Introduction

Modelling of repeated measures deals with the analysis of multiple data points per subject. The data may represent clustered observations (e.g. observations collected on each tooth of a subject's mouth) or observations collected over time (longitudinal data). The first data set for this lecture is reported in Lang, et al. (NEJM, 1995). They studied the effect of isoproterenol on forearm blood flow in a group of normotensive men - 9 black and 13 white. Each subject's blood flow was measured at baseline and then at escalating doses of isoproterenol. The primary hypothesis is whether white males are more responsive to increasing doses of isoproterenol than black males.

Isoproterenol data set

The variables in the data set are defined as follows:

- ID $= 1, \ldots, 22$

- DOSE $= 0, 10, 20, 60, 150, 300, 400$ (ng/min)

- RACE $= 1$ (white) and 2 (black)

- FBF $=$ forearm blood flow (ml/min/dl)

- BASELINE $=$ baseline FBF (ml/min/dl)

We follow the authors' recommendation and remove subject 8's observations (see article, p. 156).