



Efficacy of Core Strengthening Exercise Program in Postpartum Period - A Narrative Review

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ABSTRACT

Introduction: One of the most eminent phase of women's life is pregnancy. Pregnancy is a natural physiological process but postnatal complications poses a unique and gender-based challenge for physical therapist.

Aim/Objectives: To compare various exercises to strengthen the core muscles after delivery in the postpartum period.

Methodology: Total 70 studies were checked and total 39 were not suitable for the study. Total 20 articles were selected which were RCT.

Result: It has been reported that the therapeutic exercises can improve lung functions by increasing forced vital capacity and forced expiratory volume.

Conclusion: Based on included articles, this study concluded that core strengthening exercise improved strength of pelvic floor muscles, reduced lumbopelvic pain, and improved quality of life in postpartum women.

Key Words: Core stability, Postpartum, Diastasis Recti, Kegel exercise, Core strengthening, Randomized control trial

INTRODUCTION

One of the most eminent phase of women's life is pregnancy, although pregnancy is a natural physiological process but postnatal complications poses a unique and gender-based challenge for physical therapist.¹ The World Health Organization (WHO) describes the postnatal period as the most critical yet neglected phase in the lives of the mothers and babies.² Physical activity is defined as anybody's movement produced by the contraction of skeletal muscles. Exercise is defined as physical activity consisting of planned structured and repetitive movement behaviors, including moderate to vigorous physical activity. During pregnancy, female body undergoes many hormonal and anatomical changes that affect musculoskeletal system to maximum extent. The pelvic

floor often weaken under the weight of the fetus, even the diaphragm changes to accommodate the growing belly, affecting breathing mechanics that is the rib cage slides backwards out of the way of the pregnancy resulting in short, shallow chest breath.⁷ Abeer M. et al. (2019) studied effects of segmental stabilization exercises augmented by pelvic floor muscles training on women with postpartum pelvic girdle pain which they divided in two groups Group (A) received local stabilizing exercises, while group (B) received stabilizing exercises and PFM training. Pain, functional disability, trunk ROM, and PFM strength have been evaluated using visual analogue scale (VAS), Oswestry Disability Index (ODI), Schober test, and Kegel perinometer respectively. The results were that the PFM training should be an essential part in rehabilitation programs of PGP postpartum.²¹

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MATERIALS AND METHODOLOGY

Various Systemic review and Narrative review

Sampling Techniques: RCT

Author	Study	Type of intervention	Outcome measures	Finding
1. Eloise Simpson et al.(2022)	RCT	Effectiveness of Early Postpartum Rectus Abdominis versus Transversus Abdominis Training in Patients with Diastasis of the Rectus Abdominis	IRD	Prescription of rectus abdominis exercise during the early postpartum period of vaginal delivery resulted in a greater reduction of the inter-recti distance at 6 and Abdominis Muscles compared with randomized abdominis exercise. ⁸
2. Ali Yalfani et al. (2021)	RCT	Suspension versus + core stabilization	VAS	Treatment exercise had a positive effect on DRA and like the isometric and isotonic exercise can be used in treating pain. ⁹
3. Hadiqa Adnan et al.(2021)	RCT	Static core exercise + Swiss ball training	NPRS	Both exercise protocol are equally effective in the rehabilitation postpartum back pain. ¹⁰
4. Eman Awad et al. (2021)	RCT	Progressive prone plank	IRD	progressive prone plank exercise program is very effective in decreasing IRD in postpartum women presented with DRA. ¹¹
5. Zulekha Saleem et al. (2021)	RCT	Inter recti distance+ associated low back pain among postpartum Females.	IRD	6 weeks of exercise protocol is observed to be effective in the management of DRA. ¹²
6. Hui Wang et al. (2021)	RCT	To evaluate the effects of a rehabilitation Programme for lumbopelvic pain after childbirth.	SF-36 NPRS	It improves postpartum programme for women with lumbo-pelvic pain is feasible and improves the physical domain of quality of life. ¹³
7. Nadia Keshwani et al. (2021)	RCT	abdominal binding in the management of diastasis recti abdominis in early post-partum period.	IRD	that it may be possible to improve body image and trunk flexion strength With physiotherapy.
8. Ripart et al. (2021)	RCT	Pelvic floor muscle exercises versus pelvic floor muscle exercises combined with biofeedback for stress urinary incontinence in postpartum.	I-QOL	This studies suggest that biofeedback can be an effective element adding to Pelvic Floor Muscles exercises used in urology rehabilitation. ¹⁵
9. Iqra Nayyab et al.(2021)	RCT	The effects of an exercise program for core muscle strengthening in Patients with low back pain after cesarean section.	NPRS	This study showed that Supervised core stability exercise program was more effective in reducing pain and disability, and improved core muscle activation . ¹⁶
10. Wenjuan Li et al. (2020)	RCT	electrical stimulation protocols + pelvic floor rehabilitation of postpartum women with extremely weak muscle strength	I-QOL	It gives more benefit for control ability of pelvic muscle contractions and elevating muscle strength even in short-time treatment. ¹⁸

