Spinal Cord Outcomes Partnership Endeavor (SCOPE, www.scope-sci.org)

Current SCI Clinical Trials of Drug, Cell, and Surgical Interventions to Improve Neurological and Related Functional Outcomes

Revised September 6, 2019 Listing 56 Trials

Sponsor/NCT	Intervention	Inclusion/ Exclusion Criteria	Treatment Timing & Follow-up	Enrollment	Phase of Study	Primary Outcome Other Outcomes	Comments
AOSpine N. Am Research Network, Reeve Foundation, Dept of Defense Rick Hansen Institute NCT01597518	Riluzole 2 x 100 mg by mouth or feeding tube the first 24 hours followed by 2 x 50 mg for the following 13 days after injury vs. placebo in acute SCI	18-75 yr Age C4-C8 AIS A, B, C	Acute SCI SCI≤12 hours F/U 6m	Began 10/2013 USA, Canada, Australia, New Zealand Multicenter 351 subjects	Phase 2/3 RCT Double-Blind	Efficacy/Safety Change in ISNCSCI total motor score from baseline to 6months of F/U	Multicenter Phase2/ 3 trial of riluzole vs. placebo for improving motor recovery in acute SCI
Eusol Biotech, Ltd NCT03229031	Intrathecal administration of ES 135 (rhFGF1) vs. placebo in patients who receive spinal surgery	18-65yr Age SCI level NS AIS A	time post SCI NS F/U 48wks	Began 3/2018 Taiwan 100 subjects	Phase 3 RCT Parallel Group Double Blind	ISNCSCI Motor Scores	Multicenter, Placebo-controlled Phase 3 RCT to Evaluate the Safety and Efficacy of intrathecal ES135 in Subjects with SCI receiving spinal surgery
Ohio State Univ. NCT02524379	12 doses of glyburide starting within 8 hours of SCI. Initial dose of 1.25 mg followed by 11 consecutive doses of 0.625 mg every 6 hrs over 72 hour period.	18-80yr Age C2-C8 AIS A, B, C	Acute SCI SCI≤8hrs F/U 1yr	Began 2/2017 Columbus, OH 10 subjects	Phase 1/2 Single Group Open Label	Adverse Events Pharmacokinetics Preliminary Efficacy (NS)	Single group early phase safety study of IV glyburide in acute SCI
Pharmazz, Inc. NCT04054414	Intravenous bolus dosing of PMZ-1620 (Sovateltide), on day 1, 3, and 6 along with standard of care treatment, vs. Normal Saline placebo with standard of care treatment	Age 18-75yrs Level C5-S5 AIS B, C, D	Acute SCI SCI≤48hrs F/U 90 days	Began 1/2019 Multicenter in India 40 Subjects	Phase 2 RCT Parallel Group Double Blind	Adverse Events Tolerability ISNCSCI WISCI, SCIM MRI, CT	Phase 2 study placebo controlled RCT of PMZ-1620 (Sovateltide), an endothelin B receptor agonist
Medical U. of Graz NCT03101982	Hyperbaric Oxygen (HBO) initiated within 24 hours of SCI given in 21 consecutive daily sessions at Medical University of Graz. Standard of Care Control subjects admitted to Paracelsus University Salzburg.	Age 16-70yrs Level NS AIS A, B, C, D	Acute SCI SCI≤24hrs F/U 1yr	Not yet begun Graz, Austria Salzburg, Austria 100 Subjects	Phase 2 Non-random Parallel Group Open Label	ISNCSCI Blood Testing MRI	Study of the effects of HBO on neurological impairment following acute SCI. 50 subjects in treatment group, 50 subjects in control group.
