2023, Volume 6 (Issue 1): 4 OPEN ACCESS

Goal Setting and Parental Participation in a Piloted High School Football Sports Nutrition Education Program

Original Research

Haley Stewart[1], Amber Marks[1], Diana Cuy Castellanos[1], Rebecca Gonter-Dray[1]

[1]*University of Dayton: College of Health and Sports Sciences, Dayton, OH/USA*

Open Access

Published: April 26, 2023

Journal of Exercise and Nutrition: *2023, Volume 6 (Issue 1): 4*

ISSN: 2640-2572

Abstract

Introduction: There is a lack of research on how parental involvement in an adolescent athlete's sports nutrition program can impact an athlete's adherence to nutrition related goals. Thus, this investigation aimed to examine the difference in the high school football athlete's adherence to self-identified dietary goals in relation to parental involvement in the program.

Methods: A total of 25 high school football athletes and 25 parents participated in a six week-long WAVE sports nutrition education program. 64% of participants (athletes & parents) completed the 12-week post follow up (n=32). Athletes and parents completed sports nutrition knowledge questionnaires and food frequency questionnaires. Additionally, parents completed self-efficacy questionnaires to rank their confidence in preparing healthy meals and cooking.

Results: There were significant changes in parents' sports nutrition knowledge scores from initial to the 12-week follow up (p<0.001) The parents' self-efficacy around choosing and preparing healthy food options also increased from initial to the 12-week follow up (p=0.004). No significant difference was found between parent's attendance and the athlete's adherence to long-term goals.

Conclusions: The increase in parent's overall sports nutrition knowledge and self-efficacy around preparing and cooking healthy foods did not significantly affect athlete's adherence to their self-identified goals

Key Words: WAVE sports nutrition, parental involvement, adolescent athletes

Corresponding author: Diana Cuy Castellanos, dcuycastellanos1@udayton.edu

Introduction

Adolescent athletes participating in various sports typically train and compete at a level that requires special dietary considerations and a heightened understanding of nutrition knowledge.[1] Higher nutrition knowledge in high school students is generally associated with healthier dietary intake.[2,3] However, similar to the general population, high school athletes have low or limited nutrition knowledge and suboptimal diets.[2,4-9] Student athletes obtain nutrition information from a variety of sources, including the internet, social media, coaches, family members, peers, health care professionals, and magazines. Ultimately, the knowledge obtained from these sources along with other factors like taste, convenience, food availability, cost, and advertising affect the dietary choices adolescent athletes make.[10] Interventions aimed at

increasing nutrition knowledge have the potential to improve dietary intake in student athletes, leading to improved overall health and enhanced performance in sports.[11]

According to the Centers for Disease Control and Prevention (CDC) Explore Youth Risk Behavior Survey, 57.4% of high school students in the United States played at least one sport in 2019.[12] Sport training can lead to nutrition-related problems during adolescence due to the increased need for energy and nutrients to support rapid growth and hormone changes. While some athletes do have adequate dietary intake to support both growth and athletic performance, many do not meet their energy requirements, putting them at an increased risk of developing deficiencies.[5] Other concerns regarding the dietary intake of this populations include improper use of supplemental nutrition, and a general lack of knowledge of energy expenditure and the roles macro- and micronutrients play in athletic performance.[5,8]

Multiple sports nutrition education interventions for adolescent athletes have been conducted based on WAVE~ Ripples for Change: Obesity Prevention in Active Youth (WAVE). The pilot study included an after-school classroom based program consisting of seven sport nutrition lessons (30 to 45 minutes each) as well as three consumer sciences "life-skill" workshops that included grocery shopping, cooking, and gardening.[4,9,11,13] WAVE uses the students' interest in athletics to engage them in topics related to sports nutrition and general healthy eating; the skills and knowledge obtained from the program are helpful throughout the lifespan for promoting healthy activity and dietary behaviors.[13] Common outcomes evaluated in sports nutrition education interventions are improvements in nutrition knowledge, goal attainment/behavior change, changes in diet quality, and body composition. Previous studies conducted with WAVE showed an 8% to 10% increase in the athletes' nutrition knowledge scores, however, dietary behaviors did not significantly change.[13] This illustrates that while nutrition knowledge is a critical factor in promoting positive dietary changes, developing nutrition-related skills and positive sport-nutrition attitudes and behaviors are also key.[8]

