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Opdateret 20. januar 2024

## FASTE UDEN SULT

### REFERENCER OG YDERLIGERE LÆSNING

Forfatter: Jerk W. Langer  
Opskrifter: Ditte Ingemann  
Politikens Forlag, udgivet december 2023  
<https://www.politikensforlag.dk/faste-uden-sult/t-2/9788740088144>

### INTERVIEWS og HOVEDKILDER

Mange af bogens informationer, beskrivelse af forsøgsresultater og konklusioner stammer fra mine samtaler med førende eksperter, der hver især bidrager med mange faglige konklusioner indenfor deres forskningsområde.

#### MARK P. MATTSON

Adjunct professor of neuroscience, Ph.D.  
Johns Hopkins University School of Medicine, Department of Neurology,  
Baltimore, Maryland  
<https://neuroscience.jhu.edu/research/faculty/57>  
- Mark P. Mattson er adjungeret professor i neurovidenskab på Johns Hopkins University School of Medicine, Department of Neurology, i Baltimore, Maryland, og som en af verdens førende forskere i periodisk faste giver han kommentarer og vurderinger mange steder i bogen, ikke mindst omkring fastens betydning for hjernen og neurdegenerative lidelser.  
- Mark P. Mattson er medforfatter til: Effects of Intermittent Fasting on Health, Aging, and Disease. N Engl J Med 2019; 381:2541-2551  
<https://www.nejm.org/doi/full/10.1056/NEJMra1905136> Denne videnskabelige artikel bragt i et af de fineste lægevidenskabelige fagtidsskrifter satte for alvor periodisk faste på verdenskortet med sit faglige overblik over forskningen. Artiklens konklusion: Preclinical studies and clinical trials have shown that intermittent fasting has broad-spectrum benefits for many health conditions, such as obesity, diabetes mellitus, cardiovascular disease, cancers, and neurologic disorders. Animal models show that intermittent fasting improves health throughout the life span, whereas clinical studies have mainly involved relatively short-term interventions, over a period of months.  
- Forfatter til bogen: The Intermittent Fasting Revolution (MIT Press, 2023).  
<https://mitpress.mit.edu/9780262545983/the-intermittent-fasting-revolution/>

- Mark P. Mattson medvirker ofte i podcasts og interviews om periodisk faste. Hans egen interessante podcast 'Brain Ponderings' om hjernen findes på bl.a. Spotify <https://open.spotify.com/show/39HsoeK8o7DtXIhepNCvfl>

#### KRISTA VARADY

Professor of Nutrition, Ph.D.

Department of Kinesiology and Nutrition

University of Illinois, Chicago

<https://ahs.uic.edu/kinesiology-nutrition/directory/varady-krista/>

- Som professor i ernæring ved University of Illinois i Chicago forsker Krista Varady i intermitterende faste, vægttab, samt beskyttelse mod metaboliske sygdomme, herunder risikoen for hjertekarsygdomme. Hun har gennemført mange kliniske studier af forskellige fasteformer og bidrager blandt andet med vigtige konklusioner omkring vægttab. Hun medvirker ofte i podcast og interviews om periodisk faste samt har skrevet flere bøger.

#### NIELS MØLLER

Professor, overlæge, dr.med.

Institut for Klinisk Medicin, Medicinsk Forskningslaboratorium, NBG, Aarhus

Universitet, Nørrebrogade 44, bygn. 3, kld., 8000 Aarhus C

<https://pure.au.dk/portal/en/persons/niels.moeller%40clin.au.dk>

- Niels Møller forsker bl.a. i de ketonstoffer, som dannes ved periodisk faste, herunder deres mulige effekt hos patienter med hjertevigt. Han er også kilde til accepten af at drikke kaffe med en smule mælk i fasteperioden, noget som rigtig mange er glade for.

#### KATRINE LINDE

Læge

- Arbejder i almen praksis i København og anbefaler periodisk faste til mange af sine patienter. Interessen for periodisk faste tager udgangspunkt i hendes eget liv, en erfaring hun gerne deler med sine patienter.

