



RAVITSEMUKSEN MERKITYS MASENNUKSEN HOIDOSSA

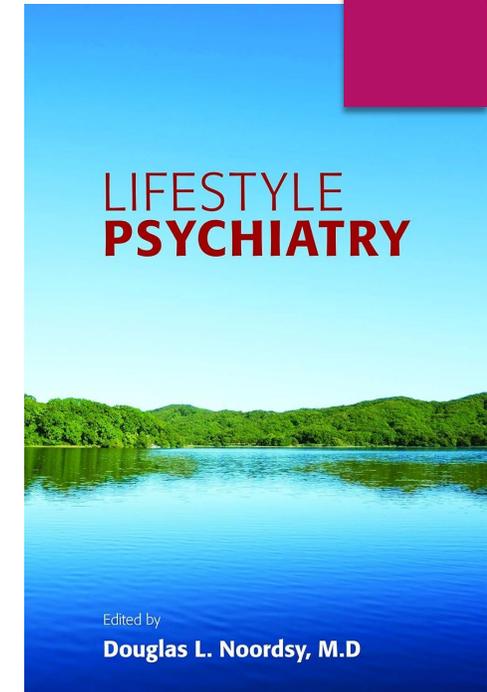
JYRKI KORKEILA, LT PSYKIATRIAN PROFESSORI, EMERITUS,
ERIKOISLÄÄKÄRI, MEDISHARE

ASiantuntijalääkäri, Valtionkonttori

Sidonnaisuudet

- ▶ Luentopalkkiot: Orion, Lundbeck, Johnson & Johnson
- ▶ Advisory board: Johnson & Johnson
- ▶ Asiantuntijapalkkiot: Liikenne- ja potilasvakuutuskeskus LIIPO, FINE

- ▶ Liikunta
 - ▶ Yoga Tai Chi
 - ▶ Mindfulness, meditation
 - ▶ Ruokavalio
 - ▶ Hyvä uni
-
- ▶ Mikä on hyväksi sydän- ja verenkiertoelimistölle, on hyväksi mielenterveydelle



**Harvard Health
Publishing**
HARVARD MEDICAL SCHOOL

Nutritional psychiatry: Your brain on food

September 18, 2022

By **Eva Selhub MD**, Contributing Editor

Depressio

Is Depression an Adaptation?

Arch Gen Psychiatry. 2000;57:14-20

Randolph M. Nesse, MD

4

- Mielialan lasku – adaptiivisena - suojaa epäsuotuisissa elämäntilanteissa
 - Suojaa yksilöä irrottamalla tavoitteista, etuna tappion minimointi
 - Energiattomuus & haluttomuus: energian säästö "horroksessa", paino laskee, energiavarastot käytössä
- Sairaus: epäonnistunut **adaptaatiosta palautuminen**
 - Kaninkoloon putoaminen ei ole ongelma vaan ettei omin avuin pääse pois
 - Liian intensiivinen tai liian pitkäkestoinen

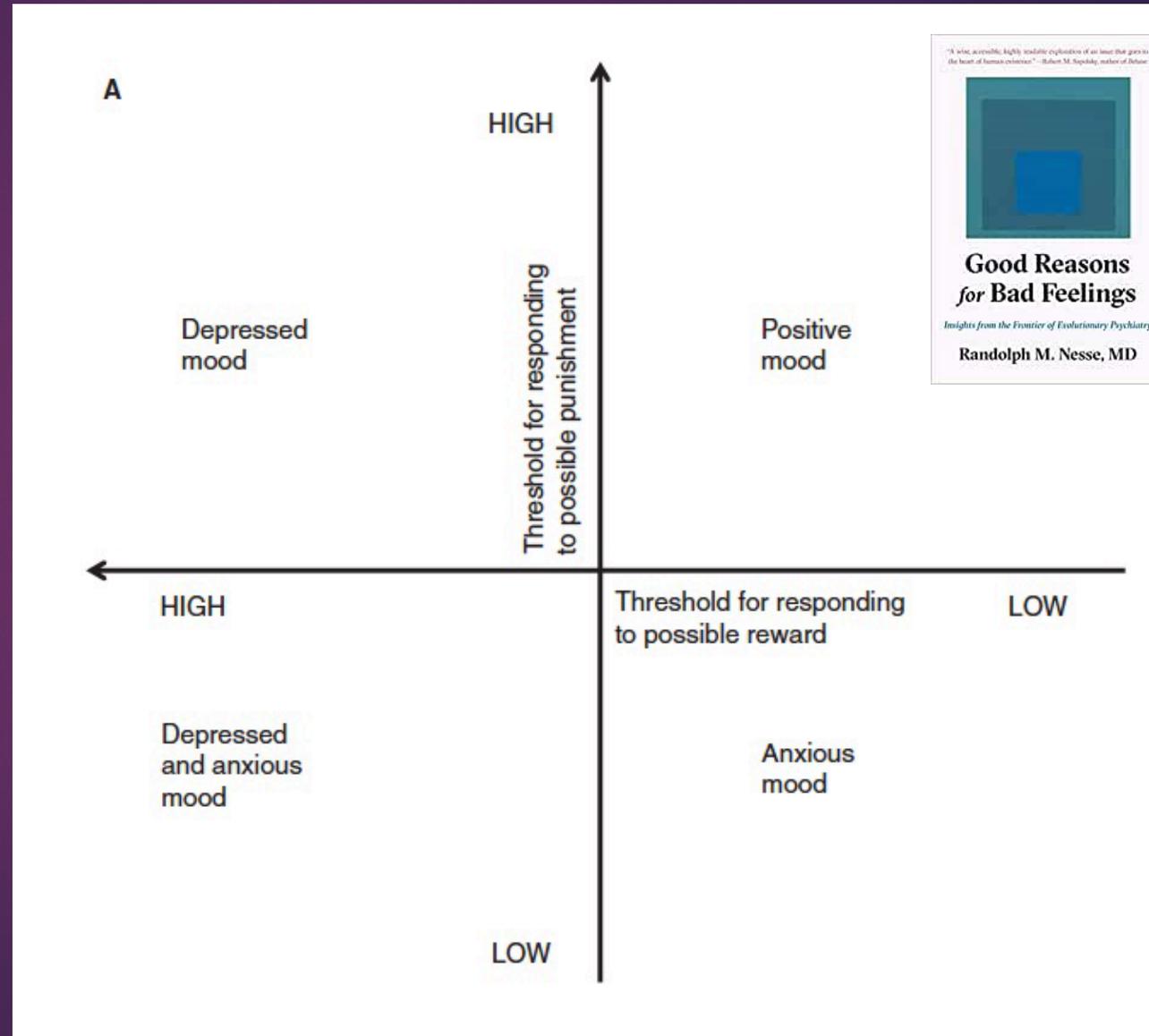
Mikä masennus?

