Moving On!: A Physical Activity Transition Program for Student-Athletes

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Maintaining a physically active lifestyle after college can be challenging for student-athletes. Given the physical and mental health concerns associated with dropping from high activity to inactivity, evidence-based programs are needed to prepare student-athletes for this transition. With funding from the NCAA Innovations in Research and Practice Grant Program, our research team conducted a pilot study of Moving On!, a theory-driven, evidence-based program that helps student-athletes make healthy transitions to life after college sports. Through the Moving On! curriculum, student-athletes are:

- exposed to lifetime physical activities such as yoga, kickboxing, and dancing;
- equipped with specific strategies to plan for their lifestyle transition by learning to set effective goals, prepare for unexpected challenges, and discover practical solutions;
- provided the opportunity to develop a game plan for next season: life.

Moving On! was piloted with Division I and Division III student-athletes during the spring 2015 semester. Former student-athletes, current student-athletes, and athletics department administrators provided positive feedback about the value, demand, and appeal of the Moving On! program. Following pilot implementation, evaluation, and revisions, a facilitator guide and student-athlete workbook were developed so that Moving On! may be adopted for use across a range of NCAA member institutions.

For more information about this project, or to find out how to bring Moving On! to your campus, please contact Principal Investigator, Dr. Erin Reifsteck: ejreifst@uncg.edu
NCAA Innovations in Research and Practice Grant Program

Moving On!: A Physical Activity Transition Program for Student-Athletes

FINAL REPORT

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Problem Statement

Many student-athletes fail to maintain healthy physical activity participation after transitioning out of competitive sports, and former student-athlete alumni are no more active than non-athlete college alumni (Reifsteck, Gill, & Brooks, 2013; Sorenson et al., 2015). Despite the health consequences (e.g., development of cardiovascular and metabolic risk factors) of dropping from high activity to inactivity (Witkowski & Spangenburg, 2008), programs that promote lifestyle physical activity among transitioning student-athletes are rare. Whereas extensive research exists on emotional and career transitions after retirement from sport (e.g., Douglas & Carless, 2009; Houle, Brewer, & Kluck, 2010; Lally & Kerr, 2005; Lavallee, Gordon, & Grove, 1997; Stambulova, Alfermann, Statler, & Cote, 2009; Taylor & Ogilvie, 1994), few research studies focus specifically on how college athletes transition to physically active lifestyles (Reifsteck et al., 2013; Reifsteck, Gill, & Labban, 2016).

Many athletics departments offer life skills programs, but they are largely targeted at the transition into college and maintaining eligibility (e.g., study skills, time management, substance abuse prevention). Services related to the transition to life after college athletics are not as common and usually focus on career transition. The common perception is that student-athletes value health and physical activity and will continue to be active throughout their lives, but the evidence suggests otherwise (Reifsteck et al. 2013; Sorenson et al., 2015). Therefore, this project improves existing practices by helping college student-athletes transition from highly structured and competitive collegiate athletics to lifetime physical activity. This research is significant and, to our knowledge, the first to develop an intervention to promote physical activity among transitioning student-athletes. An evidence-based physical activity transition program to enhance the long-term health and well-being of student-athletes fits with the NCAA’s holistic approach to developing student-athletes during their college careers and beyond.

Research suggests that individuals are more likely to maintain physical activity when exercise behavior is integrated into self-identity (Springer et al., 2013). Maintenance of physical activity is further enhanced when it is motivated by self-determined reasons (e.g., value and enjoy activity; Strachan et al., 2012). The objective of this project was to pilot test Moving On!, a physical activity transition program for student-athletes that is theory-driven and incorporates evidence-based cognitive-behavioral strategies to promote lifetime physical activity. The specific aims were as follows:

Aim 1: To pilot test Moving On!, a physical activity transition program that targets the link between identity, motivation, and physical activity for transitioning student-athletes. Moving On! is grounded in a theory-based conceptual model connecting identity, motivation, and physical activity. The goals of the pilot test were to: 1) implement Moving On! to demonstrate the feasibility of offering the 4-session program to student-athletes who are transitioning out of college, 2) determine the appeal of the program to student-athletes and athletics department administrators, and 3) identify program content and instructional strategies that need revision. Primary outcome measures included post-session ratings of the Moving On! program as well as focus group interviews with participants, former student-athletes, and athletics department administrators.

Aim 2: To assess the extent to which Moving On! changes relevant theoretical constructs in student-athlete participants. Moving On! is designed to target theory-based constructs (i.e., exercise identity and self-determined motivation) that impact physical activity behaviors (Reifsteck et al., 2013; Reifsteck et al., 2016). Pre, post, and follow-up survey measures of identity and motivation were the primary outcomes used to determine whether the
program was successful at targeting these constructs. Secondary outcome measures, including intentions to exercise, self-efficacy for exercise, and actual physical behavior, were also assessed in pre, post, and follow-up surveys. Comments from focus group interviews were also examined. See Data and Methodology section for details of survey measures.

