

## Early Mobilization Increases Wound Healing On Post Laparotomy Patients

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### Abstract

**Introduction:** post laparotomy is a care provided to patients to reduce complication and to speed wound healing. Early mobilization is a part of post laparotomy care aims to accelerate the process of wound healing. **objective :** To systematically review the effect of early mobilization on wound healing in post laparotomy patients. **Method:** The literature search was done through CINAHL, Scindirect, Pubmed, Google Scholar dan MEDLINE, Portal Garuda, from 2008 to 2018 in English and Indonesian using keywords: early mobilization, wound healing, laparotomy surgery. A total of 128 articles have been identified but after the selection process, the criteria only 8 articles. The inclusion criteria of this review are, quasi experimental studies, adult patients as samples, post laparotomy patients; while the exclusion criteria are patients with diabetic disease. **Results:** Early mobilization the affect on wound healing in post laparotomy patients **Conclusion :** Early mobilization the affect wound healing in post Laparotomy patients. Early mobilization is done in patients 2 hours, 6 hours, or 8 hours after surgery. this becomes a consideration when the right and safe time for early mobilization.

**Keywords :** early mobilization, wound healing, laparotomy surgery

### Introduction

Laparotomy is one of the major surgical procedures by making cuts on the lining of the abdominal wall to get parts of the abdominal organs that are experiencing problems, such as cancer, bleeding, obstruction, and perforation.<sup>1</sup> Data World Health Organization (WHO) menunjukkan number of patients with surgery has increased from 140 to 148 million people in the world from 2011 to 2012. Indonesia In 2012, surgery reached 1,2 million people and an estimated 32% of it is surgery laparotomy.<sup>2</sup>

Treatment of post laparotomy is a form of care given to patients who have undergone abdominal surgery. The goals of post-Laparotomy care include reducing complications due to surgery, accelerating healing, restoring the patient's function to the maximum extent possible before surgery, maintaining the patient's self-concept and preparing the patient home. One of the postoperative care procedures for Laparotomy is to carefully manage and move the patient's position. Restoration of physical function is done immediately after surgery with breathing exercises, effective coughing and early mobilization exercises.<sup>3</sup>

Early mobilization is the process of activities carried out after the operation starts from light exercise on the bed until you can get out of bed, walk to the bathroom and walk out of the room. Most surgical patients are encouraged

to go to bed as quickly as possible, this is determined by the stability of the cardiovascular system, neuromuscular patients, the patient's usual level of activity and the nature of the surgery performed. The advantage of early mobilization is that it reduces the incidence of post operative complications such as, reducing abdominal distension, accelerating recovery of abdominal wounds, reducing pain in surgical wounds and restoring certain activities so that patients can return to normal and or be able to meet daily motion requirements.<sup>4</sup>

After surgery on laparotomy if you do not get maximum treatment can slow the healing process, for example the incidence of wound infection usually appears 36-46 hours after surgery.<sup>5</sup> The incidence of surgical wound infections in hospitals in Indonesia is between 2% -18%.<sup>6</sup> WHO survey shows that the incidence of *surgical site infection* in the world ranges from 5% -34%.<sup>7</sup> Infection results in dehiscence and eviseration.<sup>4</sup> The incidence of *wound dehiscence* in the world around 0,4 % - 3.5%.<sup>2</sup>

Kusumayanti Research<sup>8</sup> one of the factors that influence the duration of treatment in post operative Laparotomy patients in inpatient installations is early mobilization with a sig value of 0.033. Arifin<sup>9</sup> the patients with early mobilization of hospitalization < 7 days compared to patients who did not mobilize early with hospitalization ≥ 7 days. The success

of early mobilization in accelerating wound healing after surgery has been proven by several research journals, namely the results of Gusti research,<sup>10</sup> Netty,<sup>11</sup> Nur Rahma,<sup>12</sup> Sumarah,<sup>13</sup> Sumartinah,<sup>14</sup> Ditya,<sup>15</sup> Susanti,<sup>16</sup> Simangungso.<sup>17</sup>

## Method

The research method uses a journal search method with a *systematic review*. literature search CINAHL, Scientdirect, Pubmed, Google Scholar and MEDLINE, Garuda Portal. keywords from 2008-2018 with the English-language and Indonesian: early mobilization, wound healing, laparotomy surgery, mobilisasi dini, penyembuhan luka, laparotomi. Many as 128 articles were identified, but after a process of selection, only eight articles that meet the criteria. With the inclusion criteria of research methods, analytic surveys, experiments, adult patients, patients post operative laparotomy. Selected articles are carried out systematically using PICO (population, intervention, comparison, and results)

## Results

Table. 1 Based on the results of statistical tests of some of the research journal shows the difference in meaning an tar a respondent who mobilized with no mobilization ( $P < 0.05$ ).

