Traffic Light Diets for Childhood Obesity: Disambiguation of Terms and Critical Review of Application, Food Categorization, and Strength of Evidence

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ABSTRACT

Traffic light labeling (TLL) of foods is a strategy often included in multicomponent behavioral interventions (MBIs) for childhood obesity. Traffic light labels categorize foods as "green" (no restrictions), "yellow" (moderation), and "red" (consume minimally). The body of research investigating the effects of TLL conflates the labeling itself with MBIs that include TLL as one component. For instance, the Academy of Nutrition and Dietetics' Evidence Analysis Library gave traffic light diets Grade I evidence for pediatric weight management. Yet, whether the term traffic light diet referenced TLL in isolation or as part of an MBI was ambiguous. Herein, we evaluate the evidence supporting TLL for childhood obesity as a stand-alone treatment and identify areas requiring further research. No articles from a PubMed search for TLL and weight-related outcomes tested TLL in isolation. One article was identified through reference lists that tested TLL mostly in isolation, which observed no significant differences between groups. TLL definitions and categorizations vary across studies and contexts, using average calories in categories of foods, energy density, or specific ingredients to determine labeling. Systematic reviews generally conclude TLL-based approaches affect food selection and consumption, but none studied obesity-related outcomes. We believe the evidence supports that: *1)* there is a lack of standardization regarding TLL food classifications; *2)* the term "traffic light diet" is inconsistently used to mean intensive lifestyle programs or TLL itself; and *3)* there is insufficient evidence to understand the effects of TLL as an isolatable factor for childhood obesity. Importantly, limited evidence about TLL does not mean it is ineffective; TLL has been incorporated into successful childhood obesity intervention programs, but the unique causal contribution of TLL remains uncertain. Standardized definitions of traffic light labels for categorizing foods and trials with TLL alone are needed to test direct impacts of TLL on obesity-related outcomes.   *Curr Dev Nutr* 2022;6:nzac006.

Keywords: traffic light labeling, pediatric obesity, stop light diet, evidence analysis library, review

Introduction

Childhood obesity is a global health problem (1–3), particularly severe obesity, which has increased at least 4-fold since 1985 (2). Given that the development of obesity during childhood often leads to excess adiposity into adulthood (4), youth with obesity are at increased risk of developing cardiovascular disease, type 2 diabetes, and some types of cancer (5, 6). As rates of obesity continue to climb (2), the identification and implementation of effective childhood obesity treatment strategies is essential (7). With increased interest and research in childhood obesity treatment strategies, there is a need for stronger scientific evidence in childhood obesity (7–9).

One approach to alter the prominence of healthy food messaging in the food environment, or to make better choices more prominent, is called traffic light labeling (TLL). TLL can be used in isolation or included in multicomponent behavioral interventions (MBIs), referred to as Traffic Light Diets or Stop Light Diets (among other names). TLL involves marking foods with red that should be consumed infrequently, yellow (or amber) foods that can be consumed in moderation, and green foods that can be consumed any time (10–12).

The use of TLL has become a topic of perennial discussion. A Washington Post article was titled, "Traffic light diets label foods 'red,' 'yellow,' and 'green.' That's too black and white", which describes examples of inconsistencies in TLL application and questioned the strength of evidence (13). The release of an adolescent health app, Kurbo by WW (formerly Weight Watchers) (14), which utilizes the TLL in its pediatric weight control program, generated much discussion. Two articles responding to the discussion, one in the peer-reviewed literature (15) and another online (16), mentioned that the Academy of Nutrition and Dietetics' Evidence Analysis Library (EAL) gave Traffic Light Diets (TLDs) Grade I evidence in 2006 (17). Yet, the EAL vacillated between discussing TLL as a stand-alone treatment and TLL as part of MBIs. There is therefore much interest and remaining uncertainty regarding the effects of TLL on childhood obesity.

Herein, we assess the evidence on TLL for childhood obesity as a stand-alone treatment and identify areas requiring further research and analysis. Specifically, we identify 3 issues regarding the use of and evidence for TLL. First, the food classifications across TLL approaches vary and are sometimes conflicting. Second, the operationalization of terms like "traffic light diet" are unclear. Sometimes they refer to the act of labeling foods itself and other times to an entire MBI. Third, the scientific literature has little evidence supporting an independent effect of TLL on childhood obesity. We conclude by making recommendations for moving forward with the use of and research on TLL.

