MedEdu Tabuk

Weekly Newsletter

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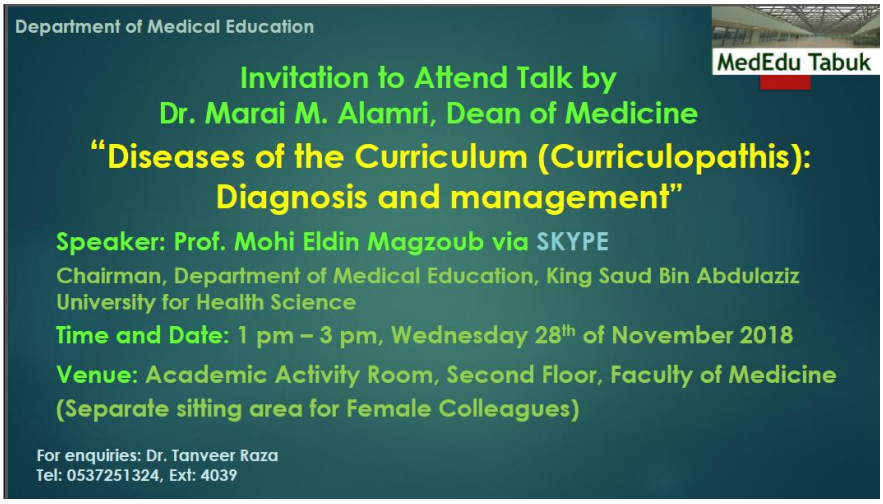
Weekly Academic Activity- Dr. Tanveer Raza

Every week the Faculty of Medicine organizes a weekly Academic Activity on Wednesday. The topics in this meetings are usially on Medical Education. Faculties discuss on new methods and how they can be implemented. Often experts from outside are invited to give a talk and exchange ideas.This week Prof Mohi Eldin Magzoub of King Saud bin Abdullah University for Health Science will talk on Curriculum challenges.



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About the Circadian rhythmic behavior and physiological functions in mammals

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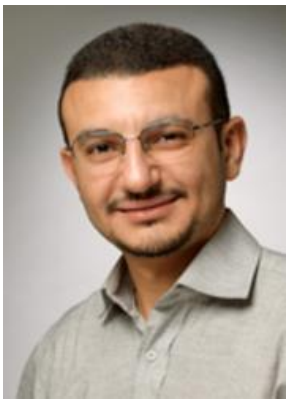

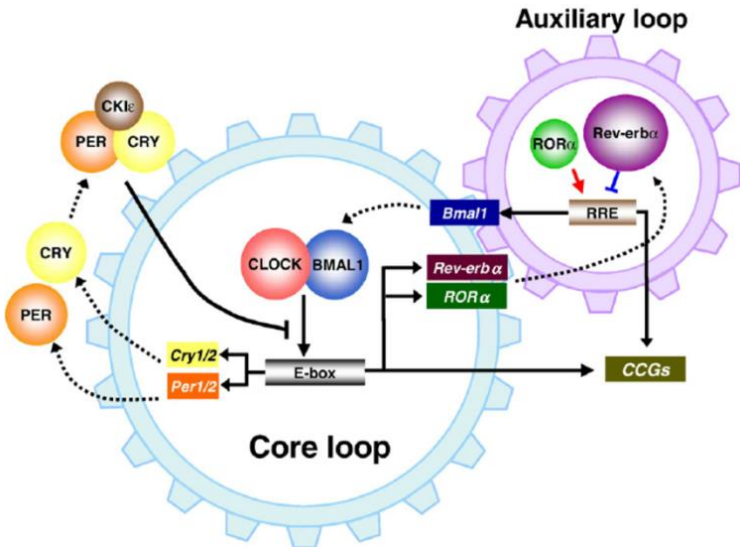

Fig-1 taken from a Poster presentation in CHEM 195 A,B program in the University of California, Santa Cruz awards 2015 by Nicolette Fatima Goularte: showing the molecular level of the circadian rhythm inside each mammalian cell

