

## VANTAGENS DA CONSULTA PRÉ-OPERATÓRIA NA REABILITAÇÃO DA PESSOA SUBMETIDA A ARTROPLASTIA DA ANCA: REVISÃO INTEGRATIVA DA LITERATURA

VENTAJAS DE LA CONSULTA PREOPERATORIA EN LA REHABILITACIÓN DE LA PERSONA SUJETA A ARTROPLASTIA DE CADERA: UNA REVISIÓN BIBLIOGRÁFICA

ADVANTAGES OF PREOPERATIVE CONSULTATION IN THE REHABILITATION OF THE PERSON SUBMITTED HIP ARTHROPLASTY: AN INTEGRATED LITERATURE REVIEW

DOI 10.33194/rper.2020.v3.n1.5.5758 | Submetido 23.12.2019 | Aprovado 16/09/2020

Bruno Miguel Vivas Pina Pina<sup>1</sup>; Cristina Lavareda Baixinho<sup>2</sup>

1 - Centro Hospitalar Lisboa Norte; 2 - Escola Superior de Enfermagem de Lisboa

### RESUMO

**Introdução:** A artroplastia da anca é uma cirurgia frequente que aliada à dor e à diminuição da mobilidade aumenta a dependência para o autocuidado e é preditora de perda de funcionalidade.

**Objetivo:** Determinar as vantagens da consulta de preparação pré-operatória na evolução da funcionalidade pós-operatória da pessoa submetida a artroplastia da anca.

**Método:** Revisão Integrativa da Literatura, foram definidos critérios de elegibilidade para a amostra bibliográfica.

**Resultados:** A amostra bibliográfica ficou constituída por 16 artigos que permitem responder ao objetivo da investigação. Os programas de recuperação estruturados, com consulta pré-operatória, diminuem as complicações pós-cirúrgicas e o tempo médio de internamento, promovem uma melhor gestão da dor e a recuperação mais rápida através de uma abordagem interprofissional.

**Conclusões:** O programa de reabilitação deve iniciar-se na fase pré-operatória porque o aumento do conhecimento sobre a cirurgia, programa de reabilitação e transição para a comunidade traduz-se em ganhos de saúde, sociais e económicos

**Descritores:** Enfermagem, Reabilitação, Capacitação, Artroplastia da anca, Consulta pré-operatória, Autocuidado

### RESUMEN

**Introducción:** La artroplastia de la cadera es una cirugía frecuente que, combinada con dolor y disminución de la movilidad, aumenta la dependencia del cuidado personal y es un predictor de pérdida de funcionalidad.

**Objetivo:** determinar las ventajas de la consulta de preparación preoperatoria en la evolución de la funcionalidad postoperatoria de la persona sometida a artroplastia de cadera.

**Método:** Revisión Integral de Literatura, se definieron criterios de elegibilidad para la muestra bibliográfica.

**Resultados:** La muestra bibliográfica consistió en 16 artículos que nos permiten responder al objetivo de la investigación. Los programas de recuperación estructurados con consulta preoperatoria reducen las complicaciones postoperatorias y la duración promedio de la estadia, promueven un mejor manejo del dolor y una recuperación más rápida a través de un enfoque interprofesional. **Conclusiones:** El programa de rehabilitación debe comenzar en la fase preoperatoria porque un mayor conocimiento sobre cirugía, programa de rehabilitación y transición a la comunidad se traduce en beneficios para la salud, sociales y económicos.

**Palabras clave:** Enfermería; Rehabilitación; Capacitación; Artroplastia de Reemplazo de Cadera; Autocuidado

### ABSTRACT

**Introduction:** Hip arthroplasty is a frequent surgery that, when it is combined with pain and decreased mobility, increases dependence on self-care and it is a predictor of loss of functionality. **Objective:** To determine the advantages of preoperative preparation consultation in the evolution of postoperative functionality of the person undergoing hip arthroplasty.

