

## **Research Space**

Journal article

**Clinical and exercise professional opinion of return-to-running readiness after childbirth: An international delphi consensus statement**

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Clinical and Exercise Professional Opinion of Return-to-Running Readiness After  
Childbirth: An International Delphi Consensus Statement

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## Abstract

**Objective:** Female athletes have identified a lack of guidance as a barrier to successfully returning to running postpartum, and existing guidelines are vague. Our aim was to define the current practice of determining postpartum run-readiness through a consensus survey of international clinicians and exercise professionals in postpartum exercise to assist clinicians and inform sport policy changes.

**Methods:** A three-round Delphi approach was used to gain international consensus from clinicians and exercise professionals on run-readiness postpartum. Professionals that work with postpartum runners participated in an online survey to answer open-ended questions about the following postpartum return-to-running topics: definitions (runner and postpartum), key biopsychosocial milestones that runners need to meet, recommended screening, timeline to initiate running, support items, education topics, and factors that contribute to advising against running. Consensus was defined as  $\geq 75\%$  participant agreement.

**Results:** One hundred and eighteen professionals participated in Round I, 107 participated in Round II (response rate 90.6%), and 95 participated in Round III (response rate 80.5%). Responses indicated that, following a minimum 3-week period of rest and recovery, an individualized timeline and gradual return to running progression can be considered. Screening for medical and psychological concerns, current physical capacity, and prior training history is recommended prior to a return to running.

**Discussion:** This study proposes recommendations for the initial guidance on return-to-running postpartum, framed in the context of current research and consensus from professionals. Future research is needed to strengthen and validate specific recommendations and develop guidelines for best practice when returning-to-running after childbirth.

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## **Statements**

**Contributors** SMC, RED, GD, and EB convened the author group. All authors conceived the idea for this Delphi study. SMC, RED, SD, and MD performed the thematic coding and data analysis. SMC and RED wrote the initial draft of the manuscript. All authors contributed to reviewing and giving feedback on each iteration of the survey and manuscript drafts. All authors contributed to the literature review. All authors reviewed the final manuscript.

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# 1 Introduction

2 Females experience key transitions across the lifespan—including puberty, pregnancy, and  
3 menopause—where significant changes in hormones and body morphology may influence  
4 exercise participation and performance.<sup>1-3</sup> The perinatal period is one such transition that  
5 profoundly affects a female’s physiology and biomechanics, with lasting implications that may  
6 challenge future exercise participation.<sup>4-6</sup> Running is a popular form of exercise for the perinatal  
7 population<sup>7-10</sup>, but a recent study reported only 31% of pregnant or postpartum runners received  
8 advice on returning to running after childbirth.<sup>11</sup> As a result, runners often self-determine how to  
9 continue running during and after pregnancy, and approximately 46% of runners stop running  
10 during pregnancy and 25% do not return-to-running after childbirth.<sup>12</sup> This lack of information  
11 on safe participation in running during the perinatal period is a significant barrier to gender and  
12 sex equity in sports.<sup>13</sup>

13 After major surgery or injury, most athletes undergo rehabilitation before returning to sport.  
14 During rehabilitation, the athlete must meet key milestones to progress through rehabilitation  
15 stages and, at a minimum, be screened for mental and physical readiness to fully participate in  
16 sport.<sup>14,15</sup> A similar approach has been proposed for return-to-running postpartum<sup>16-19</sup> but the  
17 high-quality evidence needed to confirm and optimize these approaches is still lacking. Due to  
18 this lack of evidence, runners and the clinicians who work with them have to rely on expert  
19 opinion, which extrapolates findings from the general research on return-to-sport (i.e., following  
20 an athletic injury), postpartum populations (non-athletes), and running-related injury research.<sup>16-</sup>  
21 <sup>22</sup> While the existing frameworks have many similarities, there are some conflicting theories (i.e.  
22 timeline for return). Therefore, the current study employed a Delphi technique to determine  
23 consensus from many experienced clinical and exercise professionals on current practice of

24 determining run-readiness after childbirth. Expert opinion consensus on the rehabilitation  
25 program and running program design is presented in another publication.<sup>23</sup>

## 26 **Methods:**

27 The Delphi technique (three rounds)—which is commonly used for decision making and  
28 forecasting studies—was used to determine consensus of clinical and exercise professionals on  
29 postpartum return-to-run topics.<sup>24-31</sup> Experienced professionals (respondent group) were asked  
30 their opinion on key musculoskeletal assessments, milestones and screening that should be used  
31 when determining run-readiness postpartum. The study was approved by the Elon University  
32 Institutional review board.

## 33 Participants

34 The respondent group were experienced professionals recruited through personal networks,  
35 social media (i.e., Twitter, Instagram, and Facebook) and word-of-mouth via a purposeful and  
36 snowball sampling approach. All prospective participants completed an online recruitment  
37 survey in which they reported demographic information, profession, number of years working  
38 with postpartum runners, and percentage of caseload consisting of postpartum runners. From  
39 this online recruitment survey, respondents were eligible to participate (i.e., considered  
40 experienced professionals) if they were health, rehabilitation and/or fitness professionals with  
41 either a)  $\geq 5$  years' experience treating postpartum runners, OR b) if  $< 5$  years' experience, their  
42 caseload is primarily postpartum runners ( $\geq 50\%$ ).

43 The workgroup (authors) consisted of investigators that had an average of 10 years of experience  
44 working with perinatal runners and represented a variety of disciplines (exercise physiology,  
45 biomechanics, psychology, and physiotherapy). All authors reviewed the Delphi results and  
46 current literature, then participated in a discussion to finalize recommendations.

47 Instrument development and piloting

48 All authors contributed to the development of a pilot survey consisting of open-ended questions  
49 with free-text responses (figure 1). Eleven practitioners, who were either retired professionals in  
50 the field or were no longer working with this population, were identified by the authors as pilot  
51 participants for Round 1 of the survey. Pilot participants provided feedback (e.g., question  
52 clarity), and necessary changes were made before distribution of Round I of the survey to study  
53 participants. This data was separate from the Delphi survey and used only for development and  
54 piloting round I of the survey.

55 Procedure

56 A narrative literature review on postpartum physiology/biomechanics, running, running-related  
57 injury (RRI), and existing run-readiness frameworks (including grey literature) informed the  
58 questions chosen for Round I of the survey (appendix A). For each round, Qualtrics (Seattle,  
59 USA) distributed surveys via a personalized email link. Informed consent was obtained prior to  
60 entering the survey questions. The definition of “consensus” was established *a priori* as 75% and  
61 it was decided to limit voting to three rounds for participant retention.<sup>32</sup> All identified  
62 experienced practitioners from the recruitment survey were sent a link to the Round I survey. All  
63 participants who completed Round I were sent the survey for Rounds II and III. Each round was  
64 live for 3-4 weeks with weekly email reminders sent to respondents who had not completed the  
65 survey. Four authors (SMC, MHD, SD, RED) with experience in Delphi studies or similar  
66 mixed-methods research undertook thematic coding of the survey free text responses in Rounds I  
67 and II.

