



# Patient expectations before arthroscopic shoulder surgery: correlation with patients' reasons for seeking treatment

Ryan J. Warth, MD<sup>a</sup>, Karen K. Briggs, MPH<sup>a,\*</sup>, Grant J. Dornan, MSc<sup>a</sup>,  
 Marilee P. Horan, MPH<sup>a</sup>, Peter J. Millett, MD, MSc<sup>a,b</sup>

<sup>a</sup>Steadman Philippon Research Institute, Vail, CO, USA

<sup>b</sup>The Steadman Clinic, Vail, CO, USA

**Background:** Elevated expectations before orthopaedic procedures appear to correlate with inferior preoperative subjective measures. The purpose of this study was to evaluate preoperative patient expectations before arthroscopic shoulder surgery and to correlate them with preoperative subjective measures and patients' reasons for seeking treatment.

**Methods:** We prospectively collected and retrospectively analyzed data from patients before elective arthroscopic shoulder surgery for a wide range of pathologic processes. Preoperative subjective data included QuickDASH scores, pain and functional components of the American Shoulder and Elbow Surgeons (ASES) score, and mental and physical components of the SF-12 score. Expectations data were collected and grouped on the basis of the reasons for seeking of medical treatment and ranked according to their relative importance.

**Results:** The study included 313 shoulders. There were 205 men and 108 women with a mean age at surgery of 48.7 years (range, 18-78 years). Overall, the most important expectations were for the "shoulder to be back to the way it was before the problem started" and to continue participation in sporting activities. Patients who presented with the "shoulder coming out" had fewer important expectations than did those who presented for other reasons. Those patients who indicated a desire to continue participation in sports had significantly less pain (improved ASES pain scores) compared with the rest of the population.

**Conclusions:** Although return to sport was the most important expectation overall, the importance of other expectations varied by patients' reasons for seeking treatment. The current questionnaire may have limited use in patients with shoulder instability.

**Level of evidence:** Level III, Cross-Sectional Design, Epidemiology.

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**Keywords:** Shoulder; arthroscopy; expectations; outcomes; preoperative

IRB approval was obtained from the Vail Valley Medical Center Institutional Review Board.

\*Reprint requests: Karen K. Briggs, MPH, Center for Outcomes-based Orthopaedic Research, Steadman Philippon Research Institute, 181 West Meadow Drive, Suite 1000, Vail, CO 81657, USA.

E-mail address: karen.briggs@sprvail.org (K.K. Briggs).

In 2002, Mancuso et al<sup>6</sup> devised a 17-item questionnaire to evaluate expectations in patients before shoulder surgery. Since then, preoperative patient expectations have been shown to correlate with postoperative results; elevated and diminished expectations appear to result in superior and inferior postoperative outcomes, respectively.<sup>1,2,6-8,10</sup> These

studies also report that patients with worse baseline subjective scores have a greater number of expectations compared with those with better baseline subjective scores.<sup>1,2,6</sup> To complicate matters, others have shown that expectations before orthopaedic procedures also correlate with age, gender, degree of disability, number of comorbidities, nationality, and reputation of the surgeon.<sup>5,6,8,10,11</sup>

Although patient expectations revolve around a largely unknown series of biopsychosocial factors, fulfillment of these expectations ultimately drives positive patient satisfaction. For overall satisfaction to be improved, preoperative expectations should match treatment options and outcomes. Rosenberger et al<sup>9</sup> studied the differences in expectations between patients and surgeons before anterior cruciate ligament reconstruction. It was found that patient expectations were widely divergent from those of the surgeons. In this study, the surgeons better predicted postoperative knee pain and function than did the patients. This suggests that patient-physician discussion about preoperative expectations, corresponding treatment options, and the most likely postoperative outcome is widely lacking.

