Appendix 1 Study Design Classification Scale

Category	Rating	Type of Study	Description
Structured Review	S1	Meta-analysis	A statistical analysis that combines the results from multiple studies.
	S2	Systematic review	A comprehensive methodological review and critical appraisal of literature obtained from multiple sources.
(Quasi) Experimental Trial	E1	Randomized controlled trial	A prospective experimental study in which subjects are randomly assigned to either a control or intervention group. Outcome measures are assessed after an appropriate follow-up time and results are compared between the control and intervention groups.
	E2	Controlled trial	A prospective experimental study in which subjects are non-randomly assigned to either a control or intervention group. Outcome measures are assessed after an appropriate follow-up time and results are compared between the control and intervention groups.
	E3	Interrupted time series trial	A prospective experimental study in which multiple subjects are assigned only to an intervention group. No control group is formed; instead subjects serve as their own control. Subjects are evaluated multiple times before and multiple times after one or more interventions. Outcome measures are assessed at known pre/post intervals and results are compared between the studied conditions.
	E4	Single subject experimental trial	A prospective experimental study in which one subject is given one or more interventions. The subject serves as his/her own control. The subject is evaluated multiple times before and after each intervention. Repeated outcome measures are assessed at known intervals and results are compared between the studied conditions.
	E5	Controlled before and after trial	A prospective experimental study in which one or more subjects are assigned to an intervention group. No control group is formed; instead subjects serve as their own control. Subjects are evaluated once before and once after one or more interventions. Outcome measures are assessed after an appropriate follow-up time and results are compared between the studied conditions.
Observational study	O1	Cohort study	A prospective, observational study of subjects that may develop a specific condition. Subjects without the condition at baseline are classified based on exposure to factors that may influence occurrence of the condition. Incidence of the condition is assessed after an appropriate follow-up time (typically long-term). The incidence of the condition in the exposed and unexposed subjects is compared to identify factors that affect the risk of developing the condition.
	O2	Case-controlled study	A retrospective, observational study in which a subject group with an existing condition is compared to a similar subject group that does not have that condition. Information on possible casual factors are obtained from subject histories and used to evaluate the relationships between those factors and the risk of developing the condition of interest.
	O3	Cross-sectional study	A descriptive, observational study in which one or more subject groups are evaluated at one point in time to describe the population(s) of interest, assess the prevalence of a condition of interest, or evaluate the correlations between possible risk factors and a condition of interest.
	O4	Qualitative study	A descriptive, observational study in which a subject group is evaluated through subjective, open ended questions and interview techniques.
	O5	Case series	A descriptive, observational study of the diagnosis, prognosis, treatment, and/or outcome of a subject group with the same (or similar aspects of a) condition.
	O6	Case study	A descriptive, observational study of the diagnosis, prognosis, treatment, and/or outcome of a single subject.
Expert Opinion	X1	Group consensus	A peer-reviewed, descriptive synthesis of the results from a conference with multiple experts in a particular topic area. This may also include unstructured literature reviews that were not conducted with a comprehensive methodology consistent with a systematic review (R2).
	X2	Individual opinion	A peer-reviewed descriptive document by one or more recognized experts in a particular topic area.

Adapted from "American Academy of Orthotists and Prosthetists (AAOP) State-of-the-Science Evidence Report Guidelines" ©2008. Available from http://www.oandp.org/grants/MasterAgenda/AAOP_EvidenceReportGuidlines.pdf

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Appendix 2 Internal Validity