**Method:** Integrative Literature Review, eligibility criteria were defined for the bibliographic sample.

**Results:** The bibliographic sample consisted of 16 articles that allow us to respond to the research objective. Structured recovery programs with preoperative consultation reduce postoperative complications and average length of stay, promote better pain management, and faster recovery through an interprofessional approach.

**Conclusions:** The rehabilitation program should start in the preoperative phase because increased knowledge about surgery, rehabilitation program and transition to the community translates into health, social and economic gains.

**Keywords:** Nursing; Rehabilitation; Training; Arthroplasty (Hip replacement); Selfcare

**INTRODUCTION**

The increase in the population's average life expectancy and the consequent increase in orthopedic surgeries, namely in hip arthroplasty, has been a gain in the field of health, allowing the control of osteoarthritis, disability and the pain secondary to it. However, surgery is not without risks. The type of surgery, perioperative pain, functional deficits (prior to surgery) and decreased mobility in the postoperative period can be translated, temporarily or permanently, into disability, which, together with increasingly shorter hospital stays, implies a paradigm shift in the provision and organization of care to these people, with a clear focus on training for the promotion of self-care<sup>(1)</sup>.

This question takes on greater relevance when people undergoing arthroplasty are at increased risk of frailty, imposed by comorbidities or previous dependence on self-care<sup>(1)</sup>. The decrease in the average length of stay and the timely return home, often without guaranteeing the continuity of rehabilitation care, increases the risk of loss of functional capacity after surgery.

People are vulnerable to experiences of loss of continuity of care, needing support to continue the guidelines and develop specific skills to maintain the care started in the hospital<sup>(1-2)</sup>. The continuity of care guarantees the improvement of their quality and constitutes an adequate strategy for a policy to be followed by the different health services<sup>(2)</sup>.

Some institutions have created or implemented structured training programs for both the person undergoing surgery and the family caregiver, and facilitating the return home. The existence of one or more preoperative consultations, with the caregiver's involvement, is important for clarifying doubts and teaching about surgery, but also for understanding and adhering to the rehabilitation program<sup>(3)</sup>. However, many orthopedic services still do not have a planned and structured recovery program from the preoperative to the postoperative period, including the preparation for the return home, contributing to the loss of independence, walking potential and self-care capacity<sup>(1,4)</sup>. The absence of rehabilitation programs increases hospital stay and recovery time, with a negative impact on the person's independence and functional capacity<sup>(4,5)</sup>.

The Specialist Nurse in Rehabilitation Nursing (RN) has a differentiated responsibility not only in the management of care for people with coxarthrosis, but also in the training of their family<sup>(5)</sup> and in preventing the defragmentation of the rehabilitation processes between the levels of care (hospital and care primary health care)<sup>(1)</sup>. This defragmentation or discontinuity of specialized rehabilitation care is little explored in the literature, but the decrease in the average length of hospital stay and economic contention impose an

articulation between the RN in both health care contexts, to ensure the safety and continuity of care for the person and his/her family caregiver<sup>(1)</sup>.

Both the issue of training and continuity of care are central to structured rehabilitation programs for people undergoing hip arthroplasty.

The authors agree that these programs improve postoperative recovery, reduce anxiety, strengthen the person's confidence, improve satisfaction during hospitalization, reduce costs, allowing for faster hospital discharge and in better conditions<sup>(1, 4,6)</sup> and focusing the care on the patient and his family<sup>(6)</sup>.

In view of the above, the objective of this Integrative Literature Review (ILR) is to determine the advantages of the preoperative preparation consultation in the evolution of the postoperative functionality of the person undergoing hip arthroplasty.

**METHOD**

The starting point for the development of this Integrative Literature Review (ILR) was the following research question, elaborated according to the mnemonic PEO (Population and their Problem; Exposure; Outcome and themes): "What are the advantages of the pre consultation -operative in the rehabilitation of a person undergoing hip arthroplasty?".

