

# The Gut Brain-Microbiota axis and Gujarati Diet Community Session: 16 May, 2023

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## Background

The National Institute for Health and Social Care Research (NIHR) currently funds 20 Biomedical Research Centres (BRCs) across England. These are collaborations between world-leading universities and NHS organisations that bring together academics and clinicians to translate lab-based scientific breakthroughs into potential new treatments, diagnostics, and medical technologies. The Imperial BRC is a collaboration between Imperial College, London and Imperial College Healthcare NHS Trust (ICHT) and is currently funded until November 2027. It has 14 research themes, four of which are cross cutting.

The Imperial Patient Experience Research Centre (PERC) is a core facility of the Imperial BRC undertaking research on research and supporting Imperial BRC researchers to undertake public involvement and engagement in research. PERC recognises that involving a diverse range of patients and members of the public in research is essential for ensuring that research is relevant, meaningful, and useful for improving healthcare experiences and outcomes for all. PERC is seeking to establish relationships with under-represented and under-served communities in North West London to engage a more diverse range of patients and members of the public in research. By working closely with these communities, PERC seeks to ensure that research is tailored to their specific needs and priorities, and that their voices are heard in healthcare decision-making.

## Approach and purpose

EKTA Community is a mental health support group located in Harrow, catering to individuals aged 55 and above. Run entirely by a dedicated committee of volunteers, the group hosts bi-weekly social events featuring activities like yoga and painting. EKTA convenes monthly gatherings, complete with lunch, where members can enjoy informative sessions covering a wide range of topics, from health-related matters to finance and energy management. The group's mission is to offer assistance to South Indian mental health service users residing in Harrow. With a membership of 80 individuals, predominantly elderly residents of Harrow, EKTA plays a crucial role in providing a sense of community, facilitating knowledge exchange, and offering support to combat issues such as loneliness among its members.

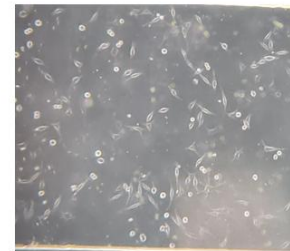
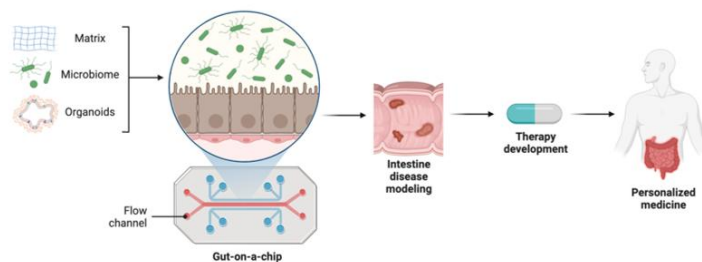
In facilitating a previous session with EKTA, feedback forms were utilised to gather insights on the community's interests in healthcare topics. These forms aimed to understand their preferences and the areas of health research they wished to explore further. After reviewing feedback and consulting community leaders, the decision was made to focus the next session on gut health and the Gujarati diet. The session was led by a researcher and PhD candidate Shreyas Bhatt from [Professor Gary Frost's](#) research group at Imperial College London..

## Session overview

Shreyas Bhatt's presentation explored the link between the gut-brain axis, gut microbiota, and the traditional Gujarati diet, providing a detailed look at how dietary habits can influence both physical and mental health. Bhatt, shared his research using the Microfluidic Gut-on-Chip 4.0 system (see below), an advanced model that

replicates the human gut environment. This innovative system is used to examine how different diets and microbial populations affect the gut-brain axis, a two-way communication pathway between the gut and the brain.

- Microfluidic gut-on-chip 4.0 System



The presentation focused on the Gujarati diet, a lacto-vegetarian diet that has been followed for centuries in Gujarat, India. The diet is rich in starches and legumes, with moderate amounts of protein derived mainly from dairy products such as milk and yoghurt. Staples of the diet include whole grains like millet and rice, alongside legumes such as lentils and chickpeas. These foods are naturally high in fibre and essential nutrients, which help to foster a healthy gut microbiome. Bhatt pointed out that this traditional diet is naturally low in saturated fats, a factor that contributes to its health benefits.

