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## Eating Behaviors



## Research-to-policy translation for prevention of disordered weight and shape control behaviors: A case example targeting dietary supplements sold for weight loss and muscle building

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## ABSTRACT

New approaches to universal eating disorders prevention and interventions targeting macro-environmental change are greatly needed, and research-to-policy translation efforts hold promise for advancing both of these goals. This paper describes as a policy-translation case example an academic-community-government partnership of the Strategic Training Initiative for the Prevention of Eating Disorders, Multi-Service Eating Disorders Association, and the office of Massachusetts Representative Kay Khan, all based in Massachusetts, USA. The partnership's research-to-policy translation project focused on dietary supplements sold for weight loss and muscle building, which have been linked with serious injury and death in consumers. Youth and people of all ages with eating disorders and body dysmorphic disorder may be especially vulnerable to use these products due to deceptive promises of fast and safe weight loss and muscle gain. The research-to-policy translation project was informed by a triggers-to-action framework to establish the evidentiary base of harm to consumers, operationalize policy solutions to mitigate harm through legislation, and generate political will to support action through legislation introduced in the Massachusetts legislature to restrict sales of weight-loss and muscle-building dietary supplements. The paper concludes with lessons learned from this unique policy translation effort for the prevention of disordered weight and shape control behaviors and offers recommendations for next steps for the field to advance research and practice for universal, macro-environmentally targeted prevention.

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### 1. Introduction

Well over 100 preventive interventions for eating disorders and disordered weight and shape control behaviors have been evaluated and published in the scientific literature in recent decades (Ciao, Loth, & Neumark-Sztainer, 2014; Coelho, Gomes, Ribeiro, & Soares, 2014; Holt & Ricciardelli, 2008; Levine, McVey, Piran, & Ferguson, 2012; Newton & Ciliska, 2006; Rodgers & Paxton, 2014; Stice, Becker, & Yokum, 2013; Stice, Shaw, Becker, & Rohde, 2008; Stice, Shaw, & Marti, 2007; Yager, Diedrichs, Ricciardelli, & Halliwell, 2013; Yager & O'Dea, 2008), and a number of successes with preventive effects have been documented (Austin et al., 2007; Neumark-Sztainer et al., 2010; Stice et al., 2013; Wilksch et al., 2015; Yager et al., 2013). While these successes are to be lauded, the vast majority have used selective and targeted prevention approaches, such as those designed only for high-risk girls or women, rather than universal strategies, such as mixed-gender whole school

interventions (Wilksch, 2014). In addition, nearly all ((Austin et al., 2007; Gauvin & Steiger, 2012; McVey, Tweed, & Blackmore, 2007; Piran, 1999) notwithstanding) were designed to target the individual level (Gauvin & Steiger, 2012; Levine et al., 2012; McLaren & Piran, 2012; Sanchez-Carracedo, Neumark-Sztainer, & Lopez-Guimera, 2012). Individual-level behavior change is ultimately essential for eating disorders prevention, but the neglect of macro-environmental targets undermines the potential for large-scale population impact. Importantly, a number of other sectors of public health have embraced macro-environmental change strategies and achieved large-scale preventive effects (e.g., prevention of accidental injury through seatbelt laws, reduction of dental caries through fluoridation of public water, reduction in smoking through tobacco taxation). In addition, an outsized reliance by a field as a whole on interventions targeted at the individual level has been critiqued as unethical for shifting the burden to individuals rather than changing social and economic conditions that produce risk in individuals (Austin, 2000; Austin, 2011, 2015 (Epub ahead of print); Braveman & Gottlieb, 2014; Braveman et al., 2011; Colditz, Emmons, Vishwanath, & Kerner, 2008; Levine et al., 2012; McLaren & Piran, 2012; Piran, 2010; Schwartz & Brownell, 2007).

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Increasingly, eating disorders experts are calling for the field to generate new interventions targeted at the macro-environment (Austin, 2015 (Epub ahead of print); McLaren & Piran, 2012; Paxton, 2012; Wang, Peterson, McCormick, & Austin, 2013). As has been argued previously (Austin, 2015 (Epub ahead of print)), as a field, we have the potential to make significant gains in our progress toward meaningful population-level impact by shifting priorities to engage in research-to-policy translation.

Over the past decade, research-to-policy translation – that is, using scientific findings to inform evidence-based policy action to improve population health – has become a priority focus for government, academic, and community public health professionals (Alfano et al., 2014; Lomas, 2000; McGinnis, Williams-Russo, & Knickman, 2002; Rubio et al., 2010; Sung et al., 2003; Zerhouni, 2005). Building on the U.S. Institute of Medicine (IOM) Clinical Research Roundtable 2003 report defining translational research primarily in terms of translation from the laboratory to clinical applications (dubbed phases T1 and T2) (Sung et al., 2003), others have elaborated on the phases of translation to include T3 and T4, where these later phases refer to activities aimed at large-scale application in health care, public health, and policy sectors (Alfano et al., 2014; Khoury et al., 2007). A subsequent IOM report called for scientists to embrace policy research to develop and test interventions with potential for large-scale impact (Institute of Medicine Committee on Public Health Strategies to Improve Health, 2011). In the eating disorders prevention field, Canadian scholars have provided important leadership to date in moving translational work forward from research to policy action (Gauvin & Steiger, 2012; Levine & McVey, 2015; McVey et al., 2005).