To achieve these aims, student-athletes (N=13) in their final year of eligibility participated in the pilot study of Moving On!. The program was first reviewed by former student-athletes (N=7) and their feedback/recommendations were collected in a focus group interview. After reviewing and incorporating feedback, the program was implemented with current student-athletes, and evaluated through ratings and post-program focus group interviews. Our central hypothesis was that participation in Moving On! would foster identity and self-determined motivation for physical activity among transitioning student-athletes. Research indicates that physical activity-related identity, motivation, and participation can be changed through targeted interventions (e.g., Caruso & Gill, 1992; Strachan et al., 2012; Strachan & Whaley, 2013; Ryan et al., 2009). This approach also reflects the American College of Sports Medicine guidelines for promoting adherence (ACSM, 2013). The goal of this project was to demonstrate the feasibility of Moving On! and provide a blueprint for implementing larger-scale programming to promote the long-term health of all student-athletes. The physical and mental health benefits of physical activity participation depend upon maintaining activity throughout the lifespan (Sarna et al, 1993; Sorenson et al. 2015). Participating in programs like Moving On! may help student-athletes avoid the abrupt changes that occur through detraining (Gill et al., 2003; Liu et al., 2008) following a competitive sport career, and thus promote the physical and mental health benefits of continued regular physical activity for student-athletes (USDHHS, 2008).

**Literature Review**

According to identity theory (Burke et al., 2003; Burke & Reitzes, 1981; Stryker & Burke, 2000), identity functions to self-regulate behavior. When sport, exercise, and physical activity are central to a person's self-identity, s/he is more likely to engage in those activities (Brewer et al., 1993; Kendzierski & Morganstein, 2009; Reifsteck, et al., 2013; Reifsteck et al., 2016; Strachan et al., 2005). When exercise identity is a valued component of an individual’s self-concept, it plays an important role in maintaining exercise behavior (Anderson et al., 1994; 2001; Strachan et al., 2012; Vlachopoulos et al, 2011). However, “athlete” identity is not necessarily the same as “exerciser” identity. Athletic identity, which is rooted more specifically in competitive sport, is often the primary source of self-identity for competitive athletes (Brewer et al., 1993). As such, athletic identity may be related to participation in competitive sport training, but may not relate as strongly to lifetime physical activity participation (Reifsteck et al., 2016). Thus, developing a broader exercise identity may be key to promoting lifelong physical activity outside of sport.

Self-determination theory (SDT; Deci & Ryan, 1985; Ryan et al., 2009) posits that motivation exists along a continuum from totally external to self-determined and volitional. Fulfilling the basic psychological needs of autonomy, competence, and relatedness can move individuals up the motivation continuum toward more self-determined motivation (Edmunds et al., 2006). Specifically, a person is likely to have higher self-determined motivation if they feel in control, competent, and connected to others through the activity. Considerable research supports the tenets of SDT and the importance of self-determined motivation in exercise contexts (e.g., Edmunds et al., 2006; Markland & Tobin, 2004; Thorgersen-Ntoumani & Ntoumanis, 2006).
In general, people are less motivated to participate in exercise compared to sport (Ryan et al., 2009). This is especially likely to be an issue for student-athletes who are transitioning out of college sport and losing other motivators to be active (e.g., scholarships, coaches, teammates). Stephan and colleagues (2003; 2007) argued that implementing transitional programs might prevent an abrupt change in physical activity that could threaten an athlete’s identity, self-worth, and long-term health. Our proposed research project tests the feasibility of one such program. As illustrated in Figure 1, the ultimate goal of the Moving On! program is to foster physical activity participation among student-athletes after they leave college. The short-term goal is to foster exercise identity and self-determined motivation, which in turn influence physical activity participation.

**Conceptual Framework**

Moving On! focuses on helping student-athletes transition from a sport-based identity to a broader exercise identity. The program also includes cognitive-behavioral strategies that enhance self-determined motivation for physical activity and help student-athletes plan for lifetime physical activity after college. See Figure 1 for a visual depiction of the conceptual framework underlying the program.

*Figure 1. Conceptual Model of a Physical Activity Transition Program for Student-Athletes*

![Conceptual Model of a Physical Activity Transition Program for Student-Athletes](image)

The Moving On! program content and specific strategies were carefully designed to foster a broader active-based identity and self-determined motivation for physical activity (see Table 1).

**Methodology and Data Collection**

The purpose of this study was to develop and pilot test a physical activity transition program for NCAA student-athletes. Our project consisted of three phases: (1) development; (2) implementation; and (3) data analysis/program revision. A focus group of 7 former student-athletes recruited from the local community reviewed materials in the development phase. In the implementation phase, 13 current NCAA student-athletes voluntarily participated in the program. These participants and 4 athletics department administrators reviewed the program and provided feedback in the data analysis/program revision phase. Current student-athletes from one mid-sized southeastern Division I (DI) university were initially recruited to participate in the 4-session Moving On! program. Due to logistical issues including turnover among key athletics department personnel, program implementation was slightly delayed and participation rates were
initially lower than expected. However, an additional pilot of the program in an alternative half-day workshop format was also conducted at a nearby small Division III (DIII) college. The small sample in this pilot study allows for rich, in-depth review of the program by the participants.

