The manuscript has a potential; however, the manuscript needs thorough revision (both proofreading and content).

For example, in the Abstract- stains were not specified – Lines 18-19, Diversity Outbred was now specified: “840 genetically unique Diversity Outbred mice”

number of female and male were not specified – Line 19, number of male and female mice now specified: “mice of both sexes (n=417 male and 423 female)”

percent of fat (and cholesterol) in high fat diet was not specified – Lines 19-21, calories from diets are now distinguished, cholesterol was not stated for either diet per their laboratory diet sheet: “on both a control chow (% kcals in diet: Protein 22.3%, Carbohydrate 61.7%, Fat 16%) and high fat high sucrose (% kcals in diet: Protein 14.7%, Carbohydrate 40.7%, Fat 44.6%).”

p values were not specified – Line 24, p-values for DO and BXD mice calcium associations are now included: “in both diversity outbred (p=3.0 x 10-43) and BXD (p=0.005) mice”

Fig 1B- where is the BW marked? – BW was included in a previous analysis before the addition of more data. Once that data was included and we re-analyzed the data it was no longer included. Thank you for catching that error.

Which strain? - For 1b, strain is indicated on line 83. This analysis was done in the 840 DO mice.

Additionally, were the mice monitored for food consumption? – In the dataset that was available to us, there was no measure of food consumption included and therefore no analysis was done for that measure.

This manuscript lacks many details that should be added (referencing to ref 9 in not enough). – Lines 57-66 more details were added from reference [9] regarding the DO mice: “Animals were first received at wean age (3 weeks old) and then distributed into cages of five same-sex animals per cage. Animals were housed in pressurized, individually ventilated cages (Thoren Caging Systems, Hazelton, PA) with pine bedding (Crobb Box, Ellsworth, ME) and had ad libitum access to food… . Blood from mice was obtained from the retro-orbital sinus after administration of tetracaine HCl (a topical anesthetic) using a heparin-coated microcapillary tube and collected into a 1.5-ml eppendorf tube. For collection of blood plasma, approximately 150μl of whole blood was collected into a tube and plasma was separated by centrifugation at 10,000 rpm for 10 min at 4° celcius and removed into a clean eppendorf tube”

More detailed discussion should be written regarding the relationship between diet and cholesterol and calcium levels