The same foods are labeled with different colors among TLL approaches

Within each TLL approach, foods labeled with the traffic light colors vary. We explored how interpretations of the TLL classification scheme differ by comparing a convenience sample of early studies, *The Stop Light Diet* book, vending at Indiana University (IU), an online document by Intermountain Health, and the Kurbo website document defining TLL categories and foods. Definitions of which foods are classified as green, yellow, and red have changed over time, even within the initial studies done by pioneers of the approach, and have been interpreted differently by groups developing programs that use TLL (Table 1). With

the exception of IU vending, the definition of green foods appears to be consistent with foods being relatively low calorie, but what foods meet the low-calorie definition varies by who is defining the foods (Table 1). For example, in *The Stop Light Diet*, only vegetables and a few other items fit the green category, whereas the Kurbo website has most fruits and vegetables in the green category with notable exceptions such as avocado and dried fruits (**Figure 1**). Even within a program, inconsistencies exist: Intermountain Health defined chocolate syrup as yellow and milk as green, but chocolate milk is classified as red. Some foods, such as nuts and figs/fig cookies are even classified at the extremes as red or green by *The Stop Light Diet* and IU vending, respectfully. The variability in the definitions of TLD color groups and the application of these definitions add to the inconsistency in the use of TLDs.

"Traffic Light Diet" is used inconsistently

When people discuss Traffic Light or Stop Light Diets, it is not always clear whether someone is referring to the entirety of an MBI (that is, labeling an entire MBI after the traffic light labeling at the exclusion of other components of the lifestyle intervention), or whether they are referring to only the act of labeling itself. Because of this ambiguity, we avoid using the terms "traffic light diet" and "stop light diet" herein, unless it is to describe the work of others (described further below). We distinguish between the labeling itself by referring to it as "traffic light labeling" (TLL) apart from an MBI that contains TLL.

To illustrate the confusion in terminology, the book, *The Stop Light Diet for Children: An Eight-Week Program for Parents and Children* (12), written by 2 of the creators of the system, exemplifies this conflict in the title itself: the program is called a Stop Light Diet, but the stop light labeling (i.e., TLL) is only a component of the "eight-week program." When limited only to the authors' book and their related research, the operationalization of "stop light diet" can remain in their control. As others adopted the terminology and used it in other research and contexts, the terminology became less clear, as is often the case when phrases become common parlance. The Academy of Nutrition and Dietetics' EAL asked the question, "What is the evidence to support using the Traffic Light Diet as a way of managing energy and food intake in children?" (17). The use of TLD here is ambiguous: do they consider only TLL? The specific use as formulated in *The Stop Light Diet* book? Anything calling itself a "traffic light diet"? The conclusion was, "The Traffic Light Diet is an effective component of a clinically supervised, multicomponent childhood weight-management intervention program." Thus, the conclusions state that traffic light diet refers to an "effective component" (what we define as TLL herein), which is only one part of an MBI and only one part of what was used in *The Stop Light Diet* (17).

However, upon closer review, the 11 articles included in the EAL's assessment of traffic light diets did not directly test TLL in isolation against any sort of a control (Table 2, part 1). With the exception of 1 study (18), all studies included in the EAL incorporated TLL into each MBI given to intervention groups (19–28). Thus, in those studies, no causal comparison could be drawn between treatment arms regarding TLL because all arms received TLL and MBI in those studies. In the 1 remaining study, 2 MBIs including TLL were compared against a waitlist control (18). Compared with getting no treatment, the 2 MBIs containing TLL did better at 6 mo but were not compared with the waitlist control at 12 mo. If the definition of traffic light diet includes the entire MBI (including TLL), then this study supports the effectiveness of traffic light diets

TABLE 1 Excerpts of definitions of food categories[1]

