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Research article

Impact of Sport Context and Support on the Use of a Self-Report Measure for Athlete Monitoring

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Abstract
Athlete self-report measures (ASRM) are a popular method of athlete monitoring in high-performance sports. With increasing recognition and accessibility, ASRM may potentially be utilized by athletes from diverse sport contexts. The purpose of the present study was to improve understanding of ASRM implementation across different sport contexts by observing uptake and compliance of a newly implemented ASRM over 16 weeks, and investigating the perceived roles and factors influencing implementation. Athletes (n=131) completed an electronic survey at baseline and week 16 on their perceptions and experiences with ASRM implementation respectively. Despite initial interest, only 70 athletes attempted to use the ASRM. Of these athletes, team sport athletes who were supported by their coach or sports program to use the ASRM were most compliant ($p < 0.001$) with a mean compliance of 84 ± 21 %. Compliance for self-directed individual and team sport athletes was 28 ± 40 % and 8 ± 18 % respectively. Self-directed athletes were motivated to monitor themselves, and rated desired content and minimal burden as key factors for initial and ongoing compliance. Supported athletes were primarily motivated to comply for the benefit of their coach or sports program rather than themselves, however rated data output as a key factor for their continued use. Factors of the measure outweighed those of the social environment regardless of sport context, however the influence of social environmental factors should not be discounted. The findings of the present study demonstrate the impact of sport context on the implementation of an ASRM and the need to tailor implementation strategies accordingly.

Key words: Training diary, questionnaire, well-being, compliance.

Introduction

Athlete self-report measures (ASRM) are a simple and inexpensive approach to monitoring athlete's perceived physical and psychological wellbeing (Halson, 2014). This information is purported to mitigate the risk of overtraining (Kellmann, 2010; Meeusen et al., 2013) injury (Andersen and Williams, 1999), and illness (Zorrilla et al., 2001). The widespread use of these measures is indisputable, with 84% of surveyed high-performance sports in Australia and New Zealand incorporating a self-report measure as part of their monitoring strategy (Taylor et al., 2012). The popularity of ASRM has likely since increased further with the use of these measures by professional clubs being broadcast in the media, and the growing market of ASRM software providers. The increased accessibility of ASRM means they may also be adopted by athletes of lower levels without the need for significant financial investment or staffing expertise.

Consistent with the literature, staff of high-performance sports perceive the role of ASRM as a means to detect and prevent undesired training outcomes (Taylor et al., 2012). These beneficial outcomes are intended to result from the process whereby athletes record data, after which staff review the data, add further context, and determine what actions are necessary (Saw et al., 2015b). However, this previous research is limited to the context of high-performance sports, where athletes are required to use an ASRM, and are supported to do so, by a coach or sports program. Athletes competing at lower-levels, or without the support of a coach or other support staff, may choose to use an ASRM for personal reasons which may differ from the roles previously identified. Furthermore, where an athlete does not have such support from staff, the athlete must interpret their own data and determine what actions are necessary. Consequently, the perceptions and requirements of an ASRM may vary substantially across athletes in different sport contexts.

A key determinant of the efficacy of ASRM implementation is whether or not an athlete actually uses the measure consistently across a training period. Use of an ASRM at the frequency in which the measure was intended is termed compliance hereafter. To encourage compliance, it is important to understand what factors influence use of an ASRM in different sport contexts. Factors which have been identified to influence compliance in high-performance settings relate to the particular measure and surrounding social environment (Durlak and DuPre, 2008; Saw et al., 2015a). The characteristics of the measure play a significant role in determining whether an athlete is willing to invest time and effort into completing their ASRM (Saw et al., 2015a). The time and effort required to complete a measure is determined by the design of the measure, including factors such as the utilization of technology, usability, and accessibility at any time and place. The particular questions presented also influence time and effort, in addition to the data quality and relevance to athletic preparation. Furthermore, the data obtained must present perceptible value to the athlete in order for them to be willing to sustain use (Bandura, 1991; Saw et al., 2015a).

