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Abstract

Although there is research providing physiologically-based guidance for the content of the taper, this study was the first to examine how coaches actually implement the taper. The purpose of this study was to examine the taper planning and implementation processes of successful Olympic coaches leading up to major competitions and how they learned about tapering. Seven track and field coaches participated in semi-structured interviews exploring their tapering processes. To be considered for inclusion, coaches were required to have coached one or more athletes to an Olympic or Paralympic medal. Through a process of axial and open coding interview transcripts were analysed and lower and higher order themes developed describing the coaches’ tapering processes. Our findings indicate that the strategies employed to achieve the desired physiological adaptations of the taper were consistent with research (e.g., reduction in volume whilst maintaining intensity and frequency). However, our findings also suggest that tapering is far from a straightforward ‘textbook’ process. The taper was not restricted to physiological outcomes with coaches considering athletes’ psychological as well as physical state. Coaches also involved the athlete in the process, adapted the taper to the athlete, continually monitored its progress, and adapted it further as required.

Keywords: coaching process, applied sport science, periodisation, psychological preparation
**Where science meets practice: Olympic coaches’ crafting of the tapering process**

**Introduction**

For many coaches and athletes, there is nothing higher on their wish list of accomplishments than to achieve the best performance at the most important competition of the year. Performance coaches and athletes around the world are seeking the optimal training load dose response with the aim of achieving top performances at major events. An important part of the process to achieve these performances is the systematic reduction in the athlete’s training load during several days prior to the competition. This period of reduced training is known as the taper (Bompa & Haff, 2009; Mujika & Padilla, 2003).

The science, strategy and programme design of tapering have been described in several texts (e.g., Mujika, 2009). Research has also examined the tapering process; using mathematical models (Sanchez, et al., 2013), modeling and simulations (Thomas, Mujika & Busso, 2008) and fundamental physiological training adaptations (Bompa & Haff, 2009; Mujika, 2009). This work almost exclusively focuses on methods to reduce training load and optimise physiological adaptations. It is also used extensively in sports science and coach education to inform how training programmes are designed. There has, however, been limited focus on how these theories are applied in the coaching world. Therefore, the purpose of this study was to examine the taper planning and implementation processes of successful Olympic coaches leading up to major competitions and how they learned and developed their tapering processes. This work is important because the understanding gained could inform sport science practitioners and coaches.

According to Lyle (2002), the coach’s role is to reduce the unpredictability of performance and this requires planned harmonisation of the contributory elements of the coaching process. The concept of periodisation was developed to assist coaches’ planning by
breaking down a year into phases (e.g., preparation, competition, taper) and cycles (Bompa, 1994; Matveyev, 1981). As a result, different kinds of work could be prioritised at specific periods to build and prepare an athlete to perform to their best at a designated competition (Bompa, 1994; Bosch & Klomp, 2001), whilst also minimising training problems such as staleness, overtraining, burnout, and injury (Kraemer & Bush, 1998; Wathen & Roll, 1994). The taper is part of this periodised programme of training. The purpose of the taper is to maximise the readiness to perform through a balance between reducing the cumulative effects of fatigue (Pyne, Mujika & Reily, 2009) and maintaining fitness (Sanchez et al., 2013). This is generally achieved through a reduction in the athlete’s training load prior to the competition (Bompa & Haff, 2009).

There has been substantial, largely laboratory-based, research interest into the taper with a number of reviews conducted examining the physiological (Bosquet, Montpetit, Arvisais, & Mujika, 2007; Houmard & Johns, 1994; Mujika, Padilla, Pyne, & Busso, 2004; Sanchez et al., 2013) and performance (Mujika & Padilla, 2003; Mujika et al., 2004) aspects of the taper. In their review, Bosquet and colleagues (2007) confirmed that performance improvement during the taper was more sensitive to reductions in training volume than the manipulation of other training variables, such as training frequency or training intensity. Although the manipulation of training volume is understood by most coaches, many of them fear a potential loss of physical conditioning when training volume is markedly reduced (Pyne et al., 2009), causing a de-training effect (Bompa & Haff, 2009). Many coaches still question how to manipulate the key elements of the taper; type, frequency, duration, and intensity of training, to enhance or optimise performance for a predetermined day (Pyne, et al., 2009). It is perhaps not surprising that this question remains when we consider that, although much of the research examining the taper is based on principles of physiological
responses to training adaptations, there has been little examination of how the taper has been applied by coaches as they prepare athletes for competition.

