



Richard R. Lyon
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Dr Michael Lyon

and the Canadian Centre for
Functional Medicine

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The Canadian Centre for Functional Medicine (CCFM) joins an impressive list of world-class Canadian facilities advancing the study of integrative therapies. In addition to design and execution of human clinical trials, the team is also responsible for developing “new product discoveries”. What sets the centre apart from most other research facilities is their total commitment to transparency; each and every member of the team signs agreements to the effect that no individual is to directly profit from any new product developed at the centre. The team has created a model of knowledge transfer that ideally will become the standard for similar research facilities around the world.

Dr Michael Lyon, MD serves as the medical and Research Director of the CCFM. Dr Lyon has long functioned as an Adjunct Professor at the University of British Columbia, and the CCFM has become an educational outreach of UBC. Collaboration between the centre and

UBC occurs on many levels, including ongoing research and clinical experiences for UBC registered dietitian students, internships for graduate students of other health sciences programs, and collaboration concerning planning/ execution/ data analysis of human intervention trials.

The 3500sqft facility boasts the luxury of neighbouring with a 10000sqft analytical lab located above, and adjacent to a large manufacturing facility. The CCFM team includes two MD’s, an endocrinologist, a naturopathic doctor, a registered dietitian, five nurses, up to five graduate students, and administration staff. The two most impressive initiatives of the centre include development of novel nutraceutical products subsequently tested in part within their facility, as well to ongoing development of novel clinical programs.

Development of novel nutraceuticals has already produced medicines of tremendous importance. The centre has



played an important role in bringing L- theanine to North America, and subsequently producing eloquent evidence of its impact on humans. In addition to validating efficacy of L- theanine as a sleep aid using novel objective markers of sleep quality, the team demonstrated the ability of L- theanine to reduce circulating cortisol levels when administered in the morning and after school in children.

The centres crowning jewel thus far concerning novel nutraceutical development is PGX. Researchers such as Dr Vuksan of the University of Toronto are credited with discovering the effects of glucomannan, a highly viscous fibre that showed promise as a means of improving blood glucose control in diabetic individuals, as well as improving lipid profiles. However, subsequent human trials with glucomannan demonstrated disappointing results. While the intervention modestly improved the desired parameters, the fibre was intolerable by most subjects. Consumption of therapeutic doses produced “the bean effect”; copious

amounts of gas and bloating. Subjects in clinical trials of glucomannan also complained of “taste”, or more appropriately “grittiness”. The fibre forms a sticky, gritty gel in water or food making it very difficult to consume and if taken in capsule form it forms a hard lump and doesn’t dissolve at all.

Dr Lyon and colleagues worked for several years with the objective of modifying glucomannan to improve palatability while improving upon the metabolic advantages of its highly viscous nature. The project was a tremendous success, with PGX as the finished product. Relative to glucomannan, PGX exhibits delayed viscosity, improved stability (not degraded by sheer force or PH), and higher viscosity than the parent fibre. Clinically, as demonstrated by an independent third party research facility, PGX consumed with a food lowers the glycemic index of the food in question. The question becomes, does this impact the course of diabetes?



Dr Lyon described with much excitement an ongoing clinical trial underway in collaboration with the highly esteemed bariatric specialist Dr Wharton, practicing in the Hamilton, Ontario area. In a clinical trial of 200 individuals with diabetes, PGX will be examined for impact to HbA1C, circulating inflammatory cytokines, and gut- derived neuropeptides, notably GLP-1 and GIP.

Novel clinical programs initiated by the CCFM deserve tremendous praise. Obesity has unequivocally been identified as the true epidemic of the 21st century. The centre is pioneering practical approaches to obesity management. Dr Lyon and colleagues have initiated a series of programs that are poised to revolutionize healthcare across Canada.

The challenge with medical management of obesity centres upon the constructs of the current medical system in Canada. Dr Lyon describes a familiar obstacle; provincial healthcare in BC offers physicians \$30 per patient visit. This payment system cannot possibly allow a physician to afford the time required to educate patients concerning strategies of successful weight management. Furthermore, evidence has clearly demonstrated a single visit with education on weight management strategies is not efficacious. Constant follow-up is required. As such, Dr Lyon has worked tirelessly with the Ministry of Health in BC to facilitate the creation of a system whereby physicians can be compensated to work with patients towards obesity management. Part of the process includes compensation for physicians for longer patient visits. In addition, the team is trying to establish a system whereby a physician would be compensated as “multiple patient visits” while hosting group meetings as part of an obesity management program. The goal is to create a functional, sustainable, effective model that can then be replicated at multiple centres across the country.

To this effect, Dr Lyon and the CCFM have made considerable strides. The team has rolled out the “Smart Nutrition Program”, an initiative evaluating the efficacy of educating parents and children on healthful eating patterns.

Dr Lyon and his team have set a gold standard for delivery of indispensable health services to their community, with

a vision to have their work reach the entire country, and indeed the world. The obesity epidemic is very real, yet the scientific community appears reluctant to adequately address the issue. On the one hand, medical heroes devote their lives to creating awareness of the challenges ahead of us, investigating safe, efficacious, and practical means of addressing the problem. World authorities establish diagnostic criteria for metabolic syndrome; a handful of clinical trials demonstrate massive superiority of diet and lifestyle modification over pharmacotherapeutic intervention for a wide array of “metabolic” abnormalities, notably glucose management, hypertension, and dyslipidemia. On the other hand, voices whose underlying interests deserve intense scrutiny challenge these academically unchallengeable facts; numerous papers in the literature describe the concept of metabolic syndrome as useless; the status quo (aggressive pharmacotherapy) is reinforced, and anyone looking beyond this second- rate system of management of metabolic dysfunction is cast into a category of “non- evidenced- based practitioner”.

Fortunately, diet and lifestyle truly demonstrate a massive magnitude of superiority over the status quo. Efficacy is not comparable. Pharmacotherapeutic management of metabolic abnormality takes a distant back row seat. Although progression is slow, there are no longer a handful of clinical trials attesting to the gross inadequacy of pharmacotherapy relative to diet and lifestyle. Seemingly every nation on earth has initiated their own version of the now famous Diabetes Prevention Program trial published in the 2002 New England Journal of Medicine.

What is obviously lacking is the infrastructure to offer this first- line treatment strategy at the population level. Dr Lyon; the team of IHP, and the millions of future Canadians estimated to be afflicted with diabetes and other obesity- related diseases over the coming decades unanimously plead with you; please continue your tremendous efforts. We need a healthcare system that can treat obesity. Currently we are failing miserably. The handful of medical heroes bringing attention to this area are charged with bringing the rest of the healthcare professions up to speed. We wish you much success. ■

