

Scientific Method:

The selection process of the articles for review is illustrated in Figure S1. The articles published between January 2000 and June 2021 by PubMed, SAGE journals, IEEE Xplore, Scopus, ScienceDirect, Web of Science were searched for the following keywords: ['ankle'+ 'exoskeleton'] or ['ankle'+ 'robot'] or ['ankle' + 'power'+ 'orthosis']. The search results were merged and after removing the duplicates, 5684 articles formed the initial selection pool. Then, the articles which did not include the word 'ankle' in the title were removed and 1020 articles remained in the pool. A review process was performed on the titles and abstracts of the remaining articles. The review papers as well as the articles concerning seated rehabilitation robots, unpowered passive devices and multi-joint assistive devices and suits, i.e., hip-knee-ankle and knee-ankle-foot exoskeletons were removed from the pool. Further, the articles concerning computer simulations only and / or Computer Aided Design (CAD) only that did not relate to any developed exoskeleton prototypes were also excluded from the list. This process brought the number of articles in the review list down to 172. The full papers of the remaining articles were then reviewed. The articles published by the same research group on the same PAE were grouped and reviewed together when extracting key information.

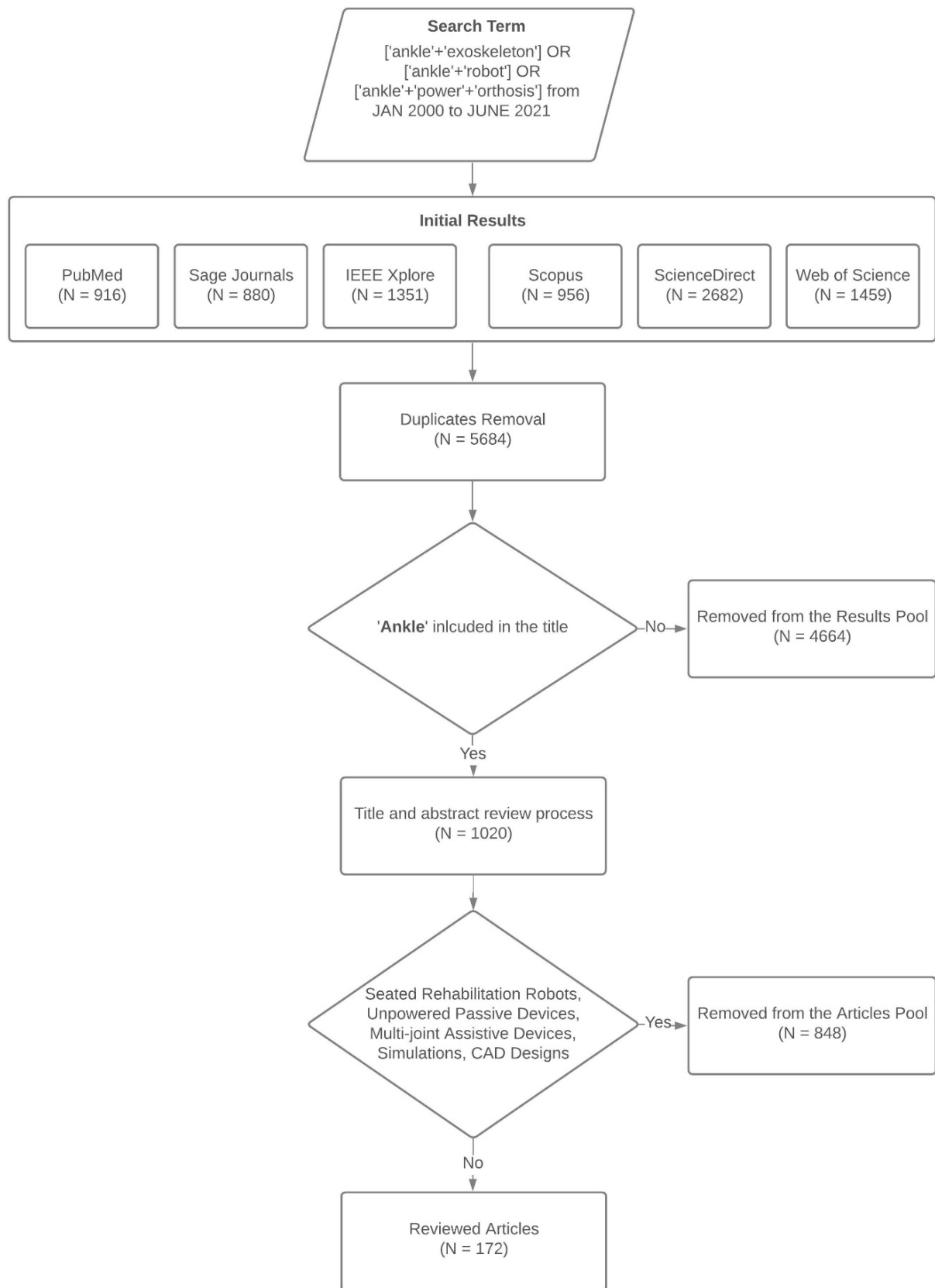


Figure S1. Schematic flow chart of the search and review process.

Table S1. General information extracted from the reviewed articles. Articles published by the same research group are presented with the same Research Group Code.

Research Group Code	References	Purpose	Bilateral	Degree of Freedom	Portability	Weight
1	[1]	Assistive Device	No	1 DOF Plantarflexion Only	Tethered	Not Specified
2	[2, 3]	General Augmentation	No	3 DOFs Dorsi/Plantarflexion, Eversion/Inversion, External/Internal Rotation	Tethered	0.77 kg
3	[4]	Assistive Device - Ankle Dyskinesia Patients and Functionally Degraded Elderly	No	1 DOF Dorsi/Plantarflexion	Portable	1.22 kg
4	[5]	General Augmentation and Assistive Device	Yes	1 DOF Dorsi/Plantarflexion	Portable	7.002 kg
5	[6]	Assistive Device	No	1 DOF Plantarflexion	Tethered	0.826 kg
	[7]	General Augmentation	Yes	1 DOF Plantarflexion	Tethered	0.415 kg
