

ACL reconstruction
Early Rehabilitation:
Are We Doing Enough?
Loading symmetry

Susan Sigward PhD, PT, ATC

Loading

Normal gait, Full ROM,
Quadriceps strength >80%,
Begin running progression⁷

Agility exercises
Sports specific exercises⁷



1 month



3 months



1 to 2 years



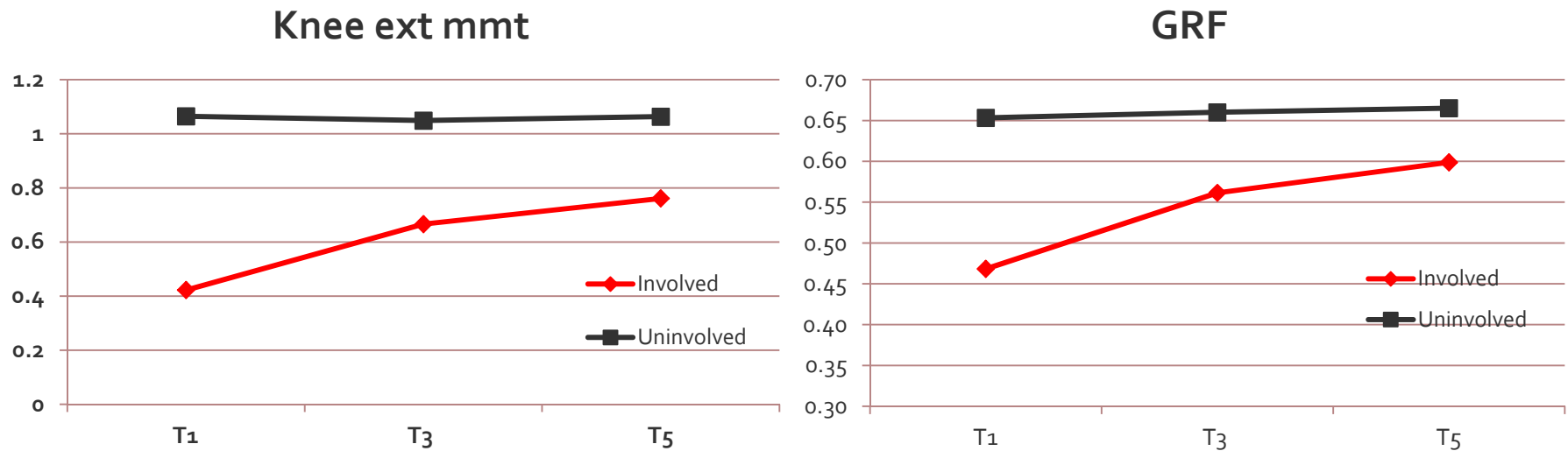
Sit-to-stand
32% lower vGRF¹

Body weight squat
14% to 11% lower vGRF²

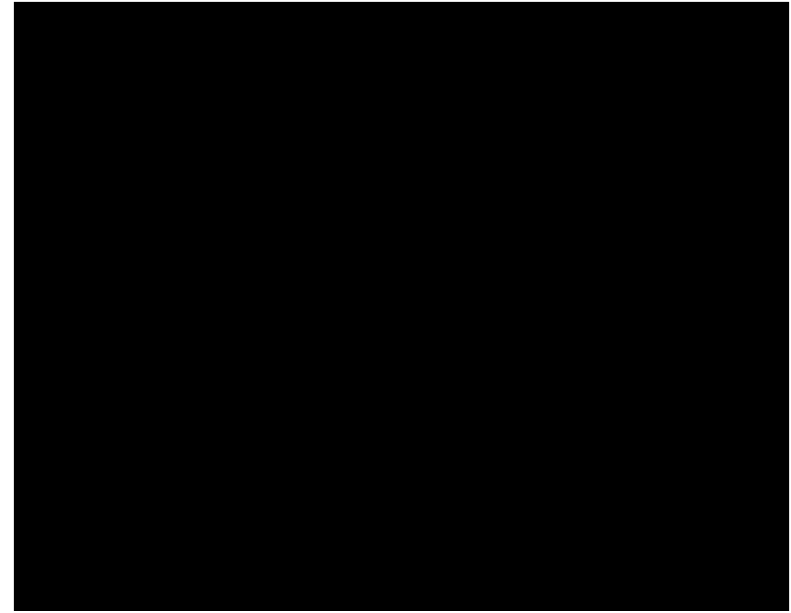
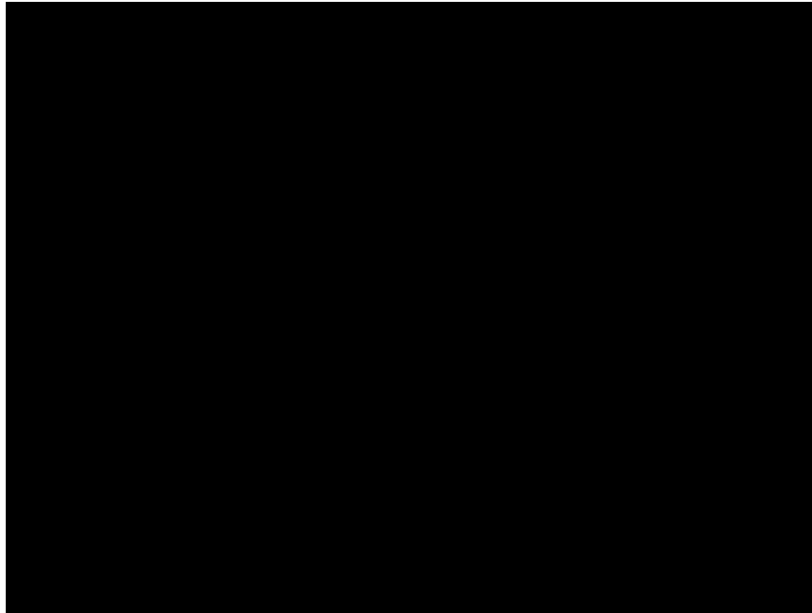
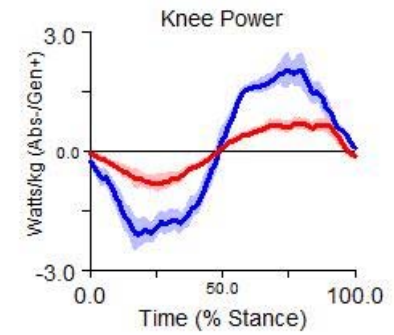