Table. 2 The results of the gusty study showed a significant increase (5) in the major surgery group and minor surgery group (5.1)

Table. 3 research results from 7 articles found an average (45.58%) wound healing more on respondents with mobilization compared with not mobilization.

The table . 1 Extra Data

Researcher	Research title	Method/Instrument	Sampling / sample	Research result
Reni Prima Gusty 2011	The effect of early mobilization of patients after abdominal surgery on wound healing and respiratory function of M. Djamil hospital in	Quasi experimental with the posttest control group design approach	Quota Sampling technique 20 Respondents control 20 intervention respondents	mann whitney test a p value of 0.001 was obtained

Padang				
Indarmein netty 2012	Relationship of early mobilization with post operative cesarean wound healing in the combined midwifery ward of H. Abdul Manap Hospital Jambi	analytic observational with cross sectional approach observation sheet	Accidental sampling technique 42 respondents	Chi-Square test obtained a P value of 0.028
Nur Rahm 2013	The relationship of early mobilization to wound healing in cesarean section patients in the SCC fatimah Makassar mother and child RSKD	Analytical survey with a cross-sectional approach Observation sheet	Accidental sampling technique 32 respondents	Chi-Square test obtained a P value of 0.005
Sumarah 2013	The effect of early mobilization on post section caesarean wound healing in Sleman District Hospital	Quasi experimental with the post test approach only with control group design.	Randomization 25 respondent control 25 intervention respondents	The treatment group was 100% injured The control group 88% injured well
Sumartinah 2013	The relationship of early mobilization and hemoglobin levels to wound healing in section caesaria surgery in Semarang	Correlational analytic survey with cross sectional design	36 respondents	Chi-Square test P value of 0.004 was obtained
Wira ditya 2014	The relationship between early mobilization and wound healing in post-Laparotomy patients in	analytic observational cross-sectional study design early mobilization question	Consecutive sampling technique 31 respondents	chi-square test P value of 0.003 is obtained

	the male and female surgical ward of the General Hospital. Dr.M.Djamil padang	nnaire observation sheet wound healing process		
Ika Yuni Susanti 2015	Early mobilization against edema buhan post-cesarean wound in hospital general Wahidin Sudiro Husodo Mojokerto	Analytical Survey with Cross-sectional	Consecutive sampling 85 respondents	T-test P value of 0,000 was obtained
Rimayanti Simangunson 2017	The relationship of early mobilization with the process of healing post-section caesarea at GMIM General Hospital radiating love	Analytical Survey with Cross-sectional	Accidental sampling 30 respondents	Fisher Test P value of 0.001 was obtained

Table.2 The Effect on Mobilization of Increased Wound Healing

Author	Group	The mean		Increased the mean
		Intervention	Control	
Reni Prima Gusty 2010	Major surgeon	10	5	5
	Surgical minor	10	4.9	5.1

Table.3 The Effect of Mobilization of Increased Wound Healing

Author	Total sample	Category	
		Mobilization	Im mobilization
Indarmein netty 2012	42	33	9
Nur Rahm 2013	32	22	10
Sumarah 2013	50	25	25
Sumartinah 2013	36	22	14
Wira ditya 2014	31	18	13
Ika Yuni Susanti 2015	51	31	20
Rimayan ti Simangunsong 2017	30	25	5
Average			

## Early mobilization

Early mobilization that can be done includes Range of motion (ROM), deep breathing and also effective cough.<sup>18</sup>

Early mobilization procedure in Netty research<sup>11</sup>

1) Breathing exercises done while sleeping on your back as early as possible after fully conscious

2) Move the arms, fingers and toes in the first 6 hours after cesarean section surgery

3) Tilt left and right starting 6-10 hours after surgery

4) Mother sits after 8-12 hours postoperative cesarean section

Early mobilization procedure in Sumartinah research<sup>14</sup>

1) Done 2-6 hours after surgery: move the arms and hands, move the tips of the fingers and rotate the ankles, lift the heels, bend and shift the legs, tilt right and tilt left

2) After 24 hours of surgery: semi-fowler or fowler sitting exercises, the mother can sit for more than 5 minutes

3) After 36 hours of operation: the mother starts learning to walk, doing independent activities such as toileting and caring for herself

## Discussion

Effect of mobilization on wound healing

Research

Rahma,<sup>12</sup> Susanti,<sup>16</sup> Simangunso<sup>17</sup> used a sample with inclusion criteria for postoperative cesarean section, with good wound healing research between 77.3%-96%. Susanti Research<sup>16</sup> categories of early mobilization if mobilizing 6 hours after surgery.