#### THOMAS ELBENHARDT JENSEN

Humanfysiolog, Ph.D., lektor

Institut for Idræt og Ernæring på Københavns Universitet, August Krogh

Sektionen for Molekylær Fysiologi, Nørre Allé 51, 2200 København N

- Leder forskningsgruppen Muskelvækst og Stofskifte. Forsker bl.a. i skeletmusklers tilpasning til ydre faktorer såsom fysisk aktivitet og inaktivitet, herunder betydningen for livsstils- og aldringsbetingede sygdomme som diabetes overvægt og kræft. Bidrager i bogen med sin store viden om, hvordan man skal forholde sig til faste, når man henholdsvis udholdenhedstræner og styrketræner.

<https://nxs.ku.dk/ansatte/?pure=da/persons/56931>

## PODCAST

Intermittent Fasting And Its Effects On The Brain. Alzheimer's Disease Research Center. University of Wisconsin-Madison School of Medicine and Public Health. 08.10.2020.

- Mark Mattson discusses his research on metabolic switching, caloric restrictions, and the cognitive benefits from intermittent fasting.  
<https://www.adrc.wisc.edu/dementia-matters/intermittent-fasting-and-its-effects-brain>

Intermittent Fasting with Dr. Krista Varady. Eat Move Think Podcast, episode 181. 31.07.2023

- In this presentation, Dr. Krista Varady breaks down the various types of intermittent fasting, and how to do it safely and effectively for your body.  
<https://www.eatmovethinkpodcast.com/podcast/ep181-intermittent-fasting-varady>

Does Human Research on Intermittent Fasting Support Longevity? Longevity by Design 11.11.2022

- Research on intermittent fasting is largely conducted in cellular and animal models. Dr. Krista Varady is one of few scientists to conduct intermittent fasting clinical trials in humans.  
<https://blog.insidetracker.com/longevity-by-design-krista-varady>

All About Intermittent Fasting with Leslie Beck and Dr. Krista Varady. Eat Move Think Podcast, episode 112. 04.04.2022

<https://www.eatmovethinkpodcast.com/podcast/ep112-all-about-intermittent-fasting>

- Dr. Krista Varady discusses her recommendations in intermittent fasting.

Kan det hjælpe på træningen, hvis du springer et måltid over? Podcast hos Morgenavisen Jyllands-posten 01.02.2021

<https://jyllands-posten.dk/podcast/nytsundtogsandt/ECE12723853/kan-det-hjaelpe-paa-traeningen-hvis-du-springer-et-maaltid-over/>

- Værterne Karen Lyager og Jerk W. Langer gennemgår sammen med overlæge, dr. med. og professor ved Aarhus Universitet Niels Møller tre myter om at faste: Er morgenmad dagens vigtigste måltid, gør faste din krop yngre, og får du meget mere ud af din træning på fastende hjerte?

## GENERELLE ARTIKLER OM FASTE

The Benefits of Intermittent Fasting. New York Times 17.02.2020  
<https://www.nytimes.com/2020/02/17/well/eat/the-benefits-of-intermittent-fasting.html>

- Interview med Mark P. Mattson om bl.a. præstationsevne, evolution.

Intermittent Fasting: What is it, and how does it work? The Johns Hopkins University

<https://www.hopkinsmedicine.org/health/wellness-and-prevention/intermittent-fasting-what-is-it-and-how-does-it-work>

- Overblik fra Johns Hopkins University og Mark P. Mattson. Research shows that intermittent fasting is a way to manage your weight and prevent - or even reverse - some forms of disease. But how do you do it? And is it safe?

Er du også en af dem, der er begyndt at faste? Så husk bananen. Politiken 07.05.2023

<https://politiken.dk/indland/art9335929/Er-du-ogs%C3%A5-en-af-dem-der-er-begyndt-at-faste-S%C3%A5-husk-bananen>

- Journalist Per Munch, Dagbladet Politiken, fortæller om faste på sin karakteristiske humoristiske vis.

The Case for a Breakfast Feast. New York Times 21.08.2017

<https://www.nytimes.com/2017/08/21/well/eat/the-case-for-a-breakfast-feast.html>

- Mange spiser løs hele dagen. He asked volunteers to use a smartphone app to photograph everything they drank and ate throughout the day and found that even generally healthy people ate and snacked over a period of about 15 hours a day, stopping for an extended amount of time only when they were in bed. Professor Satchidananda Panda fra Salk Institute for Biological Studies i San Diego, USA,

<https://www.salk.edu/scientist/satchidananda-panda/>

## REVIEWS OM FASTE

Effects of Intermittent Fasting on Health, Aging, and Disease. N Engl J Med 2019; 381:2541-2551

<https://www.nejm.org/doi/full/10.1056/NEJMra1905136>

- Fagligt overblik over forskningen. Preclinical studies and clinical trials have shown that intermittent fasting has broad-spectrum benefits for many health conditions, such as obesity, diabetes mellitus, cardiovascular disease, cancers, and neurologic disorders. Animal models show that intermittent fasting improves health throughout the life span, whereas clinical studies have mainly involved relatively short-term interventions, over a period of months.

