

## EDITORIAL

## THE CONCEPT OF 'THEME BASED PHYSIOLOGY LABORATORY EXERCISES' IN MEDICAL CURRICULUM: MOTIVATE THE MOTIVATORS!

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Though the physiology teachers understand and fulfil their responsibility of introducing the fresh medical students to core concepts in physiology along with basics of scientific method, they usually tend to isolate themselves from important global health problems. In the present era of information explosion it is but appropriate that students may be exposed to realities of world health problems from the very beginning of their medical education.

The global epidemic of obesity has attained a position amongst the top ten ranking health problems.<sup>1</sup> Sedentary life style coupled with excessive consumption of energy rich food (junk food!) has taken its toll over the past few decades. More than half of population in USA and Europe is either overweight or obese.<sup>2,3</sup> Similar trends are seen in Saudi Arabia and other Gulf countries.<sup>4,5</sup> Obesity is not only associated with multitude of complications leading to increased morbidity and mortality, it is also putting a great burden on the budgets of health care authorities. It is high time that the problem is addressed seriously by all concerned, including basic science teachers who initially nurture the medical and allied health sciences students.

The physician is a role model for the patient and physician's own level of physical activity affects his exercise counselling to his patients; 'active doctors prescribe activity'. If the health care professional are fully cognizant of the gravity of the problem and are highly motivated to tackle the obesity epidemic we are likely to see much improved results of interventions in this regard.

The physiology department at Dammam University has taken a step in this direction by introducing the concept of 'theme based physiology laboratory exercises'. The standard physiology laboratory exercises have been modified in such a way that each laboratory experimental session involving human subjects brings out the differences in physiological parameters between normal weight and overweight/obese individuals. During the course of these experiments the students pair up in groups and gather their own anthropometric data to classify themselves into different obesity categories. The class data is pooled and analyzed to obtain a glimpse of what percentage of the students is overweight or obese. This is accompanied by the observation of the differences between normal and obese individuals in easily

recordable variables such as resting heart rate, resting blood pressure, spinal shrinkage, sinus arrhythmia, spirometric parameters, body fat percentage, and post exercise heart rate recovery dynamics (physical fitness).

The results of each experiment are discussed with students and the teachers provide immediate feedback highlighting the physiological variations in these young healthy individuals depending upon their obesity level. Advice about healthy life style is provided in an interactive manner making use of some interesting published data coupled with some caricatures! In each exercise the students measure their colleague's height, weight, waist circumference (WC), hip circumference, calculate the body mass index (BMI), waist to hip ratio (WHR), waist to stature ratio (WSR) and refer to the tables to classify themselves accordingly. This repeated exposure to assessment methods and categorisation criteria is aimed at building a habit of regularly obtaining the relevant data in the future health professionals as they enter their practical life.

Students have generally liked the idea of these modified theme based laboratory exercises that make use of principles of adult learning such as active participation, group activity, and immediate feedback. They find these sessions to be enjoyable and relevant to them as they get to know their obesity status and correlate the physiological parameters with body fat percentage and obesity indices. It has helped them to become more aware of the extent of problem, assessment methods, effects of obesity and its management at individual and community level. Continuous effort in this direction is likely to motivate them to adopt a healthier lifestyle and counsel others towards the same goal.

In such environments where obesity is not taught as a separate topic, and where it is impractical to introduce a new course in wake of already overloaded curriculum, the theme based approach has worked well. Other themes can also be thought of whereby we achieve three objectives from our regular laboratory experiments: clarifying and reinforcing a physiological concept, training the students on scientific method and exposing them to real life problem. It can easily be adopted by other departments and institutions where material resources are limited as these laboratory exercises do not entail substantial cost.

This cost-effective and time-effective endeavour of physiology department is hoped to be an important (though small) contribution of basic sciences towards motivating the motivators and tackling the epidemic of obesity.

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