68 After completion of all rounds of the Delphi survey, all authors contributed to an additional  
69 literature search to summarize the current scientific evidence and determine if respondent

70 consensus was in line with current research. Search topics were determined by the themes  
71 identified by respondents and a narrative review was conducted. Due to limited evidence in the  
72 postpartum running population, searches were not limited to postpartum running-related  
73 literature or to systematic reviews or randomized control trials (RCTs). When appropriate, grey  
74 literature was included. The level of evidence for each topic, based on the Sackett scale of  
75 scientific evidence (figure 2), is provided at the end of each evidence summary section.<sup>33</sup> A table  
76 indicating the level of evidence for each article cited is provided in supplemental digital content.

### 77 Round I survey

78 The first round included demographic questions about the respondents. There were also five  
79 open-ended questions about screening for run-readiness and three open-ended questions about  
80 return-to-running considerations (key milestones, factors to stop running, items that can aid  
81 running). In addition, respondents were asked to define “postpartum” and “runner.” (Appendix  
82 A)

### 83 Round II survey

84 Thematic coding of Round I responses led to the development of the round II survey, which was  
85 primarily statements with Likert-scale choices (strongly agree, agree, disagree, strongly  
86 disagree).

### 87 Round III survey

88 Round III of the survey was designed to establish consensus on the Likert-scale statements from  
89 Round II. According to Delphi methodology, the same survey questions from Round II were  
90 presented to the participants with the addition of graphs representing participant responses from  
91 Round II (percentage of votes for strongly agree, agree, disagree and strongly disagree) in lieu of



92 in-person discussion.<sup>31</sup> Participants were again asked to choose their level of agreement (as per  
93 Round II) with each statement.

#### 94 Author recommendations

95 After reviewing the survey results and completing a narrative literature review, recommendations  
96 were proposed based on author discussion and synthesis of the Delphi data and current evidence.  
97 An anonymous survey was then sent out to all authors to determine **author** consensus on the  
98 recommendations. Authors completed three rounds of voting: Vote 1 consisted of the original  
99 recommendation for each section from the group meeting along with free-text options to indicate  
100 dissenting opinions. Vote 2 presented all author-suggested recommendations for each section.  
101 Vote 3 again presented all author-suggested recommendations along with the results of Round 2  
102 voting.

#### 103 Diversity, Equity, and Inclusion Statement

104 The all-female author group, representing five countries across three continents, were primarily  
105 Caucasian with one woman of color. Experienced practitioners (Respondent group) were  
106 included based on number of years working with postpartum runners and thus junior, mid-career  
107 and senior level practitioners from a variety of professional backgrounds were included. Only  
108 two men participated in the Delphi survey as respondents. In discussing generalizability of our  
109 results and limitations in our findings, we recognize that these results may exclude professionals  
110 of a low socioeconomic status, where advanced education is unavailable, or from marginalized  
111 communities as perinatal care is not part of basic training in many professions. While efforts to  
112 recruit diverse respondents with sociocultural differences were made (through personal  
113 networks, social media (i.e., Twitter, Instagram, and Facebook) and word-of-mouth) , the  
114 recommendations made in this consensus statement were not be reflective of every culture.

115 **RESULTS**

116 Two hundred and twenty-two professionals met the inclusion criteria and were sent the link for  
117 Round I. 118 participants completed Round I. Those 118 participants were sent invitations to  
118 complete Rounds II and III. 107 completed Round II, and 95 completed Round III. Participants  
119 had an average of 8.9 (range 2-37) years' experience working with postpartum runners and  
120 represented seven different professions, 12 countries and four continents (North America,  
121 Europe, Australia, and Africa). Most of the participating professionals identified as women  
122 (97%) (Table 1).

123 **Definitions of 'runner' and 'postpartum'**

124 **Consensus.** Consensus was reached that 'runner' was defined as "anyone who runs, regardless of  
125 frequency or mileage" (90.6%) and/or "anyone who self-identifies as a runner" (92.9%). No true  
126 consensus was reached on the definition of 'postpartum', though respondents agreed (78.8%)  
127 that it does not refer only to the first 12 weeks after childbirth.

128 **Current evidence.** Various definitions of 'runner' exist. Some studies identify runners by a  
129 certain number of miles per week.<sup>34</sup> Experience level is usually reported (e.g., novice,  
130 competitive), but standard terminology has not been used, meaning different terms may be used  
131 to describe similar cohorts (e.g., beginner and novice).<sup>35</sup> The definition of 'postpartum' also  
132 varies, focusing on length of time since giving birth (e.g., 12 weeks to two years).<sup>36-38</sup> The  
133 consensus that 'postpartum' does not refer to only the first 12 weeks after childbirth is supported  
134 by several studies using timeframes > 12 weeks to define their postpartum population<sup>7-9,11,12,38-43</sup>  
135 and by evidence that postpartum mental health symptoms can still be present up to three years  
136 postpartum.<sup>44</sup> The inconsistencies in the literature of how long the postpartum phase persists

137 appear to be reflected in several timeframes being identified by respondents in free-text  
138 responses and inability to reach consensus on one specific timeframe.  
139 (No summary of level of evidence is provided, as consistent definitions are non-existent.)  
140 **Recommendation (12/12 authors assent).** This Delphi recommends that someone who self-  
141 identifies as a runner should be evaluated and treated as one, regardless of mileage, frequency, or  
142 skill level. Due to the lack of longitudinal evidence investigating perinatal runners, an  
143 individualized approach should be taken to determine if the runner is still recovering from  
144 pregnancy- and childbirth-related changes or not. For example, if someone is returning to  
145 running at two years postpartum, they should still be evaluated or screened for postpartum run-  
146 readiness, as pregnancy and childbirth related impairments may still be present.

147 Key milestones that need to be addressed before postpartum return-to-running

148 **Consensus.** From Round I, eleven themes were identified as key milestones that need to be  
149 addressed before return-to-running (Table 2), including: pelvic floor muscle (PFM) strength,  
150 endurance, and coordination; symptoms of urinary incontinence (UI); symptoms of anal  
151 incontinence (AI); symptoms of pelvic organ prolapse (POP); lumbopelvic strength; inter-recti  
152 distance (IRD); balance & proprioception; lower extremity strength; and running gait  
153 analysis. Ten milestones met consensus, with IRD being the only milestone that did not. To  
154 note, specific cut-offs or benchmarks were not identified; rather, respondents identified key areas  
155 for evaluation.