Masennuksen tunne: säätäjä vs Depressio: ilmastonmuutos

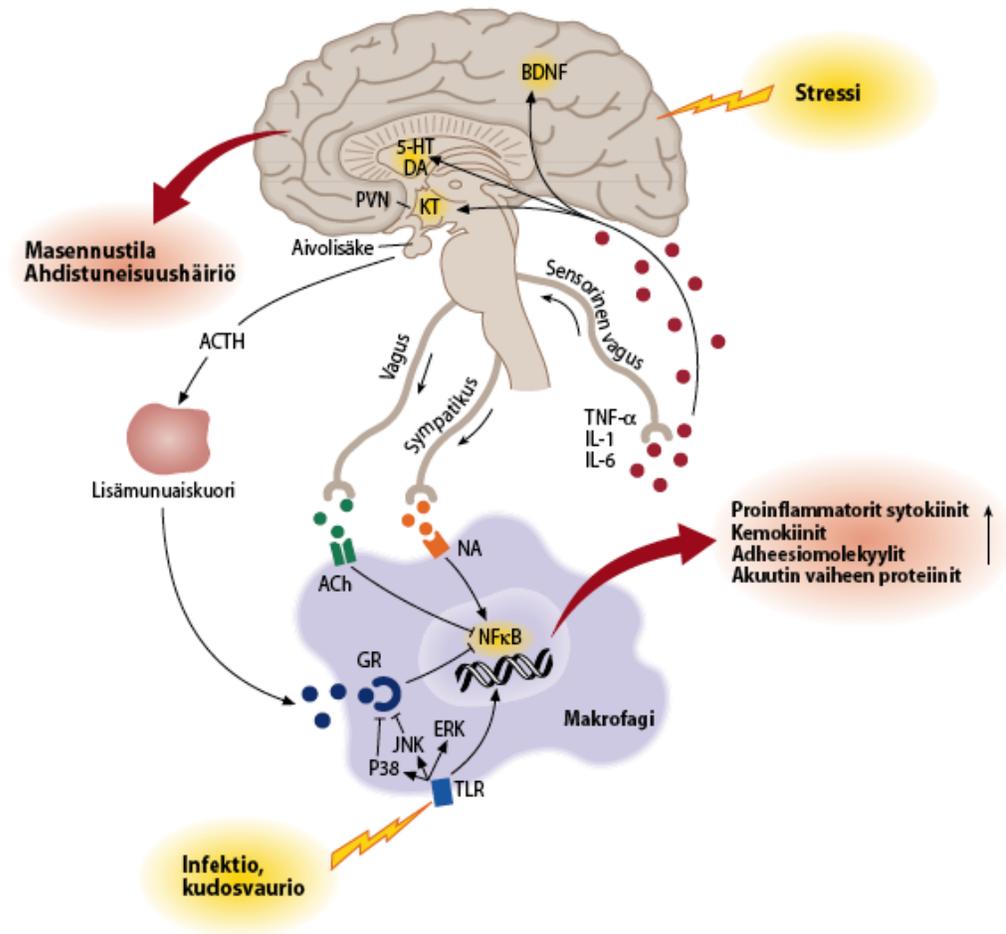
Palkkio/positiivinen tunne: korkeakynnys

Välttämiskäyttäytyminen korostuu

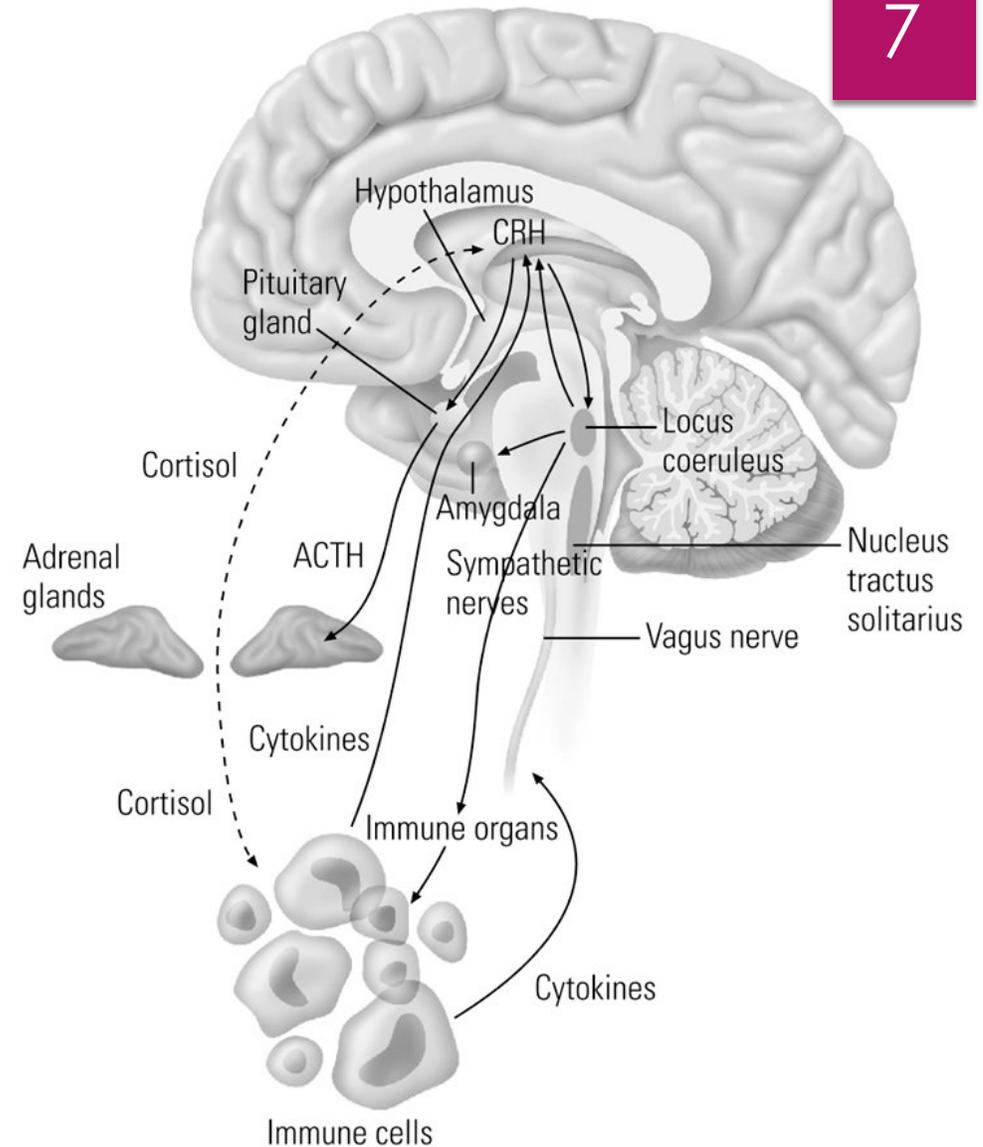
*Eino Leino:
"rotkoni rauhaan kuin peto kuoleva hiivin"*



