

Fleischmythen im Faktencheck

„physiologische und gesundheitliche Wirkungen von Fleisch“



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Ernährungswissenschaftler
Praktischer Umsetzer
Mag. Christian Putscher

Effect of cooking methods on the formation of **heterocyclic aromatic amines** in **chicken** and **duck breast**

Meat Sci. 2010 May;Vol85(1):149-154.

Heterocyclic aromatic amines (**HAAs**), potent mutagens/carcinogens, are pyrolysis formed during the cooking of meat and fish. Results showed that

- **chicken breast** cooked by charcoal grilling (Holzkohle) contained the highest content of total HAAs, **112 ng/g**, followed by
- pan-fried (Braten mit Fett/Öl) duck breast (53.3 ng/g),
- charcoal grilled **duck breast (32 ng/g)**,
- pan-fried chicken breast (27.4 ng/g),
- deep-fried (Frittieren) chicken breast (21.3 ng/g),
- deep-fried duck breast (14 ng/g),
- roasted (Grillen) duck breast (7 ng/g) and
- roasted chicken breast (4 ng/g).

For individual HAA, the most abundant HAA was 9H-pyrido-[4,3-b]indole (Norharman), which was detected in charcoal grilled chicken breast at content as high as 32.2 ng/g, followed by 1-methyl-9H-pyrido[4,3-b] indole (Harman) and 2-amino-1-methyl-6-phenylimidazo[4,5-f]pyridine(PhIP) at 32 and 31.1 ng/g in charcoal grilled chicken breast, respectively. The content of PhIP in pan-fried duck and chicken breast were 22 and 18.3 ng/g, respectively. Generally, the type and content of HAAs in cooked poultry meat varies with cooking method and cooking conditions.

Don't worry...

Wenn sie 100g Hühnerfleisch direkt auf Holzkohle grillen und dabei recht dunkel geraten lassen, bilden sich 112 Nanogramm (ng) HAAs pro Gramm (g) Hühnerfleisch. ¹

In praktischen Zahlen ausgedrückt:

Wenn sie 100g Hühnerfleisch auf diese Weise verzehren, essen sie 0,011Milligramm (mg) HAAs mit.

Zum **Vergleich**: 100g rotes Fleisch (duck breast 32 ng/g)...0,003Milligramm (mg)

¹Meat Sci. 2010 May;85(1):149-154



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RED & PROCESSED MEAT AND CANCER

EXAMPLES OF RED MEAT INCLUDE



BEEF



PORK



LAMB

EXAMPLES OF PROCESSED MEAT INCLUDE



HAM



BACON



HOT DOGS



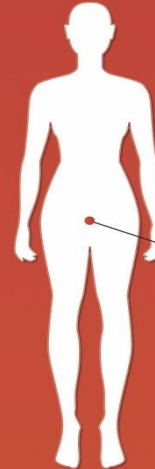
LIMIT RED MEAT INTAKE
TO 12-18 OUNCES
(COOKED) PER WEEK



AVOID CONSUMING ANY
PROCESSED MEAT

THERE IS STRONG EVIDENCE THAT

eating too much red meat –
and even small amounts of
processed meat – can lead
to colorectal cancer



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Health effects associated with consumption of **unprocessed red meat**: a Burden of Proof study

Nature Medicine volume 28, pages 2075–2082 (2022)

Table 2 | Strength of the evidence for the relationship between unprocessed red meat consumption and the six health outcomes analyzed