The current study aimed to begin to bridge the gap between the science and practice (coaching) of tapering. To do so, a more detailed examination of coaching practice in relation to tapering is needed. Coaching in a performance context is a complex, uncertain, and often ambiguous process (Jones & Wallace, 2005; Ritchie & Allen, 2015). It is “inextricably linked to both the constraints and opportunities of human interaction” (Potrac, Jones, & Armour, 2002, p. 184), and is best conceptualised and understood as a series of inter-related and interconnected relationships (Cushion, Armour & Jones, 2006; Lyle, 2002). Research in performance contexts demonstrates that coaches can impact athletes’ behaviour, cognitions and affective responses, and influence whether athletes achieve at a high level (Gould, Greenleaf, Dieffenbach, & McCann, 2001; Gould, Guinan, Greenleaf, Medbury, & Peterson, 1999; Lara-Bercial & Mallett 2016; Ritchie & Allen, 2015). Furthermore, coaches’ perceptions of the factors that enable them to coach effectively in a stressful Olympic environment include the ability to focus on the needs of the individual athlete and adapt their coaching practice according to the individual athlete’s progress and responses (Olusoga, Maynard, Hays & Butt, 2012; Ritchie & Allen, 2015).

The purpose of this study was to extend our understanding of tapering and coaching practice in preparation for a major competition in performance contexts by examining how successful Olympic and Paralympic coaches plan and implement the taper. In doing so, the study extends our understanding of how the science of tapering is used in real world settings. In addition, understanding the factors that influence the implementation and effectiveness of the taper will assist athletes, coaches, sports science practitioners and researchers in their efforts to optimise performance.

Method
Participants

Seven male track and field coaches (e.g., jumps, sprints, and combined disciplines) from the United Kingdom volunteered to participate in the study. They ranged from 47 – 73 years of age. To be considered for inclusion in the study, and to ensure the credibility of the data emerging from the interviews, coaches were required to have coached one or more athletes to an Olympic or Paralympic medal (10 gold, 6 silver, 2 bronze). All the coaches had attended between one and ten Olympic or Paralympic Games and between them amassed over 30 Olympic and Paralympic coaching appearances. The participants had been coaching for between 22 and 52 years (average 31 years).

Procedure

Following university ethical approval and in accordance with the university’s ethical procedures for research, initial contact was made through email or a telephone call to each of the participants. The aims of the study and the expected commitment was explained. All the coaches agreed to participate in the study. The participants were assured that their comments would remain anonymous and treated confidentially. Convenient dates and times for the interviews were then agreed. All interviews were conducted by the first researcher. Interviews were carried out either face to face, through Skype or over the telephone. Each interview lasted between 40 and 60 minutes and was digitally audio recorded.

Data Collection

The views of the participants were gathered through semi-structured interviews. Based on existing coach development literature (e.g., Gilbert, Cote´, & Mallett, 2006), a semi-structured interview guide was developed. This contained four sections and ensured that all participants were asked the same set of major questions. Participants were also encouraged to elaborate on their responses. The natural flow of conversation directed the discussion and explored participants’ unique experiences in greater depth (Patton, 2002). If needed, sub-
questions were used to elicit in-depth information and to ensure that participants had discussed everything they felt relevant before they were moved on to the next section (Patton, 2002). Participants were also given the opportunity to add anything they felt was relevant and that was not discussed during the preceding interview sections.

The interview guide was divided into four main sections and participants were reminded to focus on their Olympic and Paralympic experiences throughout. The first involved introductory questions about their experience and background, and encouraged participants to talk descriptively (Patton, 2002). The second part of the interview looked at the participants’ design and the content of their taper, and the factors taken into consideration when implementing their taper (e.g., what does your tapering process look like? How long is the process? Is there a set pattern, or is the process highly contingent, and why?). The third part of the interview looked at how each of the participants have developed their taper (e.g., how have you developed this process? What are the challenges you have experienced during the tapering process, and how have you overcome these?). This was followed by questions that looked at the participants’ tapering process development (e.g., has anyone or anything specifically helped you develop the tapering process?).