156 **Current evidence.** Symptoms of pelvic floor dysfunction (PFD) are widely reported in  
157 nulliparous and parous female runners,<sup>6,9,45-59</sup> and pregnancy and childbirth increase the general  
158 population risk of PFD.<sup>60</sup> Reported frequency of UI in postpartum runners ranges from 8-  
159 57%,<sup>8,9,59</sup> AI was reported in 39% of postpartum runners and 19% reported symptoms of POP.<sup>59</sup>

160 However, no studies have identified specific PFM function (strength, endurance, coordination)  
161 parameters that indicate definitive resolution and/or prevention of PFD symptoms in runners.<sup>61-63</sup>  
162 There is, however, strong evidence in the general postpartum population that PFM training is  
163 effective for treating PFD.<sup>64</sup>  
164 Lower extremity strength has only been investigated in a small cohort of postpartum runners  
165 (N=9), which showed significantly lower hip abduction and adduction strength compared to  
166 nulliparous controls.<sup>43</sup> When considering the general running population, systematic reviews  
167 have reported that musculoskeletal measures (e.g., strength) and biomechanical measures (e.g.,  
168 kinematics) are not stand-alone risk factors for RRI.<sup>65</sup>  
169 Current literature on IRD has reported correlations with abdominal muscle strength and  
170 fatigability,<sup>39,41,42,66</sup> abdominal pain and quality of life<sup>67</sup>, and no correlation between IRD and  
171 low back pain, pelvic girdle pain or UI.<sup>67,68</sup> Increased IRD can also lead to fear-avoidance  
172 behaviors, which may be a barrier to return-to-exercise and running.<sup>69,70</sup> One small study showed  
173 decreased IRD with exercise in postpartum runners.<sup>38</sup> While there is insufficient evidence to  
174 support reduction in IRD with exercise training<sup>71</sup>, abdominal muscle training can influence  
175 muscular strength and endurance,<sup>72,73</sup> both of which are shown to be impaired in the general  
176 postpartum population and in postpartum females with diastasis recti abdominis (DRA).<sup>39,41,42,66</sup>  
177 An initial biomechanical investigation in a small cohort of postpartum runners showed no  
178 difference in kinematic and kinetic (except breaking loading rate) measures in postpartum  
179 running gait when compared to nulliparous controls.<sup>43</sup> Lastly, literature on balance and  
180 proprioception is non-existent in the postpartum running population. In the general perinatal  
181 population, evidence on changes in static balance is conflicting, with some reporting increased  
182 postural sway and others reporting no changes.<sup>74,75,76</sup> Expert opinions on rehabilitation of

183 postpartum runners have included exercises to improve balance and proprioception.<sup>16,18</sup> Balance  
184 and proprioception are recommended assessments for run-readiness following knee and ankle  
185 injuries in the general population.<sup>77-80</sup>

186 (Level of evidence: III)

187 **Recommendation (12/12 authors assent).** As incontinence and prolapse symptoms are well  
188 documented in both nulliparous and postpartum female runners, as well as in the general  
189 postpartum female population, a postpartum runner should ideally be evaluated for these pelvic  
190 health-related symptoms prior to initiating running. Runners with PFD should be referred to an  
191 appropriate and specialized professional. As running-related injury and pain are multifactorial, it  
192 is recommended to include pelvic floor muscle, lower extremity, and lumbopelvic strength as  
193 well as balance assessments in the physical examination to aid successful return-to-  
194 running; however, due to lack of evidence, no recommendation can be made on PFD (e.g.,  
195 prolapse, incontinence) severity scores, objective strength or balance measurement minimums  
196 that would indicate return-to-running readiness. While IRD did not reach consensus as a  
197 milestone, runners with abdominal pain or who exhibit fear avoidance behaviors may benefit  
198 from assessment.

#### 199 Load and impact screening

200 **Consensus.** Consensus was reached in both Rounds that a runner should be able to complete the  
201 screening tasks in Table 3 without musculoskeletal or pelvic health symptoms before initiating  
202 running.

203 **Current evidence.** No evidence exists assessing which load and impact screening tasks are ideal  
204 for identifying postpartum run-readiness. Several expert opinions recommend being able to walk  
205 for 30 minutes without eliciting/exacerbating cardiorespiratory, pelvic health, or other

206 musculoskeletal symptoms prior to engaging in running postpartum.<sup>16-18,20</sup> Two screens have  
207 been proposed to evaluate run-readiness, one specifically for postpartum runners. The Running  
208 Readiness Scale, which consists of five tasks (hopping, planks, step-ups, single leg squats, and  
209 wall sits), was proposed to identify injury risk due to movement patterns. An initial study of this  
210 scale, validating it against 3D running biomechanics in asymptomatic novice runners, showed  
211 reliability and validity with the screen and knee abduction angles.<sup>81</sup> Goom et al<sup>19</sup> proposed that a  
212 postpartum runner should be able to walk (30 mins), and perform exercises (single leg balance,  
213 single leg squats, jog, perform forward bounds, hops and single leg running man) to evaluate  
214 postpartum load and impact management in regard to provocation of pelvic floor symptoms or  
215 pain. To our knowledge, this screen has not been further investigated. A recent study of  
216 common running drills in healthy runners included three of the screening tasks (hopping in place  
217 [jump rope], jogging on the spot, and forward bounds) had 76%, 87% and 104% of the vertical  
218 reaction forces of fast running, respectively, indicating that these tasks may closely mimic loads  
219 associated with running. Therefore, these drills could be used to screen or progress asymptomatic  
220 or symptomatic runners (pain, incontinence, etc.) as high impact activities have been associated  
221 with incontinence in parous and nulligravid females.<sup>50,82-84</sup>

222 (Level of evidence: V)

223 **Recommendation (12/12 authors assent).** While no studies have examined the influence of  
224 ground reaction forces on symptoms in the postpartum runner, high impact activities have been  
225 associated with incontinence in both nulligravid and parous females. As such, it is recommended  
226 that, prior to initiating running after childbirth, a series of gradual and progressive load and  
227 impact challenges be administered to assess provocation or exacerbation of symptoms.

228 Screening for biopsychosocial milestones

229 **Consensus.** Unanimous consensus was reached that it is important to assess sleep quality and  
230 habits, screen for pre-existing conditions (i.e., musculoskeletal, or pelvic floor symptoms) and  
231 evaluate mental health and fatigue when determining postpartum run-readiness. The importance  
232 of screening for energy availability (EA)/relative energy deficiency in sport (REDs) (97.7%);  
233 whether milk supply has been sufficiently established (if desired) (98.8%); and hydration status  
234 (98.8%) also reached consensus in both Rounds.

