



Pilates Project

Exploring the impact of the
use of a
Pilates routine for nurses
back health

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Health
South Eastern Sydney
Local Health District

Background

- Nurses' backs are placed under stress from repetitive actions: over-stretching, overloading, standing, reaching, lifting and turning (1).
- Back injuries accounted for 25.3% of all workers compensation claims for nurses in Australia in the financial years 2009-2014 (2).
- Nursing back injury is expensive (3).
- A study at two Sydney hospitals in 2012 demonstrated 40.2% of nurses reported back pain 'sometimes' or 'often' (4).
- Fit for the future: Health of Nurses study (5) demonstrated nurses experience high incidence of back pain. 46% of nurse respondents reported symptoms of back pain 'sometimes' or 'more often'.



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Background

- In New South Wales in 2014 back pain was found to differ significantly between nurses who did and did not intend to leave their current job (affecting 49% and 46%, respectively) (4).
- Back injury might be prevented by strengthening core muscles and increasing back muscle flexibility (6). Pilates is defined as 'a mind-body exercise that focuses on strength, core stability, flexibility, muscle control, posture and breathing (7).
- In 2017 the SESLHD Nursewell App™ was launch which incorporated Pilates videos in the Better Back health section.
- The clinical environment is very busy, and we wanted to know if a short pilates routine would be beneficial.



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Aim and Objectives



The aim of this project was to examine the feasibility of a brief Pilates intervention for working nurses and the effect on nurses back strength and flexibility.

The objectives of the study were:

- To implement and determine the feasibility of integrating a regular seven (7) minute Pilates app guided routine into an acute care hospital.
- To determine the efficacy of a seven (7) minute Pilates app guided routine in relation to nurses back strength and flexibility.



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Methods

Mixed methods study

Ethical approval was gained from South Eastern Sydney Local Health District Human Research Ethics Committee

Sample

Nine wards were identified as feasible with suitable rooms/space for a Pilates Routine.

Nurses Inclusion criteria: Nurses of all grades, F/T or P/T working in a clinical role.

Nurses Exclusion criteria:

- Staff with conditions that affect balance, musculoskeletal injury or neurological conditions currently receiving any form of treatment.
- Those pregnant or planning to become pregnant during the study period.
- Those who were already planning to increase their activity / exercise plan.



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Methods

Unit Risk assessments

- Performed by Work Health and Safety Officers.
- Specified: suitable rooms/spaces, maximum number of participants, staff to wear uniforms (scrubs)

Pilates routine

- Participants were to perform the 7 minute Stand-up Pilates routine in the Nursewell app for 5 -7 days per week for a period of 8 weeks.
- Participants kept a daily record to document performance of the Pilates routines and other exercise two weeks before the commencement the Pilates and during Pilates intervention.
- Pilates could be done anytime at home or during the shift.
- Ward project champions were identified.



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Methods

Acceptability and feasibility of workplace Pilates

- Participants were invited to attend a focus group at the end of the study to determine acceptability and feasibility of Pilates at work



Methods

Pre-test / post-test were conducted at the time of consent and within two weeks of completing the eight week Pilates intervention.

Quantitative measurements were performed by 2 researcher staff who agreed on measurement. (Researchers taught to perform the test by a Exercise Physiologist).

Participants unaware of results/ researchers did not review results prior to repeat measures.

Back Strength

The Front Plank (8) is an isometric core strength exercise.

The plank test evaluates core muscle strength (9).



Back Flexibility

The Sit-reach Test (10) is achieved by the participant leaning forward as far as the person can go in a slow, steady movement, keeping the knees straight and hand parallel to ruler.



Best of three measurements recorded.

Data Analysis



Pre-test and post-test strength and flexibility measurements were compared using the repeated measures T-Test for means using Excel™, with $P < 0.05$ accepted as indicative of statistical significance.

11 participants data was incomplete and therefore excluded from analysis.

Participants' Pilates diaries were reviewed.

This was used to group the data as participants performed the Pilates routine at varying frequency.

Analyses were calculated to compare change scores for participants who performed the Pilates routine on average three times per week or more (at least 24 repetitions during the study), those who performed fewer repetitions, and for the whole group.



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Results

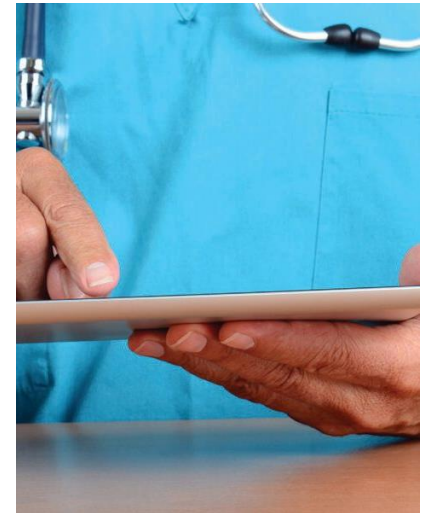
63 Nurses Consented.

- data were incomplete for 11 participants and excluded from analysis, leaving data from 52 participants for analysis.

52 participants performed the routine 22 (mean) times (range 0 to 56 and a median of 15 repetitions).

