Total Joint Arthroplasty
What Does it Mean to Our Patients?

Total joint arthroplasties are surgical procedures intended to improve joint function and relieve pain. Seven million Americans, many of them still in their working years, are living with a hip or knee replacement. The pathophysiology of the underlying conditions and the treatment options available are widely publicized and well understood among orthopedic practitioners. However, meeting the needs of patients undergoing hip or knee arthroplasty starts with an understanding of the characteristics and unique needs of this population. The following summary of recent peer-reviewed articles describes expectations and challenges of patients undergoing total joint arthroplasty and practices that may positively affect outcomes.

Attributes that impact clinical outcomes for this patient population:
- Gender: Males fare better
- Age: Younger fare better
- Weight: Over and underweight patients have higher complication risks
- Pre-operative perceptions and expectations for pain level and functional recovery
- Level of pre-operative function
- Pre-operative mental and emotional health
- Patient self-reported pre-operative health status
- Length of stay: Shorter lengths of stay fragment care and pain management

Aspects that cause anxiety in this patient population:
- Is this surgeon any good?
- Will I have a lot of pain?
- Will I regain high level of function?
- How long will I be out of work?

Activities this population will benefit from:
- Data transparency for selecting a surgeon
- Nutritional consultations for over and underweight patients
- Pre-operative patient activation
  - Use decision aids to educate and engage patients
  - Set realistic expectations for functional recovery and post-operative pain control
  - Personalize the information shared
- Post-operative communication practices
  - Standardize communication practices between disciplines and settings
  - Employ telemedicine to increase patient-provider communication
- Documentation practices that support workmen's compensation claims
## References