Food category	Epstein 1978 (10)	Epstein 1980 (11)	Epstein 1981,1982, 1985,1990 (19, 22, 36, 37)	Healthy IU (47)	Intermountain Health (48)	Kurbo (49, 50)	The Stop Light Diet (12)
Green	Relatively low in calories (such as fruits, vegetables, lean meats, fish, fowl, and milk)	Are very low-calorie foods that people can eat as much of as they want	Foods with <20 calories per average serving	Meets all 6 criteria[2] and the main ingredient is a fruit vegetable, whole grain, dairy, or protein food	Whole grains, fruits, and vegetables, healthy proteins, milk, cheese, and yogurt	High nutritional value and low in calories, fat, and sugar. The healthiest choice	Foods very low in calories, high in fiber, and very low in fat (no fruit, grains, dairy, protein foods)
Yellow	Have more nutritional value (such as protein) but were relatively high in calories (ex. meats, peanut butter, sausage, and potatoes)	Basic reference foods required for balanced nutrition	Any food within a group yielding ≤20 calories per average serving above the standard for its group	Meets all 6 criteria[2] or the main ingredient is a fruit vegetable, whole grain, dairy, or protein food	Refined grains, lean ground meats, low-sugar cookies and cakes, jelly, mayo, honey	Moderate nutritional value and moderate in calories, fat, and sugar. Most of our diet	Mainstay of the diet - moderate in calories, essential for a well-balanced diet
Red	Relatively high in carbohydrates and calories and low in protein, vitamins, and minerals (ex. breadstuffs, sweet desserts, and cakes)	Foods that have high caloric density. Foods are ≥20 calories more than the average food within the category	Any food yielding >20 calories above the standard for the group. All sweets and sugared beverages included	Does not meet all 6 criteria[2] and the main ingredient is not a fruit vegetable, whole grain, dairy, or protein food	Dessert, donuts, candy, fried foods, soda, chocolate milk, processed meats	Low nutritional value and high in calories, fat, and sugar. Limit to a couple per day	Generally, provide little nutrition for the amount of calories that they carry

[1]Definitions are direct quotations or paraphrased from the references listed.
[2]The 6 criteria are: 1) ≤200 kcals; 2) ≤240 mg sodium; 3) 0 g trans fat and no partially hydrogenated oils; 4) ≤1g saturated fat (excludes nuts and seeds); 5) ≤25% of kcal from sugar (excludes yogurt and fruit); 6) no regular potato chips. IU, Indiana University.
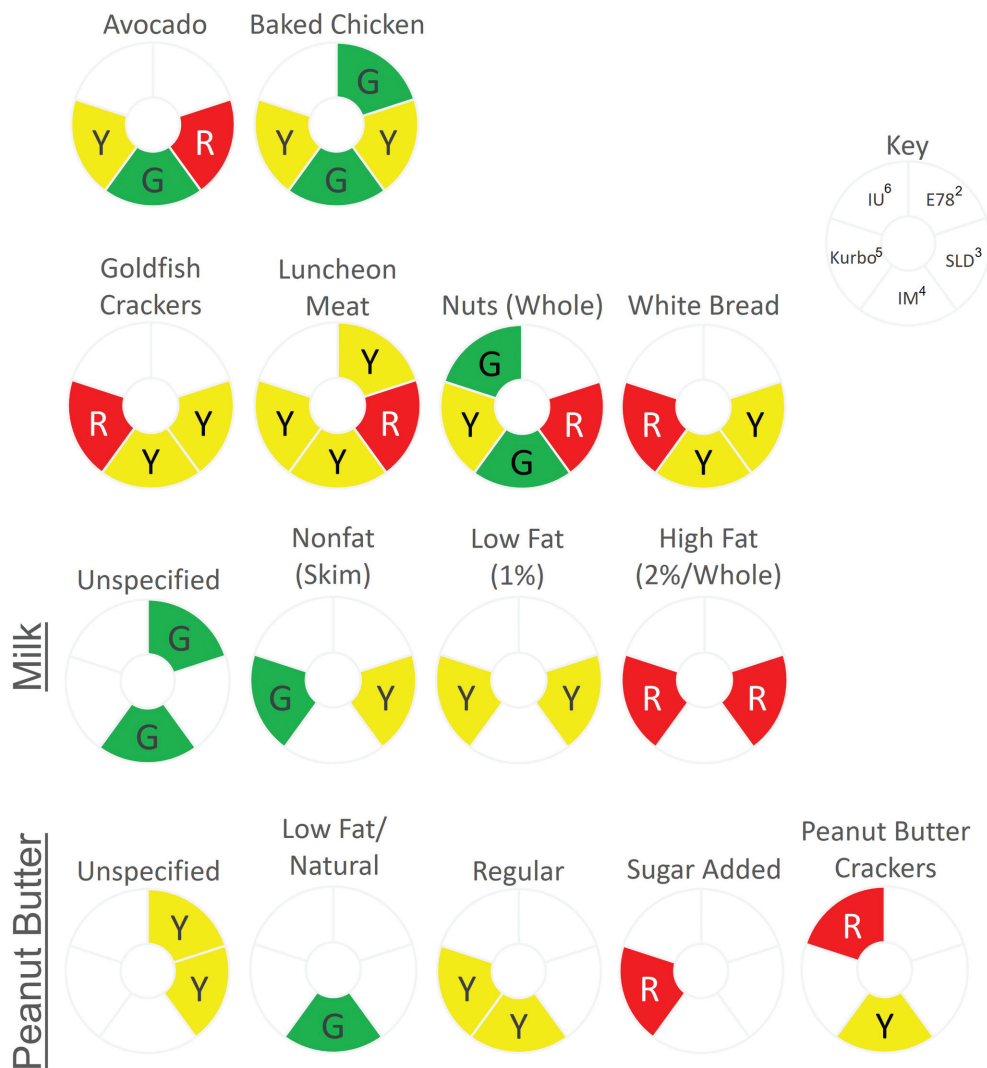
FIGURE 1 Examples of classification of select foods across several TLL definitions[1].
[1]Convenience sample of TLL definitions. Empty sectors indicate that the specific foods were not reviewed in the source we had on hand (e.g., the short list included in E78);
[2]See ref (10);
[3]See ref (12);
[4]Intermountain Health information sheet (48);
[5]Kurbo website documents (49, 50);
[6]Convenience sample of IU Vending machines as of 2019-11-14 (47).

