

Telerehabilitation for Exercise Training in Pregnancy

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ABSTRACT

OBJECTIVE: To determine the effects of exercise training on the severity of low back pain, disability, and quality of life in pregnant women followed by telerehabilitation.**STUDY DESIGN:** This prospective cohort study consisted of 11 pregnant women. Low back pain severity and the effect of low back pain on functionality, quality of life, and aerobic capacity were determined by the Visual Analogue Scale, Oswestry Low Back Pain Disability Questionnaire, Short Form-36 (SF-36) and 6-minute walking test, respectively. The home-based exercise regimen was designed, and telerehabilitation support was provided two days a week for a total of eight weeks. The evaluations were repeated after the exercise program and the Wilcoxon test was used to compare the pre- vs. post-treatment results.**RESULTS:** Physical function, physical and emotional role difficulty, pain subscale of SF-36, low back pain severity, walking distance in the 6-minute walking test, Oswestry Low Back Pain Disability Questionnaire scores seemed to have improved after the exercise program.**CONCLUSION:** Telerehabilitation can be an effective method of increasing the functionality and quality of life by maintaining exercise programs during pregnancy.**Keywords:** Physical exercise, Pregnancy, Telemedicine, Telerehabilitation**Gynecol Obstet Reprod Med 2023;29(1):27-29**

Introduction

Similar to many other dimensions of daily practice, the recent pandemic has forced several medical personnel to switch to alternative methods for prompt management of their pa-

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tients (1, 2). In this aspect, it is true that telerehabilitation - remote provision of rehabilitation services using information and communication technologies - was already on the agenda for several years/conditions; however, its importance has significantly mounted after the COVID-19 pandemic (3,4). Needless to say, even a little possibility of decreasing the infection risk would be paramount when the patient/subject is a pregnant woman (5). Likewise, in our preliminary study, we aimed to determine the effects of exercise training on the severity of low back pain, disability, and quality of life in pregnant women who were followed with telerehabilitation.

Material and Method

Eleven healthy pregnant women (mean age 31.18±4.93 years, mean weight 62.87±7.77 kg, mean height 166.45±6.31 cm) who were compliant with technology use were enrolled in this prospective cohort study. Inclusion criteria were primiparous and singleton pregnancy, age between 18 and 40 years, being at the 16th week of pregnancy, and voluntary participation. Exclusion criteria were having one of the situations in which exercise is contraindicated such as heart disease, restrictive lung disease, cervical insufficiency of the uterus, continuous bleeding in the 2nd and 3rd trimesters, placenta previa, risk of premature birth, rupture of membranes, pre-eclampsia, severe anemia, and not participating in more than 50% of the exercise programs. Detailed obstetric/medical history and de-

mographic information were recorded during a face-to-face interview. Low back pain severity and the effect of low back pain on functionality, quality of life, and aerobic capacity were determined by the Visual Analogue Scale, Oswestry Low Back Pain Disability Questionnaire, Short Form-36 (SF-36) and 6-minute walking test, respectively. The home-based exercise regimen comprised training for posture and body mechanics, lower/upper extremity strengthening, pelvic floor muscle training, and breathing exercises, specially/individually designed for pregnant women (Figure 1).

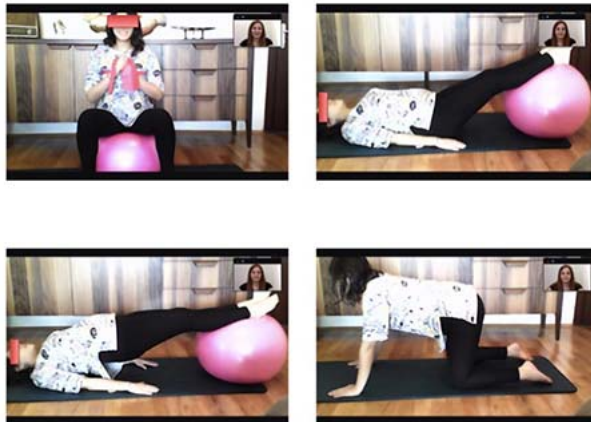


Figure 1: Exemplary screenshot taken to demonstrate the exercise session of one subject under physiotherapist/remote guidance using telerehabilitation.

The telerehabilitation program continued under the supervision of a physiotherapist (E.U.), 2 days a week for 8 weeks. All pregnant women were included in the 16th week and the exercise program was terminated at the 24th week. Subjects were also advised to walk 3 days a week as aerobic exercises. In the first session, subjects were given training on postural changes/ alignment during pregnancy which encompassed contraction of deep muscles e.g. craniocervical flexion and slight axial extension (cervical bracing), placing the shoulders slightly back and down, neutral positioning of the scapula (thoracic bracing), and the lumbopelvic region in a painless,

and comfortable neutral position (abdominal bracing). They were asked to maintain the curvature of the spine and their ideal postures during the day and exercises. Appropriate verbal feedback was given to maintain cervical, thoracic, and abdominal bracing during the exercises. The severity was regulated as moderate (12-14 on the Borg Scale) as recommended in the guidelines of the American College of Obstetrics and Gynecology. The exercises were started from the mat level and progressed with theraband and exercise ball, as modified. The duration was 60 minutes per session. The evaluations were repeated after the exercise program and the Wilcoxon test was used to compare the pre- vs. post-treatment results. Statistical significance was set at $p < 0.05$.

