Ramadan fasting opens doors to new medical research
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The large number of people who observe the holy month of Ramadan present vast opportunities for researchers to study and better understand the body’s responses to fasting, say WCMC-Q scientists.

Studying the body’s responses to extended fasting in this way could lead to improved understanding and diagnosis of serious conditions such as morbid obesity and type 2 diabetes, explains a paper by WCMC-Q researchers published in the Journal of Translational Medicine.

The paper revolves around the relatively new area of scientific investigation known as ‘metabolomics’, which is the holistic study of small molecules involved in the many essential, life-sustaining metabolic processes that take place within living organisms. These include crucial processes such as breaking down food for energy and harvesting proteins from food to build tissues like muscles. Metabolomics can also be used to identify concentrations of molecules that indicate an individual is suffering from a disease.

However, the complex metabolic processes involved in these diseases are dramatically altered when a person consumes food, so researchers need to monitor people under both fasting and post-fast conditions.

Sweety Mathew, senior project coordinator in the Department of Physiology and Biophysics at WCMC-Q, is lead author of the paper.

She said: “The management of studies that involve large numbers of people fasting presents many logistical challenges. During the holy month of Ramadan, Muslims fast for around 13-18 hours each day and often break their fast at iftar in the community after the maghrib prayer. This type of regulated and universal fasting presents significant opportunities for coordinated enrollment of study participants and administration of a controlled meal – this has great potential for returning very useful results.”

The study, entitled Metabolomics of Ramadan fasting: an opportunity for the controlled study of physiological responses to food intake is the result of international collaboration between scientists in Qatar and Germany. The study was produced by the laboratory of Dr. Karsten Suhre, professor of physiology and biophysics at WCMC-Q and director of the bioinformatics core, who also contributed to the paper. Other WCMC-Q contributors to the paper were senior research specialist Dr. Anna Halama (equal contributor with Sweety Mathew) and Dr. Joel Malek, assistant professor of genetic medicine and director of the college’s genomics core.

Dr. Suhre said: “The ability to enroll large numbers of people who are already fasting into metabolomics studies is extremely useful and could lead to some very significant new discoveries. For instance, many Muslim patients with diabetes observe fasting at Ramadan, which presents very valuable opportunities to study the disease under conditions that are usually very difficult to find.”

The study was supported by a grant from Qatar National Research Fund (QNRF) [NPRP-EP 014-4-001] and also by funds from the Biomedical Research Program, both of which are funded by Qatar Foundation. Funds were also contributed by a grant from the German Federal Ministry of Education and Research to the German Center for Diabetes Research.

Dr. Khaled Machaca, associate dean for research and professor of physiology and biophysics at WCMC-Q, said: “This is an important study that will open the door to a better understanding of how metabolism is regulated during fasting and fed conditions. It is very rewarding to see research at WCMC-Q focused on cultural issues such as fasting during the holy month of Ramadan, which are of great importance for the people of Qatar and the region, using cutting edge technologies such as metabolomics. The benefits of this research are likely to extend to learning
more about debilitating conditions such as type 2 diabetes and obesity, which are extremely prevalent in the GCC region.”

Dr. Suhre has plans to conduct a large-scale metabolomics study to investigate the health benefits of a diet rich in dates, which are traditionally an essential part of the daily diet during Ramadan, both in Qatar and the wider region. The study will be conducted in collaboration with Dr. Malek as a part of the Date Palm Research Program funded by QNRF under the National Priorities Research Program – Exceptional Proposals category. The research team hopes that the proposed study, which is in the early planning stages at present, will be able to recruit a large number of fasting individuals during a future Ramadan.

Access to the paper is open to all via http://www.translational-medicine.com/content/12/1/161

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