Intermittent fasting effects on health, aging, and disease. 02.01.2020

<https://medicalresearch.com/weight-research/intermittent-fasting-effects-on-health-aging-and-disease/>

- Interview med Mark P. Mattson om ovennævnte artikel i N Engl J Med.

Cardiometabolic Benefits of Intermittent Fasting. Annual Review of Nutrition 2021;1:333-361

<https://www.annualreviews.org/doi/10.1146/annurev-nutr-052020-041327>

- Forskergruppen gennemgår mulige gevinster af forskellige fasteformer, især omkring vægt og kardiometaboliske parametre, altså blodtryk, kolesterol, blodsukker, inflammation m.fl.

Effects of intermittent fasting on body composition and clinical health markers in humans.

Nutrition Reviews, Volume 73, Issue 10, October 2015, Pages 661–674

<https://academic.oup.com/nutritionreviews/article/73/10/661/1849182>

- On the basis of the information presented in this review, it is recommended that intermittent fasting be considered as an alternative to daily caloric restriction for individuals who are interested in improving body composition and overall health.

## MULIGE VIRKNINGSMEKANISMER

The Nobel Prize to Yoshinori Ohsumi for his discoveries of mechanisms for autophagy. The Nobel Prize in Physiology or Medicine 2016. The Nobel Foundation 03.10.2016

<https://www.nobelprize.org/prizes/medicine/2016/press-release/>

- Yoshinori Ohsumi modtager Nobelprisen 2016 for sin autofagi-forskning

Autophagy. Cleveland Clinic 08.23.2022

<https://my.clevelandclinic.org/health/articles/24058-autophagy>

- As scientists collect more evidence about the relationship between autophagy and disease, we'll get a clearer idea of how this process may play a role in certain conditions and long-term health.

Autophagy Is Pro-Senescence When Seen in Close-Up, but Anti-Senescence in Long-Shot. Mol Cells. 2017; 40(9): 607–612

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5638768>

- Autophagy is originally thought to suppress cellular senescence by removing damaged macromolecules or organelles, yet recent studies also indicated that autophagy promotes cellular senescence by facilitating the synthesis of senescence-associated secretory proteins. mand mande

Autophagy and the Immune Response. In Autophagy: Biology and Diseases 2019, 595–634

[https://link.springer.com/chapter/10.1007/978-981-15-0602-4\\_27](https://link.springer.com/chapter/10.1007/978-981-15-0602-4_27)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7120363/>

- This review highlights the key role that autophagy plays in the innate immune system and the acquired immune system.

The Roles of Autophagy in Cancer. Int J Mol Sci. 2018; 19(11): 3466

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6274804/>

- Autofagis betydning ved kræft synes at være meget kompliceret og langt fra afklaret.

Mitophagy: An Emerging Role in Aging and Age-Associated Diseases. Front Cell Dev Biol. 2020; 8: 200

<https://www.frontiersin.org/articles/10.3389/fcell.2020.00200/full>

- In this review, we summarize recent findings on mechanisms controlling mitophagy and its role in aging and the development of human pathologies.

Ketonstoffer ved hjertevigt

- Kosttilskud kan hjælpe patienter med hjertesvigt. Aarhus Universitet 2019

<https://newsroom.au.dk/nyheder/vis/artikel/kosttilskud-kan-hjaelpe-patienter-med-hjertesvigt/>

- Superbrændstof kan måske gavne hjertesvigtspatienter. Hjerteforeningen 2020

<https://hjerteforeningen.dk/fagnet/2020/01/08/superbraendstof-kan-maaske-gavne-hjertesvigtspatienter/>

- Cardiovascular Effects of Treatment With the Ketone Body 3-Hydroxybutyrate in Chronic Heart Failure Patients. *Circulation* 2019 Apr 30;139(18):2129-2141  
<https://pubmed.ncbi.nlm.nih.gov/30884964/>