- ▶ Sytokiinit solusignaaliproteiineja
- ▶ Vastaavat primaaristressivasteesta
- ▶ Vahingoittunen poisto ja regeneraation käynnistys



- ▶ Sytokiinit ja sairauskäyttäytyminen
- ▶ Nautintakyvyttömyys (anhedonia), ruokahaluttomuus, väsymys, mielialan lasku
- ▶ “luonnon antibiootti”



Common mental disorder and obesity—insight from four repeat measures over 19 years: prospective Whitehall II cohort study

Cite this as: *BMJ* 2009;339:b3765
doi:10.1136/bmj.b3765

Mika Kivimäki, professor of social epidemiology,^{1,2} Debbie A Lawlor, professor of epidemiology,³ Archana Singh-Manoux, senior research fellow,^{1,4} G David Batty, Wellcome Trust fellow,^{5,6,7} Jane E Ferrie, senior research fellow,¹ Martin J Shipley, senior lecturer in medical statistics,¹ Hermann Nabi, research fellow,⁴ Séverine Sabia, research fellow,⁴ Michael G Marmot, head of department and director,¹ Markus Jokela, senior research fellow^{1,2}

Table 2 | Multivariate models of association between occurrence of common mental disorder (GHQ caseness) and subsequent BMI category (n=4154)

No of times GHQ case at phases 1, 3, and 5	No of participants	Odds ratio (95% CI) for overweight* v normal weight at phase 7 (model A†)	Odds ratio (95% CI) for obese* v normal weight at phase 7	
			Model A†	Model B‡
0	2259	1.00 (reference)	1.00 (reference)	1.00 (reference)
1	1111	1.19 (0.99 to 1.41)	1.33 (1.00 to 1.77)	1.31 (0.98 to 1.76)
2	555	1.32 (1.05 to 1.66)	1.64 (1.13 to 2.36)	1.63 (1.12 to 2.37)
3	229	1.00 (0.71 to 1.40)	2.01 (1.21 to 3.34)	2.01 (1.19 to 3.39)
Test for trend		P=0.07	P<0.001	P<0.001

BMI=body mass index; GHQ=general health questionnaire (measure of common mental disorder).

*1518 (36.5%) normal weight; 1938 (46.7%) overweight; 698 (16.8%) obese.

†Adjusted for age, sex, and BMI category at phase 1.

‡As model A, but additionally adjusted for ethnicity, marital status, socioeconomic position, smoking, alcohol intake, physical activity, systolic blood pressure, diastolic blood pressure, total cholesterol, diabetes, coronary heart disease, and use of psychotropic drugs at phase 1.

Table 4 | Subgroup analyses testing temporal order between GHQ caseness and obesity

Subcohort at phase 1 and exposure	No of participants	Odds ratio (95% CI)
Non-obese participants (n=4149)		
No of times GHQ case at phases 1, 3, and 5:		Outcome: obese v normal weight at phase 7*
0	2274	1.00 (reference)
1	1101	1.43 (1.03 to 1.99)
2	550	1.81 (1.19 to 2.75)
3	224	2.61 (1.45 to 4.69)
Test for trend		P<0.001

Normal weight participants (n=2793)

No of times GHQ case at phases 1, 3, and 5	No of participants	Outcome: obese v normal weight at phase 7*
0	1487	1.00 (reference)
1	762	1.39 (0.75 to 2.57)
2	388	2.05 (1.05 to 4.02)
3	156	1.89 (0.71 to 5.06)
Test for trend		P=0.03

Participants not GHQ cases (n=3199)

No of times obese at phases 1, 3, and 5:	No of participants	Outcome: GHQ caseness at phase 7†
0	2746	1.00 (reference)
1	203	1.13 (0.77 to 1.66)
2	126	1.17 (0.72 to 1.88)
3	124	1.18 (0.73 to 1.90)
Test for trend		P=0.33

GHQ=general health questionnaire (measure of common mental disorder).

*Adjusted for age, sex, and body mass index at baseline.

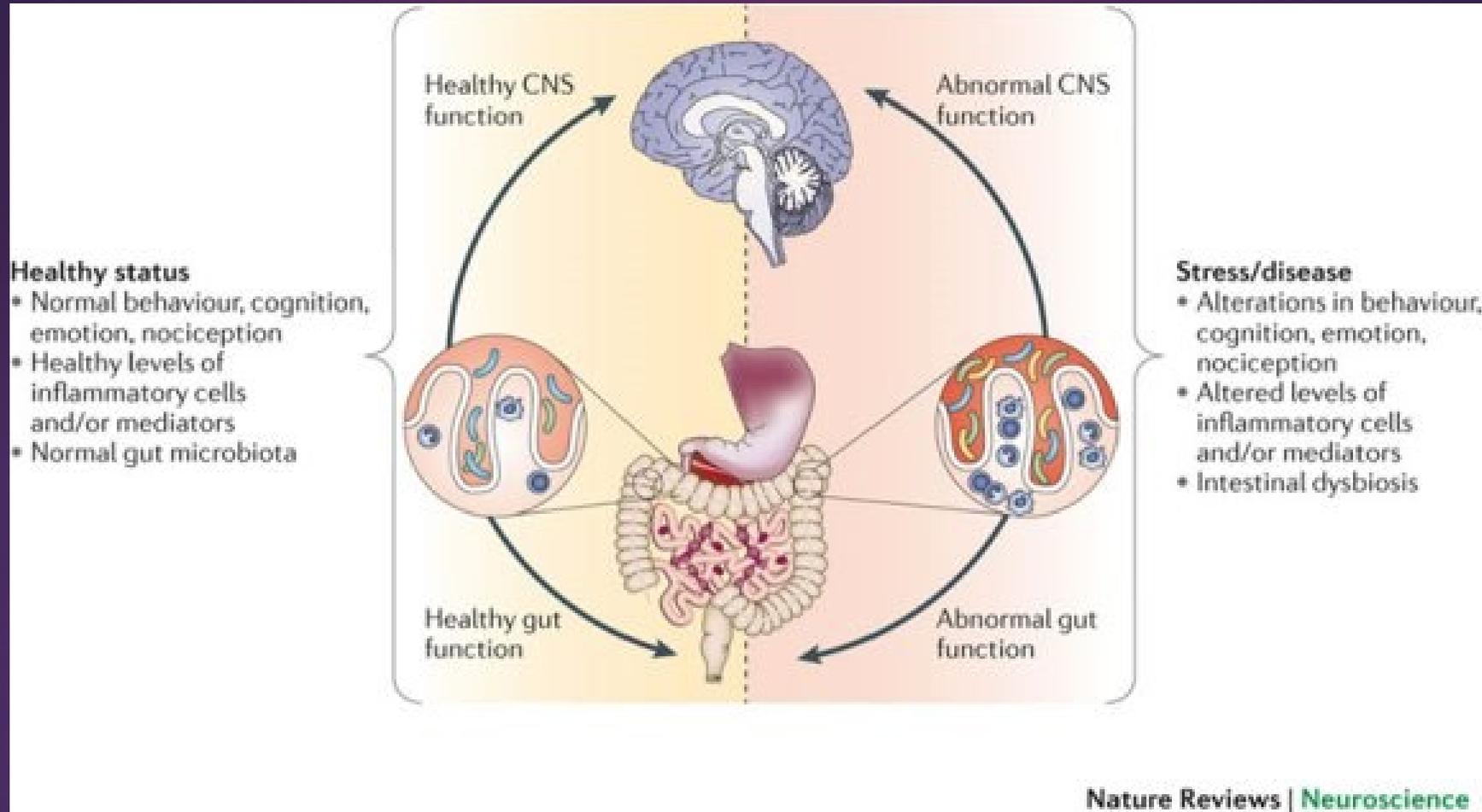
†Adjusted for age and sex.