Perceived relevance and value of an ASRM to athletic preparation are also influenced by the sport context of an athlete. In particular, the nature of their sport, participation level, and involvement of other athletes and staff, contribute to a social environment which may facilitate or

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impede ASRM implementation (Saw et al., 2015a). Athlete perceptions are influenced by their own experiences, in addition to the experiences of others either through direct tuition or observation (Bandura, 1991). The presence or absence of a coach, support staff and other athletes has the potential to influence athlete perceptions and ASRM implementation based on the leadership, support, and data management practices that are available (Ekegren et al., 2014; Saw et al., 2015a). Sport context may therefore influence the relative importance of factors of the social environment, compared to those of the measure, for ASRM implementation.

Previous research provides preliminary insight into the implementation of ASRM (Saw et al., 2015a; Saw et al., 2015b). However, the findings are limited to higher-level athletes who are well-supported in their preparation. The increased accessibility of ASRM means they may potentially be utilized by athletes from recreational to professional levels, and by athletes who do so on their own accord or with support from others. Therefore, to encourage ASRM compliance in different sport contexts, implementation strategies may need to be tailored accordingly. The purpose of the present study was to improve understanding of ASRM implementation across athletes of different sports, participation levels, and support. The first aim was to observe the uptake and compliance of a newly implemented ASRM. The second aim was to build upon previous research by investigating the perceived role of an ASRM, and the importance of factors of the measure and social environment on ASRM implementation.

Methods

Participants

The study procedures were approved by the institutional human ethics advisory group, including participation by self-consenting athletes aged 16-18. Athletes received written information regarding the study procedures, including assurance of anonymity and independence of the research from the ASRM provider, prior to providing informed consent.

Athletes volunteered to participate in response to an advertisement distributed by their sporting club or organization, by one of two scenarios. The first scenario involved sporting organizations who were new clients of the ASRM provider, whereby athletes were supported by their coach or other staff to use an ASRM tailored to their sport (termed “supported”). In the second scenario, there was no pre-existing arrangement and athletes were offered free access to a generic version of the ASRM for 16 weeks to use as they pleased (termed “self-directed”). Of the 393 athletes who agreed to participate, 131 completed the survey at week 16 (33% response rate (36% of supported, and 32% of self-directed athletes)) and are included in analyses (Table 1).

Athlete self-report measure

The ASRM provided to all athletes (Metrifit, Health and Sport Technologies Ltd., Greenore, Ireland) was web-based with mobile device compatibility. The comprehensive measure enabled monitoring of training details including evaluation of perceived exertion and performance, and also a specific area for rehabilitation exercises. Wellbeing measures of mood state, sleep quality, sleep duration, energy levels, muscle readiness, and appetite were rated on 5-point sliding scales, with additional areas to record resting heart rate, body weight and details of any injury or illness. Training and wellbeing measures were intended to be completed on a daily basis. The program also enabled recording of nutrition, competition and fitness test details, goal setting and training planning. Operational features included optional automated reminders to prompt compliance, and generation of reports with graphs. Athletes received generic instruction on how to use the program and could utilize the online support feature. The researchers did not provide any instruction to athletes regarding the use of the ASRM.

Procedures

The present study employed a naturalistic approach to observe the uptake and usage of an ASRM over 16 weeks. Uptake and compliance statistics were recorded by the ASRM software. Athletes completed electronic surveys (QuestionPro Inc., Seattle, WA) at baseline and week 16 which were designed specifically for the present study.

The baseline survey sought demographic information including gender, date of birth, sport and participation level. Athletes reported their participation level for their primary sport as recreational, competing at a club or regional level, or competing at a national or international level. Athletes also provided details of any previous ASRM experience, and rated how essential an ASRM was to them, and how likely they were to use an ASRM (five-point Likert scales).

Table 1. Athlete self-report measure (ASRM).