**Data analysis**

The recorded interviews were transcribed verbatim. In keeping with recognised content analysis procedures (Patton, 2002), the first two researchers, independently familiarised themselves with the transcripts by reading the interview text several times and generated initial meaning units by identifying phrases and comments relevant to the purpose of the study. The analysis was both deductive and inductive using axial and open coding (Patton, 2002). The analysis was deductive in that the overall areas of the study were delineated by the literature and interview guide (e.g., taper content, implementation process). Axial coding was used to find evidence of the coaches’ tapering process. Inductive analysis
and open coding were used to analyse features of the complex and dynamic process.

Following initial coding of the data, preliminary lower order themes were developed. The themes were then discussed between the two researchers and consensus reached on the names of the higher order themes and names as well as appropriate placement of lower order themes. The third researcher acted in the role of ‘critical friend’ in the final phase of analysis to achieve triangular consensus (Faulkner & Biddle, 2002). The third researcher was not involved with the data collection or initial analysis of data. His role was to confirm, or otherwise, the placement of data into higher order themes.

**Results**

As a result of the analysis of the coaches’ discussion of their tapering process four higher order themes were developed, each comprising a number of lower order themes. The higher order themes were: planned taper (length, load, technical input); crafting the process (how the taper was implemented and adapted); challenges (factors that coaches perceived to affect the effectiveness of the taper); and developmental experiences (e.g., how the coaches had learned and developed their practice of tapering). In Figure 1, an overview of the themes is provided along with the frequency of coaches’ responses (cited next to each higher-order and lower-order theme) and meaning units are presented to provide further context to the lower-order themes. While the frequency of coaches’ responses does not equate to the importance of the theme, it has been suggested that the most cited themes are more likely to be transferable to other coaches and their tapering process (Weinberg, Butt, & Knight, 2001). In the subsections below all higher-order themes are discussed, with the most cited lower-order themes explored in detail. In addition, descriptive quotes are used to illustrate the themes so that the reader can understand the context of the data (McKenna & Mutrie, 2003). To protect the confidentiality of the coaches, they were assigned a code (i.e., Coach A, Coach B, etc.).
**Planned taper**

This theme represented the planned content of the taper. It comprised four lower-order themes: taper length (e.g. the period of time identified by the coach for final preparation into the major competition), loading (e.g. coaches’ strategies for manipulation of volumes, intensities and training frequency), technical input (e.g. the level of technical focus during the taper), and psychological preparation (e.g., supporting athletes’ mental preparation).

*Taper length.* The coaches identified different lengths of the tapering process ranging from 7 to 21 days. For example, Coach D explained, “in planning to do well at a major championships then I tend to like a two week clear period of no competition before they compete at the world championships”. Coach C commented, “so we normally work between 7-10 days.”

*Loading.* Coaches described the manipulation of loading that helped the athlete physically prepare for the major championships. To achieve a successful taper, the coaches all considered manipulating the training volume, frequency and intensity. Volume was the most cited factor that was manipulated during the taper, specifically, the reduction of training volume. For example Coach C described: “I like to keep the frequency of training the same, the intensity definitely stays, the volume is reduced greatly.”

*Technical input.* This lower-order theme represented responses from coaches explaining technical considerations during the taper and comprised three meaning units: quantity (e.g. number of coaching points); quality (e.g. complexity of technical points, and execution); and contingent (e.g. variable technical focus based on the coach’s emphasis at that time). One of the most frequently cited meaning units highlighted the importance considering carefully how much technical information was being provided at this time. Specifically, coaches explained “that it was important to keep the number of technical points to a minimum because you don’t want to cloud them with too many things to think about”
(Coach G). Six coaches also emphasised the importance of not adding any new technical elements during this phase. Coach F explained:

> From a technical perspective, from late May, that’s it, I’m done tinkering. Whatever I’ve got, that’s what I’ve got. Which means we go into competition and I’m trying to get the jumper to work with what they have, as well as they can.

The quality of execution of the event was also important during this phase. Specifically, the coaches would look at the event as a whole, “practicing the skill itself in the right context rather than breaking the elements down” (Coach F). Coach C explained that they would keep the technical element very simple by “going back to basics, and take them back to what I call fundamentals.” Coach D discussed that any technical work carried out during the taper was, “more about rehearsal and refinement rather than being technical.”