Group	Study	Study Design	IV-1. Comparison or control group used	IV-2. Groups formed by random assignment	IV-3. Groups comparable at baseline	IV-4. Groups handled the same way	IV-5. Control/ comparison group appropriate	IV-6. Interventions blinded	IV-7. Inclusion criteria appropriate	IV-8. Exclusion criteria appropriate	IV-9. Protocol addresses fatigue and learning	IV-10. Protocol addresses accommodation and washout	IV-11. Attrition explained and less than 20%	IV-12. Attrition equal between groups	IV-13. Outcome measures reliable	IV-14. Statistical analysis appropriate	IV-15. Effect size reported	IV-16. Statistical significance reported	IV-17. Statistical power adequate	IV-18. Free from conflicts of interest	Total number of threats identified	Total number of threats possible	Overall assessment of internal validity
III	Goldberg et al. [26]	E5 Before and After Trial	No	NA	NA	NA	Yes	Yes	Yes	UK	NA	NA	Yes	NA	No	Yes	No	No	UK	UK	7	12	Low
III	Manella [71]	E1 RCT	Yes	Yes	Yes	Yes	Yes	No	Yes	UK	NA	NA	Yes	Yes	No	No	No	Yes	UK	Yes	8	16	Moderate
I &II	Fernie & Holliday [14]	O1 Cohort Study	NA	NA	NA	NA	NA	NA	Yes	UK	NA	NA	No	NA	No	NA	NA	NA	NA	Yes	3	5	Moderate
III	Mueller [72]	E1 RCT	Yes	Yes	Yes	Yes	Yes	No	Yes	UK	NA	NA	Yes	Yes	No	Yes	No	Yes	UK	Yes	7	16	Moderate
II & III	Liedberg et al. [67]	E1 RCT	Yes	Yes	Yes	Yes	Yes	No	Yes	UK	NA	NA	Yes	No	No	UK	No	No	UK	UK	9	16	Low
II	Persson & Liedberg [68]	O5 Case Series	NA	NA	NA	NA	NA	NA	Yes	UK	NA	NA	UK	NA	No	NA	NA	NA	NA	UK	4	5	Low
II	Golbranson et al. [8]	E2 Controlled Trial	Yes	No	No	UK	Yes	No	Yes	UK	NA	NA	No	UK	No	Yes	No	Yes	UK	Yes	10	16	Low
II & III	MacLean & Fick [9]	E2 Controlled Trial	Yes	No	No	Yes	Yes	No	Yes	Yes	NA	NA	No	No	No	Yes	No	Yes	UK	Yes	8	16	Moderate
II	Lilja & Oberg [11]	O5 Case Series	NA	NA	NA	NA	NA	NA	UK	UK	NA	NA	NA	NA	No	Yes	No	No	UK	UK	7	8	Low
II	Lilja et al. [69]	O6 Case Study	NA	NA	NA	NA	NA	NA	Yes	UK	NA	NA	NA	NA	No	NA	NA	NA	NA	Yes	2	4	Low
II	Lilja et al. [13]	O5 Case Series	NA	NA	NA	NA	NA	NA	UK	UK	NA	NA	NA	NA	No	Yes	No	Yes	Yes	Yes	3	8	Moderate
II & III	Wong & Edelstein [10]	E1 RCT	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	NA	NA	No	No	No	Yes	No	Yes	UK	Yes	6	16	Moderate

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Appendix 2 Internal Validity