		All (n = 131)	Individual sport self-directed (n=83)	Team sport self-directed (n=19)	Team sport supported (n=26)
Gender	**Male**	82 (63%)	49 (59%)	11 (58%)	21 (81%)
	Female	49 (37%)	34 (41%)	8 (42%)	5 (19%)
Age (years)	**Mean ± SD**	32.9 ± 14.6	38.5 ± 14.0	28.9 ± 13.8	23.5 ± 1.1
	Range	16-73	17-73	16-71	17-22
Participation level	**Recreational**	25 (19%)	23 (28%)	2 (10%)	0
	Club-Regional	79 (60%)	48 (58%)	10 (53%)	21 (81%)
	National-International	24 (18%)	12 (14%)	7 (37%)	5 (19%)
Previous experience	**ASRM**	11 (8%)	7 (8%)	4 (21%)	0
	Training record	75 (57%)	59 (71%)	7 (37%)	9 (34%)
	None	40 (31%)	17 (21%)	8 (42%)	15 (58%)
	Unspecified	5 (4%)	0	0	2 (8%)

The survey at week 16 invited athletes to reflect on their experiences of using the ASRM. As the purpose of the present study was not to evaluate a particular ASRM, but rather investigate ASRM implementation in general, athletes with previous ASRM experience were encouraged to consider these experiences in their response. Initial questions asked athletes to rate whether they were motivated to use an ASRM to monitor themselves, or for the benefit of others. The survey was then presented as four sections: why and how athletes use an ASRM (19 items), factors of the measure which influence ASRM implementation (17 items), factors of the social environment which influence ASRM implementation (9 items), and ranking the barriers to ASRM use (8 items). In the first section, athletes rated statements on the perceived roles of an ASRM on a five-point Likert scale (does not correspond at all to corresponds exactly). Each statement reflected a previously identified theme which are described in detail by Saw et al. (2015b). Briefly, these themes were: record (recording of training, related practices, wellbeing, and doing so over the long-term); review (evaluating progress, identifying potential problems, and understanding individual responses to training); contextualize (combining data with previous knowledge and other data, communicating with others, and determining how to act); and act (feedback to the athlete and coach, indicating whether to adjust training or seek further assistance, and assisting with the optimization of practices and avoidance of negative outcomes). The following two sections sought to identify the importance of previously identified factors of the measure and social environment (Saw et al., 2015a), rated on a five-point Likert scale (not at all important to very important). Factors of the measure were: design (mode, accessibility, compatibility, and interface); content (questions and scales); time (time burden and timing of completion); and output (data output and analysis). Factors of the social environment were: athlete buy-in (education, feedback and familiarity); others buy-in (coach and support staff, key personnel, and peer influence); and assurance (reminders, reinforcement and data security). In the final section, factors of the measure (design, content, time, output) and social environment (athlete buy-in, others buy-in, assurance), along with disengagement from sport (e.g., injury, end of season), were ranked from most-likely (1) to least-likely (8) to interfere with compliance. A not applicable option was available for the first three sections. All sections also included an optional open text field which invited athletes to provide additional roles, influencing factors and comments applicable to the particular section.

Statistical analyses

Athletes were grouped by participation level, whether they participated in an individual or team sport, and whether they used an ASRM on their own accord or under the direction of their coach or sports program. Compliance at weeks 4, 8, 12 and 16 were calculated as the percentage of the number of entries over the preceding 28 days. Median scores were calculated for each theme. Analysis of variance for each theme were performed between independent athlete subgroups using the Kruskal-Wallis (participation levels of individual sport athletes) and Mann-Whitney U (individual and team sport athletes; self-directed and supported team sport athletes) tests in SPSS (Version 22.0. Armonk, NY: IBM Corp.). Statistical significance was set at $p < 0.05$. Repeated Wilcoxon Signed Rank Tests were used to determine the relative orders of themes. Bonferroni adjustments were used to set statistical significance at $p < 0.008$ for perceived roles of ASRM and factors of the measure, $p < 0.017$ for factors of the social environment, and $p < 0.002$ for ranking the factors of the measure and social environment. Additional comments provided by athletes were analyzed for emergent themes by coding and grouping themes using an iterative process. Only themes which offered novel insight beyond those already identified and rated were included.