Hotchkiss Brain Inst U of Calgary NCT02232165	Medical management of blood pressure to target of mean arterial pressure ≥65mmHg vs. ≥85mmHg for 7days following SCI	≥16yr Age C0-T12 AIS A, B, C No Central Cord	Acute SCI SCI≤12hr F/U 1yr	Began 3/2012 Calgary, Alberta San Antonio. TX 100 subjects	Phase 3 RCT Parallel Group Double Blind	ASIA motor score change ASIA sensory score change AIS improvement SF-36 SCIM, FIM	Non-inferiority study of hypotension avoidance vs. induced hypertension

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Oregon Health and Science University Dept of Defense NCT02878850	Pharmacological management of blood pressure in persons with acute SCI; comparing BP kept in a higher range (85-90mmHg), vs. BP kept in a normal range (MAP 65-70mmHg) for 7 days	≥18yr Age C0-T8 AIS A, B, C No Central Cord No Penetrating Injury	Acute SCI Duration NS F/U 6m	Began 1/2017 USA Multicenter 152 subjects	Phase N/A RCT Parallel Group Single Blind	ASIA motor score change ASIA sensory score change SCIM III Pain Scores QoL Satisfaction Score Cardiovascular Adverse Events	Randomized Trial of Early Hemodynamic Management of Patients Following Acute Spinal Cord Injury, comparing 2 BP target ranges
St. Joseph's Hosp NCT02495545	CSF Drainage (target IT pressure 10mmHg) and elevation of Mean Arterial Pressure (MAP) with norepinephrine (goal 100-110 mmHg) vs. Elevation/maintenance of MAP alone with norepinephrine (goal 85-90mmHg) for 5d.	18-75yr Age C4-C8 AIS A, B, C	Acute SCI SCI≤24h F/U 180d	Began 10/2015 USA Arizona, Alabama 60 subjects	Phase 2B Parallel Group RCT Open Label	Change in IT Pressure ISNCSCI TMS AIS UEMS, LEMS, sensory scores SCIM Pain	RCT to study the effect of CSF drainage and BP support in acute SCI
University of British Columbia Rick Hansen Institute NCT01279811	Intravenous vasopressor drugs (norepinephrine or dopamine) initiated within to improve spinal cord perfusion pressure, initiated within 48 hours of injury and continued for 5 days with a daily 1 hour "crossover" protocol to compare the effectiveness of the two drugs	Age≥17yr C0-L1 AIS A, B, C	Acute SCI SCI≤48hrs F/U 1yr	Began 1/2011 North American Multicenter 100 subjects	Phase N/A Single Group Open Label	Spinal Cord Perfusion Pressure CSF biomarkers ISNCSCI Pain Questionnaire	Crossover study of the effect of vasopressor drugs to improve spinal cord perfusion pressure. Also collecting spinal fluid biomarkers to improve understanding of SCI and recovery.
University of British Columbia Rick Hansen Institute NCT03911492	Insertion of a lumbar intrathecal catheter to enable active management of Spinal Cord Perfusion Pressure (SCPP) ≥65mmHg over 7 days post-injury by the use of vasopressor medications and CSF drainage. CSF samples will also be collected for analysis of chemical indicators of injury severity.	Age≥17yr C0-T12 AIS A, B, C	Acute SCI SCI≤24hrs F/U 12m	Not yet begun Vancouver, BC 100 subjects	Phase N/A Single Group Open Label	ISNCSCI Biomarkers in CSF, Blood Spinal Cord Perfusion Pressure	Canadian-American Spinal Cord Perfusion Pressure and Biomarker Study (CASPER)
U of Zurich EMSCI.org Wings for Life Swiss Paraplegic Research NCT03935321	Six intrathecal injections (given by spinal tap) of 45mg of NG-101 (anti-Nogo antibody) or placebo, given over 30 days	Age 18-70yr C1-C8 AIS A, B, C, D UEMS<41/50	Subacute SCI4d≤SCI≤28d F/U 168d	Began 5/2019 European Multicenter 132 subjects	Phase 2 RCT Placebo Control Parallel Group Double Blind	UEMS ISNCSCI SCIM III WISCI GRASSP 10MWT, 6MWT Bladder Diary	Nogo Inhibition in Spinal Cord Injury (NISCI). Study to determine whether repeated IT bolus of NG-101 will improve neurological outcome in persons with subacute SCI