Participant demographic data (n=52)

- Gender: Female: 94% (n=49) Male 6%.
- Age in years: 33.7 (mean): range (20-61), (SD 12.4)
- Years worked as nurse: 9.3 (average); range (1-38), (SD 10.7)
- Full time employed: n=47 (90.3%)
- Work rotating Roster: n=40 (76.9%)
- Department Worked in: Medical (n=23; 44.2%),
Surgical (n=23; 44.2%),
Outpatient (n=6; 11.5%)



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Results: Back Strength



- The group as a whole registered a non-significant decrease in average time the plank was held.
- Participants completing more than a minimum of three repetitions per week saw a non-significant increase in average plank-hold time.

	Pre study mean (seconds)	Range (seconds)	Post study mean (seconds)	Range (seconds)	Mean Change (seconds)
All participants, n=53	106.7	16 – 317	105.3	12 – 368	Decrease of 1.4 (p= 0.73)
Participants ≥ 3 x repetitions per week, n=32	105.5	16 – 317	113.1	0 - 368	Increase of 7.6 (p=0.14)
Participants < 3 x repetitions per week, n=20	108	28-244	101	16-261	Decrease of 7.3 (P=0.21)

Table 1: Mean duration (minutes) recorded time for participants holding a front plank

Results: Back Flexibility



- The whole group saw a significant increase in flexibility post compared to pre Pilates intervention. Increase in their reach of 22mm.
- Participants that completed at least three repetitions per week saw a statistically significant increase in their reach by 31mm.

	Pre study mean	Range	Post study mean	Range	Mean Change
All participants, n=53	+52 mm	-185 to +264mm	+74 mm	- 190 to 266mm	Increase of 22mm (p=0.003)
Participants ≥ 3 x repetitions per week n=32	+ 63mm	-150 to +250mm	+ 94 mm	-39 to + 266	Increase of 31mm (p=0.0044).
Participants <3 x repetitions per week, n=20	+45mm	-185 to 210	+ 61	-190 to +203	Increase of 16mm (P= 0.10)

Table 2: Participants' 'sit and reach' test measurements

Results: Feasibility and Acceptability



Post study focus groups were held with participating unit staff at the completion of Pilates study

Questions In relation to performing the Pilates routine

1. What worked well?
2. What factors do you believe influenced this?
3. In relation to performing the Pilates routine, what didn't worked well?
4. What factors do you believe influenced this?



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Focus Group Themes



1. **Positive Impact** on the team and individuals: physical and emotional self

“It was like having a Circuit breaker in the shift”
“a bit more relaxed after the morning rush”
“ .. team was energised and motivated “
“ muscles felt more relaxed”

2. **Enablers:** Champion(s) of Pilates; support and encouragement from organisation and leadership team; having the Pilates routine video easily accessible; video length

“The champion motivated us” *“...organised us”*
“Doing it as a team”

3. **Participation:** Work and Home participation; The Positivity of Participation; Team Building; Hindrance to Participation



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Focus Group Themes

4. Barriers: Perceived lack of commitment/motivation; Lack of set time; not everyone was participating; work priorities/workload

“Clinical work was a priority..... ”

“If there wasn’t anyone in charge “ it was too hard to organise”

..... “not everyone was participating”

5. Future Implementation: Should continue; Making it work; have a champion; classes; Feasibility for future; More video options with varying duration.



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Impact of Pilates Study



- Increased back flexibility ($P < 0.05$)
- Positive emotional impact
- Positive team building
- Can be achieved at work
- No injuries at work reported in the study group

PD Principle 1

PD is fundamentally about person-centre practice that promotes safe and effective workplace cultures where all can flourish¹¹.

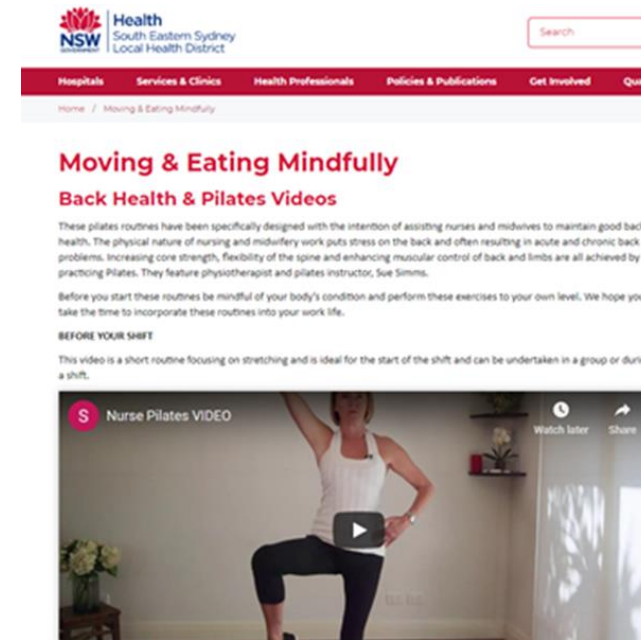
Where to find the Pilates Routine

Nursewell App



Lamp Editorial Team | June 30, 2017

SESLHD Internet site



<https://www.seslhd.health.nsw.gov.au/moving-eating-mindfully>



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Lets try the Pilates Routine

Disclaimer

This Pilates routine has been developed to improve the wellbeing and back health of nurses and midwives in SESLHD.

If you have an existing back Injury or condition or are experiencing acute back pain please do not attempt these exercises today.



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The Pilates Routine



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Thank You



The nursing staff of
PB10 West, PB 8
PB 7 East, PB 6,
PB 5, Recovery
Radiation Oncology,
DB 4
PB 4 East at POWH



Prince of Wales
Hospital Foundation



Louisa Hope Fund
for Nurses