



UNIVERSITÄT
HOHENHEIM



UNIVERSITÄT
HOHENHEIM

Nudging in der Adipositas therapie

Prof. Nanette Ströbele-Benschop, PhD

Institut für Ernährungsmedizin,

Fg. Angewandte Ernährungspsychologie

Augsburger Ernährungsgespräch

6. Februar 2019



UNIVERSITÄT
HOHENHEIM

➤ **to nudge = anstupsen, anstoßen**

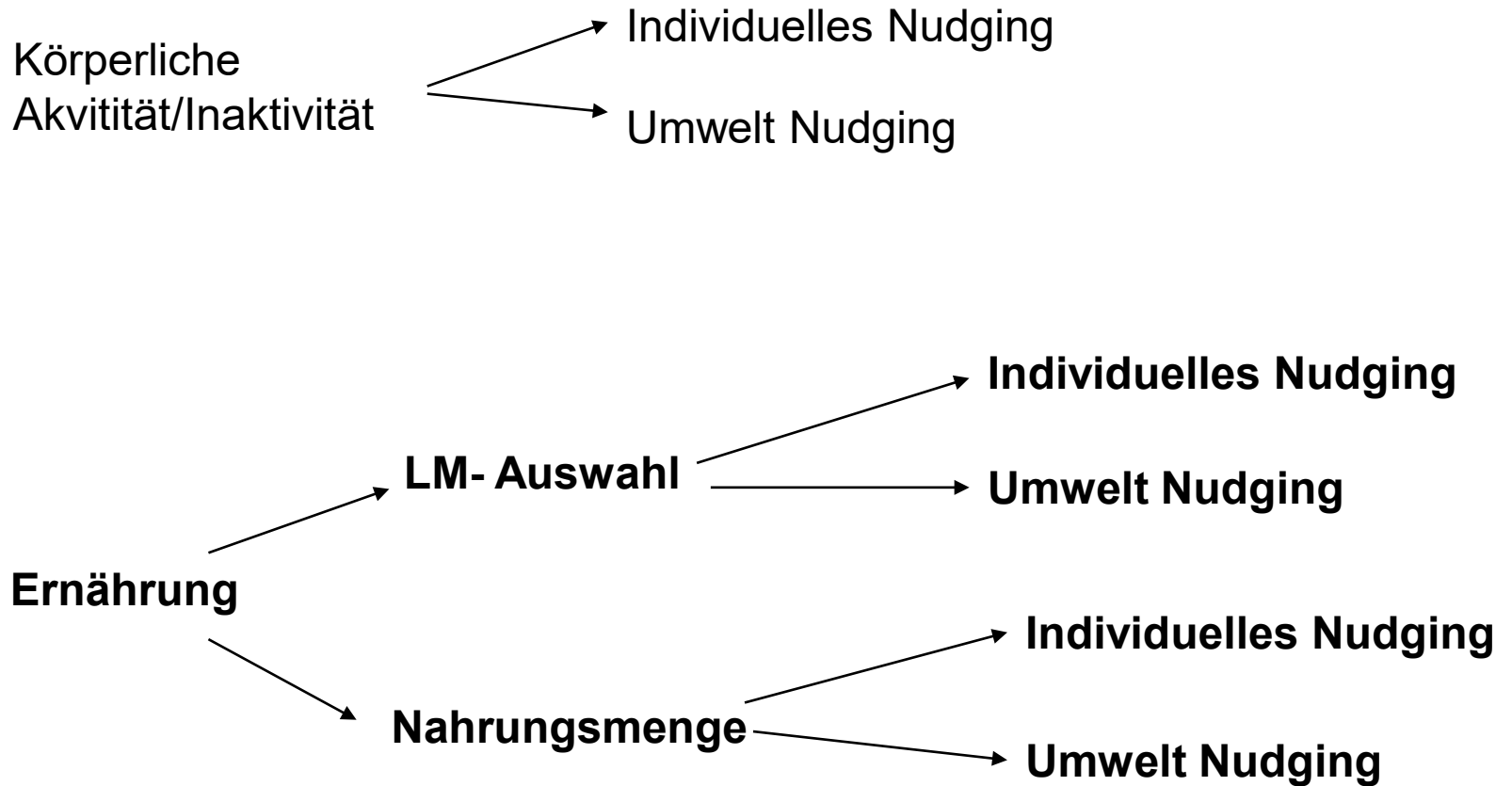
a. In der Ökonomie

b. In der Gesundheitsförderung (Public Health): Die „gesunde Wahl“ wird zur „einfachen, bequemen“ Wahl

c. In der Adipositas therapie?