**Table 1. Program Components and Strategies**

<table>
<thead>
<tr>
<th>Component</th>
<th>Objectives</th>
<th>Program Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identity</strong></td>
<td>Explore impact of transition on identity and help student-athletes transition from a narrow, sport-based identity (i.e., athletic identity) to a broader active-based identity (i.e., exercise identity).</td>
<td>Reflection activity followed by group discussion provides the opportunity to explore likely identity changes through the transition (e.g., Who I am now; Who I would like to be). Student-athletes are prompted to consider the role that physical activity will play in their future lives.</td>
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<tr>
<td><strong>Self-Determined Motivation: Competence</strong></td>
<td>Develop competence in a wider range of lifetime physical activities and build self-efficacy for maintaining physical activity after college.</td>
<td>Each session includes a 20-minute guided physical activity session with activities that are transferable to life after college and require minimal equipment or resources. Examples include walking, yoga, kickboxing, and dancing. Activities are designed to be fun, develop new skills, and low to moderate intensity to promote intrinsic enjoyment.</td>
</tr>
<tr>
<td><strong>Self-Determined Motivation: Autonomy</strong></td>
<td>Encourage choice in activities to promote personal agency in developing a physically active lifestyle.</td>
<td>Activities are guided by the facilitator but emphasize student-athletes’ self-determination by choosing their own goals and developing their own action plans for physical activity.</td>
</tr>
<tr>
<td><strong>Self-Determined Motivation: Relatedness</strong></td>
<td>Encourage social support and create connections to others through physical activity participation in order to increase self-determined motivation.</td>
<td>Sessions are interactive and group-based, encouraging positive shared experiences through physical activity.</td>
</tr>
<tr>
<td><strong>Increase Knowledge about PA Guidelines</strong></td>
<td>Increase knowledge about physical activity guidelines and benefits to promote greater intentions to participate in long-term physical activity.</td>
<td>Student-athlete workbooks include a physical activity fact sheet. An interactive presentation tests student-athletes’ current knowledge about the benefits of regular physical activity and risks of inactivity. Student-athletes learn how exercise intensity is measured and have the opportunity to practice measuring their heart rate during physical activity.</td>
</tr>
<tr>
<td><strong>Goal Setting and PA Promotion Strategies</strong></td>
<td>Adopt effective goal setting practices; Create action plans that identify potential barriers to maintaining physical activity and behavioral strategies to overcome barriers.</td>
<td>Student-athletes are provided with guidelines on “SMART” goal setting strategies. Through worksheets in the workbook, student-athletes practice setting weekly activity goals and recording their activity in an exercise log. Guided activities also challenge student-athletes to create an action plan for how they will integrate physical activity in the future.</td>
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</table>

Prior to beginning the *Moving On!* program, the current student-athlete participants completed established measures (pretest) of physical activity-related identity, motivation, participation, self-efficacy, and future intentions (see Table 2). Participants completed these measures again immediately upon completion of the program (posttest) and also one month later (follow-up). Ratings of each program session were provided by participants at the conclusion of each session. After the program was completed, participants provided ratings and feedback about their overall experience with *Moving On!*. Participants were also invited to participate in a focus group interview where they were asked about their experience overall as well as with specific program components. Athletics department administrators reviewed the program during a separate focus group interview and provided feedback about the program’s fit with the department’s mission and support structure.
Phase 1: Development (Fall 2014). Content and materials for the Moving On! program, including a draft of a student-athlete workbook with discussion activities, were developed. A focus group of 7 former student-athletes reviewed the program materials and provided insights about their own transition experiences. Former student-athletes were asked about how their physical activity has changed since leaving college, why they are active or inactive, and especially how they would design a program to increase physical activity participation in transitioning student-athletes. Feedback from the former student-athletes was incorporated into the program prior to implementation.

Phase 2: Implementation (Spring 2015). The standard version of Moving On! was piloted on a Division I campus during the spring 2015 semester. The standard program consists of four one-hour sessions over four weeks (1 session per week). The first session includes an overview of physical activity benefits and risks, recommendations, and initial goal-setting. Session 2 focuses on current identities and likely identity changes through the transition. Session 3 emphasizes revised goal-setting and strategies for overcoming barriers. Session 4 reviews previous sessions and focuses on planning for the transition out of college and staying physically active. Physical activities are built into each of the four sessions to provide active experiences with varied lifetime physical activities (e.g., yoga, dancing). Activity sessions include choice and skill development to promote autonomy and competence. To foster relatedness, all sessions have group-based activities. A modified version of Moving On! was piloted on a Division III campus during the spring semester and consists of the same content as the standard program but is structured as one 4-hour workshop rather than four 1-hour weekly sessions.

Phase 3: Data Analysis/Program Revision (April - December 2015). Analysis of primary and secondary outcome measures and program feedback were used to guide revisions and enhance the program for implementation with larger groups of student-athletes in the future. A facilitator guide and revised student-athlete workbook were developed to help promote adoption and sustainability of the program and enable program content and materials to be implemented at other universities.