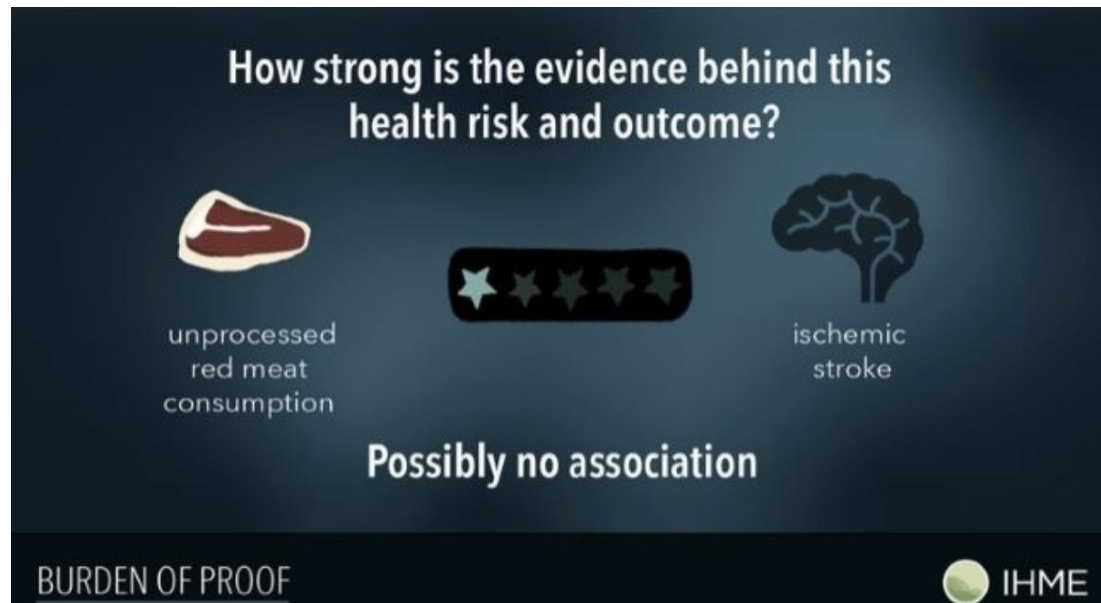
Health outcome	ROS	Average BPRF	Star rating	RR at 50 g d ⁻¹ (conservative 95% UI)	RR at 100 g d ⁻¹ (conservative 95% UI)
Colorectal cancer	0.06	1.06	2 stars	1.3 (1.01, 1.64)	1.37 (1.01, 1.78)
Breast cancer	0.03	1.03	2 stars	1.26 (0.98, 1.56)	1.26 (0.98, 1.56)
IHD	0.01	1.01	2 stars	1.09 (0.99, 1.18)	1.12 (0.99, 1.25)
Type 2 diabetes	0.01	1.01	2 stars	1.14 (0.97, 1.32)	1.23 (0.96, 1.52)
Ischemic stroke	−0.02	0.98	1 star	1.05 (0.97, 1.12)	1.15 (0.93, 1.4)
Hemorrhagic stroke	−0.13	1.14	1 star	0.9 (0.64, 1.26)	0.87 (0.56, 1.35)

The ROS represents the signed value of the log BPRF averaged across the 15th to 85th percentiles of exposure: the lower (if harmful) or higher (if protective) uncertainty interval—inclusive of between-study heterogeneity—for the RR curve for each risk-outcome pair. ROSs are directly comparable across outcomes and each risk-outcome pair receives an ROS based on the final formulation of the risk curve. For hemorrhagic stroke, the ROS reflects a protective effect of red meat consumption, whereas for the other outcomes it reflects a harmful effect. Negative ROSs indicate that a conservative interpretation of the available evidence suggests there may be no association between risk and outcome. For ease of interpretation, we have transformed the ROS and BPRF into a star rating (1–5), with a higher rating representing a larger effect and stronger evidence.

Health effects associated with consumption of **unprocessed red meat**: a Burden of Proof study

Nature Medicine volume 28, pages 2075–2082 (2022)

- Hohe Heterogenität
- Schwache Hinweise zwischen dem Konsum von unverarbeitetem rotem Fleisch und Darmkrebs,...



Clinical Guidelines | 1 October 2019

Unprocessed Red Meat and Processed Meat Consumption: Dietary Guideline Recommendations From the Nutritional Recommendations (NutriRECS) Consortium

FREE



This article has been corrected. [VIEW CORRECTION](#)

Authors: Bradley C. Johnston, PhD , Dena Zeraatkar, MSc, Mi Ah Han, PhD, Robin W.M. Vernooij, PhD, Claudia Valli, MSc, Regina El Dib, PhD, Catherine Marshall, ... [SHOW ALL](#) ... , and Gordon H. Guyatt, MD | [AUTHOR, ARTICLE, & DISCLOSURE INFORMATION](#)

Publication: Annals of Internal Medicine • Volume 171, Number 10 • <https://doi.org/10.7326/M19-1621>

Dietary Guideline Recommendations from the **Nutritional Recommendations** (NutriRECS) Consortium

Recommendations: The panel suggests that adults continue current unprocessed red meat consumption (weak recommendation, low-certainty evidence).

Similarly, the panel suggests adults continue current processed meat consumption (weak recommendation, low-certainty evidence).

Ann Intern Med. 2019 Nov 19;171(10):756-764. doi: 10.7326/M19-1621

Health-related values and preferences regarding meat consumption.

A mixed-methods systematic review.

