Strategies for developing and delivering a parental physical activity intervention: Answers to the what and how

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Strategies for a parental PA intervention

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Abstract

Background: Parents are at risk of physical inactivity; however, few studies have designed physical activity (PA) interventions specifically applied to individuals with young children. To ensure the effectiveness of interventions it may be useful to first elicit the needs from the target population and incorporate salient strategies identified to the design and delivery of a resultant intervention. We aimed to explore strategies for what to include in and how to best deliver a program designed to increase parental PA. Methods: Twelve parents (6 mothers, 6 fathers) of children younger than 5 years participated in focus group discussions exploring strategies for an intervention program designed to increase parental PA. Results: A range of themes such as focus on the children and flexible life/family plans imbedded in strategies such as persuasion and information, problem-solving, skill building, and environmental approaches were identified. Additionally, a range of strategies for how to best deliver a parental PA intervention evidenced in emerging themes such as diverse and brief and individualised approach was discussed. Conclusions: Future research should continue to adopt a ground up, community-based approach to the development and implementation of interventions for this at-risk group to ensure sustained involvement in regular PA.
Over the past decade, there have been several exhaustive reviews conducted on physical activity (PA) intervention studies. These reviews often provide an overview of the commonalities among the various intervention programs and report on the effectiveness of the range of elements within the interventions [see 1-3]. Overall, however, these reviews found that interventions aimed at promoting PA are inconsistent and, at best, show only modest short-term increases in PA. The equivocal findings may be attributed to the varied methodological approaches employed to the design and implementation of the intervention and/or the population group being targeted. In more recent systematic reviews, Müller-Riemenschneider et al. [4] and Fjeldsoe et al. [5] found evidence for the long-term effectiveness of PA interventions on increasing PA behaviour. In particular, the use of multiple intervention strategies (e.g., barrier identification, counselling, information provisions) and the use of maintenance strategies (e.g., booster sessions, follow-up prompts) seem to be promising strategies to help maintain behavioural performance. Additionally, Müller-Riemenschneider et al. [4] noted that intervention effectiveness may improve when the content of the intervention program (i.e., the messages and material) is adapted to the needs of specific population groups.

Taken together, the findings of these two latter reviews suggest that the use of multiple behavioural change techniques, mediated approaches, supportive networks, and follow-up prompts may be useful strategies to consider in the design and implementation of programs aimed at increasing people’s PA. The findings also support the assertion that taking a ‘targeted’ approach to the promotion of PA may ensure the development of effective interventions as the health promotion action is tailored to the specific target group [6]. In particular, it may be useful to design and implement programs according to the needs of target groups at risk for physical inactivity.
Parents of young children have been identified as a group at risk for inactivity [7] where it is suggested that parents with at least one child at home are 20% less likely to be sufficiently active than those without children in the home [8]. Establishing a family is a major life event with many lifestyle changes needed [9]. Children, especially in the early years, require considerable care and attention needs from their parents; accordingly, parents often find themselves trying to juggle fulfilling their family obligations with their need to engage in health promoting behaviour, including PA [10]. Although the family context provides many challenges for parents, parenthood in and of itself is not a barrier to PA engagement [10]. Thus, a better understanding of how programs can facilitate parental PA is needed to inform intervention work that is aimed at increasing PA participation among parents of young children. Despite the paucity of literature examining parental PA and the disparity among the studies [7], some consistent barriers for parents in relation to performing regular PA have been reported. These barriers, which are somewhat consistent to those in general adult populations, include lack of time and support, fatigue, and commitment to other role obligations [7,11-13].

Time is consistently identified as an impeding factor toward engaging in PA [14]; however, little is known of the reasons for this lack of time among parents. Although lack of time, due to commitments to housework and shopping, partners, and work, is identified as an inhibitor of PA participation among adults in general, Brown et al. [11], in a large sample of mothers with young children, were able to identify also that lack of time for this particular group was due to commitments to their children. It has been found, however, that mothers of young children spend approximately 24 hours per week sitting with over half their sitting done in leisure time [15]. Accordingly, it is suggested that mothers would only need to spend just one fifth of their ‘sitting’ leisure time engaging in moderate activity to meet current PA recommendations [15].
In addition to having sufficient time, the ability to engage in PA is closely tied to one’s energy level; in particular, the lack of energy [11,13]. Although lack of energy is reported among adults in general as preventing PA engagement [14], the additional physical and emotional demands of caring for a young child often have the consequence of no energy being reported as a constraint for PA performance in individuals with young children [11,16]. There is, however, a sense of irony in this perceived belief, as Brown et al. [11] point out, as enhanced energy levels is reported as a benefit to being active. In relation to parents more specifically, research has demonstrated that receiving social support (e.g., childcare), having a balanced ‘ethic of care’ (i.e., prioritising one’s own needs along with their child’s needs), and perceiving that PA engagement helps parents to cope better with the challengers of parenthood have positive effects on activity levels for parents with young children [10-13]. These findings suggest that parents focus on their parenting role and commitments when deciding whether or not to engage in regular PA and support the proposition that parents are a unique group who hold distinctive beliefs about PA participation.

Overall, parents compared to adults in general may face additional barriers that make engaging in PA difficult to achieve. Despite the challenges faced by parents, parenthood does not make engaging in PA impossible [10,17,18]. To increase the PA behaviour among this at-risk group, it is important for intervention work to target those barriers that inhibit parental regular PA. Few studies have designed PA interventions specifically applied to individuals with young children; however, in those that have the findings are equivocal [7]. Although there is some consistency in the literature about useful strategies for intervention development (e.g., mediated approaches), there is currently no consensus about a consistent approach to support maintenance of adults, including parents’, PA behaviour [5]. Given that the effectiveness of interventions may be a function of programs being adapted to the needs of specific population groups [4], it may be useful to first elicit those needs from the target
population and incorporate the most salient strategies identified in such an elicitation process to intervention design and delivery. It may be beneficial, then, to examine what parents want from and would respond best to an intervention program designed to increase their PA-related behaviour. This study aimed to explore strategies for developing and implementing an intervention program designed to increase parental PA. First, the study aimed to explore strategies for what to include in a program designed to increase parental PA. A second aim was to investigate the most appropriate methods for how to deliver such a program.