The option for an ILR is justified because the method enables the synthesis of knowledge and the incorporation of results into practice<sup>(7)</sup>. In its elaboration, we followed a protocol with six steps: identification of the theme and selection of the hypothesis or research question, establishment of criteria for inclusion and exclusion of studies, definition of the information to be extracted, evaluation of the included studies, interpretation of results and presentation of the review/synthesis of knowledge<sup>(8)</sup>.

The definition of the question made it possible to define the eligibility criteria of the articles to be included in this ILR, with the purpose of increasing the rigor in the research, delimiting the phenomenon under study and facilitating the identification, reading, extraction and analysis of the findings.

Table 1 shows the inclusion criteria for the primary studies.

**Inclusion criteria**

Participants and their problem	Adults (over 18 years old), of both sexes, undergoing hip arthroplasty.
--------------------------------	---

Type of study	Primary studies of a qualitative and/or quantitative nature, systematic literature reviews, integrative literature reviews, scoping review and clinical guidelines or protocols.
Context	Hospital internment
Interest phenomenon	Preoperative consultation in structured rehabilitation programs for hip arthroplasty.

Table 1 - Inclusion criteria for ILR studies. Lisbon; 2018

The survey was carried out in April and May 2018. The descriptors, used in Portuguese, Spanish and English and in associations (AND and OR) were: Orthopedic patient (or orthopedic chirurgic) AND Preoperative Education (or preoperative self-efficacy education or patient education or education program) AND Hip Replacement (or joint replacement or arthroplasty).

The research was carried out in databases available on EBSCO, B-On, SCOPUS, ISI and JBI platforms. The time limit established for the selection of articles was from 2013 to 2018, this option was due to the state of the art and the need to identify recent studies, given that this type of surgery has evolved in recent years, the average length of stay has decreased and so there are variables in previous research that are not sensitive to the current context.

The search strategy allowed identifying 1258 articles. Reading the title allowed eliminating 11 that were repeated, reading the abstract allowed eliminating 1,211, the remaining 36 articles were read in full. At this stage,

20 studies were eliminated: 8 of the sample consisted of people with hip and knee arthroplasty, and the results did not allow the assessment of the advantages of preoperative consultation for those who underwent hip arthroplasty. The remaining 12 articles were deleted because they did not answer the research question. The final sample consisted of 16 articles (Figure 1).

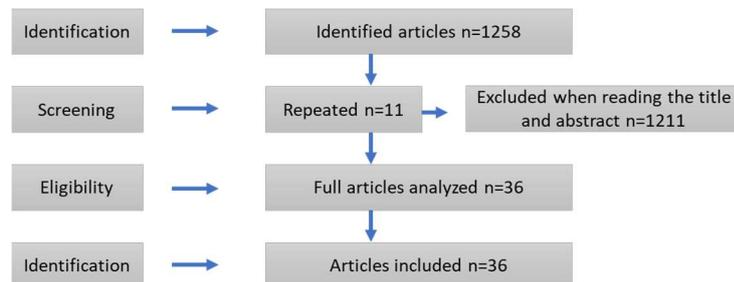


Figure 1 - Flowchart for selecting articles for RIL, based on PRISMA recommendations. Lisbon; 2018

A table was created with the information to be extracted: article; author(s), (year of publication), type of article; objective(s), methods (if applicable) and main results.

RESULTS

The 16 studies that make up the bibliographic sample are not homogeneous; they have different objectives and designs, from reviews to primary studies with quantitative and qualitative approaches. However, the methodological differences in the interpretation of the sources allowed us to answer the research question. Table 1 shows the results extracted from articles on the advantages of preoperative consultation for people who undergo hip arthroplasty.