Mögliche Nudging Ansätze in der Adipositasstherapie





a. Portionsgröße

- Quasi-experimentelle Studie:
- 158 Kinobesucher
- 2x2 Design:
 - 120g vs. 240g Portion
 - altes vs. frisches Popcorn
- Ergebnisse
 - 45.3% mehr Popcorn: große Tüte bei frischem Popcorn
 - 33.6% mehr Popcorn: große Tüte bei altem Popcorn



a. Portionsgröße

- Portionsvariation als Einheitsbias-Effekt

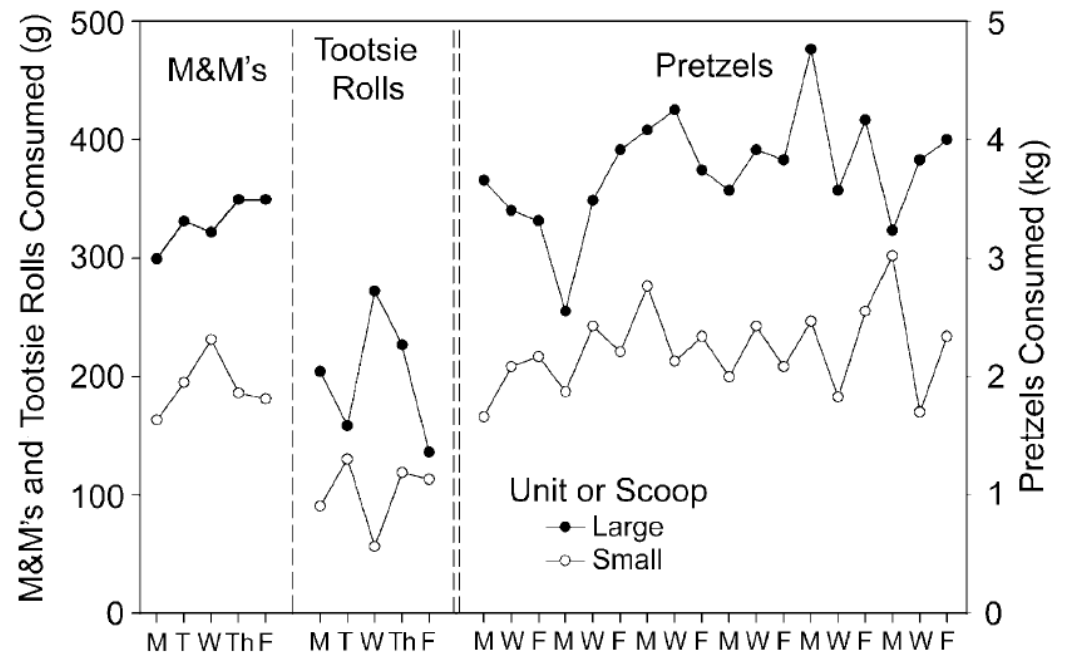


Fig. 1. Mean snack weight consumed by day. The top curves present data for days when the larger unit or scoop was used, and the bottom curves present data for days when the smaller unit or scoop was used. The y-axis on the left shows the grams consumed for the M&M's and the Tootsie Rolls, and the y-axis on the right shows the kilograms consumed for the pretzels. M = Monday; T = Tuesday; W = Wednesday; Th = Thursday; F = Friday.



a. Portionsgröße

- N = 59, 3 von 10 möglichen Snackprodukten

	Woche 1	Woche 2
Gruppe 1	Normale Verpackung (187g -368.5g pro Tüte)	100 kcal Verpackung (19.2g-26g pro Beutel)
Gruppe 2	100 kcal Verpackung (19.2g-26g pro Beutel)	Normale Verpackung (187g -368.5g pro Tüte)