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ReNetX Bio, Inc. NCT03989440	Intrathecal dosing of AXER-204 (a human NOGO Trap fusion protein). Part 1 is Phase 1 open label single ascending dose; Part 2 is Phase 2 double blind placebo-controlled RCT of repeated dosing.	Age 18-65yrs Traumatic Cervical SCI 4≤UEMS≤36 GRASSP Prehension Ability 4-12 points	Chronic SCI SCI≥1yr F/U 6m	Began 7/2019 Multicenter USA 66 Subjects	Phase 1/2 Part 1: Single Group Open Label Part 2: Parallel Grp Placebo contr RCT	Adverse Events Pharmacokinetics ISNCSCI GRASSP SCIM III CUE-T, CUE-Q SF-36 ISAFSCI	Multicenter 2-Part study of safety, tolerability, pharmacokinetics, and efficacy of AXER-204 in persons with chronic cervical SCI
University of Miami US DoD NCT02991690	Modest (33°C) intravascular hypothermia via Asius Icy CoolGuard® catheter inserted into the femoral vein. Patients will be cooled at a maximum rate (2-2.5°C/hr) until reaching target temp. (33°C) which will be maintained for 48hrs, then rewarmed at 0.1°C/hr until returned to normal temp. vs. Standard of Care control group	18-70yr Age Cervical SCI AIS A, B, C	Acute SCI SCI≤24h F/U 12m	Began 5/2017 USA Multicenter 120 subjects	Phase N/A Parallel Group RCT Open Label	AIS ASIA Motor Index FIM SCIM	Prospective Multi-center Case Controlled Study of Systemic Hypothermia in Acute Cervical SCI
AUVA Trauma Center Meidling NCT03399968	Extracorporeal shockwave therapy (ESWT) at the injury level and 5 segments up and down of the spinal cord paravertebrally left and right vs. sham ESWT by positioning of the therapy head at the injury level without application of shockwaves	Age≥18yr T2-T1 AIS A stable neuro 6m	Chronic SCI SCI≥1yr F/U 24wks	Began 3/2015 Austria 25 Subjects	Phase N/A RCT Sham Control Parallel Group Double Blind	Gait Analysis (Lokomat) ISNCSCI Tardieu Spasticity Test Trunk Control-functional reach SCIM	Extracorporeal Shockwave Therapy (ESWT) to Improve Function in Chronic ASIA-A Patients
Xijing Hospital NCT03643419	Near-infrared laser light irradiation of the spinal cord utilizing a laser therapeutic apparatus with optical fiber implanted at the time of decompressive spine surgery and laminectomy. Near-infrared light irradiation for 1 hour daily; number of light irradiation treatments NS.	Age 20-70yr Thoracic SCI AIS A, B, C	Acute SCI Time SCI NS F/U 12m	Not yet begun China 60 subjects	Phase N/A RCT Parallel Group Open Label	ASIA Motor Index MEP SSEP	RCT to observe the therapeutic effect of near-infrared light irradiation on the treatment of acute spinal cord injury in humans.
Moleac Pte Ltd. NCT02537899	NeuroAiD (a "natural product" combining several Chinese herbal ingredients) given in oral capsule form for 6 months; combined with standard rehabilitation therapies	18-65yr Age AIS A, B	Acute/Subacute SCI 3d-4wk post SCI F/U 24m	Began 6/2015 Malaysia 30 subjects	Phase 4 Open Label Case Series	AIS ISNCSCI Motor/Sensory Scores SCIM SF-8 Adverse Events	Open label study of Chinese herbal supplement plus rehabilitation in acute/subacute SCI
Coordinación de Investigación en Salud, Mexico NCT03899584	Oral 4-aminopyridine capsules (or placebo) beginning with 10mg, then in increasing doses until reaching maximum dose of 1mg/kg/day, for total of 30 weeks intervention period.	18-60yr Age C4-T12 AIS A	Chronic SCI SCI>2yr F/U 7m	Not yet begun Mexico City 150 subjects	Phase 3 RCT Double Blind Placebo Controlled	ISNCSCI SCIM III SF-36 Bowel/Bladder Questionnaire Adverse Events	High Doses of 4-aminopyridine in Clinically Complete Chronic Spinal Cord Injury Patients