235 **Current evidence.** Several qualitative studies and expert opinions on readiness for return-to-  
236 running have highlighted the need to screen biopsychosocial factors.<sup>7,8,16-19,21,23,45,85</sup> Lack of  
237 sleep and a high level of fatigue have been identified as risk factors for pain in postpartum  
238 runners.<sup>7</sup> As low EA affects up to 47% of female athletes, several experts on postpartum running  
239 have stressed the importance of evaluating this.<sup>16,17,21,86,87</sup> While the difficulties of lactation have  
240 not been directly measured in runners, athletes have reported difficulties with breastfeeding,  
241 supply, and training schedules.<sup>13</sup> Experts have also stressed the importance of lactation  
242 consultants when working with athletes returning to sports.<sup>20,88</sup> Lastly, per a systematic review in  
243 2019, postpartum depression is common after childbirth (up to 20%)<sup>89</sup>; however, no studies have  
244 assessed this in postpartum athletes.<sup>6,90</sup> Due to these biopsychosocial concerns, experts are  
245 recommending that the postpartum runner have access to a multidisciplinary team of providers to  
246 aid with a successful return to running.<sup>8,16</sup>

247 (Level of evidence: III)

248 **Recommendation (12/12 authors assent).** Based on consensus from experienced professionals  
249 working with postpartum runners, as well as current evidence in the general athletic population,  
250 it is recommended that runners be screened for concerns or issues with sleep, pre-existing

251 conditions, lactation concerns, hydration, fatigue, and mental health. When possible, an  
252 appropriate multidisciplinary team, consisting of a variety of healthcare professionals with  
253 expertise in the presenting concerns (for example, primary care providers, lactation consultants,  
254 pelvic health physiotherapists (PTs), mental health providers, physiatrists, orthopaedic  
255 specialists, obstetricians/gynecologists, urogynecologists, etc.), should work with the runner to  
256 address these issues.

257 Support items/adjuncts for return to running.

258 **Consensus.** A unanimous consensus was reached that intravaginal support devices (e.g., vaginal  
259 pessaries) can be helpful for prolapse and incontinence symptoms. Respondents agreed that  
260 runners should be educated on proper breast support (97.7%), that footwear should be assessed  
261 for fit and compatibility with running goals and current musculoskeletal profile (96.5%), and that  
262 runners who plan to run with a stroller have it assessed for appropriateness (94.1%).  
263 Respondents disagreed (92.9%) that sacroiliac joint (SIJ) belts can be helpful for some runners,  
264 and no consensus was reached on utility of abdominal braces (71% agreed abdominal braces can  
265 be helpful for some runners).

266 **Current evidence.** There is limited evidence on use of vaginal support pessaries in the  
267 postpartum period. Pessaries in addition to PFM training may improve POP symptoms<sup>91</sup> and may  
268 help with UI.<sup>92</sup> However, not all females will be candidates for pessary use, those who are may  
269 not have success with use, and intravaginal devices may not be as effective as PFM training.<sup>93</sup>  
270 The Society of Obstetricians and Gynaecologists of Canada recommends that intravaginal  
271 devices be used on an individualized basis and are considered as a first-line option for UI with  
272 high-impact exercises or when there are barriers in accessing supervised PFM training.<sup>93</sup> Such  
273 devices also promote empowerment and self-management.<sup>93</sup> No studies have been conducted on



274 the use of absorbent items in postpartum runners. Women who exercise and experience stress  
275 urinary incontinence (SUI) do report use of liners or pads to manage symptoms.<sup>94-96</sup>

276 The breasts can experience high magnitudes of three-dimensional motion during  
277 running.<sup>97-99</sup> The amount, and the perceived impact, of breast motion is also influenced by  
278 individual breast size.<sup>100</sup> Motion-related breast pain has been reported in up to 40% of athletes  
279 and can negatively impact performance.<sup>101</sup> Adequate breast support is considered particularly  
280 important perinatally to accommodate breast shape and size changes, especially if lactating, as  
281 breast size can increase by 1 or more cup sizes during pregnancy.<sup>102</sup> In the general population,  
282 poor breast support is also a barrier to physical activity.<sup>103</sup> An individually fitted sports bra has  
283 been shown to reduce motion-related breast pain<sup>97</sup> while improving running economy and  
284 performance.<sup>104</sup>

285 Stroller running is associated with increased energy cost compared to running  
286 independently.<sup>105,106</sup> A 2-handed approach to stroller running may change trunk, pelvis and hip  
287 kinematics<sup>107</sup> but spatiotemporal factors have been shown to be similar compared to independent  
288 running.<sup>105</sup>

289 There is no current evidence on compression garment use or the use of SIJ belts in  
290 postpartum runners. Compression garments targeting the lumbopelvic region are reported to  
291 reduce perceived symptoms of pain<sup>108,109</sup>, incontinence<sup>110,111</sup>, and POP.<sup>112</sup> One study in the  
292 general postpartum population found that SIJ belts were helpful in reducing pelvic girdle pain  
293 during performance of the Active Straight Leg Raise Test.<sup>113</sup> In the general population with  
294 lumbopelvic pain, the effectiveness of SIJ belts is inconclusive and often described as having  
295 person-specific results.<sup>114-117</sup> There is also no data on footwear and postpartum runners. Experts

296 have recommended evaluation of a postpartum runner’s footwear due to potential pregnancy  
297 related changes and incidence of running-related pain, especially in the lower extremity.<sup>16</sup>

298         There is currently no data examining taping (abdominal, low back, etc.) for postpartum  
299 runners. The only studies examining the effect of taping in postpartum populations relates to  
300 DRA, with no implications for running.<sup>118,119</sup> In the general running population, only lower  
301 extremity taping has been studied and there is conflicting evidence on whether it provides  
302 benefits for pain or performance.<sup>120-123</sup>  
303 (Level of evidence III).

304 **Recommendations (12/12 authors assent).** Despite low-level evidence in postpartum  
305 populations, support items may be beneficial for symptom management in postpartum runners. If  
306 an intravaginal support or other continence device is desired by a postpartum runner, a  
307 collaborative pelvic health care team should assess the runner to determine appropriateness.  
308 Absorbent products can also be used, but runners should be encouraged to seek treatment for  
309 incontinence. Runners may benefit from a professionally guided, individualized bra fitting to  
310 select bras to suit the breast size and type of activity of the postpartum runner. Due to pregnancy  
311 related changes, footwear should also be evaluated. Postpartum runners should be educated on  
312 considerations with stroller running for both mother and baby, and that a 2-handed approach to  
313 stroller running may be favorable. Compression garments may be appropriate adjuncts to active  
314 rehabilitation in runners with lumbopelvic and/or PFD symptoms. No recommendation can be  
315 made on taping.

