

BRIEF COMMUNICATIONS

Obstetrics

A guide for physiotherapeutic care during pregnancy, labor, and the postpartum period during the COVID-19 pandemic

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Although many women's health physiotherapists are facing similar issues as obstetricians pertaining to the care of pregnant women with confirmed or suspected COVID-19 infection, no specific guidelines were found regarding best practice for physiotherapists in this area. Therefore, the present study sought to offer guidance around obstetrical physiotherapy care during the COVID-19 pandemic.

A group of experts that are members of the Brazilian Association of Physiotherapy in Women's Health (ABRAFISM) came together to rapidly prepare a clinical recommendation for physiotherapeutic management of pregnancy, childbirth, and the postpartum period during the COVID-19 pandemic.

A literature review was conducted from January 01, 2000, to June 09, 2020, in the following databases: PubMed, PEDro, Web of Science collection, and Embase. All searches were restricted to English and Portuguese languages. The authors sought existing systematic reviews, clinical trial studies, national and international guidelines of the main gynecology, and obstetrics and physiotherapy associations, as well as WHO and Cochrane Pregnancy and Childbirth publications. Two independent researchers (ACRP) and (CHJF) performed the selection of studies.

A group of 21 women's health physiotherapists participated in a three-step modified Delphi method to reach consensus about the recommendations. These recommendations were grouped according

to their similarities and allocated into categories. The recommendations considered the safety of the care environment in outpatient clinics; specific aspects of care provided to pregnant women without and with symptoms of COVID-19 (Table 1); the practice of physical exercise in pregnant and postpartum women during the pandemic (Table 2); and the physiotherapist's assistance in the maternity hospital with parturient and postpartum women.

Face-to-face physiotherapeutic care should be avoided when the risk of exposure to COVID-19 is high and health resources for outpatient care are reduced. A pre-appointment phone screening should be done before any essential face-to-face consultation to verify the presence of comorbidities or COVID-19 symptoms. Tele-triage methods should be used for assessing and caring for all patients to reduce the volume of persons seeking in-person consultations, particularly during times of high COVID-19 transmission.⁶

Locoregional epidemiological issues and the need for contact restriction should be taken into account, as well as indications for physiotherapy care, availability of human resources, and adequate physical space for the safety of patients and health team providers. Digital practices will not be the solution to all the challenges that physiotherapists and their patients are facing, especially in countries where internet access is unfeasible or very limited; however it is a safe way to ensure the continuation of physiotherapy care.¹

TABLE 1 Specific aspects of care for pregnant women without and with symptoms of COVID-19

Pregnant women without symptoms of COVID-19
Maximize the use of all modalities of telephysiotherapy care (teleconsultation and telemonitoring) ¹
Resumption of contact with patients can initially be performed by telephone, as well as telemonitoring ¹
A questionnaire can be used to assess the general health status of patients during first contact (telephone), as well as specific symptoms and each patient's availability/expectations for distance care
Teleconsultation should prioritize aspects of patient self-reporting, preferably by using simplified validated questionnaires
Aspects of physical examination can be used at a distance such as self-monitoring of temperature by patients and inspection of respiratory rate; however, these findings should be interpreted with caution
Some specific aspects of remote physical examinations involving the musculoskeletal system have good reliability and can be performed with caution. Physiotherapists should provide detailed explanations to patients, especially around postural evaluation and self-palpation of the musculoskeletal system
Exposure of naked genitalia of patients and vaginal or anal self-palpation for self-examination of pelvic floor muscle function during video calls is not recommended
It is important to avoid requesting images and videos involving exposure of women's bodies for remote synchronous or asynchronous evaluation, unless their consent is obtained and they are informed about the privacy risks involved ²
The findings of remote physical examinations should be interpreted with caution
Teleconsultation may not be the ideal tool for a complete evaluation of pregnant women; however, it may be the only resource in some situations, and its limitations should be explained to the patient
Telemonitoring is indicated for routine physiotherapeutic prenatal or postpartum care, prescriptions, and supervision of exercises for pregnant women in good general health with good visual and auditory acuity
Sessions should offer quality care and may include postural and ergonomic orientations, exercises for physical conditioning, general kinesiotherapy, and training of pelvic floor muscles and other muscle groups
It is recommended to continue offering educational information digitally, including preparation for childbirth and the postpartum period
Educational materials should be organized by professional and shared virtually (email or digital platforms) with patients (leaflets, booklets, anatomical teaching materials), preferably before care sessions
Clear and empathetic communication with the patient through digital means, maximization of self-care guidelines, and information regarding changes to life habits are very important and feasible to be offered during teleconsultations
All teleconsultations must be duly recorded in patients' medical records
Consent should be obtained for online consultations
Pregnant women with COVID-19
Pregnant women with asymptomatic COVID-19, or with mild symptoms of COVID-19, in home isolation may require physiotherapeutic care related to discomfort in the musculoskeletal system and pain resulting from the adaptations of the maternal body to pregnancy
Physiotherapists should offer therapeutic interventions which do not require physical effort on the part of the pregnant woman, as well as guidelines and measures that prioritize their comfort and pain relief. This can be mainly achieved through general postural and ergonomic orientations, breathing exercises, prescription of light stretching, and maintenance of rest recommendations
The general condition of patients should be constantly monitored
It is important to have contact information for all regional services so that practitioners can refer patients to institutions that offer routine and emergency care. The physiotherapist should also have readily available contact information for the institution where the patient is receiving prenatal care
It is important to discuss clinical cases in an interdisciplinary manner with all professionals who provide prenatal care to pregnant women

