

Advances in Upper-Limb Outcome Measures

MOST O&P FACILITIES are prioritizing lower-limb prosthetic outcome measures for now—but at Arm Dynamics, where upper-limb prosthetic patients are the key demographic, prosthetists and therapists have developed their own novel outcome measures.



**John Miguelez,
CP, FAAOP(D)**

“Upper-limb is a very unique population,” comprising less than 10 percent of Americans with limb loss, says John Miguelez, CP, FAAOP(D), president and senior clinical director. “But in the industry in general, there’s a very high abandonment rate,” so his company developed outcome

measures to boost prosthesis acceptance rates and improve patient care. “We want to optimize the rehabilitation potential of each patient; to motivate them throughout the rehabilitation process via data-driven specifics, so they can understand where they’re improving, even if it’s subtle, and where they need additional attention; and to look at aggregate outcome measures to create benchmarks,” he explains.

Those goals led the company to convene its clinicians several years ago to identify what was missing in the current measures. They also recruited a psychometrician to help refine questions before validating measures. “Then, we partnered with the U.S. Food and Drug Administration and tested these measures with our patient population,” Miguelez says.

“The beauty of these measures is we can use them with any level of [upper-limb] amputation,” says Kerstin Baun, MPH, OTR/L, national director of therapeutic services. And the measures are “manufacturer-agnostic.”

Clinicians at Arm Dynamics now regularly implement the three outcome measures developed in-house, according to Baun:

- The Capacity Assessment of Prosthetic Performance for Upper Limb (CAPPFUL), an assessment tool designed to measure upper-limb prosthetic performance during common activities, enables therapists to identify a patient’s functional challenges and then modify treatment plans to improve outcomes.
- The Comprehensive Arm Prosthesis and Rehabilitation Outcomes Questionnaire (CARPROQ) is a patient-reported outcome measure presented in question-and-answer format.



Staff at Arm Dynamics, including Kerstin Baun, MPH, OTR/L, rely on extensive outcome measures to optimize each patient’s function.

- The Wellness Inventory is a patient screening tool that helps identify psychosocial changes that could have a negative impact on rehabilitation or success with the prosthesis, and screens for issues such as pain, PTSD, depression, and other quality-of-life issues.



**Kerstin Baun,
MPH, OTR/L**

Miguelez and Baun believe using these tools has improved clinical decision-making over the past several years. “The moment-to-moment ability to impact patient care” has been the most significant benefit, says Miguelez. In addition, the Arm Dynamics team has uncovered some interesting statistics. Through the Wellness Inventory, the team learned that individuals with partial hand loss have a higher feeling of disability than those with higher levels of amputation—at least according to their patient base. “That helps us approach each case and be mindful of the unique population,” Miguelez says.

Arm Dynamics is sharing de-identified data from its outcome measures with referral sources and payors.

“My aspirational hope is that others will have access to [these types of] measures to create a standard of care, then enhance that care,” says Miguelez. “It really involves buy-in by all the clinicians and the patients.”