Weight loss program design: Cultivate, nurture, and grow!

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Introduction

"Cultivate, nurture, and grow" (CNG) is an eight-week (four, two-week quarter) multifactorial (including two or more wellness/weight loss intervention components) "healthy-weight" and lifestyle guided program. With 40-60% of adults in the western world attempting to decrease body weight at any given time and regaining 30-35% of the initial weight lost within 1 year of completing a typical weight loss program, the initial problem of "weight loss" then must consider and include "weight loss maintenance" (or life-long adherence) (Cadmus-Bertram et al., 2014; Rojo-Tirado, Benitro, Atienza, Rincon, & Calderon, 2013). CNG's approach is to mentor and guide individuals through the process of redefining what a "healthy lifestyle" is, and empowering individuals to make life-long choices that not only promote arriving at a "healthy weight" (e.g. weight loss), but promote sustainability as well.

To cultivate health and wellness, the CNG program aims to increase awareness, educate, promote, and disseminate evidence-based information on a variety of health, wellness, and fitness topics thereby empowering individuals to make informed decisions regarding their own health.

To nurture health and wellness, the CNG program acknowledges each person's unique journey and struggles by using a "small changes" approach and by incorporating various behavior change theories/models/motivational techniques (e.g. decision-making theory, social cognitive theory, ecological model).

To grow not only self-efficacy but a passion and ability to make conscious choices for healthful living, the CNG program incorporates the elements of graded challenges, social support, community involvement, and planning for both roadblocks and success after CNG.

The key features of CNG are: the CNG principles and framework support cyclical-programming mimicking the stages of human behavior change and development such that individuals may repeat the program many times and still benefit; the framework for CNG supports multiple ability levels, multiple age groups, easy regression/progression, scalability, adaptability, and flexible programming; the principles of "cultivate, nurture, and grow" apply beyond health/wellness/fitness; CNG is relational—creating awareness and understanding in how an individual relates to life challenges, food choices, physical activity (PA), stress, body image, and external influences—as life is a complicated web of relationships; CNG uses a team approach enlisting the expertise of a registered dietician, a licensed cognitive behavioral specialist, a nurse practitioner or family physician, and personal trainers with at least a bachelor's degree; and CNG adopts a "small changes" (kaizen) approach coupled with behavior change and motivation theories with the goal of producing long-term changes.

Rationale

By 2030, an estimated 57.8% of the world's adult population (3.3 billion people) and more than two-thirds of the American population could be classified as overweight or clinically obese (Johns, Hartmann-Boyce, Jebb, & Aveyard, 2014; Niemeier, Leahey, Palm Reed, Brown, & Wing, 2012). Excess weight (particularly excess fat mass) increases an individual's risk for a multitude of health problems including cardiovascular disease, metabolic syndrome, Type 2 diabetes, hypertension, joint disease, dyslipidemia, liver disease, stroke, colon and breast cancers (Gremeaux et al., 2012; Kreider et al, 2011; Niemeier et al., 2012; Wingo et al., 2011). Losing excess weight and maintaining a lower, healthier weight can improve or prevent obesity-related comorbidities (Gremeaux et al., 2012; Lutes et al., 2008).

Nutrition, Cardiovascular Endurance, and Resistance Training

Traditional weight loss programs include nutrition counseling (and usually some form of caloric restriction) to create a negative energy gap (difference between energy intake and energy expenditure) and increasing PA levels via incidental exercise, cardiovascular endurance exercise and resistance training (Guess, 2012; Gremeaux et al., 2012; Hill, 2009; Kreider et al., 2011; Niemeier et al., 2012; Phillips-Caesar et al., 2015). However, caloric restriction (dieting/restrictive eating) interventions rarely work or can be sustained long-term. Most dieters regain weight and only 5-10% of dieters maintain a long-term lower weight (Paxman, Hall, Harden, O'Keefe, & Simper, 2011). Most general diet programs are not evidence-based and fail to consider important factors such as an individual's macro- and micronutrient profiles, hormones, appetite, metabolism, activity levels, stress, and psychological well-being (Paxman et al., 2011). While convenient meal-replacement options are popular and may help promote weight loss, structured diet (sensible meal plans with substitutions) plus exercise plans were found to be superior in promoting weight loss (Kreider et al., 2011). Increasing and maintaining higher levels of PA provide many cardioprotective and other health benefits in addition to being a low-cost, effective, and accessible intervention (Cadmus-Bertram et al., 2014). Cardiorespiratory fitness has been shown to be beneficial against all-cause and cardiovascular mortality; and resistance training has been found beneficial to preserving and increasing lean body mass and (Gremeaux et al., 2012; Guess, 2012).