Group	Study	Study Design	IV-1. Comparison or control group used	IV-2. Groups formed by random assignment	IV-3. Groups comparable at baseline	IV-4. Groups handled the same way	IV-5. Control/ comparison group appropriate	IV-6. Interventions blinded	IV-7. Inclusion criteria appropriate	IV-8. Exclusion criteria appropriate	IV-9. Protocol addresses fatigue and learning	IV-10. Protocol addresses accommodation and washout	IV-11. Attrition explained and less than 20%	IV-12. Attrition equal between groups	IV-13. Outcome measures reliable	IV-14. Statistical analysis appropriate	IV-15. Effect size reported	IV-16. Statistical significance reported	IV-17. Statistical power adequate	IV-18. Free from conflicts of interest	Total number of threats identified	Total number of threats possible	Overall assessment of internal validity
III	Board et al. [24]	E5 Before and After Trial	No	NA	NA	NA	Yes	No	Yes	UK	Yes	No	Yes	NA	No	Yes	No	Yes	UK	No	8	14	Low
III	Goswami et al. [25]	E5 Before and After Trial	No	NA	NA	NA	Yes	No	Yes	UK	No	No	Yes	NA	No	Yes	No	Yes	UK	No	9	14	Low
III	Graf & Freijah [21]	E1 RCT	Yes	Yes	No	Yes	Yes	No	Yes	UK	NA	NA	Yes	UK	No	Yes	No	No	UK	Yes	6	16	Moderate
III	Greenwald et al. [75]	O6 Case Study	NA	NA	NA	NA	NA	NA	NA	UK	NA	NA	NA	NA	Yes	NA	NA	NA	NA	No	2	3	Low
II	Zachariah et al. [6]	O5 Case Series	NA	NA	NA	NA	NA	NA	Yes	UK	NA	NA	NA	NA	Yes	NA	NA	NA	NA	Yes	1	4	High
II	Sanders et al. [12]	O5 Case Series	NA	NA	NA	NA	NA	NA	Yes	UK	NA	No	No	NA	Yes	Yes	NA	Yes	UK	Yes	4	9	Moderate
III	Sanders et al. [76]	O6 Case Study	NA	NA	NA	NA	NA	NA	NA	UK	NA	NA	NA	NA	Yes	NA	NA	NA	NA	Yes	1	3	High
II	Singh et al. [16]	O1 Cohort Study	NA	NA	NA	NA	NA	NA	Yes	UK	NA	NA	NA	NA	Yes	Yes	No	Yes	UK	Yes	3	7	Moderate
III	Janchai et al. [77]	E1 RCT	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	NA	NA	Yes	Yes	No	Yes	No	Yes	UK	Yes	4	16	Moderate
III	Ogawa et al. [78]	O6 Case Study	NA	NA	NA	NA	NA	NA	NA	UK	NA	NA	NA	NA	No	NA	NA	NA	NA	No	3	3	Low
I & II	Sanders et al. [7]	O5 Case Series	NA	NA	NA	NA	NA	NA	Yes	UK	NA	NA	NA	NA	Yes	NA	NA	NA	NA	Yes	1	4	High

RCT = randomized control trial; IV = internal validity; NA = not applicable; UK = unknown.

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Appendix 3 Additional Information Used to Assess Internal Validity Criteria

Group	Study	Study Design	IV-7. Inclusion Criteria	IV-8. Exclusion Criteria	IV-11. Attrition	IV-13. Measurement Reliability and Validity	IV-15. Effect Size	IV-18. Conflict of Interest
III	Goldberg et al. [26]	E5 Before and After Trial	TTA for whom whirlpool therapy was prescribed	NR	None	Low	NR	NR
III	Manella [71]	E1 RCT	1) a well-healed incision, 2) a score of 9 on a 10-point scale of proper wrapping technique, 3) availability for weekly measurements for four consecutive weeks, and 4) not more than 2.25 kg (5 lb) of weight	NR	None	Low	NR	NR
I &II	Fernie & Holliday [14]	O1 Cohort Study	group 1 - new lower limb amputees; group 2 - lower limb amputees at least 2 years post-amputation	NR	17 subjects had unreliable data; 17/49=35%	Medium	NR	None
III	Mueller [72]	E1 RCT	TTA no more than 2 months post-op; at least 55 years old	NR	None	Low	NR	NR
II & III	Liedberg et al. [67]	E1 RCT	TTA due to ischemia	NR	74 excluded, reasonable reasons provided	Low	NR	NR
II	Persson & Liedberg [68]	O5 Case Series	new TTA	NR	None	High	NR	None
II	Golbranson et al. [8]	E2 Controlled Trial	recent TTA amputees with primarily healed residual limb or secondarily healed granulating wound edge, not subjected to any shrinkage method	NR	55% discontinued study	Medium	NR	None