Adolescent athletes' dietary habits are influenced by parents' knowledge on nutrition and their socioeconomic status which are both key factors in determining what foods they are choosing to feed their families.[14,15,16,17] Studies show parental nutrition knowledge can lead to an increase in healthy diet choices and practices of adolescent athletes, as many depend on parents for providing meals at this age.[17,18] Parental influence contributes to the subjective norms and perceived behavioral control for adolescent athletes due to the parents' own nutrition-related beliefs and attitudes and the home food environment they create for their adolescent athlete. Goals can be seen as mental representations of behavioral intention as they identify desired outcomes; furthermore, the goal setting process requires consideration of motivations for, influences on, and barriers to goal attainment which can influence intention.[19] Barriers to achieving goals can be identified within each of the factors (attitudes, subjective norms, and perceived behavioral control) that influence behavioral intention. Therefore, exploring barriers during goal setting and identifying strategies to overcome these barriers as well as including parents in the intervention are essential in creating actionable and specific goals that elicit behavioral intention and change.[19]

This pilot study was designed to test the hypothesis that athletes whose parents were highly involved in the sports nutrition education program will have a higher rate of adherence to their self-identified goals. The purpose of this pilot study was to determine the impact on adolescent athletes' sports nutrition knowledge, diet quality, and body composition with the implementation of a sports nutrition education program that incorporated goal setting and parental participation to address athletes' attitudes, subjective norms, and perceived barriers to behavior change.

Methods

Study Design

This research was a quasi-experimental design with a convenience sample of adolescent football players attending a private high school in a metropolitan city in the Midwestern U.S. Pre- and post-measures of sports nutrition knowledge, diet quality, and body composition were collected prior to and after a sports nutrition education intervention. Goals were set by athletes after each of the six lessons; attainment of goals was assessed at the conclusion of the intervention and at 12 weeks post-intervention. Further, parent sports nutrition knowledge, self-efficacy and diet quality was measured prior to and after the intervention.

Participants and Recruitment

Participants were recruited by convenience sampling from the private high school football team who meet inclusion criteria. This criterion includes 14-19 years old, currently a member of the high school football team, living with a parent/legal guardian, and proficient in English. One parent of each adolescent, proficient in English, was also

recruited via convenience sampling. No steps were taken to recruit a specific parent as general attendance was the main priority. Informed consent was given to the parents of each athlete under the age of 18 who have given verbal assent. Those 18 and older signed their own informed consent form. This study was approved by the University of Dayton (UD) Institutional Review Board.

Protocol

Pre- and post-testing were taken at a Midwestern, mid-sized private university in the Spring of 2022. Sports Nutrition Education classes took place in a private high school in Dayton, Ohio. The WAVE Sport Nutrition Curriculum, created by Oregon State University, was used for this intervention. This was delivered by graduate dietetics students from the University to the private high school football athletes. The primary researchers modified the original WAVE program, previously developed for soccer players, to a program specific for football players' nutritional needs in the Fall of 2021. The modified intervention included six 30–45-minute education sessions, one per week, over the span of six weeks. Each session focused on one specific topic: hydration, pre-exercise nutrition, during-exercise nutrition, recovery nutrition, body composition and staying well, and eating well while dining out. The sessions were taught via informational PowerPoint presentations, handouts, and group discussions. During each session, athletes were given a goal form with three recommended nutritional practices pertaining to that week's topic. Participants chose one sport nutrition related goal each session from the predetermined options based on the session topics or self-selected a goal. For each predetermined set of goals, sports nutrition educators developed a selection of barriers that could be identified as attitude-related barriers, barriers due to subjective norms, or lack of behavioral control. For example, a participant with a selected goal of "Drink at least 12 cups of water per day" may identify an attitude-related barrier: "I don't like the taste of plain water." Participants were also able to self-identify barriers to achieving goals.

Athletes were asked to have each session's goal form reviewed and signed by a parent or legal guardian and returned to the researchers the following week. If a player failed to return the sheet, they had until the end of the six sessions to return the six signed goal sheets to the researchers.

Bod Pod measurements were taken of the participants who enrolled at baseline and 12-week post-intervention as an incentive. A Bod Pod uses air displacement plethysmography as a tool to measure body composition.[20] Participants were asked to follow Bod Pod protocol such as fasting and wearing proper attire to obtain the most accurate results. The athletes also completed a sport nutrition knowledge questionnaire and food frequency questionnaire to determine dietary quality at baseline, 6-week and 12-weeks post-intervention. At both the initial Bod Pod measurement (baseline) and the post Bod Pod measurement (12-week post-intervention), parents were asked to join their student athletes to complete three different questionnaires based on dietary intake, self-efficacy, and sports nutrition knowledge. At the first measurements, the research team explained to parents their role throughout the WAVE intervention: to sign and complete weekly goal sheets with their athletes for them to turn back into the graduate students to keep track of parental involvement and goal adherence.