Article	Authors (year)	Results of study
Pre-operative self-efficacy education vs. usual care for patients undergoing joint replacement surgery: a pilot randomized controlled trial	Cooke et al. (2016) <sup>(3)</sup>	Preoperative education encourages people to take a central role in their recovery, promoting positive long-term outcomes. Such evidence encourages the existence of clinical guidelines on the implementation of a specific educational intervention in the preoperative period, as well as promoting high quality nursing care and improving outcomes for people.
Enhanced Recovery in Orthopedics: A Prospective Audit of an Enhanced Recovery Program for Patients Undergoing Hip or Knee Arthroplasty	Brennan, Parsons (2017) <sup>(4)</sup>	Structured recovery programs help reduce hospital stay, improve surgery outcomes and increase satisfaction. The study highlights improved pain management, reduced nausea and vomiting, and faster recovery through an interprofessional approach.
Total Hip Arthroplasty: Providing Preoperative Care for the Patient Undergoing	Schub, Caple (2017) <sup>(9)</sup>	Preoperative care prepares the person physically; reduce the risk of complications, including infections; allow screening for infections and assessment of physical condition. It has a positive effect on reducing anxiety. It has a social impact by allowing the anticipation of the needs for adequate post-operative care and support when returning home.

Article	Authors (year)	Results of study
Difference Between Received and Expected Knowledge of Patients Undergoing Knee or Hip Replacement in Seven European Countries	Klemetti et al. (2015) <sup>(10)</sup>	Education has a positive effect on functionality. The authors recommend that information should not only focus on physical and functional issues, as is common, recommending a more holistic and multidimensional approach.
Education Attainment is Associated With Patient-reported Outcomes: Findings From the Swedish Hip Arthroplasty Register	Greene et al. (2014) <sup>(11)</sup>	Healthcare professionals need to teach about the risks associated with surgery and help set realistic expectations post-operatively. Teachings tailored to sociodemographic and educational characteristics can improve the person's satisfaction, reduce pain and the costs associated with this type of surgery.
Enhanced care for primary hip arthroplasty: factors affecting length of hospital stay	Panteli et al. (2013) <sup>(12)</sup>	Managing the person's expectations and better preparation for surgery is clearly an important factor in reducing the average length of stay.
Patient Education: Teaching the Surgical Patient	Heering, Engelke (2017) <sup>(13)</sup>	Preoperative education provides the opportunity to acquire knowledge, improve the ability to perform self-care skills, and reinforce the ability to deal with the surgical experience. Preoperative education is effective, can reduce costs, reduce postoperative hospital stays and improve knowledge of self-care skills, self-care behaviors and management of signs and symptoms.
No major effects of preoperative education in patients undergoing hip or knee replacement - a systematic review	Aydin et al (2015) <sup>(14)</sup>	There was no convincing evidence regarding preoperative consultation on pain, mean length of stay, satisfaction, postoperative complications, mobility and expectations. There is evidence of the effect of the consultation in reducing preoperative anxiety.
Patients' conceptions of preoperative physiotherapy education before hip arthroplasty	Jäppinen, Hämäläinen, Kettunen, Piirainen (2015) <sup>(15)</sup>	Pre-operative education leads the person to acquire knowledge, which must be demonstrated with practical elements. This requires a relationship of trust between the person and the health professional, from a perspective of preparation for rehabilitation.
Patients' experiences from an education programme ahead of orthopaedic surgery - a qualitative study	Conradsen, Gjerseth, Kvangarsnes (2016) <sup>(16)</sup>	The preoperative education program promoted acceptance of surgery. To build a relationship of trust, preoperative education must be group and individual and must be carried out in a way that encourages and supports trust in the team. Information must be realistic and accurate.
Preoperative Education for Hip and Knee Replacement: Never Stop Learning	Edwards, Mears, Barnes (2017) <sup>(17)</sup>	Pre-operative education classes are an essential element for a person's successful participation in the recovery process.
Pre-operative education prior to elective hip arthroplasty surgery improves postoperative outcome	Moulton, Evans, Starks & Smith (2016) <sup>(18)</sup>	Pre-operative education produces shorter hospital stays and reduced costs. There are also effects on mobilization scores, which improve postoperatively.
The effectiveness of orthopedic patient education in improving patient outcomes: a systematic review protocol	Majid, Lee, Plummer (2015) <sup>(19)</sup>	Significant results in terms of a decrease in the number of days of hospitalization, of people who received preoperative education, compared to people who did not receive any kind of education or information.
The perioperative dialogue - a model of caring for the patient undergoing a hip or a knee replacement surgery under spinal anaesthesia	Pulkkinen, Junttila, Lindwall (2016) <sup>(20)</sup>	Structured preoperative preparation allows for greater empathy between the person and professionals and meets the wishes of each individual, thus ensuring a higher quality of care.

