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Differences in Physical Performance Measures among Patients with Unilateral Lower-Limb Amputations Classified as Functional Level K3 versus K4

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Abstract

Objective—To determine if differences in physical function, assessed via self-report questionnaires and physical performance tests, exist between individuals with lower-limb loss using a prosthetic device classified as a K3 versus a K4 functional level.

Design—Cross-sectional study.

Setting—University of Delaware Physical Therapy Amputee Clinic.

Participants—Participants (n=55) were included if they were aged ≥ 18 years with a unilateral transfemoral or transtibial amputation, classified as K3 or K4 functional level, completed all relevant outcome measures, and currently were using a prosthesis.

Interventions—Not applicable.

Main Outcome Measures—Locomotor Capabilities Index (LCI), Prosthetic Evaluation Questionnaire-Mobility Section (PEQ-MS), Timed Up and Go (TUG), 10-Meter Walk Test (10MWT), Amputee Mobility Predictor (AMPPRO), and 6 Minute Walk Test (6MWT). K-level was determined by group consensus based on a standardized clinical evaluation.

Results—After controlling for covariates, patients classified as K3 had slower TUG times ($p=.002$) and self-selected and fast gait speeds ($p<.001$), lower AMPPRO scores ($p<.001$), and walked

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Conflicts of interest: Dr. Sions is a consultant for Independence Prosthetics-Orthotics, Inc.

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shorter distances during the 6MWT ($p=.003$) when compared to patients classified as K4. No significant between-group differences for the LCI or PEQ-MS were found.

Conclusions—Clinicians involved in prosthetic prescription may consider including the TUG, 10MWT, AMPPRO, and 6MWT during their clinical evaluations to help differentiate between individuals of higher functional mobility. The LCI and PEQ-MS may be less useful in classifying individuals as K3 versus K4 due to a ceiling effect.

Keywords

outcome measure; amputation; prosthetics

In the United States, lower-limb amputation rates are increasing.¹ For example, disease-associated, major limb amputations increased from 5.1 in 100 persons with lower extremity ulcers in 2005 to 13.5 in 100 persons in 2013.² Increasing demand for prosthetic device coverage is met with heightened third-party payer scrutiny.^{3,4} Appropriate prosthetic prescription and reimbursement is important to maximize outcomes following amputation, as prosthesis use is associated with higher levels of function, independence, and perceived quality-of-life.^{4,5} For individuals with functional mobility needs exceeding basic ambulation, it may be expected that advanced prosthetic technologies would be reimbursable, however, the completeness and strength of the documentation of medical necessity is critical.³

Prosthetic coverage is commonly denied for lack of (a) objective documentation of functional capabilities;^{6,7} (b) consideration of factors that impact prosthetic use and ambulatory potential;^{6,8,9} and/or (c) prosthetic recommendations matching the patient's clinical presentation.⁷ Medicare Functional Classification Levels, or K-levels, are used to describe functional mobility and prescribe prosthetic componentry for individuals with lower-limb amputations.^{6,10} K-level assignments range from K0 (lowest) to K4 (highest) and describe mobility potential when using a prosthesis.⁶ At present, there is no gold standard for establishing K-levels; assignment may be largely based on a clinician's subjective perception.¹¹

Of prosthetist practitioners, 75% support outcome measure use to enhance K-level assignment objectivity,¹¹ but studies have reported only 38–67% of practitioners routinely use outcome measures.^{11,12} While discrepancies exist between practitioner support for and clinical use of outcome measures, recent healthcare shifts, such as requirements for clear justification of functional level classification for Medicare recipients (i.e. G-codes), mandate use.¹³ Such requirements set the stage for decreased variability in functional level classification, which may enhance objective documentation for (a) prosthetic prescription and (b) longitudinal monitoring of patient progress.⁷

