Vernetzt und evidenzbasiert -Fast-Track in unserer Region

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Zentrum Patientenschulung und Gesundheitsförderung, Würzburg





Was sind Risikofaktoren in der Endoprothetik?

Leitlinien für Hüft- und Knie-TEP.



S3 Leitlinie Hüft-Endoprothese



Evidenzbasierte Empfehlungen zu Risikofaktoren und Aufklärung

- 5.1 zu Risikofaktoren aufklären, ggf. OP verschieben, um Risiken zu minimieren
 - 5.1.1 Nikotinkonsum mind. 1 Monat vor OP beenden
 - 5.1.2 Diabetes mellitus bestmöglich einstellen
 - 5.1.3 BMI > 30 reduzieren
 - 5.1.4 asymptomatische Bakteriurie nicht behandeln
 - 5.1.5 psychische Erkrankung abklären
 - 5.1.6 Anämie diagnostizieren und optimieren
- 6.1 individuelle Therapieziele formulieren lassen
- 6.2 Aufklärung ob Therapieziele realisierbar
- 6.3 für Beratung und Aufklärung patientenverständliche Informationsmaterialien nutzen
- 6.4 gemeinsam getroffene Entscheidung, Nutzen > Risiken



Version: 1.0 (24.03.2021)

S2k Leitlinie Knie-Endoprothese



Evidenzbasierte Empfehlungen zu Risikofaktoren und Aufklärung

- Diabetes mellitus bestmöglich einstellen
- BMI > 30 reduzieren
- Nikotinkonsum mind. 1 Monat vor OP beenden
- Anämie diagnostizieren und optimieren
- keine Kortison-Spritzen 3 1,5 Monate vor OP
- 4.6 psychische Erkrankung abklären
- aktive entzündlich-rheumatisch Erkrankung kontrollieren
- Komplikationsprofil berücksichtigen (Infektionen, Infektionsrisiko, 4.8 Komorbiditäten, Sucht, unrealistische Erwartungen)
- Therapieziele gemeinsam vereinbaren 4.9

Langfassung

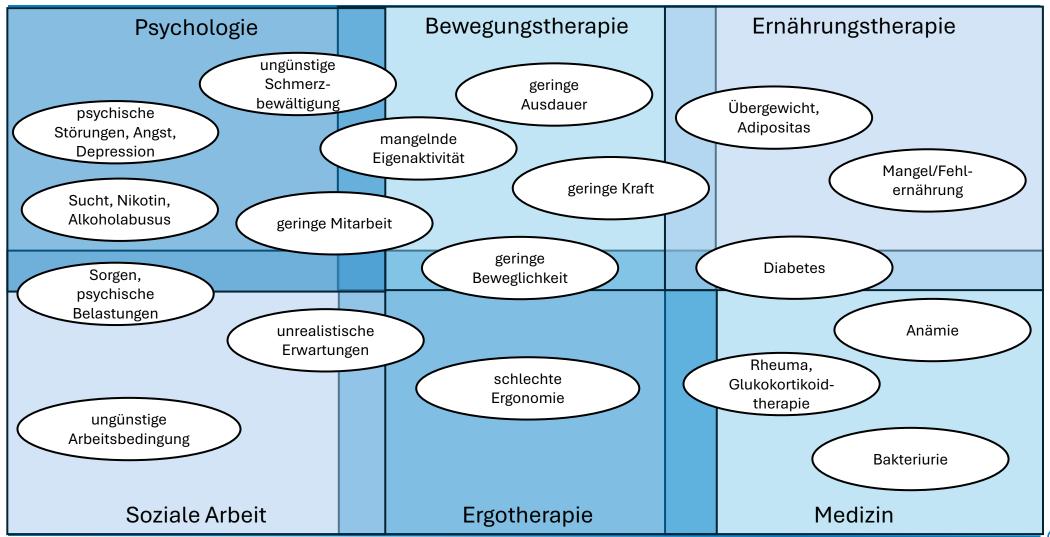
DEUTSCHE GESELLSCHAFT FÜR ENUDPROTHETE

Erstfassung 01/2018

04/2023



Risikofaktoren bei Endoprothese-Operation





Wie werden Risikofaktoren behandelt?

Versorgungsstrukturen.



