Debunking nutrition myths: An experimental test of the "truth sandwich" text format

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Abstract

Myths about diet and nutrition are widespread and may seriously impact health and well-being. This study tests whether texts in a truth sandwich format, i.e. texts presenting two blocks of factual, correcting information around a text block listing a myth and identifying it as false, are effective in reducing agreement with a range of nutrition myths. Out of thirteen nutrition myths that were presented to 58 participants in a prestudy, the six most prevalent myths were selected for the main study. In the preregistered main study, 302 participants were randomly assigned to either reading one of three texts in the truth sandwich format addressing a nutrition myth, or to reading a text about healthy eating (control condition) before rating their agreement with a total of six nutrition myths. Participants agreed less to the specific myth targeted by the truth sandwich text, while controls were not differentiating between them. Thus, truth sandwiches are effective in reducing agreement with myths and can be harnessed to promote evidence-based dietary practices to promote health in the population.

Keywords: Eating behaviour, science communication, misinformation, nutrition, diet

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Data availability statement

Data, materials and analysis scripts are available on the Open Science Framework project page: https://osf.io/akn95/?view_only=f1fa897edc6c4fbd8c00f9d5294f8647.

Funding statement

No external funding was obtained for this study.

Conflicts of interest

The author declares no conflicts of interest.

Ethics approval statement

For the prestudy, no ethical approval was obtained since risks did not go beyond the risks of daily life. The protocol of the main study was approved by the University of Bayreuth ethics committee.

Permission to reproduce material from other sources

Does not apply.

Clinical trial registration

The main study was pre-registered on aspredicted.org: https://aspredicted.org/blind.php?x=G7P_VJN

Debunking nutrition myths with truth sandwiches: Results of an experimental online study

Nutrition knowledge is an important prerequisite of adhering to a healthy diet in daily life and so contributes to promoting health and well-being (de Ridder et al., 2017; Sproesser et al., 2022; Spronk et al., 2014). Yet, nutrition myths, i.e. claims about nutrition that lack or are not in line with scientific evidence, are widespread, which may hamper efforts of health care professionals to promote evidence-based dietary practices (Lesser et al., 2015). Nutrition myths are often spread by public media; this has been amplified by the popularity of social media, which allows an increasing number of lay people to engage in nutrition communication. Social media personalities increasingly influence people's diet (Truman, 2022); if they promote myths rather than facts this may have far-reaching negative consequences (Sina et al., 2022). Accordingly, an increasing number of scientists and health care professionals are engaging in science communication online in the hopes of refuting misinformation and to fulfil their duty towards society (Genschow et al., 2022; Jarreau, 2018).

Previous research indicates that communicators need to carefully draft their message to avoid strengthening – instead of reducing – belief in misinformation (Pluviano et al., 2019). Being repeatedly exposed to corrections may increase processing fluency of the misinformation; this is also referred to as the familiarity backfire effect (see Swire-Thompson et al. (2020) for a summary). Since backfire effects may have serious consequences, two recent handbooks for climate change and vaccination communication (Lewandowsky et al., 2020; Lewandowsky et al., 2021) provide suggestions for writing compelling texts to refute misinformation. They recommend a "truth sandwich" text format, in which two blocks of correcting information border a middle block containing and refuting the misinformation (Sullivan, 2018). This format has originally been proposed by linguists based on theoretical assumptions about human information

processing (see Kenix and Manickam (2020) for a summary). It is hypothesised that by presenting corrective information first and last, backfire effects are reduced and the belief in the correct information strengthened (Swire-Thompson et al., 2020), since information presented first and last is usually remembered best ("primacy" and "recency" effects, c.f. Jahnke (1965)).

However, empirical tests of the effectiveness of truth sandwiches to debunk misinformation is sparse (Swire-Thompson et al., 2020). One notable exception is a study by Anderson et al. (2019); this study supports the notion that presenting refuting evidence in a truth sandwich format reduces support of the false claim compared to presenting the false claim without refuting evidence. This study, however, used a relatively small sample and no information about sample characteristics or targeted misinformation is available, which limits its explanatory power.

Building up on theoretical considerations and first indications for the effectiveness of truth sandwiches to debunk misinformation, this study adapts the format to the context of nutrition myths. It specifically tests whether texts in a truth sandwich format are able to reduce agreement with nutrition myths to potentially provide guidance to communicators as to how to write compelling texts for refutation. The research includes several wide-spread myths about diet and nutrition that were identified in a prestudy. Furthermore, the research adheres to open science principles including preregistration, and sharing of materials and data to enhance transparency and reproducibility.

