

Physical Activity in the Morning Could be Most Beneficial Against Cancer

The time of day when we exercise could affect the risk of cancer due to circadian disruption, according to a new study with about 3,000 Spanish people

Barcelona/Vienna, 13 October 2020- One potential cause of cancer is **circadian disruption**, the misalignment of environmental cues (light, food intake, etc.) and our endogenous circadian rhythms. It is established that **regular physical activity throughout lifetime can reduce cancer risk**. This protective effect could be the **most beneficial when physical activity is done in the morning** -this is the main result of a recent study coordinated by the Barcelona Institute for Global Health ([ISGlobal](#)), a centre supported by the "la Caixa Foundation", together with the Department of Epidemiology at the [Medical University of Vienna](#).

Most studies on circadian disruption and cancer risk focused on night shift work. Recent studies suggest that exposure to [light at night](#) and [late food intake](#) may play a role in the etiology of cancer. However, to date it remains unknown if the timing of physical activity could influence cancer risk through circadian disruption.

To address this question, the researchers examined **the effect of timing of recreational physical activity on breast and prostate cancer risk** in a population based case control study. They hypothesized that the beneficial effect of the longest done physical activity in reducing cancer risk could be stronger when done in the morning. They based their hypothesis on the results of an experimental study which showed that physical activity in the afternoon and in the evening can delay melatonin production, a hormone produced mainly during the night and with well-known oncostatic properties.

The analysis included 2,795 participants of the multicase-control ([MCC-Spain](#)) study in Spain. The researchers found that the **beneficial effect of the physical activity** (longest done throughout lifetime) **to reduce breast and prostate cancer risk was stronger when the activity was regularly done in the morning (8-10 am)**. In **men**, the effect was similarly strong also for **evening activity (7-11 pm)**. Results were unchanged when considering the most strenuous physical activity timing. Effects differed across chronotypes, the preference for sleeping and being active at a certain time of day. Early morning activity (8-10 am) seemed especially protective for late chronotypes, people who generally prefer to be active towards the evening.

In their paper, which was published in the [International Journal of Cancer](#), the epidemiologists discuss how physical activity may influence human circadian rhythms and suggest possible biological mechanisms (e.g. alteration of melatonin and sex hormone production, nutrient metabolism etc.). Overall the findings of this study indicate that **"time of the day of physical activity is an important aspect that may potentiate the protective effect of physical activity on cancer risk"**, commented **Manolis Kogevinas**, Scientific Director of the Severo Ochoa Distinction at ISGlobal and coordinator of the study. "These results, if confirmed, **may improve current physical activity recommendations for cancer prevention**. Clear is that everyone can reduce his/her cancer risk simply by being moderately physically active for at least 150 minutes each week", he added.

Reference

Jakob Weitzer, Gemma Castaño-Vinyals, Nuria Aragonés, Inés Gómez-Acebo, Marcela Guevara, Pilar Amiano, Vicente Martín, Ana Molina-Barceló, Juan Alguacil, Victor Moreno, Claudia Suarez-Calleja, José Juan Jiménez-Moleón, Rafael Marcos-Gragera, Kyriaki Papantoniou, Beatriz Pérez-Gómez, Javier Llorca, Nieves Ascunce, Leire Gil, Esther Gracia-Lavedan, Delphine Casabonne, Virginia Lope, Marina Pollán, Manolis Kogevinas. Effect of time of day of recreational and household physical activity on prostate and breast cancer risk (MCC-Spain Study). *International Journal of Cancer*. 25 September 2020. <https://doi.org/10.1002/ijc.33310>.

About ISGlobal

The Barcelona Institute for Global Health, ISGlobal, is the fruit of an innovative alliance between the "la Caixa" Foundation and academic and government institutions to contribute to the efforts undertaken by the international community to address the challenges in global health. ISGlobal is a consolidated hub of excellence in research that has grown out of work first started in the world of health care by the Hospital Clínic and the Parc de Salut MAR and in the academic sphere by the University of Barcelona and Pompeu Fabra University. The pivotal mechanism of its work model is the transfer of knowledge generated by scientific research to practice, a task undertaken by the institute's Education and Policy and Global Development departments. ISGlobal has been named a Severo Ochoa Centre of Excellence and is a member of the CERCA programme of the Generalitat de Catalunya.

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