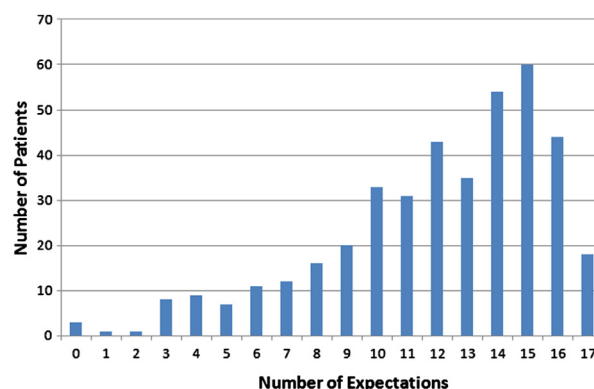
In 2008, Mancuso et al<sup>7</sup> studied the effects of modifying patient expectations before elective hip and knee arthroplasty. Outcomes were compared between two randomized groups of patients who either received or did not receive preoperative intervention, including an educational course outlining details of the upcoming procedure. In this study, patients who completed the course had expectations that more closely coincided with those of the surgeons compared with those who did not complete the course; this resulted in improved patient satisfaction.

Because patient expectations drive postoperative satisfaction, the challenge is to match patient and physician expectations before orthopaedic surgical procedures. By identifying factors associated with expectations, specific preoperative education and planning can be developed. The purpose of this study was to evaluate preoperative patient expectations before arthroscopic shoulder surgery and to correlate them with preoperative subjective measures and patients' reasons for seeking treatment.

## Materials and methods

This was an Institutional Review Board–approved study. We prospectively collected and retrospectively analyzed data from patients before elective arthroscopic shoulder surgery for a wide range of pathologic processes. We included patients undergoing either primary or revision arthroscopic shoulder surgery and with completed preoperative questionnaires. Patients younger than 18 years, those undergoing open or nonelective procedures (such as infection, hardware removal, and traumatic injuries), those completing our expectations questionnaire more than 150 days before the surgery date, and those who answered fewer than 13 of the 17 expectations questions were excluded.

Data about patient expectations,<sup>6</sup> patients' reasons for seeking treatment, and preoperative subjective measures were collected. All surveys were administered before the patients' initial consultation



**Figure 1** Total number of affirmative expectations per patient across the study population.

**Table 1** Patients' reasons for seeking treatment across the study population

Reason for seeking treatment	Number of patients	Percentage (%)
Weakness	182	46.7
Coming out	58	14.9
Stiffness	142	36.4
Loss of function	177	45.4
Pain	265	67.9

with the surgeon (P.J.M.). Expectation of a given item was considered to be affirmative for the responses "very important" or "somewhat important" and negative for the responses "a little important," "I do not expect this," or "does not apply."

Patient expectations were grouped by their reasons for seeking medical treatment (pain, weakness, stiffness, shoulder coming out, or loss of shoulder function), and within these groups, each expectation question was ranked according to the frequency of affirmative expectation responses and their reasons for seeking treatment. By use of this ranking system, expectation profiles were constructed to compare and contrast between these patient groups.

Data also included patient demographics, Quick Disability of the Arm, Shoulder and Hand (QuickDASH; perfect score = 0) scores,<sup>3</sup> pain and functional components of the American Shoulder and Elbow Surgeons (ASES; perfect score = 100) scores,<sup>4</sup> and mental and physical components of the SF-12.<sup>12</sup> The Mann-Whitney U test was chosen to assess relationships between preoperative subjective measures and affirmative responses for each of the expectation questions. The Holm-Bonferroni method was used to correct *P* values for multiple comparisons, and a significance level of  $\alpha = .05$  was chosen. All analyses were performed with IBM SPSS Statistics, Version 20 (IBM Corporation, Armonk, NY, USA).