19 vuoden seurannassa mielenterveydenhäiriö (ahdistus, masennus) ennusti obesiteettia (N=4000)

Obesiteetti ei riski mielenterveydelle

Vaikka lääkitys vakioitiin, yhteys säilyy

- Gut-brain –axis
- Mikrobitit – suolen seinämä/hermosto – vagus & sytokiinit - aivot:

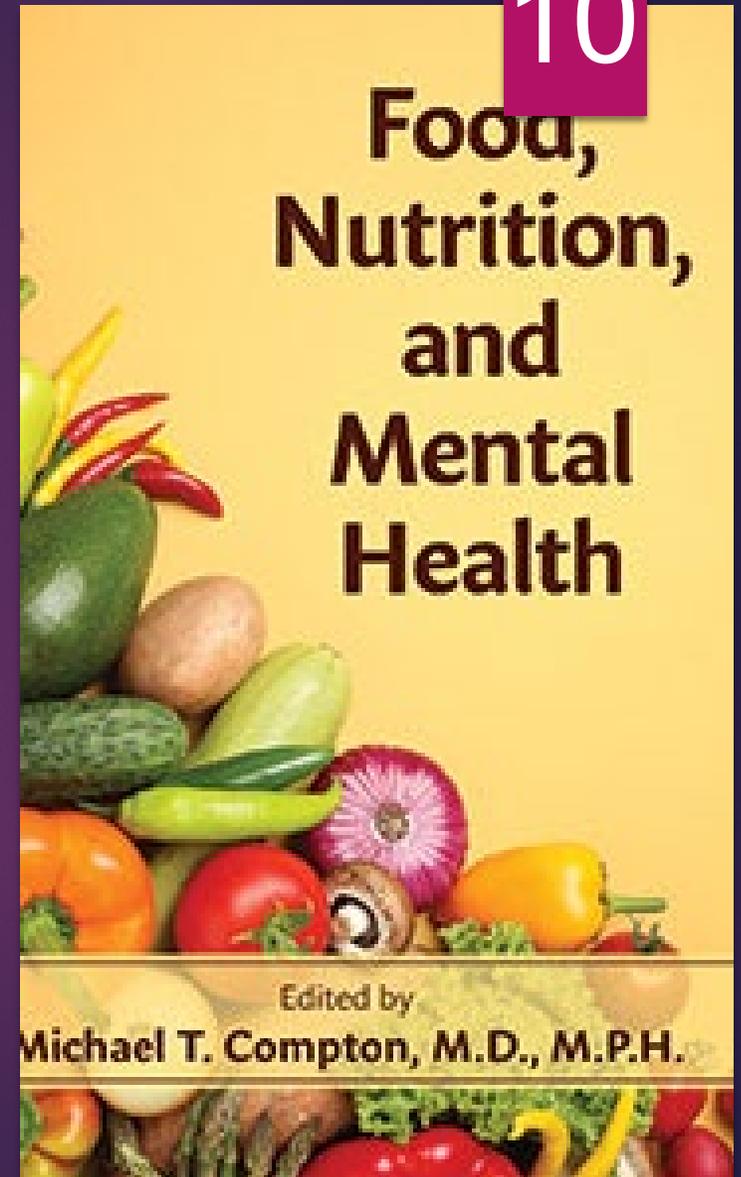


- 50 % serotoniinista suolistossa
- 90 % dopamiinista

Masennus & ravitseminen

MediSearch AI

- ▶ ”Ravitseminen toimii parhaiten masennuksessa hoidon lisänä, ei yksinään. Satunnaistetuissa tutkimuksissa ruokavaliomuutokset ovat pienestä kohtalaiseen – ja joskus suurempaankin – yhteydessä masennusoireiden lievittymiseen, mutta näyttö on vaihtelevaa ja usein matalatasoista”
- ▶ Tutkimusala on nuoruusiässä



- ▶ 16 tutkimusta, n=45 826,
- ▶ 15 RCT: ei-kliininen aineisto
- ▶ Ahdistus oireitten vähentyminen: ei merkitsevää vastetta
- ▶ Masennus: oireitten vähentyminen
- ▶ $g=0,321$, $p=0,002$ laadukkaat tutkimukset (vaste koko aineistoa suurempi)
- ▶ $g=0,174$, $p=0,035$
- ▶ aktiivinen kontrolliryhmä (pienempi vaste kuin inaktiivisessa kontrollissa)

OPEN

The Effects of Dietary Improvement on Symptoms of Depression and Anxiety: A Meta-Analysis of Randomized Controlled Trials

Joseph Firth, PhD, Wolfgang Marx, PhD, Sarah Dash, PhD, Rebekah Carney, PhD, Scott B. Teasdale, PhD, Marco Solmi, MD, Brendon Stubbs, PhD, Felipe B. Schuch, PhD, André F. Carvalho, MD, Felice Jacka, PhD, and Jerome Sarris, PhD

SYSTEMATIC REVIEW/META-ANALYSIS

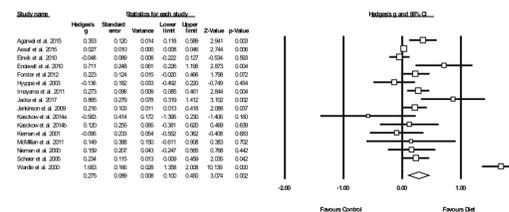


FIGURE 1. Meta-analysis of the effects of dietary interventions on depressive symptoms. Box size represents study weighting. Diamond represents overall effect size and 95% CIs.