Netty's study<sup>11</sup> used a sample with inclusion criteria in postoperative cesarean women and exclusion criteria were mothers with symptoms of anemia, diabetes mellitus, obesity, a long history of placental. The results of the study 90% good wound healing in mothers who do early mobilization. The category of early mobilization if the sample mobilizes 6 hours postoperatively. Sumartinah<sup>14</sup> used a sample with inclusion criteria in postoperative mothers with caesarean section, mothers aged 25-35 years, did not suffer from diabetes mellitus and exclusion criteria for labor complications. The results of good wound healing research 77.3% in mothers with early mobilization. Early mobilization category if mobilizing 2-6 hours postoperatively.

Ditya<sup>15</sup> conducted a study with inclusion criteria in Laparatomy patients, stable condition, general anesthesia and exclusion criteria, namely patients with complications of Laparatomy, malnutrition, diabetics with diabetes, history of chemotherapy. The results empirically wound healing both 77.8%.

Sumarah<sup>13</sup> developed a quasi-experimental study that divided the control group and the intervention group in postoperative cesarean women. Kriteria inclusion in this sample do not have contraindications, early mobilization, Hb  $\geq 10$ gr/ dl, arm circumference  $\geq 23.5$  and exclusion criteria, namely the disease Diabetesmellitus. The results of the study 100% experienced good wound healing.

Research Gusti<sup>13</sup> using samples of patient inclusion criteria laparotomy 6 to 10 hours post-surgery, did not experience any nutritional deficiencies, disorder breathing, no abdominal distress, co-morbidities such as : HIV, diabetes, sepsis and cancer. The results showed an increase in wound healing in the minor surgery group (5.1) and major surgery (5).

The results of several studies<sup>10-17</sup> get early mobilization speed wound healing process. Consists of variations in research methods, inclusion or exclusion criteria, and the time of commencement of the mobilization procedure. Does not describe a significant difference from the results of the study.

Of several journals, researchers late, using procedural steps mobilization of different starting with the time range of 2-10 hours post operative. in terms of the condition of the patient with surgical wound pain, weakness, or loss of consciousness, there is great doubt about the patient's ability to follow all stages of the mobilization procedure. It is recommended to use a mobilization procedure that understands the patient's condition.

Early ambulation should not exceed patient tolerance. The patient's condition must be a determining factor in the progress of the patient mobilization step. Nursing support and encouragement and with safety being the main concern, care must be taken not to make the patient tired, the duration of the first ambulatory period varies depending on the physical condition.<sup>19</sup>

Handayani Research<sup>20</sup> used the *mobility progress* protocol, starting the procedure 8 hours postoperatively. Mobility progression is a

mobilization protocol based on Timmerman (2007) and the *American Association of Critical Care Nurses* (2009). Mobilization starts with *safety screening* to ensure the physical condition of the patient .

The Conceicao<sup>21</sup> study explained that from a variety of systematic reviews, it was found that patients were safe to mobilize if they met the criteria of cardiovascular, respiratory, neurological, orthopedic, and other assessments. In conclusion mobilization can begin as soon as possible if the patient meets the criteria.

This was reinforced by the research of Aleef and Labib<sup>22</sup> which used the early mobilization protocol of Ahmad Hospital in Doha Qatar . The protocol starts mobilization based on the results of the safety screening assessment on patients. Assessment results determine the stages of mobilization based on intolerance of patient activity

### Conclusion

The results of several studies<sup>10-17</sup> get early mobilization deep wound healing process. Early mobilization procedures used in the Sumartinah and Netty studies have not yet provided specific explanations for indications and contraindications in the use of these mobilization procedures.

Mobility progress is a mobilization protocol based on Timmerman (2007) and the *American Association of Critical Care Nurses* (2009). The mobilization begins with *safety screening* to ensure the physical condition of the patient.

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