

Supplemental Tables:

Table S1: Patients were asked the included questions twice, once in regard to pain in the residual limb and once for pain in the phantom limb. Questions comprising the PROMIS® Numerical Pain Scale, Pain Behavior, Pain Interference, Pain Quality-Affective and Pain Quality-Sensory were included.

PROMIS® Pediatric Numeric Rating Scale v 1.0												Worse Pain
In the past 7 days...	No Pain										you can think of	
How bad was your pain on average?	0□	1□	2□	3□	4□	5□	6□	7□	8□	9□	10□	
PROMIS® Pediatric Item Bank v2.0 Pain Behavior Short Form 8a												
In the past 7 days, when I was in pain...	Had No Pain	Never	Almost Never	Sometimes	Often	Almost Always						
It showed on my face	0□	1□	2□	3□	4□	5□						
I moved slower	0□	1□	2□	3□	4□	5□						
I protected the part of my body that hurt	0□	1□	2□	3□	4□	5□						
I had to stop what I was doing	0□	1□	2□	3□	4□	5□						
I asked for someone to help me	0□	1□	2□	3□	4□	5□						
I lay down	0□	1□	2□	3□	4□	5□						
I asked for medicine	0□	1□	2□	3□	4□	5□						
I talked about my pain	0□	1□	2□	3□	4□	5□						
PROMIS® Pediatric Item Bank v2.0 Pain Interference Short Form 8a												
In the past 7 days...	Never	Almost Never	Sometimes	Often	Almost Always							
I felt angry when I had pain	1□	2□	3□	4□	5□							
I had trouble doing schoolwork when I had pain	1□	2□	3□	4□	5□							
I had trouble sleeping when I had pain	1□	2□	3□	4□	5□							
It was hard for me to pay attention when I had pain	1□	2□	3□	4□	5□							
It was hard for me to run when I had pain	1□	2□	3□	4□	5□							
It was hard for me to walk one block when I had pain	1□	2□	3□	4□	5□							
It was hard to have fun when I had pain	1□	2□	3□	4□	5□							
It was hard to stay standing when I had pain	1□	2□	3□	4□	5□							
PROMIS® Pediatric Item Bank v2.0 Pain Quality-Affective Short Form 8a												
In the past 7 days, did your pain feel...	No	Yes										
miserable?	0□	1□										
awful?	0□	1□										
horrible?	0□	1□										
unbearable?	0□	1□										
worrying?	0□	1□										
unending?	0□	1□										
annoying?	0□	1□										
unpleasant?	0□	1□										
PROMIS® Pediatric Item Bank v2.0 Pain Quality-Sensory Short Form 8a												

In the past 7 days, did your pain feel...	Not at all	A little bit	Somewhat	Quite a bit	Very much
sharp?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
achy?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
burning?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
throbbing?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
stabbing?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
sore?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
tight?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
tingly?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Supplemental Table 2: Patient Demographics and Clinical Course											
ID	Sex	Age at Surgery (yrs)	F/U at survey (mos)	Diagnosis	Clinical Treatment	Oncologic Outcome	Amputation Level	TMR Procedures	Narcotic Use	Neuromodulators	Time to Prosthesis (mos)
1	M	17.8	26.7	Osteosarcoma	Adjuvant chemotherapy	Metastatic	AKA	1. Peroneal component of the sciatic nerve to the motor branch of biceps femoris. 2. Tibial component of the sciatic nerve to the motor branch of semitendinosus. 3. Saphenous nerve to motor branch adductor. ** Neuroma in non-TMR nerve (lateral femoral cutaneous nerve). Excision/revision at 12months	stopped at 8 mos; now continuous, as needed	none at 11 months	2
2	M	17	16.5	Ewing Sarcoma	Neoadjuvant and adjuvant chemotherapy	Metastatic	AKA	1. Saphenous to adductor 2. Common Peroneal to biceps femoris 3. Tibial to semitendinosus and semimembranosus	none at 6 months	none at 10 months	6
3	M	17.8	12.4	Osteosarcoma	Neoadjuvant and adjuvant chemotherapy	NED	BKA	1. Saphenous to motor nerve of medial soleus 2. Tibial nerve to motor branch of medial gastroc 3. Peroneal nerve to motor branch of peroneus longus 4. Sural nerve to motor branch of lateral gastroc	none at 4 weeks	none at 6 weeks	5

4	M	17.7	16.3	Giant Cell Tumor of Bone	None	Metastatic	Middle Ray Resection	1. Middle finger radial digital nerve to interossei 2. Middle finger ulnar digital nerve to interossei	none at 4 weeks	began at 16 to 19 months	N/A
5	M	9	14.3	Osteosarcoma	Neoadjuvant and adjuvant chemotherapy	Metastatic died of disease	Trans-radial	1. radial sensory to brachioradialis 2. Median nerve to motor branch of FDS and FDP 3. Ulnar nerve to motor branch of FCU	none at 4 weeks	continued use	N/A
6	M	18.1	40.5	Ewing Sarcoma	Neoadjuvant and adjuvant chemotherapy	NED	BKA	1. Tibial nerve x2 transfers to gastrocnemius muscle motor nerve branches – one medial aspect and another lateral aspect 2. Peroneal nerve transfer to peroneus longus muscle motor nerve branch 3. Saphenous nerve transfer to medial soleus muscle motor nerve branch	PRN after 3 months, none by 14 months	none at 15 months	3
7	F	14.2	17.8	Trauma			BKA	1. Saphenous nerve to distal vastus medialis motor nerve 2. Posterior tibial nerve to distal gastroc 3. sural nerve no healthy motor nerve branches 4. peroneal nerve - no healthy motor nerve branches	none by 12months	continued use	6
8	M	2.9	24.7	Septic Shock			Bilateral BKA Bilateral AEA	Left UE: 1. Median nerve to biceps branch of musculocutaneous nerve Left UE: 2. Ulnar nerve to biceps motor nerve Right UE: 1. Median nerve to motor branch of biceps tendon Right UE: 2. Ulnar nerve to the posterior branch of the triceps muscle Bilateral LE: 1. Tibial component of sciatic nerve to motor branch of posterior thigh (semimembranosus, semitendinosus) Bilateral LE: 2. Peroneal component of sciatic nerve to motor branch of posterior thigh (semimembranosus, semitendinosus)	uncertain	continued use	UE 6 LE 7
9	F	23.1	22.8	Chronic Osteomyelitis			AKA	1. tibial component of sciatic nerve transfer to motor branch of semitendinosus muscle and 2. peroneal component of sciatic nerve to motor branch of biceps femoris 3. Saphenous nerve burying into adductor muscle	continuous, as needed	continued use	N/A
AKA: Above knee amputation; BKA: Below knee amputation; AEA: Above elbow amputation; NED: No evidence of disease											