The study was approved by the Hacettepe University Clinical Research Ethics Committee with reference number KA-19121 on 28.11.2019. All participants provided written informed consent and the study was conducted in accordance with the Declaration of Helsinki.

Results

Physical function, physical and emotional role difficulty, pain subscale of SF-36, low back pain severity, walking distance in the 6-minute walking test, and Oswestry Low Back Pain Disability Questionnaire scores seemed to have improved after the exercise program (Table I). However, no significant difference was found in BMI scores, vitality, social function, and general health subscales of SF-36.

Discussion

In light of our preliminary results, we imply that telerehabilitation can be an effective method of increasing the functionality and quality of life by maintaining exercise programs during pregnancy (3,4). As such, it is noteworthy that (the severity of) low back pain in pregnant women can be reduced despite the advanced stages of pregnancy. Our findings could

Table I: Pre- and post-treatment assessment results of the subjects

	Pre-treatment (n=11)	Post-treatment (n=11)	<i>p</i>
VAS score (cm)	3.39 ± 1.71	1.23 ± 0.99	0.003*
BMI (kg/m ²)	23.42±3.81	25.02±3.71	0.211
Oswestry score	13.02 ± 7.60	6.72 ± 6.01	0.003*
SF - 36			
physical function	75.45 ± 15.88	84.09 ± 16.25	0.021*
physical role difficulty	52.72 ± 30.93	79.09 ± 25.18	0.036*
emotional role difficulty	60.66 ± 24.99	82.58 ± 23.03	0.007*
pain	70.90 ± 21.01	82.72 ± 12.86	0.038*
vitality	64.54 ± 13.68	70.00 ± 16.43	0.063
mental health	77.31 ± 13.69	82.36 ± 16.96	0.052
social function	82.95 ± 17.02	88.40 ± 14.67	0.066
general health	65.13 ± 14.63	71.09 ± 14.14	0.062
6 MWT-walking distance (m)	515.36 ± 69.76	558.27 ± 68.19	0.020*

well serve as initial proof of why/how telerehabilitation can also be applied otherwise in daily practice for subjects with limited or unattained transport. To the best of our knowledge, this is the first study in the literature examining the effects of exercise via telerehabilitation during pregnancy. There is only one case report about the use of telerehabilitation for pelvic girdle dysfunction in pregnancy during the COVID-19 pandemic (6). According to this case report, video-based telerehabilitation appeared to satisfactorily reduce the patient's pain and improve function (6). This preliminary study described a new path for telerehabilitation for pregnant women suffering from common musculoskeletal conditions such as low back pain. Digital Practice is a rapidly expanding subject that specialist physiotherapists should approach with caution because it has the potential to increase access to health care even from afar, at a cheaper cost and with greater convenience for the consumer. This approach may enable the physiotherapist to provide rehabilitation services during the COVID-19 pandemic crisis' indeterminate period of social isolation. Indisputably, further studies with larger samples and longer follow-ups, also comparing the effects of different exercise programs, are definitely awaited.

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The authors declare that they have no competing interests.

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Ethics approval and consent to participate: All participants signed informed written consent before being enrolled in the study.

The study was reviewed and approved by the ethics committee of Hacettepe University Clinical Research Ethics Committee with reference number KA-19121 on 28.11.2019.

The data supporting this study is available through the corresponding author upon reasonable request. / The datasets and code used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions: Esra Uzelpasaci, Levent Ozcakar, and Türkan Akbayrak raised the presented idea. Esra Uzelpasaci, Serap Ozgul, and Türkan Akbayrak designed the study. Ozgur

Ozyuncu conducted the analyses. Esra Uzelpasaci and Levent Ozcakar developed the first draft of the manuscript. All authors contributed to the writing of the paper, and have read and approved the final manuscript. Mehmet Sinan Beksac conducted the population study, analyzed and interpreted the data, and drafted the manuscript. Esra Uzelpasaci and Serap Ozgul participated in data analysis, interpretation, and draft revision. Esra Uzelpasaci, and Levent Ozcakar participated in data collection and result interpretation. Serap Kaya, Mehmet Sinan Beksac, and Ozgur Ozyuncu assisted with data collection and analysis. Türkan Akbayrak designed the study and critically revised the manuscript. All authors read and approved the final manuscript.

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