Results

Athlete perceptions of ASRM at baseline varied greatly, with athletes rating an ASRM as essential to not at all essential to them, and that they were very likely to very unlikely to use an ASRM. Median ratings for all athletes centered on the middle impartial response option, however differences were noted between sport contexts. Individual sport athletes responded that they were more likely to use an ASRM compared to team sport athletes ($p = 0.001$). Individual sport athletes distinguished themselves from team sport athletes by being more motivated to monitor themselves ($p < 0.001$) and less motivated to use an ASRM for the benefit of a coach or other staff ($p < 0.001$). Within the team sport athletes, those who were self-directed similarly distinguished themselves from those who were supported by being more motivated to monitor themselves ($p = 0.019$) and less motivated to use an ASRM for the benefit of a coach or other staff ($p < 0.001$).

Uptake and compliance

Uptake across the 131 athletes was 53%, with 15 athletes (11%) choosing not to create an ASRM account, and a further 46 (35%) creating an account but not attempting to use the ASRM. Uptake across all self-directed athletes was approximately 50%, compared to an uptake of 80% amongst supported athletes. There was no difference in baseline perceptions of how essential an ASRM was and how likely an athlete was to use an ASRM between athletes who did and did not attempt to use the ASRM. However, between self-directed and supported athletes who did attempt to use the ASRM, self-directed athletes tended to perceive an ASRM as more essential ($p = 0.059$), and reported that they were more likely to use the ASRM ($p = 0.001$).

For the 70 athletes who attempted to use the ASRM, compliance was highly variable, with a mean and standard deviation of 42.5 ± 43.5% across all time points (Figure 1). Individual sport athletes experienced a drop in compliance at week 16 ($p = 0.015$), particularly amongst the recreational athletes ($p = 0.007$). Team sport athletes were more compliant than individual sport athletes at all-time points (week 4 $p = 0.043$, week 8 $p = 0.001$, weeks 12 and 16 $p < 0.001$). Within team sport athletes,

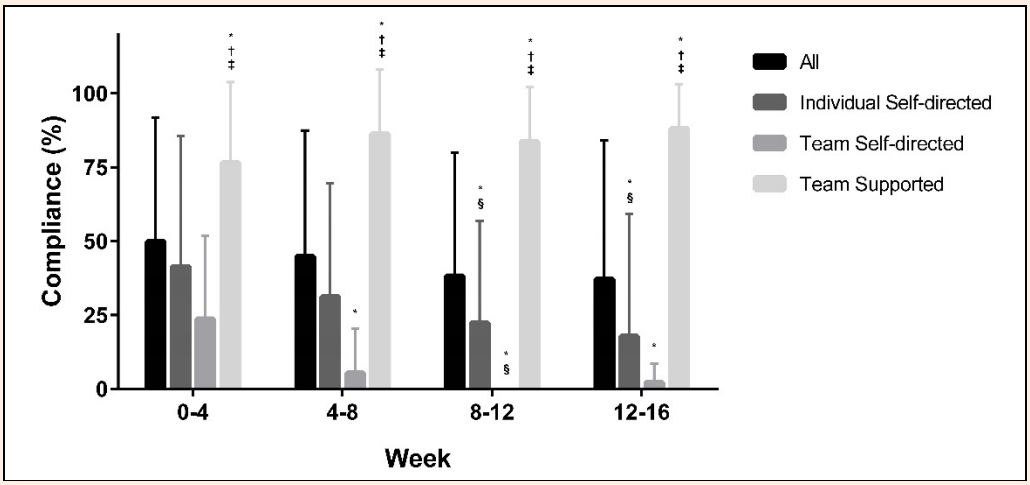

Figure 1. Compliant use of an athlete self-report measure over 16 weeks for all athletes who attempted use (n = 70), individual sport self-directed athletes (n=41), team sport self-directed athletes (n = 8), and team sport supported athletes (n = 21). * difference compared to all athletes, † difference compared to individual self-directed athletes, ‡ difference compared to team sport self-directed athletes, § less than at week 4 ($p < 0.05$). Data presented as mean ± SD.