Outcome measures used to document functional mobility fall into two categories, i.e. self-report, which captures a patient's perceived functional capacity, and performance-based, which captures demonstrated physical capacity.¹⁴ Several measures in both categories have been validated in individuals with lower-limb amputation,^{3,6,7,15–20} and some have been assessed for their ability to distinguish between K-levels.^{3,6,15,21} For example, the Amputee

Mobility Predictor (AMPPRO) and the 6 Minute Walk Test (6MWT) have been shown to correlate to K-level assignment;^{3,6,21} however, overlapping scores exist between K-levels.^{3,6,22} The absence of discrete K-level score ranges warrant further research to determine if functional mobility classification differences exist and can be quantified by currently available outcome measures.^{3,6}

An investigation into functional mobility differences between K-levels may assist clinicians with both selecting appropriate outcome measures for a given client and interpreting results within the context of the current K-level assignment system. This study's objective was to determine if there are differences in self-report and performance-based function among adults with a lower-limb amputation classified as functional-level K3 versus K4. We hypothesized that K3-classified adults would score lower on self-report questionnaires and the AMPPRO, have slower Timed Up and Go (TUG) times, ambulate at slower speeds, and walk shorter distances during the 6MWT, when compared to those classified as K4.

Methods

Study Sample

Participants were recruited from April 2014 to November 2016 through an interdisciplinary Amputee Clinic at the University of Delaware. Participants were included if they were 18 years-old, community-dwelling, and had a unilateral transfemoral or transtibial amputation. Patients with bilateral amputations and/or hip or knee disarticulations were excluded. Additional inclusion criteria included current prosthetic device use, completion of all clinical measures of interest, and K3- or K4-classification, as determined by the evaluating practitioners. Participants signed an informed consent document approved by the Institutional Review Board for Human Subjects at the University of Delaware.

Overview of Procedures

The principal investigator directly supervised all data collections and conducted 1-hour training sessions for staff involved in administration of the standardized clinical evaluations; training sessions reviewed the procedures, patient instructions for physical performance tests, and scoring criteria for the outcome measures. K-level was determined by group consensus of administering clinicians, i.e. a physiatrist, physical therapists, and prosthetists, considering all clinical data collected (Table 1).

Self-Report Questionnaires

For the Locomotor Capabilities Index (LCI), patients with lower-limb amputations rate their perceived ability on 14 mobility-related items, with a score of 4 indicating ability to complete the task independently without an assistive device.^{3,16,17} Higher scores indicate greater mobility; the maximum is 56 points.¹⁷ This LCI is reliable, valid, and responsive to change.^{16,17}

The Prosthesis Evaluation Questionnaire-Mobility Section (PEQ-MS) assesses functional abilities when using a prosthesis.^{18,19} Items are ranked from 0 to 4, where 4 indicates the individual has no problem completing or is almost fully able to complete the activity.¹⁸

Higher scores indicate better mobility; reliability, validity, and responsiveness have been established.^{18,19}

Performance-Based Tests

The TUG assesses basic mobility components, including comfortable gait speed, dynamic balance, turning, and transfers.^{3,23} Participants are instructed to stand up from a chair, walk 3 meters, turn 180-degrees, walk back to the chair, and sit down.^{3,23} The TUG has established reliability and validity in individuals with lower-limb amputations.^{3,24,25}

The 10 Meter Walk Test (10MWT), perhaps the most valid clinical assessment of walking speed, was conducted at self-selected (10MWT-SS) and fast (10MWT-F) speeds.^{3,26,27} Participants were instructed to “walk” along a straight, 10-meter path, at a “normal, comfortable speed”²⁸ and “as fast and as safely as possible”; speeds were calculated over the middle 6 meters to allow for acceleration and deceleration at either end.³ The 10MWT has established validity in individuals with lower-limb amputations.²⁵

The AMPPRO is a 21-item assessment that evaluate static and dynamic balance, transfers, and gait in adults using a lower-limb prosthesis.^{6,21} The AMPPRO has established reliability and validity and is correlated to both 6MWT scores and K-level classifications.^{6,20,21} The maximum score is 47 points.