**Psychological preparation.** The coaches explained that the training objectives of the taper were not only based on physiological responses. Psychological factors were also considered when planning the training content, suggesting that “a lot of tapering is about confidence” (Coach B). The coaches felt that the role of installing confidence in the athletes in the preparation for the major competition was vital for an effective taper. This was explained by Coach D who stated that, “as well as the physical tapering, there is the psychological tapering as well, if you like, which is about confidence giving.” The coaches described how mentally preparing athletes for the ‘big stage’ was a conscious role performed during the taper: “we have to get athletes where they are empowered and mentally strong, because when they are in the stadium they have to be strong mentally” (Coach C). Coach F explained that,

> I only say the right things that are positive in nature, I use evidence from training to bolster their confidence... I am using real life information that they can relate to. That would give them real confidence, rather than a superfluous thing.
Crafting the process

How the coaches implemented and adapted the tapering process comprised three lower-order themes: adaptations to planned content (e.g. factors that influenced the training content), monitoring the process (e.g. strategies employed by coaches to assess and manage the effectiveness of the taper), and athlete collaboration (e.g., input from athletes that influenced the taper). The importance of reflecting on and adapting the tapering process throughout was emphasised by all the coaches. For example, coaches described that whilst the outline of their training during the taper was scripted “with a set structure” (Coach G), in each session it was “highly contingent” (Coach A). Coaches explained that the content “tends to be a bit ad-hoc” (Coach D) and “very touchy feely” (Coach B) [dependent on the athlete’s responses during the taper]. Coach B explained further:

There is a formula to it, but it is not as prescriptive as that. There are 3 or 4 core sessions that I want to get in, and what I do a lot of is ask the athlete, what do you want to do, and it becomes that.

Adapting the planned content. This lower-order theme comprised responses from coaches identifying factors that influenced the training content of the taper and contained four meaning units: Athlete characteristics (e.g. based on the individual athlete); confidence building (e.g., use of specific sessions to boost confidence); prior preparation (e.g. the training carried out leading into the taper); and context (e.g. tapering for a major championship or the championship trials). The athlete’s characteristics was a key factor in deciding the content delivered during the tapering phase. For example, Coach C highlighted that the “specifics are quite individual for each athlete” and “it all depends on the type of athlete.” A common factor that influenced the taper was the athlete type. For example, Coach E explained:
I don’t have a set taper length, because it varies upon the individual. If we talk about 400m, there are two types of individual; this is the more speed based and one that’s strength based. With the strength based athlete, I would taper much closer to the championships, their volume of work will stay higher for longer, it should be around 7 days. Whereas with the speed based person who is neurally wired, it would be between 10 and 14 days.

One of the most cited considerations for the adapting the content of training sessions during the taper was the inclusion of confidence building sessions when needed. Coach E explained:

There will be certain sessions that the athlete feels they respond best to. Every athlete has a ‘go to’ session, if things aren’t going very well. So we have sessions where the athlete done particularly well, and in that window they PB’d [recorded a personal best time or distance]. So they can relate a session to a PB. The way I see it, tapering is about understanding the athlete. That for me counts for everything. Confidence is the big thing.

Six coaches felt that the preparation work in the build up to the taper was an important factor in deciding the content of the taper. For example Coach E explained the importance of the preparation phase: “Whether you start from 14, 10, 7 days out, it depends on what happened in the two months prior to that. I don’t think you can divorce the tapering from the preparation.”

Monitoring the process. This lower-order theme comprised strategies employed by coaches to assess and manage the effectiveness of the taper, enabling them to adapt the process during this phase. This theme contained five meaning units: performance outcome (e.g. the athletes’ performance on the day of competition), observation (e.g. the assessment of the athlete against the coach’s mental model), psychological state (e.g., provision or not of
feedback), performance analysis (e.g. the use of video analysis during the taper), and nutrition (e.g. the monitoring of the athlete’s body weight and hydration levels). The performance outcome of the athlete was the most frequently cited response to the monitoring of the tapering process. One coach of jumps athletes simply commented, “my monitoring process is height achieved” (Coach A). Closely connected to this was observation. Coaches described how they would assess the athlete against where they expected them to be, or against their technical model for that athlete. Coach F explained:

I could use omega waves, which tells you when you are in the best shape of your life. I haven’t got into that at all, I have relied upon what I see and what the athletes are doing throughout the process.

