



Cognitive-behavioral skills building as the technique for change to promote healthy lifestyles. Evidence of cognitive-behavioral skill use after a physical and mental health promotion intervention (COPE for TEEN)

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Objectives

1. Discuss cognitive-behavioral skills building as a technique for changing and sustaining healthy lifestyle behaviors.
2. Describe evidence of use of cognitive-behavioral change strategies after a physical and mental health promotion intervention (COPE TEEN).



Obesity Prevention Trials

- *Obesity Reviews*. 2015 July ; 16(7): 547–565.
 - 139 studies
- Childhood obesity intervention studies have predominantly been conducted in schools (n=115)
- School-based interventions can help prevent obesity in children
 - Intervention effects are slight (0.05 z-score and 0.25 BMI)



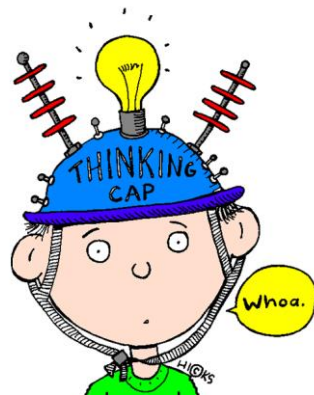
Obesity Prevention Trials

- Schools are an important setting in which to implement effective intervention programs and concomitant involvement of the home/family and community is desirable
- Improving access to PA facilities and healthful food choices such as fruits and vegetables both at school and home is effective
- Home or parental and family involvement is important



Cognitive Theory

- Negative Triad: self, world, and future
- Assumption: how a person thinks, perceives, and interacts with the environment determines his feelings and behaviors
- Schemas: how a person thinks develops over time



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Cognitive-Behavior Skills

- Skills taught in Cognitive-Behavioral Therapy
- Skills have been effectively taught outside the clinical setting in a non-treatment setting by non-licensed personnel (e.g. school-based prevention intervention led by health teachers)



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Cognitive-Behavior Skills

Cognitive

- Self awareness
- Cognitive reframing
- Goal setting
- Problems solving
- Coping strategies: mental imagery
- Mindfulness
- Communication

Behavioral

- Self-monitoring (e.g. documenting behavior)
- Rewards
- Modify behavior (e.g. sit down to eat)
- Coping strategies: deep breathing, counting, walk away



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Creating Opportunities for Personal Empowerment

Thinking, Emotions, Exercise, Nutrition

COPE TEEN

- 15-week program
 - 6 cognitive-behavioral skills building
 - 2 physical activity
 - 5 nutrition
 - 2 tying concepts together and wrap up
- Implemented by health teachers during a required health class one day per week
- 20 minutes of physical activity each session



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COPE TEEN Findings

- Significant improvements
 - Steps per day
 - Lower BMI/ lower proportion of kids overweight
 - Higher Social Skills Rating Score
 - Lower alcohol use
 - Higher health grade
 - Teens with elevated depression at baseline, lower depression at follow-up



**CHANGE
IS GOOD.**

**You go
first!**



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Behavior Change

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BEHAVIOUR CHANGE TECHNIQUE TAXONOMY VERSION 1 (BCTTV1) PROJECT



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BCT Taxonomy

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The BCT Taxonomy v1 project has now completed. All future updates will be posted on the Theories and Techniques of Behaviour Change Project website:

<http://www.ucl.ac.uk/behaviour-change-techniques>

Following on from the success of the Behaviour Change Technique Taxonomy Project, a second MRC-funded project is now underway to explore links between behaviour change techniques and mechanisms of action. For more information about this project, please visit the website above.

Stay up to date with ongoing project work on Twitter. Follow [@UCLTaxonomy](#)

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Behavior Change

The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions

Susan Michie, DPhil, CPsychol • Michelle Richardson, PhD • Marie Johnston, PhD, CPsychol • Charles Abraham, DPhil, CPsychol • Jill Francis, PhD, CPsychol • Wendy Hardeman, PhD • Martin P. Eccles, MD • James Cane, PhD • Caroline E. Wood, PhD

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Project Details

Title: Linking behaviour change techniques to theory: developing and testing a methodology

Investigators: Susan Michie, Marie Johnston, Alex Rothman, Mike Kelly, Marijn de Bruin