Data Analyses. Because statistical significance tests are affected by small sample size, they were not used to assess the survey data collected in this project. However, effect size,
which is not affected by sample size, can be used to assess differences when sample sizes are small and power is low (Kramer & Rosenthal, 1999). Therefore, changes in relevant outcome measures were assessed by effect sizes from dependent samples t-tests. Conservative effect sizes for repeated measures were estimated using Hedges’ g correction (Lakens, 2013). These values are interpreted cautiously and are partially informed by widely employed guidelines from Cohen (1988): small, >.20; medium, >.50; and large, >.80. Descriptive statistics were used to summarize participant ratings of the program. The focus group sessions with former and current student-athletes and athletics department administrators were recorded, transcribed, and analyzed for common emergent themes. See Table 3 for depiction of how data sources were used to meet the evaluation goals of the project.

Table 3. Data Sources Used to Meet Evaluation Goals

<table>
<thead>
<tr>
<th>Data Sources</th>
<th>Former student-athlete focus group (pre-program)</th>
<th>Pre, post, and follow-up surveys (student-athletes)</th>
<th>Session and Overall Program Evaluation Ratings (student-athletes)</th>
<th>Student-athlete focus group (post-program)</th>
<th>Athletics Dept. administrators focus group (post-program)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation Goals</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Determine the appeal of Moving On! to student-athletes and athletic dept. administrators</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Identify program structure and session content/strategies needing revision</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Investigate extent to which Moving On! affects theoretical constructs (e.g., identity, motivation)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Determine the effect of the program on physical activity intentions, self-efficacy, and behavior</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Findings

Participant Overview

Prior to implementing Moving On! with current student-athletes, 7 former NCAA student-athletes (Male: N=4; Female: N=3) were recruited to participate in a focus group interview in which they discussed their own transitional experiences as well as reviewed program content and provided feedback. The former student-athletes ranged in age from 22 years old to 38 years old and identified primarily as African-American (N=4) or White (N=3). Six of the 7 former student-athletes participated at the Division I level in cross country/track (N=4), football (N=1), or volleyball (N=1). One participant was a dual-sport athlete (soccer, ice hockey) at the Division II level.
A total of 13 student-athletes participated in the standard (DI university: \(N=6\)) or modified version (DIII college: \(N=7\)) of the *Moving On!* program. Participants identified predominantly as female (\(N=11\); Male: \(N=2\)) and African-American (\(N=8\); White: \(N=3\); Multiracial: \(N=2\)). Student-athletes from a variety of sports, including basketball (\(N=7\)), volleyball (\(N=2\)), cheerleading (\(N=1\)), soccer (\(N=1\)), softball (\(N=1\)), and tennis (\(N=1\)), participated in this pilot.

Following implementation and evaluation of the program with current student-athletes, 4 athletics department administrators (White: \(N=4\); Female: \(N=2\); Male: \(N=2\)) from the DI university participated in a separate focus group interview where they reviewed the *Moving On!* program and provided feedback on the value, demand, and feasibility of continuing the program within the collegiate athletics department setting.

**Summary of Project Goals and Related Findings**

There were two aims for this project: mainly, to conduct an initial pilot of *Moving On!* to determine the feasibility of implementing such a program within a college athletics environment; and secondarily, to assess preliminary evidence of *Moving On!*’s effect on relevant outcome variables of interest. Findings related to each aim and evaluation goal are presented in the sections that follow.

**Aim 1:** The primary aim for this feasibility study was to pilot the *Moving On!* physical activity transition program. The main project evaluation goals corresponding to this aim were:

1) **Determine the appeal/demand of *Moving On!* to student-athletes and athletics department administrators**

   - **Data Sources:** program evaluation ratings; focus group interviews with current student-athletes, former student-athletes, and athletics department administrators

2) **Identify program structure and session content/strategies needing revision**

   - **Data Sources:** program evaluation ratings; focus group interviews with current student-athletes, former student-athletes, and athletics department administrators

**Aim 1 Main Findings:**

**Appeal of *Moving On!***

**Evaluation Ratings.** At the end of each of the four sessions, the DI student-athletes completed anonymous evaluation forms where they provided ratings and comments on their experience in that session. All ratings were on a scale of 1 (strongly disagree) to 5 (strongly agree). The participants provided generally high ratings (\(\geq 4\)) across the four sessions for each criteria. At the end of the program, student-athletes at both the DI university and DIII college rated their overall experience with *Moving On!*.

Findings were very positive with no criteria receiving lower than a 4 (agree) and most ratings averaging close to 5 (strongly agree).
In their post-session and post-program evaluations, participants also provided open-ended feedback regarding what they liked most about *Moving On!*. In describing which specific aspects of *Moving On!* they enjoyed the most or worked best, participants cited the goal-setting activities, group discussions, and the physical activity demonstrations as particularly helpful. They especially enjoyed the yoga, kickboxing, and dance activities included in the program and appreciated learning new information and alternative options for staying physically active.
Specific to knowledge gains as a result of participating in Moving On!, participants cited: “awareness of lifestyle change”; “alternative, fun ways to workout”; and “knowledge on how to go about my future goals.”