Appendix 3 Additional Information Used to Assess Internal Validity Criteria

Group	Study	Study Design	IV-7. Inclusion Criteria	IV-8. Exclusion Criteria	IV-11. Attrition	IV-13. Measurement Reliability and Validity	IV-15. Effect Size	IV-18. Conflict of Interest
II & III	MacLean & Fick [9]	E2 Controlled Trial	new TTA due to PVD	NR	6/19 in SRD group dropped out (31%) and 10/21 in the soft dressing group dropped out (48%)	Medium	Kaplan Meier survival curves with log rank test	None
II	Lilja & Oberg [11]	O5 Case Series	TTA caused by PVD, healthy enough to undergo laser scanning, with or without diabetes	NR	None	Medium	NR	Product developed by the authors
II	Lilja et al. [69]	O6 Case Study	TTA due to arteriosclerosis, ability to understand study, consent to participate	NR	4 dropped out; 57% attrition	High	NR	Product developed by the authors
II	Lilja et al. [13]	O5 Case Series	NR	NR	None	High	NR	Product developed by the authors
II & III	Wong & Edelstein [10]	E1 RCT	TTA & TFA due to PVD, ability to comply with instructions, within 30 days of surgery	infection or fever or non-viable amputation limb	1 drop out, no explanation	High	NR	None
III	Board et al. [24]	E5 Before and After Trial	TTA who were able to walk for 30 minutes on a treadmill	NR	pistoning n=11; volume/gait n=10	Medium	NR	Yes. Funded and conducted in part by company marketing the product
III	Goswami et al. [25]	E5 Before and After Trial	healthy unilateral TTA	NR	7/44 data points not reported	High	NR	Yes. Funded by the company marketing the product

Appendix 3 Additional Information Used to Assess Internal Validity Criteria

Group	Study	Study Design	IV-7. Inclusion Criteria	IV-8. Exclusion Criteria	IV-11. Attrition	IV-13. Measurement Reliability and Validity	IV-15. Effect Size	IV-18. Conflict of Interest
III	Graf & Freijah [21]	E1 RCT	TTA; RRD fitted within 3 days; acute hospital stay < 21 days; no wound healing issues evident	NR	2/18 were omitted for non-compliance and wound problems	High	NR	NR
III	Greenwald et al. [75]	O6 Case Study	TFA	NR	None	High	NR	Yes. Product development by the authors
II	Zachariah et al. [6]	O5 Case Series	unilateral TTA	NR	None	High	NR	None
II	Sanders et al. [12]	O5 Case Series	unilateral TTA	NR	suggested but not reported	High	NR	None
III	Sanders et al. [76]	O6 Case Study	TTA	NR	None	High	NR	NR
II	Singh et al. [16]	O1 Cohort Study	new lower limb amputees	NR	None	High	NR	None
III	Janchai et al. [77]	E1 RCT	TTA no more than 3 months post-op, signed consent	unable to follow protocol and severe infected stump wound	None	High	NR	NR
III	Ogawa et al. [78]	O6 Case Study	TTA male	NR	None	Low	NR	Yes. Product development by the authors
I & II	Sanders et al. [7]	O5 Case Series	unilateral TTA at least 6 months post-amputation and able to walk on treadmill without assistive device for 5 min	NR	None	High	NR	None

RCT = randomized control trial; IV = internal validity; EV = external validity; NR = not reported.