6	[8]	General Augmentation	Yes	1 DOF Plantarflexion	Tethered	Not Specified
7	[9-11]	Assistive Device – Drop Foot, Drag Foot and Hemiplegic Patients	No	1 DOF Dorsi/Plantarflexion	Tethered	2.8 kg
8	[12-14]	Assistive Device – Elderly	No	2 DOF Plantarflexion and Eversion/Inversion	Tethered	2.14 kg
9	[15]	Assistive Device	No	2 DOF Dorsi/Plantarflexion and Eversion/Inversion	Tethered	Not Specified
10	[16]	Assistive Device - Elderly and Gait-Impaired Patients	Yes	2 DOF Dorsi/Plantarflexion and Eversion/Inversion	Portable	0.869 kg
	[17]	Assistive Device - Hemiparetic Patients	Yes	2 DOF Dorsi/Plantarflexion and Eversion/Inversion	Portable	1.25 kg
	[18]	Assistive Device - Stroke Patients	Yes	2 DOF Dorsi/Plantarflexion and Eversion/Inversion	Portable	2.1 kg

11	[19]	Assistive Device -Stroke, Multiple Sclerosis, and Cerebral Palsy Patients	No	2 DOF Dorsi/Plantarflexion and Adduction/ Abduction	Tethered	1.8 kg
12	[20-27]	Assistive Devices – Gait Impaired Patients	No	1 DOF Plantarflexion	Tethered	Alpha – 0.84 kg Beta – 0.87 kg
13	[28, 29]	Assistive Device - Stroke Patients and Locomotor disabled Patients	No	1 DOF Dorsi/Plantarflexion	Portable	2.8 kg
14	[30-39]	Assistive Device -Cerebral Palsy, Neuromuscular impaired, and Parkinson Patients	Yes	1 DOF Plantarflexion	Portable	Smaller Model- 1.85 kg Larger Model- 2.20 kg
15	[40]	Assistive Device	Not Specified	Not Specified	Tethered	3.26 kg
	[41]	Assistive Device - Drop Foot Patients	No	1 DOF Dorsi/Plantarflexion	Tethered	1.323 kg
	[42]	Assistive Device - Drop Foot Patients	No	1 DOF Dorsiflexion	Portable	1.3 kg
16	[43]	Assistive Device - Stoke, and Cerebral Palsy Patients	No	1 DOF/ Plantarflexion	Tethered	2.5 kg
17	[44]	Assistive Device - Stroke Patients	No	1 DOF Dorsi/Plantarflexion	Portable	1.540 kg
	[45]	Assistive Device - Stroke Patients	Yes	2 DOF Dorsi/Plantarflexion and Eversion/Inversion	Portable	0.98 kg
18	[46-60]	Assistive Device	Yes (Interchangeable)	1 DOF Dorsi/Plantarflexion	Tethered	1.09 kg – 1.7 kg
	[61, 62]	Assistive Device	No	1 DOF Dorsi/Plantarflexion	Tethered	0.83 kg
	[63-67]	General Augmentation	Yes	1 DOF Plantarflexion	Tethered	1.52 kg
	[68]	Assistive Device - Stroke Patients	No	1 DOF Plantarflexion	Tethered	0.532 kg
	[69]	General Augmentation	Yes	1 DOF Plantarflexion	Tethered	2.08 kg