The use of simplified validated questionnaires are recommended to assess patient symptoms and remote physical examination findings should be interpreted with caution. Telephysiotherapy is indicated for routine prenatal or postpartum physiotherapeutic care, prescriptions, and supervision of exercise for pregnant women with good general health, eyesight, and hearing. The sessions should offer quality care and may include postural and ergonomic guidelines, exercises for physical conditioning, general kinesiotherapy, pelvic floor muscle training, and training of other muscle groups. We recommend the continued offering of educational activities digitally, including preparation for childbirth and the postpartum period. Educational materials should be organized by professionals and shared virtually (through email or digital platforms) with patients (leaflets, booklets, anatomical teaching materials), preferably before remote sessions. Clear and empathetic communication with the patient through digital media, and the maximization of self-care instructions and lifestyle changes, are very important and easily

achievable benefits of telephysiotherapy. Additionally, all appointments must be duly registered in the patients' medical records and consent must be obtained for online appointments. Sedentarism is an establish risk factor for many pregnancy-specific and related diseases; therefore, it is essential that we continue to provide physiotherapy care during the pandemic. Physiotherapy can make a great difference by providing information for pregnant women regarding evidence-based exercise protocols and rehabilitation during the postpartum period.

An early and structured pelvic floor muscle training regimen should be routinely offered to women as it is an important part of exercise protocols. This will safely and effectively help to prevent urinary incontinence during and after pregnancy.^{7,8}

Face-to-face and individualized care should be considered in urgent cases whereby physical therapy resources are not digitally viable and cannot be replaced by another remote medium that has the same clinical effect.

TABLE 2 The practice of physical exercise in pregnant and postpartum women during the pandemic