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Spaulding Rehab Hospital Wings for Life NCT02274116	Effect of acute intermittent hypoxia (AIH, breathing air with low oxygen) vs. Room air (breathing air with normal oxygen) placebo on Leg Function following SCI. Five 38 minute treatment sessions per week for 2 weeks.	18-75yr Age C4-T12 AIS C, D	Chronic SCI SCI>12m F/U 4w	Began 10/2014 Atlanta 20 Subjects	Phase N/A RCT Double Blind Placebo Controlled Crossover	Change in over ground walking endurance and speed	Repetitive Exposure of Intermittent Hypoxia to Enhance Walking Recovery in Persons With Chronic Spinal Cord Injury
Spaulding Rehab Hospital NICHD NCT02323698	Effect of acute intermittent hypoxia (AIH, breathing air with low oxygen) with caffeine or placebo vs. Room air (breathing air with normal oxygen) sham with caffeine or placebo on Leg Function following SCI (Caffeine Sub-study)	18-75yr Age C2-T11 AIS C, D	Chronic SCI SCI>12m F/U 2weeks	Began 10/2014 Cambridge, MA, USA 20 Subjects	Phase 1/2 RCT Double Blinded Placebo Controlled Crossover	10MWT	Study on the Effects of Caffeine and Low Oxygen Therapy on Leg Function in Human Spinal Cord Injury
Spaulding Rehab Hospital US Dept of Defense NCT02632422	10 sessions (5/wk for 2 wks) of daily acute intermittent hypoxia (dAIH) vs. daily room air (dSHAM); ambulatory subjects in both groups will also receive 60 minutes of walking practice at a frequency of 5 days each week for 2 weeks	18-70yr Age C3-L5 Some motor function below neuro level AIS A, B, C, D	Subacute SCI Chronic SCI SCI for 2-12m F/U 2weeks	Began 10/2015 Atlanta, GA, Cambridge, MA 125 subjects	Phase N/A RCT Parallel Group Double Blind	TUG 6 minute walk test 10 meter walk test Pain, Spasticity Hypertension Autonomic Dysreflexia incidence	RCT of daily acute intermittent hypoxia vs. sham (room air) in non-ambulatory and ambulatory subacute incomplete SCI to determine effect on recovery of walking function
Spaulding Rehab Hospital NICHD Wings for Life NCT02323945	Effect of acute intermittent hypoxia (AIH, breathing air with low oxygen) on Leg Function following SCI. AIH with/without walking practice will be compared to AIH with/without ankle flexion torque practice	18-75yr Age C2-T11 AIS C, D	Chronic SCI SCI>12m F/U 2weeks	Began 10/2014 Cambridge, MA, USA 44 Subjects	Phase N/A RCT Double Blinded Placebo Controlled Crossover	Walking endurance 2MWT/6MWT Muscle Strength @ ankle Walking speed 10MWT	Study to gain understanding of underlying mechanisms of AIH effect on Leg Function after SCI
Shirley Ryan Ability Lab NCT03774043	Acute intermittent hypoxia (AIH) 90 seconds of 9-11% O2, alternating with 90 seconds of 21% (normal) O2; repeated 15 times per session each (45 minute sessions) vs. Sham of 21% (room air) without intermittent hypoxia. Comparing single sessions (AIH vs. Sham) and two successive sessions (AIH vs. Sham).	Age 18-70yr C3-T1 AIS C, D	Chronic SCI SCI≥6m F/U 5hrs	Began 5/2016 Chicago 24 Subjects	Phase 1/2 RCT Sham Control Double Blind	Grip Strength Pinch Grip Box and Block Test 9 Hole Peg Test	Study of the impact of timing and dosage on the effects of AIH in persons with chronic SCI

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Shirley Ryan AbilityLab NCT03262766	Acute intermittent hypoxia (AIH) 90 seconds of 9-10% O2, alternating with 90 seconds of 21% (normal) O2; repeated up to 18 times per session each (up to 45 minute sessions). Testing 4 combinations of therapy: 1) AIH alone; 2) AIH *and* upper limb training; 3) sham AIH *and* upper limb training; 4) sham AIH alone. Upper limb training with Armeo Spring robotic device. Daily sessions for 5 days.	Age 18-70yr C2-T2 AIS C, D	Chronic SCI SCI>1yr F/U 6wks	Began 6/2017 Chicago 80 Subjects	Phase N/A RCT Sham Control Double Blind	Grip Strength Pinch Grip Box and Block Test 9 Hole Peg Test SCIM III GRASSP CUE	Daily Intermittent Hypoxia and Task-Specific Upper Limb Training in Persons with Chronic Incomplete SCI