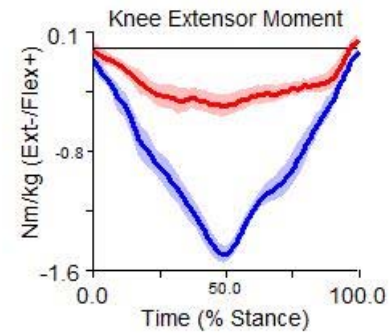
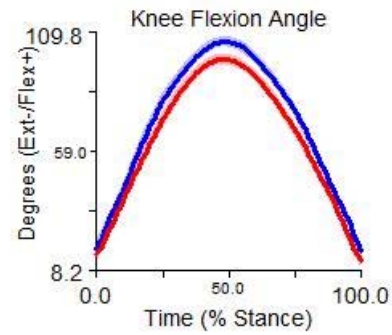
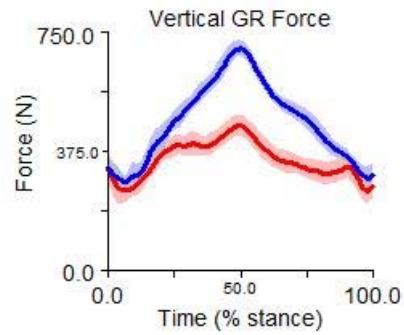
Body weight squat³
17% lower knee extensor moment
Drop land
19-20% lower vGRF⁴⁻⁶

Loading asymmetry

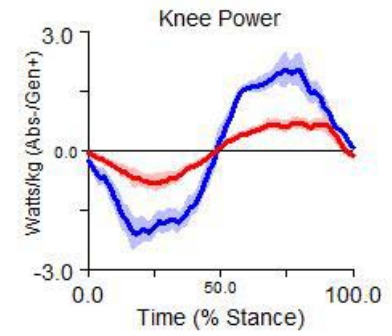
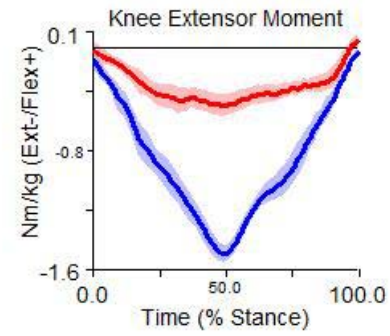
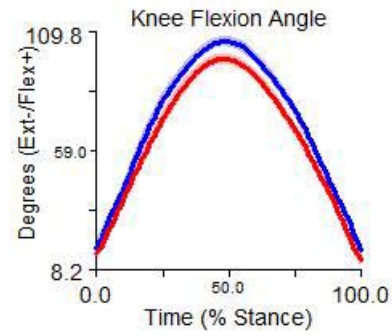
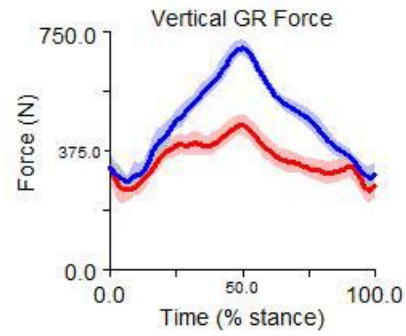
- Bilateral tasks/ squat
 - Knee extensor moment deficits during an unweighted maximal depth squat at 1, 3 and 5 months post-op ACLr (n=11).