Due to the rotation of the earth around its axis, there is 24 hrs changes in the environmental conditions such as light-dark cycle, temperature, feeding schedule, etc. So, it became an obligatory to change the behavior of the organism within 24 hr to respond to such changes efficiently. The mammalian clock resides in the Suprachiasmatic Nucleus (SCN) in the hypothalamic region of the brain. It is responsible for the 24 hrs changes in the mammalian body. The hormonal and nerve communication for other tissues leads to entrained events to the tissues. On the molecular level, CLOCK and BMAL1 are two proteins (**Fig-1**) stimulated by light. They are heterodimerized and transferred inside the nucleus. The activated CRYs and PERs through binding to the E-box promotor

region of these genes. CRYs and PERs deactivate their own expression leading to circadian behavior.

The medical application of such mechanisms includes the increased susceptibility of incidence of myocardial infarction during night due to the deceased Plasminogen levels leading to increased blood viscosity. Besides, the increased the incidence of asthma attach in the late night and early morning due to the decreased corticosteroidal levels in the late night. The increased incidence of the muscle stiffness in the early morning in the rheumatoid arthritis. The increased creativity and learning behavior between 10 am and 11 am due to the reaching the peak level alpha waves at that time from the day (**Fig-2**). This leads to the emergence of what is called chronopharmcotherapy. Besides, this gives an explanation to the critical observation of the intra-personal variation of the drug therapy and the great need for the individualized drug therapy.

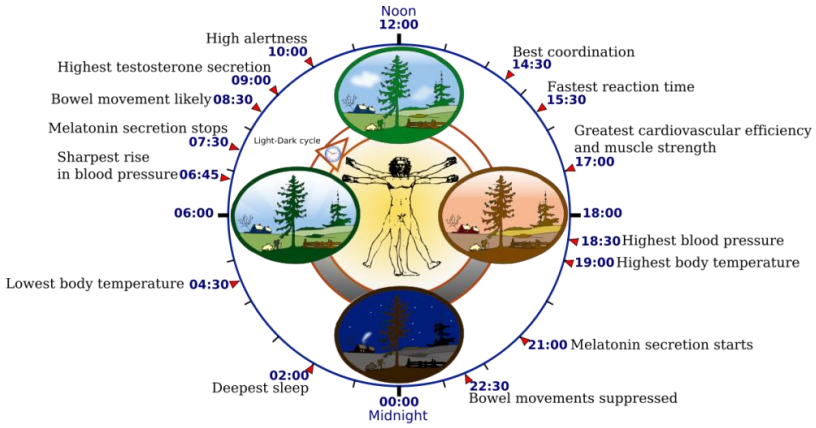

Fig-2 taken from Wikipedia circadian rhythm showing the circadian changes of the behavior and body function within 24 hrs

The pharmacological explanation of such chronobiology leads to different mechansims of action of the drug and emergence of what is called chronopharmacology. In this science, there is a molecular explanation of the mechanism of action of the drug and the secondry messenger 24 hr variation according to the time of the drug administration such as 24 hr variation of the phaosphorelation of the proteins and the cAMP and cGMP levels within the 24 hrs.

Moreover, the pharmacokinetic changes of the drug fate inside the body has changes due to the 24 hrs variation of the drug transporters, hepatic enzymatic activities, renal activities, etc. leading to the emergence of what is challed chronopharmacokinetic activities.

In addition, the pharmacodynamic effect of the drug on the physiological body function shows 24 hrs variation due the circadian expression of the drug receptors leading to the emergence of what is called chronopharmacodynamics.

The pharmaceutical application of such chronobiology is the chrono-drug delivery systems which deliver the drug at the correct time of administration and the emergence of what is called chrono-pharmaceutics. Such delivery systems includes for example modified capsular systems for drug delivery in which the capsule contains typesa of gels (**Fig-3**). Upon administration the gel is swelling in a different levels according to the 24 hrs variation of the water content in the entestine leading to variation of the drug relase from the capsule.