Shirley Ryan AbilityLab NCT03643770	Acute Intermittent Hypoxia (AIH)—short duration (<2 min) exposures to reduced oxygen levels (~10% inspired oxygen) alternating with exposure to air with normal oxygen levels (~21% inspired oxygen) vs. sham AIH, in combination with-or-without upper extremity training using Armeo Spring (gravity support exoskeleton, to evaluate changes in upper extremity function.	Age 18-75yr C3-T1 AIS NS Can open/close one hand without assistance	Chronic SCI SCI≥1yr F/U 4wks	Began 11/2018 Chicago 92 subjects	Early Phase 1 RCT Double Blind	GRASSP 9-hole peg test Grip Strength	Study of the effect of a novel intervention using daily AIH and high intensity training using the Armeo Spring device on UE function in persons with SCI
Shirley Ryan AbilityLab NCT03644277	Random assignment to one of 5 treatment groups: daily acute intermittent hypoxia therapy (AIH) vs. sham AIH, with-or-without massed practice UE training; with-or-without Rapael Glove (robotic rehabilitation device)-administered UE training. Study designed to determine the effectiveness of these interventions in improving UE function in persons with chronic incomplete SCI.	Age 18-75yr C2-T1 AIS NS At least one hand has some grasp ability (GRASSP Prehension Ability score≥2)	Chronic SCI SCI>1yr F/U 3m	Began 7/2018 Chicago 125 Subjects	Phase N/A RCT Parallel Group Double Blind	GRASSP	Study of the effectiveness of daily AIH coupled with massed practice UE training or robotic UE training for improving UE function in persons with chronic SCI
University of Florida NCT03071393	Acute Intermittent Hypoxia (AIH) sessions of 15 brief (60-120 sec) exposures to low oxygen (9-15% inspired O_2) alternating with 15 brief exposures of ambient room air (21% inspired O_2). Two sessions at least 7 days apart: AIH or Sham (room air) randomly assigned with crossover. Inspired O_2 delivered via Hypoxico Hyp-123 device. Study to determine AIH effects on motor function after SCI.	Age 18-65yr SCI C4-T12 AIS NS	Chronic SCI SCI>6m F/U≤ 1week	Began 7/2017 Florida 35 Subjects	Phase N/A RCT Sham Control Crossover Double Blind	Neuromuscular Recovery Scale Maximum Inspiratory Pressure Maximum Expiratory Pressure Forced Vital Capacity EMG TUG 10MWT 6MWT	Sham controlled crossover RCT of the effects of a single session of AIH on motor function in persons with chronic SCI

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University of Florida NCT03833674	5 daily sessions of AIH (short repetitive episodes of low oxygen (9% O_2) alternating with normal oxygen (21% O_2)), or sham (normal 21% O_2), or respiratory strength training, or AIH combined with respiratory strength training. Participants receive all different treatment regimens in randomly assigned order.	Age 18-65yr C3-T12 AIS B, C, D >20% impairment of max inspiratory or expiratory pressure	Chronic SCI SCI≥1yr F/U 60days	Not yet begun Florida 53 Subjects	Phase N/A RCT Sham Control Crossover Open Label	Maximal Inspiratory Pressure Maximal Expiratory Pressure	Study of whether the combination of AIH and respiratory strength training improves breathing function more than either approach alone.
Univ. of Miami CHNF NCT04017767	Acute Intermittent Hypoxia (AIH) sessions (series of 15 and 90 second intervals of 9% inspired O_2 alternating with 60 second 21% inspired O_2) daily for 3 days. Two study groups: 1) subjects with chronic tetraplegia and moderate to severe obstructive sleep apnea (OSA) and chronic intermittent hypoxia (CHI), and 2) subjects with chronic tetraplegia without OSA	Age≥18yrs SCI C5-8 AIS C, D Resting saO_2≥95%	Chronic SCI SCI≥1yr Non-progressive SCI F/U 17days	Not yet begun Miami 30 Subjects	Phase N/A Non-random Parallel Group Open Label	Pulmonary Function Grip Strength EMG Biomarkers	Study of the effect of OSA/CHI on response to therapeutic intervention with AIH.