masennus

SYSTEMATIC REVIEW/META-ANALYSIS

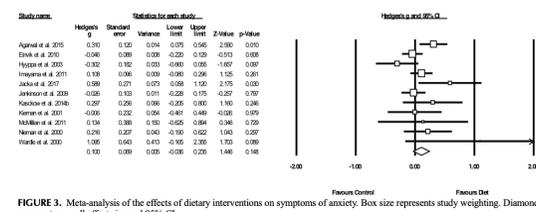


FIGURE 3. Meta-analysis of the effects of dietary interventions on symptoms of anxiety. Box size represents study weighting. Diamond represents overall effect size and 95% CIs.

ahdistus

- ▶ 92 etenevää kohorttitutkimusta (700 000 henkilöä)
- ▶ 21 RCT: 2 tutkimusta: masennuksen hoito, 2 tutkimusta ennalta ehkäisy, 17 yhteys oireisiin
- ▶ Treatment-RCT yielded anecdotal-to-moderately strong support for the hypothesis that dietary interventions improve depression
 - ▶ (d = -0.80, 95 % CI = -1.46 to -0.14), Internal validity was low

J Affect Dis 2025; 382:154-166



Molero ym. Systemaattinen katsaus ja meta-analyysi

- ▶ Ennalta-ehkäisyä koskeneet RCT:t eivät viitanneet mahdollisuuteen ehkäistä depressiota (vahva näyttö: 2 tutkimusta)
- ▶ Adherenssi tutkittavaan dieettiin (esim. Välimeren dieetti) oli heikkoa
 - ▶ Lievemmat oireet, parempi adherenssi (OR=0,91 95%CI: 0,88-0,96)
- ▶ Synnytyksen jälkeiset depressiopisteet: kala & depressio (OR =0.84, 95%CI =0.78–0.91), DHA/EPA/Omega3 (OR = 0.84, 95%CI =0.77–0.92)



META-ANALYSIS

Curcumin supplementation effect on liver enzymes in patients with nonalcoholic fatty liver disease: a GRADE-assessed systematic review and dose-response meta-analysis of randomized controlled trials

Effect of carotenoid supplementation on blood pressure in adults: a GRADE-assessed systematic review and dose-response meta-analysis of randomized controlled trials

The impact of the Mediterranean diet on alleviating depressive symptoms in adults: a systematic review and meta-analysis of randomized controlled trials

The effect of a ketogenic diet on inflammation-related markers: a systematic review and meta-analysis of randomized controlled trials

Effects of intermittent dieting with break periods on body composition and metabolic adaptation: a systematic review and meta-analysis

Probiotics for adults with major depressive disorder compared with antidepressants: a systematic review and network meta-analysis

SYSTEMATIC REVIEW

The association between maternal body mass index and breast milk composition: a systematic review

NARRATIVE REVIEWS

Micronutrient status in children aged 6–59 months with severe wasting and/or nutritional edema: implications for nutritional rehabilitation formulations

The impact of continuous calorie restriction and fasting on cognition in adults without eating disorders

SCOPING REVIEWS

Exploring the physiological factors relating to energy balance in women with polycystic ovary syndrome: a scoping review

Effect of breakfast protein intake on muscle mass and strength in adults: a scoping review

CORRECTION

Correction to: Effects of intermittent dieting with break periods on body composition and metabolic adaptation: a systematic review and meta-analysis

▶ *The impact of the Mediterranean diet on alleviating depressive symptoms in adults: a systematic review and meta-analysis of randomized controlled trials*

▶ N=1507

▶ SDM= -0.53;95%CI: -0.90 → -0.16)

▶ ”Huomattava potentiaali depressio-oireitten vähentämiseksi”



Healthy dietary indices and risk of depressive outcomes: a systematic review and meta-analysis of observational studies

Camille Lassale^{1,2} · G. David Batty¹ · Amaria Baghdadli^{3,4} · Felice Jacka⁵ · Almudena Sánchez-Villegas^{6,7} · Mika Kivimäki^{1,8} · Tasnime Akbaraly^{1,3,9}

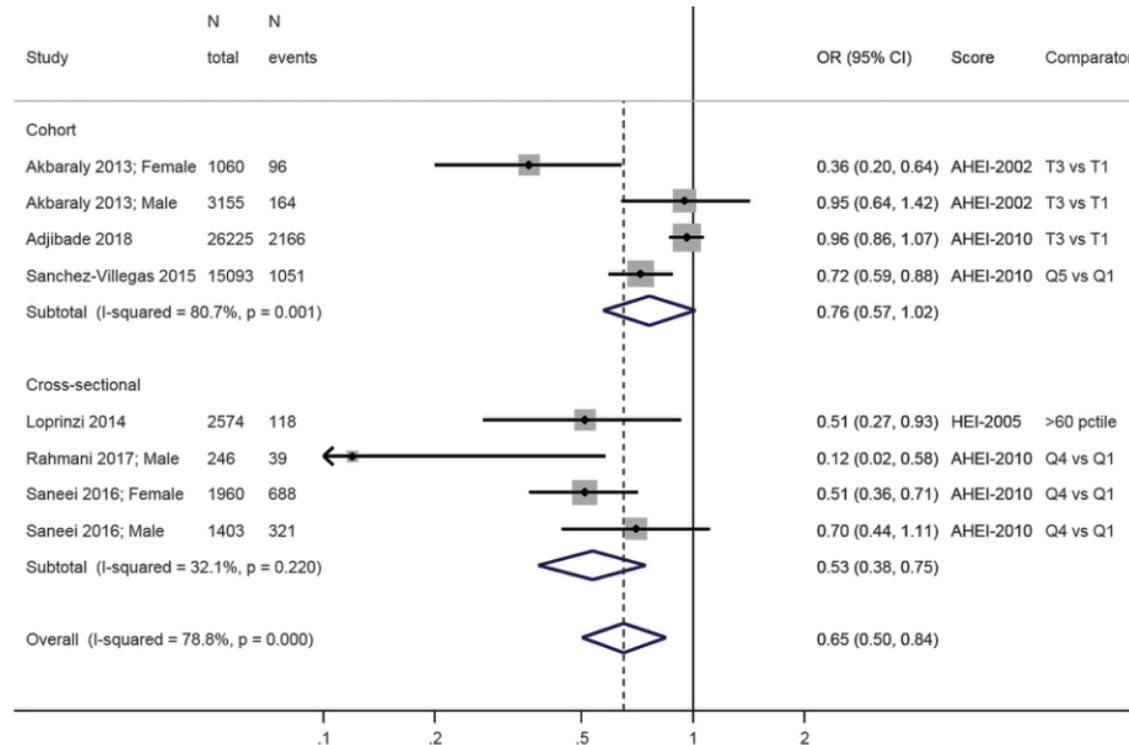


Fig. 2 Meta-analysis of studies investigating the association between HEI/AHEI and depressive outcomes. Estimates are ORs, RRs, or HRs of depression for people with highest adherence compared to lowest

adherence (categories or quantiles specified). HEI healthy eating index, AHEI Alternative Healthy Eating Index, T tertile, Q5 quintile, Q4 quartile, 60pctile 60th percentile