**Method**

The research was carried out between December 2010 and February 2011 in Queensland, Australia. The study was approved ethical clearance by the University Human Research Ethics Committee (reference number 0800000516).

**Participants**

A purposeful sampling method [19] was used to recruit individuals aged 18 years and over who were parents of at least one child younger than 5 years of age. This study aimed to ensure that a broad range of different experiences and perceptions was identified; as such, consideration was given to the inclusion of information rich cases that reflect the population diversity. Maximum variation sampling [19], therefore, was used to ensure respondents ranged in age, gender, number of dependents, marital status, education level, employment status, and level of physical activity. Participants (N = 12; n = 6 mothers, n = 6 fathers) were recruited via a snowball sampling technique.

The parents, except for 1, were all Caucasian and ranged in age from 33 to 49 years, with an average age of 38 years. Most of the participants were in a partnered relationship (n = 9). The level of education varied among the parents: 4 had a high school diploma, 4 had a trade/diploma certificate, 2 had an undergraduate degree, and 2 had postgraduate qualifications. Seven of the parents were in full-time paid work, with 3 being in casual/part-
time paid employment and 2 occupying home duties. Among the parents, 2 had one child, 6 had two children, and 4 had three or more children. To ensure that the sample varied somewhat on the key demographic characteristic of PA, parents were asked to indicate the level of PA they currently engage in on a single-item 4 point rating scale ranging from ‘I never engage in physical activity’ to ‘I regularly engage in physical activity’. Parents were given a definition of regular PA which was based on current Australian guidelines for adults [20] (i.e., at least 30 minutes of at least a moderate-intensity PA on most, preferably all, days). Single item measures of PA have shown to be reliable and valid ways of assessing PA levels [21]. One third of the parents (4 out of 12) indicated that they were regularly active whereas the remaining 8 parents indicated they either sometimes engaged in PA (7 out of 12) or rarely/never engaged in PA (1 out of 12). All participants were independent of each other (i.e., participants were not in a couple relationship) and received a movie voucher as a thank you gift for participation.

**Design and Procedure**

The study adopted an action research framework [22], with an emphasis placed on using a qualitative descriptive research approach [23] to learn about and understand what parents want from and would respond best to an intervention program designed to increase their PA-related behaviour. Focus group (FG) methodology [24] was employed and, to allow for higher involvement from participants to gain a more in-depth understanding of potential strategies for a parental PA intervention, focus groups of approximately 4-6 participants per group were initially sought [25]. However, smaller sized focus groups were conducted in cases where parents did not attend a scheduled group interview session. The study comprised a total of four focus groups with three participants per group session. As some gender differences in PA beliefs have been found [26] and to eliminate gender differences influencing sharing within the group, homogenous groups in relation to gender were formed.
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To direct the focus groups, a semi-structured discussion guide was developed with questions focused around previous research findings of the important influences on parental PA [7,11-13,27]. The questions were designed to stimulate discussions about parents’ ideas on how to deliver and what to include in an intervention designed to promote parental PA (see Table 1) and probe questions were used to gain rich and detailed information [28]. The definition of PA was based on current Australian guidelines for adults [20], that being PA performed for at least 30 minutes of at least moderate-intensity on most, preferably all, days and which can be done in one session or built up during the day in at least 10 minute bouts. The first author conducted all interviews which averaged 100 minutes in length, and all discussions were audiotaped.

Data analysis

The focus group discussions were transcribed verbatim. Data were analysed using thematic content analysis [29,30] in which broad categories were identified and coded according to the research questions. The broad concepts were refined into themes from patterns in the data and from concepts which frequently occurred across categories and sessions. An iterative process was used with data being coded and recoded to accommodate new emerging themes until no new themes resulted [31]. To ensure credibility and transferability of the data, confirming summaries occurred throughout focus group discussions and a community sample of parents (i.e., sampling individuals from the community in general rather than from a particular subsample of parents, for example university students who are parents) was recruited [32].

Results

The results are organised around the two main topic areas that were used to frame the discussion guide: 1) what to include in and 2) how to best deliver a parental PA intervention.
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Within each category, the most salient emerging themes are presented. See Table 2 for a summary of findings.

What to Include

In discussions with the parents about the benefits of PA as improving parenting practices, a theme of Focus on the Children emerged. Specifically, strategies such as getting involved with the children and thinking about the consequences of inactivity were discussed. Accordingly, parents discussed ideas for a resultant intervention that involved strategies about being active with the children and the negative and positive consequences on the children as a result of performing/not performing regular activity. Parents talked about messages such as “Don’t let the computer be the father” [Father, FG1]; “Be active with your kids, don’t just watch them” [Mother, FG2]; “Lead by example” [Mother, FG4]; and “We owe it to this generation to be active dads” [Father, FG1]. Parents discussed also campaigns that show visual timeframes of the potential negative effects of parental inactivity on children’s behaviour: “Visual timeframes of what they [the children] end up like if they’re [the parent] not active” [Father, FG1]; “Showing what the kid turns out like” [Mother, FG2]. Parents also discussed campaigns that show the positive effects of parental PA on children, such as campaigns showing the changing mood of a parent before and after engaging in PA and the potential bonding effects of engaging in PA together. As one mother suggests, “You could have a before and after, like what happens if you don’t do PA so you will not be mentally right so you take it out on your kids and then you’re all good after a brisk walk down the street” [FG2]. Another father explains, “So maybe having something like, maybe the dad moving further away from their children and the more activity they do together, they find they’re closer to their kids again” [FG3].

