As a high-quality graduate statistics student, the best explanation for the purpose of randomization in this study is:

\*\*(C) To reduce the amount of sampling error.\*\*

Here's the reasoning:

- \*\*Randomization\*\* in experimental design is primarily used to ensure that each participant has an equal chance of being assigned to any of the treatment groups, including the placebo group. This helps in balancing out known and unknown confounding variables across the groups, which in turn reduces \*\*bias\*\* and \*\*sampling error\*\*.

- \*\*Option (A)\*\* is somewhat vague. While randomization does contribute to the overall accuracy by reducing bias, "increase the accuracy" is not the most precise explanation of its purpose.

- \*\*Option (B)\*\* is incorrect because the purpose of randomization is not to ensure equal chance of selection into the study but rather equal chance of assignment to treatment groups once selected.

- \*\*Option (D)\*\* and \*\*Option (E)\*\* are identical and focus on preventing skewness, which is not the primary purpose of randomization. Skewness refers to the asymmetry of the probability distribution of a real-valued random variable, and while randomization can help in achieving a more normal distribution of outcomes across groups, it's not the main goal.

Therefore, the most accurate and precise answer in the context of experimental design and statistics is \*\*C\*\*. Randomization helps in creating comparable groups at the start of the study, which reduces the potential for sampling error by ensuring that any differences observed at the end of the study are more likely due to the treatment (Vitamin E levels) rather than pre-existing differences between groups.