Schematic description of exercise-induced gastrointestinal syndrome

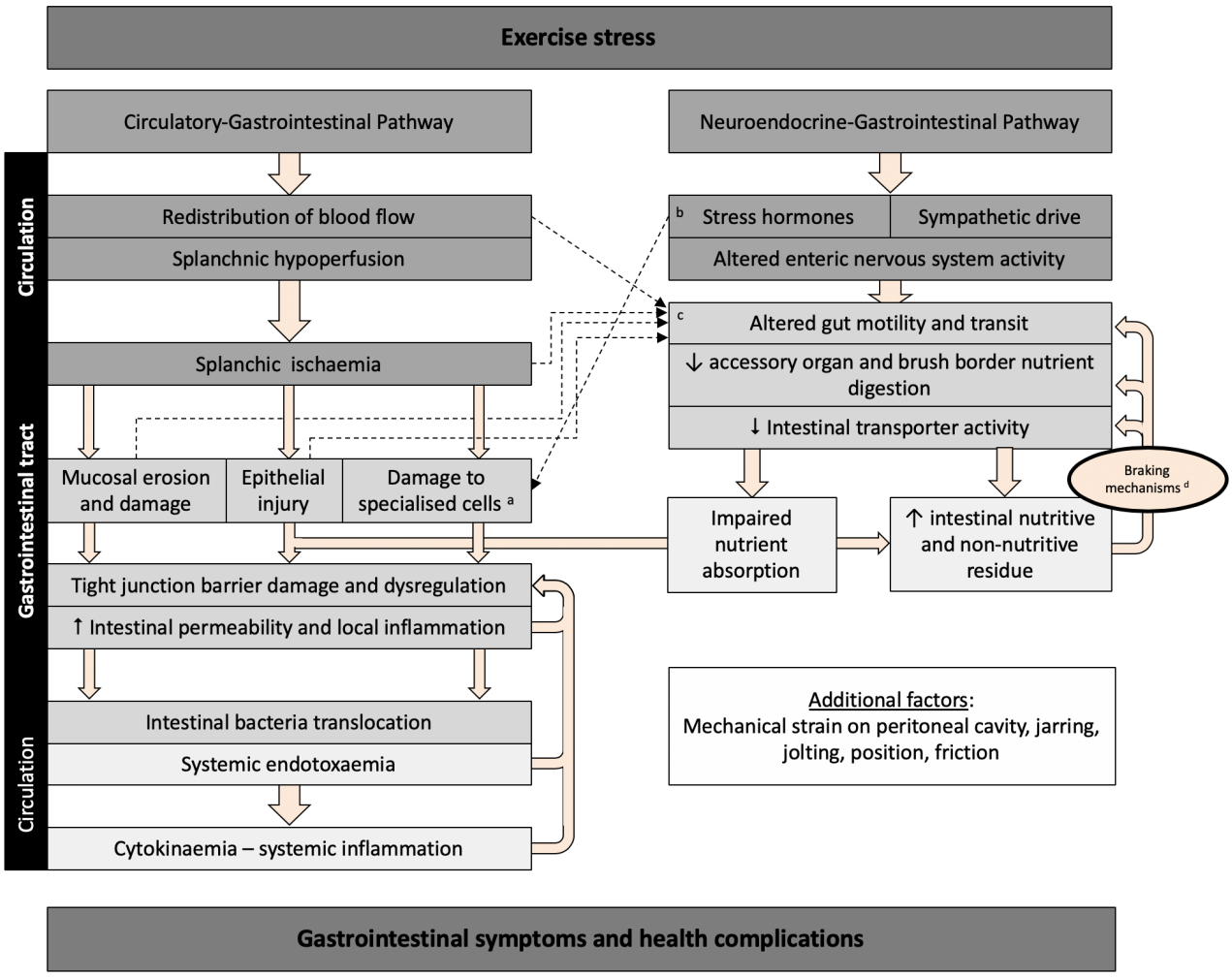
Schematic description of exercise-induced gastrointestinal syndrome: Physiological changes in circulatory and neuroendocrine pathways at the onset of exercise resulting in perturbed gastrointestinal integrity and function, and may lead to gastrointestinal symptoms, and/or acute or chronic health complications.

a) Specialized antimicrobial protein-secreting (i.e., Paneth cells) and mucus-producing (goblet cells) cells, aid in preventing intestinal-originating pathogenic microorganisms gaining entry into systemic circulation.

b) Splanchnic hypoperfusion and subsequent intestinal ischemia and injury (including mucosal erosion) results in direct (egg, enteric nervous system, and/or enteroendocrine cell) or indirect (egg and nutrient malabsorption) alterations to gastrointestinal motility.

c) Increase in neuroendocrine activation and suppressed submucosal and myenteric plexus result in epithelial cell loss and subsequent perturbed tight junctions.

d) Gastrointestinal brake mechanisms: Nutritive and non-nutritive residue along the small intestine, and inclusive of terminal ileum, results in neural and enteroendocrine negative feedback to gastric activity.



References

- Costa, R.J.S., Snipe, R.M.J., Kitic, C., Gibson, P., (2017). Systematic review: Exercise-induced gastrointestinal syndrome- Implication for health and disease. *Alim.Therap.Pharmacol.,* 46(3):246-265.

- Costa, R.J.S., Gaskell, S.K., McCubbin, A.J., Snipe, R.M.J (2019). Exertional-heat stress associated gastrointestinal perturbations- management strategies for athletes preparing for and competing in the 2020 Tokyo Olympic Games. *Temp.*, 7(1)58-88.

- McCubbin AJ, Allanson BA, Caldwell Odgers JN, Cort MM, Costa RJS, Cox GR, Crawshay ST, Desbrow B, Freney EG, Gaskell SK, Hughes D, Irwin C, Jay O, Lalor BJ, Ross MLR, Shaw G, Périard JD, Burke LM. (2020). Sports Dietitians Australia Position Statement: Nutrition for Exercise in Hot Environments. *Int.J.Sport Nutr.Exerc.Metab.* (In press).