supported athletes were more compliant than self-directed athletes at all-time points ($p < 0.001$), with a mean compliance of 83.6 ± 21.2%.

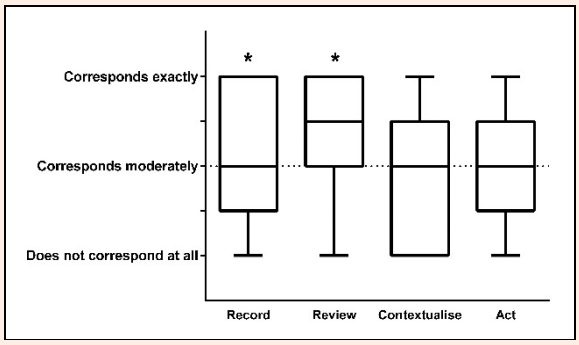

Figure 2. Box and whisker plot for the perceived role of an athlete self-report measure across all athletes (n = 131). * corresponds more for individual compared to team sport athletes ($p < 0.05$).

Perceived roles

The roles of an ASRM which best corresponded to the perceptions of athletes were primarily to review data, followed by recording and acting upon data, with contextualizing data corresponding the least (Figure 2). Individual sport athletes rated recording ($p = 0.035$) and reviewing ($p = 0.030$) data higher than team sport athletes. Within individual sport athletes, there were no difference in ratings across participation levels. Similarly, there was no difference between self-directed and supported team sport athletes, however a tendency for supported athletes to rate contextualization higher approached significance ($p = 0.058$). Other roles nominated by athletes included goal setting, and using the measure as a checklist of goal behaviors and achievements. Four athletes also commented in their free text responses that ASRM use had psychological benefits such as increasing motivation and helping to keep a positive mindset. Other athletes noted a sense of accountability, and desire to share or compare their efforts with others. Each of these additional roles were raised by athletes of different sports, levels and settings without apparent pattern.

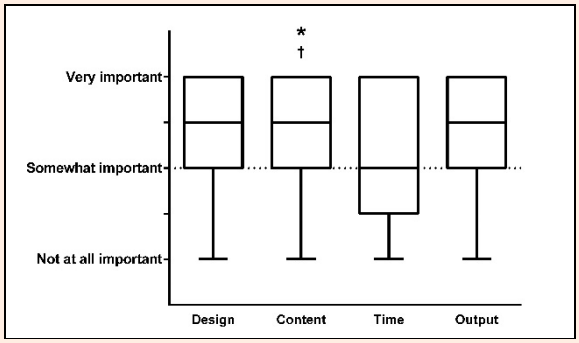

Figure 3. Box and whisker plot for the importance of factors related to the measure across all athletes (n = 131). * more important for individual compared to team sport athletes, † more important for self-directed compared to supported athletes ($p < 0.05$).

Influencing factors

In regards to factors of the measure, design and content were most important across all athletes, followed by output, with time required to complete the measure the least important (Figure 3). Content was more important for individual compared to team sport athletes ($p = 0.003$), and also for self-directed over supported team sport athletes ($p < 0.001$). Within individual sport athletes, there were no differences in ratings between athletes of different participation levels. Several athletes objected to manual data entry of training information which was already recorded on another device such as a heart rate or global positioning system data. One athlete commented that if this were automated, they would be able to direct more time towards entering other information such as their

wellbeing. Other desired features raised by individual sport athletes included the ability to enter any additional information, and to easily view and share data, potentially through the incorporation of social networking.