During the taper coaches paid attention to the athletes’ psychological state, including athlete’s confidence, carefully considering the timing and content of feedback, and ensuring both coach and athlete are realistic in the performance expectations. Coach B explained that, “you are dealing with human beings. And this is that art of coaching; when to say something and when to not.”

**Athlete collaboration.** This lower-order theme represented the extent to which the taper was a collaborative process between coach and athlete. There were three meaning units comprising this lower order theme: coach-athlete relationship (e.g., how they work together), athlete input (e.g., athlete’s preferences based on their own experiences, feedback from the athlete), and coach or athlete led (e.g. content was coach or athlete led).

The quality of the working relationship between coach and athlete, “how we interact with each other” (Coach E), was seen as critical for an effective tapering process. Coaches highlighted the importance of being “honest with the athletes and praising them when praise was due” and “being there for the athlete” (Coach G). It was also important that athletes had confidence in the coach and they worked together. Coach A explained that one of the reasons
their taper was not successful was because the athlete didn’t have any confidence in the coach
and the relationship broke down:

The athlete became less of a believer in subtlety, and more a believer of hard work, so
he wanted to go to the major champs feeling strong, and I wanted him to go to the
major champs feeling fresh. In the end the athlete did not perform at the major
championships, and that’s why our relationship ended.

Five coaches explained that the athlete was involved in deciding the content of the
taper. The level of athlete involvement varied with each coach but was usually based on the
experience of the athlete. For example Coach D described:

Beginner athletes going into the U20 European or World U20, if it’s their first time,
they will need a fair degree of direction and will rely on the coach’s expertise if the
coach has it. With an experienced athlete, going into the World Championships for
example, they will very much prescribe what programme they want to do and I’m a
helper in that programme, because they have been through it and they know what
works.

This input also extended to coaches’ value of feedback from the athlete during the
taper. Coach C explained that, “I think the athlete has to be empowered to give you
feedback.” However, again, this also depended on the athlete’s experience, with more
credence given to feedback from more experienced athletes compared with less experienced
athletes. For example, Coach D explained, “It depends on the experience of the athlete really
as to what feedback and advice you take.”

Challenges

This higher-order theme comprised factors that coaches perceived to have an impact
on the effectiveness of the taper. There were three lower-order themes: psychological (e.g.
psychological state of the athlete, coach or team staff), physical (e.g. athlete injury or the
training preparation leading into the taper), and external commitments (e.g. media or commercial and competition agents).

Psychological. The largest of the lower-order themes comprised responses describing the psychological factors that were the biggest challenge for coaches during the taper and were categorised into the following meaning units: psychological state (e.g. over/under confidence, coping with nervousness, athlete focused on other people, irrational behaviours of coaches, athletes, and team staff), environment (e.g. factors athletes and coaches are exposed to in the holding camp and village), and conflict (e.g. between coach and athlete, or with head coach).

One of the largest meaning units was the psychological state of athletes, coaches and team staff. All seven coaches identified the challenges of athletes obtaining and maintaining an optimal psychological state, including the effects of over and under confidence, “dealing with boredom” (Coach B), and maintaining a focus on the athlete’s own preparation. Coach A cited examples of both over and under confidence from two different athletes, and how this affected their performance:

I remember doing a session with [athlete 1], and he looked amazing. And he said after this time next week my life is going to be different. And it was a revelation, because he knew he was going to get an Olympic medal, he just didn’t know what colour. Now interestingly he messed it up. He was in a brilliant place mentally, too brilliant, he was too cocky. However with [athlete 2], he was lacking in confidence, and I saw him talking himself out of the competition leading into the Olympics. So the biggest issues are over confidence and under confidence.

Coach E explained the importance of staying focused on the athlete’s own preparation rather than what other athletes were doing. This was particularly important with younger athletes, or those preparing for the major championship for the first time:
The big danger is getting wrapped up in other people’s preparation, and that you see someone doing something and the athlete wants to join them. I have also witnessed athletes ‘performing’ in training in front of other athletes, specifically their competitors to try and psych them out. So the challenges during the taper are being surrounded by your opposition and not pumping up the volume.