Lifestyle and Behavior Change Interventions

Lifestyle and behavior change interventions (LBCI) are the first recommended treatment options in obesity management with individuals initially reducing bodyweight by 8-10% on average (Fitzpatrick et al., 2014; Teixeira et al., 2015). LBCI incorporates traditional

intervention methods but consider how other factors (including but not limited to demographic, social, economic, psychological, religious, physiological) might influence an individual's adherence to new behaviors and success in making lasting changes (Cadmus-Bertram et al., 2014). LBCI techniques address self-regulation and self-management using a variety of health behavior change theories/models/constructs including but not limited to Prochaska and DiClemente's stages of change; theories of planned behavior; theories of motivation; self-determination theory; learning theory; decision-making theory; social cognitive theory; ecological model; relapse prevention model; identifying barriers/mediators, goal-setting, increasing self-efficacy, increasing awareness, and establishing support (Fitzpatrick et al., 2014; Marcus & Forsyth, 2009; Teixeira et al., 2015; Venditti et al. 2014). The goal of LBCI is to try identify [the cause] of destructive behaviors/habits, develop an understanding, and problem-solve to create better coping mechanisms and alternatives (Venditti et al., 2014). The LBCI approach has been shown to provide more long-term success as compared to traditional programs without the LBCI component (Johns et al., 2014).

Barriers. Commonly identified barriers (perceived or not) to PA/nutrition-reform included (but not limited to; and in no particular order): lack of time; parenthood/family commitments; energy level (too tired); laziness; lack of motivation; body image/being too fat to exercise; not athletic enough; resistance exercise is "too masculine"; too shy/embarrassed (about physical appearance) to exercise; inclement weather; physical discomfort or fear of "pain" when exercising; fear-avoidance; internal disinhibition (emotional-eater/stress-eater); illness; boring exercises; lack of enjoyment; lack of knowledge; fear; too difficult; fear of injury; depression; stress; transportation/accessibility; money/expense; built environment obstacles; noone to exercise with; lack of social support; major life event; vacation/holidays/social engagements;

poor/inconsistent self-monitoring; lack of time/money to grocery shop or plan/prepare meals (Egan et al., 2013; Guess, 2012; Jewson, Spittle, & Casey, 2008; Leone & Ward, 2013; Marcus & Forsyth, 2009; Niemeier et al., 2012); Venditti et al., 2014; Wingo et al., 2011).

Mediators/predictors of success. Commonly identified mediators/predictors of adherence and success in PA/nutrition-reform included (but not limited to; and in no particular order): health benefits; disease prevention; weight management/weight loss; socialization; "feel better"; increased energy; improved fitness; improved mobility and activities of daily living (ADLs); improved body image; improved mental health/quality of life; stress management; increased self-efficacy; enjoyment/pleasure; and learning new things (Guess, 2012; Leone & Ward, 2013; Marcus & Forsyth, 2009).

Acceptance-Based Interventions ("New Third Wave Generation of Therapies")

Acceptance-based interventions (ABI) focus on recognizing, acknowledging, and accepting internal thoughts and feelings that may be barriers to improving an individual's health (Niemeier et al., 2012). ABIs incorporate mindfulness-based cognitive therapy; acceptance and commitment therapy (ACT); and dialectical behavior therapy (DBT) (Niemeier et al., 2012). ABIs have had success in eating/weight-related issues, and ACT-based interventions enjoy longer-term success (Niemeier et al., 2012).

