



Case Study: Prediction Of Percentage Of Body Fat

Prediction Of Percentage of Body Fat



In recent years, heart diseases, cancer, diabetes have been found to be a burden to the health sector causing millions of deaths each year. One of the most key factors to develop these diseases is obesity and excess body fat. Accumulation of fat in blood vessels causes the vessel walls to be thicker which reduce the flow of blood into the heart which causes problems related to the heart. Access amount of body fat is responsible for the different kinds of cancers: kidney, endometrium, bowel, pancreas, esophagus and breast cancers. Therefore, controlling obesity is becoming an important health issue in today's world. Many of the health books written by nutritionists and medical practitioners have suggested their readers measure the percentage of their body fat to access their health.



The measurement of body fat is a tedious process and requires highly experienced medical However, the experts. measurement may vary from person to person on the basis of their approach and experience. Different researchers have tried to implemented machine learning algorithms such to overcome difficulties and maintain the accuracy of the prediction of body fat. One of such approach is by using the measurement of the various circumferences of the body and applying a multiple linear regression model. The features included as inputs are Density determined from underwater weighing, Age (years), Weight (lbs), Height (inches), Neck circumference (cm), Chest circumference (cm), Abdomen 2 circumference (cm), Hip circumference (cm), Thigh circumference (cm), Knee circumference Ankle (cm), circumference **Biceps** (cm), (extended) circumference (cm), Forearm circumference (cm), Wrist circumference (cm).



Source: http://naturallyintense.net

According to Siri's equation the body fat is calculated as: B = (1/D)*[ab/(a-b)] - [b/(a-b)], where D =Body Density (gm/cm^3),A = proportion of lean body tissue, B = proportion of fat tissue (A+B=1), a = density of lean body tissue (gm/cm^3), b = density of fat tissue (gm/cm^3), D = 1/[(A/a) + (B/b)].



Model Details

Model developer information and all details needed for governance

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Model Visualization

Details of the Models





Analyzing Predictions







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References

[1] Roger W. Johnson, Department of Mathematics & Computer Science, South Dakota School of Mines & Technology, 501 East St. Joseph Street, Rapid City, SD 57701,

[2] Yuehjen E. Shao, "Body Fat Percentage Prediction Using Intelligent Hybrid Approaches"

[3] http://naturallyintense.net