## Results

The study included 313 shoulders. There were 205 men and 108 women with a mean age at surgery of 48.7 years (range, 18-78 years) and a mean time from completion of the expectations questionnaire to surgery of 15.2 days

**Table II** Importance rankings of expectations with respect to patients' reasons for seeking treatment

Expectation	Percentage affirmative expectation responses by reason for visit											
	Overall		Weakness		Subluxation		Stiffness		Loss of function		Pain	
	%	#	%	#	%	#	%	#	%	#	%	#
	n = 313		n = 182		n = 58		n = 142		n = 177		n = 265	
Participate in sports	95.5	1	97.2	1	98.3	1	97.9	1	98.3	1	95.4	1
Previous level of function	93.3	2	93.9	3	94.8	3	92.3	4	93.2	3	93.6	2
Improve ROM	91.5	3	94.4	2	91.4	4	94.9	2	94.2	2	91.1	4
Reach above shoulder	88.1	4	90.7	5	86.2	5	90.0	5	92.6	4	89.3	5
Decrease AM pain	87.9	5	91.1	4	77.2	10	93.5	3	92.0	5	93.1	3
Participate in recreation	85.4	6	89.3	7	86.0	6	90.0	6	91.4	6	84.8	9
Reach sideways	85.2	7	90.1	6	82.8	7	89.4	7	89.8	7	86.3	7
Decrease PM pain	83.9	8	86.2	9	77.6	9	86.7	8	87.2	9	89.2	6
Carry 10 pounds	83.8	9	87.8	8	75.9	11	86.3	9	87.4	8	85.8	8
Perform ADLs	77.4	10	80.1	10	79.3	8	83.0	10	84.7	10	79.4	10
Dress oneself	72.8	11	73.6	11	69.0	12	76.1	11	78.0	11	75.4	11
Interact with others	62.3	12	63.3	12	67.2	14	68.1	12	68.8	12	64.9	12
Psychological well-being	58.6	13	61.1	14	57.9	16	67.1	13	66.7	13	60.7	13
Ability to drive	57.9	14	58.9	15	58.6	15	57.1	15	62.3	14	58.2	14
Stop clicking	53.8	15	61.8	13	67.2	13	65.2	14	57.3	15	54.5	15
Monetary compensation	34.4	16	36.7	16	30.9	17	43.1	16	44.2	16	36.3	16
Stop dislocating	34.2	17	32.4	17	96.4	2	31.7	17	30.9	17	30.2	17
<b>Median</b>	<b>83.8</b>		<b>86.2</b>		<b>77.6</b>		<b>86.3</b>		<b>87.2</b>		<b>84.8</b>	

ADLs, activities of daily living; ROM, range of motion.

The column labeled # indicates ranking; the column labeled % indicates the percentage of patients who answered affirmatively to that specific expectation question.

(range, 0-149 days). Forty-eight patients (15.3%) underwent revision surgery; 20 patients (6.4%) had active workers' compensation claims. Two hundred forty-six patients (78.5%) answered all 17 of the expectations questions. Most patients answered affirmatively to 10 or more of the expectations questions (Fig. 1). The patients' reasons for seeking treatment were predominantly pain, weakness, and loss of function (Table I).

The 3 most important expectations among all patients were the ability to participate in sports, achievement of a previous level of function, and improvement in range of motion (Table II). These expectations were answered affirmatively at least 90% of the time for the overall group and for each of the subgroups defined by reason for visit. Conversely, the 2 least important expectations for the entire cohort were for the shoulder to stop dislocating and the ability to receive monetary compensation. This fact pertains to each reason for visit subgroup except for those patients who presented with subluxation ("shoulder coming out"), for whom stopping shoulder dislocation was of high importance.