against nothing; however, this still remains at odds with the EAL conclusion that traffic light diets are "an effective component" because TLL was not tested as an isolated component. The EAL recognizes this point in the evidence summary, despite assigning Grade I evidence:

- "Typically, however, the core of their intervention program is used for all interventions, while other variables are manipulated. While this approach of holding the diet intervention constant makes for good research on the effects of other factors on childhood obesity, it presents a challenge when trying to isolate the independent effects of the specific dietary intervention on weight loss" (17).

- "…what proportion of this effect may be attributed strictly to the diet component of this multicomponent approach" (17).

Nonetheless, popular and peer-reviewed articles have cited this evidence grade (e.g., 15, 16, 29, 30), highlighting the need for re-evaluation and communication of what EAL actually assessed. This is particularly important in the application of the evidence's grade because TLL is used in other settings. They have been used on vending machines and in food service outlets (31), which is clearly outside of the use of TLL as part of an MBI, yet the evidence was only assessed in the context of an MBI. Therefore, when comparing research that generically uses the

term "traffic light diet" or when the use of TLL in other contexts is considered "evidence based," further information is needed to evaluate what is meant.

Little evidence directly compares TLL as an isolated component of interventions

The EAL's review of traffic light diets is still referenced despite newer pediatric obesity-related evaluations being released (32) since they reviewed traffic light diets in 2006. However, the newer guidance did not evaluate traffic light diets or TLL, and thus we reviewed the literature to be sure our critique was also not out of date. To evaluate the causal strength and specificity for research conducted on TLL, we first queried PubMed for systematic reviews related to TLD and obesity or diet using the query (*"traffic light" OR "stop light" OR stoplight) AND (diet OR food OR nutrition OR system OR systems OR obesity) AND (meta-analysis OR "systematic review"*) current to 23 October, 2021. Ten reviews were relevant to dietary behaviors (33–35) but none summarized literature on obesity-related outcomes. We also searched PROSPERO for registered systematic reviews that address TLL and obesity-related outcomes using the term "traffic light" but none were identified.

We therefore systematically reviewed articles indexed in PubMed using the query (*"traffic light" OR "stop light" OR stoplight) AND (diet OR food OR nutrition OR system OR systems OR obesity)* also current to 23 October, 2021. Studies were included in our review if they were interventions that included TLL within the interventions and had an obesity-related anthropometric outcome reported. No other exclusion criteria were applied. Treatment characteristics were extracted from each study.