316 Other considerations for readiness to return-to-running after childbirth.

317 **Consensus.** Respondents unanimously agreed that it is important to consider prior running  
318 habits—both during pregnancy and pre-pregnancy—as well as current training and performance

319 goals when considering run-readiness postpartum. Respondents also agreed that is it important:  
320 (1) to prioritize the runner's role in shared decision making (100%); (2) to honour the runner's  
321 wishes about when to return-to-running, even if ideal milestones have not been met (100%); (3)  
322 to consider the runner's stress level when determining run-readiness (100%); (4) to include a  
323 multidisciplinary care team (97.7%); (5) to assess breathing technique prior to initiating running  
324 (84.7%); and (6) to consider the runner's social support when determining run-readiness  
325 (98.8%). Table 5 outlines additional considerations for recommending that a postpartum runner  
326 NOT participate in running, such as significant pelvic organ prolapse (80% agreement).

327 **Current evidence.** Several studies have highlighted the importance of shared decision making for  
328 patient-centered care.<sup>124,125</sup> Expert opinion encourages consideration of goals for postpartum  
329 return-to-running and highlights a multi-disciplinary approach.<sup>16,20,21</sup> Two reviews reported lack  
330 of social support as a barrier to postpartum exercise.<sup>126,127</sup>

331         There is no evidence in postpartum runners on the influence of returning-to-running on  
332 PFD symptoms. The American College of Obstetricians and Gynecologists (ACOG) states that  
333 symptomatic POP should be further assessed and treated.<sup>128</sup> Lochia can be present under normal  
334 circumstances for up to eight weeks postpartum.<sup>129</sup> Persistence of vaginal bleeding (stage 1  
335 lochia) beyond two weeks postpartum is likely indicative of significant pathology<sup>129</sup>, thus  
336 medical treatment should be sought and return-to-running should be delayed in this  
337 circumstance.

338         Pain is common in the general running population<sup>130</sup> and among postpartum  
339 runners.<sup>7,8,12,45</sup> Some causes of pain in runners (e.g., bone stress injuries, medial tibial stress  
340 syndrome, etc.) will require a period of rest from running, but other causes of pain (e.g.,

341 patellofemoral syndrome, etc.) do not have evidence supporting termination of running.<sup>131</sup> No  
342 evidence currently exists on treatment of pain (i.e. period of rest) in postpartum runners.

343         There is currently no scientific evidence that that there is a relationship among  
344 DRA/abdominal wall integrity, diaphragm mechanics, and breathing technique. Breathwork has  
345 been shown to not influence pelvic floor muscle function.<sup>132</sup>

346 (Level of evidence: V).

347 ***Recommendation (12/12 authors assent).*** The runner should play an active role in the plan-of-  
348 care and decision making. The runner’s previous medical and social history, training and goals  
349 should be considered when determining run-readiness. Runners with pain should be evaluated to  
350 determine the cause of pain, which will determine whether running is appropriate or not.

351 Significant pelvic health symptoms should be assessed by a specialist (for example, a  
352 urogynecologist) and may take priority over return-to-running in runners who are open to  
353 delaying running. A multi-disciplinary team is encouraged to identify biopsychosocial red flags  
354 to return-to-running. It is important to identify and address barriers when designing the plan of  
355 care and return-to-exercise. No literature exists related to breathing mechanics and outcomes for  
356 perinatal runners; as such, no expert recommendation can be made.

357 Education topics for postpartum runners.

358 ***Consensus.*** Respondents unanimously agreed that it is important to educate postpartum runners  
359 on (1) postpartum physiological and musculoskeletal recovery and (2) a gradual return-to-  
360 running after childbirth. Respondents also agreed that it is important to educate runners on the  
361 key milestones that indicate run-readiness (98.8%), that hydration and nutrition  
362 recommendations should be different for postpartum runners than for runners who are not

363 postpartum (96.5%), and that runners who are lactating should be advised to express milk prior  
364 to going for a run (88.2%).

365 **Current evidence.** To support continued running during pregnancy, which increases the  
366 likelihood of returning to running postpartum,<sup>12</sup> education needs to be specific to running (i.e.,  
367 not general physical activity).<sup>11</sup> The majority of postpartum runners prefer information  
368 disseminated via websites and pelvic health PTs.<sup>12</sup> A gradual return to exercise, including  
369 running, has been recommended by several expert opinions<sup>6,16-18,20,21</sup> and is supported by RRI  
370 evidence suggesting that rapid increases in mileage or intensity increase risk.<sup>133-135</sup> Further  
371 information on gradual progression of exercise and running is presented in a companion paper.<sup>23</sup>  
372 As novice postpartum runners have higher odds of postpartum pain and up to 84% of postpartum  
373 runners have running-related pain across several body regions with the lower limbs  
374 being the most common site of pain<sup>7,8</sup>, educating runners on run readiness and how to return to  
375 running may be a priority.

376 No studies have investigated the relationship between breastfeeding and running. Milk  
377 secretion in the general postpartum population is associated with 700ML per day of water loss at  
378 8 weeks postpartum<sup>136,137</sup>, which may lead to dehydration and negatively affect maternal health  
379 and exercise performance. Energy needs are also increased while lactating, with a suggested  
380 increase of ~500 kcal/day above pre-pregnancy caloric intake.<sup>138 139</sup> Further discussion of  
381 lactation and exercise is presented in a companion paper.<sup>23</sup>

382 (Level of evidence: V).

383 **Recommendation (12/12 authors assent).** Perinatal runners should be provided with running-  
384 specific education, during and after pregnancy, that is individualized to their training level and  
385 goals. Educating postpartum runners on nutrition and hydration should also be a priority.

386 Timeline for returning to running.

387 **Consensus.** Five themes were identified in Round I for timing of return-to-running and are  
388 represented in Table 6, with unanimous consensus that “The timeline to return to running should  
389 be person specific”. Respondents also reached consensus that one cannot start running before 3  
390 weeks postpartum (85.5%) and that any birth injury should be completely healed before  
391 returning to running (97.6%).