**Focus Group Interviews.** During focus groups, student-athletes described their participation in Moving On! as being a valuable and positive experience:

> Thanks for everything. Like it really has helped! Um, I definitely am more like conscious about, “Oh, I should probably go run today. Or I should probably go walk.” And just for health purposes, not even for the game or anything like that. Um, I think it will definitely make the transition easier after graduation.

As a result of the program, participants’ knowledge of physical activity options increased. They also gained insight that health-related physical activity differs from the competition-focused physical activity they engaged in as student-athletes:

> Just more of a knowledge of what type of different exercises you could do than the exercises you’re used to doing. Or knowing you can do more activities that are better or just different to keep the excitement of working out.

> Our mindset goes to, “Oh, we need to lift heavy for 45 minutes to get the results that we’re used to.” But then you brought in the information like, well, there’s being sports-ready and then there’s just being healthy.

> To be healthy you still get results and it’s 20 minutes of strenuous activity. I mean, you won’t look like a body builder, but you’re gonna be healthy ...so it's like that was just something that was like shocking, because all we've known is sports!

> I think it’s just knowing like, Oh, you can do fun things to work out!

Participants expressed their appreciation of the program’s structure, especially the inclusion of physical activities, the student-athlete workbook, and the group discussions:

> And it’s the activities like the dancing, the yoga, and the kickboxing. ‘Cause it’s one thing to look up videos or be told about it but it’s something else to actually experience it and to actually have a short demonstration.

> I think it’ll be easier now. Like this, I really liked the booklet because it helped to be able to write down...jot down hopes and the questions that are asked and are able to respond—they’re important questions. And it’s informative as well.

> I think it was helpful to see that other athletes have trouble with transitioning. Like I have that trouble, right, ‘cause I haven’t played softball in a while because of an injury. But seeing that it happens to other people was, I don’t know, good.
Administrators valued the resources provided through \textit{Moving On!} as a supplement to their efforts to support student-athletes:

\textit{I think our whole reason for doing what we do is to prepare our student athletes for success ... and, you know, part of being successful in life and having the energy to achieve is being healthy... and having that energy level, and staying active is such an important part of that.}

\textit{Any other campuses I've been on, I've never really heard conversations about, you know, that part of preparing them for success after they're done with their time on campus ... I don't think I've seen that be a focus, but it's so important.}

\textit{I think you hit the nail on the head.}

Former student-athletes who participated in focus groups during program development articulated the limitations they felt from having a lack of knowledge about health-related physical activity and also expressed the need to address a strong athletic identity held by student-athletes:

\textit{You're feeling like, I know how to exercise 'cause I do it every day. But...training is totally different than exercise.}

\textit{The question [in the student-athlete workbook] about how would you describe yourself. When people would ask me that, it was so weird because you do just always say it, like I'm a volleyball player. Like okay, what else are you? Well, not much. I'm a volleyball player; that is what I do.}

Former student-athletes endorsed \textit{Moving On!} as a program that addresses important elements related to the transition out of collegiate athletics:

\textit{It seems to make sense to me. It's kind of like a “How To” guide, be your own person and not be so like just a product of your environment. Like, set your own environment.}

\textbf{Revisions to \textit{Moving On!}}

\textbf{Evaluation Ratings.} In their post-session and post-program evaluations, participants were also asked to provide open-ended feedback/suggestions for improvement. Few suggestions for improving the program were offered, with most comments indicating a demand for expanding the duration, content, and frequency of the program sessions. Based on this feedback, participants appeared to value their experience in \textit{Moving On!} and desired additional program offerings. Specific examples of comments reflecting this sentiment included:

\textit{I would love to continue this!}

\textit{Great program that I hope more people attend in the future.}

\textit{The program was very helpful and taught me how to plan more efficiently for the future.}

\textit{I am going to recommend it to everyone.}
Focus Group Interviews. The student athletes who participated in the standard 4-session version of the *Moving On!* program suggested adding more sessions or extending the time of each session:

*I remember we were leaving after I think the second one and we were like, “this is a lot more fun than I thought it was gonna be!” Like, I wish we had more sessions!*

*To have more time together would be very beneficial.*

*So whether you made this one session a week longer or you doubled it up, say we meet on Wednesdays and Thursdays... because there's a lot of information, and to go from week to week, you kind of retain it and kind of remember things, but ... I feel like there's much more that could be taught along with this.*

Both administrators and program participants recognized the important role that nutrition plays in a healthy lifestyle. They also recognized that, like physical activity, nutritional needs for post-competitive athletes vary from those of current student-athletes. The student-athletes suggested expanding *Moving On!* content to include a component focused on nutrition:

*One session or something and just having nutrition... Like how to like switch it up to how much you would actually need to eat versus like how much we're used to eating.*

*And so it's like to go from that to like scaling it back down... just help with like what to snack on, what to eat, and stuff like that would be beneficial.*

*You're so used to just eating a lot, so you can have the carbs and just the energy to keep playing. But like now that you're not playing, that knocks out like four hours worth of energy that you need. But you're still in the habit of eating ...And so adding that [information to the program] would be helpful.*

