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The impact of a Western diet on body weight and Health: Data from a rat model of mammary carcinogenesis

Abstract:

Mammary cancer is one of the most prevalent types of cancer worldwide, affecting millions of individuals each year. Obesity, characterized by excessive accumulation of body fat, has been identified as a significant risk factor for the development and progression of mammary cancer. The impact of a high-calorie diet on mammary tumor development was investigated in Wistar rats induced with N-methyl-N-nitrosourea (MNU). Twenty-eight female rats were randomly assigned to four groups (n=7): WD (Western diet); WD+MNU; SD (standard diet); SD+MNU. The rats had unlimited access to water and food. The WD groups received a high-fat diet (60% of calories from fat), while the SD groups received a standard laboratory diet. Body weight, and humane endpoints were recorded weekly. Lee index, body mass index, and specific rate of body mass gain were calculated. The initial body weights were found to be lower than the final weights ($p<0.05$), without significant differences observed across the groups ($p>0.05$). The final body weights were found to be slightly higher in the WD groups ($p>0.05$). The Lee index and body mass index were similar across the groups ($p>0.05$). The specific rate of body mass gain was found to be slightly increased in WD groups ($p>0.05$). No statistically significant differences were observed in humane endpoints. These findings suggest that a high-calorie diet did not significantly influence body weight parameters or humane endpoints in MNU-induced mammary tumors in Wistar rats.

Biography

Ana Faustino is Professor at Department of Zootechnics of University of Evora and Researcher at CITAB/UTAD. She holds a Master in Veterinary Medicine and a European PhD in Veterinary Sciences.