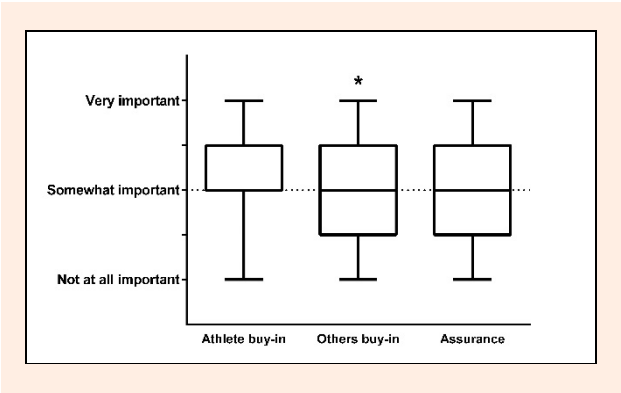

Figure 4. Box and whisker plot for the importance of factors related to the social environment across all athletes (n = 131).
* more important for team sport compared to individual sport athletes ($p<0.05$).

In regards to social environmental factors, athlete buy-in was most important across all athletes (Figure 4). Team sport athletes rated buy-in of others higher than individual sport athletes ($p = 0.007$). There was no difference between individual sport athletes of different participation levels, nor between self-directed and supported team sport athletes. However, a trend for self-directed athletes to rate athlete buy-in higher approached significance ($p = 0.053$).

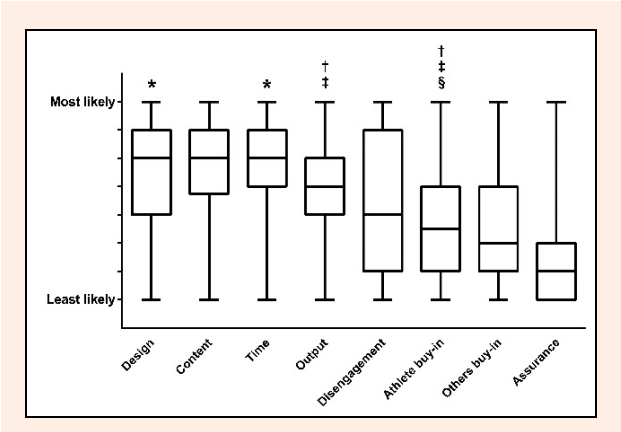

Figure 5. Box and whisker plot for the likelihood of factors to interfere with compliance across all athletes (n = 131).
* more likely to interfere for individual compared to team sport athletes, † more likely to interfere for team sport compared to individual athletes, ‡ more likely to interfere for supported compared to self-directed athletes, § more likely to interfere for recreational compared to higher-level athletes ($p < 0.05$).

Factors of the measure were more likely than those of the social environment to interfere with compliant and accurate ASRM completion (Figure 5). Time, design, content and output all ranked highly, of which only time was significantly higher than output. Disengagement from sport was the next most likely factor, followed by the buy-in of athletes and others, with assurance ranked lowest. Individual sport athletes placed a greater emphasis on the design ($p = 0.006$) and time burden ($p = 0.022$) of the measure compared to team sport athletes, whilst team sport athletes placed more emphasis on output ($p = 0.014$) and athlete buy-in ($p = 0.003$). Compared to self-directed athletes, supported athletes also emphasized output ($p = 0.001$) and athlete buy-in ($p = 0.040$). Athlete buy-in received greater emphasis from recreational compared to higher-level athletes ($p = 0.045$). Other barriers raised in the free-text comments included technical difficulties, and being too arduous to set up in the first place, particularly for self-directed athletes. Some athletes preferred to maintain use of established methods for familiarity or data continuity, whilst others were keen to adopt the latest technology and software.