Article	Authors (year)	Results of study
Unfulfilled Expectations After Total Hip and Knee Arthroplasty Surgery: There Is a Need for Better Preoperative Patient Information and Education	Tilbury et al. (2016) <sup>(21)</sup>	It helps in managing perioperative expectations, which were met or even exceeded with the preoperative consultation. Effect on pain control and function promotion.
Preoperative education for hip or knee replacement (Review)	McDonald, Page, Beringer, Wasiak, Sprowson (2014) <sup>(22)</sup>	Pre-operative education can represent an adjunctive care, with a low risk of undesirable effects, particularly in certain people with depression, anxiety or unrealistic expectations.

Chart 1 - ILRbibliographic sample. Lisbon, 2018

## DISCUSSION

The studies in this research are heterogeneous, with different study designs, some qualitative, others quantitative. There are considerable differences in terms of sample, implemented intervention, concepts used, measures and moments for evaluating the effectiveness of the consultation and its impact on the functionality of the person undergoing arthroplasty. The instruments for evaluating the evolution of functionality are different; some are not validated for the Portuguese population, which makes comparison and discussion of results difficult.

The findings of this review are in line with the literature on the subject, which refers to the benefits of preoperative consultation as: the reduction of anxiety, stress, pain and the average length of hospital stay (2.5 days-3.4 days)<sup>(4,9,21,23-24)</sup>; the promotion of independence for self-care and for carrying out activities of daily living<sup>(25-26)</sup>; guaranteed the autonomy of the person and their family during the provision of care<sup>(1,23)</sup>.

There are currently specific programs for the recovery and rehabilitation of people undergoing total hip arthroplasty, such as the Rapid Recovery program, which has a huge international consensus for its impact on the recovery and rehabilitation of people undergoing surgery. This is based on making the person an active participant in their rehabilitation, through education and preoperative preparation, optimizing individual resources and capabilities, based on a multidisciplinary approach, involving surgeons, anesthetists, nurses general practitioners and rehabilitation specialists, physiotherapists, pharmacists and even people who were previously subjected to the same surgery<sup>(27)</sup>. The program reduces anxiety, strengthens the person's confidence, improves patient satisfaction during hospitalization, reduces costs for the hospital, allowing for faster hospital discharge<sup>(13,27)</sup>.

The fact that it is performed one to three weeks before surgery allows for screening for infections and assessment of the pre-surgery physical condition<sup>(9)</sup>, which contributes to increased operative safety and allows the individualization of the rehabilitation

program according to mobility, muscle strength and preoperative range of motion.

Preoperative education provides not only the opportunity to acquire knowledge about the surgery and implications for self-care, after placement of the prosthesis, but also the possibility of teaching and training skills, in safety, preventing dislocation movements during the performance of health care activities. daily life<sup>(9)</sup>. Simultaneously, it helps in the management of perioperative expectations<sup>(21)</sup>. However, to achieve its purpose, teaching must be individualized to the sociodemographic and educational characteristics of the target population<sup>(11)</sup>.

The authors also reinforce the importance of the consultation to increase adherence to the perioperative rehabilitation program and advocate that the combination of consultation with an adequate rehabilitation intervention contributes to the increase of functional independence at the time of discharge<sup>(1,24)</sup>, decreases complications associated with hospitalization and readmissions, even because they contribute to safe self-care behaviors and the management of signs and symptoms<sup>(1,13)</sup>.