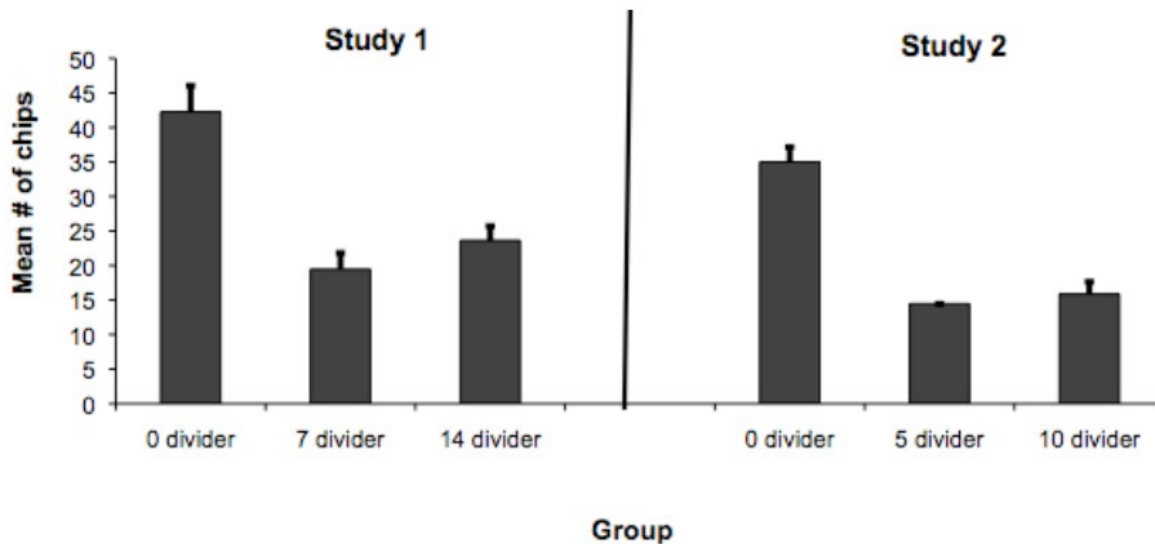
- Ergebnisse:
 - Versuchspersonen, welche die 100kcal Snackpackungen erhielten, konsumierten 840.7 kcal weniger pro Woche (im Durchschnitt 120kcal pro Tag).
 - Wenn in der 1. Woche Snacks aus 100kcal Snackpackungen konsumiert wurden, aßen die Teilnehmer signifikant weniger als wenn in der 1. Woche die Snacks aus normalen Packungen konsumiert wurden.



b. Segmentierung

2 Studien; N = 59 + 39; Snack Konsum während TV show

- Farbige Chips in bestimmten Intervallen in Container



- Segmentierung als Erklärungsansatz: Das „Pringle“ Experiment



c. Erreichbarkeit/Bequemlichkeit

Quasiexperimentelle Studie:

- N = 16 Sekretärinnen
- 30 Hershey Schokoladenstückchen mit 3 Bedingungen: auf dem Schreibtisch, in der Schublade, im Büroregal
- Länge: 3 Woche (mit Positionsrotation)
- Ergebnisse: Schreibtisch: 8,6 Stücke/Tag
- Schublade: 5,7 Stücke/Tag - Regal: 3,0 Stücke/Tag

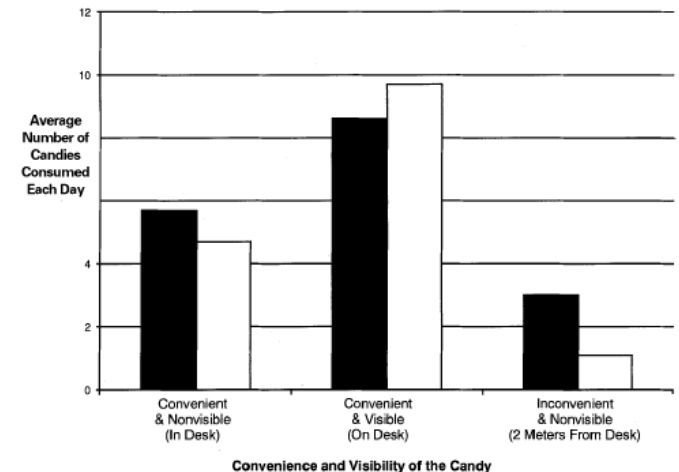


Figure 1. Differences in actual and estimated candy consumption among locations of candy container. Closed columns: actual number of chocolate kisses eaten. Open columns: retrospectively-estimated number of kisses eaten.