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Appendix 4 External Validity

Group	Study	Study Design	EV-1. Sample characteristics adequately described	EV-2. Sample representative of the target population	EV-3. Outcome measures adequately described	EV-4. Outcome measures valid for this study	EV-5. Intervention adequately described	EV-6. Findings clinically significant	EV-7. Conclusions placed in context of existing literature	EV-8. Conclusions supported by findings	Total number of threats identified	Total number of threats possible	Overall assessment of external validity
III	Goldberg et al. [26]	E5 Before and After Trial	No	No	No	No	Yes	Yes	No	Yes	5	8	Low
III	Manella [71]	E1 RCT	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	1	8	High
I &II	Fernie & Holliday [14]	O1 Cohort Study	No	No	Yes	Yes	NA	Yes	No	Yes	3	7	Moderate
III	Mueller [72]	E1 RCT	Yes	No	Yes	Yes	Yes	Yes	No	Yes	2	8	Moderate
II & III	Liedberg et al. [67]	E1 RCT	No	No	No	No	Yes	No	No	No	7	8	Low
II	Persson & Liedberg [68]	O5 Case Series	No	No	Yes	Yes	NA	Yes	Yes	Yes	2	7	Moderate
II	Golbranson et al. [8]	E2 Controlled Trial	No	No	Yes	Yes	Yes	Yes	No	Yes	3	8	Moderate
II & III	MacLean & Fick [9]	E2 Controlled Trial	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	1	8	High
II	Lilja et al. [69]	O5 Case Series	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	0	7	High
II	Lilja et al. [13]	O6 Case Study	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	0	7	High
II	Wong & Edelstein [10]	O5 Case Series	No	No	Yes	No	NA	Yes	Yes	Yes	3	7	Moderate
II & III	MacLean & Fick [9]	E1 RCT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	0	8	High
III	Board et al. [24]	E5 Before and After Trial	Yes	No	Yes	No	Yes	Yes	Yes	Yes	2	8	Moderate

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Appendix 4 External Validity

Group	Study	Study Design	EV-1. Sample characteristics adequately described	EV-2. Sample representative of the target population	EV-3. Outcome measures adequately described	EV-4. Outcome measures valid for this study	EV-5. Intervention adequately described	EV-6. Findings clinically significant	EV-7. Conclusions placed in context of existing literature	EV-8. Conclusions supported by findings	Total number of threats identified	Total number of threats possible	Overall assessment of external validity
III	Goswami et al. [25]	E5 Before and After Trial	Yes	No	Yes	No	Yes	Yes	Yes	Yes	2	8	Moderate
III	Graf & Freijah [21]	E1 RCT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	0	8	High
III	Greenwald et al. [75]	O6 Case Study	No	No	No	Yes	Yes	Yes	Yes	No	4	8	Low
II	Zachariah et al. [6]	O5 Case Series	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	0	7	High
II	Sanders et al. [12]	O5 Case Series	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	0	7	High
III	Sanders et al. [12]	O6 Case Study	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	1	8	High
II	Singh et al. [16]	O1 Cohort Study	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	0	7	High
III	Janchai et al. [77]	E1 RCT	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	1	8	High
III	Ogawa et al. [78]	O6 Case Study	No	No	No	No	Yes	Yes	Yes	No	5	8	Low
I & II	Sanders et al. [7]	O5 Case Series	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	0	7	High

Appendix 5 Additional Information Used to Assess External Validity Criteria

Group	Study	Study Design	EV 1 Sample Characteristics Adequately Described											Sample Size	Measurement Technique	Measurement Time
			age	amputation level	time post-amputation	cause of amputation	socket type	gender	surgery described	use of assistive devices	prosthesis type	prosthesis use	k-level			
III	Goldberg et al. [26]	E5 Before and After Trial		x	x									7	Water displacement	pre- and post-therapy, 3 times per week for 12 days post-op
III	Manella [71]	E1 RCT	x	x	x	x		x						12	Anthropometry	weekly for 4 weeks post-op
I &II	Fernie & Holliday [14]	O1 Cohort Study	x	x										49 (18 new; 14 mature)	Water displacement	new amputees: 2 times per week for up to 200 days; mature amputees: 1 time per month for up to 600 days
III	Mueller [72]	E1 RCT	x	x		x	x	x						15	Anthropometry	3 times per week for 4 weeks post-op
II & III	Liedberg et al. [67]	E1 RCT		x				x	x	x				95	Anthropometry	2, 4, 6 and 12 weeks post-op
II	Persson & Liedberg [68]	O5 Case Series		x	x				x					93	Anthropometry	2, 3, 4, 6 and 12 weeks post-op
II	Golbranson et al. [8]	E2 Controlled Trial		x	x									36	Water displacement; Anthropometry	weekly during limb maturation and bimonthly after fitting of first socket; mean 338 days post-op