Bisherige Versorgung und -einrichtungen

Gelenkbeschwerden

Patient

Diagnostik

ambulante Praxis Haus-. Fachärzte konservative Therapie

ambulante Physiotherapie-Praxis Sanitätshäuser, Apotheken partizipative Entscheidung für Gelenkersatz

Patient ambulante Praxis

TEP-Operation

Überbrückung

multimodale, interdisziplinäre Rehabilitation



stationäre Klinik

ambulante od. stationäre Rehabilitationseinrichtung

→ Bearbeitung der meisten Risikofaktoren erst nach der Operation



BJA

British Journal of Anaesthesia, 133 (2): 305-315 (2024)

doi: 10.1016/j.bja.2024.02.035 Advance Access Publication Date: 26 April 2024 Review Article

CLINICAL PRACTICE

Towards a common definition of surgical prehabilitation: a scoping review of randomised trials

Chloé Fleurent-Grégoire^{1,7,†}, Nicola Burgess^{3,†}, Daniel I. McIsaac^{4,5,6}, Stéphanie Chevalier^{1,7,8}, Julio F. Fiore Jr ⁹, Francesco Carli¹⁰, Denny Levett², John Moore¹¹, Michael P. Grocott², Robert Copeland¹², Lara Edbrooke^{13,14}, Dominique Engel¹⁵, Giuseppe Dario Testa¹⁶, Linda Denehy^{13,14,*} and Chelsia Gillis^{1,9,10,*}

Prähabilitation ist ein **Prozess von der Diagnose bis zur Operation**, der aus einer oder mehreren **präoperativen Interventionen** in den Bereichen **Bewegung, Ernährung, psychologische Strategien und Atemtraining** besteht.

Ziel ist es, die funktionelle Kapazität und die physiologischen Reserven zu verbessern, damit Patienten chirurgischen Belastungen standhalten, die postoperativen Ergebnisse verbessert und die Genesung gefördert werden."



Fast-Track-Versorgung mit Prähabilitation

Gelenkbeschwerden

Patient

Diagnostik

ambulante Praxis Haus-, Fachärzte konservative Therapie

ambulante Physiotherapie-Praxis Sanitätshäuser, Apotheken partizipative Entscheidung für Gelenkersatz

Patient ambulante Praxis

multimodale, interdisziplinäre Prähabilitation



ambulante Rehabilitationseinrichtung ambulante Physiotherapie-Praxis

TEP-Operation

stationäre Klinik

multimodale, interdisziplinäre Rehabilitation



ambulante od. stationäre Rehabilitationseinrichtung

→ Bearbeitung von Risikofaktoren bereits vor der Operation



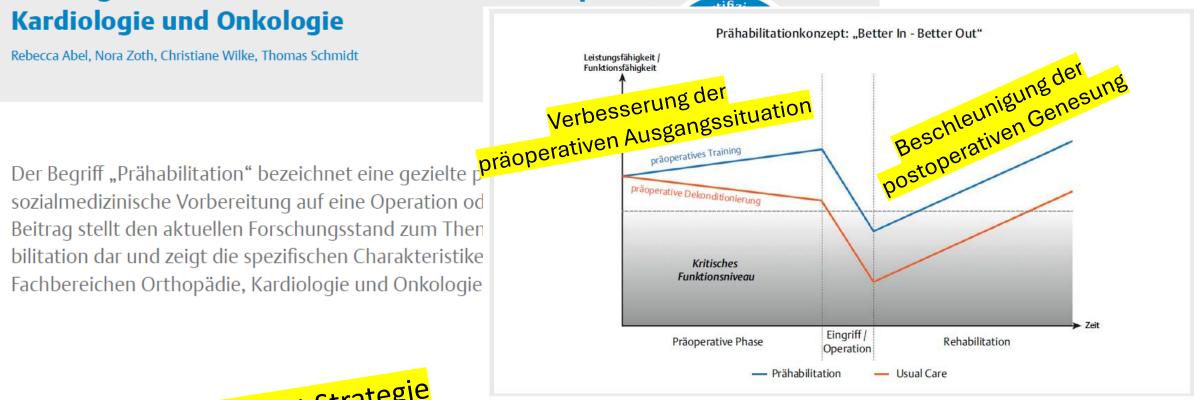


Trainingsbasierte Prähabilitation in der Orthopädie, Kardiologie und Onkologie

Rebecca Abel, Nora Zoth, Christiane Wilke, Thomas Schmidt

Beitrag stellt den aktuellen Forschungsstand zum Then bilitation dar und zeigt die spezifischen Charakteristike Fachbereichen Orthopädie, Kardiologie und Onkologie

Better-in-better-out Strategie



▶ Abb. 1 Vergleich der Entwicklung von Leistungs- und Funktionsfähigkeit vor und nach chirurgischen Eingriffen bei Patient*innen mit und ohne präoperative Steigerung der Leistungsfähigkeit (Konzept: "Better-In-better-Out" [2]).