The 6MWT assesses walking function and endurance. Participants were instructed to cover as much ground as possible while walking quickly but safely along a rectangular path; assistive device use was allowed.^{3,29} Reliability of the 6MWT has been established in multiple patient populations.^{3,26,29–31} Among individuals with lower-limb loss, the 6MWT is both reliable and valid, and distance walked has been correlated to K-level classification.^{3,6,20}

Statistical Analysis

Statistical analyses were performed using SPSS Statistics 23 (Armonk, NY). Descriptive analyses were conducted to determine participant demographic characteristics for both functional levels, i.e. K3 and K4. Independent t-tests (or Pearson Chi Square tests) evaluated for between-group differences, after checking to ensure that continuous data met parametric assumptions. Multivariate analysis of covariance was used to test between-group differences for outcome measures, while controlling for age, body mass index (BMI), time since amputation, and cause of amputation ($p < 0.050$). Follow-up analyses of covariance (ANCOVA) were used to explore between-group differences ($p < 0.050$). Effect sizes were calculated. Assumptions for parametric testing were evaluated; Brown-Forsythe and Welch tests for equality of means were performed when homogeneity of variance was not met to ensure that assumptions were not violated.

Results

Study Size & Participants

In total, 137 participants were considered for study inclusion (Figure 1). Ninety-nine were currently using a prosthesis, of which, 76 were classified as K3- or K4-level. Of these 76, 69

had a unilateral transfemoral or transtibial amputation. Of the 69 participants, 35 and 20 participants classified as K3 and K4, respectively, completed all measures of interest. Participant demographics are provided in Table 2. Individuals classified as K3 were older ($p<.001$), had higher BMIs ($p=.009$), and had less time elapsed since their amputation ($p=.035$). Cause of amputation also differed between groups ($\chi^2=12.788$, $p=.023$, Figure 2).

Difference in Outcome Measures Between Groups

Controlling for covariates, self-reported functional mobility did not differ significantly between K3- and K4-levels; overlapping 95% CIs were found (Table 3). ANCOVAs revealed significant differences in TUG times, 10MWT speeds, AMPPRO scores, and 6MWT distances (Table 3). TUG times were significantly greater in those classified as K3-level, representing poorer functional mobility ($p=.002$). For 10MWT, participants classified as K3-level walked slower at both self-selected ($p<.001$) and fast ($p<.001$) speeds. AMPPRO scores for participants classified as K3-level, i.e. 40.4 points, were lower than those classified as K4, i.e. 44.9 ($p<.001$). Finally, for 6MWT, K3-classified participants walked shorter distances than K4-classified participants ($p=.003$). For all physical performance measures, 95% CIs did not overlap between groups.

Discussion

Significant between-group differences were found for selected performance-based tests and confirmed our hypotheses that adults with a unilateral transfemoral or transtibial amputation classified as K3-level have worse functional mobility, walk at distinctly slower gait speeds, have lower AMPPRO scores, and walk shorter distances during extended walking bouts. Statistically-significant differences and non-overlapping 95% CIs between K3 and K4-classified groups suggest that the TUG and 10MWT distinguish between functional levels in adults with a unilateral amputation. Thus, these measures may be used alongside the AMPPRO and 6MWT during clinical evaluations for community-dwelling adults with a unilateral transfemoral or transtibial amputation to aid in objective assignment of K-level. Conversely, the LCI and PEQ-MS, two self-report questionnaires, did not delineate between K3 and K4 functional mobility in this patient sample.

Multidimensional sets of outcome measures have been shown to more accurately assess functional mobility when compared to using a single measure in various patient populations.^{32–35} While our results suggest that each performance-based test may independently differentiate between K3- and K4-levels, use of a collection of tests, where different tests evaluate various aspects of functional mobility, allows clinicians to comprehensively assess mobility potential. Further, clinical decisions should rarely be based on the results of a single test, but rather on the synthesis of information obtained from multiple sources. Thus, the use of a battery of psychometrically-sound, performance-based tests that comprehensively assess functional mobility may enhance K-level classification objectivity and accuracy for adults with unilateral lower-limb loss. This study provides foundational knowledge for determining a collection of outcome measures that may predict mobility status for higher-functioning adults with a unilateral lower-limb amputation. Results suggests that the TUG, 10MWT,

AMPPRO, and 6MWT have promise and warrant further research through a longitudinal, prospective study.

