New human milk fat substitutes from butterfat to improve fat absorption

A new human milk fat substitute (HMFS) was produced from butterfat. A 2-week's feeding experiment was performed using three groups of rats with 10 wt.% fat in their feed; the fat was either (1) butterfat-based HMFS + long-chain polyunsaturated fatty acids (LCPUFA), (2) the reference oil + LCPUFA, or (3) the reference oil without LCPUFA. The apparent fat absorption after intake of butterfat-based HMFS (95.9% +/- 1.8%) was significantly higher than the other two groups, indicating that much less calcium soap was formed after feeding butterfat-based HMFS. Calcium contents in urines and faeces from the two groups fed LCPUFA in their diet were lower than those without supplementation of LCPUFA, suggesting that LCPUFA could improve calcium absorption by reducing the calcium excretion. It can thus be concluded that the butterfat-based HMFS improves fat absorption, and supplementation of LCPUFA in the formula improves calcium absorption.