

PRESS RELEASE

Depression dampens anticipation, not enjoyment

Researchers from Bonn and Tübingen are investigating food reward processing in depression

Bonn, May 12 – The loss of interest or pleasure in normally enjoyable activities, which is experienced in everyday life and can be very distressing, is a core symptom of major depression. However, it has remained unclear exactly how anhedonia, also known as a pleasure deficit, manifests itself. Researchers at the University Hospital Bonn (UKB), the University of Bonn, and the University Hospital Tübingen have found that people with depression do not perceive food as less rewarding when they actually consume it. The differences compared to people without depression emerge during anticipation: how much they want something before they receive it. This reduced desire is also linked to the clinical severity of anhedonia. The study's findings have now been published in the journal "Cell Reports Medicine."

Anhedonia has traditionally been understood as a deficit in the enjoyment of typically rewarding activities. Recent definitions now also incorporate aspects of expectation and motivation in the brain's reward processing. However, these facets have not yet been systematically researched. Therefore, the research team led by corresponding author Prof. Nils Kroemer examined 103 participants with and without depression to determine whether, in people with depression, anticipation and expectation of food rewards or the actual enjoyment during consumption are reduced.

Consumption is not perceived as less rewarding

"We were able to show that people with depression report less desire for food rewards during the anticipation phase, but do not perceive the actual consumption as less rewarding. The immediate taste experience as well as the desire while eating were comparable between the groups," says first author Corinna Schulz, a research associate in Kroemer's team at the UKB. Additionally, the researchers found that the initially lower expectations are also linked to the clinical severity of anhedonia. "Interestingly, the desire increased again as soon as the rewards were available—that is, even before they were actually consumed," says Schulz. This suggests that expectations are not fundamentally diminished, but rather depend more strongly on the immediate availability and situational presence of rewards.

The research team also investigated the relationship between anhedonia and metabolic parameters. Notably, lower insulin sensitivity—that is, a reduced ability of the body to effectively process blood sugar—was associated with more pronounced anhedonia.

Expectation and motivation influence reward deficit

"Our findings suggest that anhedonia in depression is characterized less by a diminished capacity for enjoyment itself and more by altered expectation and motivational processes," says Kroemer, who works at the University Hospital of Tübingen in the Translational Psychiatry division of the Department of Psychiatry and Psychotherapy and also serves as a

**Chairman of the Management Board
and Medical Director**

Prof. Dr. Uwe Reuter, MBA

Tel: +49 228 287-10900

Fax: +49 228 287-9010900

Uwe.Reuter@ukbonn.de

**Public Relations and Corporate
Communication**

Felix Heyder
Management

Tel.: +49 228 287-10469

felix.heyder@ukbonn.de

Bonn University Hospital
Venusberg Campus 1
Building 02
53127 Bonn

professor of medical psychology in the Department of Psychiatry and Psychotherapy at the UKB. He is also a member of the Transdisciplinary Research Area “Life & Health” at the University of Bonn. Kroemer concludes: “This opens up new perspectives for therapeutic approaches, such as through the targeted promotion of positive expectations or through a structured increase in the availability of rewarding activities in everyday life. Further research on the body-brain axis is also important in order to better understand metabolic and hormonal influences on reward processes and to be able to utilize them in a targeted manner in the long term.”

Participating Institutions and Funding:

Researchers from the University Hospital Bonn and the University of Bonn, as well as the University Hospital Tübingen, the University Hospital Jena, and the University of Magdeburg, participated in the study. Additional support was provided by the German Center for Mental Health (DZPG) and the German Center for Diabetes Research (DZD). The study was funded by the German Research Foundation (DFG).

Publication: Corinna Schulz, Johannes Klaus, Franziska Peglow, Sabine Ellinger, Anne Kühnel, Martin Walter, Nils B. Kroemer: Blunted anticipation but not consummation of food rewards in depression; Cell Reports Medicine; DOI: <https://doi.org/10.1016/j.xcrm.2026.102796>

Scientific contact:

Prof. Dr. Nils Kroemer
Department of Psychiatry and Psychotherapy
University Hospital Bonn (UKB)
TRA “Life & Health”, University of Bonn
Phone: +49 228 287 11151
Email: Nils.Kroemer@ukbonn.de

Corinna Schulz
Department of Psychiatry and Psychotherapy
University Hospital Bonn (UKB)
Email: Corinna.Schulz@ukbonn.de

Image:



Caption: Depression dampens anticipation, not enjoyment:

Prof. Nils Kroemer (left) and Corinna Schulz (right) are investigating food reward processing in depression.

Image credit: University Hospital Bonn (UKB) / Aljoscha Haupt

Press contact:

Dr. Inka Väth

Deputy Press Officer at the University Hospital Bonn (UKB)

Public Relations and Corporate Communication at UKB

Phone: (+49) 228 287-10596; E-mail: inka.vaeth@ukbonn.de

About the University Hospital Bonn: As one of Germany's leading university hospitals, Bonn University Hospital (UKB) combines excellence in medical care and research with high-quality teaching. Every year, UKB treats more than half a million outpatients and inpatients. Around 3,500 students are enrolled in medicine and dentistry, and over 600 individuals receive training in healthcare professions annually. With around 9,900 employees, UKB is the third-largest employer in the Bonn/Rhein-Sieg region. In the „Focus hospital rankings“, UKB is rated the top university hospital in North Rhine-Westphalia and has the second-highest case mix index (an indicator of treatment complexity) of all university hospitals nationwide. In 2025, UKB secured nearly €100 million in third-party funding for research, transfer, and teaching. For the fourth consecutive year, the F.A.Z. Institute recognized UKB as both “Germany's Training Champion” and “Germany's Most Desirable Employer.” For current figures and further information, please refer to the annual report at:

[geschaeftsbericht.ukbonn.de](https://www.ukbonn.de/geschaeftsbericht)