392 **Current evidence.** Pelvic health metrics—such as vaginal resting pressure, levator hiatus area,  
393 PFM strength and endurance, and bladder neck mobility—have been shown to be altered after  
394 childbirth, particularly vaginal delivery in the general postpartum population.<sup>47,48,53</sup> Perineal  
395 trauma and surgical birth will also require adequate time for soft-tissue healing.<sup>6,140</sup> Although rare,  
396 risk for blood clots, hypertensive disorders, hemorrhage, and sepsis is elevated in the first 6 weeks  
397 postpartum.<sup>129,141,142</sup> ACOG recommends all females have healthcare provider contact within 3  
398 weeks postpartum, with a “comprehensive postpartum visit and transition to well-woman care”  
399 between 4-12 weeks postpartum.<sup>143</sup>

400 Consensus (from Delphi respondents) was reached that returning to running before 12 weeks  
401 postpartum is possible. Longitudinal data investigating PFM function supports that returning to  
402 exercise within the first 12-weeks postpartum can be done successfully: PFM strength and  
403 endurance, vaginal resting pressure, POP, and UI symptoms were similar at one year postpartum  
404 in females who returned to exercise (including running) prior to 6-weeks postpartum and those  
405 who returned after 6-weeks postpartum.<sup>144</sup> Another longitudinal study demonstrated that early  
406 engagement in moderate-to-vigorous physical activity (MVPA) in the early postpartum period  
407 ( $\leq 6$  weeks) did not directly influence pelvic floor dysfunctions at one year postpartum, but was  
408 associated with a lower symptom burden.<sup>145</sup> Elite female athletes (including runners) often return

409 to exercise before 6-weeks postpartum without increased incidence of incontinence.<sup>90</sup> A study of  
410 42 elite runners (average return-to-running timeline of 6 weeks postpartum; training increased to  
411 80% of pre-pregnancy levels by 14 weeks postpartum) found no association between  
412 musculoskeletal injury and timeline of return-to-running after childbirth.<sup>146</sup>  
413 Data in postpartum recreational runners is more varied. Blyholder et al<sup>9</sup> reported that 49.2% of  
414 postpartum recreational runners returned within six weeks and 34.7% returned between 6-12  
415 weeks. Moore et al<sup>8</sup> reported a median return-to-run time of 12 weeks (interquartile range 7-20  
416 weeks), that returning-to-running increased the odds of developing SUI regardless of timeframe  
417 compared to females who stopped running during pregnancy and did not return-to-running after  
418 childbirth, and that 84% of postpartum runners reported pain.<sup>8</sup> Christopher et al<sup>7</sup> reported a mean  
419 time of 12.7±14.3 weeks to first postpartum run, that 33% of postpartum runners reported  
420 running-related pain, and that timeline was not a significant risk factor for postpartum running-  
421 related pain.<sup>7</sup> However, some postpartum females have reported delaying return-to-run because  
422 they felt it was “too soon postpartum.”<sup>12</sup> It should be noted that the prevalence of PFD in athletes  
423 may be underreported.<sup>147,148</sup> It should also be noted that there is no evidence on postpartum  
424 pelvic floor tissue healing timelines specifically in athletes.

425 (Level of evidence: III).

426 **Recommendation (12/12 authors assent).** Given the range and complexity of factors involved  
427 (including injury, tissue healing timeframes, pain, and PFD symptoms), the lack of high-quality  
428 evidence, and the variability of local healthcare accessibility, a person specific timeline of  
429 initiating postpartum running is recommended. Following a period of relative rest and recovery  
430 after childbirth, gradual progression of cardiorespiratory fitness and strength training is  
431 recommended prior to initiating running (Delphi consensus recommends a minimum of 3 weeks

432 after childbirth prior to return-to-running). Prior training load—both before and during  
433 pregnancy—should also be considered. While many recreational runners may be able to return to  
434 running independently without significant issues, elite athletes and postpartum runners who are  
435 symptomatic (or otherwise concerned) should seek medical advice and/or evaluation by a pelvic  
436 health PT to determine run-readiness.

## 437 **DISCUSSION**

438 To our knowledge, this is the first time an international consensus—consisting of  
439 multidisciplinary professionals—has established how postpartum run-readiness is currently  
440 determined. This Delphi survey, the corresponding literature review, and expert  
441 recommendations (figure 3) start to address postpartum run-readiness and highlight knowledge  
442 gaps that need to be investigated. Due to the significant variability in postpartum runners, this  
443 study emphasizes the importance of individualized, athlete centered decision making. As not all  
444 runners will have access to health or fitness professionals, and evidence has demonstrated lack of  
445 education to perinatal runners<sup>11,12</sup>, this consensus statement also highlights the importance of  
446 education of female runners and (where applicable) running coaches on return-to-running after  
447 childbirth.

448 ***Research implications.*** Multiple gaps in research have been identified by this consensus survey  
449 and literature review. Future longitudinal studies exploring the development/progression of  
450 incontinence and prolapse during and after pregnancy in athletic populations are needed to  
451 further understand if screening and rehabilitation of postpartum runners can prevent symptoms of  
452 incontinence and prolapse when returning to running; or, if symptoms are already present, if a  
453 return-to-running progression can be performed in tandem with rehabilitation without worsening  
454 symptoms. Furthermore, the effectiveness of adjuncts to pelvic floor function (e.g., compression



455 garments or pessaries) should be explored. In addition, lactating females and females with larger  
456 breasts have historically been excluded from studies on breast support, which highlights the need  
457 for specific investigations into breast support for lactating athletes. Future studies should also  
458 evaluate the role of musculoskeletal strength, as well as gait and balance changes in postpartum  
459 RRI risk. Evaluation of pelvic floor healing timelines in athletes is also needed. Validation of all  
460 recommendations made in this consensus statement is also required. In general, more high-  
461 quality research is necessary in all areas of postpartum exercise, particularly high-impact  
462 exercise like running.

463 ***Clinical implications.*** As healthcare providers and fitness professionals—particularly birth  
464 providers, primary care providers, personal trainers, and PTs—are likely to be asked questions  
465 by perinatal runners, it is imperative that these providers are educated on this topic and can refer  
466 runners to the appropriate, evidence-informed information or provider to guide running during  
467 and after pregnancy.

#### 468 **LIMITATIONS**

469  
470 Due to the lack of evidence guiding postpartum return-to-running, recommendations in this  
471 consensus statement were made based on integration of experienced professional consensus,  
472 literature review, and discussion among expert researchers and clinicians in the field. As such, a  
473 narrative literature review-not a systematic review-was conducted for the literature review  
474 sections. Much of the evidence in this field is level III or below.

475 Respondents were predominantly white PTs and therefore this review may not accurately reflect  
476 the opinions and experiences of other professionals (i.e., physicians, male providers, those in  
477 lower resource settings etc.) who may be the first contact and/or sole provider evaluating the  
478 runner. However, this is the first study to our knowledge, that has included occupational

479 therapists, chiropractors, and running coaches. This study also included more personal trainers,  
480 exercise physiologists and physicians than the current expert opinion publications on postpartum  
481 running.<sup>16,18,19,22</sup> All the multi-disciplinary participants had a voice in round 1 of the survey, thus  
482 informing the survey questions upon which all participants voted. Due to the nature of Delphi  
483 methodology and multiple survey rounds, the number of respondents also decreased between  
484 rounds.

