America. In 1981, Bland was invited by Linus Pauling to become the Director of Nutritional Supplement Analysis at the Linus Pauling Institute in Palo Alto, California.

In 1984, he started HealthComm, a company dedicated to teaching physicians and other licensed health care providers how to successfully implement nutrition intervention into their practices. Since 1978, Dr. Bland has authored four books on

nutrition and health for the general public and six books for health professionals. He is also the principal author of over 100 peer-reviewed research papers on nutritional biochemistry. With his establishment of the Institute for Functional Medicine in 1991, Jeffrey Bland conceptualized functional medicine as a patient-centered systems biology approach to medicine. Utilizing his *Textbook of Functional Medicine*, first published by the Institute in 2005, Dr. Bland introduced the concept of functional medicine to Europe, Asia, Mexico, Brazil, Australia, and New Zealand.

Since 2000, Jeffrey Bland has served

as the Chief Science Officer of Metagenics and the President of Metaproteomics, a nutrigenomic research and development company employing more than 40 scientists and physicians at its research centers. Dr. Bland merged his company, HealthComm International, with Metagenics, the combined Metagenics has become the largest global nutraceutical and medical food company serving the fields of functional and integrative medicine. In 2006, Jeffrey Bland established "Synthesis" on his website to serve as a repository for his functional medicine educational materials.

## 2009 Orthomolecular Doctor of the Year Aileen Burford-Mason, Ph.D.



Aileen Burford-Mason receives the award from 2008 recipient, Jim Jackson, PhD., the lab director and senior research consultant at the Bio-Center Laboratory, Wichita, KS. The award is inscribed: "For Your Dedication as an Educator, Researcher, Practitioner and Spokesperson in the Advancement of Orthomolecular Medicine"

The recipient of the 2009 Orthomolecular Doctor of the Year Award, Aileen Burford-Mason, is a nutritionist and immunologist with a deep interest in the evidence base for orthomolecular medicine. Dr. Burford-Mason has authored articles in many fields including gastroenterology, pathology, cancer, and infectious diseases. She has presented at Orthomolecular

Medicine Today Conferences on the orthomolecular approach to candida, insomnia, and addiction. Dr. Burford-Mason maintains a private practice as a biochemical nutrition consultant in Toronto. Her long-time advocacy and tireless promotion of orthomolecular medicine to the public and to practitioners has made her an invaluable leader in our cause.

## Orthomolecular Medicine Today Conference Report: Montreal, May 1-3, 2009



### Jack Challem

#### *Dysglycemia—The Common Factor in Mental Disorders*

Jack Challem's talk focused on the dysglycemia, the syndrome of clinical features which often progress to diabetes, heart disease, obesity and negative cognitive effects. Prediabetes is of vital interest because it can be reversed through relatively simple dietary strategies. Prediabetes is intertwined with obesity, and is an often overlooked problem in diet failures

The early signs of prediabetes, according to Jack, are hyperinsulinemia, insulin resistance, reactive hypoglycemia and abdominal obesity. Dietary causes include too many refined carbohydrates, trans fats and junk oils and too many calories—Americans eat 3,900 calories a day, but they only need 2,000 for health maintenance.

Jack cited useful laboratory tests for assessing prediabetes including fasting glucose, fasting insulin and glycated hemoglobin. Interventions include a focus shifting to protein rich Mediterranean and paleo diet models and using the glycemic index. He ended his talk with his own experiences in the grip of prediabetes. After instituting his own recommendations

eating fresh, minimally processed foods, smaller and smaller fibre portions he lost 20 pounds and reversed the physiological biomarkers of his own prediabetes.

### Doron Gothelf, MD

#### *Pediatric Psychiatry*

Doron Gothelf, MD, is a professor of psychiatry at Sackler Faculty of Medicine, Tel Aviv University, director of the Child Psychiatry Outpatient Clinics at Schneider Children's Medical Center of Israel. He has published more than 70 peer-reviewed articles in the field of child psychiatry, psychopharmacology, genetics and neuroscience.