The mental state of the coach could also be a challenge because it could affect how the coach behaved. Coach B explained that “I think you have got to look at yourself as a coach in that period of time at your own behaviours.” Coach B went on to further explain:

When you are in holding camps, there is a boredom factor, not only for the athlete, but for the coach as well. We can actually get on each other’s nerves, so you have to find some way to entertain yourself and keep yourself occupied. So for me, I tend to run a lot during holding camps and do training for myself and that helps burn off my excessive nervous energy. Because you get just as nervous as the athlete, I don’t care who you are.

The psychological state of the coach could also be affected by the environment of major events but the coach needed to maintain their composure. Coach E recognised being in the holding camp or village during the taper had the potential to affect their coaching and planning behaviours:

The environment where you train changes, the expectation of those around you changes, and as a coach to the athlete, you are trying to keep things as they were, and not change a thing. So it’s at that point the coach has to become a damn good actor, and hold their emotions within and let nothing out.

Physical. In this lower-order theme, coaches’ explained the importance of ‘work done’ leading into the taper and comprised three meaning units: preparation (e.g. the training carried out leading into the taper), injury (e.g. working with an athlete who is injured, or has
been injured), and coach contact (e.g. the personal coach being at practice with the athlete during the taper). Coaches all commented that one of the biggest challenges for coaches was the preparation training, “work done”, leading into the taper. Coach G explained, “you can’t taper from a taper.” This was in response to the challenge of preparing athletes for a major competition, soon after the championship trials. However if there was a sufficient period between the two events, Coach E explained, “If there is time and sufficient focus, we would go back for a bit of volume before starting to taper down again.” The preparation training was also affected by injuries. Coach G explained, “the only challenge I’ve come across is if the athlete picks up an injury or something, because now you can’t actually deliver your taper.”

**External commitments.** In this lower-order theme, coaches’ responses explained that external factors could have a negative impact on the effectiveness of the taper including media (e.g. press commitments in the final days leading into the main competition), partner (e.g. pressure from a significant other), and agents (e.g. commitments related to the athletes’ professional status). For example Coach E explained that, “if you work with a high profile athlete at the championships there is often a lot of media interest, and that can drain their central nervous system, and their emotions.”

**Developmental experiences**
This higher-order theme captured how coaches’ had learned to develop and improve the taper process. This theme included the following lower-order themes: experiential learning (e.g. trial and error and personal experience over the years), informal learning (e.g. talking to other coaches, mentoring, talking to athletes), educational material (e.g. reading books on planning, peaking, and tapering, developing knowledge of sciences). One of the most frequently cited responses that helped coaches to develop their taper process was learning through experience. Coach G explained that “over the years you change your approaches and methods”, and that “you kind of have to experiment.” Coach A described
development as “trial and error, but more like trial and analysis rather than error. So it’s more about evolution rather than revolution.” Other development sources included informal learning opportunities through interactions with other coaches and athletes. For example, Coach C emphasised that, “there are people that have made a big impact on how I’ve developed, and those are the people that I’ve coached, the information I got back is from those that I’ve coached.” Although Coach E commented, “certainly not through reading, more from talking to [experienced coaches]”, other coaches valued educational materials to develop a framework of the taper. Coach B explained that “you need to have knowledge and understanding on planning and tapering, I work in a way, where you read about literature tapering and stuff like that and you put that knowledge in place as a framework.”

Discussion

Much of our understanding of physiological processes, including tapering, comes from laboratory experiments and does not reflect real-world high-performance competition environments. Although there is research providing physiologically based guidance for the content of the taper (e.g., Bompa & Haff, 2009; Mujika, 2009), the current study is the first to examine coaches’ taper content and implementation process in preparation for performance competitions. The purpose of the study was to examine Olympic and Paralympic coaches’ planning and implementation of the tapering process leading up to major competitions and how they had learned to improve the process. Our findings suggest that tapering is far from being a straight forward ‘textbook’ process restricted to physiological outcomes. Rather, coaches took an integrated holistic approach involving the athlete in the planning process, individualising the taper, considering the impact of technical input, and considering athletes’ psychological as well as physical state. When implementing the taper they continually monitored its progress, involved the athlete, and adapted the taper further as required to optimise competition performance.
The taper is a period of time when the amounts of training load are reduced before a competition in an attempt to peak performance at a target time (Thomas & Busso, 2005). When discussing the planned elements of the taper, the coaches in the present study shared the view of (Houmard & Johns, 1994) who indicated that the length of taper should occur 7 to 21 days prior to a championship event. The strategies employed to achieve the desired physiological adaptations of the taper were also consistent with research (e.g., Mujika, 2009). The reduction of training load was primarily achieved through the reduction of training volume, with coaches reducing the volume from 60% to 40%. Training intensity during this phase was unchanged and kept to a high level, close to or at the competition intensity. Several coaches explained that it was important to keep the training frequency the same, with some coaches concerned about the risk of detraining if frequency and volume were both reduced. A concern that is consistent with those found by Pyne, et al. (2009).