20 etenevää tutkimusta
 ja 21 poikkileikkaus
 tutkimusta

Terveellinen dieetti
 (Välimerellinen tai muu
 terveellinen (korkea
 HEI/AHEI-indeksi)
 mahdollisesti suojaa
 depressiolta

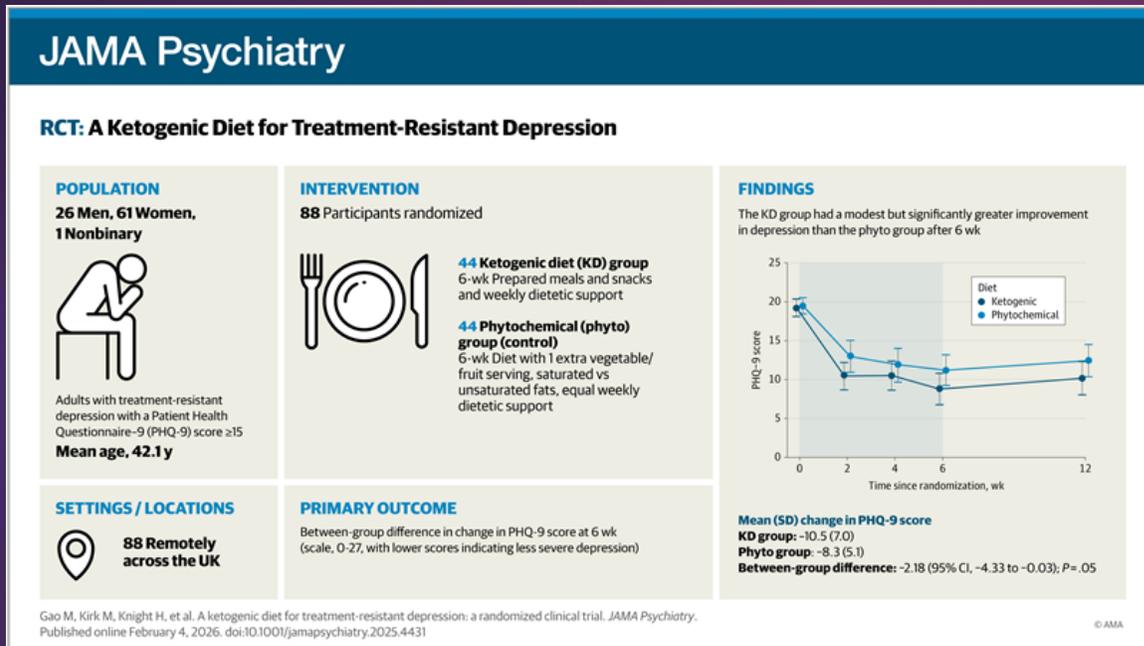
A Ketogenic Diet for Treatment-Resistant Depression A Randomized Clinical Trial

JAMA Psychiatry

Published Online: February 4, 2026

doi: 10.1001/jamapsychiatry.2025.4431

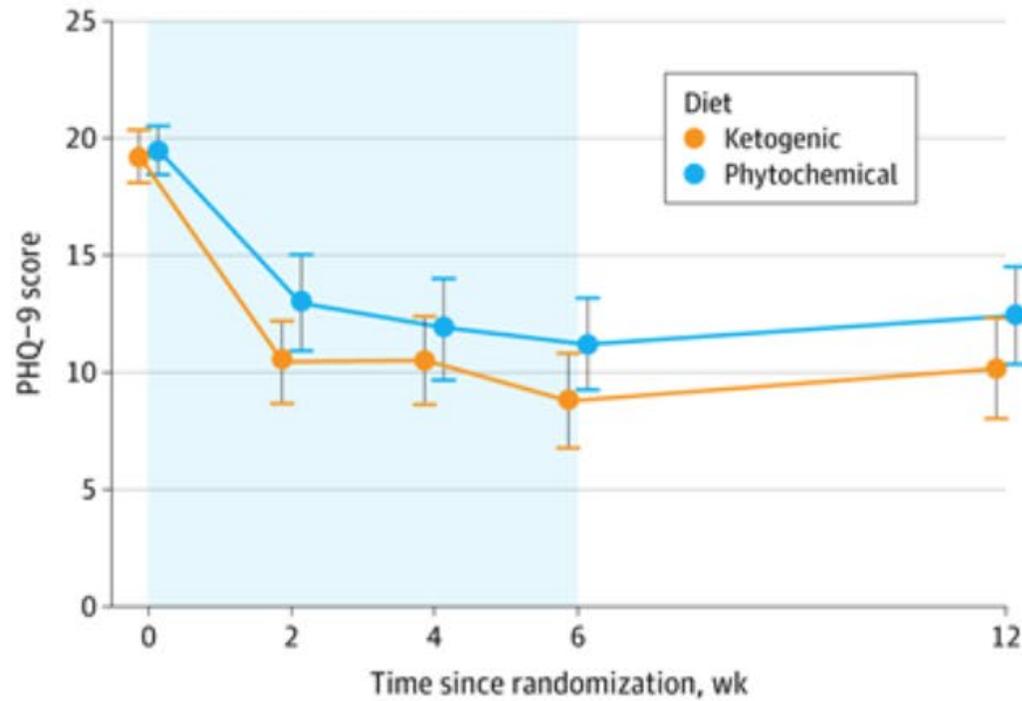
Min Gao, PhD^{1,2}; Megan Kirk, PhD^{1,2}; Heather Knight, MSc¹; et al