Description of Instruments

1. *Sports Nutrition Knowledge*

A-NSKQ: The Abridged Nutrition for Sport Knowledge Questionnaire was a validated tool to assess general sports related nutrition knowledge.[21] This questionnaire was distributed to both athletes and parents at baseline and at the 12 week follow up. It contained 35 multiple choice questions on topics related to nutrition recommended for sports performance. Scores were calculated as a percentage of correct answers divided by total questions (each question was worth 1 point out of 35 possible points/questions). A higher score was more favorable.

2. *Self-efficacy*

A validated questionnaire was distributed to parents at baseline and at the 12-week follow-up to determine if self-efficacy around choosing and preparing healthy food options had increased for the parents after delivery of the intervention. The questionnaire contained 20 ranking questions surrounding self-efficacy of making healthy food choices, meal planning, and cooking. The participants ranked their agreeance of each of the 20 statements, determining confidence around these healthy practices, as strongly disagree, disagree, agree, and strongly agree. The scores of these rankings were 0-3 points, respectively. There were 80 points available, the higher the score, the higher the parents' self-efficacy of performing healthy food practices.[22]

3. *Diet Quality*

Fruit/Vegetable/Fiber Screener: This validated web-based questionnaire[23] was distributed to both athletes and parents on paper at baseline and at the 12 week follow up to determine if fruit, vegetable, and fiber intake had increased for either group after delivery of the intervention. This questionnaire contained 10 rating questions on how often per week

the participants consume certain types of fruits, vegetables, and fiber. For each question, participants were asked to rank their total consumption as "less than once per week," "about once per week," "2–3 times per week," "4–6 times per week," "every day," and "2 or more times per day." There were 50 total points; the higher the score, the higher the diet quality in relation to eating fruits, vegetables, and fiber.

Carbohydrate screener: This validated tool[24] was distributed to both athletes and parents at baseline and to athletes at the 12 week follow-up to determine carbohydrate intake from baseline to 12-weeks. The questionnaire included 14 carbohydrate-containing foods. Participants confirmed if they consumed them regularly on a weekly basis. Each "yes" response was scored as one point; the higher the score out of 15 points, the higher the participant's carbohydrate consumption.

4. *Goal Adherence*

Goal Form: One form was given at each session with three recommended nutrition practices regarding that week's topic (six total forms). During the session, athletes filled out this form indicating which goal they chose, any barriers to accomplishing the goal, and ways to overcome those barriers. This sheet was reviewed and signed by parents.

Evaluation of Nutrition Goal Sheet: Goal adherence was assessed after the six-week intervention, and at the 12-week follow-up. At these times, participants were given a questionnaire to assess overall goal adherence by indicating for each goal whether the participant "never met," "usually did not meet," "sometimes met," "usually met," or "always met" that goal. Scoring for each category was 0, 1, 2, 3, 4, respectively. There were 26 total points; the higher the score, the higher the goal adherence. Overall goal adherence was scored as a percentage of the athletes' combined points divided by the total possible points.

5. *Parental Participation*

Parent participation was grouped into one of two categories: high or low. High parent participation was defined as an athlete returning 2 or more signed goal sheets to the researchers. Low participation was defined as an athlete returning <2 goal sheets signed by their parents.

Data Analysis

Descriptive statistics including frequencies, means, and standard deviations were used to analyze data and participant responses including demographic information, nutrition knowledge, fat free body mass percentage, goal attainment, and diet quality. Pre- and post-tests for those that completed both the baseline, six-week, and 12-week measures were reported to examine a change in athletes' initial and post-intervention nutrition knowledge, body composition, and/or diet quality. Average initial and 12-month parental nutrition knowledge, diet quality, and self-efficacy scores were reported. A Wilcoxon signed-rank test was used to determine changes from initial to 6-week and initial to 12-week scores. A Wilcoxon signed-rank test was used to analyze differences between the parents' sports nutrition knowledge scores and self-efficacy scores from initial assessment to the 12-week post assessments. A Mann-Whitney test was run to determine if the scores on the self-identified goal sheets returned were different between those who had high parent attendance vs. low parent attendance.

