**Job description: -**

1. **Tables with all beta, 95% Ci’s, p-values. (With table title and footnote)**
2. **Written statistical interpretation (not clinical interpretation) of the Tables. To be added to (results section)**
3. **Names of statistical tests used**

**Enter method or stepwise method?**

**To answer objective (1):**

Investigate the effect of *FTO* 609 on the risk of developing **obesity and T2D** in healthy young adults with a family history of T2D.

Perform a linear regression analysis in the following order:

1. **Obesity:**

-**FTO609 (independent)** versus **BMI alone** (Continuous no categorical) then

record beta, confidence interval an p-value.

-Then preform the test again with adjusting for **gender alone.** (Independent)

-Then perform the test again with adjustment for **age alone.**  (Independent)

-Then perform the test with adjustment for **age and gender.** (independent)

**Record all beta, 95%Cis and p-values.**

1. **T2D:**

Linear regression analysis of **FTO570 (independent)** versus **FH of T2D (Yes/No)** (dependent) (Exclude the 1 male raw with a personal diagnosis of T2D).

Then perform the linear regression test again while adjusting for **gender alone.**

Then perform the test again with adjustment for **age alone.** (Independent)

Then perform the test with adjustment for **age and gender.** (Independent)

**Record all beta, 95% CI s and p-values.**

**To answer objective (2)**

Assess the effect of *VDR* gene polymorphisms, and Vitamin D deficiency on the **risk of developing obesity and T2D** in healthy young adults with family history of T2D.

Same as above LINEAR REGRESSION

1. **Vitamin D levels** (Use continuous variable) (NO CATEGORIZATIONS):

Each SNP **(VDR570, then VDR232) (independent)** versus **vitamin D level alone.** (dependent)

Then Genotype versus vitamin D level while adjusting for **age alone.** (Independent)

Then adjust for **gender alone.** (Independent)

Then adjust for **both age and gender.** (Independent)

**Record all beta, 95%CIs and p-values**

**(FTO Gene is not associated with Vitamin D)**

1. **Obesity:**

Each SNP genotype **(VDR570, then VDR232)** versus **BMI alone**

Then adjust for **age alone** and test (Independent)

Then adjust for **gender alone** and test (Independent)

Then adjust for **both gender and age.** (Independent)

**Record all beta, 95%Cis and p-values.**

1. **FH T2D:**

Each SNP genotype **(VDR570, then VDR232)** versus **FH T2D (yes/no) category alone**. (exclude 1 male raw with T2D)

Then adjust for **age alone** and test. (Independent)

Then adjust for **gender alone** and test. (Independent)

Then adjust for **both gender and age.** (Independent)

**Record all beta, 95%Cis and p-values**

1. NOTE: **Vitamin D levels** have been shown to affect **cholesterol levels and TG** to some extent, it would be worth it if you can do this analysis.

**Linear regression is the test to use here.**

You might be asked to do **Bonferroni adjustment** for **multiple testing your significance level will change as:**

When you are testing FTO with **2 major outcomes**; obesity and FH\_T2D

**(adjusted p-value =0.025)**,

When you are testing VDR570 or VDR232, with **3 outcomes**; vitamin D level, obesity and FH\_T2D **(adjusted p-value = 0.016).**