Our search resulted in 564 abstracts, which were reviewed in duplicate (CJV and MMBB). We identified 6 interventions that included TLL and obesity-related anthropometric outcomes (Table 2, part 2). Four were randomized controlled trials, and none studied the effect of the TLL in isolation outside of multicomponent interventions. Of note, none of the studies included in the EAL showed up in our PubMed search. This is consistent with our review of the EAL articles, which confirmed that none of them directly tested TLL.

We expanded our consideration to the 4 articles repeatedly cited in early traffic light diet work as being the foundation for the multicomponent intervention in the EAL-cited articles (10, 11, 36, 37) (Table 2, part 3). One was an uncontrolled intervention (10), and 2 included a multicomponent intervention incorporating TLL in all intervention arms like the other studies evaluated in the EAL (11, 36).

However, 1 study compared diet and exercise in a 2 × 2 factorial experiment (37). All interventions were "an intensive treatment program" with weekly and maintenance sessions; modules and module review; monetary deposits with money returned based on attendance; behavior monitoring (diet- and exercise-treatment specific); parental review of child behaviors; child praise; point economies for child rewards; parent-child contracts; therapist review of children's compliance with the interventions; and parental attention, modeling, and stimulus control. On this background intervention, participants were randomized to lifestyle exercise, and the others to programmed exercise. In a factorial design, participants were also randomized to a TLL intervention involving 11 food groups broken down to red, yellow, and green foods with instruction to decrease red, keep yellow constant, and increase green foods. They also received caloric restriction (1200 or 1500 kcal as appropriate); points for remaining below calorie limits; bonus points for eat-

ing fewer than 4 red foods per week; nutrition information; nutrition monitoring of the 4 basic food groups; and a minimum daily intake of 900 kcal. Those not receiving the TLL intervention received only general information on dieting with "no calorie limit, instructions to eat differently, or points for behavior change." They concluded, "No main effect of diet or interaction of diet with other factors was found for percent overweight or BMI" (37).

The results of our review therefore suggest there is a dearth of randomized trials that assess the efficacy of the TLL per se on obesity, with the most relevant study failing to show an effect.

Recommendations for better evidence about TLL and obesity

We have laid out here how: *1*) TLL is inconsistently used in practice, *2*) terms like "traffic light diets" inconsistently refer to TLL and other times to entire MBIs, and *3*) the practice of TLL does not have strong causal evidence per se supporting their use for obesity-related outcomes. It is clear that stronger evidence should be gathered if we, as a community, want to make strong claims about the utility of TLL for obesity-related outcomes. However, this path forward can be a challenge. Conceptually, the simplest way to obtain such information would be to conduct a large, randomized, controlled trial with the TLL versus an appropriate control without the TLL, which poses at least 2 substantial challenges.

First, there remains substantial disagreement on which foods should be classified under each of the 3 color categories. Figure 1 and Table 2 delineate variability in both the nominal definitions of categories and the operationalization of those categories as applied to selected foods. These examples are derived from academic research, large organizational wellness programs, and a commercial entity; we have not reviewed herein further potential variation with product labeling, government recommendations, geographic/country differences, or other stakeholders.

Second, such a trial would be expensive and possibly meaningless in practice. Rarely is a TLL framework used in isolation. From the Kurbo app (38) to MBIs, TLL are incorporated as one part amongst many. Thus, the appropriate setting and control would likely not be TLL versus nothing, but an intensive program with or without the TLL. In other contexts, the incorporation of additional components in a multicomponent obesity intervention results in diminishing returns, so the incremental benefit of a TLL on the background of all of the components in the intensive MBI from Epstein et al. (37) may not have been expected to be more than minimal; the failure to see an improvement from the TLL may just be expected in such cases. However, compared against a generally less intensive, remote coaching, and self-monitoring program like the Kurbo app (38), TLL may have room to result in substantial improvements. The influence on obesity through altering cues in the food environment like labeling foods, rather than individual cues, may yet manifest differently. For example, one randomized trial used TLL in a hospital cafeteria, providing individualized, digital feedback (39). Although both groups were exposed to the TLL, one group received specific feedback on their compliance with TLL. However, no statistical difference in weight was observed between groups after 24 mo in this trial.