Prestudy

This prestudy was conducted to identify nutrition myths with which people agree most strongly to refute them in the main study.

Methods

Study materials (original and translated into English) and data are available on the Open Science Framework (OSF; https://osf.io/akn95/?view_only=f1fa897edc6c4fbd8c00f9d5294f8647).

Sample

A convenience sample of $n = 58$ participants was recruited. Participants did not receive any compensation for participation. Due to the exploratory nature of the study, no power calculation was conducted to determine the sample size; instead, a sample of 50 was targeted to allow for swift recruitment. Forty-two participants (72%) identified as women and 16 (28%) identified as men. Their average age was 35.1 years ($SD = 16.12$).

Procedure

Due to the minimal risk associated with participation in this study, no formal ethical approval was obtained. The study adhered to the Declaration of Helsinki.

The link to the online survey was distributed via social media channels (e.g., WhatsApp groups). After providing informed consent, participants were asked to indicate their age and gender. Afterwards, they were asked to rate their agreement with 13 statements on a five-point Likert scale ranging from (1) I fully agree to (5) I do not agree at all. Responses were recoded so that larger values indicate stronger agreement. The 13 statements were based on common misconceptions about diet and nutrition that are often promoted on and discussed in online media (see Table 1 for a full list of statements).

Data analysis

Data was analysed descriptively in SPSS 26 by reporting means and standard deviations for all 13 statements. In addition, an exploratory within-subjects ANOVA was conducted to test whether agreement ratings differed from one another; due to the small sample size and large number of paired comparisons no post-hoc tests were conducted. Finally, Pearson correlations were conducted between all statements to inform the power calculation for the main study.

Results

A within-subjects ANOVA with all 13 statements revealed significant differences in agreement, $F(9.07, 517.15) = 14.31$, $p < .001$, *partial* $\eta^2 = 0.20$, Greenhouse-Geisser correction $\varepsilon = .76$. The statement that participants agreed with the strongest was "Vitamin C protects against colds", while the statement that participants agreed least with was "Fruit juices are healthy thirst quenchers". Means and standard deviations of the agreement ratings for all statements are listed in Table 1.

Pearson correlations between statements were small to medium (Cohen, 1992), ranging from r = -.12 to r = .45. All correlations are listed in Table 3 in the Supplementary Material.

Table 1. Agreement with the statements.

Statement	M	SD
*Vitamin C protects against colds.	3.67	0.89
**Dark chocolate induces less weight gain.	3.23	1.32
*Carbohydrates induce weight gain.	3.05	1.16
*Spinach contains a lot of iron.	3.00	1.39
**Coke and pretzel sticks help with gastrointestinal discomfort.	3.00	1.31
**Coffee dehydrates the body.	2.68	1.26
Detox products cleanse the body.	2.61	1.39
Eating eggs increases blood cholesterol levels.	2.51	1.15
Gluten is unhealthy.	2.42	1.12
Eating in the evening induces weight gain.	2.40	1.24
Lactose should be avoided.	2.30	1.03
Drinking schnapps after dinner stimulates digestion.	1.89	1.19
Fruit juices are healthy thirst quenchers.	1.63	0.92

Note. Statements marked with an asterisk were chosen for the texts in the main study. Statements marked with two asterisks were included as control questions in the main study.

Main study

Methods

The study was preregistered on aspredicted.org (https://aspredicted.org/blind.php?x=G7P_VJN). Study materials (original and translated into English) and data are available on the OSF https://osf.io/akn95/?view_only=f1fa897edc6c4fbd8c00f9d5294f8647).

Sample

The study was powered to detect small effects (Cohen's f = 0.1) at α = .05 and 1-β = .8 with a correlation between repeated measures of r = .2. According to G*Power 3.1 (Faul et al., 2009), a total sample of $N = 256$ or $n = 64$ participants per group was required.

In total, $N = 302$ participants ($n_{vitamin\ C} = 84$, $n_{carbohydrates} = 84$, $n_{spinach} = 64$, $n_{control} = 70$) were recruited via various social media channels and the website SurveyCircle. Participants had a mean age of 31.14 years ($SD = 11.82$); groups did not differ in mean age ($F[3, 298] = 0.36$, $p = .782$). The majority of participants (69.5%) identified as women, 29.8% identified as men and 0.7% identified as another gender; there were no group differences regarding the distribution of genders ($\chi(df = 6) = 3.60$, $p = .731$).