Phys Med Rehab Kuror 2025; 35: 299-312 | © 2025. Thieme. All rights reserved.



gezielte, strukturierte Planung und Steuerung

- Anamnese
- ausgewählte Assessments
- individuelle Zieldefinition
- Mindestdauer 4-6 Wochen, 2x/Woche

- Bedarfsorientierte Module
 - Bewegungs-/Physiotherapie
 - Ernährungsberatung oder -gruppen
 - Psychologische Beratung oder Gruppen

Trainingsbasierte Prähabilitation in der Orthopädie,
Kardiologie und Onkologie
Rebecca Abel, Nora Zoth, Christiane Wilke, Thomas Schmidt

Der Begriff "Prähabilitation" bezeichnet eine gezielte physische, psychische und sozialmedizinische Vorbereitung auf eine Operation oder Behandlung. Dieser Beitrag stellt den aktuellen Forschungsstand zum Thema trainingsbasierte Prähabilitation dar und zeigt die spezifischen Charakteristiken der Prähabilitation in den Fachbereichen Orthopädie, Kardiologie und Onkologie auf.



Erwartete Effekte und Ziele der Prähabilitation

Besserung der Leistungsfähigkeit

- pulmonal
- kardiovaskulär
- konditionell
- koordinativ

Reduktion von Risikofaktoren

- Abstinenz oder Konsumreduktion von Tabak und Alkohol
- Reduktion von Übergewicht,
 Mangelernährung, Bewegungsmangel

Motivation und Zusammenarbeit

- Steigerung der Selbstwirksamkeit
- aktives, eigenverantwortlichesKrankheitsmanagement

aus Sicht der Operateur:innen

schnellere postoperative Genesung geringere Komplikationsrate

aus Sicht der Leistungserbringer

verbesserte Zusammenarbeit mit Zuweisenden verzahnte Module in Prähabilitation und Rehabilitation verbesserte Ausgangslage bei Rehabilitation

aus Sicht der Leistungsträger

verbesserte Selbstständigkeit, verringerte Pflegebedürftigkeit geringere Physiotherapie-Bedarfe beschleunigte Teilhabe (return-to-work und return-to-sport) reduzierte Kosten

aus Sicht der Patient:innen

verbessertes Verständnis, Motivation und Handlungskompetenzen verbesserte Lebensqualität



Welche Effekte konnten bisher nachgewiesen werden?

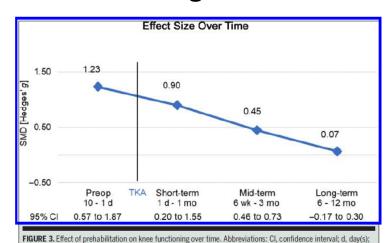
Evidenz von Prähabilitation in der Endoprothetik.



Knie-TEP Evidenz

Systematisches Review mit Metaanalyse Gräniche et al., 2022

- 16 Studien (968 Probanden)
- 14 Studien für Metaanalyse
- verbesserte prä- und postoperative Funktionsfähigkeit



mo, month(s); wk, week(s); SMD, standardized mean difference; TKA, total knee arthroplasty.

LITERATURE REVIEW]

PASCALE GRÄNICHER, PT, MSc^{1/3} * LOES MULDER, PT, MSc^{1/3} * TON LENSSEN, PT, PhD^{1/3}

JOHANNES SCHERR, MD, PD² * JAAP SWANENBURG, PT, PhD^{1/3} * ROB DE BIE, PT, PhD¹

Prehabilitation Improves Knee Functioning Before and Within the First Year After Total Knee Arthroplasty: A Systematic Review With Meta-analysis

otal knee arthroplasty (TKA) is the treatment of choice for patients with end-stage knee osteoarthritis (OA), inflammatory arthritis, ³⁹ or osteonecrosis ¹⁶ when pain and/or functional disability persists after conservative treatments. ²² Primary knee OA is the main reason for performing TKA8—one of the most common orthopaedic procedures. ^{3,45}

- OBJECTIVE: To assess whether prehabilitation influenced knee functioning before and within the first year after total knee arthroplasty (TKA) surgery.
 DESIGN: Intervention systematic review with
- DESIGN: Intervention systematic review with meta-analysis.
 LITERATURE SEARCH: The authors searched
- the MEDUINE/PubMED, EMBASE, CINAHL, Occhrane Library, Physiotherapy Evidence Database, Web of Science, and Scopus databases from their inception until March 2002.
- STUDY SELECTION CITERIA: The authors included peer-reviewed articles comparing preoperative, short-, mid- or long-term effects of exercise-based physical therapy before primary unitateral TKA with TKA without prehabilitation.
- ® DATA SYNTHESIS: We assessed bias using the Cochrane Risk-of-Bias tool (ROB 2.0) and the rapeutic validity using the i-CONTENT tool. Standardized mean differences (riedges' g) and 95% confidence intervals (Os) were calculated for knee functioning. Certainty of evidence was as sessed using the Grad-

ing of Recommendations Assessment, Development, and Evaluation (GRADE) approach.