c. Erreichbarkeit/Bequemlichkeit



Und was passiert, wenn ein „gesunder“ Snack hinzukommt?



d. Form und Struktur der Behältnisse

- Kleiner vs. großer Teller; Stäbchen vs. Messer/Gabel; großer vs. kleiner Löffel
- Große vs. kleine Trinköffnung (Bierflaschen)
- Erwartete Formen von Essensutensilien (Plastiklöffel vs. Metalllöffel)



d. Form und Struktur der Behältnisse

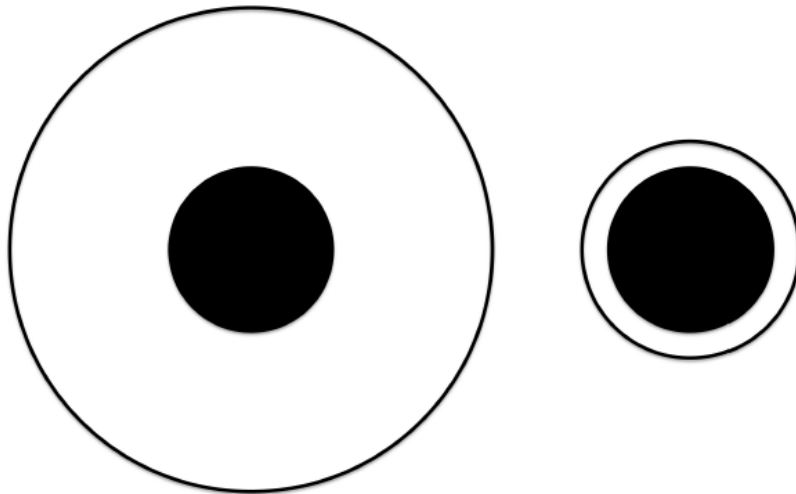


Figure 1.
The Delboeuf Illusion

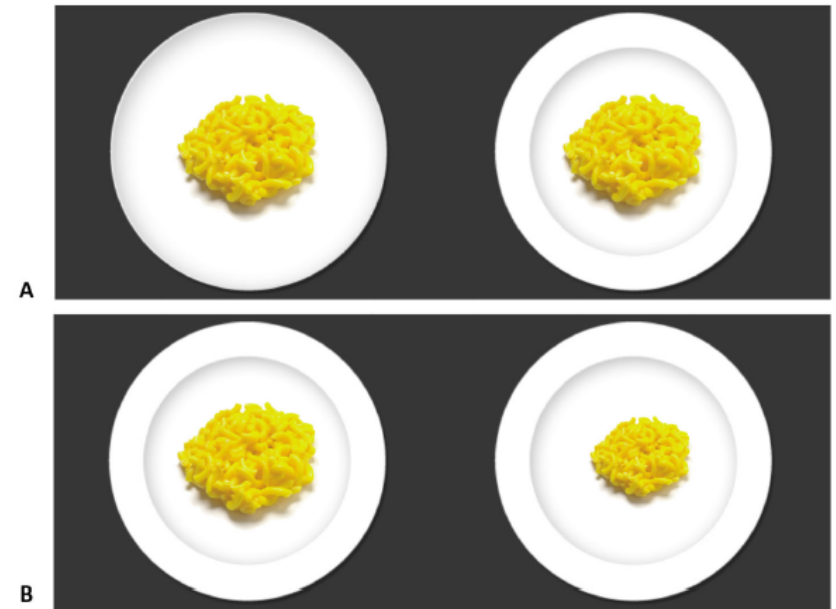


Figure 2. Examples of pictures used as stimuli

A) Standard stimulus (i.e. food size of 185 pixels on a plate with a 1/3 rim width-to-plate radius proportion) is on right; Rimless plate with same food size is on left and B) Standard stimulus is on left; same rim size with smaller food size is on right



UNIVERSITÄT
HOHENHEIM

e. Lebensmittelvielfalt





f. Beschriftung

- Etikettierungen wie „gesund“, „fit“, etc. können sowohl die konsumierte Menge als auch die Produktwahrnehmung beeinflussen.