In addition, there is a need for stronger, more comprehensive reviews of TLL and obesity that may require newer research synthesis

TABLE 2 Summary of intervention arms in studies evaluating Traffic Light Labeling in the Evidence Analysis Library and in a search of PubMed

Study	Interventions[1]
	Part 1: Studies included in the EAL[2]
Epstein 1984 (18)	1. MBI$_{TLL}$[3]
	2. MBI$_{TLL}$ + exercise
	3. Waitlist control
Epstein 1985a (19)	1. MBI$_{TLL}$ + aerobic exercise
	2. MBI$_{TLL}$ + calisthenics exercise
	3. MBI$_{TLL}$ + lifestyle exercise
Epstein 1985b (20)	1. MBI$_{TLL}$
	2. MBI$_{TLL}$ + exercise
Epstein 1986 (21)	1. MBI$_{TLL}$ + parent control + parents without obesity
	2. MBI$_{TLL}$ + parent control + ≥1 parent with obesity
	3. MBI$_{TLL}$ + child self-control + parents without obesity
	4. MBI$_{TLL}$ + child self-control + ≥1 parent with obesity
Epstein 1990 (22)	1. MBI$_{TLL}$ + child-parent target
	2. MBI$_{TLL}$ + child target
	3. MBI$_{TLL}$ + nonspecific target
Epstein 1994 (23)	Follow-up; see Epstein 1984, 1986, 1990
Epstein 1995 (24)	1. MBI$_{TLL}$ + reinforcing decreased sedentary behavior
	2. MBI$_{TLL}$ + reinforcing increased physical activity
	3. MBI$_{TLL}$ + both
Epstein 2000a (25)	1. MBI$_{TLL}$ + sedentary behavior focus, low dose
	2. MBI$_{TLL}$ + sedentary behavior focus, high dose
	3. MBI$_{TLL}$ + physical activity focus, low dose
	4. MBI$_{TLL}$ + physical activity focus, high dose
Epstein 2000b (26)	1. MBI$_{TLL}$ + problem solving taught to parent/child
	2. MBI$_{TLL}$ + problem solving taught to child
	3. MBI$_{TLL}$
Epstein 2001 (27)	1. MBI$_{TLL}$ + increase activity
	2. MBI$_{TLL}$ + increased activity/decrease sedentary behavior
Goldfield 2001 (28)	1. MBI$_{TLL}$ in group
	2. MBI$_{TLL}$ in group and individual
	Part 2: Studies identified through PubMed search
Johnston 2006 (51)	1. Goal setting only (archival, nonrandomized control group)
	2. MBI$_{TLL}$
Ptomey 2015 (29)	1. Portion-controlled meals delivered to participants + prescription to eat 2 portion-controlled meals and 2 shakes daily and 5 servings of fruits/vegetables + TLL for discretionary foods (eat green or yellow foods only)
	2. MyPlate education with energy deficit
LaCaille 2016 (52)[4]	1. No intervention (nonequivalent control; quasi-experiment)
	2. TLL + calorie labeling + step counts + social reinforcements + persuasive messaging + local environmental modifications
Ptomey 2017 (30)[4]	1. Shakes provided to participants + prescription to eat 2 portion-controlled meals and 2 shakes daily and 5 servings of fruits/vegetables + TLL for discretionary foods (eat green foods only)
	2. MyPlate + $30/mo (equivalent to value of shakes)
Reichard 2015 (53)[4]	1. Modified TLL + 2 meal replacement shakes + 2 packaged entrees
	2. Usual care (MyPlate)
Ptomey 2021 (54)[4]	1. Modified TLL + provided portion-controlled shakes and entrees
	2. Counseled to comply with USDA dietary guidance + $2/d
	Part 3: Additional studies identified from references
Epstein 1978 (10)	1. TLL + stars and rewards for compliance + structured exercise programs (No comparator group)
Epstein 1980 (11)	1. TLL with caloric restriction + behavioral techniques
	2. TLL with caloric restriction + contract for attendance
Epstein 1981 (36)	1. MBI$_{TLL}$ + parent/child target
	2. MBI$_{TLL}$ + child target
	3. MBI$_{TLL}$ + nonspecific target