The gut microbiota is the diverse population of microorganisms living in the digestive tract and was a key topic throughout the session. Bhatt highlighted the crucial role that these microbes play in regulating brain function and mental well-being. The gut-brain axis relies on signals sent by the gut microbiota, which produce important neuroactive compounds such as serotonin, influencing mood and cognitive function. Bhatt explained that when the gut microbiome is balanced, it supports a positive mental state, whereas an imbalanced microbiome, often caused by a diet high in saturated fats, can contribute to conditions such as anxiety and depression.

A large part of the session was dedicated to discussing practical steps that individuals can take to improve their gut health and, by extension, their brain health. Bhatt emphasised the importance of maintaining a low saturated fat diet and consuming whole grains, which reduce gut inflammation. He also recommended incorporating prebiotics and probiotics into daily meals. Prebiotics, found in foods like garlic, onions, and bananas, stimulate the growth of beneficial bacteria in the gut. Probiotics, which are present in fermented foods such as yoghurt and pickles, introduce live bacteria that can help restore and maintain a healthy gut microbiome.

The audience was encouraged to reflect on their own dietary choices and how these might be impacting both their physical and mental health. Bhatt's message was clear: simple dietary adjustments, such as reducing saturated fats and increasing the intake of whole grains, can significantly improve gut health. Moreover, adding foods rich in prebiotics and probiotics could enhance the balance of gut bacteria, leading to better mental well-being and cognitive function.

The presentation offered a valuable insight into the intricate connections between diet, gut health, and the brain, with the Gujarati diet serving as an example of how traditional food habits can contribute to long-term well-being. Bhatt's research demonstrates that a healthy gut microbiome is essential not only for physical health but also for maintaining a healthy mind.

### Attendee recruitment

The session was promoted internally through EKTA group's communication channels, primarily using email and WhatsApp. The email invitation provided attendees with an overview of the upcoming event, highlighting Shreyas Bhatt, a PhD candidate from Imperial College London, as the featured speaker. The session was set to focus on the link between diet, gut microbiota, and the gut-brain axis. The communication outlined key discussion points, such as the benefits of a low saturated fat diet, the role of whole grains and legumes in maintaining gut health, and practical steps for incorporating prebiotics and probiotics into daily meals. The importance of diet in supporting both mental and physical well-being was highlighted.

### Outcome of session

#### Attendee numbers

42 members of the public attended the session. 35 attendees completed (N=35/42) a handwritten feedback form, see **Appendix 1**. The responses from these forms have been collated in **Appendix 2**. For a detailed demographic breakdown of the attendee who provided these details voluntarily please see **Appendix 3**. Photos from the event are available in **Appendix 4**.

#### Feedback on the session

The responses in the completed feedback forms have been compiled **Appendix 2**. In summary: 31.5% (n=11/35) rated the event as "Excellent," while 58% (n=20/37) rated it as "Good," and 11.5% (n=4/35) as "Average." Respondents key highlights included the emphasis on healthy eating, specifically the Gujarati diet and the importance of gut health and diet in promoting wellness and preventing disease. Topics for future sessions included diabetes, high blood pressure, heart disease, arthritis, cancer, colitis, and asthma.

### Promoting the Imperial BRC and widening the reach of Imperial BRC community engagement

The PERC mailing list sign up was shared with the community so they could be informed about upcoming public involvement and engagement opportunities linked to






the Imperial BRC. Shreyas, a BRC-funded researcher, fostered a connection with the community, sharing insights into his research alongside the work of Gary [Frost's research](#) group. This engagement aimed to build ongoing dialogue and awareness around their scientific initiatives.

## Appendix 1: Feedback form

**Imperial College  
London**

**FEEDBACK FORM -  
EKTA and Imperial College Diet  
Event - 16 May 2023**

1. How would you rate your experience at this event? (please circle)

Very bad

Bad

Average

Good

Excellent

2. What was the key highlight from this session?

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3. What other healthcare topics would you like to hear about at future sessions?

