

Development and evaluation of a behavioral training program for the reduction of migraine attacks in patients in the primary care setting (IRINI-FreiVonMigräne®)

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Introduction

In cases of frequent migraine attacks with severe symptoms, the AWMF guidelines for the treatment and prevention of migraine recommend that, in addition to medication for migraine prevention, training in behavioral modification should also be offered.

Methods

Based on this recommendation, a training system for behavioral modification was designed. Psychological methods such as education, self-observation, relaxation techniques, mindfulness, endurance sports, as well as recommendations for a low-sugar, low-fat, and ketogenic diet and the reduction of processed foods were implemented. The program was evaluated in 19 patients who had been undergoing neurological treatment for three years or more and had established a medication regimen for migraine prophylaxis. The patients received training using information tools. The evaluation was based on a questionnaire that included questions on acceptance, teaching quality, motivation, and frequency of migraine attacks.

Results

The process evaluation shows broad acceptance and a good measurable effect in terms of extrinsic and intrinsic motivation for the training material. Three months after the start of the program, the frequency of migraine attacks was reduced from an initial 4-6 times per month to 1-3 times per month. Forty percent of participants reported no migraine attacks three months after using the program and training materials.

The model is easy to use
 The model uses understandable language
 The model is difficult to understand in places
 The model uses understandable language
 The model uses understandable examples
 The model uses understandable symbols
 The model helps to understand how to avoid migraines
 The model makes it easier to understand how to prevent migraines
 I liked the model
 The model enables understanding of the causes of migraine.
 While working on it, I found it difficult to take my mind off it.
 While working on it, I felt I had to force myself to work.
 I would recommend the model to others.
 After implementation, I noticed an improvement in my headaches.