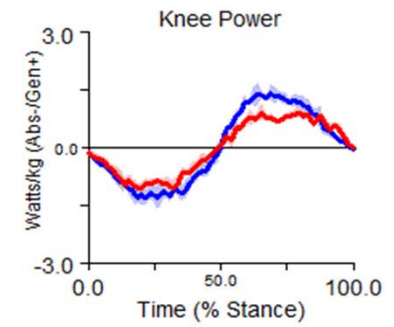
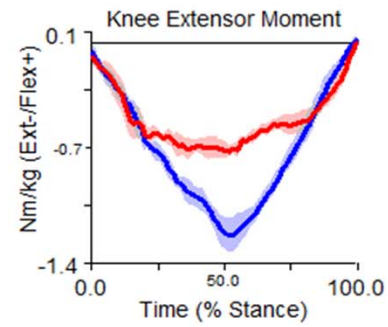
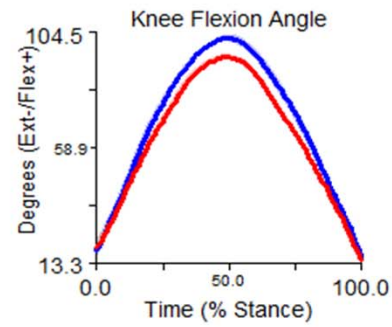
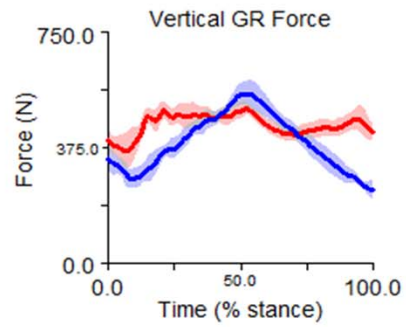
SQUAT



SQUAT



Instructed SQUAT



Do they?

Can they?