Trail Mix Beispiel:



- Bestimmte gesundheitsbezogene Begriffe beeinflussen die Wahrnehmung und den Konsum

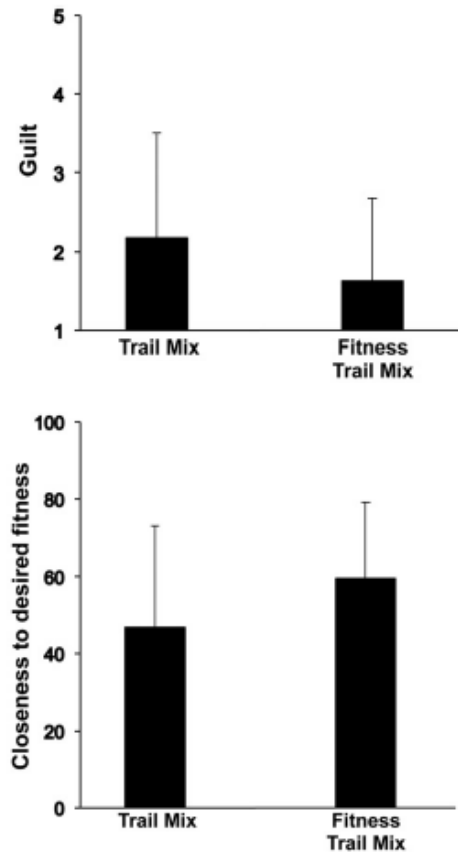


Fig. 1. Guilt and perceived closeness to desired fitness after the consumption of food with (vs. without) fitness cues (Study 1). Error bars indicate standard deviations. The differences in guilt and closeness to desired fitness are statistically significant between the experimental groups, as revealed by ANOVAs.

Ergebnisse

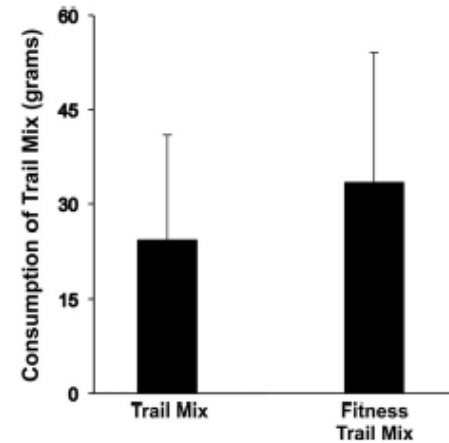


Fig. 2. Consumption volumes of food with (vs. without) fitness cues (Study 2). Error bars indicate standard deviations. The difference in consumption is statistically significant between the experimental groups, as revealed by ANOVA.



f. Beschriftung

- Etikettierungen wie „gesund“, „fit“, etc. können sowohl die konsumierte Menge als auch die Produktwahrnehmung beeinflussen.
- Die Beschriftung der Portionsgröße beeinflusst Nahrungsmittelwahl und –menge (halbe vs. reguläre vs. extra große Portion).

halbe Portion



reguläre Portion



extra große Portion





f. Beschriftung

E. Neyens et al. / Appetite 95 (2015) 152–157



Fig. 1. Cornflakes Portion-size images.



g. Zubereitungsreihenfolge

Kann die Reihenfolge der Zubereitung die Menge beeinflussen?

1. Zubereitung einer Apfelsaftschorle

- Ergebnisse: 24.5% mehr Apfelsaft wenn zuerst eingeschüttet und 18.8% mehr Wasser wenn zuerst eingeschüttet

2. Zubereitung von Müsli mit Joghurt

- Ergebnisse: Joghurt ist signifikant mehr wenn zuerst eingeschüttet. Müsli ist signifikant mehr wenn zuerst eingeschüttet.