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Group	Study	Study Design	EV 1 Sample Characteristics Adequately Described											Sample Size	Measurement Technique	Measurement Time
			age	amputation level	time post-amputation	cause of amputation	socket type	gender	surgery described	use of assistive devices	prosthesis type	prosthesis use	k-level			
II & III	MacLean & Fick [9]	E2 Controlled Trial	x	x	x	x		x						40	Anthropometry	3 times per week until fitting; approx. 140 days post-op
II	Lilja & Oberg [11]	O5 Case Series	x	x	x	x		x						11	Laser scanner	followed for 160 days post-op
II	Lilja et al. [55]	O6 Case Study	x	x	x	x	x	x						7	MRI	2, 6 and 28 weeks post-op
II	Lilja et al. [13]	O5 Case Series		x	x	x		x	x	x	x	x		16	Laser scanner	minimum 6 months post-op
II & III	Wong & Edelstein [10]	E1 RCT	x	x	x	x		x				x		40	Anthropometry	2 times per week until fitting (approx. 94 days post-op) + 6-20 month follow-up
III	Board et al. [24]	E5 Before and After Trial	x	x	x	x	x	x			x			11	Water displacement	mean 15.2 years post-op
III	Goswami et al. [25]	E5 Before and After Trial	x	x	x	x	x	x			x			11	Water displacement	> 3 years post-op
III	Graf & Freijah [21]	E1 RCT	x	x	x	x	x	x						18	Cast + water fill	approx. 13.5 to 27.1 days post-amputation
III	Greenwald et al. [75]	O6 Case Study		x			x				x			1	Fluid-filled bladders	mature amputee measured over 20 days
II	Zachariah et al. [6]	O5 Case Series	x	x	x	x	x	x					x	6	Optical scan	0.75 to 40 years post-op

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Group	Study	Study Design	EV 1 Sample Characteristics Adequately Described											Sample Size	Measurement Technique	Measurement Time
			age	amputation level	time post-amputation	cause of amputation	socket type	gender	surgery described	use of assistive devices	prosthesis type	prosthesis use	k-level			
II	Sanders et al. [12]	O5 Case Series	x	x	x	x	x	x			x			8	Optical scan	2.8 to 53.3 years post-op; every 5 weeks for 25 weeks
III	Sanders et al. [76]	O6 Case Study	x	x	x	x	x	x			x			2	Fluid-filled bladders	6-10 years post-op
II	Singh et al. [16]	O1 Cohort Study	x	x	x	x		x				x		105	Ultrasound	mean 19 days post-op
III	Janchai et al. [77]	E1 RCT	x	x	x	x	x							26	Anthropometry	2 and 4 weeks post-op
III	Ogawa et al. [78]	O6 Case Study	x	x			x	x						1	Fluid-filled bladders	mature amputee
I & II	Sanders et al. [7]	O5 Case Series	x	x	x	x		x					x	4	Bioimpedance	at least 6 months post-op

RCT = randomized control trial; EV = external validity; x = reported by authors; MRI = magnetic resonance imaging; SXCT = spiral x-ray computer tomography.