Funding: This study is funded by the UK Medical Research Council, 2014-2016

BCT Taxonomy (v1): 93 hierarchically-clustered techniques

Page	Grouping and BCTs	Page	Grouping and BCTs	Page	Grouping and BCTs
1	1. Goals and planning 1.1. Goal setting (behavior) 1.2. Problem solving 1.3. Goal setting (outcome) 1.4. Action planning 1.5. Review behavior goal(s) 1.6. Discrepancy between current behavior and goal 1.7. Review outcome goal(s) 1.8. Behavioral contract 1.9. Commitment	8	6. Comparison of behaviour 6.1. Demonstration of the behavior 6.2. Social comparison 6.3. Information about others' approval	16	12. Antecedents 12.1. Restructuring the physical environment 12.2. Restructuring the social environment 12.3. Avoidance/reducing exposure to cues for the behavior 12.4. Distraction 12.5. Adding objects to the environment 12.6. Body changes
3	2. Feedback and monitoring 2.1. Monitoring of behavior by others without feedback 2.2. Feedback on behaviour 2.3. Self-monitoring of behaviour 2.4. Self-monitoring of outcome(s) of behaviour 2.5. Monitoring of outcome(s) of behavior without feedback 2.6. Biofeedback 2.7. Feedback on outcome(s) of behavior	9	7. Associations 7.1. Prompts/cues 7.2. Cue signalling reward 7.3. Reduce prompts/cues 7.4. Remove access to the reward 7.5. Remove aversive stimulus 7.6. Satiation 7.7. Exposure 7.8. Associative learning	17	13. Identity 13.1. Identification of self as role model 13.2. Framing/reframing 13.3. Incompatible beliefs 13.4. Valued self-identity 13.5. Identity associated with changed behavior
5	3. Social support 3.1. Social support (unspecified) 3.2. Social support (practical) 3.3. Social support (emotional)	10	8. Repetition and substitution 8.1. Behavioral practice/rehearsal 8.2. Behavior substitution 8.3. Habit formation 8.4. Habit reversal 8.5. Overcorrection 8.6. Generalisation of target behavior 8.7. Graded tasks	18	14. Scheduled consequences 14.1. Behavior cost 14.2. Punishment 14.3. Remove reward 14.4. Reward approximation 14.5. Rewarding completion 14.6. Situation-specific reward 14.7. Reward incompatible behavior 14.8. Reward alternative behavior 14.9. Reduce reward frequency 14.10. Remove punishment
6	4. Shaping knowledge 4.1. Instruction on how to perform the behavior 4.2. Information about Antecedents 4.3. Re-attribution 4.4. Behavioral experiments	11	9. Comparison of outcomes 9.1. Credible source 9.2. Pros and cons 9.3. Comparative imagining of future outcomes	19	15. Self-belief 15.1. Verbal persuasion about capability 15.2. Mental rehearsal of successful performance 15.3. Focus on past success 15.4. Self-talk
7	5. Natural consequences 5.1. Information about health consequences 5.2. Salience of consequences 5.3. Information about social and environmental consequences 5.4. Monitoring of emotional consequences 5.5. Anticipated regret 5.6. Information about emotional consequences	12	10. Reward and threat 10.1. Material incentive (behavior) 10.2. Material reward (behavior) 10.3. Non-specific reward 10.4. Social reward 10.5. Social incentive 10.6. Non-specific incentive 10.7. Self-incentive 10.8. Incentive (outcome) 10.9. Self-reward 10.10. Reward (outcome) 10.11. Future punishment	19	16. Covert learning 16.1. Imaginary punishment 16.2. Imaginary reward 16.3. Vicarious consequences
		15	11. Regulation 11.1. Pharmacological support 11.2. Reduce negative emotions 11.3. Conserving mental resources 11.4. Paradoxical instructions		

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Methods

- Analyze questions:
 1. Have you changed any of your behaviors as a result of the COPE Program?
 2. If yes, what behaviors have you changed?
- Frequencies
- Categorize responses and tallied totals



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COPE TEEN Group



- **320 teens** completed post-intervention surveys
- **184 (57.9%)** indicated changing a behavior
- **182** teens responded with **217** behaviors changed

Characteristic		COPE (n = 358)	
		M	SD
Age (Years)		14.75	0.76
BMI		24.93	6.18
BMI Percentile		72.97	25.02
		COPE	
		n	%
Gender	Female	195	54.5
	Male	163	45.5
Grade Level	9th grade	204	57.0
	10th grade	107	29.9
	11th grade	45	12.6
	12th grade	2	0.6
Race	American	10	2.8
	Native		
	Asian	7	2.0
	Black	30	8.4
	White	31	8.7
	Hispanic	275	76.8
	Other	5	1.4
CDC BMI Categories	Underweight	1	0.3
	Healthy Weight	196	54.8
	Overweight	72	20.11%
	Obese	88	24.58%
	Unreported	1	0.28%