On the other hand, preparation before hospitalization for surgery, including a motor and respiratory rehabilitation program, prepares the person physically for surgery and a rehabilitation program after arthroplasty<sup>(9)</sup>, ensuring functional gains, with mobilization, get up in the first 24 hours after surgery and early gait training, which promotes gains in the performance of activities of daily living, given that gait is the self-care that most influences other self-care<sup>(28)</sup>.

In the literature review, a positive influence on the hospitalization experience emerges as a benefit of the preoperative consultation<sup>(13)</sup>, this is an indicator that is usually neglected and not measured by the investigation. The authors add that the consultation and organization of care improves the hospitalization experience and allows for better dealing with the surgery, contributing to satisfaction with care<sup>(4,13)</sup>. This is why health professionals should extend preoperative education to the risks associated with

surgery and help define realistic postoperative expectations<sup>(11)</sup>.

The management of the person's expectations and a good preparation for the surgery are major factors in reducing the length of stay<sup>(12)</sup>. However, in one of the surveys that make up this ILR, researchers did not find convincing evidence in favor of preoperative consultation on pain, average length of stay, satisfaction, postoperative complications, mobility and expectations<sup>(14)</sup>. The authors only report evidence on the effect of the consultation in reducing preoperative anxiety<sup>(14)</sup>.

In view of the above, it is possible to confirm the results of studies that advocate cost reduction as a great advantage of the consultation<sup>(11,13)</sup>. Preoperative education can represent an adjuvant care, with a low risk of undesirable effects, particularly in people with depression, anxiety or unrealistic expectations<sup>(22)</sup>.

It is also noteworthy the high social value of this type of programs by allowing the anticipation of needs and adequate support after discharge, upon returning home<sup>(9)</sup> and the need to develop a relationship of trust between the person and the health professional, from a perspective of preparation for rehabilitation<sup>(15)</sup>.

### Study limitations

In addition to time restrictions, other filters were introduced in the search performed, namely: Full Text; Languages Portuguese, Spanish and English, which may have limited the obtaining of other articles that would enrich this review.

### CONCLUSION

The preoperative consultation associated with structured, multi-professional rehabilitation programs started in the preoperative phase has advantages, namely on the effective management of pain, anguish and anxiety; it increases knowledge about surgery and changes in self-care, decreases the average length of stay with economic gains and better acceptance and adherence to the pre-established individualized rehabilitation program.

It should be noted that the lack of these programs leads to difficulties from admission to the lack of planning for discharge, with a negative impact on self-care and dependence/independence upon returning home. The lack of information and organization of care around the rehabilitation process of the person and their family can lead to hospitalization being experienced with doubts and lack of knowledge about the rehabilitation program, resulting in the person being in worse conditions at the time of discharge functional than before surgery.

### BIBLIOGRAPHIC REFERENCES

1. Ferreira, E.M., Lourenço, O.M., Costa, P.V., et al. Active Life: a project for a safe hospital-community transition after arthroplasty. *Rev Bras Enferm*, 2019;72(1):147-153. doi: <https://dx.doi.org/10.1590/0034-7167-2018-0615>

2. Mendes F, Gemito MLP, Parreirinha C, Cladeira EC, Serra IC, Casas-Novas MV. Continuity of care from the perspective of users. *Ciênc Saúde Coletiva*. 2017; 22(3):843-55. doi: <https://dx.doi.org/10.1590/1413-81232017223.26292015>

3. Cooke M, Walker R, Aitker L, Freeman A, Pavey S, Cantrill R. Pre-operative self-efficacy education vs. usual care for patients undergoing joint replacement surgery: a pilot randomised controlled trial. *Scand J Caring Sci*. 2016; 30(1):74-82 doi:10.1111/scs.12223

4. Brennan C, Parsons G. Enhanced Recovery in Orthopedics: A Prospective Audit of an Enhanced Recovery Program for Patients Undergoing Hip or Knee Arthroplasty. *Med Surg Nurs*. 2017;26(2):99-104. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30304589>