Dr Gothelf outlined two current challenges of psychiatry i.e. current medications do not treat causes or mechanisms of psychiatric disorders, which remain largely unknown, and approved medications are less effective in children but have more serious adverse effects. Dr Gothelf recommended the following:

Personalized medicine includes pharmacogenetics, and medication that targets causes or deficits of disorders. This approach, he states, will bring psychiatric treatment out of the '50s to the present time.



Jack Challem



Doron Gothelf, MD



Natash Campbell-McBride, MD



James Greenblatt, MD

**Natasha Campbell-McBride, MD**

*Gut and Psychology Syndrome*

Natasha Campbell-McBride, MD, practiced in Russia as a neurologist and a neurosurgeon and then moved to the UK. After her son was diagnosed with autism she developed her theories on the relationship between neurological disorders and nutrition, competing a second degree in Human Nutrition. She opened the Cambridge Nutrition Clinic and has written several books.

Dr Campbell-McBride introduced the Gut and Psychology (GAP) Syndrome, a combination of digestive problems, asthma, eczema, bed wetting, chronic cystitis, allergies, malnutrition and thrush. In children the syndrome is connected to autism, ADHD, dyslexia as well as learning, behavioural and social problems. In adults, it is often present with substance abuse, depression and mental disorders.

Dr. Campbell McBride stressed the critical need to re-establish normal gut-flora in GAP patients. The key supplements are vitamin A, EFAs, mineral amino-acids and digestive enzymes. With these treatment recommendations, a major component of psychological disorders can be addressed.

**James Greenblatt, MD**

*Orthomolecular Treatment for Eating Disorders*

James Greenblatt, MD, is the Chief Medical Officer of Walden Behavioral Care in Waltham, Massachusetts. He has been treating patients with complex eating disorders since 1988. He is also an Assistant Clinical Professor at Tufts

University Medical School, Department of Psychiatry. Dr. Greenblatt explained that, although genetics plays a role, nutritional deficiencies during puberty may affect gene expression in the onset/maintenance of anorexia nervosa. A SAD diet, stress, excess estrogen, vegetarianism can all contribute to a depletion of key nutrients, particularly zinc, that can trigger the onset of AN.

Dr. Greenblatt highlighted prevention strategies for AN based on better understanding of risk factors and triggers. Although risk factors may not all be reversible, environmental and nutritional modulators can be.

**Aileen Burford-Mason, PhD**

*Orthomolecular Treatment for Insomnia*

Aileen Burford-Mason, PhD, is an immunologist, cell biologist and nutritionist with a focus on orthomolecular medicine. She co-founded the Holistic Health Research Foundation Canada.

Dr. Burford-Mason presented evidence of the significant effect of sleep deprivation on cognitive function, immunity, weight gain and mood. Recommended prophylaxis included lifestyle changes such as sleeping in complete darkness and an optimal diet rich in nutrients for the brain. Key supplements for insomnia are l-theanine, 5-HTP, melatonin and magnesium. Dr. Burford-Mason recommended the amino-acid or protein chelated forms for oral ingestion, magnesium gel for use topically and Epsom salts for the bath. With these nutrients considered a deep, healthy and regenerating sleep can be assured.



Aileen Burford-Mason, PhD



Gary Ginsberg, DrPH



Alexander Schauss, PhD



Maret Traber, PhD

### Gary Ginsberg, PhD

#### *Prioritizing Mainstream and Non-mainstream Interventions*

Dr. Ginsberg's presentation applied statistical cost-benefit analysis to compare orthomolecular and conventional medicine for the benefit of governments and health care insurers-in short those who hold the purse strings of our health-care system. A concept in the health industry, termed QALY, or "quality adjusted life year" is a new measure for cost-benefit analysis. A QALY measures a disease burden, including both the quality and the quantity of life lived and is based on the number of years of life that would be added by the intervention. As it turns out, this metric makes orthomolecular therapies score quite favorably.

