

## ELEMENTAL COMPOSITION OF LEUKOCYTE SUBFRACTIONS

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Considerably more knowledge can be obtained through investigating trace element concentrations of intracellular blood components. These components can potentially be of great importance especially in endocrine diseases, it is a consideration that elemental concentrations from blood cells may give more valuable indications about the bodies metabolic state than trace element concentration in plasma or serum.

Most analysis work appears to exist on the blood fractions – plasma, serum and erythrocytes. Consequently the analysis of various types of blood fractions, ideally various types of leukocyte (white blood cells) subfractions e.g. polymorphonuclearcytes (neutrophils, PMN) peripheral blood mononuclear cells (leukocytes and monocytes, PBMC) could be of great importance, possibly giving improved indication to medical complications and diseases. Along with the reasoning that the white cells diverse life spans may be less susceptible to immediate environmental, diet or lifestyle change and that leukocyte subfractions are homogenous cells, containing a nucleus and are therefore more representative of biological tissue.

A vast amount of immunological and inflammatory changes are known to occur with patients undergoing any operation, these are shown to be highly influenced by the concentration of trace elements such as Cu, Zn and Se. A number of these major trace elements play a principal role in the body's antioxidant process protecting the body from harmful free radicals. These free radicals are removed by the body's antioxidant system, as accumulation would be cytotoxic to cells causing oxidative stress or cellular necrosis.

The aim of this study is to examine in a normal subject various subfractions of leukocyte blood along with plasma, for their trace element concentration. This is in order to establish a reliable technique for separation and analysis which can be applied to the determination of elemental concentrations in leukocyte subfractions from patients undergoing heart by-pass surgery. Instrumental neutron activation analysis (INAA) analysis was the simultaneous, multielemental technique employed to determine the concentrations of elements. Results from these investigations will be presented along with possibilities for further work