Note. M = mean; SD = standard deviation

Behavior Change Categories

Category	n	%	Category	n	%
Nutrition related	66	30.41	Positive thinking	2	0.92
Physical activity	38	17.51	Less TV	2	0.92
Emotions	27	12.44	Nicer	2	0.92
Stress	13	5.99	Misc r/t healthier	2	0.92
Healthier	8	3.69	Discuss Problems	2	0.92
Attitude	8	3.69	All	1	0.46
Relationships	7	3.23	Better	1	0.46
Happier	6	2.76	Go to school	1	0.46
Calm	4	1.84	Goals	1	0.46
Water	4	1.84	Less worry	1	0.46
Self Esteem	4	1.84	More responsible	1	0.46
Emotions and Food	4	1.84	Confident	1	0.46
Misc r/t PA	3	1.38	Motivation	1	0.46
Relax	3	1.38	Respect	1	0.46
Positive self talk	2	0.92	Control	1	0.46
Positive thinking	2	0.92			

Use of Cognitive-Behavior Skills

Teen Response	Skill Used	Teen Response	Skill Used
how to control my anger	Emotional regulation	eating when i get upset	Healthy coping strategy
i am more calm now when i am mad i can manage to control myself	Emotional regulation	when i'm bored i go outside and when i'm sad i do things that help me get over it in a healthy way	Healthy coping strategy
i calm down whenever i get mad	Emotional regulation	eating healthy talk to people most often about my problems	Discuss problems with people
instead of going off on people i know how to deal with the anger	Emotional regulation	i've been socializing more and telling my problems to family members	Discuss problems with people
i don't get mad at other people i do what i think is best like clean	Emotional regulation skill: alternate activity	to always say good things to myself	Positive self talk
walk away when i want to fight someone	Emotional regulation skill: Walk away	to give myself positive comments that bring myself around	Positive self talk
instead of blowing up my mom for doing something dumb i'll go to my room to count myself	Emotional regulation skill: Counting	i drink water instead of soda	Self-regulation
i try and not get mad and go off on someone and when i do get mad exercise	Emotional regulation skill: PA	how to stay more active more than 30 minutes per day	Self regulation
my eating habits when i'm upset i go and play my guitar instead of grabbing a bag of chips	Emotional regulation skill: alternate activity	i have been trying to not confuse my feelings for hunger	Self awareness
i've learned how to control my stress	Stress reduction	i learned how to set goals also to be more active	Goal setting
I deal without stress in a much better level no more taking it out on everyone else	Stress reduction	i think more positively	Positive thinking (cognitive reframing)
i don't get as angry too often i deal with stress in more healthier ways	Stress reduction	the way I look at exercising drastically increases knowing that it is beneficial	Cognitive appraisal
i deal with stress easier i take breaths instead of busting out	Stress reduction: take breaths	i've actually started walking more when traveling from location to location i kept track of my steps somewhat and tried to increase them by taking longer routes to get places	Self-monitoring

What Next?

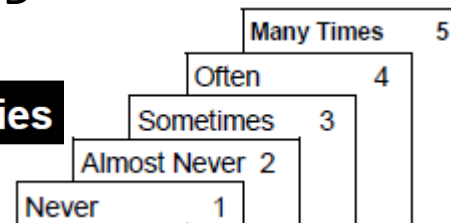
- How can we better capture CBS use by teens?
- We need a better understanding of what influences teens to change a particular behavior in multi-component interventions (e.g. nutrition, PA, emotions).
- Which skills in COPE TEEN need a stronger dose?



Assessing Change

James Sallis at USD

Physical Activity Change Strategies



1. I look for information about physical activity or sports.
2. I keep track of how much physical activity I do.
3. I find ways to get around the things that get in the way of being physically active.
4. I think about how my surroundings affect the amount of physical activity I do. (Surroundings are things like having exercise equipment at home or a park near by.)
5. I put reminders around my home to be physically active.
6. I reward myself for being physically active.
7. I do things to make physical activity more enjoyable.
8. I think about the benefits I will get from being physically active.
9. I try to think more about the benefits of physical activity and less about the hassles of being active.
10. I say positive things to myself about physical activity.
11. When I get off track with my physical activity plans, I tell myself I can start again and get right back on track.
12. I have a friend or family member who encourages me to do physical activity.
13. I try different kinds of physical activity so that I have more options to choose from.
14. I set goals to do physical activity.
15. I make back-up plans to be sure I get my physical activity.



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