485 Also, several cultures may have different postpartum practices and rituals (e.g., period of rest,  
486 confinement practices, avoidance of exercise, dietary requirements, breastfeeding practices, etc.)  
487 that may conflict with the run-readiness recommendations in this Delphi study.<sup>149-152</sup> While  
488 efforts were made to recruit diverse respondents (through personal networks, social media (i.e.,  
489 Twitter, Instagram, and Facebook) and word-of-mouth) and authors to capture sociocultural  
490 differences, the recommendations made in this consensus statement may not be applicable to  
491 every culture.

## 492 **CONCLUSION**

493 Consensus was reached that postpartum runners were defined as anyone who self-identifies as a  
494 runner at any time after childbirth. Determining postpartum run-readiness is a multi-factorial  
495 decision-making process that should be individualized and include the following components:  
496 (1) assessment of key musculoskeletal (including pelvic floor) and biomechanical milestones; (2)  
497 load and impact screening; (3) screening of biopsychosocial factors; 4) considerations of support  
498 items if needed and (5) the runner's training history, current capacity, running goals, and training  
499 preferences. Due to the complexity of the postpartum experience, a multi-disciplinary team  
500 approach (e.g., primary care providers, lactation consultants, pelvic health PTs, mental health  
501 providers, sports medicine providers, orthopaedic specialists, physiatrists,

502 obstetricians/gynecologists, urogynecologists, etc.) is recommended when feasible. Education of  
503 perinatal runners on postpartum recovery and gradual initiation of exercise is crucial. Further  
504 research is required in postpartum runners to identify specific tests and measures to determine  
505 readiness to return-to-running while mitigating injury risk and/or symptom provocation in this  
506 population.  
507

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Key points:

<p>What is already known on this topic:</p> <ul style="list-style-type: none"><li>• Evidence from randomized controlled trials and longitudinal studies is lacking for returning to running postpartum</li></ul>
<p>What this study adds:</p> <ul style="list-style-type: none"><li>• When evaluating readiness to run postpartum, professionals aim to include the following: assessment of musculoskeletal and biomechanical milestones, load and impact screening, consideration of biopsychosocial factors (energy availability/relative energy deficiency in sport, milk supply, mental health), and the runner's training history, current capacity, goals, and preferences.</li><li>• Prior to initiating running after childbirth a series of gradual and progressive load and impact challenges should be administered to assess provocation or exacerbation of symptoms.</li><li>• Runners should be screened for concerns or issues with sleep, pre-existing conditions, lactation concerns, hydration, fatigue, and mental health. When possible, an appropriate multidisciplinary team, should work with the runner to address and educate about these issues. Support items such as appropriate vaginal support, continence device options, absorbent products, sports bras, and compression garments may assist the runner.</li><li>• Following a period of relative rest and recovery, a person specific timeline of initiating postpartum running is recommended and gradual progression of exercise. Experienced professionals reached consensus that <i>at least</i> 3 weeks should be allowed for recovery, relative rest, and progression of exercise before initiating running.</li></ul>
<p>How this study might affect research, practice, or policy:</p> <ul style="list-style-type: none"><li>• The recommendations provided in this study can assist runners with further guidance on how to determine readiness to run postpartum. Practitioners and policy makers should support the postpartum athlete's needs, including an appropriate multidisciplinary team, to work with the runner to address concerns and educate about integrating motherhood and running.</li></ul>

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899 TABLE 1. Participant Demographics

	<b>Round 1</b>	<b>Round 2</b>	<b>Round 3</b>
<b>Total number of surveys started (n)</b>	<b>144</b>	<b>108</b>	<b>96</b>
<b>Total number of surveys completed (n)</b>	<b>118</b>	<b>107</b>	<b>95</b>
Physical Therapist/Physiotherapist	96	88	80
Occupational Therapist	1	1	1
Personal Trainer	8	7	6
Chiropractor	1	1	0
Exercise Physiologist	5	4	4
Physician	5	4	3
Run Coach	1	2	1
<b>Completion Rate (%)</b>	<b>53</b>	<b>91</b>	<b>81</b>
<b>Years in current profession (n)</b>			
0-4 years	10	10	8
5-9 years	27	24	22
10-14 years	36	31	28
15-19 years	20	18	15
20+ years	25	24	22
<b>Years working with postpartum runners (years)</b>			
Mean	8.85	8.99	8.93
Range	1-30	1-30	1-30
<b>Percentage of caseload consisting of postpartum runners (n)</b>			
0-24%	65	57	52
25-49%	37	35	31
50-74%	15	14	11
75-100%	1	1	1
<b>Gender identity of respondents (n)</b>			
Woman	116	105	93
Man	2	2	2
<b>Age (years)</b>			
Mean	38.9	39.0	39.2
Range	23-63	23-63	23-63
<b>Race/ethnicity of respondents (n)</b>			
White	114	103	92
Black/African American	2	2	1
Asian	3	3	3
Other	1	1	1
<b>Respondents who identify as a runner (n)</b>			
Yes	86	79	70
No	32	28	25
<b>Have the respondents themselves given birth? (n)</b>			

	Yes	65	60	51
	No	21	19	19
	Preferred not to answer	32	28	25
<b>Trained in internal pelvic floor muscle assessment? (n)</b>				
	Yes		72	75
	No, refers to pelvic floor trained provider		20	20
	No, relies on symptom reports from patient		6	0
	No Response		9	0

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903 TABLE 2. Key Milestones to Assess for Return to Running & Suggested Metrics for Meeting

904 Milestones

<b>Key Milestones to Assess for Return to Running</b>	<b>Agree/Strongly Agree in Round II (%)</b>	<b>Agree/Strongly Agree in Round III (%)</b>
Pelvic Floor Strength	<b>91.5</b>	<b>95.3</b>
Pelvic Floor Endurance	<b>89.4</b>	<b>94.1</b>
Pelvic Floor Coordination	<b>95.7</b>	<b>98.8</b>
Pelvic Organ Prolapse	<b>93.6</b>	<b>97.7</b>
Urinary Incontinence	<b>97.8</b>	<b>97.7</b>
Anal Incontinence	<b>97.9</b>	<b>97.7</b>
Lumbopelvic Strength	<b>96.8</b>	<b>95.3</b>
Lower Extremity Strength	<b>95</b>	<b>98.8</b>
Inter-recti Distance	62.8	55.3
Balance/Proprioception	<b>93.6</b>	<b>95.3</b>
Gait Analysis	<b>75.5</b>	<b>78.8</b>