Results

For the athletes, there were 24 males (96%) and one female (4%); 52% played offensive back or receiver positions and 48% were defensive/offensive linemen, kicker or defensive backs. The mean age of athlete participants was 15.92 (±1.26) years and BMI was 28.56 (SD: 8.27). For BMI and nutrition knowledge, there were no differences across BMI categories in relation to nutrition knowledge. Of the participants 40% had a BMI <25, 24% were between 25-30 and 36% were >30. Table 1 provides the average athlete scores for sport nutrition knowledge, body composition and diet quality. For initial to 6-week there was a significant increase in nutrition knowledge and carbohydrate intake. However, there were no significant changes observed from initial to 12-week. Mean goal attainment scores at both 6- and 12-week intervals was 16 points (67% goal attainment).

Parents' overall attendance, goals, self-efficacy, knowledge and diet quality

Table 2 provides descriptive statistics of the parents' overall attendance, number of completed goal sheets, initial and post 12-week dietary intake, sports nutrition knowledge, and self-efficacy scores. Parent knowledge scores significantly increased from initial (13.27 ± 3.35) to the 12-week follow up (16.09 ± 3.67; p=0.018). The parent's self-efficacy around choosing and preparing healthy food options also significantly increased from initial (42.27 ± 6.95) to 12-week follow up (51.47 ± 9.01; p=0.004). There was an improvement in dietary scores from initial (13.38 ± 5.65) to 12-week follow up (14.38 ± 4.35) but it was not significant. There was no significant difference in goal sheets completed between athletes with high parental attendance vs. those who had low parental attendance (p=0.51).

Table 1. Athlete's Sport Nutrition Knowledge, Body Composition, and Diet Quality

	Baseline (N=25)		6-week post-intervention				12 week post-intervention			
	N	Mean (SD)	N	Baseline Mean (SD)	6-week Mean (SD)	*p*	N	Baseline Mean (SD)	12-week Mean (SD)	*p*
Sport Nutrition Knowledge (SNK)	25	14.64 (4.30)	9	13.22 (4.41)	21.56(9.29)	<01	12	14.50 (5.18)	15.42 (3.95)	.38
Fat Free Body Mass (FFM) %	25	81.34 (12.98)	N/A	N/A	N/A		16	81.10 (13.16)	81.86 (13.54)	.41
Diet Quality Score	25	11.83 (6.73)	10	12.10 (6.02)	12.20 (6.84)	.97	15	11.00 (5.95)	10.93 (7.08)	.93
Carbohydrate Intake	23	2.80 (2.33)	15	3.33 (2.23)	4.80* (2.48)	.01	15	2.73 (1.87)	2.33 (1.76)	.52

***p*<.05**

Table 2. Parent attendance, dietary quality, sports nutrition knowledge, and self-efficacy scores

	N	Mean (SD)
Parent Attendance	25	1.1 (1.3)
Completed Goal Sheet	25	2.8 (2.1)
Parent Knowledge (Initial)	18	13.4 (4.7)
Parent Knowledge (Post 12-week)	16	15.9 (3.4)
Parent Diet (Initial)	21	14.9 (9.3)
Parent Diet (Post 12-week)	15	14.7 (4.1)
Parent Self-efficacy (Initial)	23	42.8 (7.5)
Parent Self-efficacy (Post 12-week)	16	52.0 (9.0)

I = Initial session, P = Post 12-week session

Discussion

Previous research shows that interventions to increase the nutrition knowledge of student athletes can improve their dietary intake which could subsequently have a positive effect on their health and sport performance.[19] Interventions conducted based on the WAVE program improved athletes' nutrition knowledge by as much as ten percent, however, participants' dietary behaviors did not significantly change.[25] Programs that develop nutrition-related skills, encourage positive sport-nutrition attitudes, and incorporate decision-making theories tend to have successful outcomes in improving nutrition knowledge and eliciting behavior change in athletes.[8,14]

The objective of this pilot study was to determine the efficacy of the modified WAVE sports nutrition education program for high school football with the incorporation of goal setting. This combination was examined by evaluating the pre-intervention and post-intervention mean differences in nutrition knowledge, dietary quality, body composition and goal adherence. The feasibility and efficacy of the WAVE program has been evaluated and reported previously in other sport modalities without the inclusion of goal setting.[4,9,11,13]