Participants saw *Moving On!* as a valuable resource for student-athletes and offered tips for recruiting more student-athletes in transition. In particular, they suggested reaching out to coaches to encourage participation among their student-athletes:

*Talk to the coaches at that university so they can go and talk to their senior players and say I think this would be a good program for you to help transition after you graduate.*

*Just talking to the head coach, because I don't think there's one head coach here who wouldn't like this program for their seniors. So I think like if you just pitched to them like what the program is about, I know they will at least take the time to talk to this person.*

Program participants and administrators felt that *Moving On!* would have a greater sustained impact if it incorporated additional accessible resources such as mobile “apps” that participants could access beyond the program:
I feel like I would want a good app to have. So that way I could just access it really fast and just see everything that I need to work on. Like, oh! Well I’ve only worked out twice this week, I need to tighten up. (Participant)

So, if there was some way to create an app that tracked some of the basic measures within the paper workbook that would make them part of an overall network of former student athletes. (Administrator)

Aim 2: The secondary aim for this pilot study was to collect preliminary data to assess the extent to which Moving On! impacts relevant theoretical constructs—primarily exercise identity and self-determined motivation. The main project evaluation goals related to this aim were:

3) Investigate extent to which Moving On! affects theoretical constructs (e.g., identity, motivation)
   • Data Sources: current student-athlete surveys; focus group interviews

4) Determine the effect of the program on physical activity intentions, self-efficacy, and behavior
   • Data Sources: current student-athlete surveys; focus group interviews

Aim 2 Main Findings:

Effects on identity and motivation

Current Student-Athlete Survey Data. Pre-, post-, and follow-up survey data from the DI student-athletes who participated in the standard 4-session program were collected, while DIII participants in the modified program completed pre- and follow-up surveys only. Due to the length of the survey and the conceptually impossible nature of observing changes in behavior and other stable constructs within the timeframe of the modified format, an immediate post-test was not administered to the DIII student-athletes. In order to overcome logistical challenges and to coordinate efforts accordingly, the Moving On! program was implemented later in the spring semester than originally planned. Because of the delayed implementation, it was challenging to reach all student-athletes, particularly the DIII student-athletes, at the one-month follow-up time point as they were no longer on campus. However, retention of the DI participant group was high (see Table 4).

Table 4. Survey Completion Rates

<table>
<thead>
<tr>
<th></th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Follow-Up Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>DI University</td>
<td>N=6</td>
<td>N=6</td>
<td>N=5</td>
</tr>
<tr>
<td>DIII College</td>
<td>N=7</td>
<td>--</td>
<td>N=4</td>
</tr>
</tbody>
</table>

Only findings from the DI student-athletes who completed the standard version of Moving On! and all three surveys (pre-, post-, and follow-up) are reported here. These findings are limited by the small sample size and are intended to provide a preliminary picture of the potential impact of the Moving On! program. Upon completion of program development and optimization, a longitudinal fully-powered randomized controlled trial is needed to evaluate the full impact of Moving On! on attitudes and behaviors, especially in relationship to a control group.
Motivation. Intrinsic (e.g., *I exercise because it’s fun*), integrated (*Exercise is essential to my identity and sense of self*), and identified (e.g., *It’s important to me to exercise regularly*) regulations are the most self-determined forms of motivation. Overall, as Table 5 shows, changes in self-determined motivation were positive but small. Identified regulation increased slightly from pre- to post-test, with a continued small positive increase one month later, suggesting enhanced values and goals for exercise among participants. Intrinsic regulation changed little at the post-test, but became more positive at the follow-up, suggesting a small positive effect on exercise enjoyment.

Need Fulfillment. Fulfilling the basic needs of competence (e.g., *I feel capable of completing exercises that are challenging to me*), autonomy (e.g., *I feel free to exercise in my own way*), and relatedness (e.g., *I feel like I share a common bond with people who are important to me when we exercise together*) leads to more self-determined motivation for physical activity. Again, changes were mostly positive but small. Competence and autonomy showed small to moderate improvements at the one month follow-up, suggesting that participants perceived greater skill and choice in their activities. Interestingly, participants reported decreases in feelings of relatedness. As suggested by participants’ comments in focus group interviews, student-athletes are likely to lose connection to others (e.g., teammates, coaches) when they transition out of the structured environment of their college teams and may benefit by seeking out lifestyle physical activities with a group element. For example, one former student-athlete who is regularly active said, “I do belong to a kickboxing gym and it is a group class so I think the similarity between that and volleyball comes together because I don’t know how to like workout by myself and I don’t want to.” Perhaps participating in a program like *Moving On!*, which provides an opportunity to discuss the transition and develop relationships with other transitioning student-athletes, can buffer this loss of connection, similar to the effect that the team environment in kickboxing has for this former student-athlete.

Identity. Identity-related perceptions did not change at the post-test, but exercise identity (e.g., *I consider myself an exerciser*) became slightly stronger at the follow-up, whereas athletic identity (e.g., *I consider myself an athlete*) slightly decreased. These changes reflect the goal of the *Moving On!* program to bolster a broader active identity that is inclusive of a physically active lifestyle beyond competitive sport. These small positive changes in motivation and identity are promising, but added research with a control group and larger samples is needed to confirm these findings. See Table 5 for means and effect sizes at pre-test, post-test, and follow-up.