Discussion

Self-report measures are an accessible tool with potential to benefit athletic preparation and performance, provided athletes are compliant users (Coutts and Cormack, 2014; Halson, 2014; Meeusen et al., 2013). The present study aimed to characterize the uptake and compliance of a newly implemented ASRM, and investigate how perceptions and factors influencing ASRM implementation may differ across sport contexts. The interest in ASRM was evident from initial recruitment. However, of those athletes who completed the study, uptake and compliance was poor for self-directed athletes, yet considerably higher for supported athletes. Participation in an individual or team sport, or at a higher or lower participation level had little apparent effect on uptake and compliance. Therefore, discussion will focus on implementation in self-directed and supported sport contexts.

The observed uptake and compliance with an ASRM may be explained using the theory of approach-avoidance conflict (Dollard and Miller, 1950). According to this theory, an athlete may pursue the appealing goal of using an ASRM to improve their athletic performance, yet as they approach this goal, the strength of unappealing factors increases (e.g., realization of the effort required). If the unappealing factors outweigh the appeal, the athlete will discontinue or revert in their approach. In the present study, both appealing and unappealing factors of ASRM implementation were investigated. The presence and relative importance of these factors were notably different between self-directed and supported sport contexts.

For self-directed athletes, the appeal of improved training management must be balanced against the effort required to not only record data, but also to interpret and act upon the data. To comply with an ASRM, self-directed athletes must be intrinsically motivated, and gain pleasure from exploring and potentially learning something new from the process (Pelletier et al., 1995). Therefore, the content of an ASRM was rated as particularly important for these athletes. Self-directed athletes reported that they wanted a measure which could be customized to accommodate any data which they felt was relevant to their preparation, and not be burdened by input they felt was irrelevant. The effort dictated by the design and time burden of the ASRM became more important for sus-

tained use. This agrees with the experiences of the general population, whereby self-directed users of mobile health and fitness applications rated time and difficulty as the top reasons to discontinue use (Mobiquity, 2014). Therefore, a measure should seek to maximize interest and minimize burden to gain initial and ongoing compliance from self-directed athletes.

For supported athletes, the burden of completing an ASRM is more likely to be outweighed by the appeal of using an ASRM, such as improved communication with staff, coordinated training management, and ultimately improved performance (Saw et al., 2015b). In some supported settings, the appeal may also relate to avoiding negative consequences of non-compliance (Saw et al., 2015a). In light of a lack of intrinsic motivation, buy-in and data output were less important to initiate ASRM use. However, these factors became more important to sustain use. Athlete buy-in may inherently develop with ongoing use as athletes start to appreciate the importance to their preparation (Berglund and Safstrom, 1994). The provision of data output, including feedback from staff, may also serve to facilitate buy-in (Saw et al., 2015a). The buy-in of others, in particular the coach and other influential personnel of a sports program, is therefore necessary to encourage initial use and provide feedback to foster the development of buy-in amongst supported athletes.

Another key consideration for supported athletes is that their data is accessible by their coach and potentially several other staff involved in a sports program. Previous research amongst supported elite athletes has highlighted concerns of who had access to their data, and implications of how they may be perceived and compared against other athletes (Saw et al., 2015a). Yet surprisingly, supported athletes in the present study were no more concerned than self-directed athletes about assurance of data being secure and not misused. The apparent lack of particular concern of assurance amongst supported athletes in the present study may simply reflect a lower relative importance compared to the other factors of the measure and social environment. Alternatively, a positive social environment may have abated any need for concern, with athletes not considering or being aware of any potential misuse of data in the first 16 weeks of use.

Potential issues with the security of data also extend to all ASRM users, with the use of online ASRM introducing additional data security issues including possible exploitation by external parties (Lupton, 2014). Privacy concerns have been identified as a key barrier to the use of mobile health and fitness applications by the general population (Mobiquity, 2014). Yet across all athletes in the present study, such concerns were ranked as least likely to interfere with ASRM use. Regardless of whether this response reflects a lack of concern or a lack of awareness by athletes, this important aspect deserves due consideration by ASRM software providers.