Ketonstoffer i cykelsport

- Cykelsportens nye 'trylledrik' deler vandene. Dansk OL-guldvinder mener, bandlysning vil være vanvittig. DR 2021

<https://www.dr.dk/sporten/cykling/cykelsportens-nye-trylledrik-deler-vandene-dansk-ol-guldvinder-mener-bandlysning-vil>

- No scientific evidence that ketones improve performance, says UCI medical director. *Cyklingnews* 2021

<https://www.cyclingnews.com/news/no-scientific-evidence-that-ketones-improve-performance-says-uci-medical-director/>

Caffeine intake increases plasma ketones: an acute metabolic study in humans. *Can J Physiol Pharmacol* 2017;95(4):455-458

<https://pubmed.ncbi.nlm.nih.gov/28177691/>

- Caffeine given at breakfast significantly stimulated ketone production in a dose-dependent manner.

Effekt og bivirkninger ved ketogen diæt. Epilepsiforeningen

<https://www.epilepsiforeningen.dk/epilepsi/diaetbehandling-af-epilepsi>

- Ved nogle typer af epilepsi hos børn kan ketogen diæt være den mest effektive behandling.

Endocrine regulation of the fasting response by PPARalpha-mediated induction of fibroblast growth factor 21. *Cell Metabolism* 2007;5:6:415-426

[https://www.cell.com/cell-metabolism/fulltext/S1550-4131\(07\)00130-1](https://www.cell.com/cell-metabolism/fulltext/S1550-4131(07)00130-1)

- This study establishes FGF21 as a crucial hormone in the body's adaptation to fasting.

The therapeutic potential of FGF21 in metabolic diseases: from bench to clinic. *Nature Reviews Endocrinology* 2020; 16:654-667

<https://www.nature.com/articles/s41574-020-0386-0>

NAD<sup>+</sup> metabolism and its roles in cellular processes during ageing. *Nat Rev Mol Cell Biol* 2021; 22(2): 119-141

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7963035>

- Targeting NAD<sup>+</sup> metabolism has emerged as a potential therapeutic approach to ameliorate ageing-related disease, and extend the human healthspan and lifespan. However, much remains to be learnt about how NAD<sup>+</sup> influences human health and ageing biology.

## VÆGT

Calorie Restriction with or without Time-Restricted Eating in Weight Loss. *New England Journal of Medicine*. 2022 Apr 21;386(16):1495-504

<https://www.nejm.org/doi/full/10.1056/NEJMoa2114833>

- Among patients with obesity, a regimen of time-restricted eating was not more beneficial with regard to reduction in body weight, body fat, or metabolic risk factors than daily calorie restriction.

Clinical application of intermittent fasting for weight loss: progress and future directions

Krista Varady et al. *Nature Reviews Endocrinology* 2022, 18, 309–321

<https://www.nature.com/articles/s41574-022-00638-x>

presse: <https://www.eurekalert.org/news-releases/946646>

- The three main forms of intermittent fasting (alternate day fasting, the 5:2 diet and time-restricted eating) produce mild to moderate weight loss (3–8% loss from baseline) over short durations (8–12 weeks). The degree of weight loss achieved with intermittent fasting is on a par with that achieved with traditional dieting approaches (daily calorie restriction). Some studies demonstrate that intermittent fasting improves cardiometabolic risk factors such as blood pressure, levels of LDL cholesterol and triglycerides, insulin resistance and HbA1c, while others show no benefit on these parameters.

Frustreret fedmelæge: Det er forkert at behandle et sygt samfund med medicin og fedmekirurgi. *Politiken* 29.11.2019

<https://politiken.dk/debat/art7495177/%C2%BDet-er-forkert-at-behandle-et-sygt-samfund-med-medicin-og-fedmekirurgi%C2%AB>

- Om det fedmefremmende samfund, set evolutionært

Effect of Time-Restricted Eating on Weight Loss in Adults With Type 2 Diabetes. A Randomized Clinical Trial. *JAMA Netw Open* 2023;6(10):e2339337

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2811116>

- 75 overvægtige personer med type 2-diabetes opdeltes i tre grupper. En gruppe fulgte periodisk faste ved at spise hvad de ville i perioden kl. 12 til kl. 20. Den anden gruppe spiste 25 % færre kalorier uden tidsbegrænsning, altså klassisk kalorietælling. Den tredje gruppe spiste, som de plejede. Et halvt år senere havde de fastende i gennemsnit tabt 3,6% af kropsvægten. Til sammenligning tabte dem, der talte kalorier, sig 1,8%, altså mindre. Begge grupper havde ensartede fald i blodsukkeret.