Table 5. Mean Changes in Identity and Motivation from Pre-Test to Post-Test to Follow-Up among DI participants (N=5)

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Pre-Test M</th>
<th>Post-Test M</th>
<th>Effect Size*</th>
<th>Description</th>
<th>Follow-Up M</th>
<th>Effect Size*</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic</td>
<td>3.80</td>
<td>3.90</td>
<td>0.09</td>
<td>Negligible (+)</td>
<td>4.05</td>
<td>0.26</td>
<td>Small (+)</td>
</tr>
<tr>
<td>Integrated</td>
<td>3.50</td>
<td>3.65</td>
<td>0.11</td>
<td>Negligible (+)</td>
<td>3.65</td>
<td>0.13</td>
<td>Negligible (+)</td>
</tr>
<tr>
<td>Identified</td>
<td>4.05</td>
<td>4.20</td>
<td>0.18</td>
<td>Small (+)</td>
<td>4.20</td>
<td>0.18</td>
<td>Small (+)</td>
</tr>
<tr>
<td>Competence</td>
<td>5.40</td>
<td>5.47</td>
<td>0.12</td>
<td>Negligible (+)</td>
<td>5.60</td>
<td>0.33</td>
<td>Small (+)</td>
</tr>
<tr>
<td>Autonomy</td>
<td>5.30</td>
<td>5.37</td>
<td>0.10</td>
<td>Negligible (+)</td>
<td>5.60</td>
<td>0.44</td>
<td>Small/Mod. (+)</td>
</tr>
<tr>
<td>Relatedness</td>
<td>5.17</td>
<td>5.00</td>
<td>0.30</td>
<td>Small (-)</td>
<td>4.83</td>
<td>0.47</td>
<td>Moderate (-)</td>
</tr>
<tr>
<td>Exercise Identity</td>
<td>46.60</td>
<td>46.00</td>
<td>0.04</td>
<td>Negligible (-)</td>
<td>48.40</td>
<td>0.16</td>
<td>Small (+)</td>
</tr>
<tr>
<td>Athletic Identity</td>
<td>43.00</td>
<td>42.60</td>
<td>0.07</td>
<td>Negligible (+)</td>
<td>42.20</td>
<td>0.16</td>
<td>Small (-)</td>
</tr>
</tbody>
</table>

*Effect sizes reflect changes from baseline (pre-test)
Focus Group Interviews. In focus group interviews following completion of *Moving On!*, student-athletes’ comments reflected an awareness of motivational challenges related to continuing their physical activity participation without the structured environment of college athletics. On the other hand, they also expressed a new appreciation for their autonomy in making their own choices for physical activity in the future.

You have to figure out your own workout plan. You don’t have one set for you. Your coach is not going to be like, hey, you’ve got to do this, this, this, and this. That’s what we’re doing at practice today. You have to sit there and think, what do I need to work on today? And that, I think, would be the most difficult to me.

I’m looking forward to it. I’m looking forward to the independency...I think that at times it’s going to be difficult but, like what she was saying, with the booklet, being able to recognize the difference between setting goals and setting specific goals...cause right now I have a general plan. I know what I want to do but don’t have the specifics that I’m going to need to get there. So that’s something different that I never really thought of before.

Findings from the focus group interviews also suggest that *Moving On!* fosters an understanding that student-athletes’ identities and related physical activity experiences are likely to evolve through the transition out of college sports:

Like this is a big deal. We’re transitioning. We’re not gonna be athletes any more.

I mean, even though they’re two different like categories for like being prepared for our sports and being prepared for- well, just being healthy. We’re just used to being prepared for sports...

Effects on physical activity intentions, self-efficacy, and behavior

Current Student-Athlete Survey Data. Physical activity intentions, self-efficacy, and actual behavior were measured as secondary outcomes of the *Moving On!* program because, theoretically, they are impacted by the mediating variables (e.g., identity, self-determined motivation) targeted in the program. Following the *Moving On!* program, participants reported slightly greater intentions to be physically active after college from pre- to post-test and large improvements from pre-test to follow-up. Confidence in ability to be physically active, or self-efficacy, appeared to continually decrease from pre- to post-test to follow-up. While this finding contradicts the goals of the *Moving On!* program, it likely reflects the development of more realistic perceptions of physical activity barriers. For instance, *Moving On!* encourages student-athletes to consider and set more intentional goals for the future, and discussion activities provide the opportunity for participants to critically reflect on potential challenges and barriers of the “real world.” Thus, becoming more knowledgeable may lead to lower but more realistic beliefs about the challenges of maintaining a physically active lifestyle. Ideally, *Moving On!* prepares student-athletes to better meet these challenges.