Small-Changes ("Kaizen") Approach

"Kaizen" are small, continuous, daily improvements. The idea is to make small, stepped or graded, lasting, sustainable changes (Hill, 2009). Kaizen are applicable in all areas of life, but in the health/wellness arena (especially regarding physical activity and weight management) the term "small changes" (SC) was coined in 2008 by the Task Force of the American Society for Nutrition, Institute of Food Technologists, and Food Information Council to promote "small

changes in diet and physical activity as a new strategy for weight loss" (Hill, 2009; Phillips-Caesar et al., 2015, p. 119). The SCALE (Small Changes and Lasting Effects) study from 2009 to 2013—one of seven Obesity Related Behavioral Intervention Trials (ORBIT) supported by the National Heart Lung and Blood Institute—tested the principles of "small changes" using mixed-methods (Explore Values, Operationalize and Learn, and eValuate Efficacy; EVOLVE) aimed at real-world scenarios (Phillips-Caesar et al., 2015). One important finding was that the SC approach could be successful, but consideration must also be given to an individual's internal and external (e.g. cultural, social, economic, etc.) influences (Phillips-Caesar et al., 2015). Combining SC and LBCI such as in the ASPIRE-Group study by Damschroder et al. (2014) has been found to be promising as the SC plus LBCI group (ASPIRE-Group) lost nearly twice the weight (with residual weight loss post-program and maintenance) as compared to the usual care (MOVE) group (Lutes et al., 2012).

Pre-Screening and Orientation

All CNG participants will be pre-screened according to the American College of Sports Medicine's (ACSM) general guidelines by administering the Physical Activity Readiness Questionnaire (PAR-Q) and the American Heart Association (AHA)/ACSM Health/Fitness Facility Pre-participation Screening Questionnaire (Pescatello, Arena, Riebe, & Thompson, 2014). The Physical Activity Stages of Change Questionnaire will also be administered, and CNG participants will be interviewed to ensure that all individuals are mentally, emotionally, and behaviorally ready to begin PA (Marcus & Forsyth, 2009; Skaal, 2013). Participants should be ending stage 2 (pre-contemplation) and/or be in stage 3 (contemplation) of Prochaska and DiClemente's Transtheoretical Model (Marcus & Forsyth, 2009). For long-term success (compliance and adherence), it is important to deliver PA programming and health information

that is suitable or relevant to a person's stage of change (Marcus & Forsyth, 2009). A copy of the CNG program will be given to the participants requiring the signature and approval of both the participant and the participant's primary care physician. All participants must complete a food allergen list, medical conditions and medications list form (for exercise modifications due to potential side-effects) to be signed by both the participant and his/her physician. A mandatory orientation class will be held prior to the start of the program.

Acute Training Variables

The goal of the CNG program is to elicit small but long-term behavioral changes that promote optimal health and wellness during an individual's lifetime. The CNG program will make exercise intensity and frequency recommendations, but the emphasis is placed on the individual's consistency and adherence to self-directed, self-regulated, and self-managed goals—this is what the individual will eventually face post-CNG. All relevant acute training variables and activity will be logged by CNG participants in a diary. Diary entries will be reviewed once per week by a cognitive behavioral specialist, dietician, and personal trainer.

When exercise cannot safely be based on 1-RM, moderate (5 to 6) to vigorous (7 to 8) exercise on a scale from 1 to 10 is appropriate (Pescatello et al., 2014). The visual adult OMNI-RES resistance (rate of perceived exertion, RPE) scale has also been shown to safely and appropriately gauge intensities approximating 1-RM (Gearhart, Riechman, Lagally, & Andrews, 2011). CNG recommends individuals start at a comfortable level (cardiovascular or resistance training) between 2 to 4 and progress/challenge themselves up to 5-8 depending on their abilities. Alternating intensities on different days is also acceptable.

