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Consumption of ultra-processed foods based on the NOVA classification system and association with diet's quality and clinical outcomes in Crohn's disease

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Retrospective studies highlight the negative effect of increased consumption of ultra-processed foods on the Crohn's disease (CD) risk[1], however studies investigating their consumption during the disease course are lacking. The aim of the present study was to assess the consumption of ultraprocessed foods and its association with diet's quality and clinical outcomes in CD.

Dietary intake and habits were assessed through two non-consecutive 24-hour recalls and a food frequency questionnaire, respectively. Diet's quality was assessed through the MedDietScore (range 0-55, higher values indicate higher adherence to the Mediterranean dietary pattern[2,3] and CVD score (range 0-11, higher values indicate higher adherence to dietary guidelines for the prevention of cardiovascular disease[4]. NOVA classification was used to estimate the intake of ultra-processed (NOVA 4) foods[5]. Follow-up data were collected at 6, 12 and 24 months [need for intensification/change of biologic agent, start of biologic agent/corticosteroids, disease activity, overall adverse clinical outcome (need for surgery, change of medication, start of biologic agent, administration of corticosteroids, need for hospitalization, cancer)].

250 adults [54.8% males, aged 41.2 ± 14.1 years, 26.9% obesity] were evaluated. The percentage of NOVA 4 in the daily energy intake was 25.7% (16.8, 41.8%). Higher consumption (4th quartile) of NOVA 4 was associated with higher energy ($p = 0.033$), protein ($p = 0.023$) and carbohydrates ($p = 0.028$) intake; lower MUFA intake ($p = 0.001$), fruit consumption ($p = 0.007$) and CVD score ($p = 0.031$); and higher consumption of red meat ($p = 0.001$), sweets ($p = 0.009$) and soft drinks ($p<0.001$), compared to the lowest consumption (1st-3rd quartile). No differences were observed between higher NOVA 4 consumption and disease outcomes, after adjustment for age, sex, disease location, disease activity and energy intake at 6, 12 and 24 months.

Consumption of ultra-processed foods had a median contribution to about ¼ of total daily energy intake in this sample of people with CD, which is almost half of that reported in young adults in Greece[6] or the general population in UK, USA and various countries in Europe[7,8]. Although higher consumption of ultra-processed foods was associated with lower diet's quality, it was not associated with adverse clinical outcomes at 6, 12 and 24 months of follow-up.

References

1. Vasseur P, Dugelay E, Benamouzig R, Savoye G, Lan A, Srour B, Hercberg S, Touvier M, Hugot, JP, Julia C & Buscail B (2021) *Inflamm Bowel Dis* **27**(1), 65–73.
2. Panagiotakos DB, Pitsavos C, Arvaniti F, Stefanadis C (2007) *Prev Med* **44**(4), 335–40.
3. Panagiotakos DB, Pitsavos C, Stefanadis C (2006) *Nutr Metab Cardiovasc Dis* **16**(8), 559–68.
4. Visseren FLJ, Mach F, Smulders YM, Carballo D, Koskinas KC, Back M, Benetos A, Biffi A, Boavida JF, Capodanno D, Cosyns B, Crawford C, Davos CH, Desormais I, Di Angelantonio Franco OH, Halvorsen S, Hobbs R, Hollander M, Jankowska EA, Michal M, Sacco S, Sattar N, Tokgozoglu L, Tonstad S, Tsioufis KP, van Dis I, van Gelder IC, Wanner C, Williams B, ESC National Cardiac Societies, ESC Scientific Document Group (2021) Eur Heart J 42(34), 3227–3337.
5. Monteiro CA, Cannon G, Lawrence M, Costa Louzada ML & Pereira Machado P (2019) Rome,FAO. [Available at: https://www.fao.org/3/ca5644en/ca5644en.pdf].
6. Detopoulou P, Dedes V, Syka D, Tzirogiannis K, Panoutsopoulos G (2023) *Int J Environ Res Public Health* **20**, 2806.
7. Kliemann N, Rauber F, Levy RB, Viallon V, Vamos EP, Cordova R, Freisling H, Casagrande C, Nicolas G, Aune D, Tsilidis KK, Heath A, Schulze MB, Jannasch F, Srour B, Kaaks R, RodriguezBarranco M, Tagliabue G, Agudo A, Panico S, Ardanaz E, Chirlaque MD, Vineis P, Tumino R, PerezCornago A, Andersen JLM, Tjønneland A, Skeie G, Weiderpass E, Monteiro CA, Gunter MJ, Millett C, Huybrechts I (2023) *Lancet Planet Health* **7**, e219–32.
8. Marino M, Puppo F, Del Bo C, Vinelli V, Riso P, Porrini M, Martini D (2021) *Nutrients* **13**, 2778.