Let Them Play: A Prospective Study of Postoperative Activity Restrictions in Children

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Introduction

- Goals of postoperative activity restrictions:
  - **Minimize** risk of complications
  - **Prevent** stress on the operative site
- Currently there are no evidence-based guidelines for postoperative activity restrictions following routine pediatric surgery[1]
- In the pediatric population, postoperative activity restrictions can cause undue psychosocial burdens for the child and their family through school absences and missed work days[2].

Self Directed Activity Restrictions (SDAR):
Patient may return to full activity when their pain is improving and the parent, or guardian, feels comfortable advancing their activity

Physician Directed Activity Restrictions (PDAR):
Patients are restricted from full, normal activity for 2 weeks after their procedure

We hypothesize that families who select SDAR, will resume full activity sooner than those who select PDAR, and have no differences in postoperative outcomes.

Aims and Objectives

Primary aim: Time for patient to resume full activity following routine pediatric procedure.

Secondary aims:
- Patient and caregiver preference for SDAR vs. PDAR
- Postoperative complications
- Patient and caregiver satisfaction

Methods

Participants

Patients who presented to Beaumont Royal Oak or Troy hospitals for a laparoscopic appendectomy or inguinal hernia repair from January 2020 to February 2022

Eligibility Criteria

Laparoscopic Appendectomy	Inguinal Hernia Repair
0-18 years	2-13 years
Uncomplicated appendicitis	Uncomplicated procedure
Uncomplicated procedure	

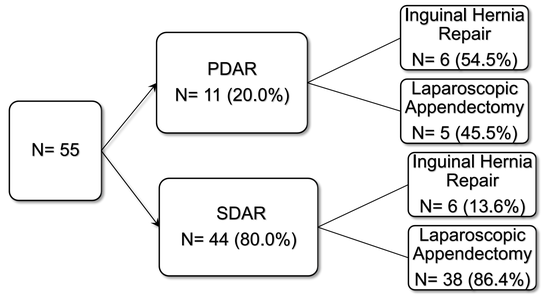
Data Collection

At 4-6 weeks postoperatively, families were asked to complete a survey assessing:
- Time to resume school and work
- Time to resume full activity
- Patient satisfaction
- Caregiver satisfaction
- Postoperative complications

Postoperative survey

Your Child's Experience Postoperatively	
For how long was your child on pain medications following the procedure?	☐ 1-2 days ☐ 3-4 days ☐ 4-7 days ☐ >1 week
How many days following the procedure did your child return to school, daycare, summer camp, or summer school?	
Approximately how many days after surgery did your child return to full activity (sports, gym, dance, outdoor play, etc.)?	
Did your child's wound have any oozing or bleeding following discharge from the hospital?	☐ None ☐ Mild (slight drainage) ☐ Moderate (drainage with blood) ☐ Severe (oozing with blood)
If you answered mild, moderate, or severe to the previous question, when did this occur?	
If you answered mild, moderate or severe to the previous question, did this require any treatment by your surgical team?	
Did your child experience any postoperative complications?	☐ No ☐ Yes
If you answered yes to the previous question, please specify:	
After resuming full activity, did your child experience an increase in pain?	☐ No ☐ Yes
If you answered yes to the previous question, did they require any medication for the pain?	☐ No ☐ Yes
How compliant was your child with their postoperative instructions?	☐ Compliant ☐ Partially compliant ☐ Not compliant
How would you describe your child's overall satisfaction following the procedure?	☐ Very satisfied ☐ Satisfied ☐ Neither satisfied or dissatisfied ☐ Dissatisfied ☐ Very dissatisfied

Results



	PDAR (N= 11)	SDAR (N= 44)	P Value
Time to Resume Full Activity (Days)	11.91 ± 7.52	9.51 ± 6.14	0.328

Postoperative Complications	PDAR (N= 11)	SDAR (N= 44)	P Value
Yes	1 (9.1%)	3 (6.8%)	>0.999
No	10 (90.9%)	44 (93.2%)	

	Patient		Parent	
	PDAR	SDAR	PDAR	SDAR
Very Satisfied	8 (80.0%)	36 (83.7%)	9 (90.9%)	35 (81.4%)
Satisfied	1 (10.0%)	6 (14.0%)	2 (9.1%)	8 (18.6%)
Neither Satisfied or Dissatisfied	1 (10.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Dissatisfied	0 (0.0%)	1 (2.3%)	0 (0.0%)	0 (0.0%)
Very Dissatisfied	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
P Value	> 0.999		> 0.999	

	Pre-COVID Jan 2020-March 2020	COVID May 2020- February 2022	P Value
PDAR	4/6 (66.7%)	7/49 (14.3%)	0.0115
SDAR	2/6 (33.3%)	42/29 (85.7%)	

Limitations

- Limited number of survey respondents resulting in decreased sample size
- Study interrupted by COVID-19
- Non-randomization of participants
- Families overwhelmingly preferred SDAR to PDAR leading to uneven data distribution

Conclusions

- Time to resume full activity was 2 days shorter for SDAR compared to PDAR. While there was no statistical significance, the difference may be clinically relevant
- Families overwhelmingly preferred SDAR (80%) to PDAR (20%)
- No difference in postoperative complications
- In PDAR and SDAR groups, most patients and caregivers were very satisfied
- **Based on our study results, we conclude that SDAR are safe and may be utilized in routine pediatric surgery**
- **SDAR may provide psychosocial benefits to patients and their families through increased postoperative autonomy**

References

1. Guttormson R, Tschirhart J, Boysen D, Martinson K. Are postoperative activity restrictions evidence-based? *Am J Surg*. 2008;195(3):401-404. doi:10.1016/j.amjsurg.2007.12.014

2. Baumann LM, Williams K, Ghomrawi H, Abdullah F. Current practice patterns for postoperative activity restrictions in children. *J Pediatr Surg*. June 2018. doi:10.1016/j.jpedsurg.2018.06.025