To complement these more persuasion-type techniques, feedback and information strategies were also thought to be useful such as “Getting parents and children to share their
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positive experiences” [Mother, FG4] in respect to being active together and “Providing research on the positive outcomes” [Mother, FG2] of parental PA on children’s behaviour. For an activity to incorporate in a resultant intervention, suggestions were raised about

“Getting parents to list the consequences on their children” [Father, FG3] if they continue to lead an inactive lifestyle. This sort of activity was believed to help in persuading parents to be more active as it would allow parents to think about how their PA behaviour may affect their children’s PA behaviour and well-being. Engaging parents in generating a list of physical activities that they can perform with their children which also offer the parent appropriate levels of activity, “Generating a list of activities which I can do with Sam that gives me enough exercise would be good” [Mother, FG2], as well as providing parents with additional options and contacts (if needed) for these types of activities, were additional activities suggested to be included in a resultant intervention. Furthermore, it was suggested that “Other parents could add to these lists” of activities as well as “Provide comments for how easy or difficult they are to perform” [Mother, FG4]. These sorts of activities were believed to help in informing parents of and giving feedback on potential activities they can do with their children that can also benefit them as a parent. Overall, these messages and activities were thought to help in instilling the belief that regular PA can improve parenting practices. The focus on the children in these discussions also highlight the overwhelming sense of an ‘ethic of care’ [33] in which parents struggle to prioritise their own health needs over the needs of their children.

In discussions about strategies to dispel the belief that regular PA interferes with other commitments (e.g., family and work commitments, [12]), an overall theme of Incidentals, Prioritise, and Keep it Simple emerged. Parents talked about the usefulness of having access to an information fact sheet about incidental activities which can incur health benefits. As one mother suggests, “I’d like to know say like if I vacuum the house, how much does that equate
to on a physical activity scale…and that way I’d know I’d done my bit of exercise for the day…and it never interfered with anything” [FG2]. Another father explains, “Maybe having a fact sheet saying, well if you vacuum the house that’s equivalent to 20 minutes of physical activity” [FG3].

Across all groups, issues about prioritising commitments were discussed in which engaging parents in an activity to list and prioritise their commitments was believed could help to highlight where in the day parents can fit PA into their schedules. Engaging parents in problem-solving techniques to prioritise their commitments was thought to help parents to determine where some higher commitments could fall lower down the list in order to place PA higher on the list and where there is potentially some time during their daily schedule in which to perform some type of PA. As one mother explains, “Well you need to prioritise your commitments right? Prioritise them and if exercise is at the bottom, is this one here more important than that one if that is affecting everything else in your life” [FG2]. One father also suggests, “Get parents to look at their life and prioritise what their commitments are… Find a spot and there is a spot” [FG1]. Parents discussed also that it would be beneficial to have some information about solutions as to when parents could potentially fit PA into their schedules: “Or offer those kinds of, do you know you’ve got an hour’s lunch every day you could put your sandshoes on and go for a walk around where you work” [Mother, FG4].

Across all these discussions, however, it was suggested that it may be useful to also remind parents of the fact that PA being performed in short regular bursts is beneficial to their health. This discussion on keeping it short and simple seemed to be a core premise underlying all the ideas and strategies the parents presented. For example, the prioritising commitments with the purpose of identifying times in the day to be active were often matched with the idea of finding a 10 minute window of opportunity. Parents discussed how keeping PA bouts simple may evoke “fewer opportunities for parents to make excuses” [Father, FG1] for not
engaging in PA as well as provide more opportunities for parents to schedule in some activity. One father explains, “Keeping it short and simple… if it’s only 10 or 15 minutes surely that can be achieved somewhere” [FG3]. Overall, in all of these discussions, strategies for assisting parents to find the time and make the time were key points to help parents fulfil all their commitments, including their parental role obligations and engagement in health behaviours such as PA.

A theme More Time, Me Time also arose from the data in which parents discussed that information and persuasion type messages which highlight regular PA as increasing one’s energy levels which, in turn, potentially gives one more time may be helpful: “You have got more energy so you don’t need as much sleep and you can get up earlier to do some exercise” [Mother, FG2]. In essence, these parents were indicating that, because PA is known to increase one’s energy levels, then potentially parents would feel less fatigued. This improvement in energy levels would result in parents perhaps needing less sleep which, in turn, would provide them with more awake time where they could be active. Further, in discussions about time, parents talked about the issues of having time for their child as well as their own time in which parents felt strongly about a potential future PA campaign driving home the message that parents are worthy of having some time to themselves to engage in health promoting behaviours, such as PA. One father adds, “You have baby time and toddler time and me time…. Me time, yeah which everyone has to. You do need me time” [FG3]. One mother equated this idea to the popular shampoo phrase of “Because you’re worth it” [FG2]. Another mother linked this theme to the analogy of an aircraft incident and the putting on of oxygen masks, “… where it is explained that parents put on their oxygen mask before attending to their child” [Mother, FG4], thus suggesting that parents need to take care of themselves in order to take care of their children.
To help parents overcome the lack of motivation they may have toward being active, a theme *Interests, Goals, and Rewards* emerged. Participants discussed that helping parents identify their activity interests (e.g., generating and/or providing a wide list of activities) and how parents can access these activities as well as helping parents identify the preferred time of day they like to be active (i.e., morning, afternoon, night), may be useful. As one mother suggests, “Helping parents to find what activity suits them, that they can fit in… Some people aren’t good at knowing what they like until they try it…And I think you’ve got to learn. Forever I tried to get up in the morning and do exercise and I kept failing, I kept failing. So I thought I’m obviously not a morning person. I hated it. I don’t mind doing it at night” [FG2].