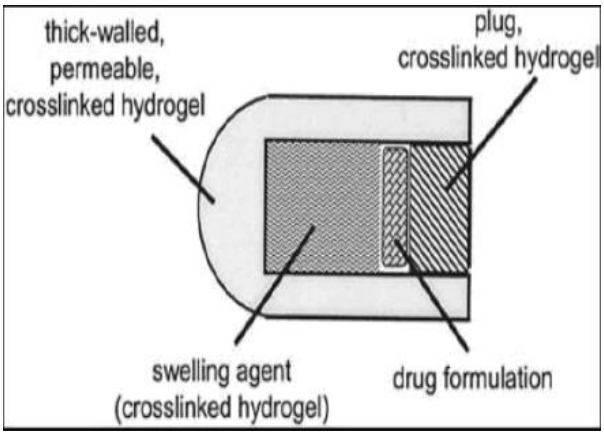

Fig-3 taken from Shanmugan et al, 2015 "Chronotherapeutic Drug Delivery Systems", Journal of Drug Metabolism and Toxicology showing the mechanism of 24 hrs variation from a chrono-drug delivery capsule. The crosslinked hydrogel uses the 24 hrs variation of the water content in the intestine leading to the 24 hrs variation of the swelling factor relaseing the drug from its recevoir in a circadian manner.

There are numerous applications of such chronobiology leads to changed and open minded thinking of conventioal methods of drug delivery into advanced techniques for the drug delivery according to the circadian changes of the physiology and pathology of the body function.

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Introductory meeting for preparatory year students of Medical Laboratory Technology Department (MLT), Applied Medical Sciences

Dr. Aadil Elmahi
Head of preparatory year
Medical Laboratory Technology Department (MLT)

This introductory meeting use to conduct every year to welcoming the new students of preparatory year. At the beginning of the meeting the dean of the faculty Dr. Hamad welcoming the student and give inspiration and wishing for fruitful academic years. In this meeting the head of preparatory year at Medical Laboratory Technology Department (MLT) delivers a complete definition for the students about the department. This definition involves the vision, mission and value of department, through which high quality education is done.

Image: Dean of the Faculty of Applied Medical Science welcoming students

Vision of MLT:

"A leading Medical Laboratory Technology program with excellence in education, research and community service"

Mission of MLT:

"To provide an outstanding educational experience with the highest quality of technical and research skills to produce competent and responsible Medical Laboratory Technologists committed to the service of the community"

Medical Laboratory Technology program graduate a medical laboratory specialist after successfully completing 140 credit hour. The program produces highly qualified health personnel and responds to the needs of the Tabuk region and the Kingdom.

Image: Students of MLT during the tour in laboratories and class rooms

Image: Dr. Aadil Elmahi head of preparatory year during the meting

Image: Students of preparatory years at MLT department

Furthermore the students have been briefly introducing to the curriculum and everything related to the credit hours system and how to calculate the grade point average (GPA). The introduction also explains the roll and concept of academic advisory. At the end of the meeting the students visited the various laboratories sections and classrooms of the MLT.

NUSING ROLE IN DISASTER MANAGEMENT

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Nurse should play significant role in disaster management. Nurses have to be prepared to concentrate on the disaster life cycle. Thus, programs aimed at train nurses for disaster response and roles related to disaster preparedness will keep on moving up (Veenema, 2018). Moreover, Pesiridis et al (2018) classified nurses' roles into three phases; the first phase is the assessment of the work setting in terms of resources and risks. In the second phase, nurses perform many functions such as caregiver, educator, and case manager. Then, in the third phase include assessment, planning, and implementation. During assessment, the nurse may have to re-evaluate if disaster victims received necessary treatment and care.

Trowbridge, (2012) summarized public health nurses disaster preparedness in the following four points 1- In disaster-related events a clear need for improved preparedness efforts and communication strategies to help reduce health risks for at-risk populations. 2- The role of occupational health nurses and occupational and environmental medicine physicians requires knowledge and skills in many areas. This includes not only clinical skills related to illness and injury that will occur, but also skills in such areas as surveillance, management, community coordination, risk management and risk communication, and health protection. 3- The psychological impact of disasters will have far-reaching effects resulting in emotional and behavioral changes requiring both immediate and long-term interventions. 4- Comprehensive disaster management guidance should be in place to assist health care providers and workers in pre-event, event, and post-event phases of the disaster (Trowbridge, 2012). Nursing has a significant role in disaster preparedness. This role is clear in the use of partnerships and collaboration. Moreover, nurse can take parting both formal and informal community groups, and also help recognizing priority health needs and produce change (Veenema, 2018). In another study Alkhalaileh et. al (2012) concluded that with suitable educational

preparation nurses will be able to response well to disaster events, which result in minimizing causalities and victims

Since disasters or emergencies can happen anytime, anywhere, and in any figure, a wide-range of disaster preparedness and management plan must present, including cooperation and harmonization with society groups. Nurses should participate in disaster management and planning board. They frequently acting together with community assemblies, carry out triage, and budding efficient community linkages to better serve the work force and nearby residents.

