The R GUI: Best Body Size Estimator for Optimum Total Cholestrol Level and Total Cholestrol Level Estimator by Age Groups

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Abstract

Cholesterol levels should be measured at least once every five years in everyone who is over age 20. The tests which are usually performed is a blood test called a lipid profile. Experts recommend that men are 35 years old or older and women are 45 years old and older should be frequently screened for lipoprotein profile includes; total cholesterol, LDL (low-density lipoprotein cholesterol), HDL (high-density lipoprotein cholesterol), triglycerides (triglycerides are the form in which fat exists in food and the body).

In this study, aimed to estimate total cholesterol level per age group by the aid of Kriging metamodeling, to find best body size, blood pressure per age group by using Efficient Global Optimization (EGO) and to make R GUI solves problem automatically to provide user friendly analysis tool. Used variables; systolic, diastolic blood pressure, waist circumference, hip size, height, weight and age were used as independent variables and total cholesterol level was used as dependent variable. This data were provided from 1956 people who are in 17 - 68 age range.

All the data were collected by nurses from the people who applied to a public health care center in three months time period within the scope of general health screening.

By the agency of this study, people would have had an idea about their total cholesterol levels not to need blood tests. They put their age, weight, height, systolic and diastolic blood pressure, waist circumference, hip size to this model and their total cholesterol level is estimated by the aid of R GUI. By this means, this model would have been an early warning system for too high or too low total cholesterol levels.

Key Words: Total Cholesterol Level, Cholesterol Level Estimation, Kriging Metamodeling, Efficient Global Optimization, R, R GUI.