- RESULTS: Stoken trials (956 participants) were included; 14 qualified for meta-analysis. Low to very low or strainty of evidence favored pre-habilitation over no intervent ion for improving knee functioning before g= 125; 99% Ct 0.49, 197) and up to 3 months after TKA (short-term 1 day to I month; g = 0.95°) Ct 0.18, 161; mid-term 6 weeks to 3 months, g = 0.45; 99% Ct 0.06, 0.89. There were no significant between group differences at long-term follow-up (6-12 months; g = 0.07; 99% Ct -0.17 (0.30).
- CONCLUSION: There was low to very low certainty of exidence that prehabilitation promotes superior knee functioning before and up to 3 months after TKA, compared to TKA atone. The long-term postoperative effects were inconclusive. J Of thip Sports Phys Ther 2022;52(1):70-9725 Epub: 20 September 2022. db:10258/jospt 2022.1180
- NEY WORDS: exercise therapy, knee joint, physical therapy, preoperalive evercise, systematic review/meta-analysis, total knee arthroptasty

Preoperative pain, physical fitness and impairments predict knee functioning after TKA.10,40,42 After being scheduled for surgery, patients often have to wait weeks to months before TKA can be performed. During this time, knee functioning may decline, while pain symptoms increase. 6,00,71 Better preoperative knee functioning and physical fitness would promote postoperative recovery.6 In nonorthopaedic fields, prehabilitation-a structured exercise therapy program delivered before surgery-improves physical fitness. Consequently, the risk of postoperative complications in high-risk patients scheduled for colorectal or cardiac surgery and patients undergoing intraabdominal surgery for cancer has been reduced following prehabilitation,11,20,20,81 Preoperative exercise therapy may improve patients' physical status preceding orthopaedic surgeries.48,50 However, it is unclear whether a significant correlation exists between preparation for surgery and enhanced outcomes after major joint replacements (eg. TKA), particularly regarding functioning and participation in activities of daily living (ADL).49

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Effekte vor OP, kurz danach, mittel-, langfristig

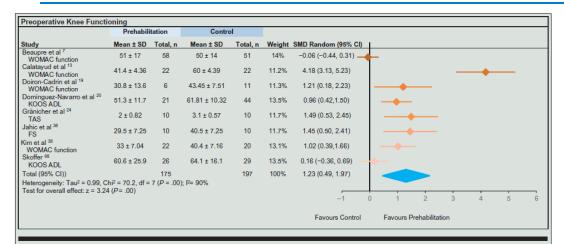


FIGURE 2 – A. Forest plot of the preoperative effect (before TKA) of prehabilitation on knee functioning compared with TKA and no prehabilitation by pooling data from 8 trials (n = 372). Abbreviations: ADL, activities of daily living; CI, confidence interval; FS, Function Score; KOOS, Knee Osteoarthritis Outcome Score; TAS, Tegner Activity Scale; SMD, standardized mean difference; TKA, total knee arthroplasty; WOMAC, Western Ontario and McMaster Universities Osteoarthritis Index.