The training load of the taper described by the coaches in the current study was largely consistent with research and ‘textbooks’ guidelines (e.g., Mujika, 2009), however, in contrast to guidelines it was not restricted to physiological outcomes. The coaches adopted a more integrated holistic approach. For example, the coaches involved the athletes in the planning process, individualised the taper, considered the level of technical input they provided, and integrated psychological preparation. Considering the athlete, current circumstances, and involving the athletes in the planning process can foster autonomy support and an environment where the planning process is a motivational tool which can contribute to the athletes’ performances in major competitions (Holiday, et al., 2008; Ritchie & Allen, 2015). The coaches also considered a range of factors in order to individualise and adapt the taper including the type of athlete, prior preparation, and the athlete’s confidence levels. The individualised approach is consistent with discussions of coaching, more generally, which reinforces that not all athletes are the same, nor are circumstances and
contexts, and therefore a ‘one size fits all’ approach will not work for all athletes in all situations (Amorose, 2007).

In addition to training load manipulation, coaches also identified that the level of technical input provided by coaches was a critical consideration for the taper. Consistent with recommendations (e.g., Yingbo, 1994), the coaches indicated that it was important not to add new elements, as this would introduce uncertainty and unsettle the athlete’s confidence at the critical period. For the coaches in the present study, technical sessions during the taper were about rehearsal and refinement, with coaches keeping the technical components basic, working on the fundamentals of the event, and keeping the sessions simple. Our findings support research with Olympic coaches and athletes who advocated keeping things simple, not over-coaching, and limiting technical input in the immediate preparation prior to or during competition (Gould, et al., 2001; 2002; Ritchie & Allen, 2015).

Further evidence of the coaches’ integrated approach to tapering was the importance coaches in the current study placed on psychological preparation. It was an integral part of the tapering process and the coaches actively planned for and monitored it. This finding has not been previously documented. The coaches recognised the importance of building (or maintaining) athletes’ confidence during the taper and this was a key consideration in deciding the training content. They employed a range of strategies including the use of ‘go to sessions’ that they knew the athletes enjoyed and providing a more collaborative approach, whereby the athlete was empowered through being more involved in the design and implementation of the taper. Confidence is a vital component of athletic performance (Hays, Thomas, Maynard, & Bawden, 2009), and an athlete’s confidence can be fragile in the Olympic environment (Gould, et al., 1999). Therefore, actively planning for athletes’ psychological preparation during the taper, particularly around confidence, should be an important consideration for coaches.
When discussing the implementation of the taper, the coaches described several monitoring strategies, however, they relied largely on the use of observation of performance and also of the athlete’s psychological state. Through these subjective observations (Franks & Miller, 1991), the coaches would analyse the athletes’ behaviours and performance in training against their own mental models for that athlete and event. Where, from an observer, the coaches may appear to be ‘off-task’ and ‘not coaching’, in fact, the coaches were silently observing the athlete. This information collection activity was important for the coaches to enable them to adapt the training content during the tapering period, if it was needed. Although being readily used in coaching, observations, which are fundamentally subjective in nature (Hughes & Franks, 2008), do come with limitations due to the capacity to recount information reliably and accurately (Franks & Miller, 1991). However, research has also shown that when compared with novice coaches, experts’ ability to recall visual patterns is better, as long as the patterns are meaningful and domain specific, and that they place greater emphasis on analysing situations (e.g., Randel, et al, 1996). In addition, research from a professional judgement and decision making perspective (e.g., Abraham & Collins, 2011; Collins, Collins, & Carson, 2016) would support the view that experienced coaches, such as those in the current study, are capable of, and do use, sophisticated decision making processes that employ intuitive and deliberative decision making enabling a check of the validity and accuracy of a decision. To add to the information gained through observation, the coaches also engaged the athletes in the process. They sought feedback from the athletes which added to their observation and experience-based knowledge which informed on-going decisions made about the taper. The coaches were comfortable with this collaborative process when working with experienced athletes, however, they were more cautious with less experienced athletes.
An important finding in relation to factors effecting the implementation of the taper was coaches’ awareness that confidence in their own ability was as vital for them as it was for the athletes operating in world-class sports environments. For example, one coach noted how the tapering process had failed due to the athlete’s lack of confidence in him. Coaches have cited a loss of confidence to be the effect of the stressors involved in world-class sports coaching (Olusoga, Butt, Maynard & Hays, 2010, Olusoga et al., 2012) therefore, mental preparation for coaches, themselves, is important so that they can be effective in their role during the tapering process.