11. Ali A. Thabet et al.(2019)	RCT	Deep core stability exercise	PF10	deep core stability exercise program is effective in treating diastasis recti and improving postpartum women's quality of life. ¹⁹
12. Marwa Shafiek Mustafa	RCT	Effect of core stability exercises on postpartum lumbo-pelvic Pain.	VAS	Core stability exercises in addition to conventional treatment significantly decreased pain and improved function for women with postpartum . ²⁰
Saleh et al. (2019)			PPT	
			ODI	
14.Sandra L. Gulpee et al. (2018)	RCT	Postpartum Training Program on the Prevalence of Diastasis Recti Abdominis in Postpartum Primiparous Women.	IRD	Weekly comprehensive exercise program with focus on strength training of the PFM and with additional daily home training of the PFM was not effective in reducing the prevalence of DRA. ²²
15. Chinara Saco-mori et al. (2015)	RCT	Strategies to enhance self-efficacy and adherence to home-based pelvic floor muscle exercises did not improve adherence in women with urinary incontinence.	International Consultation on Incontinence Questionnaire -short form (ICIQ-SF score)	The study showed that both group had lower scores, meaning that they felt urinary incontinence to be less bothersome than the control group, no differences between groups in ICIQ-SF scores were found at Days 15 or 90. ²⁴

Inclusion criteria:

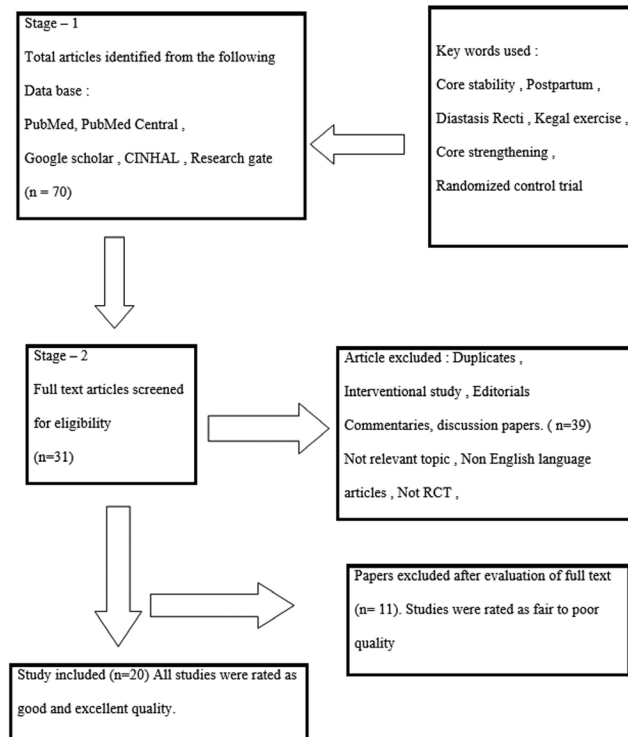
- (1) Used exercise either alone or in conjunction with other modalities to treat DRA,
- (2) Used randomized controlled trial (OCEBM level II evidence)
- (3) Analyzed the impact of intervention on IRD as a primary outcome.

Exclusion Criteria: Duplicates, Interventional study, Editorials Commentaries, discussion paper, Non English language articles, Not RCT, Systemic review, Cross-sectional study, narrative review.

Outcome Measures:

1. VAS
2. NPRS
3. IRD
4. QOL
5. RMDQ
6. PF10

Subjects Baseline characteristics:



RESULTS

The adaptive changes in the muscles determined by the exercise can account for the results of the study, since the metabolic capabilities of the muscles were continuously overloaded. The hypertrophy of the muscle fibers and the increase in the recruitment of its motor units causes the muscle, a contractile tissue, to strengthen. In addition, it profusely affects the metabolic demand associated with producing a given muscle force which leads to an increase in muscular endurance and power. Therapeutic exercises also activate both slow twitch (ST) and fast twitch (FT) fibers of the skeletal muscles, with increased fiber as the high content of FT fibers improves muscle strength. In addition, it has been reported that the therapeutic exercises can improve lung functions by increasing forced vital capacity and forced expiratory volume.

DISCUSSION

20 studies of postpartum women during the postnatal period were included. The study design ranged only randomized control trials. Among 20, 8 were rated as excellent quality while 12 articles were rated as good quality. All interventions included core strengthening exercises Static core exercise, Swiss ball training, progressive prone plank, Kegal exercise. The available evidence showed that core strengthening exercise during postpartum period reduced the IRD (inter recti distance) as well as VAS (visual analog scale), QOL (quality of life scale). Hadiqa Adnan et al. (2021) studied effects of a static exercise programme verses Swiss ball training for core muscles on postpartum women. The subjects were divided in Group, A which received static core exercises, while those in Group B got Swiss ball training. Outcome was measured using numeric pain rating scale, Oswestry disability index, goniometry and core stability assessment scale. Both exercise protocols used in the study were equally effective in the rehabilitation of postpartum low back pain. Therefore, this article supports the static exercise and Swiss ball training

LIMITATION

1. The sample size was small.
2. Subjects were not followed up for a longer time.

Further Recommendation:

1. The same study can be done with large sample size.
2. A comparative study including different age groups can be done.
3. The future study can be conducted and carried out to know the long term benefits of the intervention

CONCLUSION

Based on included articles, this study concluded that core strengthening exercise improved, strength of pelvic floor muscles, reduced lumbopelvic pain and improved quality of life in postpartum women.

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Author's Contribution:

The first author searched the literature, collected data and wrote the manuscript. The second author reviewed and revised the manuscript as her supervisor.

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