WOMAC function		Prehabilitation		Control								
XOOS ADL		Mean ± SD	Total, n	Mean ± SD	Total, n	Weight	SMD Random (95% C	I)	1			
WOMAC function (73 ± 15	KOOS ADL	90.4 ± 10.5	23	83.9 ± 16.6	21	8.6%	-0.42 (-1.01, 0.17)		-			
WOMAC function 69.3 ± 2.94 22		73 ± 15	58	73 ± 17	51	21.3%	0.00 (-0.37, 0.37)					
Designation Notes and the second of the seco		69.3 ± 2.94	22	75 ± 3.47	22	6.3%	1.74 (1.06, 2.43)					
KOOS ADL		5.5 ± 2.3	19	4.7 ± 2.1	20	7.7%	-0.36 (-0.98, 0.26)		-			
TAS 2.5 ± 0.85 10 3.8 ± 0.79 10 3.2% 1.52 (0.56, 2.46) Jahic et al ³⁶ 67.5 ± 2.64 10 68 ± 2.58 10 4.2% 0.18 (-0.66, 1.03) FS (Kim et al ³⁸ 41.20 ± 12.7 22 49.3 ± 12.1 20 8.0% 2.94 (2.08, 3.81) WOMAC function Mat El Ismail et al ⁴⁶ 80.56 ± 7.35 26 89.5 ± 11.7 23 8.2% 1.22 (0.63, 1.82) Skoffer ⁶⁶ KOOS ADL 78.2 ± 12.9 21 82.9 ± 11.7 29 9.6% 0.38 (-0.19, 0.94) Tungtronglit et al ⁷⁵ WOMAC function Total (95% C1) 262 280 100% 0.45 (0.06, 0.84) Helerogeneity: Tau ² = 0.34, Chi ² = 48.65, df = 10 (P = .00); i ² = 79% Test of overall field: t = 2.25 (P = .02)		75.7 ± 9.1	21	75.25 ± 13.58	44	11.3%	-0.18 (-0.75, 0.40)		<u> </u>			
FS 67.5 ± 2.64 10 68 ± 2.58 10 4.29 0.18 (-0.68, 1.03) WMMAC function 41.20 ± 12.7 22 49.3 ± 12.1 20 8.0% 2.94 (2.08, 3.81) WMMAC function 41.80 ± 12.7 22 49.3 ± 12.1 20 8.0% 2.94 (2.08, 3.81) Mat Ell Ismail et al ⁶⁶ 80.56 ± 7.35 26 89.5 ± 11.7 23 8.2% 1.22 (0.63, 1.82) Skoffer ⁶⁶ KOOS ADL 78.2 ± 12.9 21 82.9 ± 11.7 29 9.6% 0.38 (-0.19, 0.94) Tungtronglit et al ⁷⁵ 0.72 (0.21, 1.24) WOMAC function 134 ± 19.7 30 144.3 ± 19.1 30 11.5% 0.72 (0.21, 1.24) WOMAC function 262 280 100% 0.45 (0.06, 0.84) Heterogeneity: Tau ² = 0.34, Chi ² = 48.65, df = 10 (P = .00); i ² = 79% Test of overall firstet x = 2.25 (P = .02)		2.5 ± 0.85	10	3.8 ± 0.79	10	3.2%	1.52 (0.56, 2.48)		_			
MAGE II Ismail et al ¹⁶ KOOS ADL 78.2 ± 12.9 21 82.9 ± 11.7 23 8.2% 1.22 (0.63, 1.82) Skoffer ⁶⁶ No 38 (-0.19, 0.94) KOOS ADL Tungtrongil et al ⁷⁵ WOMAC function 134 ± 19.7 30 144.3 ± 19.1 30 11.5% 0.72 (0.21, 1.24) Total (95% C) Heterogeneity: Tau ² = 0.34, Chi ² = 48.65, off = 10 (P = .00); i ² = 79% Test of overall effect x = 2.25 (P = .02)		67.5 ± 2.64	10	68 ± 2.58	10	4.2%	0.18 (-0.66, 1.03)			_		
NOUS ADL		41.20 ± 12.7	22	49.3 ± 12.1	20	8.0%	2.94 (2.08, 3.81)		-			
KOOS ADL	KOOS ADL	80.56 ± 7.35	26	89.5 ± 11.7	23	8.2%	1.22 (0.63, 1.82)		_	-	_	
WOMAC function 1.54 ± 19.7 30 144.3 ± 19.1 30 11.5% 0.72 (0.21, 1.24) Total (95% CI) 262 280 100% 0.45 (0.06, 0.84) Heterogeneity: Tau² = 0.34, Chi² = 48.65, df = 10 (P = .00); i² = 79% Test of overall of fact z = 2.25 (P = .02)		78.2 ± 12.9	21	82.9 ± 11.7	29	9.6%	0.38 (-0.19, 0.94)	-	+	_		
Heterogeneity: Tau ² = 0.34, Chi ² = 48.65, df = 10 (P = .00); I ² = 79% Test of overall of fact z = 2.25 (P = .02)		134 ± 19.7	30	144.3 ± 19.1	30	11.5%	0.72 (0.21, 1.24)		-	_		
Test of overall effect: z = 2.25 (P = .02)	Total (95% CI)		262		280	100%	0.45 (0.06, 0.84)			>		
			P = .00); I ² =	79%				-	0		2	

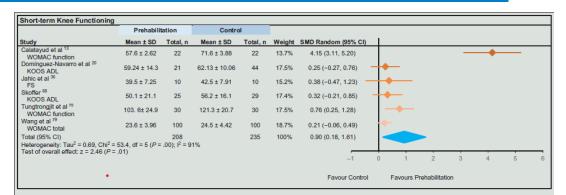


FIGURE 2 – B. Forest plot of the short-term effect (Id - 4 weeks after TKA) of prehabilitation on knee functioning compared with TKA and no prehabilitation by pooling data from 6 trials (n = 443). Abbreviations: ADL, activities of daily living; Cl, confidence interval; FS, Function Score; KOOS, Knee Osteoarthritis Outcome Score; SMD, standardized mean difference; WOMAC, Western Ontario and McMaster Universities Osteoarthritis Index.