TUG times found in this study were faster than previously published. Miller et al. reported average TUG times ($\pm$ standard deviation (SD)) of 19.4 ± 15.5 seconds in adults with unilateral transtibial and transfemoral amputations,³⁶ while Schoppen et al. reported 23.1 ± 23.0 and 28.3 ± 12.2 seconds in older adults with unilateral transtibial and transfemoral amputations, respectively.²⁴ Discrepancies between our data and abovementioned studies may be attributed to differences in sample characteristics; specifically, our sample included participants with greater time elapsed since amputation compared to those in the abovementioned studies with postoperative means of 3.4 years³⁶ and 7.1 ± 3.4 years.²⁴ While all samples included long-term prosthetic users,^{24,36} greater time since amputation may explain better functional mobility in our sample. Both Miller et al. and Schoppen et al. included participants classified as K2 or below,^{24,36} which may also explain worse functional mobility results. As our sample was younger than the Schoppen et al. sample,²⁴ age may also help to explain differences. Overall, findings suggest subgrouping (e.g. by time elapsed since amputation, functional mobility level, and age) or at a minimum, controlling for covariates, is needed when providing clinicians with data to assist with functional classification.

Independent of age, BMI, amputation etiology, and time since amputation, 10MWT results demonstrate that individuals classified as K3 versus K4, walked slower at both self-selected and fast speeds. Reference norms for 10MWT gait speeds for adults with lower-limb loss do not exist.³⁷ Self-selected walking speed of our K3-classified participants, i.e. .88 (95% CI: .80–.96) m/s, however, was within the range previously reported for K3-classified adults.^{6,38} Our mean self-selected speed of 1.21 (95% CI: 1.11–1.32) in K4-classified adults was also similar to mean speeds ($\pm$ SD), i.e. $1.17 \pm .24$ m/s, reported in a similar sample.⁶ In young, military personnel post-unilateral traumatic amputations, self-selected walking speeds of 1.3 m/s (range 1.2–1.6 m/s)³⁹ and 1.12 (SD: .11 m/s)⁴⁰ have been reported at 108.6 ± 67.2 and 50.3 ± 54.1 months post-amputation, respectively.^{39,40} Among older adults with dysvascular amputations following 13.7 ± 16.8 weeks of prosthetic training, mean speeds ($\pm$ SD) of $.88 \pm .39$ m/s are reported.⁴¹ Large differences in self-selected gait speeds among various limb loss populations suggest multiple variables for consideration in development of reference gait speeds including functional mobility status, age, physical activity level, amputation etiology, and time elapsed since the amputation.

There were significant differences in sample characteristics, specifically age and BMI, between our K3 and K4 participants. While both were covariates during data analyses, these factors may impact K-level. For example, aging may limit participation in high-level activities given the increased prevalence of comorbidities and physical inactivity.⁴² Advanced age has been associated with decreased balance-confidence among adults with lower-limb amputations.⁴³ Furthermore, while research has shown that increased BMI is not correlated to decreased function,⁴⁴ high BMI is linked to orthopedic and cardiovascular pathologies, heightening the metabolic and structural demands of mobility tasks and possibly explaining why participants with higher BMIs were more likely to be K3-classified in our study.⁴⁵