(Continued)

TABLE 2   (*Continued*)

Study	Interventions[1]
Epstein 1982 ([37])	1. TLL with caloric restriction + lifestyle exercise + MBI
	2. TLL with caloric restriction + programmed exercise + MBI
	3. Lifestyle exercise + MBI
	4. Programmed exercise + MBI

[1]Brief description of interventions. Many of these interventions were complex, so we here focus on aspects that were distinct amongst intervention arms, with common elements between them less emphasized. For instance, if both intervention arms included energy restriction, we did not necessarily highlight that in the intervention description. Intervention numbering is arbitrary.
[2]EAL, Evidence Analysis Library. These studies were included in the EAL review of traffic light diets ([17]).
[3]MBI, Multicomponent Behavioral Intervention. This term is meant generally to capture complex, multicomponent interventions. For instance, many of the studies included such components as multiple in person sessions, a monetary deposit returned based on participation, "point economies" that rewarded behaviors, modules, and module reviews, habit books, therapist review and adjudication of habit books and point economies, parental reinforcement with incentives, group reinforcement through discussions of barriers (nutrition, exercise, environmental control, social challenges, food purchasing, motivation, self-control, relapse, and label reading), among others. "MBI$_{TLL}$" indicates that one of the components is something the authors described as "Traffic Light" or "Stop Light" labeling (TLL).
[4]Studies were in adults with intellectual disabilities ([30], [53]).

methodology. As mentioned, several meta-analyses exist, but none on obesity, and the EAL did not isolate the effect of TLL on obesity. We note that our search did not capture several studies that employed TLL as part of complex interventions because the articles were not indexed based on TLL inclusion, and TLL were not mentioned in titles and abstracts. A much more thorough systematic review should be undertaken to evaluate studies that included TLL, but perhaps not as an isolatable causal component. Creative synthesis methodology ([40]) may be able to estimate the effects of TLL in these complex interventions, such as network meta-analyses and other synthesis techniques. Whether such techniques can be employed to isolate the potential effects of TLL will ultimately depend on what interventions have been conducted with and without TLL.

Recommendations for better communication about traffic light labeling, traffic light diets, and obesity

TLL have been utilized because: *1*) they make intuitive sense and have been used in MBIs with children in early elementary school and older ([41]); *2*) participants have provided positive feedback of their utility ([42]); *3*) there is some evidence that they may be effective in changing behaviors in some contexts ([43], [44]); and *4*) many programs that have included TLL were followed by improvements in obesity-related outcomes ([17]). However, seeing changes after including a TLL in a program is not sufficient evidence to declare an effect of TLL per se.

Because the evidence supporting the use of TLL with the express purpose of influencing obesity is weak, communication about the effects of TLL in isolation should be more cautious and clear. We emphasize that the lack of strong evidence of an isolatable effect of TLL on obesity is not to be conflated with evidence of no effect. What we know has worked for the treatment of obesity includes other components of MBIs, even if the MBIs also happen to include a TLL component. For instance, Casazza et al. concluded that "continuation of conditions that promote weight loss promotes maintenance of lower weight, programs that involve the parents and the home setting promote greater weight loss or maintenance in children, and provision of meals and use of meal-replacement products promote greater weight loss" ([45]); each of these components have been included in MBIs that also include a TLL. Thus,

questioning the specific effect of TLL in isolation does not mean that we should discontinue MBIs that include the TLL, but rather we should be aware of the communication of the evidence around obesity programs. At the very least, explicit communication for what is and is not included in TLL or an MBI framework including TLL, and how the framework was decided upon, is essential for being able to build evidence and compare programs that evaluate TLL. A consensus on definitions may not be achievable at this time given that various front-of-pack labeling uses different scoring rubrics with varying degrees of evidence ([46]), different philosophies exist in terms of ideal dietary patterns (e.g., volumetrics and energy density; low-carbohydrate and low-fat; healthy eating index; Mediterranean), different recommendations may be appropriate for different age groups, and clinicians may want to even personalize the traffic lights to their patient's cultural or dietary norms; we propose instead that clarity and transparency in the communication of TLL implementations is paramount.

Acknowledgments

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