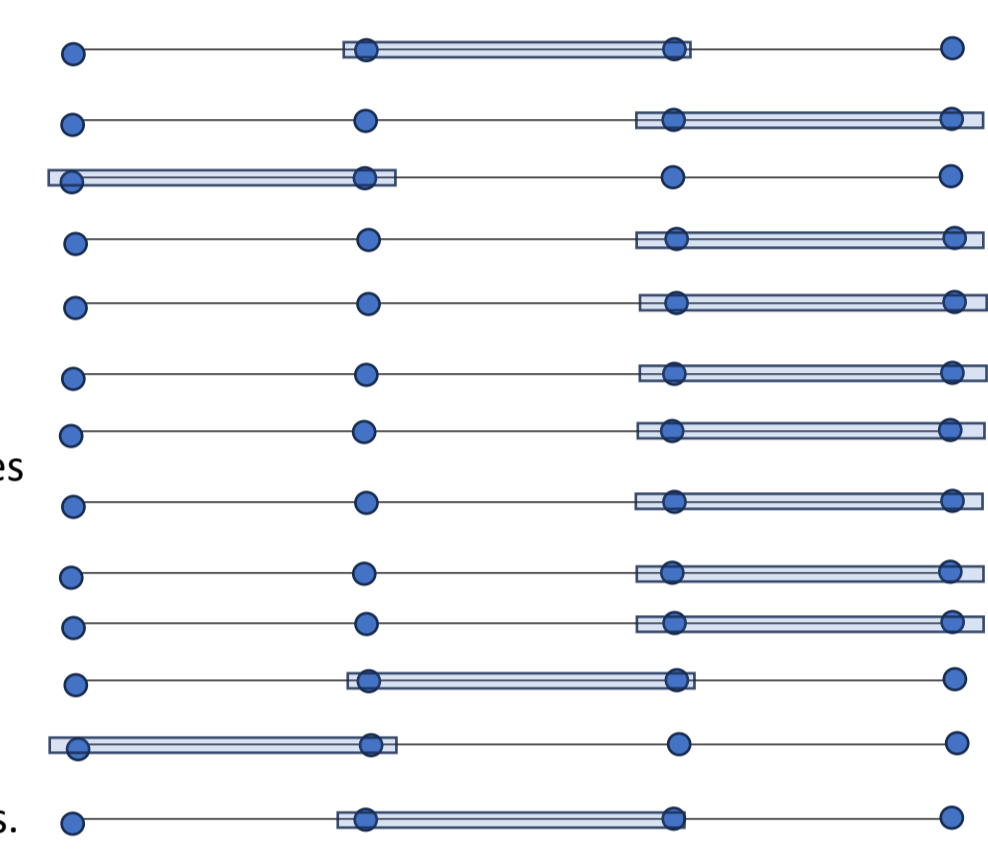


Fig. 4: Questionnaire for the IRINI-FreiVonMigräne® model, n=19,

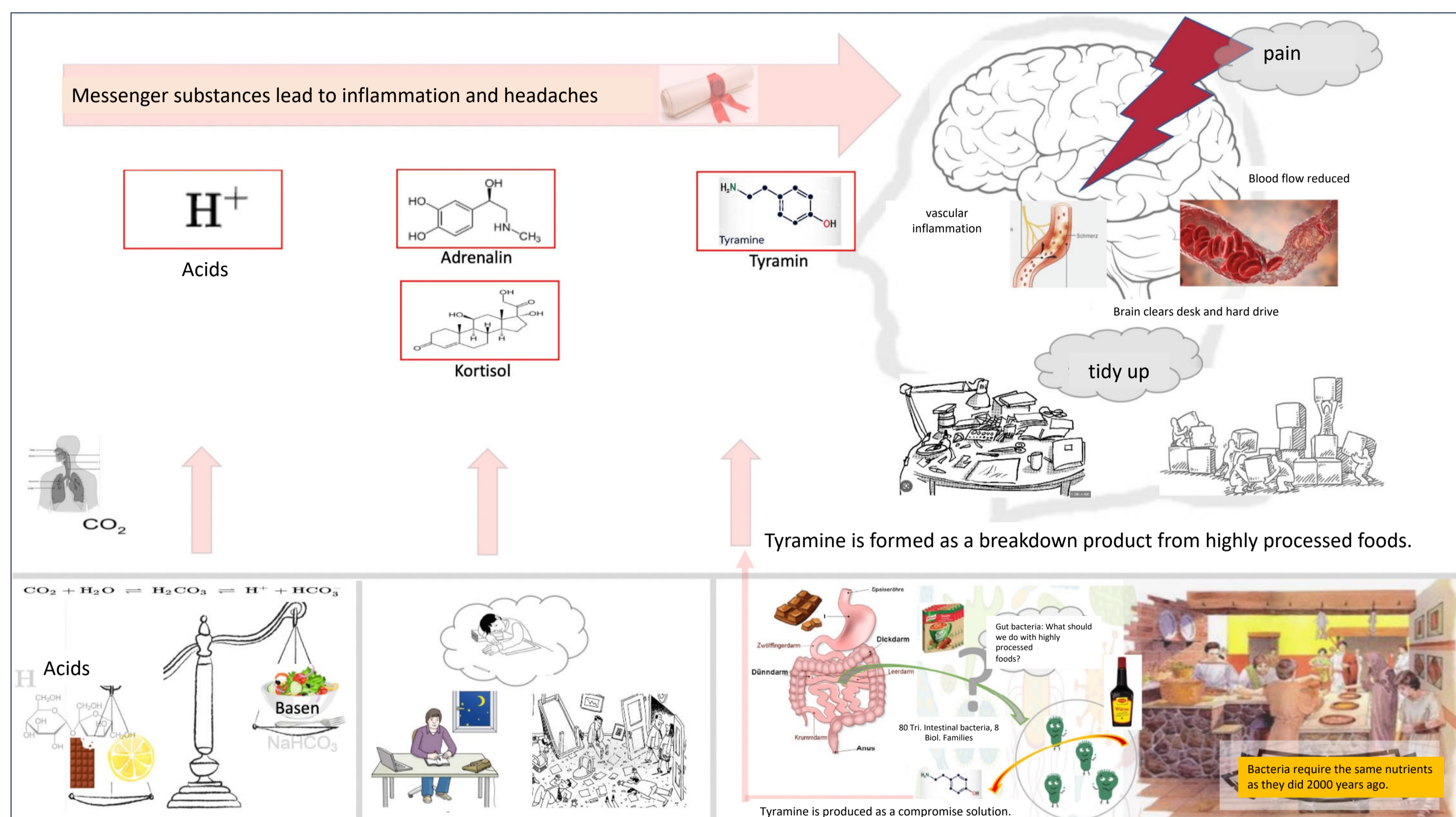


Fig. 1: Information sheet for the patient consultation

Before you got to know the model, how many days a month did you expect to have headaches?