The exposure to actual disaster verified the significance of a disaster preparedness and management plan (Veenema, 2018).

In conclusion preparing nurses, health care providers, and health care settings will equip them with the ability to response adequately in disaster management in order to function efficiently in these types of circumstances. Teaching nurses' disaster management may result in optimistic results for populations involved in a disaster. These outcomes may involved minimizing casualty and deaths, enhanced health status, and reduce the economical loses. nurses perform many activities through disaster continuum which include the need for care and support that exists at all points of disaster from preparedness and response to the management of physical, psychological, spiritual and socio-cultural consequences

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Academic Affairs Arrangement for FACULTY OF MEDICINE

Prof Magdy M. ElShamy
Faculty of Medicine

This Week:

For Female Section:

- **Surgery &Subspecialties Module:** 6th Year, **OSCE** on Sunday, 25/11/2018
- **Medicine &Subspecialties Module:** 6th Year, Starts on Monday 26/11/2018.
- **Pediatrics Module:** 5th Year, Starts on Monday 26/11/2018.
- **Basic Imaging Module:** 4th Year, **Mid-Module Exam** on Sunday, 25/11/2018.
- **Basic Imaging Module:** 4th Year, **Mid-Module OSPE** on Sunday, 25/11/2018.
- **Cardiovascular System Module:** 3rd Year, Announcing the **Results** of the **Final Module Exam.**
- **Normal Human Morphology I (NHM I) Module(Anatomy & Physiology):** 2nd Year, **Final Exam** on Sunday 25/11/2018.
- **Normal Human Morphology I (NHM I) Module(Anatomy & Physiology):** 2nd Year, **OSPE** on Monday 26/11/2018.
- **Normal Human Morphology I (NHM I) Module (Anatomy & Physiology):** 2nd Year, Announcing the **Results** of the **Second Mid-Module Exam.**
- **Normal Human Morphology II (NHM II) Module (Biochemistry):** 2nd Year, Announcing the **Results** of the **Second Mid-Module Exam.**

For Male Section:

- **Medicine &Subspecialties Module:** 6th Year, **OSCE,** Sunday, 25/11/2018.
- **Surgery &Subspecialties Module:** 6th Year, Starts on Monday 26/11/2018.
- **Pediatrics Module:** 5th Year, **OSCE** on Sunday, 25/11/2018.
- **Obstetrics &Gynecology Module:** 5th Year, Starts on Monday 26/11/2018.

Basic Imaging Module: 4th Year, **Mid-Module Exam** on Sunday, 25/11/2018.

Basic Imaging Module: 4th Year, **Mid-Module OSPE** on Sunday, 25/11/2018.

Cardiovascular System Module: 3rd Year, Announcing the **Results** of the **Final Module Exam**

- **Normal Human Morphology I (NHM I) Module(Anatomy & Physiology):** 2nd Year, **Final Exam** on Sunday 25/11/2018.
- **Normal Human Morphology I (NHM I) Module(Anatomy & Physiology):** 2nd Year, **OSPE** on Monday 26/11/2018.
- **Normal Human Morphology I (NHM I) Module (Anatomy & Physiology):** 2nd Year, Announcing the **Results** of the **Second Mid-Module Exam.**
- **Normal Human Morphology II (NHM II) Module (Biochemistry):** 2nd Year, Announcing the **Results** of the **Second Mid-Module Exam.**

IN and AROUND Tabuk: Rainbow in Tabuk

Dr. Tanveer Raza
Faculty of Medicine

"**When it rains look for rainbows, when it's dark look for stars**." – Oscar Wilde