It was believed that providing parents with options and information about a wide range of activities may spark a renewed interest in PA as parents may be unaware of their interests and what is available to them. This suggestion is especially important given that many routines change with the transition into parenthood and activities pre parenthood (e.g., structured sports) may not be able to be maintained post parenthood [10]. Accordingly, parents may need prompting in different ways of thinking about PA that fits within their current lifestyle.

Furthermore, parents discussed ideas about setting goals and rewarding themselves and how behavioural modification techniques such as setting goals, charting activities, and providing rewards for their achievements may also be useful strategies to increase parents’ motivation: “Yeah, have your own reward chat [Mother, FG2]; “Simple goals and rewards and things like that” [Father, FG1]. In particular, it emerged that rewards given could be person-centred (e.g., “buying a new golf club” [Father FG1]; “having a relaxing bath” [Mother, FG4]) or partner-centred (“giving your partner a massage” [Mother, FG2]). Unique to this study, family-centred rewards were also discussed (“going out with the family” [Father FG1]). In addition, it was suggested that a reward system could encompass a lifestyle-type chart where the focus is not solely on PA but on a whole range of activities that parents enjoy.
doing (e.g., reading, art, music) but do not have the time to perform. Parents believed that this lifestyle-type approach may lessen the pressure on parents to be active and would help to maintain their interest in PA across time. As one mother suggests, “Make it a lifestyle chart and on that rewards chart you should put those sorts of things we enjoy doing that we don’t get around to doing as parents. So maybe doing your art as well and rewarding yourself for doing that as well as doing the exercise. Having the two things on par so you don’t feel overwhelmed by exercise, so put other things in there” [FG2]. Parents, on a day-to-day basis, often have to contend with many pressures and demands that are placed on them. The suggestion here of a lifestyle-type approach and connecting parents to the things they enjoy, which also incorporates a component of PA, seems especially important in this context to help parents reconnect or stay connected to pleasurable physical and social activities. Thus, although goal setting and incentive schemes are common techniques among PA programs for adults in general, designing a program for parents of young child, in particular, may need to focus more on setting goals and providing rewards that are framed within a family context.

Several ideas emerged from the data in the discussions about social influences affecting parental physical activity, encapsulated in the theme of Supporting Parents. Specifically, the parents discussed how it would be useful to connect to social networks (e.g., “sporting clubs”, “walking groups”) within their local community who share similar interests. Parents discussed how this strategy could be performed via on-line social networking sites or an on-line system that links parents to relevant websites according to their interests and matching up like-minded parents to create an exercise buddy-type system. As one mother suggests, “Sometimes it’s hard to meet people, so maybe you could have someone buddy you up. It could have a small fee maybe to match yourself up with someone in your neighbourhood who could come and knock on your door, you knock on theirs or whatever” [FG2]. The emphasis here was on limiting the effort that parents would otherwise invest to
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find this information themselves as well as helping parents to create a social network that can help motivate them to engage in regular PA. This social motivation was discussed in the form of “giving feedback” on one’s performance and “encouragement to continue”, and parents discussed how using “mobile phones”, “Facebook”, and “email alerts” could facilitate this process.

In addition, parents discussed how negotiations among family members for help to be active (e.g., “giving time”, “performing chores”, “providing childcare”) could be a useful strategy and that these negotiations could form part of the lifestyle-type chart discussed previously. As one father suggest, “Say, okay we’ll share the work. Look I’ll do what you’re doing tomorrow night and you go, we’ll swap” [FG1]. Parents also discussed the opportunity to provide a provision for social comparison in which parents could compare their performance to others. As one mother explains, “Having a site where you can log on with your own personal ID number… and compare how you’re doing to others…that would be good” [Mother, FG4]. This strategy was discussed as being performed on-line via a specific parenting website or social networking sites where parents log their progress and compare themselves to others and/or via a workplace initiative. This strategy was thought to promote a level of competition and, thus, motivate parents to be more active as well as help to instil this type of behaviour as being a norm among parents of young children.

In discussions with the participants about strategies to help parents embrace an identity of being an active parent a theme of Integrative Activities emerged. Parents discussed environmental techniques such as sporting clubs/groups providing opportunities for parenting activities alongside child activities: “Having activities, like the council organise these activity programs for kids but they never include the parents. So something like that would be good…” [Mother, FG4]. A persuasion-based strategy such as promoting parents becoming coaches/assistant coaches of their child’s sporting interests was also discussed: “Becoming a
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coach, becoming a soccer coach, becoming a whatever. That’s what I’ve done” [Father, FG3]. In addition, informational techniques were suggested such as providing parents with knowledge about how to blend activities: “Well, it’s about knowing how to blend two things together…” [Mother, FG2].

It was discussed also that offering a skill-based guide about how parents can teach their children appropriate sporting/exercise techniques, and of which could offer the parent appropriate physical activity while they were engaged in this teaching, may be useful. As one father suggests, “If we take a step backwards, you could actually give parents an idea on what to teach their kids. That’s what I’d like to see at the moment, I’d like to see a 10 page booklet in my letterbox from the government saying if you’ve got a 3 year old, which I have, these are the steps to teaching them say how to swim. But also in that booklet include strategies on how the parent can be active in the process of teaching their kid. So getting a skill set together to teach your kid various sporting skills” [FG1]. Improving physical literacy about parents’ knowledge of and ability to teach PA skills for their child is important to parents and perhaps this dissemination of knowledge should be framed more explicitly in terms of the benefits to parents and their overall PA levels and ability to engage in adequate PA. Furthermore, parents often referred to the “Slip Slop Slap” advertising campaign for sun safety and how to equate that to PA promotion and discussed that capitalising on promotional merchandise, such as “fridge magnets”, “car signage”, “T-shirts” with “catchy statements” (e.g., I’m proud to be an active mum), may be a useful strategy to instil the value in being an active parent.