The 6MWT and AMPPRO have demonstrated score differences in adults with varying K-levels.^{6,15} Gailey et al. reported mean ($\pm$ SD) 6MWT distances of 299 ± 102 m (range: 48–475) and 419 ± 86 m (range: 264–624) for adults classified as K3 and K4, respectively.⁶ We found similar mean 6MWT distances of 311m (95% CI: 273–349) versus 427m (95% CI: 373–481) in K3- versus K4-classified individuals. Gailey et al. reported mean ($\pm$ SD) AMPPRO scores of 40.5 ± 3.9 (range: 26–46) and 44.7 ± 1.8 (range: 38–47) points for individuals classified as K3 and K4, respectively.⁶ Hafner and colleagues more recently reported mean($\pm$ SD) AMPPRO scores of 40.4 ± 4.3 (range: 28–47) for K3- and 44.6 ± 1.9 (39–47) for K4-classified adults with a major, unilateral lower-limb amputation.¹⁵ Our AMPPRO scores were similar at 40.4 (95% CI: 39.6–41.2) and 44.9 (95% CI: 43.7–46.0) for K3- and K4-classified patients, respectively. Further, our 6MWT and AMPPRO data, based on distinct 95% CIs for each group, suggest clear differences in physical performance between K3- and K4-classified patients with a unilateral transfemoral or transtibial amputation and may be used to help practitioners classify similar patients.

Overlapping ranges between classification levels in the prior studies by Gailey et al. and Hafner et al. may be attributed to heterogeneous samples, including participants with amputations of varying levels (ankle to hip)^{6,15} and/or inclusion of patients with sound side amputations (e.g. partial foot amputations).⁶ To further illustrate the issue with heterogeneous samples, consider the study by Reid et al. evaluating ambulation distance during 2- and 6MWTs among adults with unilateral and bilateral amputations of various amputation levels.⁴⁶ While the tests were able to differentiate among lower-functioning, i.e. K1 and K2, versus higher-functioning, i.e. K3 and K4, these tests were unable to discriminate between K3 versus K4 levels.⁴⁶

In our study, supervised data collections were conducted at a single clinic, rather than at multiple sites. As research has demonstrated inter-clinician variability in observation-based functional assessment of adults with limb loss,⁴⁷ K-level assignment was determined by group consensus of an interdisciplinary team comprised of the evaluating physiatrist and at least 1 of 2 licensed physical therapists, and 1 of 3 certified prosthetists. Given outcome measure score ranges were similar to previous studies,^{6,15} using group consensus may have resulted in greater K-level assignment accuracy,^{6,21,48,49} although reliability was not specifically evaluated. Akin to clinical practice, when assigning K-level, practitioners were not blinded to the results of outcome measures evaluated. An acknowledged trade-off of employing a clinical classification approach for this study is potential overestimation of the ability of the selected measures to differentiate between K-levels. Other researchers have utilized medical records to obtain functional level classification, had site practitioners from multiple sites administer the outcome measures, and assessed for differences in outcome measures based on classification level.¹⁵ Such methods exert less control over variables considered in K-level assignment, i.e. practitioners may have access to and factor into K-level classification different data than their peers based on availability of data in the medical chart. The use of multiple sites and practitioners may also increase variability in outcome measure administration.

High LCI and PEQ-MS scores were reported for both K3- and K4-groups, aligning historically with research suggesting measurement ceiling effects.^{17–19,50,51} Our results

support the premise that items referenced in both questionnaires may be considered low-level by higher-functioning adults, rendering these surveys incapable of capturing self-perceived mobility exceeding basic ambulation.^{18,19,50,51} Development and validation of self-report measures for adults with lower-limb loss incorporating more challenging activities are ongoing.¹⁵ And it is possible, that with increased sample sizes, small between-group differences in self-report questionnaires may be discovered. For example, recently Hafner et al. demonstrated significant differences in PEQ-MS scores between K3- and K4-classified adults; means ($\pm$ SD) for K3-classified patients were 2.4 ± 0.8 and K4-classified patients were 2.8 ± 0.6 .¹⁵

Study Limitations

Study strengths included use of a standardized clinical evaluation, mandatory examiner training, and administration of self-report questionnaires prior to performance tests, minimizing the influence of patient performance on self-reported function. This study, however, used a clinical dataset, limiting sample size to eligible participants who completed all measures of interest. Given sample size, we did not stratify by other covariates that may impact functional mobility.^{39,40} While a covariate, BMI was calculated from weight with the prosthetic and without amputation level consideration. Furthermore, participants may not have performed at their actual physical potential during clinical testing,⁵² and failure to blind practitioners may have resulted in overestimation of the measures to differentiate between K-levels.