Following ACSM guidelines, CNG recommends moderate to vigorous intensity aerobic exercise at least 3-5 days/week accumulating at least 75-150 minutes/week (Pescatello et al.,

2014). Accumulated exercise is acceptable, but to progress challenges, individuals may elect to increase sustained aerobic exercise per bout. CNG also recommends at least 2-3 days/week of resistance training major muscle groups (Pescatello et al., 2014).

CNG Program Design

Table 1

Week 1 CNG Program

Class 1	1 hour presentation covering balanced, healthy lifestyle and daily lifestyle choices. 30 minute live, interactive healthy snack bar presentation and sampling activity. 30 minute presentation on the dangers of sedentary living/comorbidities.
Class 2	30 minute presentation on barriers and mediators. 30 minute small group discussion identifying personal barriers/mediators. 30 minute live, interactive breakfast nutrition presentation and sampling. 30 minute presentation and discussion on motivators for change.
Week 1 Group Step	List the items in your refrigerator / pantry.
Week 1 Personal Step	What is one way you can increase PA in your life? Do that on 2 days this week.

Table 2

Week 2 CNG Program

Class 1	1 hour presentation on increasing PA. 30 minute live, interactive healthy snack bar presentation and sampling activity. 30 minute interactive presentation on the OMNI scale of perceived exertions and exercise intensities (everyone will exercise to "feel" what different intensities are like). Meeting with cognitive behavioral specialist, dietician, and personal trainer.
Class 2	1 hour nutrition presentation and break out session discussing the refrigerator/pantry list. 1.5 hour group shopping trip.
Week 2 Group Step	Have 1 healthy snack per day as discussed in the Class 2 nutrition presentation. The idea is to expand your palate. Substitute 1 glass of water daily for another beverage you would have consumed.
Week 2 Personal Step	Add 2 days to Week 1's personal step.

Table 3

Week 3 CNG Program

Class 1	1 hour presentation on goal setting and enlisting social support. 30 minutes goal setting and social support small group activity. Find a buddy for the remainder of CNG. 30 minute interactive presentation on walking as exercise. Meeting with cognitive behavioral specialist, dietician, and personal trainer.
Class 2	2 hour nutrition, food-prep, and organization interactive presentation and activity.
Week 3 Group Step	Drink more in lieu of a sweetened beverage. Eliminate soda. Using your cell phone, photograph your meals and snacks for 3 days.
Week 3 Personal Step	Commit to 1 more step towards increasing your PA. Take 1 step towards healthy nutrition.

Table 4

Week 4 CNG Program

Class 1	1 hour presentation and break out discussion on the food photographs. 1 hour interactive presentation on basic resistance training and options for in-home exercise. Meeting with cognitive behavioral specialist, dietician, and personal trainer.
Class 2	30 minute group resistance training session. 30 minute presentation on portion control/sizes. 1 hour interactive nutrition and lunch-to-go presentation/sampling activity.
Week 4 Group Step	Use smaller dishes/plates/bowls.
Week 4 Personal Step	Commit to 1 more step towards increasing your PA. Take 1 step towards healthy nutrition.

Table 5

Week 5 CNG Program

Class 1	1 hour presentation and break out discussion on stress management. 1 hour presentation and break out session on personal organization. Meeting with cognitive behavioral specialist, dietician, and personal trainer.
Class 2	1 hour group walk/hike activity. Discuss progress, barriers, mediators thus far. 1 hour group "restaurant" eating activity (focus on integrating healthful choices in the real world).
Week 5 Group Step	Challenge yourself to make educated substitutions when eating out.
Week 5 Personal Step	Commit to 1 more step towards increasing your PA. Take 1 step towards healthy nutrition.

Table 6

Week 6 CNG Program

Class 1	2 hour trip to local gym. Tour and understand basic gym layout, amenities and etiquette. Participate in a group cardio plus resistance class at the gym.
Class 2	30 minute presentation on motivation. 30 minute introductory Pilates class. 30 minute presentation on vending machine and coffee shop healthy choices/substitutions. 30 minute introductory yoga class. Meeting with cognitive behavioral specialist, dietician, and personal trainer.
Week 6 Group Step	Set up a reward system for how you will maintain your progress post-CNG.
Week 6 Personal Step	Commit to 1 more step towards increasing your PA. Take 1 step towards healthy nutrition.