There are no recommendations at this time to limit the practice of physical exercise in populations with asymptomatic COVID-19 infection, ³ or in pregnant women and postpartum women; therefore, care should remain the same as it was before the COVID-19 pandemic
Physical exercise should be routinely offered to low-risk pregnant women due to the numerous benefits, such as the prevention of depressive disorders in the postpartum period; however, some modifications may be necessary due to the anatomical and physiological changes that occur during these periods ⁴
The safety of physical exercise has already been established in guidelines on the subject. Physical exercise should be encouraged during pregnancy as an important component of health ⁴
Generally speaking, at least 150–300 min/week of moderate-intensity aerobic activity is recommended. This activity should be sensibly distributed throughout the week ^{3,4}
Physiotherapists should take into account whether the patient had already performed physical exercise before pregnancy or if the patient was sedentary in order to determine type and intensity of the exercise program ⁴
The evaluation, prescription, and supervision of exercises shall be carried out using teleconsultation and telemonitoring whenever possible ^{1,2}
All safety recommendations should be known and applied to help patients exercise during pregnancy and the postpartum period in the exactly the same way during teleconsultations
Moderate intensity exercises are likely to be the most common recommendation; however, the practice of exercise before pregnancy should be considered to indicate subsequent type and intensity of exercise during and after pregnancy ⁴
It is important to guide the patient on the use of perceived exertion classifications to monitor exercise intensity and on the “talk test” ⁴
An estimate of the effort exerted by pregnant women in moderate exercise should remain between 13 and 14 (slightly tiring), and the “talk test” should allow women to be able to speak and exercise at the same time ⁴
Women should be advised to remain well hydrated, avoid long periods of supine posturing, and discontinue exercise if they have any of the following warning signs: vaginal bleeding, abdominal pain, regular painful contractions, amniotic fluid leakage, dyspnea before exertion, dizziness, headache, chest pain, muscle weakness affecting balance, calf pain, or swelling ⁴
Physiotherapists should evaluate the safety conditions of the home environment (furniture, temperature, privacy for telemonitoring sessions, and unsupervised exercises), guiding necessary adaptations of the environment to improve the quality of sessions
Until scientific data are available on the repercussions of aerobic and resistance physical exercise in pregnant and postpartum women infected with COVID-19 (with or without symptoms), it is prudent to suspend exercise practice during the days of isolation or total remission of symptoms
Mild activities of daily living can be maintained during the social isolation period for pregnant women with asymptomatic COVID-19 infection. Pregnant women should avoid staying in bed for many hours during the day or in the same posture for more than one hour without taking breaks
After periods of inactivity due to COVID-19 infection or other reasons, pregnant women may be more vulnerable to injury when resuming physical exercise; therefore, the physiotherapist must plan and provide guidance for a gradual resumption of exercise
Regarding physical exercise after a period of inactivity and/or recovery from COVID-19 infection, shorter and more frequent sessions should be proposed with a gradual increase in intensity through periodic monitoring and reassessment. This should be done in order to reduce the likelihood of injury or development of other complications
All warning signs and symptoms for interrupting physical exercises should be communicated to pregnant women and properly self-monitored and monitored by telephysiotherapy
Pregnant women should be instructed to discontinue exercise if they have cough, fever, or shortness of breath
Pregnant women at habitual risk should receive guidance on physical exercise during prenatal consultations through educational leaflets, telephone explanations, teleconsultation in a synchronic or asynchronous way, and virtual training groups
High-risk pregnant women with an indication for physical exercise at the outpatient level should receive real-time supervision. It is up to the physiotherapist's discretion to determine whether it is safe for the patient to exercise alone or whether the patient should be monitored remotely
Social isolation/distancing should in no way keep pregnant women away from prenatal care. ⁵ The physiotherapist should make sure that the patient has access to prenatal care before indicating, prescribing, and supervising any exercise program. Concerns that physical exercise during pregnancy may cause miscarriage, fetal growth restriction, musculoskeletal injury, or preterm delivery have not been scientifically proven in low-risk pregnancies ⁴
Greater physical and cardiorespiratory fitness are associated with lower levels of pain in general, low back pain, sciatica, and reduced disability to pain ⁴
Rehabilitation can be initiated in the immediate postpartum period through guidance and kinesiotherapy involving various muscle groups, including the pelvic floor. Abdominal muscle strengthening exercises have been indicated for treating rectus abdominal muscle diastasis; however, patients should be provided with guidance by a specialized physiotherapist ⁴
Aerobic exercise in breastfeeding women improves maternal cardiovascular conditioning without affecting milk production, milk composition, or infant growth, and is usually initiated approximately 40 days after delivery through the desire/availability of the patient, obstetrical/clinical condition, and through a physical therapy evaluation. Women who are breastfeeding should consider feeding their babies or milking before exercising to avoid the discomfort of engorged breasts ⁴

Regarding the presence of physiotherapists in maternity hospital teams, it may be necessary to modify hospital policies and protocols according to the specificities and rules of each institution due to the risk of exposure to COVID-19. However, the WHO emphasizes that all women should have a positive and safe experience in labor, regardless of the status of COVID-19.⁵

The work of the physiotherapist also involves specific knowledge about the body and pelvic biomechanics in labor and delivery. This knowledge is essential for respecting the preferences of each woman during the labor process, as well as the overall aspects of her health and evolution in labor.⁸⁻¹⁰ Physiotherapeutic care for women in labor provides pain relief and improves progression in labor, thereby decreasing the use of analgesic medication and unnecessary medical interventions which contributes to women's autonomy and positive experiences.⁹⁻¹²