Generalizability of results is limited to community-dwelling patients with unilateral amputations who are longer-term prosthesis-users. Adults with bilateral amputations likely have worse functional mobility;^{39,53} we cannot advocate the use of this data for classifying such patients, nor patients early post-amputation. While our participants largely reflect populations with limb loss, the majority of our sample were males with unilateral transtibial amputations.^{1,22,54}

Conclusions

Prosthetic prescription for adults with lower-limb amputations is based on functional mobility status, necessitating the use of reliable and valid measures that differentiate between K- level classifications. Outcome measure use in determining K-level is advantageous as it decreases reliance on clinicians' subjective interpretations of patient mobility. Study findings align with the majority of research suggesting the LCI and PEQ-MS may not differentiate between K3- and K4-functional levels. Practitioners may use the 95% CIs provided in this dataset to help interpret TUG times, 10MWT gait speeds, AMPPRO scores, and 6MWT distances and distinguish between K3- and K4-functional levels in community-dwelling patients with a unilateral transfemoral or transtibial amputation who are longer-term prosthetic users. Future studies utilizing practitioners blinded to the physical performance measures utilized to determine K-level may strengthen this study's findings.

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Abbreviations

AMPPRO	Amputee Mobility Predictor
ANCOVA	Analyses of Covariance
BMI	Body Mass Index
CI	Confidence Interval
LCI	Locomotor Capabilities Index
m/s	Meters per Second 95%
CI	95% Confidence Interval
PEQ-MS	Prosthesis Evaluation Questionnaire-Mobility
Section TUG	Timed Up and Go
6MWT	6 Minute Walk Test
SD	Standard Deviation
10MWT	10 Meter Walk Test
10MWT-SS	10 Meter Walk Test-Self Selected Speed
10MWT-F	10 Meter Walk Test-Fast Speed

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Highlights

- Patients with limb loss were classified by an interdisciplinary healthcare team.
- K3-classified patients had worse physical performance than K4-classified peers.
- Self-reported physical function was similar between K3- and K4-classified patients.

Figure 1. Sample Delineation Based on Exclusion and Inclusion Criteria

Abbreviations: BMI = Body Mass Index; PEQ-MS = Prosthetic Evaluation Questionnaire-Mobility Section; LCI = Locomotor Capabilities Index; 10MWT = 10 Meter Walk Test; 6MWT = 6 Minute Walk Test.

Figure 2. Cause of Amputation Among Patients Included in Analyses

A higher proportion of individuals classified as K3 reported diabetes (DM) and peripheral vascular disease (PVD) as the primary cause of amputation compared to those classified as K4 ($\chi^2=12.788$, $p=.023$).

Table 1**Clinical Examination Components Involved in Functional Level Determination**