Table 7

Week 7 CNG Program

Class 1	1 hour presentation on resistance training "on the go" (how can you make it work when you're at the office, on vacation, etc.). 1 hour interactive presentation on setting up your workplace for healthy success (clean up your office from temptations and set it up for healthy options). Get your co-workers involved. Meeting with cognitive behavioral specialist, dietician, and personal trainer.
Class 2	1 hour interactive presentation (scenarios/simulations) on handling peer/family/social stress, temptations, negative influences. 1 hour presentation on coping techniques.
Week 7 Group Step	Set up a plan for dealing with relapse/backsliding. Set up a plan for coping. Set up a plan for dealing with roadblocks.
Week 7 Personal Step	Commit to 1 more step towards increasing your PA. Take 1 step towards healthy nutrition.

Table 8

Week 8 CNG Program

Class 1	2 hour presentation/discussion on re-entering the real world. Plan for success and maintenance. Find 2 people you can enlist as your social support. Invite them to the Class 3 closing dinner exercise (healthy choices when dining out with a social group). Meeting with cognitive behavioral specialist, dietician, and personal trainer.
Class 2	1 hour presentation and break out group discussion on your plans for maintenance post-CNG. 1 hour presentation and activity on planning your first 2 weeks after CNG.
Class 3	Closing dinner exercise (healthy choices when dining out in a crowd, especially with others who are not making healthy choices; coping).

References

Cadmus-Bertram, L., Irwin, M., Alfano, C., Campbell, K., Duggan, C., Foster-Schubert, K., & ... McTiernan, A. (2014). Predicting adherence of adults to a 12-month exercise intervention. *Journal Of Physical Activity & Health, 11*(7), 1304-1312.

Damschroder, L. J., Lutes, L. D., Kirsh, S., Kim, H. M., Gillon, L., Holleman, R. G., & ... Richardson, C. R. (2014). Small-changes obesity treatment among veterans: 12-month outcomes. *American Journal Of Preventive Medicine, 47*, 541-553.

Egan, A., Mahmood, W., Fenton, R., Redziniak, N., Kyaw Tun, T., Sreenan, S., & McDermott, J. (2013). Barriers to exercise in obese patients with type 2 diabetes. *QJM: An International Journal Of Medicine, 106*(7), 635-638.

Fitzpatrick, S. L., Bandeen-Roche, K., Stevens, V. J., Coughlin, J. W., Rubin, R. R., Brantley, P. J., & ... Appel, L. J. (2014). Examining behavioral processes through which lifestyle interventions promote weight loss: Results from PREMIER. *Obesity (19307381), 22*(4), 1002-1007.

Gearhart, R. J., Riechman, S. E., Lagally, K. M., & Andrews, R. D. (2011). Safety of using the adult omni resistance exercise scale to determine 1RM in older men and women. *Perceptual And Motor Skills, 113*(2), 671-676.

Guess, N. (2012). A qualitative investigation of attitudes towards aerobic and resistance exercise amongst overweight and obese individuals. *BMC Research Notes, 5*(1), 191-202.

Gremeaux, V., Drigny, J., Nigam, A., Juneau, M., Guilbeault, V., Latour, E., & Gayda, M. (2012). Long-term lifestyle intervention with optimized high-intensity interval training improves body composition, cardiometabolic risk, and exercise parameters in patients with abdominal obesity. *American Journal Of Physical Medicine & Rehabilitation, 91*(11), 941-950.

Hill, J. (2009). Can a small-changes approach help address the obesity epidemic? A report of the Joint Task Force of the American Society for Nutrition, Institute of Food Technologists, and International Food Information Council. *American Journal Of Clinical Nutrition, 89*(2), 477-484.

Jewson, E., Spittle, M., & Casey, M. (2008). A preliminary analysis of barriers, intentions, and attitudes towards moderate physical activity in women who are overweight. *Journal Of Science & Medicine In Sport, 11*(6), 558-561.

