Hair Tissue Mineral Analysis / Nutritional, Herbal and Natural Medicine / Practitioner Education

InterClinical Laboratories eNews

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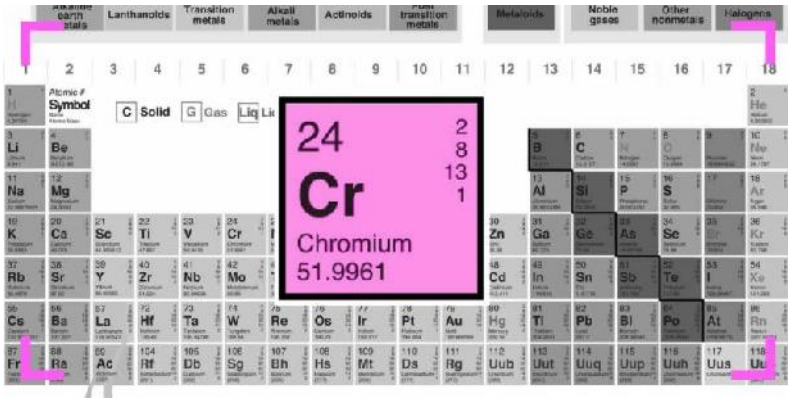
The role of chromium in blood sugar control



Chromium was originally discovered by Frenchman Louis-Nicholas Vauquelin in 1797. The word "chroma" means colour and reflects the colourful range of chromium compounds Vauquelin observed. In 1959 chromium was discovered to be an essential nutrient with an important physiological role as a constituent of the glucose tolerance

factor (GTF). It works synergistically with insulin in promoting the uptake of glucose into cells.

In this month's eNews we look at chromium and the role it plays in diabetes, glucose and cholesterol control.

InterClinical Update

Effect of chromium supplementation on glycated haemoglobin and fasting plasma glucose in patients with diabetes mellitus.

Diabetes glycaemic control is an essential component of diabetic maintenance. Poor diabetic control of diabetes mellitus (T2DM) can lead to

hypertension, high cholesterol, elevated glycated haemoglobin and an increased risk of developing nephropathic and atherosclerotic changes.(1,2) Diabetes also causes changes to the manner in which fatty acids are metabolised resulting in elevated low density lipids, triglycerides and lower high density lipids. Cholesterol and fatty acid markers are appropriate parameters for inclusion when assessing diabetes status.

This meta-analysis evaluated placebo-controlled randomised clinical trials which examined the influence of chromium supplementation on fasting blood sugar, insulin and cholesterol in pharmacologically-managed diabetics. Specific markers tested included: diastolic and systolic blood pressure, fasting blood sugar, glycated haemoglobin, fasting insulin and a full array of cholesterol markers. These included: high density lipoprotein HDL-C, low density lipoprotein (LDL), total cholesterol (TC) and triglycerides (TG).(2)

Twenty eight randomised clinical trials met the eligibility criteria. The studies were similar enough for the data to be pooled and the participants totalled 1,295. Average age of the participants per trial ranged from 36 to 83 years.

Ten studies used chromium picolinate, eight used chromium chloride and two utilised chromium complexed with nicotinic acid. Four used a food source of chromium - brewer's yeast. Study durations varied from 6 to 24 weeks with a median duration of 13.75 weeks. Study doses varied depending on the form of chromium used, but the majority of the chromium chloride studies used a dose of 200 mcg per day. All studies were assessed as good quality with a low risk of bias.(2)

The review found that chromium supplementation significantly lowered fasting blood sugar levels by 0.99 mmol/L ($P = 0.008$), lowered glycated haemoglobin by 0.54% ($P = 0.0002$) and lowered triglycerides by 11.71 mg/dL ($P = 0.0006$) whilst raising beneficial HDL-C cholesterol levels by 1.73 mg/dL ($P < 0.006$) in T2DM when compared to placebo.(2) Insulin and blood pressure marker changes were non-significant.

Chromium chloride and chromium picolinate performed more favourably than the other forms, regardless of dose. The authors concluded that chromium supplementation may be a candidate as a possible adjunct therapy in the management of medically diagnosed Type Two diabetics' management plans (2)

References

1. Yeap BB, McCaul KA, Flicker L, Hankey GJ, Almeida OP, Golledge J, Norman PE. Diabetes, myocardial infarction and stroke are distinct and duration-dependent predictors of subsequent cardiovascular events and all-cause mortality in older men. The Journal of Clinical Endocrinology & Metabolism. 2015 Mar 1;100(3):1038-47.
2. Yin RV, Phung OJ. Effect of chromium supplementation on glycated haemoglobin and fasting plasma glucose in patients with diabetes mellitus. Nutrition Journal. 2015;14:14.

RECENT EVENTS

Report on ACNEM Training

(29th-30th July 2017)

Novotel Brisbane, QLD

The Australasian College of Nutritional and Environmental Medicine (ACNEM) Environmental Health module was a fantastic two day

program designed for GPs, Registrars and other graduate healthcare professionals to educate practitioners on the recognition of environmental toxins, their effect on human health and how a patient affected by them may present to you in clinical practice.

This module gave an overview of the major toxins, signs and symptoms of exposure, and identification of clinical testing available. Practical solutions to minimising patient exposure, and specific treatment strategies to improve health outcomes were given.

InterClinical always enjoys being a part of ACNEM and their training programs. We proudly showcased our products and services designed to assist you to help your patients. It was fantastic to see lots of familiar faces as well as meet new ones.

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