Sit-to-stand
Double-leg stand
Stand-to-sit
Squat

Natural condition

Instructed condition

Feedback condition

3-min break/ Questionnaire

3-min break/ Questionnaire



* Ming-Sheng (Matt) Chan-Pilot data

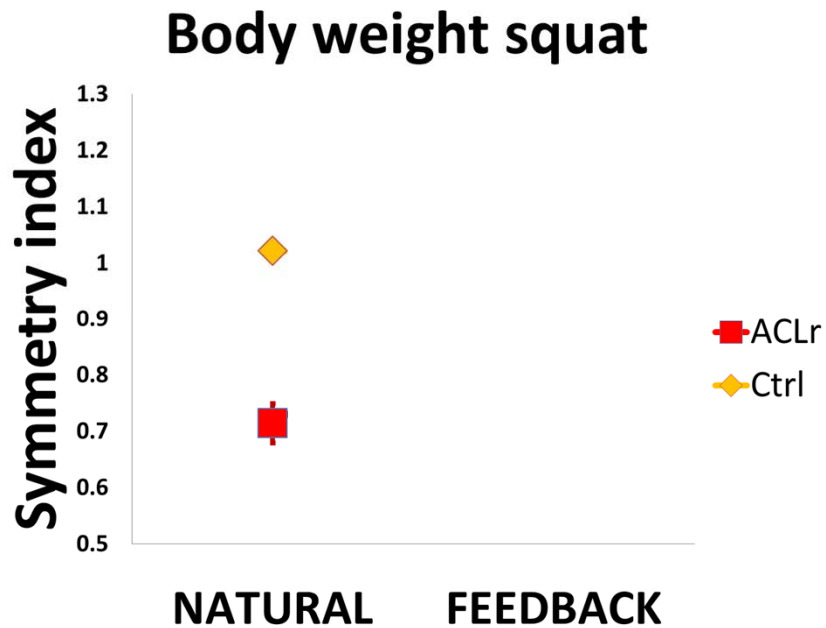
Instructed



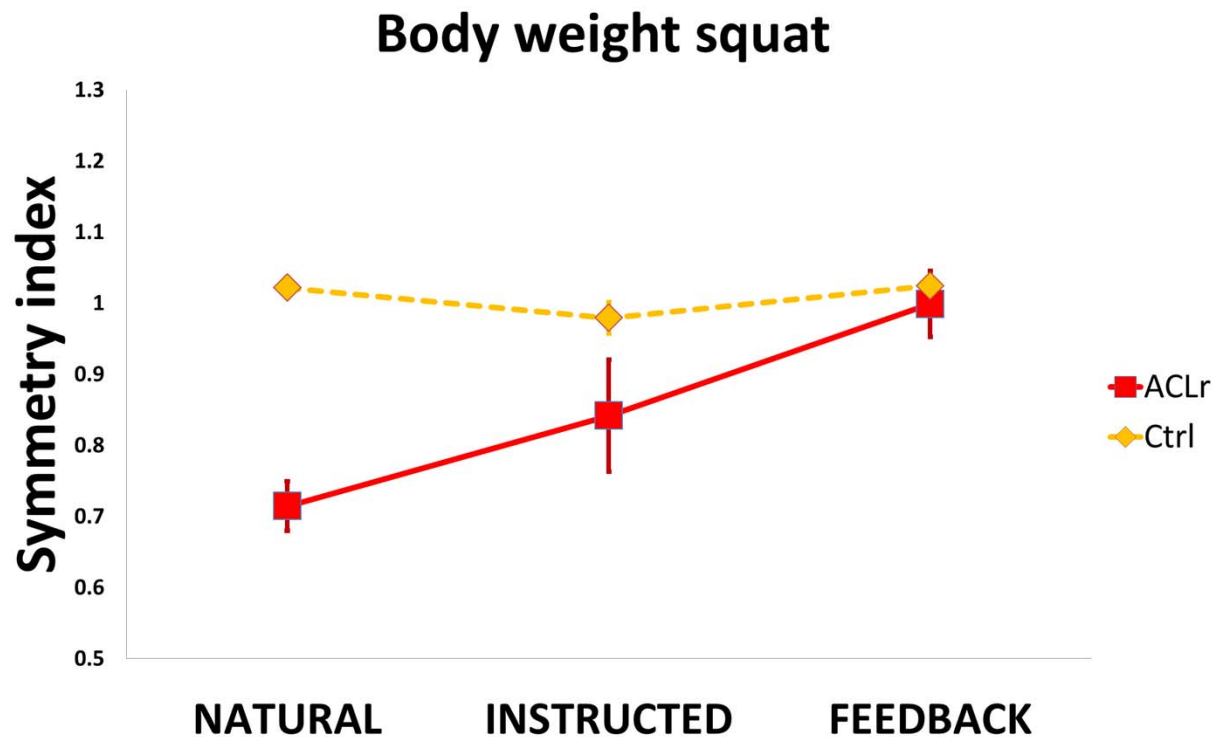
Feedback



12-16 weeks post ACLr



12-16 weeks post ACLr



Daily Activities

- 12-16 weeks post ACLr
- submaximal demands

Practice throughout the day?

- *Sit-to-stand*
- *Double-leg stand*
- *Stand-to-sit*
- *Squat*

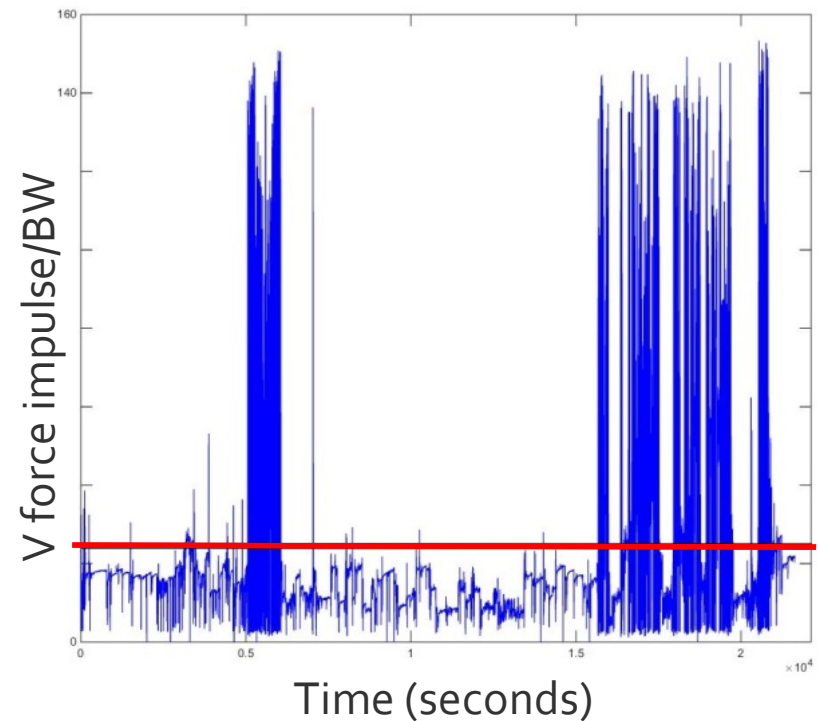
Daily Activities

Daily loading



plantar pressure inserts
(Orpyx LogR, Calgary, Canada)
0-75 PSI, 100Hz

Daily data



12-16 weeks post ACLr