	Prehabilit	Prehabilitation		Control					
Study	Mean ± SD	Total, n	Mean ± SD	Total, n	Weight	SMD Random (95% CI)			
Aytekin et al ⁴ KOOS ADL	91.1 ± 9.2	23	87.2 ± 18.3	21	16.0%	-0.27 (-0.85, 0.32)			
Beaupre et al 7 WOMAC function	77 ± 16	58	77 ± 14	51	39.0%	0.00 (-0.37, 0.37	-		
Jahic et al ³⁶ FS	90 ± 0	10	92 ± 4.22	10	7.3%	0.64 (-0.22, 1.51)		+	-
Skoffer et al ⁶⁷ KOOS ADL	84.4 ± 11.8	20	87.6 ± 12.3	24	15.9%	0.26 (-0.33, 0.85)	-		
Tungtrongjit et al ⁷⁵ WOMAC function	152.9 ± 11.8	30	154.2 ± 15	30	21.8%	0.10 (-0.41, 0.60)	•		
Total (95% CI)		141		136	100%	0.07 (-0.17, 0.30)			
Heterogeneity: Tau ² = 0.0		= 4 (P = .5)	i8); I ² = 0%						
Test overall effect: z = 0.8	56 (P = .58)					_1	0	1	
						•	·	•	

FIGURE 2 – D. Forest plot of the long-term effect (between 6 and 12 months after TKA) of prehabilitation on knee functioning compared with TKA without prehabilitation by pooling data from 5 trials (n = 277). Abbreviations: ADL, activities of daily living; CI, confidence interval; FS, Function Score; KOOS, Knee Osteoarthritis Outcome Score; SMD, standardized mean difference; WOMAC. Western Ontario and McMaster Universities Osteoarthritis Index.



FIGURE 2 – C. Forest plot of the mid-term effect (at 3 months after TKA) of prehabilitation on knee functioning compared with TKA and no prehabilitation by pooling data from 11 trials (n = 542). Abbreviations: ADL, activities of daily living; CI, confidence interval; FS, Function Score; KOOS, Knee Osteoarthritis Outcome Score; PSFS, Patient-Specific Function Scale; SMD, standardized mean difference; TAS, Tegner Activity Scale; WOMAC, Western Ontario and McMaster Universities Osteoarthritis Index.

Hüft-TEP Evidenz

Systematisches Review

Widmer et al., 2022

14 Studien

- verbesserte postoperative Funktionsfähigkeit durch präoperatives Bewegungstraining
 - 6-Minuten-Gehtest
 - Timed-Up and Go-Test
 - Chair-Rise-Test
 - Stair Climb-Test
- keine Effekte bei Selbstbericht
 - WOMAC, HOOS, SF-36, Barthel Index
- keine Effekte von Patientenschulung alleine





Systematic Review

Effect of Prehabilitation in Form of Exercise and/or Education in Patients Undergoing Total Hip Arthroplasty on Postoperative Outcomes—A Systematic Review

Patrick Widmer 1, Peter Oesch 2 and Stefan Bachmann 1,2,3,8

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- ² Rosserch Department, Nebabilita@orszentrum Valens, Kliniken Valens, 7357 Valens, Switzerland; peter cosch@kliniken-valens.ch
- Department of Geriatrics, Faculty of Medicine, Inscispital, University of Bern, 3010 Bern, Switzerland
- Correspondence: stefan.bachmann@klimiken-valens.ch

Abstract: Burkground and Objectives: The aim of this systematic review was to determine whether psehabilitation before total hip arthroplasty, in the form of exercise therapy, education alone, or both together, improves postoperative outcomes, such as physical functioning, compared with no intervention. Materials and Methods: A systematic literature search was performed in the online databases PubMed, PEDro and Cochrane Library using the following search keywords: "prehabilitation", "preoperative care", and "total hip replacement". Results: A total of 400 potentially relevant studies were identified. After title, abstract and full-text screening, 14 studies fulfilled all inclusion criteria and were included in this systematic review. Patients who completed exercise-based pschabilitation before their operation showed significant postoperative improvements compared with no intervention in the following tests: six-minute walk test, Timed Up and Go test, chair-rise test, and stair climbing. For various other assessments, such as the widely used Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), Hip disability and Osteoarthritis Outcome Score (HOOS), 36-item Short Form Survey (SF-36) and Barthel Index, no significant differences in outcomes regarding exercise therapy were reported in the included studies. Education alone had no effect on postoperative outcomes. Condustons: Prehabilitation in the form of a prehabilitation exercise therapy is an effective prehabilitation measure with regard to postoperative physical functioning, while prehabilitation in the form of education has no significant effects. No negative effects of prehabilitation on the outcomes examined were reported.