Ann Intern Med. 2019;171:742-55. doi: [10.7326/M19-1326](https://doi.org/10.7326/M19-1326)

Outcomes	Studies (Participants), n (n)	Certainty of Evidence	Plain-Language Summary
Reasons for meat consumption	38 quantitative studies (62 963)	Low (rated down for risk of bias and indirectness)	Most omnivores were highly attached to their meat. Men had a more positive attitude than women toward meat consumption. Elderly omnivores were generally concerned about health with respect to their food choices. All vegetarians/low meat consumers reported health as one of the main reasons for not eating meat.
	10 qualitative studies (419)	Low (rated down for risk of bias, indirectness, and imprecision)	Most omnivores are highly attached to their meat consumption. Elderly omnivores believed that aging is associated with a decline in food intake. For many vegetarians, health concerns were the primary motivation to stop eating meat.
Willingness to change meat consumption in the face of undesirable health effects	5 quantitative studies (8983)	Low (rated down for risk of bias and indirectness)	Most omnivores reported low willingness to reduce meat consumption. In general, participants reported an overall mistrust related to the given information. Many participants believed that the presence of additives used in the production process was the real health problem rather than red meat consumption itself. Many participants already reduced their meat consumption in the past and did not plan any further changes.
	4 qualitative studies (616)	Low (rated down for risk of bias, indirectness, and imprecision)	Most omnivores reported low willingness to reduce meat consumption. Omnivores were concerned with reducing meat consumption because they perceived meat as an important component of a healthy diet, they enjoyed eating meat, and they believed they needed protein and the enjoyment of eating meat. Some omnivores believed they only ate small quantities of meat and did not need to reduce it (more often this referred to reducing red meat than all types of meat), and some believed they already reduced their meat consumption in the past. Some omnivores believed that the consequences of meat consumption were trivial compared with other behaviors (e.g., smoking tobacco). Some omnivores did not trust the available scientific information.

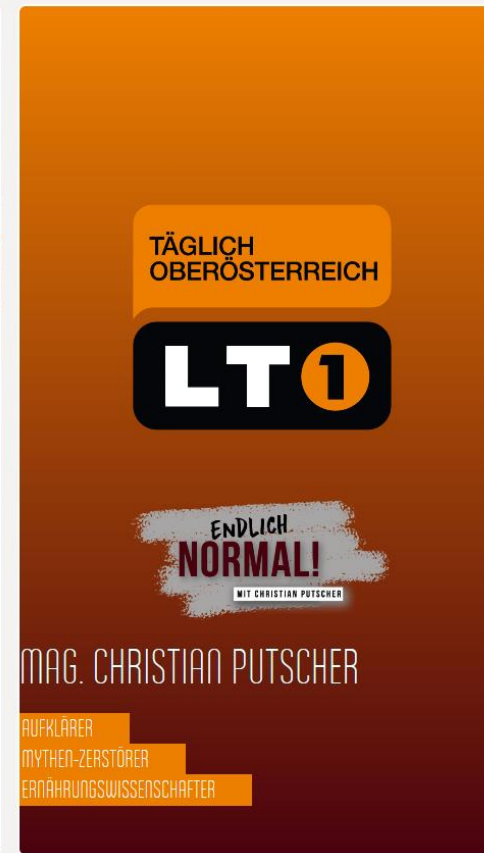
* Based on reference 17.

Unsere Empfehlung, den Konsum von **unverarbeitetem rotem Fleisch** und verarbeitetem Fleisch **beizubehalten**, anstatt ihn zu reduzieren, basiert auf folgenden Faktoren:

- **Erstens** war die Evidenz für potenzielle negative gesundheitliche Folgen des Fleischkonsums gering bis sehr gering (13–16). Dies wird durch die ähnlichen Effektschätzungen für den Konsum von rotem Fleisch und verarbeitetem Fleisch aus Ernährungsstudien und Studien, die sich direkt mit dem Verzehr von rotem Fleisch und verarbeitetem Fleisch befassten, gestützt (13, 14, 16).
- **Zweitens** ergab eine realistische Reduzierung des Konsums von drei Portionen rotem oder verarbeitetem Fleisch pro Woche eine sehr geringe und oft vernachlässigbare absolute Risikominderung.
- **Drittens:** Sollte der sehr geringe Expositionseffekt zutreffen, dürfte die damit verbundene Risikominderung angesichts der Verbundenheit der Bevölkerung mit ihrer fleischierten Ernährung (*17) bei umfassend informierten Personen kaum einen ausreichenden Anreiz bieten, den Konsum von rotem Fleisch oder verarbeitetem Fleisch zu reduzieren.

- Die schwache statt einer starken Empfehlung beruht daher auf der großen Variabilität der Werte und Präferenzen der Menschen in Bezug auf Fleisch (*17).
- Schließlich konzentrierte sich das Expertengremium **ausschließlich auf die gesundheitlichen Folgen** des Fleischkonsums und berücksichtigte weder Tierschutz- noch Umweltaspekte.

Zusammengenommen rechtfertigen diese Beobachtungen eine schwache Empfehlung, den derzeitigen Konsum von rotem Fleisch und verarbeitetem Fleisch beizubehalten.



**Danke,
Christian Putscher**

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