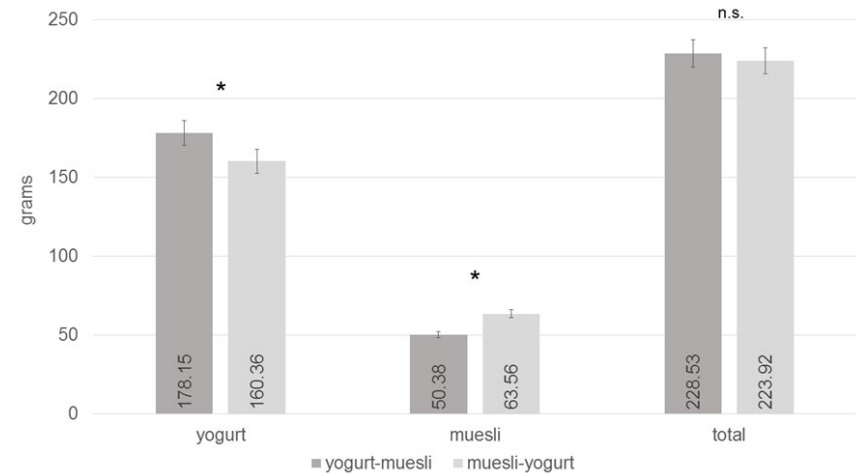


Figure 1. Consumption (in Grams) based on preparation order of muesli and yogurt

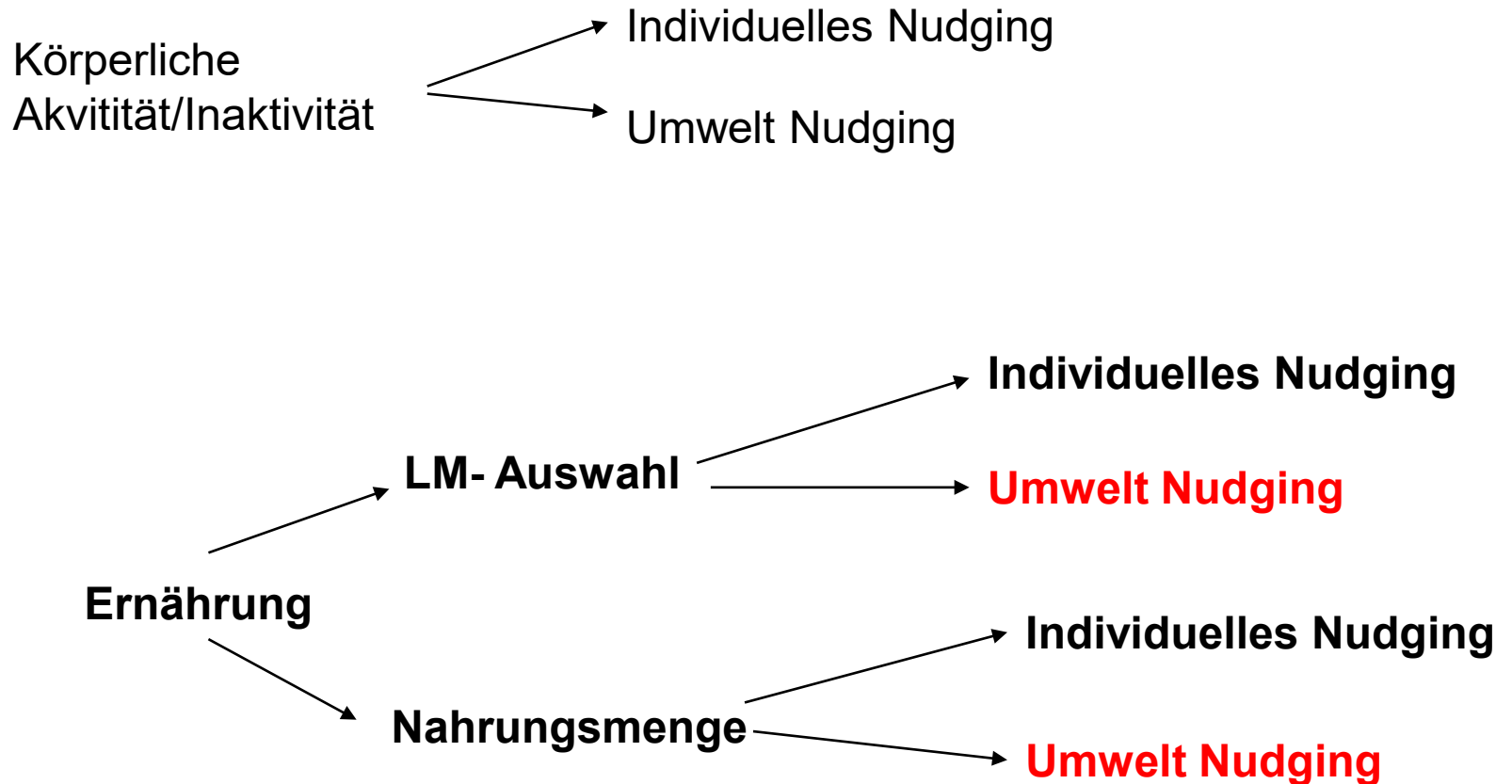


h. Raumtemperatur

- Randomisiert kontrollierte Studie (N=25); crossover Design
- Büroarbeit für 7h bei 19-20°C vs. 26-27°C
- 357kcal ($P = 0.02$) mehr in kälterer (Kontrolle) Umgebung, unabhängig von BMI, Körpertemperatur, und Reihenfolge



Mögliche Nudging Ansätze in der Adipositasstherapie





Nudging and social marketing techniques encourage employees to make healthier food choices: a RCT in 30 worksite cafeterias in The Netherlands

TABLE 2

Intervention strategies¹

Strategy	Description
Product	
1	In every product category, ≥ 1 product of “better choice” is visibly offered.
2	A warm lunch meal is also offered in a smaller portion.
3	Fruit and vegetables are offered.
4	Water is offered for free.
5	The visible share of healthy (“better choice”) products is $\geq 60\%$.
6	Warm snacks ² are offered ≤ 3 d/wk.
Place	
7	Healthy products are at the beginning of the route. These products are salads, fruit and vegetables, bread, bread topping, and healthier sandwiches. ³
8	Of every product group, the “better choice” product or presentation of this product is most visible (at the front at eye level).
9	If there is a shelf at the cash register, it is partly filled with fruit and vegetables; fruit and vegetables are on top or at the front.
Price	
10	A relatively cheap combo deal is offered with milk, ⁴ coffee, tea, or vegetable juice, a healthier sandwich, ³ and fruit with a price comparable to the average price of a sandwich in the same cafeteria.
11	Prices of warm snacks ² (e.g., chicken nuggets) are increased by 25% and prices of healthier sandwiches ³ are decreased by 25%.
Promotion	
12	There is only promotion of food products in the “better choice” category (or the Choice criteria for combined meals).
13	When a healthy product is promoted, it has a recognizable, permanent spot in the cafeteria.
14	On the menu (e.g., on displays or Intranet), the healthy products are named first.