Current reports have found that prone positioning is particularly helpful for patients with COVID-19 and subsequent moderate or severe respiratory disease.¹² In spite of this, routine indications and contraindications to prone positioning apply, especially considering the limited evidence. Additional caution must be observed for patients within 2 postoperative days after cesarean delivery, owing to concerns for incisional complications and pain in the immediate postoperative period. Furthermore, prone positioning for patients at 34 weeks of gestation or more may be more technically difficult. The use of a specially designed stretcher to fit the women's abdomen has been reported in the literature; however physiotherapists should ultimately have the biggest input in the provision of solutions for adequate positioning in pregnant, in-labor, and postpartum women, considering the currently available evidence.¹³

The role of the physiotherapist also encompasses the immediate postpartum period. A physiotherapist should seek to prevent deep vein thrombosis, improve the respiratory, cardiac, gastrointestinal, locomotor, postural, and urinary functions (among others), and encourage the bond between mother and newborn. They should also assist with relieving pain related to perineal trauma and cesarean sections, favoring a healing processes which uses effective non-pharmacological resources.¹⁴⁻¹⁶

Due to the ever-changing nature of the COVID-19 pandemic, clinical guidelines contained in this recommendation may change as new articles and knowledge about the disease emerge. The recommendations were compiled based on the best available evidence and expert opinions, in spite of the lack of evidence. These recommendations offer some guidance to professionals working in the area of physiotherapy, especially when, at present, there are no specific articles and guidelines on the role of obstetrical physiotherapy during the COVID-19 pandemic. Telephysiotherapy is a feasible method for ensuring the continuity of care during the COVID-19 pandemic, with the potential to open new perspectives for expanding practice and research in women's health, especially in obstetrics.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest.

AUTHOR CONTRIBUTIONS

ACRP was responsible for drafting the manuscript, coordinating the study, interpretation of the data, and approval of the final version of the manuscript. CHJF coordinated and supervised data collection, and wrote and critically reviewed the manuscript. LRM coordinated and supervised data collection. MPPS, MDMF, CDO, MMDOS, RBSG, and PD critically reviewed the manuscript. All authors contributed to and approved of the final version of the manuscript.

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Obstetrics

Alternative suture tightening technique for achieving adequate suture tension during B-Lynch compression suture

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Treatment methods for managing uterine atony include uterine compression sutures such as B-Lynch compression suture.¹ Christopher B-Lynch and colleagues first reported this technique in 1997.² Following this, other types of compression sutures, such as modified B-Lynch, Hayman, Pereira, Ouahba, Hackethal, or Cho suture, have proliferated.^{3,4}

One of the steps required for completing a B-Lynch suture is the suture tightening step. The authors of the present study suggested that this step required modification to achieve adequate compression or suture tension in certain clinical settings. The operator cannot overlook suture tension as it may determine the effectiveness of compression suture, which is essential for arresting bleeding. In the present study, the authors describe this modification and review immediate complications in five of cases.

The initial literature regarding B-Lynch compression suture states “the two lengths of catgut are pulled taught assisted by bi-manual compression to minimize trauma and achieve or aid compression.”² In practice, the surgeon pulls the suture while an assistant continuously compresses the atonic uterus (pull-on-compress)—the surgeon stops pulling the suture whenever the assistant pauses between the bimanual uterine compression. Artery forceps are commonly used to hold the suture during this short pause in order to maintain the previous

suture tension strength on the atonic uterus.⁵ A similar step has also been emphasized in other types of uterine compression suture.³

Conversely, in our variation, the surgeon continuously pulls on both suture's ends while the assistant alternately compresses and releases the compression on the atonic uterus (Figures 1 and 2). The surgeon can make a knot (one or two throws) before the pulling process. We found that the suture pulling and tightening effect was present right after the assistant released the compression (pull-on-release) and during the bimanual compression period.

The difference from the original step is that the surgeon must exert a continuous pull on the suture while the assistant alternately compresses and release on a 'braced' uterus instead of applying continuous bi-manual compression. We received an exemption from ethical approval from our Faculty's Ethics Committee. The present study is a descriptive report on an alternative technique that utilized different methods for tightening the suture to support the effective execution of an established procedure—the paper does not alter the basic principle of B-Lynch compression suture. Minor variations in a routine surgical case do not come under the World Medical Association Declaration of Helsinki definition of human experimentation. Additionally, this technique was performed during a life-threatening emergency condition.