905 Bold text indicates meets consensus (>75%)

906



907 TABLE 3. Consensus on load and impact screen for Return to Running

Screening Activity	Agree/Strongly Agree in Round II (%)	Agree/Strongly Agree in Round III (%)
Walking for 30 minutes	<b>97.9</b>	<b>97.7</b>
Single leg balance for 10 seconds each leg	<b>89.4</b>	<b>92.9</b>
Single leg squats x10 repetitions each leg	<b>86.2</b>	<b>89.4</b>
Jogging on the spot for 1 minute	<b>92.6</b>	<b>98.8</b>
Forward bounds x10 repetitions	<b>79.8</b>	<b>87.1</b>
Hopping in place x10 repetitions each leg	<b>92.6</b>	<b>95.3</b>
Single leg "running man" (opposite arm & hip flexion/extension with knee bent) x10 repetitions each side	<b>85.1</b>	<b>84.7</b>
Calf raises x20 repetitions	<b>91.5</b>	<b>90.6</b>
Single leg bridge x20 repetitions each leg	<b>86</b>	<b>87.1</b>
Single leg sit to stand x20 repetitions each leg	<b>76.3</b>	<b>80</b>

908 Note: Load and impact screening activities should be performed without exacerbation of  
 909 musculoskeletal or pelvic health symptoms

910 Bold text indicates meets consensus (>75%)

911



913 TABLE 4. Support Items for Return to Running

Support Items	Agree/ Strongly Agree in Round II (%)	Agree/Stro ngly Agree in Round III (%)
A runner requiring support items (such as sacroiliac joint belts, taping, compression shorts, etc.) is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	3.2	1.2
Runners should be educated on appropriate breast support before returning to running after childbirth.	<b>96.8</b>	<b>97.7</b>
Footwear should be assessed for proper fit and compatibility with running goals and current musculoskeletal profile before returning to running after childbirth.	<b>92.5</b>	<b>96.5</b>
Compression garments (e.g., compression shorts/leggings that go over the abdomen, compression socks) can be helpful for some postpartum runners.	<b>95.7</b>	<b>96.5</b>
Intravaginal support items (e.g., pessary, Poise Impressa, tampons, menstrual cups, etc.) can be helpful for postpartum runners with <b>prolapse</b> symptoms.	<b>97.9</b>	<b>100</b>
Intravaginal support items (e.g., pessary, Poise Impressa, tampons, menstrual cups, etc.) can be helpful for postpartum runners with <b>incontinence</b> symptoms.	<b>95.7</b>	<b>100</b>
Abdominal and/or low back taping techniques can be helpful for some runners.	<b>83.9</b>	<b>91.8</b>
Sacroiliac joint belts can be helpful for some runners.	21.5	7.1
Abdominal braces can be helpful for some runners	63	71
If a runner plans to run with their child, the stroller/pram/buggy that they intend to use should be assessed for appropriateness.	<b>89.4</b>	<b>94.1</b>
Incontinence products (e.g., pads, incontinence underwear, etc.) can be helpful for some runners.	<b>92.6</b>	<b>98.8</b>
Runners should not be encouraged to utilize support items (such as sacroiliac joint belts, taping, compression shorts, etc.); rather, they should be encouraged to build functional strength so that these items are not necessary.	50.5	42.3

914 Bold text indicates meets consensus (>75%)

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918 TABLE 5. Consensus On When to Advise Against Running

Themes for recommending abstaining from running	Agree/Strongly Agree (%) Round II	Agree/Strongly Agree (%) Round III
<b>PELVIC HEALTH</b>		
One CANNOT return to running with symptoms of pelvic organ prolapse	12.7	1.2
One CAN return to running with mild symptoms of pelvic organ prolapse	<b>88</b>	<b>100</b>
Presence of severe/significant POP is a reason to recommend that someone NOT resume/participate in/continue running postpartum	69.9	<b>80</b>
One CANNOT return to running with symptoms of urinary incontinence	10.3	2.4
One CAN return to running with mild symptoms of urinary incontinence	<b>92.1</b>	<b>98.8</b>
Presence of severe/significant urinary incontinence is a reason to recommend that someone NOT resume/participate in/continue running postpartum	67.7	<b>75.3</b>
One CANNOT return to running with symptoms of anal incontinence	26.6	5.9
One CAN return to running with mild symptoms of anal incontinence	<b>81.7</b>	<b>96.5</b>
Presence of severe/significant urinary incontinence is a reason to recommend that someone NOT resume/participate in/continue running postpartum	71	<b>82.4</b>
Presence of severe/significant structural pelvic floor muscle injury (e.g., levator ani avulsion, anal sphincter injury, etc.) is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	64.5	68.2
Presence of lochia (post-birth vaginal bleeding) is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	<b>86.2</b>	<b>92.9</b>
Presence of birth complications/delayed recovery from childbirth is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	71	<b>80</b>
<b>MUSCULOSKELETAL</b>		
Presence of musculoskeletal injuries is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	61.3	50.6

Presence of consistent musculoskeletal pain is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	59.1	50.6
Inter-recti distance of 3 finger widths or more without doming is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	0	3.5
Inter-recti distance of 3 finger widths or more with doming is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	41.5	28.2
Presence of Diastasis Recti Abdominis with a hernia is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	44.6	40
Poor biomechanics with day-to-day mobility (walking, stair negotiation, squats, etc.) is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	57.5	56.5
Poor bone health is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	39.8	27.1
A runner requiring support items (such as sacroiliac joint belts, taping, compression shorts, etc.) is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	3.2	1.2
<b>BIOPSYCHOSOCIAL</b>		
Poor sleep habits (less than 6 hours accumulated sleep/night; no stretches of sleep longer than 4 hours; etc.) are a reason to recommend that someone NOT resume/participate in/continue running postpartum.	44.7	31.8
Poor mental health status that may be worsened by running is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	<b>83</b>	<b>90.6</b>
High risk for REDs (i.e., poor nutritional intake, history of disordered eating, rapid and drastic weight loss, etc.) is a reason to recommend that someone NOT resume/participate in/continue running postpartum.	<b>86</b>	<b>89.4</b>
<b>OTHER</b>		
Runners with pre-existing medical conditions (i.e., present before pregnancy) should receive medical clearance before returning to running.	<b>85.9</b>	<b>91.8</b>
Runners who wish to run despite symptoms should not be told that they cannot run; rather, running habits may need to be modified (e.g., decrease mileage) while the runner is treated for identified impairments.	<b>94.7</b>	<b>100</b>

919 Bold text indicates meets consensus (>75%)

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