Finally, a theme of Flexible Life/Family Plan emerged from the discussions about planning for PA. It was discussed, across all groups, that individual plans to be active should involve the whole family and encompass all aspects of the individual’s and their family’s life commitments. As one father explains, “Instead of it being an activities chart it would literally be a life chart wouldn’t it” [FG1]. Teaching parents the necessary skills in generating a
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A family-based plan was thought of as a way that parents could actively recognise all the family-based commitments so their PA participation does not interfere with those important priorities and show to other family members the days they plan to be active. This type of plan was also thought useful in providing a means of establishing a reciprocal support agreement. These discussions about planning further revealed that the plans should be highly visible to all (e.g., “on the fridge”) and documented across several different mediums (e.g., “email calendar”, “iPhone”). Furthermore, parents discussed how it may be useful to also “colour code” the plan to highlight the important commitments including PA as well as include “a side column for alternative plans” of PA for when obstacles arise and “columns for the rewards” to be given on accomplishment of PA goals.

**How to Deliver**

Parents identified many different methods of how to deliver a parental PA intervention but, in particular, the focus was on keeping the program brief and using a range of delivery mediums, highlighted in the theme of *Diverse and Brief*. Parents discussed the variety of ways in which they obtained information about PA (e.g., “TV media”, “on-line”, “school and childcare newsletters”, “newspapers”); however, on-line and newsletters were nominated most often. In discussions with parents about the best method of delivering an intervention, the on-line medium was identified frequently. Parents, however, discussed a number of other contexts where mothers and fathers would likely respond to a resultant PA intervention including community groups (e.g., “church groups”, “mothers’ groups”, “schools”, “daycare centres”) and workplaces.

In discussion about appropriate timeframes for conducting such a program, parents talked about having an initial intensive intervention period followed by a longer period of follow-up. Across all groups, it emerged that 4 weeks was appropriate for the initial delivery of an intervention with a follow-up period lasting up to 6-12 months: “It could be weekly for..."
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four weeks then monthly for six months” [Mother, FG2]; “I think you can’t make it too drawn out. You’ve got to make it kind of, you’ve got to compact it a little… If it’s broken down to one month, so four weeks, and then some follow-up that could maybe work” [Father, FG3].

Given the many time constraints of parents it is not surprising that, across the discussions, parents discussed that the components of the intervention should be brief. In the spirit of 10 minutes bouts of PA, parents offered the suggestion of intervention sessions lasting no more than 10 minutes as one father explains, “Most things you read or you go to do are within 10 minutes” [FG3]. It was believed that a shorter timeframe to complete sessions would be more appropriate and better received by parents.

Across all groups, parents discussed also how they would like to have some face-to-face contact, in addition to an on-line approach, to get them initially interested in the program as well as to keep them interested in participation. As one mother suggests, “You’ve got to be in my face or come and see me” [FG2] and one father explains, “I’d need some personal contact along the way” [FG3]. These brief contacts were described as a way to reinforce the individual needs of the parent as well as a means of providing progressive feedback and strengthening previous learned content. From these discussions, a theme of Individualised Approach emerged where parents wanted to be made to feel special. In that vein, both mothers (“I reckon you got to realise that there’s a lot of different types of people… For me it would be individual, individualise my program” [Mother, FG2]) and fathers (“Making them feel important, making them feel it’s a program designed for them” [Father, FG1]) discussed that a PA intervention, to appeal to parents, should have an element of individualism. In particular, it was discussed that tailoring the program to the specific needs of the individual, rather than a “one size fits all” campaign, would be beneficial.

Furthermore, the theme of Gains and Aims was another discussion point that transpired regarding potential involvement in such a program: “I think you’d need to feel you
could get something out of it, otherwise why would you bother when there are so many other things we need to do” [Mother, FG2]. Thus, parents discussed that they would participate in a resultant PA intervention for the benefit of gaining new insights (e.g., “new information”, “new contacts”). Additionally, for fathers, in particular, outlining the specific goals and aims of the program and highlighting the proven success of such interventions was suggested as a strategy that may help to engage fathers’ interest in participating in a program designed to increase their PA-related behaviours. As one father explains, “Show your goals, what you’re aiming to achieve… Results maybe or positive results… I want to see that it works” [FG3].

To allow parents to feel that the program is not encroaching on their lives and to maintain a parent’s sense of autonomy, it was revealed that any PA intervention should be flexible in its use of strategies and expectations for attainment of goals (“Flexibility of things. See results as you go” [Father, FG3]). Additionally, to enhance parents’ reception of the program, the intervention should endorse achievable milestones (“Milestones along the way. Milestones, goals. Week one, week two” [Mother, FG2]). These ideas were highlighted in the theme *Flexibility and Achievable Milestones*. In addition, a theme of *Rewards and Follow-up* emerged. To keep parents’ interest in the program and maintain low attrition rates, it was discussed that some kind of incentive scheme (e.g., “I think a reward is important” [Father, FG1]) and follow-up (“Well, follow-up is critical… so that personal follow-up is really important I think” [Mother, FG2]) may help parents to complete the program. In addition, parents indicated that it may be helpful to have some kind of continued contact with other persons involved in the program which would help to sustain and maintain long-term involvement in PA. As one mother suggests, “I also think it would be good to continue the contact with those doing the program to help you stay on track” [FG4].