5. Pereira SK, Santana RF, Morais VSC, Soares TS, Silva DM. Discharge planning in post-operative of elderly: multiple cases study. *Rev Fund Care Online*. 2016;8(4):4949-55. doi: <https://dx.doi.org/10.9789/2175-5361.2016.v8i4.4949-4955>

6. Aydin D, Klit J, Jacobsem S, Troelsen A, Husted H. No major effects of preoperative education in patients undergoing hip or knee replacement - a systematic review. *Dan Med J* 2015;62(7):A5106. Available from: <https://ugeskriftet.dk/dmj/no-major-effects-preoperative-education-patients-undergoing-hip-or-knee-replacement-systematic>

7. Sousa LMM, Marques-Vieira CMA, Severino SSP, Antunes AV. A metodologia de revisão integrativa da literatura em enfermagem. *Revista Investigação em Enfermagem*. 2017; Ser.II(21):17-26. Available from: [https://repositorio-cientifico.essatla.pt/bitstream/20.500.12253/1311/1/Metodologia%20de%20Revis%C3%A3o%20Integrativa\\_RIE21\\_17-26.pdf](https://repositorio-cientifico.essatla.pt/bitstream/20.500.12253/1311/1/Metodologia%20de%20Revis%C3%A3o%20Integrativa_RIE21_17-26.pdf)

8. Mendes KDS, Silveira RCCP, Galvão CM. Revisão integrativa: método de pesquisa para a incorporação de evidências na saúde e na enfermagem. *Texto Contexto Enferm*. 2008;17(4):758-64. doi: <http://dx.doi.org/10.1590/S0104-07072008000400018>.

9. Schub T, Caple C. Total Hip Arthroplasty: Providing Preoperative Care for the Patient Undergoing. *Cinahl Information Systems*. 2017. Available from: Nursing Reference Center

10. Klemetti S, Leino-Kilpi, Cabrera E, et al. Difference Between Received and Expected Knowledge of Patients Undergoing Knee or Hip Replacement in Seven European Countries. *Clin Nurs Res*, 2015;24(6): 624-643. doi: 10.1177/1054773814549992. Epub 2014 Sep 17.

11. Greene M, Rolfson O, Nemes S, Gordon M, Malchau H, Garellick G. Education Attainment is Associated With Patient-reported Outcomes: Findings From the Swedish Hip Arthroplasty Register. *Clin Orthop Relat Res*. 2014;472(6):1868-76. doi: 10.1007/s11999-014-3504-2. Epub 2014 Feb 19.

12. Panteli M, Habeeb S, McRoberts J, Porteous M. (Enhanced care for primary hip arthroplasty: factors affecting length of hospital stay. *Eur J Orthop Surg Traumatol*. 2014;24:353-358. doi: 10.1007/s00590-013-1188-z.

13. Heering H, Engelke Z. Patient Education: Teaching the Surgical Patient. *Cinahl Information Systems*. 2017. Available from: Nursing Reference Center

14. Aydin D, Klit J, Jacobsem S, Troelsen A, Husted H. No major effects of preoperative education in patients undergoing hip or knee replacement - a systematic review. *Dan Med J*. 2015; 62<sup>(7)</sup>. pii: A5106. Available from: <https://ugeskriftet.dk/dmj/no-major-effects-preoperative-education-patients-undergoing-hip-or-knee-replacement-systematic>

15. Jäppinen A, Hämäläinen H, Kettunen T, Piirainen A. Patients' conceptions of preoperative physiotherapy education before hip arthroplasty. *Eur J Physiother*. 2015;17:148-57. Doi: 10.3109/21679169.2015.1061051

16. Conradsen S, Gjersteth M, Kvangarsnes M. Patients' experiences from an education programme ahead of orthopaedic surgery - a qualitative study. *J Clinic Nurs*. 2016;25 (19-20): 2798-806. doi: 10.1111/jocn.13281. Epub 2016 Apr 8.