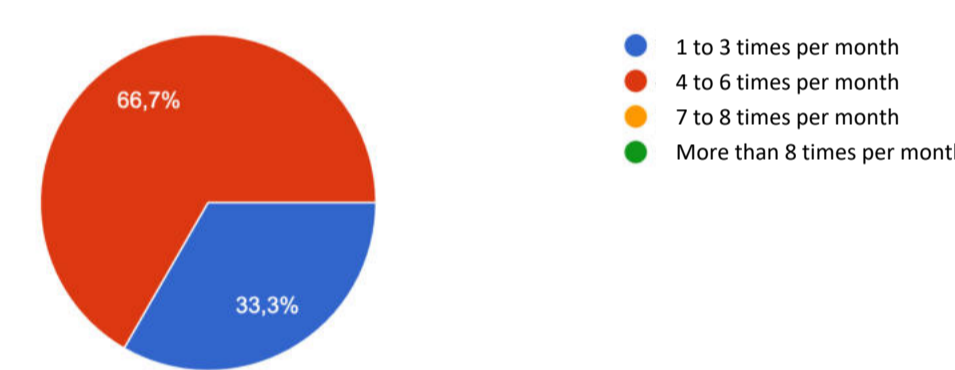
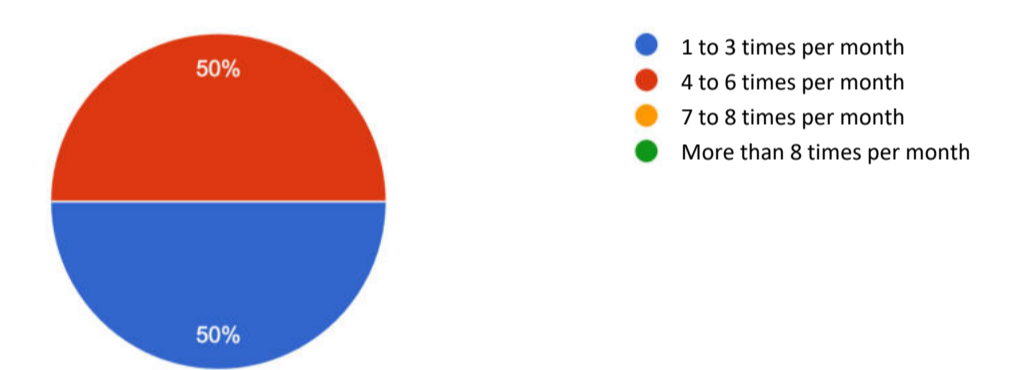
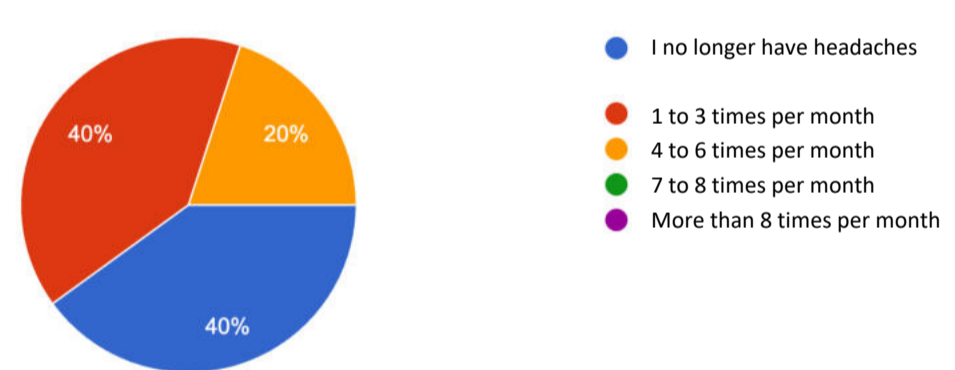


Fig. 5: Migraine frequency before explanation of the IRINI-FreiVonMigräne® model, n total: 19, .

Before you got to know the model, how many days per 4 weeks did you take painkillers?



After applying the model and following the recommendations, how many days per 4 weeks did you have headaches?



After applying the model and following the recommendations, on how many days per 4 weeks did you take pain medication?

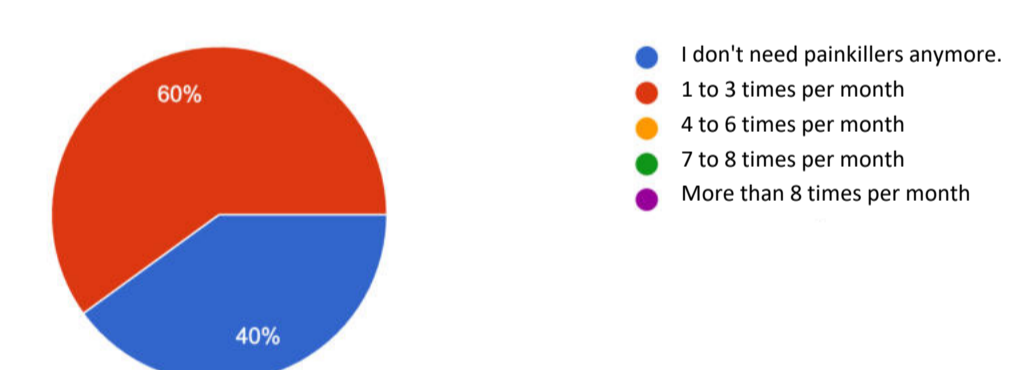


Fig. 6: Migraine frequency 3 months after implementation of the IRINI-FreiVonMigräne® model, n = 19.