Design

This study used a 4 (*condition*) x 6 (*statement*) mixed design. Participants were randomly assigned to one of four conditions which determined exposure to one of three truth sandwich

texts (about vitamin C, carbohydrates, or spinach) or a control condition, which read a text on healthy eating. The dependent variable, agreement with nutrition myths, was assessed within participants: All participants rated their agreement with all six statements independent of the condition that they were assigned to, so that all participants served as control conditions for both participants in other conditions (by indicating their agreement with the statement on the topic targeted by other conditions) and themselves (by indicating their agreement with statements that were not targeted at all).

Procedure

The study procedure was approved by the University of Bayreuth ethics committee. Participants provided informed consent before reporting demographic information (age, gender, highest school leaving qualification, highest vocational qualification, academic major or vocational training, net household income). They then indicated trust in science and research, and interest in science and research, nutrition, and health, importance of the source when obtaining information about nutrition and health, as well as frequency of using different channels to obtain information about nutrition and health. They were then randomly assigned to reading one of four short texts about vitamin C, carbohydrates, spinach (in a truth sandwich format) or healthy eating (control condition). Finally, they indicated their agreement with six statements about nutrition before being debriefed.

Materials

Four texts were prepared for the experimental manipulation. Texts on vitamin C, carbohydrates, and spinach were prepared following suggestions by Lewandowsky et al. (2020) regarding texts to debunk misinformation, also referred to as truth sandwiches (Anderson et al.,

2019; Kenix & Manickam, 2020). In brief, the texts consisted of three blocks of information. The first block provided the fact, the second block pointed out the misinformation and the fallacy, and the third block again provided the fact. A fourth text on healthy eating was adapted from the website of the German Nutrition Society (www.dge.de); this text did not follow the truth sandwich format.

Measures

Subjective health status. Participants rated their own health on a six-point Likert scale from (1) very unhealthy to (6) very healthy.

Trust in science and research. Questions were adapted from a nationally representative survey on trust in science (Wissenschaft im Dialog & Kantar Emnid, 2019) and modified to capture trust in science and research in general, trust in science and research at universities and public research institutions, and trust in science and research in healthcare. Participants indicated trust on a five-point Likert scale from (1) I do not trust at all to (5) I trust fully.

Interest. Interest in science and research, nutrition, and health was assessed with one item each that participants responded to on a five-point Likert scale from (1) very limited to (5) very strong.

Paying attention to the source. Participants indicated how much attention they pay to the source of information about health and nutrition on a five-point Likert scale from (1) not at all to (5) very much.

Frequency of using information sources. Participants indicated how frequently they used the following sources to obtain information about nutrition and health: the internet, TV, radio, newspapers and magazines, discussions with friends and acquaintances, and other sources.

Response options were (1) never, (2) once a month or less, (3) several times a month, (4) once per week, (5) several times per week, (6) (almost) daily.

Agreement with statements. Six statements were adapted from the prestudy (see Table 1). Agreement with the statements was assessed on a five-point Likert scale ranging from (1) I fully agree to (5) I do not agree at all. Responses were recoded so that larger values indicate stronger agreement.

Data analysis

A 4 (*condition*) x 6 (*statement*) mixed ANOVA was used to test for differences in agreement to the statement depending on the condition. A significant interaction was followed up by separate between-subjects ANOVAs per statement to identify differences between conditions. All analyses were conducted in SPSS 26.

Results

Sample description

In terms of education, the majority of participants had a university entrance qualification (83.1%) and 60.3% had a university degree. The three academic majors that were most often indicated were Psychology (13.91%), Business Administration (10.60%) and teacher training programmes with various combinations of subjects (3.97%). The four most frequently listed completed apprenticeships or vocational trainings were nurse (1.99%), industrial business management assistant (1.99%), clerk (0.99%) and tax accountant assistant (0.99%). Half of the sample indicated a monthly net household income of at least 2000 €.

Participants' subjective health status was, on average, rather healthy to healthy (M = 4.60, SD = 0.94). Furthermore, participants reported to rather trust in science and research in general

(*M* = 4.26, *SD* = 0.66), research and science at universities and public research institutions (*M* = 4.15, *SD* = 0.69), and in the healthcare sector (*M* = 3.99, *SD* = 0.80). They also reported to have rather strong interest in topics related to science and research (*M* = 3.79, *SD* = 0.91), nutrition (*M* = 3.93, *SD* = 0.85), and health (*M* = 4.04, *SD* = 0.80).

