



## **Timing in Nutrition**

### **i) Introduction**

Fish, meat, wheat, fruits and vegetables all are necessary for our body and health. We should eat them. But also when we should eat is also another important issue for keeping weight in control and for warding off chronic disease. During the day different enzymes and hormones are produced in different times in our body. In addition to this metabolism works sometimes slowly sometimes fast. If we know and adopt this circadian clock and consume the food according to this, we stay healthy.

There are studies showing "the circadian phase of feeding affects body weight. A number of recent studies in animals linking energy regulation and the circadian clock at the molecular, physiological and the behavioural level raise the possibility that the timing of food intake itself plays a significant role in weight gain."<sup>1</sup>

Biological clock is located in a gland named epiphysis (pineal body) in brain. The light coming from our eyes reaches this part of brain by the help of nerves. The group of cells named 'suprachiasmatic nucleus'-SCN in this center releases the clock proteins and commands biological clock of our body. Dr Bülent Yardımcı says that human should lead a life according to the sunlight which is the most important control mechanism of body clock. One should sleep when it gets dark and get up when sun rises. The mechanism works the best this way.

The aim of this syllabus is to:

- To identify and raise awareness of the biological time of our body.
- To expand participants' knowledge of when we should eat and what we should eat.
- To help participants adopt the biological clock of the body

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<sup>1</sup> <http://onlinelibrary.wiley.com/doi/10.1038/oby.2009.264/full#b3>



**Target Group:** Teachers

**Duration-** one session

**Useful Links:** <http://healthland.time.com/2013/07/23/why-you-should-eat-breakfast-and-the-best-times-for-the-rest-of-the-days-meals/>

<http://www.marksdailyapple.com/meal-timing/#axzz3MAGCpndj>

<http://www.pnas.org/content/106/11/4453>

<https://www.youtube.com/watch?v=qOXQgyjRm0I>

<https://www.youtube.com/watch?v=YbgHRsCUvdU>

**ii) Course over view and objectives**

- To understand all the effects and benefits of timing what we eat
- To enable the participants prepare a list of food according to circadian clock
- To help the participants realize wrong diets and eating habits.

**iii) Content of the course**

1. A presentation of circadian clock of body with a chart.  
This gets the teachers mind biological clock of body and we can see all the levels in a day in detail on the picture.
2. A PowerPoint presentation of necessary food intake according to circadian clock .  
This enables the participants to know what kind of food must be consumed when.
3. A quiz to prepare a healthy meal for all day according to the biological time.  
This activity gives the participants the chance to adopt circadian clock to their own life.



4. A presentation of the wrong common diets and wrong common eating habits.
5. Catch line completion.  
This activity encourages the participants collect a group and find a catch line to adopt our lives circadian clock.

#### V)Recommended Readings

Description	Link
The true meal timing	<a href="http://www.marksdailyapple.com/meal-timing/#axzz3MAGCpdj">http://www.marksdailyapple.com/meal-timing/#axzz3MAGCpdj</a>
A guide for biological clock	<a href="http://www.formsante.com.tr/saglik/471-omur-boyu-saglik-icin-7-24-biyolojik-saat-rehberi.html">http://www.formsante.com.tr/saglik/471-omur-boyu-saglik-icin-7-24-biyolojik-saat-rehberi.html</a>
Best times for meals	<a href="http://healthland.time.com/2013/07/23why-you-should-eat-breakfast-and-the-best-times-for-the-rest-of-the-days-meals">http://healthland.time.com/2013/07/23why-you-should-eat-breakfast-and-the-best-times-for-the-rest-of-the-days-meals</a>
Bio-circadian nutrition	<a href="https://www.youtube.com/watch?v=kWLhLuMdtj8">https://www.youtube.com/watch?v=kWLhLuMdtj8</a>
Leading a life according to biological clock	<a href="http://www.bodytr.com/2013/07/biyolojik-ritme-uygun-yasamak.html">http://www.bodytr.com/2013/07/biyolojik-ritme-uygun-yasamak.html</a>
A study on adverse metabolic and cardiovascular consequences of circadian misalignment	<a href="http://www.pnas.org/content/106/11/4453">http://www.pnas.org/content/106/11/4453</a>
How Your Circadian Rhythm Tunes Your Health	<a href="https://www.youtube.com/watch?v=qOXQgyjRmOI">https://www.youtube.com/watch?v=qOXQgyjRmOI</a>
The importance of when we eat	<a href="https://www.youtube.com/watch?v=YbgHRsCUvdU">https://www.youtube.com/watch?v=YbgHRsCUvdU</a>