Discussion

The recommendations provided by the information tool were understandable and could be implemented. The psychological methods for self-observation and mindfulness, endurance sports, and the nutritional recommendations could be implemented. The questionnaire was considered too extensive in some cases.

Take Home Message für die Praxis

The program is an effective tool for learning behavioral modification in migraine as an adjunct to drug prophylaxis.

"I have my migraines under control thanks to a lifestyle change that combines getting enough sleep, eating right, and exercising regularly. Since I started working in 2020, I haven't missed a single day of work due to migraines."

Quote from a participant in the IRINI Migraine-Free model, N.N., May 20, 2023.

Dairy products largely harmless	Vegetables largely safe	Meat products, catering, and other items largely safe
<p>✓ Safe foods, no migraine triggers.</p> <p>Milk: DEMETER milk 1.5% or 3% (e.g., EDEKA, REWE) Other dairy products: DEMETER yogurt (e.g., Alnatura), Cheese: Goat cheese (in pieces from Alpenmark (AIS), Gurtlio feta (AIS)) Fat: Sweet cream butter, sour cream butter.</p>	<p>Vegetables: unpeeled whole grain rice, potatoes, rice, red, yellow and brown lentils, olive oil, sweet potatoes, carrots, avocado, lamb's lettuce, all other vegetables except those listed below.</p> <p>Grains: Spelt, rye, oats Fruit: All types of fruit except those listed below Bread: Whole grain spelt bread (e.g., Spelt Green Spelt Hopffisterei, 100% Alnatura Spelt Bread) Nuts: Brazil nuts, walnuts, hazelnuts, almonds, Farmer nut mix (AIS)</p>	<p>Drinks: Cappuccino, latte macchiato, black tea, all herbal teas, green tea, Red meat: Beef, no pork. Poultry: anything is possible if freshly prepared Fish: freshly prepared fish, all types of fish except eel and shrimp Sauces: all freshly prepared sauces without instant products, No Maggi or Knorr products Spices: all European fresh spices, e.g., dill, parsley, marjoram, sage, etc.</p>
<p>✓ No migraine triggers</p> <p>Milk: Traditionally produced milk (glass bottle) Other dairy products: kefir, sour cream, whipped cream in a bottle, buttermilk in a bottle Cheese: Gouda Horburger, Parmesan cheese, Esquisa cheese, organic goat cheese from Andercher GrünlanderEmmentaler, GrünlanderEmmentalercheese, young Gouda Fat: margarine, Sweets: Milka chocolate.</p>	<p>Vegetables: Chickpeas, spring onions, green asparagus, eggplant, black lentils, chichory, black salsify, cucumber (a little), broccoli, bell peppers, chili peppers, cucumbers Grains: Barley, wheat Fruit: Watermelon Bread: South Tyrolean Schüttelbrot, baguette, all types of rolls, Pretzels (Weisen pretzels), Sweets: Poppy seed cake, crumble cake, cheese cake, Nuts: Brazil nuts</p>	<p>Drinks: Alcohol: white wine, Chiemseeer Helles beer, cider, apple wine, Red meat: Black Forest ham, South Tyrolean ham. Fish: smoked salmon, plaice. Spices: pepper, chili, cinnamon, turmeric, curry Processed foods: Ready-made potato salad, packaged Restaurant Indian cuisine Fast food: McDonald's: these dishes are migraine-free: cheeseburger, chef's salad, chili cheese nuggets, French fries, Pizaiut: Vegetarian/Pizza</p>
<p>⚠ Caution: use seldom May cause migraines.</p> <p>Milk: standard milk, long-life milk, chocolate milk Other dairy products: tzatziki, all other yogurt products except Demeter yogurt, crème fraîche, buttermilk in plastic containers, kefir Cheese: French mature cheeses, Soft cheese, all Philadelphia cheese varieties Gouda Milbona, Jakko, KäseQuark, Grünerländer Original, Leerdamer, Caracore, Tilsiter, Scheibletten, Edam, butter cheese BioKäuser cheese, medium-aged Gouda Fat: butter substitute, herb butter, peanut butter Other confectionery Nutella, dark chocolate mousse, peanut butter, Twix</p>	<p>Vegetables: Cucumbers in a jar, zucchini, white asparagus, fennel Grains: Quinoa, semolina, millet, cornmeal, pasta, spaghetti, tagliatelle, tortellini Fruit: kiwi Processed foods: Mashed potatoes, potato pancakes, ready meals, Bread: Alnatura spelt rolls, GoldenToast French quiche, pasta, pumpernickel, packaged bread (Yes, UnserMildes, Lieken, 1688, HarryDasthollern, Sweets: Chocolate butter cookies, spelt cookies, Salty snacks: Spelt crisps Nuts: Peanut bars, sesame bars, muesli bars, pistachios, peanuts Spreads: Peanut butter, vegetable spread, Tartex/Creme,</p>	<p>Drinks: Spesi, Fanta, alcohol: wheat beer, rum, straw rum Red meat: sausage products, meat pâté Fish: processed fish, fish sticks, tuna, lobster, herring salad Sauces: Dijon mustard, mayonnaise, barbecue sauces, ketchup Spices: Asian spice mix from Alnatura, TraumVorlram Processed foods: instant mashed potatoes, instant soups, instant Bolognese sauce, etc. 5-minute terine/Maggi, Knorr, restaurant Mexican cuisine Chain restaurants: Subway</p>
<p>⚠ For larger amounts, use with caution if migraine occurs afterwards.</p> <p>Milk: UHT milk Other dairy products: Ready-made fruit yogurt, cream in plastic cups (Carraigean E407), quark and all flavor enhancers such as monosodium glutamate, nature-identical flavorings, sorbic acid, benzoic acid, phosphate, emulsifiers, buttermilk in plastic cups (Carraigean E407), Cheese: processed cheese, ricotta cheese, fondue cheese, blue cheese, mature Gouda, Obazda, Philadelphia, Bressot, sliced cheese, processed cheese pieces, all types of cheese from Milka, LÄVACHE/Quik, Leerdamer Original, Leerdamer Caracore, Tilsiter, Scheibletten, Edam, butter cheese Fat margarine, butter substitute, Other sweets: white chocolate mousse, Merc chocolate, Ritter Sport, kinder chocolate, Milchschnitte, caution with Lindt chocolate, Lülleck marzipan and special caution with Lindor, Ovomaltine chocolate ice cream, licorice, anything from Haribo, Nutella, jam: Hanuta, Milchschnitte, sugar, sweeteners, aspartame, white chocolate, Bounty, Sickers, Mars</p>	<p>Vegetables: Artichokes, corn, coconut products, coconut milk Processed vegetables: All canned foods, all products preserved in glass (including Alnatura), all frozen foods such as quiche, bread dumplings Grains: Quiche, pizza, all frozen foods such as quiche, bread dumplings Fruit: Pineapple, honeydew melon, frozen foods Bread: GoldHörn/Toast, all other types of toast, whole grain zwieback, Knäckebrot, LeichterCross Produkte Sweets: Packaged cakes, Comtesse Oetker: all ready-made cake mixes, lemon sponge cake, cookies, muffins, all instant meals from Oetker Salty snacks: all other types of salty snacks, peanut chips, roasted peanuts, pretzel sticks, chips, salty snacks (including those from Alnatura or health food stores)</p>	<p>Drinks: Instant tea, instant drinks, cola, Red Bull, red wine, rosé, sparkling wine, all other spirits, coconut milk Red meat: Liver sausage, pork salami Fish: Shrimps, fish rolls, canned fish Sauces: Chinese and Asian ready-made sauces, German mustard, herring salad, meat salad Spices: Asian spice mixes, including those from Maggi and Knorr Processed foods: all other, Maggi and Knorr products, bouillon cubes from any manufacturer, all canned foods, all products preserved in glass (including Alnatura), all products preserved in tubes Restaurants: Thai, Chinese, Japanese, be especially careful with: Vietnamese cuisine Chain restaurants: All dishes at Burger King, Kentucky Fried Chicken, Subway, McDonald's: all cookies, all muffins, all types of cake, Farmer's Burger, Chicken Mac, Farmer's Fries, Big Mac, Quarter Pounder, ChickenBurger, BurgerKing Fries, Hamburger, KentuckyFriedChicken: fries, Chicken, Burger</p>

Fig. 2: Largely harmless foods (green markings) and foods with potential migraine triggers (red marking)



Fig. 3: Information on migraine prevention with educational elements during the patient consultation

Literature

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