Past studies have shown that an athlete's eating patterns and food choices are reflected proportionally to a parent's nutrition knowledge.[16] A study by K. Van der Host explains that parental practices influence their adolescent's dietary behavior, whereas parents who qualified as having 'sufficient nutrition knowledge' were more likely to give their athletes 4-5 meals a day and avoided providing them with unhealthy snacks throughout the day.[16,26]
Involving parents in sports nutrition programs can help parents increase their overall self-efficacy to include proper nutrition practices into their daily routine. These practices can then have positive effects on the athletes, as research shows that adolescent athletes' nutrition-related behaviors and food choices are heavily influenced by parents' nutrition habits and knowledge. [9,25,26]

When the WAVE program was pilot tested over a two-year period with soccer players, nutrition knowledge increased; however, diet quality did not change long-term.[13] In the current study, overall parental and athlete knowledge increased, and parents' self-efficacy increased; however, no improvements to athlete or parent dietary intake were observed. The inclusion of parents with goal setting activities to address subjective norms and perceived behavior change did not elicit changes in dietary behavior. This study does support the complexity of dietary behavior change and, therefore, the need to first assess the factors influencing athletes' dietary behavior for future interventions.

Limitations of this research include the small study size consisting of a convenience sample from one high school which increases potential for bias. Next, participant drop-out and non-completion rates were high, possibly related to the timing of the intervention sessions and number of participants with commitments to other athletic activities. Nonresponse error also occurred when participants (both athletes and parents) failed to complete all of the given questionnaires. Lastly, the entire program lasted just six weeks and did not address the barriers that influence the athletes' food choices.

Conclusions
This pilot helped determine that a high school athlete's food choice will not improve only with interventions aimed at improving the athlete's and parent's nutrition knowledge and self-efficacy. The incorporation of goal setting did not address barriers to goal achievement such as attitudes, subjective norms, and perceived behavioral control. This study reveals the need for further research investigating additional influences in athlete food choices.
Interventions should first assess the influencing factors of dietary behavior with athletes. Next, one should consider other modalities of education such as mobile applications, workshops, and immersive activities to reach the busy athletes. Lastly, future studies should include the WAVE-based program along with education regarding influences in food choices. Research can then utilize models for behavior change with goal-setting to effectively improve diet quality, sports nutrition related behaviors, and body composition.

Acknowledgements
Researchers would like to acknowledge the High School football team and their athletic trainer for their participation and cooperation.

No Conflicts of Interest to disclose.

References
1. Desbrow B. Youth athlete development and nutrition. *Sports Med*. Published online 2021. doi:10.1007/s40279-021-01534-6
2. Spronk I, Heaney SE, Prvan T, O'Connor HT. Relationship between general nutrition knowledge and dietary quality in elite athletes. *Int J Sport Nutr Exerc Metab*. 2015;25(3):243-251.
3. Heikkilä M, Lehtovirta M, Autio O, Fogelholm M, Valve R. The impact of nutrition education intervention with and without a mobile phone application on nutrition knowledge among young endurance athletes. *Nutrients*. 2019;11(9):2249.
4. Foo WL, Faghy MA, Sparks A, Newbury JW, Gough LA. The effects of a nutrition education intervention on sports nutrition knowledge during a competitive season in highly trained adolescent swimmers. *Nutrients*. 2021;13(8):2713.
5. Couture S, Lamarche B, Morissette E, et al. Evaluation of sports nutrition knowledge and recommendations among high school coaches. *Int J Sport Nutr Exerc Metab*. 2015;25(4):326-334.
6. Martin ŞA, Tarcea M. Consequences of lack of education regarding nutrition among young athletes. *Palestrica of the third millennium – Civilization and Sport*. 2015;16(3):241–246.