A further consideration for ASRM software providers is the content of an ASRM. The present study demonstrated self-directed athletes desired an ASRM which is customizable to their sport, interests and intended purpose. This preference has also been noted amongst high-level sports programs (Gastin et al., 2013; Kavaliauskas, 2010; Taylor et al., 2012). Whilst sports programs have the benefit of staff with experience and expertise to guide customization, such an approach may be at the expense of validity and reliability. Customization may also disrupt data continuity and applicability to improving knowledge and practice. Therefore, careful consideration is required by ASRM providers to determine the extent to which their software enables customization, and by ASRM users before proceeding with such customization. Further research into the content of ASRM for applied practice is also necessary.

Athletes also expressed a desire for an ASRM to be compatible with other sources of athlete monitoring data. This is consistent with recommendations that ASRM be employed alongside more traditional monitoring such as training, performance and physiological measures (Coutts and Cormack, 2014; Halson, 2014; Kellmann, 2010; Twist and Highton, 2013). Recent advances in consumer technology present additional data sources which athletes may employ such as wearable devices (e.g., sleep/activity monitor, heart rate monitor, global positioning system device) and mobile health and fitness applications. Furthermore, supported athletes may also have data inputted by their coach and other support staff as part of an integrated approach to athletic preparation (Verhagen and Bolling, 2015). Therefore it is recommended that ASRM enable collation and analysis of athlete monitoring data from multiple sources to provide a more comprehensive overview of an athlete's preparation.

A strength of this research is the diverse athlete sample and naturalistic observation approach. However a low response rate to the survey after 16 weeks may have introduced a sampling bias, perhaps favoring those who were either engaged with the ASRM provided, or had particularly strong views as to why they chose not to. Nevertheless, the survey sought athlete's experiences with ASRM, which were not exclusive to the ASRM provided, and demonstrated key considerations for ASRM implementation.

Practical implications

The findings of the present study have practical implications for providers of ASRM software, and coaches or sports programs who wish to implement an ASRM amongst their athletes. Providers of ASRM software should consider the requirements of their target market. An ASRM targeted to individual athletes to enable self-monitoring should be tailored, or enable customization, to be specific to an athlete's sport so that the content is highly relevant. Attention to detail is necessary to minimize the time and effort required of athletes to input data. This may include automation and linking with data from another source. Similarly, data output should be simple yet meet the different needs of athletes, whether it be an uncomplicated overview for interest, or enable more in-depth analysis. For an ASRM targeted to a sports program, data output should meet the needs of the staff, however data output for the athlete should not be overlooked.

For coaches or sports programs implementing an ASRM, social-environmental factors should be addressed

such that athletes and staff understand and buy-in to the process in order to foster ongoing use. In these settings, it is also important that athletes are assured that their data will not be mishandled. An environment which supports compliant completion by athletes over the long-term presents the greatest potential benefit to athlete preparation for both the individual and sports program.

Conclusion

The present study illustrates the intricacies of achieving compliant use of an ASRM. Athlete perceptions and experiences with ASRM are highly varied, yet there are some commonalities within sport contexts. Implementation should therefore be tailored to the sport context such that the appeal of using an ASRM is increased, and unappealing factors are minimized. In particular, ensuring the measure meets the needs of self-directed athletes with minimal burden, and that supported athletes perceive value from data output. However, these generalizations are made with caution, acknowledging the considerable individual variation across the sample and within each subgroup. It is important to determine the perceived role and importance of implementation factors of a particular athlete or group of athletes prior to implementation.

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Key points

- Athletes perceive ASRM and the factors influencing implementation differently. Therefore, to encourage compliance, it is important to tailor implementation strategies to the athlete and their sport context to increase appeal and minimize unappealing factors.
- Athletes using an ASRM on their own accord typically favor a measure which meets their needs and interests, with minimal burden.
- Athletes using an ASRM under the direction and support of their coach or sports program typically favor feedback and a positive social environment.

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