17. Edwards P, Mears S, Barnes C. Preoperative Education for Hip and Knee Replacement: Never Stop Learning. *Curr Rev Musculoskelet Med*. 2017;10(3):356-64. doi: 10.1007/s12178-017-9417-4.

18. Moulton L, Evans PA, Starks I, Smith T. Pre-operative education prior to elective hip arthroplasty surgery improves postoperative outcome. *Int Orthop*. 2015;39(8):1483-6. doi: 10.1007/s00264-015-2754-2. Epub 2015 Apr 11.

19. Majid N, Lee S, Plummer V. The effectiveness of orthopedic patient education in improving patient outcomes: a systematic

review protocol. JBI Database System Rev Implement Rep. 2015;13(1):122-33. doi: 10.11124/jbisrir-2015-1950.

20. Pulkkinen M, Junttila K, Lindwall L. Preoperative education for hip or knee replacement (Review). Scand J Caring Sci. 2016;30(1): 145-53. doi: 10.1111/scs.12233. Epub 2015 Apr 28.

21. Tilbury C, Haanstra TM, Leichtenberg CS, et al. Unfulfilled Expectations After Total Hip and Knee Arthroplasty Surgery: There Is a Need for Better Preoperative Patient Information and Education. J Arthroplasty. 2016;31(10):2139-45. doi: 10.1016/j.arth.2016.02.061. Epub 2016 Mar 17.

22. McDonald S, Page MJ, Beringer K, Wasiak J, Sprowson A. Preoperative education for hip or knee replacement. Cochrane Database Syst Rev. 2014. Issue 5. 13;(5):CD003526. doi: 10.1002/14651858.CD003526.pub3.

23. Duarte VDS, Santos MLD, Rodrigues KDA, Ramires JB, Arêas GPT, Borges GF. Exercícios físicos e osteoartrose: uma revisão sistemática. Fisioter Mov. 2013;26(1):193-202. doi: http://dx.doi.org/10.1590/S0103-51502013000100022.

24. Yoon RS, Nellans KW, Geller JA, Kim AD, Jacobs MR, Macaulay W. Patient Education Before Hip or Knee Arthroplasty Lowers Length of Stay. J Arthroplasty. 2010; 25(4):547-51. doi: 10.1016/j.arth.2009.03.012. Epub 2009 May 8.

25. Violante P, Cruz A. Efetividade de ensino pré-operatório em doentes submetidos a artroplastia total da anca. Série Monográfica Educação e Investigação em Saúde Enfermagem de Reabilitação: Resultados de Investigação. Coimbra: Unidade de Investigação em Ciências da Saúde: Enfermagem. 2016, p.43-63.

26. Desmeules F, Hall J, Woodhouse LJ Prehabilitation Improves Physical Function of Individuals with Severe Disability from Hip or Knee Osteoarthritis. Physiother Can. 2014;65(2):116-24. doi: 10.3138/ptc.2011-60.

27. Akhtar K, Burne D. Optimization of the patient undergoing total knee arthroplasty - the rapid recovery program. JCRMM. 2010;1(2): 1-4. Available from: [https://pdfs.semanticscholar.org/2177/bc4ba9b481ef7296843351181082a0716053.pdf?\\_ga=2.151661881.1241756114.1577113325-1538352486.1568649449](https://pdfs.semanticscholar.org/2177/bc4ba9b481ef7296843351181082a0716053.pdf?_ga=2.151661881.1241756114.1577113325-1538352486.1568649449)

28. Baixinho CL. Outcome after femoral neck fracture. Rev Baiana Enferm. 2011;25(3):311-9. doi: http://dx.doi.org/10.18471/rbe.v25i3.5480



THIS WORK IS LICENSED UNDER A [CREATIVE COMMONS ATTRIBUTION-NONCOMMERCIAL-NODERIVATIVES 4.0 INTERNATIONAL LICENSE](https://creativecommons.org/licenses/by-nc-nd/4.0/).

COPYRIGHT (C) 2020 PORTUGUESE REHABILITATION NURSING JOURNAL