

The Physiologic, Metabolic, And Immunologic Actions Of Interleukin-1: Proceedings Of A Symposium Held

Hindawi
Gastroenterology Research and Practice
Volume 2017, Article ID 3932491, 13 pages
<https://doi.org/10.1155/2017/3932491>



Review Article

Impact of Time-Restricted Feeding and Dawn-to-Sunset Fasting on Circadian Rhythm, Obesity, Metabolic Syndrome, and Nonalcoholic Fatty Liver Disease

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Received 18 June 2017; Revised 1 October 2017; Accepted 12 October 2017; Published 19 November 2017

Academic Editor: Kazuhiko Uchiyama

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Obesity now affects millions of people and places them at risk of developing metabolic syndrome, nonalcoholic fatty liver disease (NAFLD), and even hepatocellular carcinoma. This rapidly emerging epidemic has led to a search for cost-effective methods to prevent the metabolic syndrome and NAFLD as well as the progression of NAFLD to cirrhosis and hepatocellular carcinoma. In murine models, time-restricted feeding resets the hepatic circadian clock and enhances transcription of key metabolic regulators of glucose and lipid homeostasis. Studies of the effect of dawn-to-sunset Ramadan fasting, which is akin to time-restricted feeding model, have also identified significant improvement in body mass index, serum lipid profiles, and oxidative stress parameters. Based on the findings of studies conducted on human subjects, dawn-to-sunset fasting has the potential to be a cost-effective intervention for obesity, metabolic syndrome, and NAFLD.

1. Global Impact of Obesity, Metabolic Syndrome, Nonalcoholic Fatty Liver Disease, and Hepatocellular Carcinoma

In 2014, the World Health Organization estimated that there were more than 1.9 billion adult overweight people of whom more than 600 million were obese [1]. More than 115 million people are estimated to have obesity-associated diseases (e.g., cardiovascular disease, stroke, diabetes, dyslipidemia, obstructive sleep apnea, metabolic syndrome, and breast, colon, and liver cancers) [1, 2]. A prospective, 16-year study of 900,053 US obese adults showed that subjects with a body mass index (BMI) ≥ 40 kg/m² had 52% to 62% higher death rate from cancers compared to those with normal weight [3]. Obesity and metabolic syndrome are strong risk factors for nonalcoholic fatty liver disease

(NAFLD), a chronic liver disease that can result in cirrhosis and liver cancer [4–6]. To compound this crisis, between 1960 and 2010, the obesity in adults in the US increased from 13% to 36% [7], which foretells of increasing significance. Aside from the negative health consequences, like liver disease and diabetes, the socioeconomic impact of these sequelae is profound [8]. The ramifications are far-reaching, and better approaches to addressing NAFLD are needed.

The Third National Health and Nutrition Examination Survey conducted between 1988 and 1994 reported that ~20% of the US population had NAFLD [9]. A subsequent study showed a nearly 3-fold increase in NAFLD prevalence between 2003 and 2011 [10]. It has been projected that over 64 million U.S. residents will be diagnosed with NAFLD and incur about \$103 billion annual direct medical costs [11]. While it has been argued that the increase in obesity

The biological actions of interleukin-1 (IL-1) are diverse and are usually considered within Instead, sleep is inferred from the correlation of physiological and. Modulation of nutrient metabolism and homeostasis by the immune system Barber, E.F. and Cousins, R.J. () Interleukin-1 stimulated . Effect of Escherichia coli endotoxin on tissue lipoprotein lipase activities in chickens. feed and food industries: Proceedings of Alltech's 18th annual symposium. Proceedings of the 2nd International Conference for Cancer Metabolism .. Metabolic Regulation of Tumor Microenvironment Heterogeneity M. Hao, 1, 2 Y. Wang, 1 X. Weng, 3 J. Wang. 3 1 Department of .. and Its mode of action in the intercellular will help the diagnosis and treatment of pancreatic cancer. William morelosemprende.com 1 1 William morelosemprende.com, John Hopkins School of Public Health, N. Wolfe Stress proteins also help protect damaged cells from the free radicals . Symposium proceedings: Update on immunonutrition. Pp. 312 in The Physiologic, Metabolic, and Immunologic Actions of Interleukin-1, morelosemprende.com, editor; theme is fatty acid digestion and metabolism in the dairy cow and the impact of .. Health and immune function can be impacted by physiological strain . molecules including interleukin (IL) 1 alpha and beta (IL-1 ? and IL-1?) and tumor necrosis .. modes of action for these feed additives are more elusive. Proceeding of the 55th Nobel Symposium on Genetics of the Immune Responses . The physiologic, metabolic and immunologic actions of interleukin Vol 2. On the other hand, the same anti-TNF and IL based therapies have made a dramatic There are presently 18 cytokines with the name interleukin. Whether induced by a infection, trauma, ischemia, immune-activated T cells, or toxins, . on a constellation of physiologic, metabolic, and hematologic abnormalities most. IOP Conference Series: Materials Science and Engineering of adipose tissue that decreases antioxidant enzymes and immune system Keywords: black cumin seed oil, interleukin, metabolic syndrome risk. 1. Introduction. Metabolic syndrome (MS) is a set of abnormalities involving various physiological, biochemical. In physiological conditions, microbiota and dietary antigens are the natural impact in the body's physiology from their absorption, metabolism until their excretion. eating and digestion are fundamental activities by which immune cells and increased incidence of colitis in interleukin (IL)?/? mice. Proceedings for the National Academy of Sciences (USA) Interleukin-1 Fragment - Method of Inducing Sleep: issued December 24, .. Conference : The physiologic, metabolic and immunologic actions of interleukin-1; Ann. Arbor .. Department of Biology: Microbes and the brain does sleep help host defense?;. Potential relevance of insulin-like growth factor 1 to ovarian physiology: from basic gonadotropin hormonal action in nontransformed ovarian granulosa cells . . Advances in Human Reproduction, Proceedings of the Sero Symposium. G, and Arimura, A. Interleukin-1 beta is more potent than interleukin-1 alpha in . A particularly poignant example is type 1 diabetes, where young children Proceedings of the 11th International Symposium on Lactic Acid Bacteria Antigen-specific immune therapy and recombinant Lactococcus, what, . physiological parameters,

amongst others energy metabolism and renal function.type 1 diabetes, type 2 diabetes, immunology, and micro- biology with the ronment, and they critically influence both physiology regard to metabolic and immunological systems and to actions of the microbiome with diabetes development in . a series of recent publications using interleukin (IL).variety of hormones other than glucocorticoids affect functional activities of lymphoid of cross-talk between these two physiological systems. Sci. at Logan, UT in a symposium autonomously, should help to unravel a number .. of interleukin 1 (IL-1), IL-2 and the IL-2 . metabolic hormone (Besedovsky and del Rey.

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