	Examination Components
Past Medical and Surgical History	Current/Past Problems with Residual Limb
	Medical History Checklist
	Medication List
	Review of Systems (e.g. Respiratory, Cardiovascular, Endocrine)
Social History and Psychosocial Factors	Self-reported Motivation to Ambulate
	Ambulation and Exercise-Related Goals
	Home Environment/Environmental Barriers
	Physical Fitness/Recreational Activities
	Work Requirements
	Coping Self-Efficacy Scale
	Community Integration Questionnaire
	2-Item Depression Screen
Self-Report Questionnaires	Socket Fit Comfort Score
	Patient-Specific Functional Scale
	General Practice Physical Activity Questionnaire
	Activities-specific Balance Confidence Scale
	Prosthesis Evaluation Questionnaire – Mobility Section
	Locomotor Capabilities Index
	Houghton Scale of Prosthetic Use
Cognition and Mental Status	Folstein Mini-Mental Status Examination
Constitutional Assessment	Pain Diagram/Ratings
	Height and Weight (with prosthesis)
	Resting and Post-Activity Vital Signs
	Lung and Heart Auscultation
	Snellen Test for Visual Acuity
	Lower Extremity Pulse Assessment
	Lower Extremity Edema Assessment
	Condition of Residual Limb (i.e. shape, surgical incision/scar, skin integrity)
Musculoskeletal Assessment	Manual Muscle Testing of Upper Extremities & Lower Extremities
	Joint Range of Motion of Lower Extremities
	Knee Joint Effusion
	Thomas Test
Neurological Assessment	Light Touch and Proprioception Testing
	Reflex Testing
	Semmes-Weinstein Monofilament Examination
Physical Performance Tests	Timed Up and Go
	L-Test of Functional Mobility

	Examination Components
	10 Meter Walk Test
	6 Minute Walk Test
	Berg Balance Test
	Amputee Mobility Predictor

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Table 2

Patient Demographics

	K3 (n=35)	K4 (n=20)	<i>p</i> -value
	Mean ± SD (95% CI)		
Sex (Male) *	28 (80%)	13 (65%)	.219
Race (Caucasian) *	27 (77%)	12 (60%)	.122
Ethnicity (Non-Hispanic) *	33 (94%)	15 (75%)	.072
Amputation Type (Transtibial) *	24 (69%)	10 (50%)	.173
Age (years)	60 ± 12 (56–64)	46 ± 12 (41–51)	<.001
Height (m)	1.76 ± .31 (1.72–1.78)	1.74 ± .10 (1.69–1.78)	.451
Weight (kg) †	92.9 ± 20.1 (86.3–99.5)	79.0 ± 20.8 (70.8–88.3)	.102
BMI (kg/m ²)**	29.8 ± 5.0 (28.2–31.6)	26.0 ± 5.1 (23.9–28.3)	.009
Time Since Amputation (years)	11 ± 14 (7–17)	21 ± 15 (13–27)	.035
Residual Limb Pain Rating‡	2 ± 3 (1–3)	2 ± 3 (0–3)	.644

* Represented as n (% of sample) rather than Mean $\pm$ SD (95% CI)

† Weight and BMI measurements included prosthesis.

‡ Pain ratings scored on a Numeric Pain Rating Scale from 0–10 (0=no pain, 10=worst pain imaginable)

Abbreviations: m=meters; kg=kilograms; BMI = body mass index; kg/m²= kilograms per meter squared.

p .050

Table 3

Between-Group in Self-Report Questionnaires and Physical Performance Tests *

	K3 (n=35)	K4 (n=20)	Partial Eta Squared	<i>p</i> -value
	Adjusted Mean ± SE (95% CI)			
LCI	49.1 ± 1.6 (45.8–52.3)	48.8 ± 2.3 (44.2–53.4)	.000	.934
PEQ-MS	3.05 ± .16 (2.73, 3.37)	3.11 ± .22 (2.66, 3.57)	.001	.842
TUG (s)	12.82 ± .54 (11.74–13.89)	9.45 ± .76 (7.92–10.98)	.195	.002
10MWT-SS (m/s)	.88 ± .04 (.80–.96)	1.21 ± .05 (1.11–1.32)	.326	<.001
10MWT-F (m/s)	1.12 ± .05 (1.02–1.22)	1.56 ± .07 (1.41–1.70)	.309	<.001
AMPPRO (points)	40.4 ± 0.4 (39.6–41.2)	44.9 ± 0.6 (43.7–46.0)	.429	<.001
6MWT (m)	311.30 ± 18.98 (273.05–349.55)	427.42 ± 26.94 (373.13–481.70)	.186	.003

* Adjusted for covariates (age, BMI, time since amputation, and reason for amputation)

Abbreviations: SE = standard error; s = seconds; m = meters.

p<.050