When searching for information about health and nutrition, the majority of the sample reported to pay some (39.7%) or very much (34.8%) attention to the source. The most frequently used media to search for information about nutrition and health were the internet (median response: once per week), followed by discussions with friends and acquaintances (median response: several times per month), TV (median response: once a month or less), and newspapers and magazines (median response: once a month or less). Radio was least frequently used (median response: never). A small number of participants (9.93%) indicated to use other sources at least once a month or less such as books (3.64% of the total sample), social media including Facebook (1.32%) or podcasts (1.32%).

Do texts in the truth sandwich format reduce agreement with nutrition myths?

A 4 (*condition*) x 6 (*statement*) mixed ANOVA was conducted, yielding a significant main effect of statement ($F[4.77, 1421.40] = 4.94$, $p < .001$, *partial* $\eta^2 = 0.02$, Greenhouse-Geisser correction $\varepsilon = .95$) and a significant interaction between statement and condition ($F[15, 1490) = 8.40$, $p < .001$, *partial* $\eta^2 = 0.08$).

The significant interaction was followed up with between-subjects ANOVAs per statement. Results are summarised in Table 2. In brief, participants that received a text in the truth sandwich format targeting the respective myth indicated lower agreement with this statement compared to participants who received a text in the truth sandwich format targeting another statement or the control group that did not read a text in the truth sandwich format. No

differences between conditions were found for the three statements that were not targeted by a text in the truth sandwich format.

Table 2. Results of between-subjects ANOVAs.

Statement	$F(3, 298)$	p	η^2	Condition *M* (*SD*)			
				Vitamin C	Carbohydrates	Spinach	Control
Targeted in a text in a truth sandwich format							
Additional intake of vitamin C protects against colds.	13.21	< .001	0.12	2.06 (1.18) [a]	3.01 (1.06) [b]	2.95 (1.21) [b]	3.00 (1.18) [b]
Carbohydrates induce weight gain.	8.44	< .001	0.08	2.57 (1.23) [a]	1.96 (1.07) [b]	2.78 (1.22) [a]	2.77 (1.18) [a]
Spinach contains a lot of iron.	8.75	< .001	0.08	2.96 (1.36) [a]	3.15 (1.36) [a]	2.08 (1.19) [b]	2.87 (1.39) [a]
Not targeted in a text in a truth sandwich format							
Coffee dehydrates the body.	0.85	.466	0.01	2.80 (1.26)	2.70 (1.30)	2.73 (1.31)	2.49 (1.14)
Coke and pretzel sticks help with gastrointestinal discomfort.	0.76	.516	0.01	2.71 (1.26)	2.71 (1.18)	2.80 (1.45)	2.49 (1.24)
Dark chocolate induces less weight gain.	2.39	.069	0.02	3.03 (1.21)	2.64 (1.15)	3.05 (1.17)	3.03 (1.29)

Note. Different subscripts indicate significant differences between groups (per row) as indicated by Bonferroni-corrected post-hoc tests. No subscripts indicate that post-hoc tests did not yield significant group differences.

Discussion

This research presents an experimental test of the truth sandwich text format to reduce agreement with common nutrition myths. Indeed, after having read a text in the truth sandwich

format refuting the myth, agreement with this myth was lower compared to agreement with myths that were not targeted. Reading a text about healthy eating did not impact agreement with nutrition myths. It can thus be concluded that truth sandwiches are effective in debunking misinformation, as assumed in the literature (Lewandowsky et al., 2020; Lewandowsky et al., 2021). This study provides empirical evidence for the suitability of truth sandwiches in science communication and journalism when aiming to refute nutrition myths (Sullivan, 2018).

It is important to note that the present study compared truth sandwiches to not having received any information about the myth, and a control condition reading a text providing general information about healthy eating, which is in line with previous research indicating that refuting statements need to be specific in order to be effective (Clayton et al., 2020). The presented data does not allow to draw conclusions as to whether the truth sandwich format is more effective than other text formats explicitly targeting and refuting a myth. Indeed, Anderson et al. (2019) suggest that other text formats, such as bottom-loaded texts presenting the false claim first and then two blocks of true information, may be at least as effective in refuting misinformation as truth sandwiches. It can thus be assumed that addressing misinformation and explaining why it is incorrect is important for the correction to be encoded; the exact order of presentation may not be crucial (Ecker et al., 2022). However, since studies on comparing different text structures are sparse, more research is needed to test this assumption.