Keywords: hip arthroplasty; prehabilitation; preoperative exercise; preoperative education; postoperative physical functioning

1. Introduction

The implantation of a total hip prosthesis (also termed total hip arthroplasty; THA) is a very common surgical procedure. In Switzerland, over 20,200 primary prostheses were implanted in 2020, with both the absolute number and the annual incidence (number per 100,000 population) steadily increasing slightly since 2012 (start of data collection). Since 2012, two-thirds of patients were over 65 years old. Osteoarthritis of the hip was by far the most common indication for THA [1]. THA is considered the last treatment possibility in case of persistent pain or loss of function and failure of conservative measures [2]. Various studies have shown that it can be advantageous to perform rehabilitation before the operation, to make the patient's condition prior to the planned operation more bearable. For example, Hermann et al. [3] showed that preoperative progressive explosive-type resistance training resulted in a significant increase in functionality and muscle strength. According to Fernandes et al. [4] a supervised neuromuscular exercise program prior to hip and knee



Citations Walnes, P.; Osesh, P.; Bachmann, S. 19bet of Perhabilitation in Form of Recentive and/or Education in Patients Undergoing Total Hip Arthrophody on Postoperative Outcomer—A. Systematic Review. Medicine 2022, 56, 742. https:// doi.org/10.2009/ore-ficine.20000742

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Prähabilitation bei orthopädischen OPs

Systematische Review

Punoose et al., 2023

48 Einzelstudien (N = 3.570)



Original Investigation | Orthopedics

Prehabilitation for Patients Undergoing Orthopedic Surgery A Systematic Review and Meta-analysis

Anuj Punnoose, MSc; Leica S. Claydon-Mueller, PhD; Ori Weiss, MD; Jufen Zhang, PhD; Alison Rushton, EdD; Vikas Khanduja, PhD

Präoperative Effekte

- Knie-TEP: Funktionsfähigkeit, Muskelkraft, Beugung
- Hüft-TEP: Funktionsfähigkeit, Muskelkraft und Beugung, gesundheitsbezogener Lebensqualität
- LWS-OP: Funktionsfähigkeit, gesundheitsbezogene Lebensqualität

Postoperativ Effekte

- Knie-TEP: Funktionsfähigkeit
- LWS-OP: Funktionsfähigkeit

weitere Unterschiede niedrige bis sehr niedrige Evidenzqualität



Weitere Effekte von Prähabilitation bei Hüftgelenks- oder Kniegelenksendoprothetik

geringerer postoperativer Bedarf an Physiotherapie

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Butler et al., 1996
Konnyu et al. 2021 (systematic review)
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- geringere Häufigkeit postoperativer Transfusionen
- verkürzte stationäre Verweildauer

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Schwenk et al., 2021
darin Metaanalyse zu Knie- und Hüft-Operationen über:
Jung et al., 2020; Pritchard et al., 2020; Büttner et al., 2020; Vilatte et al., 2019;
Murphy et al., 2018; Zhu et al., 2017; Husted et al., 2016; Quack et al., 2015;
Husted et al., 2010
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Was ist noch offen?

Fragen für Versorgung und Forschung.





13.02.2025 DOSSIER

Fast Track und Prähabilitation – warum wir neue Konzepte brauchen









Fast Track und Prähabilitation – warum wir neue Konzepte brauchen

Prähabilitation

- es fehlen Standards hinsichtlich
 - Behandlungsbeginn
 - mit Beginn der Indikation zur Operation
 - bereits mit der ersten Diagnosestellung und/oder
 - im Verlauf der ersten konservativen Therapie
 - der Behandlungsdauer
 - zwischen 1–12 Wochen
 - Behandlungsintensität, Trainingsfrequenz
 - Angaben von 1–5 Kontakten pro Woche
 - Strukturen bzw. Organisationsformen
 - Individual- als auch Gruppenmaßnahmen
 - Angebotsformaten
 - Präsenz oder digitale Gesundheitsanwendungen (DIGAs), "Telerehabilitation"



Welche Studien werden gebraucht?

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EDITORIALS

Prehabilitation: high-quality evidence is still required

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Summary

Prehabilitation comprises multidisciplinary healthcare interventions, including exercise, nutritional optimisation, and psychological preparation, which aim to dampen the metabolic response to surgery, shorten the period of recovery, reduce complications, and improve the quality of recovery and quality of life. This editorial evaluates the potential benefits and limitations of and barriers to prehabilitation in surgical patients. The results of several randomised clinical trials and meta-analyses on prehabilitation show differing results, and the strength of the evidence is relatively weak. Heterogeneity in patient populations, interventions, and outcome measures, with a wide range for compliance, contribute to this variation. Evidence could be strengthened by the conduct of large-scale, appropriately powered multicentre trials that have unequivocal clinically relevant and patient-centric endpoints. Studies on prehabilitation should concentrate on recruiting patients who are frail and at high risk. Interventions should be multimodal and exercise regimens should be tailored to each patient's ability with longitudinal measurements of impact.

Keywords: exercise; frailty; nutrition; outcomes; postoperative complications; prehabilitation; preoperative psychological preparation; surgery

- groß-angelegte, Multicenter- Studien mit hoher Power
- Zielgrößen: klinisch relevant, patientenzentriert, longitudinal erfasst
- Zielgruppe: gebrechliche Patienten mit hohem Risiko
- Interventionen: multimodal und bedarfsangepasst



Was ist meinen Sie?