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Appendix 6 Summary of Measurement Errors

Study	Problems not corrected in analysis	Impact on interpretation
Goldberg et al. [26]	• Determination not possible because description of methods was inadequate	
Manella [71]	• Time between removing the bandages or shrinker socks and taking the measurement was not reported • Reported data in absolute units rather than percentage limb volume	• Contributed to variability in the data but impact unknown
Fernie & Holliday [14]	• None (limb movement problem was recognized and data for subjects with movement not included)	• Low impact on data because reported results (5-10% volume reduction within 100 to 200 days post amputation) were only for subjects that did not move much during testing • Study was biased towards subjects who did not move their residual limb during testing and the health and demographics of this population was not reported
Mueller [72]	• Reported data in absolute units rather than percentage limb volume	• Contributed to variability in the data but impact unknown
Liedberg et al. [67]	• Determination not possible because description of methods was inadequate	
Persson & Liedberg [68]	• Technique used to ensure consistent locations for circumference measurements not described	• Low because volume changes (mean 7.3%±10.6%) were much larger than error expected from this source
Golbranson et al. [8]	• Limb movement • Repeatability problem – New reference mark on residual limb for each measurement	• High for volume stabilization conclusion because the measurement of interest, volume stabilization, was likely within the measurement error • Low for early post-amputation effects because the changes were larger than errors expected from these sources
MacLean & Fick [9]	• Determination not possible because description of methods was inadequate	
Lilja & Oberg [11]	• Repeatability problem - New reference mark placed on patient for each measurement	• Low because post operative changes of interest (>5%) were larger than the potential measurement errors
Lilja et al. [69]	• Inconsistent placement of the residual limb within the MRI scanner	• Low because reported changes were much larger than error expected from this source

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Appendix 6 Summary of Measurement Errors

Study	Problems not corrected in analysis	Impact on interpretation
Lilja et al. [13]	• Length of time between doffing and measurement not standardized • Limb alignment method not reported	• Low for relaxed vs. activated residual limb muscle results because volume changes were larger than the expected error from these sources • High for socket volume vs. limb volume results because volume changes were comparable to expected error
Wong & Edelstein [10]	• Determination not possible because description of methods was inadequate	
Board et al. [24]	• Time between doffing and measurement	• Moderate because differences between vacuum-assisted suspension and suction socket results are expected either comparable to or larger than the expected error from this source
Goswami et al. [25]	• Time between doffing and measurement	• Moderate because differences between vacuum-assisted suspension and suction socket results are expected either comparable to or larger than the expected error from this source
Graf & Freijah [21]	• Determination not possible because description of methods was inadequate	
Greenwald et al. [75]	• Resolution of fluid volume measurement method	• Low because volume changes were larger than expected measurement error
Zachariah et al. [6]	• Limb movement	• Low because the reported limb volume changes were outside the measurement error for volume difference between sessions for all but one subject (one subject not measured)
Sanders et al. [12]	• Limb movement	• High for diurnal volume change measurements because mean changes were within the measurement error • Low for monthly volume change measurements because mean changes were outside the measurement error
Sanders et al. [76]	• Interface stress measurement error • Bladders distorted transducer measurements	• Low because differences were well within resolution capabilities of the transducers • Low because bladders were put at locations transducers were not present

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Appendix 6 Summary of Measurement Errors

Study	Problems not corrected in analysis	Impact on interpretation
Singh et al. [16]	• Limb movement • Resolution of ultrasound modality used	• Low because reported changes were much larger than error expected from this source
Janchai et al. [77]	• Reported data in absolute units rather than percentage limb volume	• Contributed to variability in the data but impact unknown
Ogawa et al. [78]	• Effects of curvature and overlying tissue stiffness on commercial pressure sensor performance	• Moderate on pain threshold pressures
Sanders et al. [7]	• Relationship between limb fluid volume measured using bioimpedance analysis and actual limb volume not shown	• Low because literature for other applications has shown good correlation between bioimpedance analysis and other measurement methods [67, 68,69]

Note that descriptive studies (e.g. Wilson et al. [53] or Pinzur et al. [54]) are not included in the above table.