Meal Frequency and Timing Are Associated with Changes in Body Mass Index in Adventist Health Study 2. *J Nutr* 2017;147(9):1722-1728

<https://pubmed.ncbi.nlm.nih.gov/28701389/>

- Spisetidspunktets betydning ved vægttab. Eating less frequently, no snacking, consuming breakfast, and eating the largest meal in the morning may be effective methods for preventing long-term weight gain. Eating breakfast and lunch 5-6 h apart and making the overnight fast last 18-19 h may be a useful practical strategy.



## **SPISEADFÆRD**

Duft i to minutter dæmper appetitten

<https://journals.sagepub.com/doi/10.1177/0022243718820585>

- The results of a series of experiments, including field studies at a supermarket and at a middle school cafeteria, show that extended exposure (of more than two minutes) to an indulgent food-related ambient scent (e.g., cookie scent) leads to lower purchases of unhealthy foods compared with no ambient scent or a nonindulgent food-related ambient scent (e.g., strawberry scent).

A randomized experiment to examine unintended consequences of dietary supplement use among daily smokers: taking supplements reduces self-regulation of smoking. *Addiction* 2011;106, 12:2221-2228

<https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1360-0443.2011.03545.x>

- Licens-effekt. Man ryger mere, når man tror sig beskyttet af vitaminpille

Aftensmad som det sociale hovedmåltid. *Madkultur* 21

<https://www.madkulturen.dk/wp-content/uploads/2021/11/Madkultur21.pdf>

- På trods af tidspres og stigende konkurrence fra bl.a. snacking og mobiltelefoner prioriterer langt de fleste danskere alligevel at spise aftensmad med andre på en typisk aften.. *Madkultur21* viser, at det fælles aftensmåltid stadig står stærkt som en institution i vores madkultur. Stort set alle spiser aftensmad, og fællesskabet om måltidet prioriteres endnu højere nu, end før coronapandemien.

Stadig flere bor alene uden en partner. *Kristeligt Dagblad* 03.02.22

<https://www.kristeligt-dagblad.dk/danmark/stadig-flere-bor-alene-uden-en-partner-saerligt-fra-en-bestemt-gruppe>

- 38 procent af danskerne boede alene i 2021.

## **MORGENMADENS HISTORIE**

Breakfast really doesn't have much to do with controlling your weight.

*Washington Post* 20.11.2021

[https://www.washingtonpost.com/health/breakfast-weight-control-diet/2021/11/19/a140b6b0-3cc8-11ec-8ee9-4f14a26749d1\\_story.html](https://www.washingtonpost.com/health/breakfast-weight-control-diet/2021/11/19/a140b6b0-3cc8-11ec-8ee9-4f14a26749d1_story.html)

A Brief History Of How Breakfast Got Its 'Healthy' Rep. *Huffington Post*

06.10.2014

[https://www.huffpost.com/entry/breakfast-most-important-history\\_n\\_5910054](https://www.huffpost.com/entry/breakfast-most-important-history_n_5910054)

Freud's Nephew and the Origins of Public Relations. *National Public radio*.

22.04.2005

<https://www.npr.org/templates/story/story.php?storyId=4612464?storyId=4612464>

## LEVETID - LONGEVITY

Effect of long-term caloric restriction on DNA methylation measures of biological aging in healthy adults from the CALERIE trial. *Nature Aging* 2023; 3:248–257

<https://www.nature.com/articles/s43587-022-00357-y>

Press: A calorie-restricted diet may slow aging in healthy adults, research finds. NBC News 09.02.2023

<https://www.nbcnews.com/health/health-news/calorie-restricted-diet-may-slow-aging-healthy-adults-science-shows-rcna69562>

- Researchers still don't know exactly why cutting calories may slow aging, but there is evidence it prompts changes at the cellular level.

Impact of Healthy Lifestyle Factors on Life Expectancies in the US Population. *Circulation* 2018;138:345–355

<https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.117.032047>

- Adherence to 5 low-risk lifestyle-related factors (never smoking, a healthy weight, regular physical activity, a healthy diet, and moderate alcohol consumption) could prolong life expectancy at age 50 years by 14.0 and 12.2 years for female and male US adults compared with individuals who adopted zero low-risk lifestyle factors.