What follows is a case example of an academic-community-government partnership of partners all based in Massachusetts, USA: the Strategic Training Initiative for the Prevention of Eating Disorders (STRIPED [www.hsph.harvard.edu/striped](http://www.hsph.harvard.edu/striped)), a training and research program based at the Harvard T.H. Chan School of Public Health (Harvard Chan School) and Boston Children's Hospital, Multi-Service Eating Disorders Association (MEDA <http://www.medainc.org/>), a community service and advocacy organization, and the office of Rep. Kay Khan, a longtime member of the Massachusetts House of Representatives. The STRIPED training and research agenda prioritizes projects in the realm of research-to-policy translation (T4), particularly those that can provide insight into macro-environmental targets for preventive action. In addition, the training and research agenda is informed by a triggers-to-action framework, with an emphasis on developing projects that can provide mentored learning laboratories for trainees in the methods of policy translation. This framework, elucidated by public health legal scholar Michelle Mello, is premised on the idea that large-scale population health impact often is best achieved through health-enhancing, macro-environmental change in the public sector via law and policy (Mello, Studdert, & Brennan, 2006). She identifies three triggers most often needed to catalyze action: 1) Evidentiary base (e.g., Is there sufficient evidence to establish a problem exists and to justify a target for change to mitigate the problem?); 2) Practical considerations (e.g., How can law or policy be changed to mitigate the problem and through what procedures?); and 3) Political will (e.g., Do policymakers/decision makers and the public recognize the problem and support taking action to redress it?) (Mello et al., 2006). The case example below illustrates how a triggers-to-action framework targeting macro-environmental change was used to guide recent work focused on dietary supplements sold for weight loss and muscle building.

## 2. Case example: The stop feeding kids lies campaign

### 2.1. Trigger 1, assessing the evidentiary base

Dietary supplements are a subcategory of food products to which the U.S. Congress gave special status with the Dietary Supplement Health and Education Act (DSHEA) in 1994. Neither conventional food nor

drugs, dietary supplements are defined as products designed to supplement the diet and may consist of herbs, botanicals, minerals, amino acids, vitamins, metabolites, concentrates, or extracts (Food & Administration, 1999). Dietary supplements are widely available globally and in the United States are regularly consumed by greater than half of adults (Dickinson, Blatman, El-Dash, & Franco, 2014), now generating more than \$32 billion per year in revenues in the U.S. market (P.A. Cohen, 2014).

The U.S. Food and Drug Administration (FDA) has primary regulatory authority over the safety and labeling of dietary supplements, but DSHEA stipulates that this authority does not extend to prescreening for safety or efficacy. Instead, the FDA and consumers rely on an honor system in which manufacturers are expected to test their own products to ensure their safety before releasing them onto the market (Pomeranz, Barbosa, Killian, & Austin, 2015). While many supplements are safe, the subcategory sold for weight loss and muscle building stand in stark contrast. There is now substantial evidence of harm caused to consumers by these products due to illegal adulteration of these products by manufacturers with pharmaceutical drugs, substances such as steroids, heavy metals, and pesticides, and other harmful chemicals and concentrates. A large body of research has consistently linked supplements sold for weight loss and muscle building with hypertension, myocardial infarction, stroke, testicular cancer, gastrointestinal impairment, severe organ injury, and death (Abdel-Rahman et al., 2011; Cohen, 2014; Fong et al., 2009; Grundlingh, Dargan, El-Zanfaly, & Wood, 2011; Guyda, 2005; Li et al., 2015; Yen & Ewald, 2012). A recent study from the U.S. Centers for Disease Control and Prevention estimated that over 23,000 Americans are treated in hospital emergency departments every year due to adverse events caused by dietary supplements, and nearly 30% of these cases are attributable to supplements sold for weight loss or muscle building (Geller et al., 2015).

Adolescents and consumers of all ages with eating disorders, body dysmorphic disorder, pronounced body dissatisfaction, and depression are at heightened risk of using supplements sold for weight loss and muscle building and for using them in excess of manufacturer recommended doses (Avelar-Escobar et al., 2012; Field, Austin, & Camargo, 2005; McCabe & Ricciardelli, 2009). Epidemiologic studies with adolescents have found unhealthy weight-control behaviors such as use of diet pills are prospectively associated with escalation of eating disorder symptoms and new eating disorder diagnosis (Liechty & Lee, 2013; Neumark-Sztainer et al., 2006). Regular use of muscle-building supplements has been identified as a marker of increased risk of subsequent steroid abuse in youth (Hildebrandt, Harty, & Langenbucker, 2012). Given the overwhelming evidence of the harm caused by dietary supplements sold for weight loss and muscle building and the particular threat they posed to consumers vulnerable to deceptive marketing promises of fast and safe weight loss and muscle gain, it was clear that the requirements of Trigger 1 had been met. Thus STRIPED began with Trigger 2 for our investigation of weight-loss and muscle-building supplements.

### 2.2. Trigger 2, operationalizing desired action into law and policy

In 2013, STRIPED began a legal research study on avenues available through law and policy to redress the serious consumer safety problems created by DSHEA's prohibition of FDA prescreening of supplements before market entrance. It quickly became apparent to our legal research team that many scholars had already identified remedial actions that the federal government could and should take to better protect consumers (Cohen, 2009, 2014; Gibson & Taylor, 2005; MacFarquhar et al., 2010); however, few of these recommended actions have been taken on the federal level. In response to this seemingly intractable federal inaction, our legal research team chose to focus our research on changes that could be pursued at the state level. It is worth noting that in the United States, states and even municipalities often serve as testing grounds for law and policy innovations to promote public health

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