



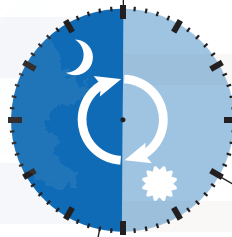
EURHYTHDIA

## LIFESTYLE & RISK OF TYPE 2 DIABETES

Modern lifestyles have dramatically changed the daily sleep-wake pattern (the so-called circadian clock). Physical activity, food intake and light exposure are no longer restricted to daytime, and the amount of sleep we take has declined due to social and economic demands. In recent years, evidence has accumulated to support the concept that disruption of our body's internal clock might contribute to the development of Type 2 diabetes and other cardiometabolic complications.

60 million Europeans  
live with diabetes **60**

32 million Europeans  
are at risk of  
developing diabetes **32**



**20** Over 20% of the European working population works in night shifts, a known risk factor for type 2 diabetes

Prevention strategies are needed to reduce their risk from this debilitating condition

EuRhythDia answers the following three questions with night shift workers as the target population:



Can **LIGHT THERAPY** improve the well-being of workers?



Does **EXERCISE** before night shift work enhance alertness and improve cardiorespiratory fitness?



Does **MELATONIN** through modulating the day-night-rhythm, improve sleep habits ?

This 5-year project investigates whether lifestyle changes to reset the internal clock can significantly reduce the risk of developing Type 2 diabetes and cardiometabolic complications.

Based on results of the project, the **consortium calls for:**

1. An increased awareness of health risks associated with night shift work
2. All concerned stakeholders to work together to improve working conditions and apply preventive measures for workers

The project will end in June 2017. For more information: [www.eurhythdia.eu](http://www.eurhythdia.eu)

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# EURHYTHDIA

Chronotherapeutic lifestyle intervention for diabetes and obesity to reset the circadian rhythm and improve cardiometabolic risk in the European working population

## DIABETES PREVENTION STRATEGIES MUST BE IMPLEMENTED FOR NIGHT SHIFT WORKERS

Brussels, 23 May, 2017 **Night shift work is a known risk factor for type 2 diabetes and cardiovascular disease. Over 20% of the European active population works in rotating shifts. European-funded project EuRhythDia generates evidence needed to design prevention strategies to protect night shift workers from developing type 2 diabetes.**

Modern lifestyle has dramatically changed the daily rhythms of our life and working habits, with physical activity, eating and light exposure no longer being restricted to the daytime. In Europe, over 20% of the active population works in rotating shifts with extended active periods into the night, leading to altered light exposure, shifted exercise patterns and untimely food intake in these workers. These behaviour changes disturb the daily sleep-wake cycle (circadian rhythm), and severely disrupt endocrine and metabolic processes. Several studies have shown that the risk of developing type 2 diabetes is considerably higher among night shift workers than for the rest of the population, suggesting that atypical schedules play a role in disturbing the inner clock.

“With 60 million people living with diabetes and 32 million more at risk, diabetes is a major health concern in Europe - stated Professor Rainer Böger of the University Medical Center Hamburg-Eppendorf and Principal Investigator of EuRhythDia – and preventing new cases of type 2 diabetes is a priority. The EuRhythDia project is based upon the observation that night shift work leads to changes in cardiometabolic risk even in apparently healthy individuals. Given the clinical and molecular link between the disruption of the inner clock and the risk

of diabetes, where we cannot modify working habits and patterns we need strategies to prevent the risk of developing type 2 diabetes”.

EuRhythDia, a project funded by the European Commission under the FP7 programme, investigated three interventions to adjust the inner clock of night shift workers without further deteriorating glucose metabolism. The study investigated whether interventions do help individuals to better adjust to unusual working hours: Does exercise before the night shift work improve alertness during the night shift and cardiorespiratory fitness? Do light therapy and melatonin have a positive impact on well-being and sleeping habits, and can they also be helpful to re-align the day-night rhythm in night shift workers – as well as in other situations such as upon jetlag?

The EuRhythDia consortium recommends that night shift workers, their labour union representatives, occupational medicine specialists, cardiologists and diabetologists work together to implement prevention strategies and include evidence-based interventions to improve working conditions and decrease the risk of developing type 2 diabetes, such as those investigated in EuRhythDia.

**About EURHYTHDIA** : EuRhythDia is an international research consortium funded by the European Commission consisting of 15 partners from academic institutions and small and medium-sized corporations in eight European countries. EuRhythDia aimed to understand the relationship between disruptions in our daily sleep-wake cycle (the “circadian rhythm”) and the development of diabetes mellitus. This was studied in animal experiments with mice and zebra fish, and in clinical studies with night shift workers and with first-degree relatives of patients with type 2 diabetes.

**About TYPE 2 DIABETES** : Type 2 diabetes is the most common type of diabetes. In type 2 diabetes, the body is able to produce insulin but becomes resistant so that the insulin is ineffective. Over time, insulin levels may subsequently become insufficient. High blood glucose levels can arise from either insulin resistance or insulin deficiency, which indicate the clinical manifestation of diabetes.

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