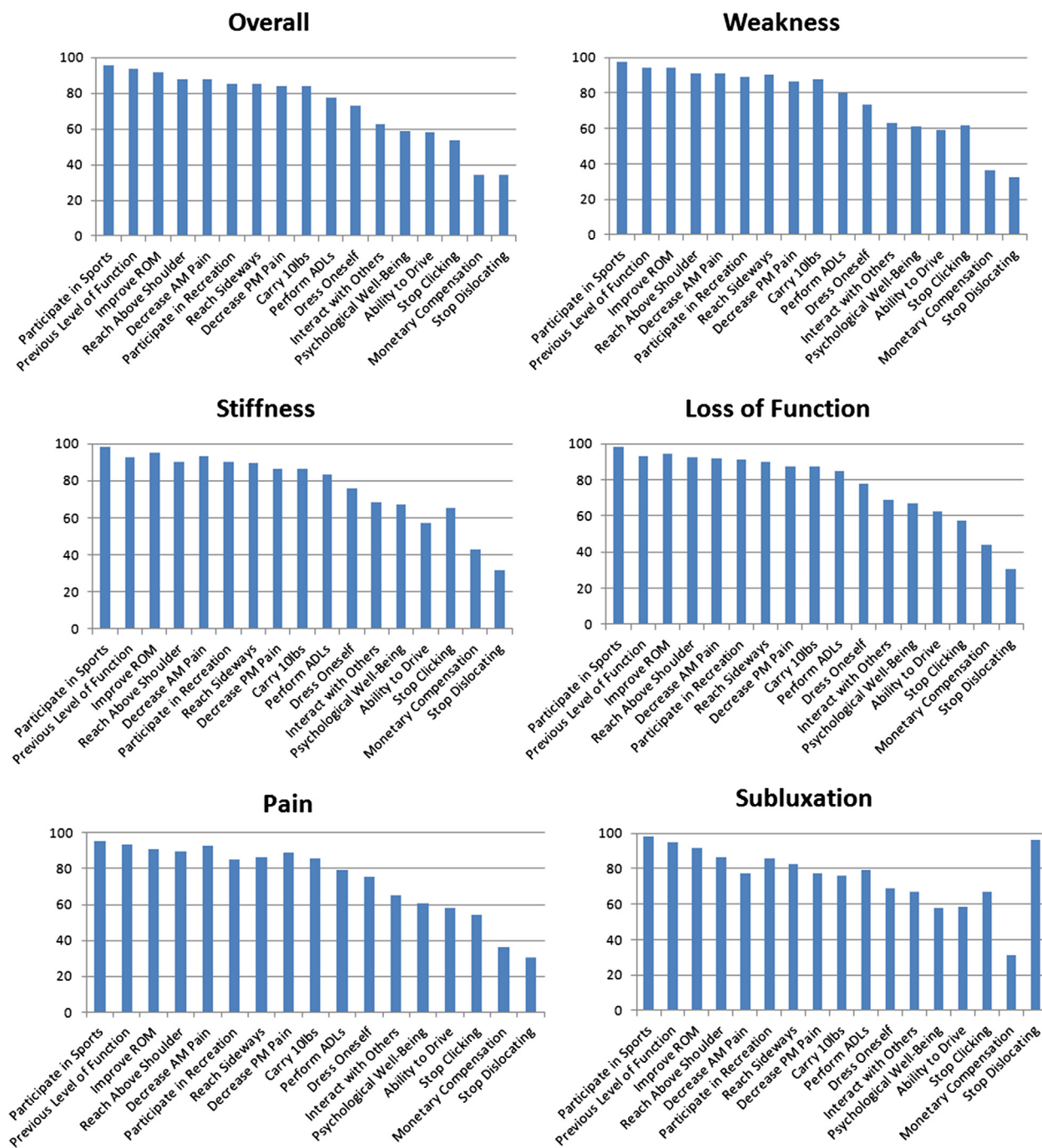
The overall pattern, from most important to least important, is similar for each patient group except for those patients presenting with subluxation (Fig. 2). Furthermore, the median percentage of affirmative response for each of the 17 expectation questions was substantially lower among

patients presenting with subluxation, suggesting that fewer survey questions address the expectations of those patients suffering from subluxation compared with other issues.

Of the 5 subjective scoring summaries, only SF-12 mental component scores shared fewer than 10 significant associations with the 17 expectation questions (Table III). Among the significant relationships, nearly all trended toward the affirmative expectation group experiencing worse subjective scores. The lone exception was for patients expecting to improve their ability to participate in sports, who had significantly less pain (improved ASES pain scores). Those patients who wished to improve their range of motion had significantly worse function (worse ASES function scores) compared with the rest of the population. Patients presenting with the expectation for the shoulder to "stop clicking" or to "stop dislocating" were not different with respect to any of the subjective scores.