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**I am also happy to share my...**

age...	No, thanks <input type="checkbox"/>	Sure, it's: <input style="width: 90%;" type="text"/>
ethnicity...	No, thanks <input type="checkbox"/>	Sure, it's: <input style="width: 90%;" type="text"/>
gender...	No, thanks <input type="checkbox"/>	Sure, it's: <input style="width: 90%;" type="text"/>
postcode... (first section only)	No, thanks <input type="checkbox"/>	Sure, it's: <input style="width: 90%;" type="text"/>

Interested in hearing about future opportunities to hear about healthcare topics? Ask us how!

**NIHR** | Imperial Biomedical  
Research Centre

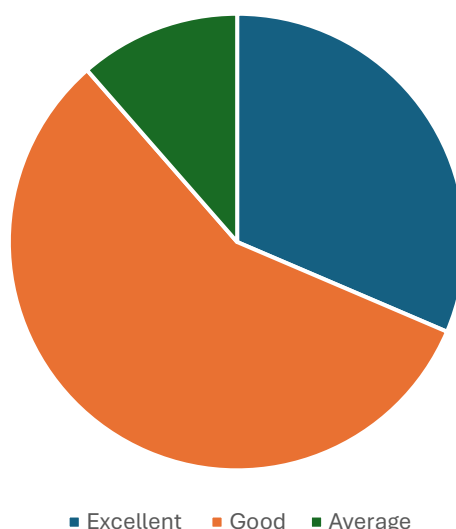
**Thank you for your feedback!**

**Imperial College Healthcare**  
NHS Trust

## Appendix 2: Attendee feedback

### How would you rate your experience at this event?

Out of the 35 feedback forms returned, 31.5% (n=11/35) rated the event as "Excellent," while 58% (n=20/35) rated it as "Good," and 11.5% (n=4/35) as "Average."



### What was the key highlight from this session?

*Diet and Nutrition:* Emphasis on healthy eating, specifically the Gujarati diet, low-fat diet, whole grains, and diet variations for good health.

*Gut Health:* Extensive focus on gut health, including understanding gut function, the microbiome, vagus nerve, colitis, and probiotics.

*Healthy Food Choices:* Importance of choosing foods beneficial for health, avoiding fried foods, and incorporating fruits, salads, and soluble fats.

*Disease Prevention:* Insights into diet-related disease prevention, particularly diabetes and cancer prevention through proper diet.

*General Wellness:* Information on maintaining overall health and wellbeing through dietary choices.

Attendees highlighted the importance of gut health and diet in promoting wellness and preventing diseases.

### What other healthcare topics would you like to hear about at future sessions?

*Diet and Nutrition:* Vitamins, proteins, carbohydrates, whole grains, practical advice on diet, and examples of healthy meals.

*Chronic Diseases:* Diabetes, high blood pressure, heart disease, arthritis, cancer, colitis, and asthma.

*Mental Health and Wellbeing:* Mental health, wellbeing, anxiety, and depression.

*Exercise and Physical Health:* Healthy eating, exercise, knee and hip joint health, and eye health.

*Organ Health:* Kidney, liver diseases, and issues with digestion and the nervous system.

*Other Specific Health Concerns:* Skin disease, lung disease, breathing problems, osteoporosis constipation.



### Appendix 3: Attendee demographics

**Table 1: Demographic characteristics provided in feedback forms (N=35)**

<b>Characteristics</b>	<b>N (35)</b>
Mean age (in years)	72.8
<b>Age groups (in years)</b>	
60-64	3
65-69	3
70-74	6
75-79	5
80+	3
Not provided	15
<b>Gender</b>	
Female	19
Male	9
Prefer not to say	7
<b>Ethnic group</b>	
Indian	14
British Indian	4
Gujarati	1
Kenyan Asian	1
South Asian Gujarati	1
Asian	1
Hindu	6
British Asian	1
Not provided	6
<b>Postcode (first section only)</b>	
HA1	4
HA2	3
HA3	5
HA7	4
HA8	2
UB5	1
N88	1
HH3	1
Not provided	14

## Appendix 4: Photos

These are photos taken at the Gut Brain-Microbiota and Gujarati Diet Community Session, on the 16<sup>th</sup> of May 2023.