	[70]	Assistive Device	Yes	1 DOF Plantarflexion	Tethered	2.02 kg
	[71, 72]	General Augmentation	Yes	1 DOF Plantarflexion	Tethered	0.890 kg
19	[73]	Assistive Device - Patients with Chronic Ankle Instability	No	1 DOF Eversion/Inversion	Tethered	Not Specified
	[74]	Assistive Device	No	1 DOF Plantarflexion	Tethered	Not Specified
20	[75-80]	Assistive Device - Patients with Spinal Cord Injuries	Yes	1 DOF Dorsi/Plantarflexion	Portable	6.7 kg
21	[81, 82]	Assistive Device -Patients with Motor Injuries	No	1 DOF Dorsi/Plantarflexion	Portable	Not Specified
22	[83-88]	Assistive Device -Healthy young users	No	1 DOF Dorsi/Plantarflexion	Tethered	2.15 kg
23	[89]	Assistive Device	No	1 DOF Dorsiflexion	Tethered	Not Specified
24	[90]	General Augmentation	Yes	1 DOF Plantarflexion	Portable	3.97 kg
25	[91-93]	Assistive Device - Stroke and Neuromuscular Impaired Patients	No	1 DOF Dorsi/Plantarflexion	Tethered	1.04 kg
26	[94]	Assistive Device	No	1 DOF Dorsi/Plantarflexion	Tethered	Not Specified
	[95]	General Augmentation	No	1 DOF Plantarflexion	Tethered	Not Specified
27	[96]	Assistive Device - Drop Foot Patients	No	1 DOF Dorsi/Plantarflexion	Tethered	2.6 kg
	[97, 98]	General Augmentation	Yes	1 DOF Plantarflexion	Portable	3.6kg
	[99]	Assistive Device	Yes	1 DOF Plantarflexion	Portable	6.049 kg
28	[100]	Assistive Device - Stroke Patients	No	1 DOF Plantarflexion	Tethered	Not Specified
29	[101]	Assistive Device - Drop Foot Patients	No	1 DOF Dorsiflexion	Portable	1.2 kg
30	[102]	Assistive Device	No	1 DOF Plantarflexion	Portable	0.766 kg
	[103]	Assistive Device	No	1 DOF Plantarflexion	Tethered	1.35 kg
31	[104]	General Augmentation	Yes	1 DOF Plantarflexion	Portable	6.2 kg
32	[105-109]	Assistive Device - Drop Foot and Paretic Patients	No	1 DOF Dorsi/Plantarflexion	Portable	3.5 kg
33	[110]	General Augmentation	No	1 DOF Plantarflexion	Portable	2.045 kg
34	[111, 112]	Assistive Device -Stroke Patients	No	1 DOF Dorsiflexion	Portable	1 kg