**Discussion**
It is suggested that there is a need for research that translates formative research into practice [34]. Currently, there is no consensus on a reliable approach to support maintenance of adults’ [5], specifically parents’ [7], PA behaviour. Given that the effectiveness of PA interventions may be a function of programs being adapted to the needs of specific population groups [4], it is important for research to first elicit those needs from the target population. This process, in turn, will provide the necessary guidance from the target population on how to best translate theory into practice. This study, therefore, aimed to explore what parents, a group suggested to be at risk for inactivity, want from and would respond best to an intervention program designed to increase their PA-related behaviour. This study is unique as it serves as one of the first in allowing both mothers and fathers of young children to have a voice on those strategies they believe might be effective in helping to increase parental PA. Specifically, this study aimed to explore strategies for what to include in a resultant intervention program based on previous findings in the literature and how to best deliver such a program.

In this study, parents identified many different strategies for what could be adopted in a resultant intervention aimed at increasing parental PA. Unique to this study, parents identified persuasion and information type messages and activities that are directed at the effects of parental PA on their children’s behaviour. Furthermore, provisions for information such as providing facts about incidental activities that incur health benefits (e.g., house and yard work) and problem-solving strategies that engage parents in generating a priority list of their lifestyle commitments were thought to be important. Information and persuasion type strategies were also revealed as potentially useful in helping to dispel parents’ belief in a lack of time as preventing PA performance. Messages that emphasise 10-minute bouts of PA as being health enhancing and parents taking the time to attend to their own health needs were some suggestions given. To enhance parents’ motivation to be active, behavioural
modification type strategies were suggested such as the use of goal setting and incentives; however, for effective program design, these goals and reward systems may be best framed within the context of the family. Providing parents with options and information on a range of health-enhancing PA activities also was believed to be useful in increasing parents’ motivation to be active.

Social intervention strategies including the use of social support (e.g., feedback, companionship) and social comparison were identified also. Further, and unique to this study, were the points raised by parents about environmental type strategies as being potentially useful in helping parents embrace the importance of being a physically active parent and were embedded in suggestions such as community-based development of integrative parent/child programs. Finally, teaching parents the necessary skills in generating a flexible life/family plan, which includes PA participation, was considered a potential useful strategy to help parents enact their intentions to be regularly active. This family/lifestyle-type approach to a PA program was thought also to help connect or reconnect parents to pleasurable physical and social activities, a finding particularly unique for individuals with young children who, due to the many demands and pressures of parenthood, may have lost sight of prioritising these experiences.

Overall, parents identified a range of strategies including information, skill building, persuasion, problem solving, feedback, incentives, and social and environmental techniques that may be useful to adopt in a resultant PA intervention aimed at increasing parental PA. These findings complement recent research examining the effectiveness of PA behaviour change programs which suggests that the use of a broad range of intervention strategies is beneficial in achieving behavioural maintenance across time [5]. The findings concur also with qualitative research which adopted an action research approach to empower parents to construct ways to improve their perspective about PA performance [10]. Specifically,
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Hamilton and White [10] concluded that strategies to improve parents’ conditions should include challenging social constructions of traditional parenting concepts in ways that promote PA (e.g., active role model, best parenting) as well as rallying employment and government organisations to provide environments that are supportive of physical activity (e.g., shower facilities, wide footpaths for prams) to help parents balance their lifestyle routines.

In addition, the parents of this study identified strategies of how to best deliver a future program designed to increase the PA behaviour of both mothers and fathers of young children. Similar to the range of strategies that were identified for the development and design of what to include in such a program, a multifaceted approach to the implementation of a parental PA program may also be required. In particular, from the results of this study an on-line approach seems most promising; however, additional contexts were also identified (e.g., mothers’ groups, work places, schools). Furthermore, parents discussed how they would like to have some face-to-face contact throughout the program reinforcing that an intervention delivered completely on-line might not be the most effective way of implementing a PA program to parents of young children. Parents also thought that it may be useful if the program was designed to have an intensive intervention phase (e.g., over 4 weeks) which included brief sessions (e.g., lasting no more than 10 minutes) and is proceeded by some long term follow-up. The benefits of gaining new insights was a main topic discussed in relation to parents initiating participation in a PA intervention with an individualised approach, flexible and achievable milestones, and proven success of such programs identified as reasons for why parents might actually participate in the program. Finally, endorsing an incentive scheme and providing personalised follow-up was offered as ways to keep parents motivated to complete the program. These findings provide further qualitative support for the current literature which suggests long-term follow-up, face-to-face contact, mediated approaches, follow-up
Strategies for a parental PA intervention

Prompts, and tailored strategies are useful techniques in increasing people’s PA behaviour [4,35].

The findings from this study provide rich insights into what parents who are a group at risk of low levels of PA inactivity want from and would respond best to an intervention program designed to increase their participation in regular PA. To date, few studies have designed PA interventions specifically applied to individuals with young children [7]. Furthermore, the current literature is equivocal on the most effective strategies of developing and implementing an intervention designed to increase parents’ PA. Thus, given that PA interventions may be more effective if they are targeted to specific population groups [4], this research has the major strengths of investigating an at risk group which is currently not well researched and adopting a qualitative approach to first elicit those strategies thought to be useful in a resultant intervention program designed to increase the PA behaviour of the target group.

This study was also able to extend further our understanding of how theory can translate into practice through its qualitative exploration. This exploration was guided by the theoretical contributions of previous research [e.g., 13]. In general, the findings revealed that a range of strategies including information provision, skill building, persuasion, problem solving, feedback, incentives, counselling, and social and environmental techniques may be useful to adopt to help translate theory-based findings into a resultant PA intervention for parents of young children. These findings were able to complement and extend on recent research examining the effectiveness of PA behaviour change programs which suggests that the use of a range of intervention strategies is beneficial in achieving behavioural maintenance [5]. These findings, in consideration with previous research [36,37], also provided some insights into selecting relevant techniques (e.g., incentives) to map on to each of the
behavioural determinants (e.g., motivation) of parental PA, which is a process considered essential to optimising the benefits of theory-based interventions [36].