## Discussion

In general, our finding that patients with poorer preoperative function and increased disability had a greater number of affirmative expectations mimics that found in other studies<sup>1,2,6</sup>; however, this finding was not universal. Patients presenting with subluxation ("shoulder coming out")



**Figure 2** Shoulder arthroscopy expectation profile based on patients’ reasons for seeking treatment. *ADLs*, activities of daily living; *ROM*, range of motion.

had fewer important expectations than did those patients presenting for other reasons, indicating that much of the current survey may not be sensitive to the symptoms of the subluxating shoulder. The expectation to “stop dislocating” was the second most important expectation in the survey for these patients, whereas it was the least important for the rest of the population.

Strikingly, the most common expectation overall and in each of the reason for visit subgroups was to continue

participation in sports. Because the average age of this population was 49 years (only 15% were younger than 30 years; more than 50% were older than 50 years), this may show an influence by the “baby boomer” population and the desire of patients to remain engaged in sporting activities as they age. This expectation should therefore be addressed even in the aging population.

Patient and physician expectations should match for the most satisfactory outcome to be achieved. Rosenberger

**Table III** Group means for affirmative (yes) and negative (no) expectation groups

Expectation	ASES–pain (mean, 30.72)		ASES–function (mean, 26.29)		SF-12 PCS (mean, 41.80)		SF-12 MCS (mean, 51.84)		QuickDASH (mean, 37.61)	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	Participate in sports	31.5 <sup>†</sup>	23.0	26.4	25.5	42.0	39.9	51.7	52.9	37.2
Previous level of function	30.6	32.1	26.0	29.6	41.8	41.1	51.8	53.0	38.0	32.3
Improve ROM	30.4	33.0	25.6 <sup>‡</sup>	32.0	41.7	42.4	51.6	53.5	38.5*	28.5
Reach above shoulder	30.3	33.8	25.2 <sup>‡</sup>	34.1	41.0 <sup>‡</sup>	47.1	51.6	53.3	39.2 <sup>‡</sup>	24.4
Decrease AM pain	29.1 <sup>‡</sup>	41.5	25.1 <sup>‡</sup>	34.4	41.2 <sup>†</sup>	45.9	51.3	55.9	39.6 <sup>‡</sup>	24.0
Participate in recreation	30.3	32.9	25.3 <sup>‡</sup>	32.2	40.8 <sup>‡</sup>	47.8	51.4	54.3	39.5 <sup>‡</sup>	27.0
Reach sideways	29.9*	35.2	24.8 <sup>‡</sup>	34.9	40.9 <sup>‡</sup>	46.8	51.3	54.6	39.8 <sup>‡</sup>	25.8
Decrease PM pain	29.0 <sup>‡</sup>	38.0	24.9 <sup>‡</sup>	32.1	41.0 <sup>†</sup>	45.2	51.1	55.0	39.7 <sup>‡</sup>	27.6
Carry 10 pounds	29.6 <sup>†</sup>	35.9	24.8 <sup>‡</sup>	33.1	41.0 <sup>‡</sup>	45.5	51.1	55.0	39.7 <sup>‡</sup>	27.3
Perform ADLs	28.5 <sup>‡</sup>	38.1	23.8 <sup>‡</sup>	35.0	39.9 <sup>‡</sup>	48.3	50.5 <sup>‡</sup>	56.4	41.9 <sup>‡</sup>	23.4
Dress oneself	28.7 <sup>‡</sup>	36.0	23.5 <sup>‡</sup>	34.1	40.4 <sup>‡</sup>	45.4	50.7	54.8	41.6 <sup>‡</sup>	26.6
Interact with others	27.4 <sup>‡</sup>	36.0	23.3 <sup>‡</sup>	31.1	39.4 <sup>‡</sup>	45.7	48.8 <sup>‡</sup>	56.6	43.7 <sup>‡</sup>	27.7
Psychological well-being	28.2 <sup>‡</sup>	34.2	24.3 <sup>‡</sup>	29.0	39.9 <sup>‡</sup>	44.5	48.3 <sup>‡</sup>	56.8	41.8 <sup>‡</sup>	31.8
Improve ability to drive	27.4 <sup>‡</sup>	35.3	22.5 <sup>‡</sup>	31.8	39.4 <sup>‡</sup>	45.1	49.5 <sup>‡</sup>	55.1	44.4 <sup>‡</sup>	27.6
Stop clicking	29.8	31.7	25.6	26.9	41.1	42.5	50.5	53.1	39.3	35.9
Monetary compensation	28.7	31.7	22.8 <sup>‡</sup>	28.0	38.1 <sup>‡</sup>	43.6	49.2	53.1	43.6 <sup>‡</sup>	34.6
Stop dislocating	30.7	30.7	26.4	26.3	42.5	41.5	50.4	52.5	37.8	37.5