This study provided an experimental test of the truth sandwich text format in nutrition communication; the study was powered to detect small effects, the hypothesis tested in the main study was pre-registered, and materials and data are openly available to promote transparency and reproducibility. However, some important limitations need to be acknowledged. First, the studied sample was young, well-educated, and interested in nutrition and health. This is a

population that is frequently using social media and thus likely to be exposed to misinformation online (Chou et al., 2009). Testing generalisability of the findings to other populations though is crucial, since some populations, such as older adults, may be more susceptible to misinformation than others (Ecker et al., 2022; van der Linden, 2022). Second, the study focused on debunking nutrition myths; generalisability to other contexts such as health or environmental communication remains to be tested. Third, due to the cross-sectional nature of the study, only immediate effects on agreement could be tested; further research is needed to determine whether the intervention has long-term impact, as suggested for instance in research on correcting statements about politics (Carnahan et al., 2021), and whether it may also affect participants' behaviour, for which previous research on debunking has produced mixed results (Ecker et al., 2022).

To conclude, this research supports the notion that texts in the truth sandwich format are suitable to refute misinformation. They can thus be harnessed to promote evidence-based dietary practices to promote health in the population.

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References

Anderson, E. R., Horton, W. S., & Rapp, D. N. (2019). *Hungry for the Truth: Evaluating the Utility of "Truth Sandwiches" as Refutations* Annual meeting of the society for text and discourse, https://www.researchgate.net/profile/William-Horton-4/publication/334491502_Hungry_for_the_Truth_Evaluating_the_Utility_of_Truth_Sandwiches_as_Refutations/links/5d2de48092851cf44089eab7/Hungry-for-the-Truth-Evaluating-the-Utility-of-Truth-Sandwiches-as-Refutations.pdf

Carnahan, D., Bergan, D. E., & Lee, S. (2021). Do corrective effects last? Results from a longitudinal experiment on beliefs toward immigration in the US. *Political Behavior*, *43*(3), 1227-1246.

Chou, W.-y. S., Hunt, Y. M., Beckjord, E. B., Moser, R. P., & Hesse, B. W. (2009). Social media use in the United States: implications for health communication. *Journal of Medical Internet research*, *11*(4), e1249.

Clayton, K., Blair, S., Busam, J. A., Forstner, S., Glance, J., Green, G., Kawata, A., Kovvuri, A., Martin, J., & Morgan, E. (2020). Real solutions for fake news? Measuring the effectiveness of general warnings and fact-check tags in reducing belief in false stories on social media. *Political Behavior*, *42*(4), 1073-1095.

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*(1), 155-159.

de Ridder, D., Kroese, F., Evers, C., Adriaanse, M., & Gillebaart, M. (2017). Healthy diet: Health impact, prevalence, correlates, and interventions. *Psychology & Health*, *32*, 907-941. https://doi.org/10.1080/08870446.2017.1316849

Ecker, U. K., Lewandowsky, S., Cook, J., Schmid, P., Fazio, L. K., Brashier, N., Kendeou, P., Vraga, E. K., & Amazeen, M. A. (2022). The psychological drivers of misinformation belief and its resistance to correction. *Nature Reviews Psychology*, *1*(1), 13-29.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149-1160.

Genschow, O., Crusius, J., Friese, M., & Sauerland, M. (2022). Wissenschaftskommunikation wissenschaftlich arbeitender Psycholog:innen im deutschsprachigen Raum. *Psychologische Rundschau*.

Jahnke, J. C. (1965). Primacy and recency effects in serial-position curves of immediate recall. *Journal of Experimental Psychology*, *70*(1), 130-132.

Jarreau, P. B. (2018). Why We Scientists Do Instagram. *From the Lab Bench*. http://www.fromthelabbench.com/from-the-lab-bench-science-blog/2018/3/25/why-we-scientists-do-instagram

Kenix, L., & Manickam, J. (2020, 08/2020). *A Missed Opportunity? President Trump, the Truth Sandwich, and Journalistic Monitoring of the Executive Office Across Ideological Mainstream Outlets* Association for Education in Journalism and Mass Communication., virtual. https://ir.canterbury.ac.nz/handle/10092/100203

Lesser, L. I., Mazza, M. C., & Lucan, S. C. (2015). Nutrition myths and healthy dietary advice in clinical practice. *American Family Physician*, *91*(9), 634-638.