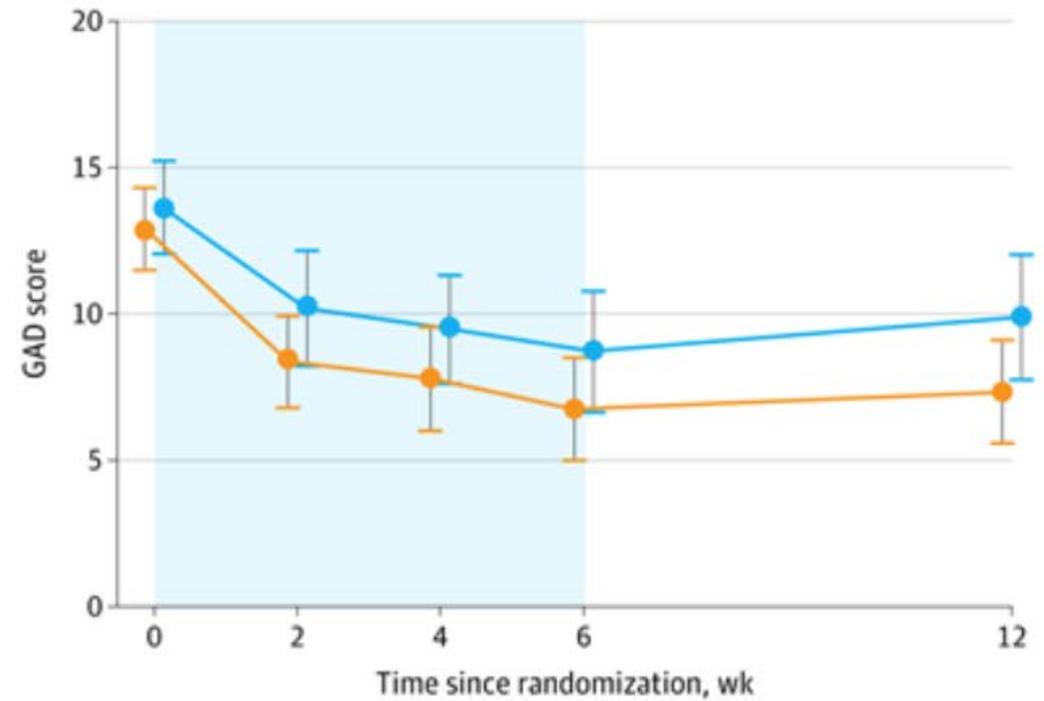
RCT, n=88,
44 ketogeenisellä
44 Verrokkiryhmä fytokemikaalisella
dieetillä
12 viikkoa seurantaa
Intent to treat –analyysi 12 vko

Figure 3. Line Graphs of Changes in Primary and Secondary Outcome Scores Over 12 Weeks

A Depression



B Anxiety



▶ 5 RCT-tutkimusta, n=458

- ▶ Oireitten vähentyminen, koko aineisto
- ▶ Ikäryhmittäin
- ▶ Masentunut vs. Ei enää masentunut



Review

Effect of Probiotics on Depression: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

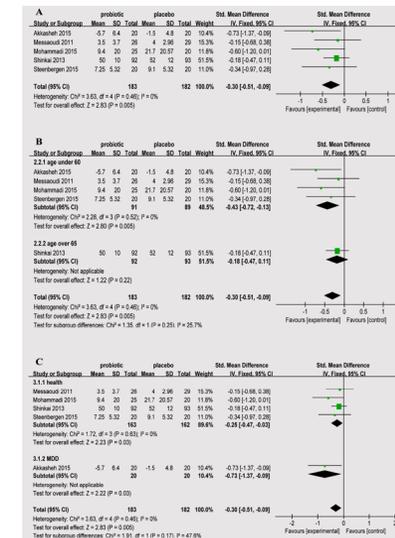
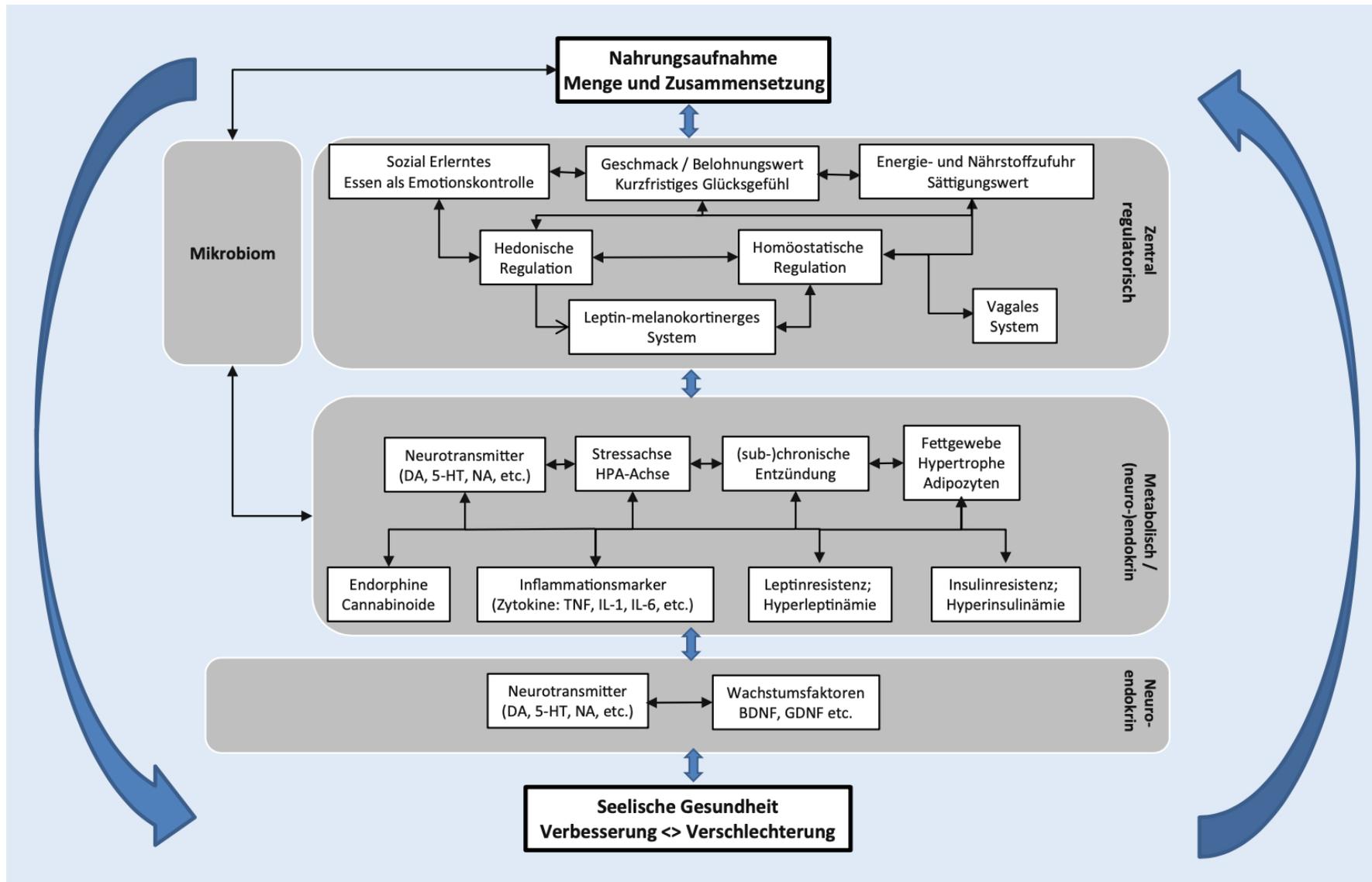


Figure 3. (A) estimates for probiotics associated with depression in the meta-analysis; (B) forest plots for different ages; and (C) forest plots for depression status.

Mekanismit?