Nutritional therapies can cause huge reductions in mortality and morbidity, but to demonstrate this through the QALY measure, high level studies are needed. The highest levels are randomized clinical trials, while the lowest are studies of before/after; or expert opinion. Orthomolecular medicine in its current state languishes in the evidence basement-very few of the studies are at the highest level. Ginsberg appealed to his colleagues to produce higher quality orthomolecular studies which would surely demonstrate a better way to care for the overall health of the population.

### Alexander G. Schauss, PhD

#### *Acai: The World's Richest Antioxidant*

Alexander Schauss, is senior director of natural and medicinal products research for AIBMR Life Sciences. He gave a presentation

on Acai, a type of Amazon palm fruit which is one of the most powerful antioxidants discovered. The Acai palm, said Schauss, can produce up to 1,000 kilos of fruit in a 7-10 year period, but because of its volatility and distance from western markets, it can only be handled by vacuum freeze drying. It is the freeze dried plant which is used in studies because only this form preserves the phytochemical content, enzymatic activities, nutritional value, antioxidant activity and taste. Schauss also detailed the mineral, amino acid, lipid, fiber and phytochemical content and antioxidant capacity of Acai.

Schauss spoke of brain health and oxidative stress and presented some studies on how Acai can be used to quench excessive free radicals which are implicated in many brain health issues such as Alzheimer's, Parkinson's, stroke and dementia.

### Maret Traber, PhD

#### *Vitamin E Revisited*

Dr. Traber's presentation attempted to make sense of the years of equivocal studies on the efficacy of vitamin E in preventing chronic disease. The signs of vitamin E deficiency were discussed and despite the fact that 90% of men and 96% of women do not consume adequate Vitamin E, she noted that deficiencies are almost never due to low intake but rather poor fat absorption or impaired lipoprotein synthesis in the liver. The deficiency symptoms can be as diverse as peripheral neuropathy and muscle weakness

Maret went into the possible reasons the legacy of inconsistent conclusions



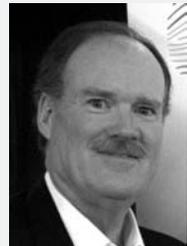
Michael Schacter, MD



John Hoffer, MD, PhD



Ron Hunninghake, MD



Jeffrey Bland, PhD

in vitamin E research. She ventured that some negative studies may be due to insufficient dose, type of participants and the use of the synthetic form of vitamin E.

### **Michael Schachter, MD**

#### *Making Decisions about Cancer Treatment*

Dr. Schachter has been the medical director of the Schachter Center for Complementary Medicine in Suffern NY. His presentation focused on what patients need to consider before making decisions on conventional or orthomolecular cancer treatments, treatment course.

Integrative medicine evaluation is about treating the patient as a person, assesses strengths and weaknesses and evaluates their support systems, with a full clinical history and physical exam, assessment of lifestyle factors and a nutritional and laboratory testing. Schachter's Integrative lab testing checks for particular vitamins and any immune-suppressive heavy metal burdens such as lead or mercury. Schachter's integrative cancer therapies use organic food, exercise, stress management, sunlight, sleep, supplements, detoxification and energy treatments. His advice to patients was simple: we are all entitled to make our own decisions about health, and we should be empowered not bullied by the medical establishment.

### **John Hoffer, MD, PhD**

#### *High Dose Ascorbic Acid and Cancer*

Dr. John Hoffer has long been involved in investigating the effects of high-dose vitamin C in cancer therapy. He is not a

voice in the wilderness by any means. It is estimated, he said, that 64-82% of cancer patients use nutritional supplements of their own, 14-32% start after diagnosis, and 68% of their physicians are unaware of this adjunctive therapy. Mainstream oncology's bias against vitamin C seems to be centered on conjecture that it may reduce the effectiveness of standard chemotherapy. To address this issue, Dr. Hoffer put forward a hypothesis that vitamin C may amplify the cytotoxicity of chemotherapy for cancer cells while quenching it for normal cells.

Whether antioxidants are beneficial or harmful is now a critical question, but one without a clear scientific answer at this time. When the evidence is inconclusive, Dr. Hoffer suggested that patient values, preferences and circumstances will loom larger than when the evidence is strong. Future evidence should focus on polished case histories, disseminated statistics.

