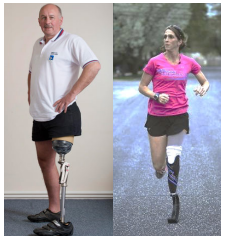
Balance, balance confidence, and factors in falls among people with limb loss: perception vs reality

Christopher Kevin Wong, PT, PhD, Stanford T. Chihuri, MS

Truisms for People with Limb Loss

1. Vascular amputation cause means poorer health
2. Transfemoral amputation (TFA) level means lower function
3. Poorer balance leads to more falls



Paradoxes related to Falls

1. Amputation cause & level were not significant predictors
2. Better balance associated with more falls
   a. Depends on task: look over shoulder vs. turn 360

Purpose

Determine factors influencing falls in people with limb loss

Methods

Design: retrospective cohort – CUIMC IRB
Subjects: volunteers from a national wellness walking group
Methods: self-reports, clinical measures (balance & gait)
Analyses: fall-subgroup differences, logistic regression

Results

Sample: N=268 from 11 states (most from IA, MD, KT, MI)

- Excluded (n=37) similar except for more recent vascular surgery & poor balance
- Average age 55.3 ± 14.9; 68.3% male, 79.5% White
- Walking category: 50.2% K3, 30.4% K2, 19.4% K1

Fallers: more TFA, vascular comorbidity, low balance & ABC

Final Multivariate Fall Model

Variable	OR	95%CI
Amp cause: vascular	.38	0.15-0.95
Vascular comorbidity	3.46	1.40-8.54
TFA amputation level	.08	0.01-0.82
Age	0.98	0.95-1.01
Age * TFA level	1.06	1.02-1.11
Balance	23.3	3.2-170.1
ABC-balance confidence	10.2	0.8-129.1
Balance * ABC	.27	0.13-0.57

Conclusion

Current vascular conditions predictive of fall
Risk of fall rises each year for TFA
Mismatched balance ability & confidence

Clinical Relevance

Falls occur across most subgroups:
direct specific fall prevention education to all

Columbia University Irving Medical Center
Columbia University Medical Center
Center for Injury Epidemiology and Prevention
Program in Physical Therapy