<table>
<thead>
<tr>
<th>Study</th>
<th>Objective</th>
<th>Conclusion</th>
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| Lemay, C. A., Lewis, C. G., Singh, J. A., & Franklin, P. D. (in press). | To evaluate patient-reported receipt of preoperative pain management information and its impact on function following elective total joint arthroplasty. | Two weeks after surgery, patients receiving pain management information preoperatively had lower levels of pain.  
The lack of pain management information was associated with worse six-month postoperative function.  
Thirty-three percent reported that they did not receive pain management information prior to elective surgery.  
Forty-four percent of the patients did not receive helpful information preoperatively.  
There were no differences in demographics or clinical profiles between those who received pain management information preoperatively and those who did not. |
| Barinaga, G., Wright, E., Cagle, P. J., Anoushiravani, A. A., Sayeed, Z., Chambers, M. C., … Saleh, K. J. (2017). | To compare patient demographics, outcomes, and resource utilization among hip fracture patients who received surgical fixation during the day versus at night to determine whether outcomes are affected by the time surgery was performed. | 50% of hip fracture patients never fully regain functional capacity.  
24% eventually relocate to nursing homes.  
25% of patients with hip fractures will die within one year of sustaining the fracture.  
No statistically significant difference with regard to blood loss, LOS, length of surgery, in-hospital mortality, or 30-day readmission between day and night cohorts.  
In-hospital cost was 8.70% lower in the night cohort. |
| Daniels, A. H., Kuris, E. O., & Palumbo, M.A. (2017). | To describe the burden of orthopedic injury and the physician’s role in workers compensation case management. | Nearly one third of permanent workplace disabilities result from musculoskeletal disorders  
To receive medical and disability benefits, the employee must prove that the medical illness or disability resulted from the context of the specific occupation with a >50% probability.  
The clinician’s role extends well beyond patient evaluation and management to input regarding factors such as causation, impairment, and employability  
All physicians who treat occupational disease should have a fundamental knowledge of how to approach these claims, interact with the various constituents, use key terminology, and provide the appropriate medical and |
<table>
<thead>
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<th>Study</th>
<th>Objective</th>
<th>Conclusion</th>
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▪ Obesity disproportionately affects knees more than hips, leading to an unequal increase in the number of primary TKAs performed relative to the number of total hip arthroplasties.  
▪ The average body mass index of patients undergoing TKA has increased each decade, contributing to poorer patient outcomes.  
▪ Obese patients are often malnourished and are specifically prone to hypoalbuminemia, an independent risk factor for poor outcomes after TKA.  
▪ Nutritional laboratory tests may improve outcomes.  
▪ The risk of periprosthetic and superficial infections is increased in obese patients, and implant longevity is decreased. |
| Berliner, J. L., Brodke, D. J., Chan, V., SooHoo, N. F., & Bozic, K. J. (2016). *Preoperative patient-reported outcome measures predict clinically meaningful improvement in function after THA*. Clinical Orthopaedics and Related Research, 474(2), 321-329. | To use preoperative patient-reported outcome measure (PROM) scores to predict which patients undergoing total hip arthroplasty (THA) are most likely to experience a clinically meaningful change in functional outcome one year after surgery. | ▪ Patients with a higher level of preoperative function—as measured by the hip disability and osteoarthritis outcome score (HOOS) and the Physical Component Summary (PCS) score—are less likely to obtain meaningful improvement after THA.  
▪ Lower preoperative mental and emotional health decreases the likelihood of achieving a clinically meaningful improvement in function after THA.  
▪ These results may inform discussions between physicians and patients regarding the expected benefit after THA and to support the development of patient-based informed decision-making tools. |
▪ Over 80% of patients expected to perform eight of the 10 activities within three months.  
▪ Patients who expected to be able to perform the functional activities in less than six weeks were more likely to be younger, male, and have lower self-reported pain and better general health before surgery compared to those who expected to be able to perform the activities three months post-surgery or later. |
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<th>Study</th>
<th>Objective</th>
<th>Conclusion</th>
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▪ This patient population may benefit from nutrition consults and education during preoperative planning and postoperative recovery. |
| Andrawis, J., Akhavan, S., Chan, V., Lehil, M., Pong, D., & Bozic, K. J. (2015). Higher preoperative patient activation associated with better patient-reported outcomes after total joint arthroplasty. *Clinical Orthopaedics and Related Research, 473*(8), 2688-2697. | To determine whether patients with higher activation scores would experience improved outcomes and greater patient satisfaction after primary total hip or total knee arthroplasty. | ▪ Patients who describe their health as fair or poor or with higher levels of depression are more likely to have worse outcomes and satisfaction after total joint arthroplasty (TJA).  
▪ Patient activation is correlated with increased participation and engagement in physical therapy.  
▪ Patients with higher patient activation had better pain relief, less joint grinding, improved ambulation, improved mental health, and higher satisfaction after TJA.  
▪ Higher patient activation scores are associated with higher postoperative patient satisfaction using the Hip and Knee Satisfaction Scale.  
▪ Higher patient activation is associated with greater pain relief and improved activity using the pain and symptom scores from the hip disability and osteoarthritis outcome score (HOOS) and the knee injury and osteoarthritis outcome score (KOOS) instruments. |
▪ Patients in the treatment group had a higher proportion of top-box HCAHPS scores in the following fields:  
  – Nursing communication 92% versus 69%  
  – Pain management 94% versus 72%  
  – Overall hospital rating  