The study has some limitations that should be noted also. First, the sample size was small and, although smaller sized focus group were initially sought in order to obtain higher involvement from parents, smaller than expected groups were formed due to some parents not attending the scheduled focus group session. Furthermore, the snowball recruitment method might have resulted in a sample bias as participants might have similar perceptions to the individuals recruiting them [38]. As such, the results of the study may not apply to young, single, and culturally diverse parents. In addition, the discussion guide used open-ended questions; however, the topics were predetermined by the findings of previous research which may have limited the study’s scope. Further, the majority of the study participants were Caucasian. Much research within the PA domain has highlighted the importance of cultural beliefs about PA [39]. Thus, future research should continue to investigate potential strategies for a parental PA intervention among a broader range of cultural groups. Finally, it is important to recognise that the results of this study are more suggestive than affirmative in that qualitative research aims to gain a richer understanding of particular phenomena through the subjective views of its participants and does not aim to look for objective truths.

Overall, this study is one of the first in allowing both mothers and fathers of young children to have a voice on those strategies they believe might be effective in helping to increase parental PA. It is especially important for parents to be sufficiently active not only to gain health benefits but because they are key figures in the socialisation process of their children’s behaviour, including PA behaviour [40]. The results of this study suggest that adopting a multifaceted approach in both the design and implementation of a resultant PA intervention may be useful in helping to increase parental PA. Future research should continue to adopt a ground up, community-based approach to the development and
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implementation of a parental PA intervention. Thus, it would be beneficial for future research to continue to examine and include parents’ ideas for strategies to adopt in the development of policy and intervention protocol to make meaningful social and environmental changes that, in turn, facilitate perceptions of PA as being more accessible, timely, and personal for parents of young children.
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References


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    Physical activity interventions: What we know and what we need to know. 
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38. Brace-Govan J. Issues in snowball sampling: The lawyer, the model and ethics. 

Table 1

*Main topic areas and semi-structured discussion questions used to guide the focus groups*

<table>
<thead>
<tr>
<th>Topic area</th>
<th>Discussion questions</th>
</tr>
</thead>
</table>
| What to include in a parental PA intervention | 1. What ideas do you have for types of activities and information/messages that can highlight regular PA as having the benefit of improving parenting practices?  
2. What ideas do you have for types of activities and information/messages that can highlight regular PA as not necessarily interfering with other commitments?  
3. What ideas do you have for types of activities and information/messages that can help parents overcome time issues that may prevent them doing regular PA?  
4. What ideas do you have for types of activities and information/messages that can help parents overcome the lack of motivation they may feel toward engaging in regular PA?  
5. What ideas do you have for types of activities and information/messages that can help parents to increase the support they may need from their partner/friends so they can be more active?  
6. What ideas do you have for types of activities and information/messages that can highlight regular PA as being a normal part of life?  
7. What ideas do you have for types of activities and information/messages that can help parents value the |
Strategies for a parental PA intervention

importance of being a physically active parent and see this as who they are as a person?

8. What ideas do you have for types of activities and information/messages that can help parents to form a plan for being regularly active?

9. What ideas do you have for types of activities and information/messages that can help parents plan for obstacles that may arise which might interfere with their plans to be active?

How to best deliver a parental PA intervention

1. Where do you get most of your PA information from?

2. What do you think would be the most useful method for parents of delivering a PA program?

3. What sort of timeframe (e.g., number and length of sessions) would be acceptable for such a program to run?

4. Do you think you would engage in a program aimed at promoting your PA? If no, why not? If yes, why?

5. If you were interested in doing such a program, what would grab your attention to take notice of the program?

6. What would motivate you to then start the program?

7. What would keep you motivated to continue the program to the end?
## Strategies for a parental PA intervention

### Table 2

<table>
<thead>
<tr>
<th>Topic</th>
<th>Underlying PA belief</th>
<th>Major Theme</th>
<th>Key Strategy</th>
<th>Selected Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>What to include</td>
<td>Improves parenting practices</td>
<td><em>Focus on the Children</em></td>
<td>Persuasive messages</td>
<td>“So maybe having something like, maybe the dad moving further away from their children and the more activity they do together, they find they’re closer to their kids again” [Father, FG3]</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• getting parents involved with their children in PA</td>
<td>“Showing what the kid turns out like” [Mother, FG2]</td>
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<td></td>
<td></td>
<td></td>
<td>• focusing on consequences of inactive childhood lifestyles</td>
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<td></td>
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<td></td>
<td>Information and feedback provisions</td>
<td>“Getting parents and children to share their positive experiences” [Mother, FG4]</td>
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<td></td>
<td></td>
<td></td>
<td>• sharing positive child-parent physical activity experiences</td>
<td>“Providing research on the positive outcomes” [Mother, FG2]</td>
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<td></td>
<td></td>
<td></td>
<td>• research on positive benefits of PA to child and parent</td>
<td>“Generating a list of activities which I can do with Sam that gives me enough exercise would be good” [Mother, FG2]</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• listing activities parents can do with their child which provide adequate adult PA</td>
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</tbody>
</table>
## Strategies for a parental PA intervention

