

# Both sedentary behavior, lack of physical activity linked with non-alcoholic fatty liver disease

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Prolonged sitting time as well as reduced physical activity contribute to the prevalence of non-alcoholic fatty liver disease (NAFLD) in a study of middle-aged Koreans. These findings support the importance of both reducing time spent sitting and increasing physical activity, say researchers. Their results are published in the *Journal of Hepatology*.

Physical activity is known to reduce the incidence and mortality of various chronic diseases. However, more than one half of the average person's waking day involves sedentary activities associated with prolonged sitting such as watching TV and using the computer and other devices.

Recently, attention has focused on the damaging effects of [sedentary behavior](#) regardless of additional physical activity. A growing number of epidemiologic studies have suggested an association between sedentary behavior and [chronic diseases](#) including obesity, diabetes, insulin resistance, metabolic syndrome, cardiovascular disease, cancer, and even death that is distinct from those related to a lack of physical activity. This association was still observed among patients participating in high levels of moderate to [vigorous physical activity](#), indicating that regular high levels of physical activity do not fully protect against the risks associated with prolonged periods of sedentary behaviors. However, the association between physical activity and NAFLD has been largely unexplored.

In the current study researchers examined the association of sitting time and physical activity level with NAFLD in Korean men and women to explore whether any observed associations were related to the amount of body fat. They studied records of nearly 140,000 Koreans who underwent a health examination between March 2011 and December 2013. Physical activity level and sitting time were assessed using the Korean version of the international Physical Activity Questionnaire Short Form. The presence of fatty liver was determined using ultrasonography.

Of the people studied, nearly 40,000 had NAFLD. Importantly, the researchers found that both prolonged sitting time and decreased physical activity level were independently associated with increasing prevalence of NAFLD. Remarkably, these associations were also observed in patients with a body mass index (BMI) of less than 23.

Lead investigator Seungho Ryu, PhD, MD, of the Department of Occupational and Environmental Medicine, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Seoul, South Korea, explained, "We found that prolonged sitting time and decreased physical activity level were positively associated with the prevalence of NAFLD in a large sample of middle-aged Koreans." Co-author Yoosoo Chang, MD, PhD, added: "Our findings suggest that both increasing participation in physical activity and reducing [sitting time](#) may be independently important in reducing the risk of NAFLD, and underlines the importance of reducing time spent sitting in addition to promoting [physical activity](#)."

"The data from Ryu and colleagues add to the strong and alarming evidence that sitting too much and moving too little has significant negative consequences for cardio-metabolic health," commented Michael I. Trenell, PhD, Professor of Metabolism & Lifestyle Medicine at Newcastle University, UK, and an expert on how lifestyle influences

lifelong health and wellbeing and chronic disease.

"The message is clear, our chairs are slowly but surely killing us. Our body is designed to move and it is not surprising that sedentary behavior, characterized by low muscle activity, has a direct impact on physiology. With a dearth of approved drug therapies for NAFLD, lifestyle changes remain the cornerstone of clinical care. The challenge for us now is to 'stand up' and move for NAFLD, both physically and metaphorically," Professor Trenell added.

**More information:** "Relationship of Sitting Time and Physical Activity with Non-alcoholic Fatty Liver Disease," by Seungho Ryu, Yoosoo Chang, Hyun-Suk Jung, Kyung Eun Yun, Min-Jung Kwon, Yuni Choi, Chan-Won Kim, Juhee Cho, Byung-Seong Suh, Yong Kyun Cho, Eun Chul Chung, Hocheol Shin, and Yeon Soo Kim. DOI: [dx.doi.org/10.1016/j.jhep.2015.07.010](https://doi.org/10.1016/j.jhep.2015.07.010)

"Editorial: Sedentary Behaviour, Physical Activity and NAFLD: Curse of the Chair," by Michael I. Trenell, PhD. DOI: [dx.doi.org/10.1016/j.jhep.2015.08.009](https://doi.org/10.1016/j.jhep.2015.08.009)

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