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**Boniface Otieno Kwach\*** (brokwach@yahoo.com), P. O. BOX 1580, KISUMU, KENYA,  
KISUMU, NYANZA 40100, Kenya. *Mathematical Model for Drug Therapy in Patients With  
Diabetes Mellitus.*

This study presents a new mathematical model for Drug Therapy in Patients with Diabetes Mellitus which includes external rate at which blood glucose, insulin and epinephrine is being increased in the form,  $\dot{Y} = f_i(g, h, e) + r_i(t)$ . The system has been analyzed and solved to provide the systems natural frequency,  $\omega_0$ , which is the basic descriptor of saturation level of the drug. We establish that the resonance period for the final model, that is,  $T_0 = 3.76912$  hrs, agrees well with the data for the existing insulin therapy, showing that the peak, which is the time period for insulin to be most effective in lowering blood sugar, is in the acceptable therapeutic range.

**Mathematics Subject Classification:** Primary 93A30; Secondary 91B74, 93C15, 92C50, 92C42

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