Diskutieren Sie mit uns.



Fast Track

... and Finger Food

Vernetzt und evidenzbasiert: Fast-Track in unserer Region



Ziele der Prähabilitation

Besserung der Leistungsfähigkeit

- pulmonal
- kardiovaskulär
- konditionell
- koordinativ

Reduktion von Risikofaktoren

- Abstinenz oder Konsumreduktion von Tabak und Alkohol
- Reduktion von Übergewicht,
 Mangelernährung, Bewegungsmangel

Motivation und Zusammenarbeit

- Steigerung der Selbstwirksamkeit
- aktives, eigenverantwortliches Krankheitsmanagement

aus Sicht der Operateur:innen

schnellere postoperative Genesung geringere Komplikationsrate

aus Sicht der Leistungserbringer

verbesserte Zusammenarbeit mit Zuweisenden verzahnte Module in Prähabilitation und Rehabilitation verbesserte Ausgangslage bei Rehabilitation

aus Sicht der Leistungsträger

verbesserte Selbstständigkeit verringerte Pflegebedürftigkeit beschleunigte Teilhabe (return-to-work und return-to-sport)

aus Sicht der Patient:innen

verbessertes Verständnis, Motivation und Handlungskompetenzen verbesserte Lebensqualität

in unserer Region?

- Welche Rolle und Perspektive haben Sie auf Fast Track?
- Welche Ziele und Effekte erwarten Sie sich?
- Welche Faktoren begünstigen die Umsetzung wo sehen Sie Barrieren?



Zitierte Literatur

- Abel, R., Zoth, N., Wilke, C., & Schmidt, T. (2024). Trainingsbasierte Prähabilitation in der Orthopädie, Kardiologie und Onkologie. *Die Rehabilitation*, 63(01), 51–64. https://doi.org/10.1055/a-2126-7431
- Butler, G. S., Hurley, C. A. M., Buchanan, K. L., & Smith-VanHorne, J. (1996). Prehospital education: Effectiveness with total hip replacement surgery patients. *Patient Education and Counseling*, 29(2), 189–197. https://doi.org/10.1016/0738-3991(96)00883-X
- Fleurent-Grégoire, C., Burgess, N., McIsaac, D. I., Chevalier, S., Fiore, J. F., Jr, Carli, F., Levett, D., Moore, J., Grocott, M. P., Copeland, R., Edbrooke, L., Engel, D., Testa, G. D., Denehy, L., & Gillis, C. (2024). Towards a common definition of surgical prehabilitation: A scoping review of randomised trials. *British Journal of Anaesthesia*, 133(2), 305–315. https://doi.org/10.1016/j.bja.2024.02.035
- Gränicher, P., Mulder, L., Lenssen, T., Scherr, J., Swanenburg, J., & De Bie, R. (2022). Prehabilitation Improves Knee Functioning Before and Within the First Year After Total Knee Arthroplasty: A Systematic Review With Meta-analysis. *Journal of Orthopaedic & Sports Physical Therapy*, 52(11), 709–725. https://doi.org/10.2519/jospt.2022.11160
- Konnyu, K. J., Thoma, L. M., Bhuma, M. R., Cao, W., Adam, G. P., Mehta, S., Aaron, R. K., Racine-Avila, J., Panagiotou, O. A., Pinto, D., & Balk, E. M. (2021). *Prehabilitation and Rehabilitation for Major Joint Replacement*. Agency for Healthcare Research and Quality (AHRQ). https://doi.org/10.23970/AHRQEPCCER248
- Lobo, D. N., Pavel Skořepa, Gomez, D., & Greenhaff, P. L. (2023). Prehabilitation: High-quality evidence is still required. *British Journal of Anaesthesia*, 130(1), 9–14. https://doi.org/10.1016/j.bja.2022.09.016
- Punnoose, A., Claydon-Mueller, L. S., Weiss, O., Zhang, J., Rushton, A., & Khanduja, V. (2023). Prehabilitation for Patients Undergoing Orthopedic Surgery: A Systematic Review and Meta-analysis. *JAMA Network Open*, 6(4), e238050–e238050. https://doi.org/10.1001/jamanetworkopen.2023.8050
- Schwenk, W. (2021). Beschleunigte Genesung nach Operationen Hält das "ERAS"-Konzept, was es verspricht? *Der Chirurg*, *92*(5), 405–420. https://doi.org/10.1007/s00104-020-01328-y
- Widmer, P., Oesch, P., & Bachmann, S. (2022). Effect of Prehabilitation in Form of Exercise and/or Education in Patients Undergoing Total Hip Arthroplasty on Postoperative Outcomes—A Systematic Review. *Medicina*, 58(6), 742. https://doi.org/10.3390/medicina58060742