ADLs, activities of daily living; ASES, American Shoulder and Elbow Surgeons; MCS, mental component score; PCS, physical component score; ROM, range of motion.

Note that a higher DASH score represents more disability; the other measures negatively correlate score with health status.

\*  $P < .05$ .

<sup>†</sup>  $P < .01$ .

<sup>‡</sup>  $P < .001$ .

et al<sup>9</sup> conducted a study in which 98 patients (along with their corresponding physicians) were interviewed 1 week before surgery as well as 3 and 24 weeks postoperatively. In their study, physicians were better able to predict the outcome after surgery. It was also found that physicians tended to underrate pain and to overestimate function 24 weeks postoperatively. These data suggest that communication between the patient and physician should focus on matching their expectations such that optimal outcomes and satisfaction can be achieved. In our study, expectations data were collected before any education the physician may have provided. With knowledge of preoperative expectations before consultation, the physician has the opportunity to match patient expectations with treatment options and to identify expectation mismatches through consultation, which will help improve overall patient satisfaction and outcome. Using a profile similar to Figure 2, physicians can inform patients when treatment options do not match expectations.

Others have attempted to narrow the gap between expectations and outcomes by developing preoperative classes in which patients were forced to learn about the procedure: what to expect and how to overcome challenges with respect to the treatment.<sup>7</sup> This novel method appears

to have some utility because those patients who took the class were more satisfied with the results of their procedure than were those who did not take the class.

In 2002, Mancuso et al<sup>6</sup> devised the survey by asking open-ended questions to 409 patients with diverse shoulder diagnoses regarding their expectations before undergoing surgery. The responses were grouped into 38 categories and, finally, into a succinct list of 17 questions. Of these questions, 2 are directly related to pain improvement (up to 14 are indirectly related to pain), 8 are related to strength improvement, 7 are related to activities of daily living, and only 2 are associated with instability. This breakdown shows that relatively few questions are associated with instability, whereas features of other common pathologic processes, such as rotator cuff tears or tendinitis and biceps tendon disease, are possibly overrepresented. As shown in our data, it would appear that patients with instability would automatically have fewer expectations than those with rotator cuff disease.

There are several limitations to be noted in this study. First, data were collected from a single center containing largely a referral population and therefore may not be representative of the general population of patients with similar pathologic processes. Second, the number of

patients presenting with the shoulder “coming out” was much less than those presenting with other pathologic processes and may produce a minor selection bias; however, this does not appear to have a major effect on our results.

## Conclusions

Elevated importance of specific expectation questions did not universally correlate with worse preoperative subjective scoring systems. Whereas return to sport was the most important expectation overall, the importance of other expectations varied by patients’ reasons for seeking treatment. The current questionnaire may have limited use in patients with shoulder instability.

## Disclaimer

This research was supported by the Steadman Philippon Research Institute. The Institute receives research support from the following entities: Smith & Nephew Endoscopy, Inc.; Arthrex, Inc.; Siemens Medical Solutions USA, Inc.; Ossur Americas, Inc.; Opedix, Inc. This work was not supported directly by outside funding or grants.

Peter J. Millett has received from Arthrex something of value (exceeding the equivalent of US \$500) not related to this manuscript or research. He is a consultant and receives payments from Arthrex and has stock options in Game Ready and VuMedi. All the other authors, their immediate families, and any research foundations with which they are affiliated have not received any financial payments or other benefits from any commercial entity related to the subject of this article.

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