The planned content of the taper was based on knowledge of training principles, previous experience of what worked and didn’t work, and what the athlete preferred. A number of coaches explained they had developed their taper through reading literature on planning (e.g., Bompa, 1999; 2005; Bompa & Haff, 2009), peaking and tapering (e.g., Mujika, 2009), and sports training principles (e.g., Dick, 2002). The coaches, however, only accessed these sources to gain a better understanding of the fundamentals of training principles, planning and peaking and provided a base knowledge to start from. Once they understood the basics, they developed more through their own coaching experiences of ‘trial and error’ of previous tapers. Race (2005) described this as learning by doing, ‘having a go’, experimenting, and practicing something. Race also identified learning by making mistakes, by ‘trial and error’. An important feature that enables coaches to learn from ‘doing’ is the reflective practice (Schön, 1983). The coaches in the current study had and continued to exert conscious effort toward examining the tapering process (content, implementation, and challenges) and adjusted it to improve the athlete’s performance during the tapering period and in subsequent tapers.

Limitations and future directions
Our study provides valuable insight into the process of implementing the taper in the lead up to a major competition, however, no study is without limitations. Due to the small number of participants and contextualised nature of the study (i.e., coaches working in one sport, track and field) it would be inappropriate to generalise the findings beyond this sample. How coaches in different sports determine, implement, and develop further the tapering process may not be the same as the coaches in our study. However, future research to further our understanding of the implementation of the tapering process might examine the process employed by female coaches as well as coaches working in different sports. For example, how do coaches working in sports with important competitions each week or every few months implement tapering principles? How do coaches working in team sports implement and individualise the taper? Future research might also examine athletes’ views on the tapering process, their perceptions of the coaches’ role and their own engagement in the process with a view to considering what athletes’ consider to be effective content and implementation of the tapering process. Although the coaches in the current study did not mention use of any tools other than observation for monitoring the tapering process, future research could also explore coaches’ perceptions and use of the various available monitoring tools (e.g., questionnaires).

**Conclusion**

In the build up to major competitions, including during tapering periods, coaches need to consider, plan for, and adapt to situations that can affect athletes’ physiological adaptation and mental processes leading to impaired performance (Marcora, Staiano, & Manning, 2009; Van Cutsem et al., 2017). Whilst the disciplinary approach in the sports sciences means that physical and psychological components are explored in isolation, based on the findings from the current study, it is suggested that they should be integrated holistically into periodised plans and taper strategies. The coaches in this study appeared to do so implicitly during the
tapering phase of training, and what they did could not be defined through any set of formulaic rules (Kiely, 2012). Rather, they recognised the relationship between the body and mind (Bailey, 2016) when attempting to optimise performance for a major competition.

The current study findings are important because these coaches’ methods suggest that, at least for them, the physiologically based taper theory (Bompa & Haff, 2009; Mujika & Padilla, 2003) is not reflective of what happens in a real-world delivery context. In agreement with Denison (2007) we do not suggest tapering theory should be disregarded. However, we argue for a wider and more holistic conceptualisation of tapering, which not only draws from theory but also from coaches’ knowledge and experiences of what it takes to peak for a major competition. The coaches in this study indicated that an effective taper allows an athlete’s confidence to grow, whilst allowing them to recover through a systematic reduction in training load. Therefore, we suggest consideration of a more holistic approach to the taper is required, in particular, physiological and psychological processes.
References


Figure 1. Olympic track and field coaches’ tapering practices leading up to major events.