¹Data from reference 32. “Better choice” indicates a product classified as most healthy (relative healthiness) in 1 out of 3 categories within its product group. The classification is based on the amounts of saturated fat and *trans* fat, added sugar, salt, dietary fiber, and overall energy density (20, 33, 34).

²Snacks contain all fried snacks such as fries, chicken nuggets, or spring rolls, but also puff pastry snacks such as sausage rolls and cheese rolls.

³“Healthier” sandwiches meet the criteria of the Choice logo (34). This category can also be a salad that meets the criteria of the Choice logo (34) (in collaboration with dietitians of all catering companies a list with products is formed).

⁴This can also be buttermilk or a semi-skimmed milk drink without added sugar.

➤ increase of healthier snack sandwich purchases, healthier cheese as sandwich filling, more fruit



Komponenten der Kognitiven Verhaltenstherapie

Table 1 | Names and definitions of 5 BCTs (taken from Michie et al. 2013, supplemental material)

Behavior change technique (BCT)	Definition	Example
Goal setting (behavior)	Set or agree on a goal defined in terms of the behavior to be achieved	Agree on a daily walking goal (e.g., 3 miles) with the person and reach agreement about the goal
Problem solving	Analyze, or prompt the person to analyze, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing facilitators	Prompt the patient to identify barriers preventing them from starting a new exercise regime e.g., lack of motivation, and discuss ways in which they could help overcome them e.g., going to the gym with a buddy
Prompts/cues	Introduce or define environmental or social stimulus with the purpose of prompting or cueing the behavior. The prompt or cue would normally occur at the time or place of performance	Put a sticker on the bathroom mirror to remind people to brush their teeth
Behavior substitution	Prompt substitution of the unwanted behavior with a wanted or neutral behavior	Suggest that the person goes for a walk rather than watches television
Restructuring the physical environment	Change, or advise to change, the physical environment in order to facilitate performance of the wanted behavior or create barriers to the unwanted behavior (other than prompts/cues, rewards and punishments)	Arrange to move vending machine out of the school