- ▶ Ravitsemuksen mahdolliset mekanismit depression hoidossa
 - ▶ 1. Inflammaation hillitseminen
 - ▶ 2. Mikrobiomin muutos
 - ▶ 3. Vakutus leptiini-melanokortinergiseen ja HPA-akseliin:
 - ▶ Hypotalamus-aivolisäke-lisämunuaiskuori -akseli
 - ▶ 4. Vaikutukset keskushermoston välittäjäaineiden dynamiikkaan ja kaskadeihin (serotoniini, noradrenaliini, dopamiini, kolinerginen systeemi ja neurotrofiineihin (BDNF ym.)

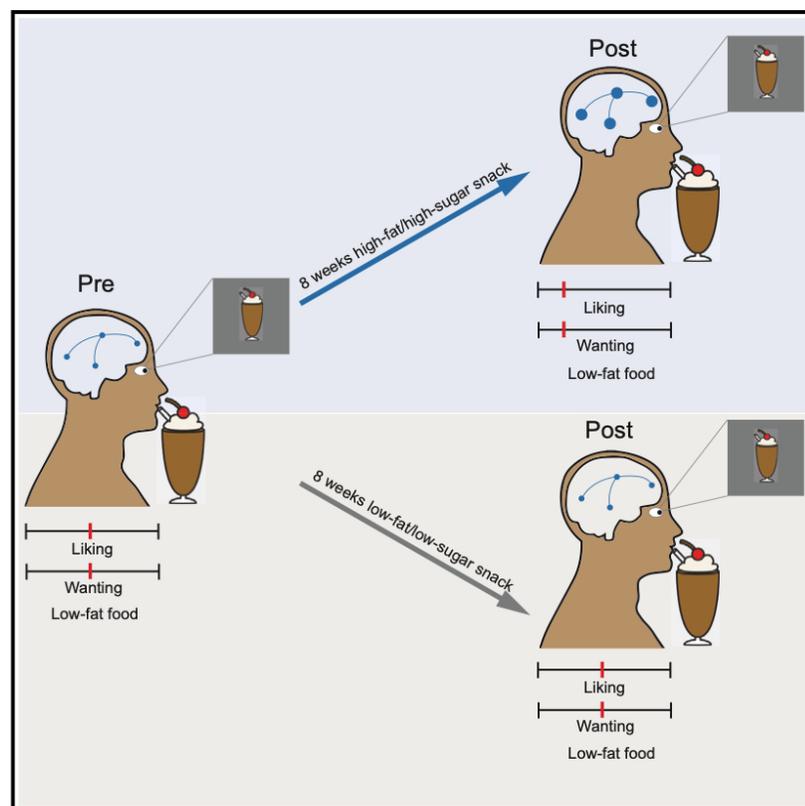


Cell Metabolism

Clinical and Translational Report

Habitual daily intake of a sweet and fatty snack modulates reward processing in humans

Graphical abstract



Authors

Sharmili Edwin Thanarajah,
Alexandra G. DiFeliceantonio,
Kerstin Albus, ..., Jens C. Brüning,
Marc Tittgemeyer, Dana M. Small

Correspondence

tittgemeyer@sf.mpg.de (M.T.),
dana.small@yale.edu (D.M.S.)

In brief

Edwin Thanarajah et al. show that daily snacking on an unhealthy food reduces preference for low-fat food and rewires brain reward circuits to enhance response to a palatable food and upregulate neural computations supporting learning beyond ingestive behavior. Effects are observed despite no change in body weight or metabolic health.

Immuno-metabolic depression: from concept to implementation

Brenda W. J. H. Penninx,^{a,*} Femke Lamers,^a Rick Jansen,^a Michael Berk,^b Golam M. Khandaker,^{c,d,e,f} Livia De Picker,^{g,h} and Yuri Milaneschi^d

The Lancet Regional Health - Europe
2025;48: 101166
Published Online 18
December 2024
<https://doi.org/10.1016/j.lanepe.2024.101166>

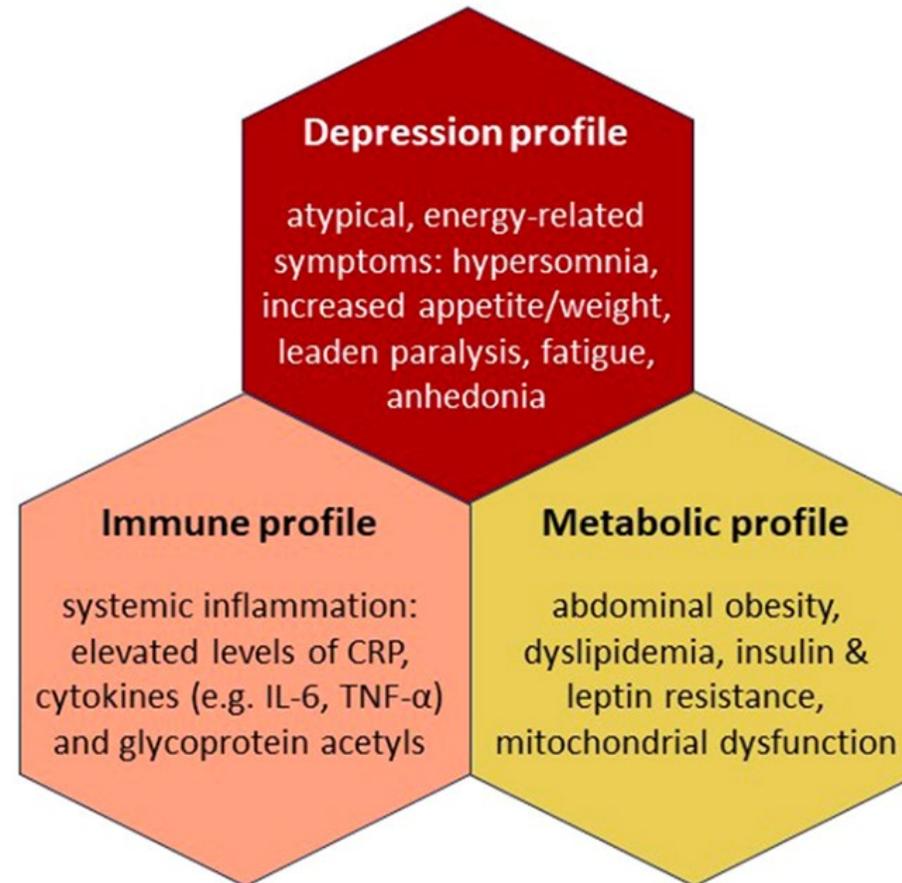


Fig. 1: Overview of the three key components of Immuno-Metabolic Depression (IMD).

Vaikutus masennustyypeittäin?

”epätyypillinen masennus”

Hypersomnia, lisääntynyt ruokahalu, painon nousu, ahdistus, väsymys, anhedonia, lyijyn raskaat jäsenet

23

Korkkela
10.1.18