Lewandowsky, S., Cook, J., Ecker, U. K. H., Albarracín, D., Amazeen, M. A., Kendeou, P., Lombardi, D., Newman, E. J., Pennycook, G., Porter, E., Rand, D. G., Rapp, D. N., Reifler, J., Roozenbeek, J., P, S., Seifert, C. M., Sinatra, G. M., Swire-Thompson, B., van der Linden, S., . . . Zaragoza, M. S. (2020). *The Debunking Handbook 2020*. https://sks.to/db2020

Lewandowsky, S., Cook, J., Schmid, P., Holford, D. L., Finn, A., Leask, J., Thomson, A., Lombardi, D., Al-Rawi, A. K., & Amazeen, M. A. (2021). *The COVID-19 vaccine communication handbook. A practical guide for improving vaccine communication and fighting misinformation*. https://sks.to/c19vax

Pluviano, S., Watt, C., Ragazzini, G., & Della Sala, S. (2019). Parents' beliefs in misinformation about vaccines are strengthened by pro-vaccine campaigns. *Cognitive Processing*, *20*(3), 325-331.

Sina, E., Boakye, D., Christianson, L., Ahrens, W., & Hebestreit, A. (2022). Social Media and Children's and Adolescents' Diets-A Systematic Review of the Underlying Social and Physiological Mechanisms. *Advances in Nutrition*.

Sproesser, G., Aulbach, M., Gültzow, T., & König, L. M. (2022). Do nutrition knowledge, food preferences, and habit strength moderate the association between Preference for Intuition

and Deliberation in Eating Decision-making and dietary intake? [preprint]. *PsyArXiv*. https://doi.org/10.31234/osf.io/s9bta

Spronk, I., Kullen, C., Burdon, C., & O'Connor, H. (2014). Relationship between nutrition knowledge and dietary intake. *British Journal of Nutrition*, *111*(10), 1713-1726.

Sullivan, M. (2018). Instead of Trump's propaganda, how about a nice 'truth sandwich'? *The Washington Post*. https://www.washingtonpost.com/lifestyle/style/instead-of-trumps-propaganda-how-about-a-nice-truth-sandwich/2018/06/15/80df8c36-70af-11e8-bf86-a2351b5ece99_story.html

Swire-Thompson, B., DeGutis, J., & Lazer, D. (2020). Searching for the backfire effect: Measurement and design considerations. *Journal of Applied Research in Memory and Cognition*, *9*(3), 286-299.

Truman, E. (2022). Influencing Diet: Social Media, Micro-Celebrity, Food, and Health. In *Communication and Health* (pp. 143-163). Springer.

van der Linden, S. (2022). Misinformation: susceptibility, spread, and interventions to immunize the public. *Nature Medicine*, 1-8.

Wissenschaft im Dialog, & Kantar Emnid. (2019). *Wissenschaftsbarometer 2018*. W. i. Dialog. https://www.wissenschaft-im-dialog.de/projekte/wissenschaftsbarometer/wissenschaftsbarometer-2018/

Table 3. Correlations between agreements with the 13 nutrition myths presented in the prestudy.

	Nutrition myth	2	3	4	5	6	7	8	9	10	11	12	13
1	Carbohydrates induce weight gain.	0.21	0.11	0.10	0.11	0.19	0.21	0.14	0.02	0.38**	-0.12	0.16	0.18
2	Vitamin C protects against colds.		-0.04	-0.08	0.22	0.07	0.22	0.26	-0.09	0.20	-0.12	0.13	0.11
3	Drinking schnapps after dinner stimulates digestion.			0.13	0.13	-0.09	0.18	0.00	0.13	-0.10	0.24	0.28*	0.15
4	Coffee dehydrates the body.				0.20	-0.12	-0.07	0.10	0.07	-0.04	0.13	0.07	0.04
5	Detox products cleanse the body.					0.08	0.20	0.22*	0.09	0.04	0.07	0.41**	0.45**
6	Fruit juices are healthy thirst quenchers.						0.29*	0.30*	0.01	0.28*	-0.05	-0.07	0.32*
7	Coke and pretzel sticks help with gastrointestinal discomfort.							0.23	0.22	-0.03	0.09	0.15	0.29*
8	Gluten is unhealthy.								0.01	0.28*	-0.08	0.30*	0.44**
9	Spinach contains a lot of iron.									-0.02	0.45**	0.11	-0.03
10	Eating in the evening induces weight gain.										0.04	-0.10	0.09
11	Eating eggs increases blood cholesterol levels.											-0.01	-0.11
12	Lactose should be avoided.												0.27*
13	Dark chocolate induces less weight gain.												

Notes. * $p < .05$; ** $p < .01$