Johns, D. J., Hartmann-Boyce, J., Jebb, S. A., & Aveyard, P. (2014). Diet or exercise interventions vs combined behavioral weight management programs: A systematic review and meta-analysis of direct comparisons. *Journal Of The Academy Of Nutrition & Dietetics, 114*(10), 1557-1568.

Kreider, R. B., Serra, M., Beavers, K. M., Moreillon, J., Kresta, J. Y., Byrd, M., & ... Jonnalagadda, S. S. (2011). A structured diet and exercise program promotes favorable changes in weight loss, body composition, and weight maintenance. *Journal Of The American Dietetic Association, 111*(6), 828-843.

Leone, L. A., & Ward, D. S. (2013). A mixed methods comparison of perceived benefits and barriers to exercise between obese and nonobese women. *Journal Of Physical Activity & Health, 10*(4), 461-469.

Lutes, L. D., Winett, R. A., Barger, S. D., Wojcik, J. R., Herbert, W. G., Nickols-Richardson, S. M., & Anderson, E. S. (2008). Small changes in nutrition and physical activity promote weight loss and maintenance: 3-month evidence from the ASPIRE randomized trial. *Annals Of Behavioral Medicine, 35*(3), 351-357.

Lutes, L. D., Daiss, S. R., Barger, S. D., Read, M., Steinbaugh, E., & Winett, R. A. (2012). Small changes approach promotes initial and continued weight loss with a phone-based follow-up: Nine-month outcomes from ASPIRES II. *American Journal Of Health Promotion, 26*(4), 235-23

Marcus, B. H., & Forsyth, L. H. (2009). *Motivating people to be physically active*. Champaign, IL: Human Kinetics.

Niemeier, H. M., Leahey, T., Palm Reed, K., Brown, R. A., & Wing, R. R. (2012). An acceptance-based behavioral intervention for weight loss: A pilot study. *Behavior Therapy, 43*(Direct-to-Consumer Marketing of Evidence-Based Psychological Interventions), 427-435.

Paxman, J. R., Hall, A. C., Harden, C. J., O'Keeffe, J., & Simper, T. N. (2011). Weight loss is coupled with improvements to affective state in obese participants engaged in behavior change therapy based on incremental, self-selected “Small Changes”. *Nutrition Research, 31*(5), 327-337.

Pescatello, L. S., Arena, R., Riebe, D., & Thompson, P. D. (2014). *ACSM's guidelines for exercise testing and prescription*. Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Phillips-Caesar, E. G., Winston, G., Peterson, J. C., Wansink, B., Devine, C. M., Kanna, B., & ... Charlson, M. E. (2015). Small changes and lasting effects (SCALE) trial: The formation of a weight loss behavioral intervention using EVOLVE. *Contemporary Clinical Trials, 41*, 118-128.

Rojo-Tirado, M. A., Benitro, P. J., Atienza, D., Rincon, E., & Calderon, F. J. (2013). Effects of age, sex, and treatment on weight-loss dynamics in overweight people. *Applied Physiology, Nutrition, and Metabolism, 38*(9), 967-976.

Teixeira, P. J., Carraça, E. V., Marques, M. M., Rutter, H., Oppert, J., De Bourdeaudhuij, I., & ... Brug, J. (2015). Successful behavior change in obesity interventions in adults: A systematic review -- of self-regulation mediators. *BMC Medicine, 13*(1), 1-16.

Venditti, E. M., Wylie-Rosett, J., Delahanty, L. M., Mele, L., Hoskin, M. A., & Edelstein, S. L. (2014). Short and long-term lifestyle coaching approaches used to address diverse participant barriers to weight loss and physical activity adherence. *International Journal Of Behavioral Nutrition & Physical Activity,11*(1), 1-23.

Wingo, B. C., Evans, R. R., Ard, J. D., Grimley, D. M., Roy, J., Snyder, S. W., & ... Baskin, M. L. (2011). Fear of physical response to exercise among overweight and obese adults. *Qualitative Research In Sport, Exercise & Health, 3*(2), 174-192.