- Se også: Healthy lifestyle: 5 keys to a longer life. Harvard Medical School. 25.03.2020

<https://www.health.harvard.edu/blog/healthy-lifestyle-5-keys-to-a-longer-life-2018070514186>

## HJERNEN, NEURODEGENERATIVE SYGDOMME

Alzheimer og døgnrytmer hos mus

Aligning Rhythms, Defying Alzheimer's: Intermittent Fasting's Role in Combating Alzheimer's Disease Neurodegeneration. *News Medical* 01.09.2023

<https://www.news-medical.net/news/20230901/Aligning-Rhythms-Defying-Alzheimers-Intermittent-Fastings-Role-in-Combating-Alzheimers-Disease-Neurodegeneration.aspx>

- The study found that it is possible to correct circadian disruptions seen in Alzheimer's disease with time-restricted feeding, a type of intermittent fasting focused on limiting the daily eating window without limiting the amount of food consumed.

Intermittent Calorie Restriction, Insulin Resistance, and Biomarkers of Brain Function. *ClinicalTrials.gov* ID NCT02460783

<https://clinicaltrials.gov/study/NCT02460783>

- Researchers want to see how diet affects insulin resistance, weight, and brain chemicals related to Alzheimer's disease. Studie fra Mark P. Mattson, endnu ikke publiceret.

## **MULTIPEL SKLEROSE, MS**

Intermittent calorie restriction alters T cell subsets and metabolic markers in people with multiple sclerosis. EBioMedicine 2022;82:104124

[https://www.thelancet.com/journals/ebiom/article/PIIS2352-3964\(22\)00305-X/fulltext](https://www.thelancet.com/journals/ebiom/article/PIIS2352-3964(22)00305-X/fulltext)

- In people with MS, an intermittent CR diet was associated with reduction in memory T cell subsets and certain biologically-relevant lipid markers.

Intermittent Fasting Results in Beneficial Immune and Metabolic Changes in People with MS, Says Society-funded Study. National Multiple Sclerosis Society 27.07.2022

<https://www.nationalmssociety.org/About-the-Society/News/Intermittent-Fasting-Results-in-Beneficial-Immune>

Så er der ny forskning om faste og sclerose. Scleroseforeningen. 02.11.2022

<https://www.scleroseforeningen.dk/nyheder/saa-er-der-ny-forskning-om-faste-og-sclerose>

## **ANTIINFLAMMATORISK KOST**

21 nye helbredende dage med antiinflammatorisk kost

[https://www.saxo.com/dk/21-nye-helbredende-dage-med-antiinflammatorisk-kost\\_jerk-w-langerlouise-bruun\\_indbundet\\_9788740046595](https://www.saxo.com/dk/21-nye-helbredende-dage-med-antiinflammatorisk-kost_jerk-w-langerlouise-bruun_indbundet_9788740046595)

Litteraturliste til antiinflammatorisk kost:

<http://jerk.dk/Antiinflammatorisk%20kost%20referencer.pdf>

Studie støtter tese om anti-inflammatorisk effekt af faste. Steno Diabetes Center, Aarhus 2018

<https://www.stenoaarhus.dk/nyheder/nyheder-2018/Studie-stoetter-tese-om-anti-inflammatorisk-effekt-af-faste/>

- Antiinflammatorisk effekt af faste.

## TRÆNING OG FASTE

Effects of fasted vs fed-state exercise on performance and post-exercise metabolism: A systematic review and meta-analysis. Scand J Med Sci Sports 2018;28(5):1476-1493. doi: 10.1111/sms.13054.

<https://pubmed.ncbi.nlm.nih.gov/29315892/>

- Pre-exercise feeding bolsters prolonged aerobic performance, while seminal evidence highlights potential beneficial metabolic adaptations that fasted exercise may induce in peripheral tissues.
- Evidenced that pre-exercise feeding blunted signaling in skeletal muscle and adipose tissue implicated in regulating components of metabolism, including mitochondrial adaptation and substrate utilization.
- Bekræfter min opfattelse, at fastende træning forbedrer de tilpasningerne i stofskiftet, som man ønsker at opnå ved udholdenhedstræning, herunder forbedret funktion af mitokondrier og fedtforbrænding, men at du på selve konkurrencedagen skal spise noget på forhånd.