<table>
<thead>
<tr>
<th>Interferes with commitments</th>
<th><em>Incidentals, Prioritise, and Keep it Simple</em></th>
<th>Information provisions</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>• fact sheet on incidental activities</td>
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<td></td>
<td></td>
<td>• facts and reminders that PA performed in short simple bouts is adequate</td>
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<td></td>
<td>Problem-solving</td>
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<td></td>
<td></td>
<td>• an exercise in prioritising parental commitments and finding time in the day for PA</td>
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<td></td>
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<td>“I’d like to know say like if I vacuum the house, how much does that equate to on a physical activity scale…and that way I’d know I’d done my bit of exercise for the day…and it never interfered with anything” [Mother, FG2]</td>
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<tr>
<td></td>
<td></td>
<td>“Get parents to look at their life and prioritise what their commitments are… Find a spot and there is a spot” [Father, FG1]</td>
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<table>
<thead>
<tr>
<th>Time</th>
<th><em>More Time, Me Time</em></th>
<th>Information provisions and persuasive messages</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>• emphasise PA as enhancing energy levels which may promote more time</td>
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<td></td>
<td></td>
<td>• parents deserving of their own time for PA</td>
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<td></td>
<td></td>
<td>“You have got more energy so you don’t need as much sleep and you can get up earlier to do some exercise” [Mother, FG2]</td>
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<tr>
<td></td>
<td></td>
<td>“You have baby time and toddler time and me time…. Me time, yeah which everyone has to. You do need me time” [Father, FG3]</td>
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</tbody>
</table>
Strategies for a parental PA intervention

<table>
<thead>
<tr>
<th>Lack of motivation</th>
<th>Interests, Goals, and Rewards</th>
<th>Problem-solving and behavioural modification techniques</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• identifying parents’ PA interests</td>
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<td>• goal setting</td>
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<td></td>
<td></td>
<td>• providing rewards and that are relevant and special to parents</td>
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<td></td>
<td></td>
<td>“Helping parents to find what activity suits them, that they can fit in… Some people aren’t good at knowing what they like until they try it…” [Mother, FG2]</td>
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<td></td>
<td></td>
<td>“Simple goals and rewards and things like that” [Father, FG1]</td>
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<td></td>
<td></td>
<td>“Make it a lifestyle chart and on that rewards chart you should put those sorts of things we enjoy doing that we don’t get around to doing as parents...” [Mother, FG2]</td>
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<thead>
<tr>
<th>Social Influences</th>
<th>Supporting Parents</th>
<th>Social support provisions</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>• connecting with other parents</td>
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<td></td>
<td></td>
<td>• negotiating help with family</td>
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<td></td>
<td></td>
<td>• provisions for some social comparison</td>
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<td></td>
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<td>“Sometimes it’s hard to meet people, so maybe you could have someone buddy you up. It could have a small fee maybe to match yourself up with someone in your neighbourhood who could come and knock on your door, you knock on theirs or whatever” [Mother, FG2]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Say, okay we’ll share the work. Look I’ll do what you’re doing tomorrow night and you go [do some PA], we’ll swap” [Father, FG1].</td>
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<td></td>
<td></td>
<td>“Having a site where you can log on with your own...”</td>
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<td>Strategies for a parental PA intervention</td>
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<tr>
<td><strong>Self influences</strong> – active parent identity</td>
<td><strong>Integrative Activities</strong></td>
<td>Environmental approaches</td>
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<tr>
<td></td>
<td></td>
<td>- access to community child/parent programs</td>
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<td></td>
<td></td>
<td>- knowledge of blended parent/child activities</td>
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<td></td>
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<td><strong>Information provisions</strong></td>
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<td></td>
<td></td>
<td>- programs to teach parents how to be sports coaches</td>
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<td></td>
<td></td>
<td><strong>Skills building</strong></td>
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<tr>
<td></td>
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<td>“Having activities, like the council organise these activity programs for kids but they never include the parents. So something like that would be good…” [Mother, FG4]</td>
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<tr>
<td></td>
<td></td>
<td>“Well, it’s about knowing how to blend two things together…” [Mother, FG2]</td>
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<td></td>
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<td>“… I’d like to see a 10 page booklet in my letterbox from the government saying if you’ve got a 3 year old, which I have, these are the steps to teaching them say how to swim. But also in that booklet include strategies on how the parent can be active in the process of teaching their kid…” [Father, FG1].</td>
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<tr>
<td><strong>Planning</strong></td>
<td><strong>Flexible life/Family Plan</strong></td>
<td>Problem-solving and skills building</td>
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<td></td>
<td></td>
<td>- generating and implementing a family-based plan</td>
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<td></td>
<td></td>
<td>incorporating all family commitments including PA</td>
</tr>
</tbody>
</table>
|  |  | “Instead of it being an activities chart it would literally be a life chart wouldn’t it” [Father, FG1].
<table>
<thead>
<tr>
<th>How to best deliver</th>
<th>Methods of delivery</th>
<th>Initiating and maintaining engagement</th>
<th>Gains and Aims</th>
<th>Flexibility and Achievable Milestones</th>
</tr>
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<tbody>
<tr>
<td></td>
<td><em>Diverse and Brief</em></td>
<td><em>Individualised Approach</em></td>
<td><em>Gains and Aims</em></td>
<td><em>Flexibility and Achievable Milestones</em></td>
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<td></td>
<td>• short term action with long-term follow-up</td>
<td>• tailor to the needs of the individual parent</td>
<td>• highlight the gains of participation in and aims of the program</td>
<td>• development of goals that are flexible and achievable within a family context</td>
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<td></td>
<td>• brief sessions</td>
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<td></td>
<td>• on-line and (brief) face-to-face sessions</td>
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<td></td>
<td>“I think you can’t make it too drawn out. You’ve got to make it kind of, you’ve got to compact it a little… and then some follow-up that could maybe work” [Father, FG3]</td>
<td>“I reckon you got to realise that there’s a lot of different types of people… For me it would be individual, individualise my program” [Mother, FG2]</td>
<td>“I think you’d need to feel you could get something out of it, otherwise why would you bother when there are so many other things we need to do” [Mother, FG2]</td>
<td>“Flexibility of things. See results as you go” [Father, FG3]</td>
</tr>
<tr>
<td><strong>Rewards and Follow-up</strong></td>
<td>provide incentives and follow-up to sustain and maintain PA involvement</td>
<td>“I think a reward is important” [Father, FG1] “Well, follow-up is critical… so that personal follow-up is really important I think” [Mother, FG2]</td>
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</table>