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**Article Critique Research Essay**

The article, “French-fried potato consumption and energy balance: a randomized controlled trial” by Smith et al seeks to address whether increased daily consumption of potatoes influences positive energy balance (weight gain) compared with calorie-matched almond consumption. Obesity is a prevalent health concern (Smith et al 2022). Background information shows that increased potato consumption increased the risk of type 2 diabetes, obesity, and CVD due to the high glycemic index of potatoes while almond consumption has the opposite effect because of the low glycemic index (Borch et al 2016; Hollis and Mattes 2007; Smith et al 2022). Nonrandomized evidence from observational studies in nutrition studies establish a causative role; however, causation is accepted due to counterevidence or presumed true in the absence of any probative study. Therefore, the current study adds to the existing literature by using randomized controlled trials (RCT) to determine causation.

The research question addressed in the study is whether an increased daily intake of potatoes results in energy balance, in particular, fat mass compared with almond consumption with the same calories. Another research question seeks to determine whether a spice/herb mix eaten with potatoes has a significant effect on glycemic control (Smith et al 2022). The hypothesis tested suggests that there is no difference in weight gain with increased daily consumption of potatoes compared to calorie-matched almonds.

The study design is strong as it addresses the research questions. The design is an RCT with parallel randomization. Participants were selected from UAB and surrounding communities through advertisements, social media, and fliers (Smith et al 2022). After careful phone screening, 180 participants were selected using the stated inclusion and exclusion criteria. They were randomly placed into three equal “study groups” of n=60 as follows: almond diet, standard potato fries, and potato + spices/herbs (Smith et al. 2022). In RCTs, the number of participants in each study group is equal (Muraki et al 2016). Furthermore, the study employs certified controls for analysis. ANCOVA analysis is used to determine the interaction effects of different variables (Borch et al 2016). Accuracy and precision were reported using p values to indicate the statistical significance of the results.

Smith et al (2022) concluded that there is no notable difference in fat mass after 30 days of daily potato consumption versus almonds. This means that there is no causal relationship between potato French fries consumption and negative health outcomes; thus, validating the hypothesis. The conclusion depicts excellent generalization of research findings beyond the study group to address the central objective. The discussion of the results significantly considers available literature. For example, the study considers previous research which suggests that the specific form of potatoes eaten was not more important than the food item for overall significance. The herb/spiced fries were similar to standard fries in fat mass implication despite the difference in calories, fat content, and macronutrients. Thus, the data justify the conclusion. The study was limited to 30 days which may not have addressed whether the dietary changes in question would have impacted health over decades or years (Smith et al 2022). Additionally, the study didn’t include diabetes patients; hence failing to address whether the potato diet is good for diabetic patients. On the other hand, the strengths of the study include the random assignment of participants to study groups which reduced issues associated with unknown confounding, multiple testing, multiple collinearities, and additional inherent design elements. Despite the limitations of the study, the outcomes will be long-term since few RCTs address similar topics and there is no conflict of interest noted.

Word count: 588

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