### **Ronald Hunninghake, MD**

#### *Oral vs Intravenous Vitamin C*

Dr. Hunninghake, current chair of the ISF and director of the Kansas' Center for the Improvement of Human Functioning presented a talk which weighed the differences in oncology paradigms-what he termed allopathic vs orthopathic cancer therapies. Allopathic oncology represents establishment medicine and falls into a predictable pattern of treating the disease by determine the grade, killing cancer cells, and creating more oxidative stress with the quality of survival rather ignored.

The orthopathic approach, by comparison, is a path which Dr. Hunninghake follows and first and foremost concerns itself with treating the patient as a person, correcting the underlying causes of disease, strengthen healthy cells, lessening oxidative stress and improving the overall quality of life. Dr. Hunninghake also described the orthopathic approach created by his late colleague, Dr. Hugh Riordan. This is the "RECNA" approach



David Quig, PhD



Patrick Holford

which first developed the doctor-co-learner relationship and created a goal for the patient to heal themselves through learning and using the healing power of nature and food as medicine. Vitamin C is the main biological response modifier in cancer treatment which is known to boost immunity, stimulate collagen, inhibit hyaluronidase and relieve the general scurvy of cancer.

### **Jeffrey Bland, PhD**

#### *The Past, Present and Future of Orthomolecular Medicine*

Jeffrey Bland has been teaching functional medicine to physicians, health care practitioners, students, and audiences around the world for over 20 years. Bland's presentation, laid out an historical overview of the early progenitors of orthomolecular medicine, the emergence of orthomolecular medicine per se, 40 years ago, and the issues practitioners will face in the future and ideas on how we may overcome them. In the present we are faced with a curious stand-off in assessing the efficacy of orthomolecular medicine. There often seems to be a discrepancy between the positive effects of orthomolecular therapy in observational studies which often fails to be confirmed in large randomized trials.

Bland then speculated on the future of orthomolecular medicine and he believes epigenetics will factor strongly in future studies of human diseases. Epigenetics may help explain the relationship between the genome and the environment and may provide clues for modifying these effects in disease prevention and therapy.

### **David Quig, PhD**

#### *Safe and Efficacious Metal Detoxification*

Metal detoxification an oft-overlooked health optimizer, according to Dr. Quig. His talk covered hair and blood analysis, the best ways of assessing chemical and metal toxicity and also outlined the various ways

of treating heavy metal overload in the body. Some ways are not generally known, such as boosting the body's endogenous chelating molecule, glutathione by supplementing with its precursors vitamin C, NAC, lipoic acid and glycine. Another of Quig's strategies is to increase dietary protein which helps to excrete metals, and use IV chelation for heavier metal burdens. Assessment is done in two basic ways. Hair analysis because metals irreversibly bind to hair and blood tests which can be used to assess recent acute exposures which is the gold standard, but not indicative of the body burden. Dr. Quig explained that particular metal burdens may respond to specific chelating strategies and provided the example of the amino acid, glycine, which if taken orally has the advantage of going right into cell, bringing metals to the extracellular surface, and pulling toxins out of cells. Glycine is best used in conjunction with other agents to remove toxins from the body.

### **Patrick Holford**

#### *Dysglycemia—The Common Factor in Mental Disorders*

In 1984 Patrick Holford founded the Institute of Optimum Nutrition, the Food for the Brain Foundation and has also written a total of 29 best-selling books.

Mr. Holford presented studies linking high sugar diets and insulin resistance to depression, aggressive behaviour, dementia, memory loss and heart disease. Other studies showed an inextricable link between depressive disorders and metabolic syndrome, indicating that either condition often follows the other. This is consistent with an orthomolecular approach to treating disease.

In his book "The GL Revolution" Mr Holford recommends simple rules such as eating no more than 40/60 GLs a day; eating protein with carbohydrates; and grazing rather than gorge. These three simple steps can stabilize blood sugar levels, support weight loss and treat a plethora of physical and mental illnesses.