Giovanna Muscogiuri, Assistant Professor at University of Naples "Federico II" and staff member at the UNESCO Chair Federico II University, Naples. She is a specialist in endocrinology and metabolic disease, having completed her education and training at the Catholic University of Rome. She completed her post-doctoral fellowship in metabolic diseases at University of Texas Health Science Center at San Antonio, Texas, USA.

Q: Congratulations on receiving this award, Giovanna – how does it feel to be selected?

A: I was very honoured to receive this award and a huge smile appeared on my face when I heard the news. This award was the recognition for my hard work over the last few years**.**

Q: You are presenting a new study at ECO 2021 on chronotype and the risk of various metabolic diseases. What are the main findings?

A: The main finding is that evening chronotype represents an independent risk factor for cardiometabolic diseases beyond sleep disturbances, age, gender and BMI. We compared subjects belonging to morning, intermediate and evening chronotype categories finding that although they had similar BMI values, subjects with evening chronotype had a significant higher prevalence of CVD and T2D compared to other categories.

Q: This work builds on your previous study published in the journal *Nutrients* on "Chronotype and Adherence to the Mediterranean Diet in Obesity", finding that evening chronotype was associated with unhealthy lifestyle and low adherence to the MD. What is it about the evening chronotype (people who get up later and have their peak activity later) that could make people more susceptible to poor health?

A: Chronic circadian misalignment could be a reason explaining metabolic derangements in evening types. Late chronotype is typically associated with a greater degree of misalignment between social rhythms and the circadian clock than other chronotypes. Disruption of the circadian system may affect sleep, appetite, energy expenditure, and many possible determinants that lead these individuals to follow a unhealthy lifestyle.

Q: You are the project Leader of European Guidelines for Obesity Management in Adults with Very Low Calorie Ketogenic Diet (VLCKD) on behalf of the Obesity Management Task Force (OMTF) of EASO. What are some of the key points from these new guidelines?

A: First, the VLCKD was shown to result in a significant weight loss in the short, intermediate, and long term and improvement in body composition parameters as well as glycaemic and lipid profiles. Second, when compared with other weight loss interventions of the same duration, the VLCKD showed a major effect on reduction of body weight, fat mass, waist circumference, total cholesterol and triglyceridaemia as well as improved insulin resistance. Finally, the VLCKD can be considered a safe nutritional approach under a health professional's supervision since the most common side effects are usually clinically mild and easily to manage and recovery is often spontaneous.

Q: You have also completed various studies on sleep, including one finding the Mediterranean diet had a beneficial effect on sleep. What do you think are the reasons for this?

A: The high content of polyunsaturated fatty acids (PUFA) and phytochemicals, such as polyphenols, in the MD have been reported to have a beneficial effect on inflammatory parameters that have been reported to have a negative impact on sleep duration and quality. Most of the time, an increased adherence to a healthy nutritional pattern such as the MD is accompanied by an overall healthy lifestyle characterised by physical activity. Indeed, physically active subjects seem to sleep more and better than people with less active lifestyles.

Another interesting hypothesis concerns the effect of obesity-related hormonal disorders on sleep. Indeed, low growth hormone (GH) status is a common finding in obesity and it is considered to be an acquired functional defect; in fact, it has been demonstrated to be reversed after weight loss. A low GH status often seems to be associated with visceral obesity leading to the hypothesis that fat deposition at abdominal site could be one of the key players in GH secretion disorders in obesity. Subjects with obesity that had high adherence to MD and in particular, protein intake, showed a better GH status. Furthermore, GH has also been reported to play an important role in regulating sleep. Based on this, we hypothesize that the higher adherence to the MD that was detected in good sleepers could contribute, probably through protein intake, to stimulate the GH-IGF-1 axis,

which is often diminished in obesity, thus contributing to normal sleep quality. In addition, the presence of proteins rich in tryptophan in the MD could be an additional mechanism that contributes to improve Sleep Disturbances since tryptophan is a precursor of the neurosecretory hormone melatonin that is well known to be the main hormone involved in the regulation of sleep.

Q: What sessions would you like to see during this year's online ECO2021?

A: Sleep, health and really anything on obesity. I will watch as many sessions as I can!

Q: Tell us a little about your life outside work. What are some of your ways to relax?

A: Cooking Italian food, playing with my children and spending time with my family are the best ways to relax for me.

Thanks Giovanna and we hope you enjoyed ECO2021.