Four Weeks of 16/8 Time Restrictive Feeding in Endurance Trained Male Runners Decreases Fat Mass, without Affecting Exercise Performance. Nutrients. 2021; 13(9): 2941

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8469445/>

<https://www.8020endurance.com/how-intermittent-fasting-can-make-you-leaner-less-fit-and-slower/>

- Twenty-seven male runners between the ages of 21 and 36 participated in the experiment. Each subject completed four weeks of eating 16:8) as well as four weeks of eating on a normal 12/12 schedule. The runners were instructed to eat the same types and amounts of food as normal on either schedule, so that only the timing differed. Before and after each four-week period, the subjects underwent body composition testing and ran a 10K time trial. Body fat decreased slightly, from 16.8 to 15.8 percent, on the time-restricted feeding program, while no change occurred on the normal eating schedule. Improvement in 10K times was about equal on both diets. The fact that time-restrictive feeding failed to improve 10K performance more than normal eating despite triggering fat loss indicates that something about it counteracted the boost in running economy the runners got from getting leaner. In other words, intermittent fasting seems to have made these runners less fit at the same time it made them leaner.

## KALORIERESTRIKTION

The Retardation of Aging and Disease by Dietary Restriction. J Nutr 1986;116(4):641-54

- These findings show the profound anti-aging effects of dietary restriction and provide new information for optimizing restriction regimes.

Caloric Restriction Induces Mitochondrial Biogenesis and Bioenergetic Efficiency. Proc Natl Acad Sci USA 2006; 103(6): 1768–1773

- Caloric restriction can induce a peroxisome proliferation-activated receptor coactivator 1 $\alpha$ -dependent increase in mitochondria capable of efficient and balanced bioenergetics to reduce oxidative stress and attenuate age-dependent endogenous oxidative damage.

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<https://pubmed.ncbi.nlm.nih.gov/24115767/>

- shows a systematic redirection of mammalian physiology in response to diet by sirtuin

Børn ned til syv år rammes af spiseforstyrrelser. Kristeligt Dagblad 01.09.2019

- Et stigende antal helt unge børn søger hjælp mod spiseforstyrrelser, lyder det fra fagfolk og forening. Allerede i førskolealderen får mange børn et problematisk forhold til mad

<https://www.kristeligt-dagblad.dk/danmark/boern-ned-til-syv-aar-rammes-af-spiseforstyrrelser>

- Om at overleve uden mad

How Long Can a Person Survive without Food? Scientific American 08.11.2004

<https://www.scientificamerican.com/article/how-long-can-a-person-sur/>

Sultestrejke: Terence MacSwiney

[https://en.wikipedia.org/wiki/Terence\\_MacSwiney](https://en.wikipedia.org/wiki/Terence_MacSwiney)

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<https://www.religion.dk/hinduisme/mahatma-gandhi>

## ÆLDRE PÅ FASTE

Effect of a Six-Week Intermittent Fasting Intervention Program on the Composition of the Human Body in Women over 60 Years of Age

Int J Environ Res Public Health 202017(11):413. 8

<https://pubmed.ncbi.nlm.nih.gov/32531956/>

- Ældre kvinder på periodisk faste. Experimental group decreased by almost 2 kg. The skeletal muscle mass did not change significantly, which indicates an actual decrease in the fat mass. The proportion of subjects who did not succeed in following the prescribed diet plan was 12%.

## QUOTES

Paracelsus: "Fasting is the greatest remedy—the physician within"  
<https://www.britannica.com/biography/Paracelsus>

Benjamin Franklin: "The best of all medicines are resting and fasting"  
<https://www.goodreads.com/quotes/8792993-the-best-of-all-medicines-are-resting-and-fasting>  
[https://denstoredanske.lex.dk/Benjamin\\_Franklin](https://denstoredanske.lex.dk/Benjamin_Franklin)

Plutarch: "Instead of using medicine, better fast today"  
<https://quotefancy.com/quote/889469/Plutarch-Instead-of-using-medicine-better-fast-today>

Mark Twain: "A little starvation, can really do more for the average sick man than can the best medicines and the best doctors. I do not mean a restricted diet; I mean total abstention from food for one or two days. I speak from experience; starvation has been my cold and fever doctor for fifteen years, and has accomplished a cure in all instances"  
<http://www.twainquotes.com/Bradley/PhysicalCulture.html>