35	[113]	Assistive Device – Mobility Impaired Patients	Yes	3 DOF Dorsi/Plantarflexion, Inversion/Eversion, Ad/ Abduction	Tethered	2.6 kg
36	[114, 115]	Assistive Device	Yes	1 DOF Plantarflexion	Portable	10.1 kg
	[116-118]	General Augmentation	Yes	1 DOF Plantarflexion	Tethered	0.89 kg
	[119]	Assistive Device - Stroke Patients	No	1 DOF Dorsi/Plantarflexion	Tethered/ Portable	3.19 kg
	[120]	Assistive Device - Stroke Patients	No	1 DOF Dorsi/Plantarflexion	Portable	0.90 kg
	[121]	Assistive Device - Stroke Patients	No	1 DOF Dorsi/Plantarflexion	Portable	3.8 kg
	[122]	Assistive Device –Mobility Impaired Patients	No	1 DOF Dorsi/Plantarflexion	Tethered	0.90 kg
37	[123]	General Augmentation and Assistive Device - Patients with lower limb injuries	No	1 DOF Dorsi/Plantarflexion	Portable	3.4 kg
38	[124-128]	Assistive Device – Drop Foot and Stroke Patients	No	3 DOF Dorsi/Plantarflexion, Eversion/Inversion and Ad/Abduction	Tethered	3.6 kg
39	[129]	Assistive Device - Stroke Patients	No	1 DOF Dorsi/Plantarflexion	Portable	1.0 kg
40	[130-133]	General Augmentation and Assistive Device	Yes	1 DOF Plantarflexion	Tethered	2.08 kg
41	[134]	Assistive Device – Neuromuscular Impaired Patients	Yes	2 DOF Dorsi/Plantarflexion and Eversion/ Inversion	Portable	4.56 kg
	[135]	Assistive Device	Yes	1 DOF Dorsi/Plantarflexion	Tethered	5kg
42	[136-142]	Assistive Device -Multiple Sclerosis Patients	No	1 DOF Dorsi/Plantarflexion	Portable	3.1 kg
43	[143]	Assistive Device	No	1 DOF Dorsi/Plantarflexion	Tethered	3.0 kg
44	[144, 145]	Assistive Device	No	1 DOF Dorsi/Plantarflexion	Portable	1.2 kg
45	[146]	General Augmentation	No	1 DOF Dorsiflexion	Portable	2.2 kg
47	[147]	Assistive device -Paralysis Patients	No	1 DOF Dorsi/Plantarflexion	Tethered	Not Specified
51	[148-150]	Assistive Device	No	1 DOF Dorsi/Plantarflexion	Tethered	1.7 kg

54	[151]	Assistive Device – Drop Foot patients	No	1 DOF Dorsiflexion	Portable	2.0 kg
56	[152]	Assistive Device -Patients with existing Neurological issues	No	1 DOF Dorsi/Plantarflexion	Tethered	Not Specified
57	[153, 154]	Assistive Device -Neuromuscular Impaired Patients	No	2 DOF Dorsi/Plantarflexion and Eversion/Inversion	Portable	0.950 kg
58	[155]	Assistive Device - Neuromuscular Impaired Patients	No	2 DOF Dorsi/Plantarflexion and Eversion/Inversion	Tethered	1.1 kg
61	[156]	Assistive Device - Stroke Patients	No	1 DOF Dorsi/Plantarflexion	Not Specified	0.85 kg
62	[157]	Assistive Device - Individuals with spinal cord injuries and Stroke Patients	No	1 DOF Dorsi/Plantarflexion	Tethered	0.92 kg
63	[158, 159]	Assistive Device - Individuals with Peripheral or Central nervous system disorders	No	1 DOF Dorsi/Plantarflexion	Portable	Not Specified
64	[160, 161]	Assistive Device - Stroke Patients	No	2 DOF Dorsi/Plantarflexion and Eversion/ Inversion	Portable	Not Specified
65	[162, 163]	Assistive Device - Stroke Patients	No	1 DOF Plantarflexion	Tethered	0.95 kg
	[164]	Assistive Device	No	1 DOF Dorsi/Plantarflexion	Tethered	1.75 kg
	[165, 166]	Assistive Device - Stroke Patients	No	1 DOF Dorsi/Plantarflexion	Tethered	Not Specified
66	[167, 168]	Assistive Device	No	1 DOF Dorsi/Plantarflexion	Tethered	Not Specified
69	[169]	Assistive Device	No	1 DOF Dorsi/Plantarflexion	Tethered	Not Specified
70	[170, 171]	Assistive Device - Drop Foot Patients	No	1 DOF	Tethered	0.20 kg
71	[172]	General Augmentation	Yes	1 DOF Plantarflexion	Tethered	1.6 kg

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