▪ The use of therapy dogs has a positive effect on patients’ pain level and satisfaction with hospital stay after total joint replacement. |
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<th>Study</th>
<th>Objective</th>
<th>Conclusion</th>
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▪ Males report higher levels of physical and mental quality of life as well as functional status compared to females.  
▪ Mental health scores are consistently lower in both total hip and total knee replacement patients across the perioperative period and up to one year postoperative. |
  - Initial pain management information identified during a comprehensive pain assessment conversation aimed to understand the patient’s experience and goals  
  - Mutually identified treatment plan  
  - Reassessment through dialogue and monitoring for medication side-effects  
  - TKA patients leave the hospital earlier and with higher levels of pain, fragmenting pain management efforts.  
  - Inadequate and inconsistent pain assessment instruments across disciplines result in conflicting conclusions about pain levels and the effectiveness of treatment.  
  - Interpretation of effectiveness is complicated by patient and provider biases.  
  - Reconstructing the surgical experience with each phase smoothly transitioning to the next, with a patient as a legitimate and contributing partner, has the potential to vastly improve pain management outcomes.  
  - The benefits of telemedicine accessible via mobile devices include:  
    - Improved communication between patients and providers  
    - Improved ability to identify the patient’s need for pain medications in advance of, and subsequent to, scheduled physical |
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<th>Objective</th>
<th>Conclusion</th>
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<td>Wittig-Wells, D. R., Higgins, M. K., Shapiro, S. E., Samms-McPherson, J., &amp; Winterboer, D. S. (2015). The relationship between nonsurgical pain and interference with activity in patients undergoing a total knee arthroplasty. <em>Orthopaedic Nursing</em>, 34(1), 45-49.</td>
<td>To explore the ways in which nonsurgical pain (NSP) interferes with activities 48 hours and six weeks post total knee arthroplasty (TKA).</td>
<td>Highest NSP interference at 48 hours was for activity, sleep, and enjoyment of life. At six to seven weeks, the highest scores were for activity, sleep, and walking. No significant differences were noted for age, race, education, or gender. Two major concerns voiced by patients awaiting TKA are postoperative pain management and rehabilitation.</td>
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<td>Van Citters, A. D., Fahlman, C., Goldmann, D. A., Lieberman, J. R., Koenig, K. M., DiGioia, A. M., ... Bozic, K. J. (2014). Developing a pathway for high-value, patient-centered total joint arthroplasty. <em>Clinical Orthopaedics and Related Research</em>, 472(5), 1619-1635.</td>
<td>To develop a clinical care pathway for primary total joint arthroplasty (TJA) and identify system- and patient-level processes to provide safe, effective, efficient, and patient-centered care for patients undergoing TJA.</td>
<td>Categories for pathway activities include: standardization of protocols, checklists, and process improvement methods, communication and collaboration across disciplines and settings, and patient engagement and education. Activities are segregated by preoperative, inpatient, and post discharge time periods. Communication across members of interdisciplinary care teams is as a critical element for successful care transformation. Patient and family engagement can lead to improved TJA clinical outcomes.</td>
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<td>Bozic, K. J., Kaufman, D., Chan, V. C., To evaluate the factors patients</td>
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<td>Physician manner and quality of care (e.g., patient outcomes) are the most important</td>
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<td>- Fewer than half of patients found useful information to compare patient outcomes among orthopedic surgeons and hospitals that perform TJA.</td>
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<td>- Pain relief expectations were equivalent.</td>
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<td>- THA is more likely to “feel normal” with greater improvement in the Oxford Knee Score.</td>
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<td>- Recovery from TKA requires more physiotherapy and a longer time to achieve a satisfactory recovery status. Patients should be counseled accordingly.</td>
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<td>Scott, C. E., Bugler, K. E., Clement, N. D., MacDonald, D., Howie, C. R., &amp; Biant, L. C. (2012). Patient expectations of arthroplasty of the hip and knee. The Journal of Bone and Joint Surgery, 94(7), 974-981.</td>
<td>To identify differences in expectations, predictors of high expectations, and the relationship between expectations and patient-reported outcome measures of patients undergoing total hip replacement (THR) and total knee replacement (TKR).</td>
<td>Improvements in mobility and daytime pain were the most important expectations in both groups.</td>
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<td>- THR better met the expectations identified as important by patients. TKR failed to meet expectations of kneeling, squatting and stair climbing.</td>
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<td>- High fulfilment of expectation in both THR and TKR was significantly predicted by young age, greater improvements in Oxford score and high pre-operative mental health scores.</td>
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<td>- The fulfilment of expectations was highly correlated with satisfaction.</td>
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| DiGioia, A. Greenhouse, P. K., & Levison, T. J. (2007). Patient and family-centered collaborative care: an orthopaedic model. Clinical Orthopaedics and Related Research, 463, 13-19. | To describe a systems-based approach that focuses on the full cycle of care while placing patients and their families as the top priority to provide high-quality health care. | - The care model is associated with a high overall satisfaction score using the Press Ganey Survey (91.4%), and low infection (0.3%) and mortality (0.1%) rates for patients undergoing total joint arthroplasty (TJA).  
- Average length of stay for TJA patients following this care model is 2.8 days for TKA and 2.7 days for total hip arthroplasty, with 91% of all patients being discharged directly home and 93% walking without handheld assistance at the time of discharge. |