Mental health

Consumption of nitrate-cured meat products increases odds of mania

There is a strong and independent association between manic episodes and a history of eating nitrate-cured meat products, a US study has found.

Patients aged 18-65 years with a diagnosis of mania were recruited from inpatient and day hospital programmes at a large psychiatric hospital in Baltimore between 2007 and 2017. Participants with other psychiatric disorders were recruited both from the same setting and local psychiatric treatment centres. The control group, aged 20-60 years, who had no psychiatric disorders were recruited through poster advertisements placed in local healthcare facilities and universities.

Participants completed a food questionnaire which asked whether they had ever consumed certain types of food, namely cured meat, undercooked meat, raw meat, undercooked fish and raw fish.

There were 217 participants with mania, 91 with bipolar depression, 79 with major depression, 371 with schizophrenia and 343 controls. Results were adjusted for a number of sociodemographic factors and health behaviours.

Compared with the control group, participants with a diagnosis of mania had more than three times the odds of ever having eaten cured meat; adjusted odds ratio (OR) 3.49 (95% CI: 2.24-5.45). After adjustment for multiple comparisons, there were no significant associations between mania and the consumption of other food types. Lower odds of association were found between other psychiatric diagnoses and consumption of cured meat.

Observational studies cannot determine the direction of causation. Therefore, in the second part of the study, the investigators studied the effects of adding nitrates to rat diets. After a two-week period of dietary supplementation, rats were found to exhibit mania-like hyperactivity when compared with rats who had received a normal diet. Rat hyperactivity was associated both with changes in hippocampal pathways which have been implicated in human bipolar disorder, and alterations in intestinal bacterial flora.

The results are likely to have been affected by control group selection bias, patient recall bias and residual confounding, although the authors claim this is unlikely in view of the negative results for other food types. It would have been better to have used a food frequency questionnaire to investigate whether there is a dose-response relationship. Animal studies that focus on simple behaviours may have only limited validity as models of the complex condition of mania.[1] However, a causal link between nitrate consumption and bipolar disorder, mediated by increased levels of nitric oxide, is plausible.

Sodium nitrate is added to processed meats such as bacon, ham and salami as a preservative. The authors conclude that: 'While further investigations are warranted, individuals at risk for mania may consider limiting ingestion of added dietary nitrates.'

For those of us who might worry about the possible risk associated with bacon-wrapped chipolata consumption during the festive season, the authors provide reassurance that 'occasional cured meat consumption is unlikely to spur a manic episode in most of the population.'[2]

DR PHILLIP BLAND

Khambadkone SG, Cordner ZA, Dickerson F et al. Nitrated meat products are associated with mania in humans and altered behaviour and brain gene expression in rats. *Molecular Psychiatry* 2018;doi/org/10.1038

REFERENCES

1 Young JW, Henry BL, Geyer MA. Predictive animal models of mania: hits, misses and future directions. *Br J Pharmacol* 2011;164:1263-84
2 www.hopkinsmedicine.org/news/newsroom/news-releases/beef-jerky-and-other-processed-meats-associated-with-manic-episodes

Sexual health

Orgasm induced by non sexual behaviour

Orgasm may be a neuropsychological process associated with diverse forms of stimulation, according to the findings of a study published in the *International Journal of Sexual Health*.

The investigators analysed comments from 919 individuals who responded to an anonymous post in 2013 on the website PostSecret.com. The individual, unknown to the research team, described having an orgasm during exercise. The respondents posted comments about their own experiences of non genital/non sexual orgasms.

All the comments were screened for eligibility for inclusion in a content analysis. There were 687 eligible comments out of 919 (74.8%). Most of the comments (481) did not refer to the individual's gender; there was enough information to infer the gender was female in 191, male in 14, and transgender in one case.

One of the most prevalent kinds of orgasm was exercised induced (23.7% of comments). These were possibly linked to genital pressure and/or friction during activities such as horse riding and cycling, with specific detail such as riding bikes on bumpy surfaces especially cobblestones. Others were related to core abdominal muscle engagement such as roller skating, swimming, yoga and chores such as stacking bags and mopping.

Some described orgasms induced by childhood playground games such as climbing poles and swinging from monkey bars or on swings. One wrote of a specific experience: 'First one was climbing the basketball pole in the playground where we lived. I never knew what it was, but I kept climbing the pole over and over again. A lady