7. Heikkilä M, Valve R, Lehtovirta M, Fogelholm M. Nutrition knowledge among young Finnish endurance athletes and their coaches. *Int J Sport Nutr Exerc Metab*. 2018;28(5):522-527.
8. Webb MC, Beckford SE. Nutritional knowledge and attitudes of adolescent swimmers in Trinidad and Tobago. *J Nutr Metab*. 2014;2014:506434.
9. Patton-Lopez MM, Manore MM, Branscum A, Meng Y, Wong SS. Changes in sport nutrition knowledge, attitudes/beliefs and behaviors following a two-year sport nutrition education and life-skills intervention among high school soccer players. *Nutrients*. 2018;10(11):1636.
10. Stokes EG, Hughes R, Shaw DM, O'Connor HT, Beck KL. Perceptions and determinants of eating for health and performance in High-Level male adolescent rugby union players. *Sports*. 2018;6(2). doi:10.3390/sports6020049.
11. Tam R, Beck KL, Manore MM, Gifford J, Flood VM, O'Connor H. Effectiveness of education interventions designed to improve nutrition knowledge in athletes: A systematic review. *Sports Med*. 2019;49(11):1769-1786.
12. Youth risk behavior survey. Cdc.gov. Accessed October 2, 2021. https://yrbs-explorer.services.cdc.gov/#/graphs?questionCode=H82&topicCode=C06&location=XX&year=2019
13. "WAVE Sport Nutrition Curriculum." Text. OSU Extension & Experiment Station Communications. https://catalog.extension.oregonstate.edu/em9218.
14. Ameryk, M. Impact of parents' nutritional knowledge on the nutrition and frequency of consumption of selected products in children and adolescents practicing football in a football club in Bydgoszcz, Poland. Journal of Education, Health and Sport. 2016.
15. Daigle K, Subach R, Valliant M. Academy of Nutrition and Dietetics: Revised 2021 standards of Practice and standards of professional performance for registered dietitian nutritionists (competent, proficient, and expert) in sports and human performance nutrition. Journal of the Academy of Nutrition and Dietetics. 2021;121(9). doi:10.1016/j.jand.2021.04.018
16. Dzimbova T. Nutritional patterns of children involved in four different sports: Ski, gymnastics, football, and basketball. RESEARCH IN PHYSICAL EDUCATION, SPORT AND HEALTH. 2020;9:189-194. doi:10.46733/pesh2090189dz
17. Kalnina L, Sauka M, Timpka T, et al. Body fat in children and adolescents participating in organized sports: Descriptive Epidemiological Study of 6048 Latvian athletes. Scandinavian Journal of Public Health. 2015;43(6):615-622. doi:10.1177/1403494815581696
18. Neta Ada CPde A, Steluti J, Ferreira FELde L, Farias Junior JCde, Marchioni DML. Dietary patterns among adolescents and associated factors: Longitudinal Study on sedentary behavior, physical activity, diet and Adolescent Health. Ciência & Saúde Coletiva. https://www.scielosp.org/article/csc/2021.v26suppl2/3839-3851/en/. Published August 30, 2021. Accessed October 2, 2021
19. Bailey RR. Goal Setting and Action Planning for Health Behavior Change. *Am J Lifestyle Med*. 2017;13(6):615-618. Published 2017 Sep 13. doi:10.1177/1559827617729634
20. Antonio J, Kenyon M, Ellerbroek A, Carson C. Body Composition Assessment: A Comparison of the Bod Pod, InBody 770, and DXA. Journal of Exercise and Nutrition . 2019;2(2):1-7.
21. Trakman, Gina, Adrienne Forsyth, Russell Hoye, and Regina Belski. "Development and Validation of a Brief General and Sports Nutrition Knowledge Questionnaire and Assessment of Athletes' Nutrition
22. Ellis J, Brown K, Ramsay S, Falk J. Changes in Student-Athletes' Self-Efficacy for Making Healthful Food Choices and Food Preparation Following a Cooking Education Intervention. J Nutr Educ Behav. 2018 Nov - Dec 2018;50(10):1056-1058. doi:10.1016/j.jneb.2017.10.002
23. Knowledge." *Journal of the International Society of Sports Nutrition* 15 (December 1, 2018). https://doi.org/10.1186/s12970-018-0223-1.
24. Block, G, Gillespie, C, Rosenbaum, EH, et al. A rapid screener to assess fat and fruit and vegetable intake. *American Journal of Preventive Medicine*. 2000;18(4):284-288.
25. Harrison, S, Carbonneau, E, Talbot, D, et al. Development and validation of a dietary intake screener for carbohydrate intake in endurance athletes. *J Inter Soc Sports Nutr*. 2018;15(44):2-6.
26. Jenkins S, Horner SD. Barriers that influence eating behaviors in adolescents. Journal of Pediatric Nursing. 2005;20(4):258-267. doi:10.1016/j.pedn.2005.02.014
27. Van der Horst, K., Kremers, S., Ferreira, I., Singh, A., Oenema, A., & Brug, J. (2006). Perceived parenting style and practices and the consumption of sugar-sweetened beverages by adolescents. *Health Education Research*, *22*(2), 295–304. https://doi.org/10.1093/her/cyl080