Finally, reported physical activity levels decreased from pre- to post-test and remained lower one month later. This finding is not surprising given that maintaining the very high level
of physical activity required of competitive collegiate athletics is not realistic when one is no longer in that environment. Indeed, research confirms that former athletes become less active after competitive sport participation and are no more active than their non-athlete counterparts (Reifsteck et al., 2013; Sorenson et al., 2015; Stephan et al., 2007). The goal of Moving On! is to prevent dramatic declines in physical activity at the end of an athletic career, which has important identity, self-worth, and health-related consequences (Kerr et al., 2014; Simon & Docherty, 2014; Stephan et al., 2007; Witkowski & Spangenberg, 2008). A longitudinal fully-powered randomized controlled trial is needed to evaluate whether student-athletes who participate in transitional programming experience less severe declines in their physical activity after college compared to those who do not.

See Table 6 for means and effect sizes at pre-, post-test, and follow-up

Table 6. Mean Changes from Pre-Test to Post-Test to Follow-Up among DI participants (N=5)

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Pre-Test M</th>
<th>Post-Test M</th>
<th>Effect Size*</th>
<th>Description</th>
<th>Follow-Up M</th>
<th>Effect Size*</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentions for Future</td>
<td>6.00</td>
<td>6.40</td>
<td>0.38</td>
<td>Small/Mod. (+)</td>
<td>6.80</td>
<td>1.00</td>
<td>Large (+)</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>3.96</td>
<td>3.44</td>
<td>0.53</td>
<td>Moderate (-)</td>
<td>3.28</td>
<td>0.74</td>
<td>Mod./Large (-)</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>69.80</td>
<td>41.00</td>
<td>1.05</td>
<td>Large (-)</td>
<td>38.20</td>
<td>1.31</td>
<td>Large (-)</td>
</tr>
</tbody>
</table>

*Effect sizes reflect changes from baseline (pre-test)

Focus Group Interviews. During Moving On! participants learned to redefine physical activity as something that could be fun, enjoyable, and health-enhancing. They also developed lifestyle physical activity-related goals and plans for accomplishing those goals. According to participants’ comments, these lessons and activities resulted in improved self-efficacy and increased intentions to pursue health-related physical activity during and following their transition. Participants provided the following explanations for how Moving On! prepared them to be physically active in the future:

It’s changed my mindset from going, "Oh, I’m gonna have to fit in an hour of like free weights and running on the track," to "Oh, I could literally do a Zumba class for 30 minutes, like three times- three to five times a week.

It’s like we were helped to set goals and to try to achieve them in our future and short term.

Like with setting goals...like you set the long-term and then set the three short term to reach the one—that was really helpful for me. ‘Cause like I know I have goals but I’ve never set down and put like what I have to do to get there.

Summary of Findings

Overall, feedback from former student-athletes, athletics department administrators, and program participants suggest that Moving On! is a valuable and effective program for cultivating a healthy transition out of collegiate sports. Despite participating in different formats of the Moving On! program, both DI and DIII participant groups reported having a positive and productive experience. One DI student-athlete commented, “We enjoyed it! So definitely if you have it again... that'll be great and fun to look forward to.” Similarly, a DIII student-athlete
noted, “Ya’ll covered everything that was possible to cover. I mean how can you make this easier?” The positive responses by student-athlete participants in both groups are notable given that the two groups experienced different formats of the *Moving On!* program. Their shared praise of the program indicates that *Moving On!* is modifiable and can be adapted to meet the needs of individual institutions while still providing valuable resources to student-athlete participants. Given the success and positive reception of our pilot program, we plan to continue and expand the program. Incorporating additional complementary material (i.e., a nutritional component) to the *Moving On!* program will be a priority in our continued development of transitional resources for NCAA student-athletes. After further development and optimization of *Moving On!*, a formal evaluation with a larger sample of student-athletes is needed to determine the full impact of the program on student-athlete well-being.

**Implications for Campus-Level Programming**

Retirement from sports after college is inevitable for most NCAA student-athletes, but programs do not typically promote physical activity and health behaviors for student-athletes beyond their collegiate career. The *Moving On!* program promotes the NCAA Division I Manual’s Principle 2.2, “The Principle of Student-Athlete Well-Being,” which mandates that: “Intercollegiate athletics programs shall be conducted in a manner designed to protect and enhance the physical and educational well-being of student athletes” (p.2). NCAA institutions can fulfill their commitment to the holistic development of student-athletes by implementing educational programming and incorporating specific strategies to promote lifelong physical activity and well-being among student-athletes. *Moving On!* directly meets this need by providing student-athletes with education and evidence-based cognitive-behavioral strategies to promote and maintain physical activity for healthy living. Following the pilot implementation, evaluation, and revision of this program, a facilitator guide and student-athlete workbook were developed so that administrators at other NCAA institutions can be trained to facilitate *Moving On!* on their campus (see Figure 2). These resources help program participants and leaders progress through *Moving On!* content and activities. The development and packaging of the student-athlete workbook and facilitator guide help ensure the sustainability and wider reach of the program so that it may be adopted and adapted for use at a range of NCAA member institutions.

*Figure 2. Moving On! Facilitator Guidebook and Student-Athlete Workbook*
References


Livos, Alfermann, Statler, & Cote, 2009; Taylor & Ogilvie, 1994).