Univ. of Miami US Dept of Educ. NCT03433599	Acute Intermittent Hypoxia (AIH) sessions of brief (60-90 sec) exposures to low oxygen (9-10% inspired O2) alternating with brief (60-90 sec) exposures of ambient room air vs. sham (Room Air) in combination with training either with Exoskeleton Rapael glove or standard UE Rehab training or no training	Age 18-70yr SCI C3-T1 AIS C, D	Chronic SCI SCI>6m F/U 12wks	Began 8/2018 Miami 125 Subjects	Phase N/A RCT Parallel Group Double Blind	Grip Strength 9-Hole Peg Test Pinch Strength Elbow Strength Box and Block Test GRASSP CUE-Q	Studying the effectiveness of daily AIH, coupled with massed practice training, to improve UE function in individuals with chronic incomplete cervical SCI
VA Office of R&D Univ. of Miami NCT03780829	Repetitive AIH vs. Sham AIH combined with exercise (bimanual massed practice training) and/or the drug D-cycloserine or sham drug.	Age 18-80yr SCI C8 and above Veteran Finger Flex and Abd strength 1-4 Grasp small objects; precision index to thumb	Chronic SCI SCI≥1yr F/U 12wks	Not yet begun Miami 175 Subjects	Phase 1 RCT Crossover Double Blind	Grip Strength (Dynomometer) Pinch Strength (pinch gauge) Motor Evoked Potential Amplitude	Studying the interaction of AIH, exercise and the drug D-cycloserine on hand function in persons with chronic cervical level SCI who have some residual grasp in at least one hand

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Wroclaw Med Univ Nicholls Spinal Injury Foundation NCT03933072	Autologous olfactory ensheathing cells (OECs) and olfactory nerve fibroblasts (ONFs) obtained from patient's olfactory bulb; autologous sural nerve harvest. Preparation of Glial Neuropatch. Microsurgical reconstruction of the transected spinal cord with Glial Neuropatch-nerve bridges	16-65yr Age C5-T10 AIS A Complete transection of cord In active rehab	Time post-SCI NS F/U 2-3yr	Began 3/2016 Wroclaw, Poland 2 subjects	Phase 1-2 Open Label Single Group	ISNCSCI Berg Balance Deep Sensation, Proprioception WISCI, SCIM III MRI, neurophysiology	Autologous Bulbar Olfactory Ensheathing Cells and Nerve Grafts for Treatment of Patients with Spinal Cord Transection
Neuralstem, Inc. NCT01772810	Surgical injection of Neural Stem Cells into the area of SCI; 6 injections per patient; two dose cohorts 100,000 cells in 10µL/injection and 200,000 cells in 10µL/injection; patients receive immunosuppressive treatment for 3 months after implant	18-65yr Age Grp A: T2-T12 Grp B: C5-C7 AIS A Lives ≤500mi of Study Site	Chronic SCI 1yr≤SCI≤2yr F/U 5yr	Began 8/2014 San Diego, CA 8 subjects; now enrolling Grp B subjects	Phase 1 Open Label	Safety Incidence of Adverse Events Graft Survival (MRI evidence) Immune Suppress Effectiveness ISNCSCI exam	To determine safety of human spinal stem cell transplantation for treatment of paralysis and related SCI symptoms
Neuroplast NCT03935724	Autologous Bone Marrow-derived stem cells (Neuro-Cells) or placebo, delivered intrathecally via lumbar puncture, 6-8 weeks after SCI. Subjects initially receiving placebo receive Neuro-Cells 32-34 weeks after SCI.	18-65yr Age C6-T12 AIS A, B, C	Subacute SCI SCI 6-8wks F/U 12m	Not yet begun Denmark, Spain 70 subjects	Phase 2-3 RCT Placebo Controlled Double Blind	ISNCSCI Motor Index Scores AIS Sensory Scores	Clinical study of Neuro-Cells, an autologous stem cell product in patients with subacute SCI
Hospital Sao Rafael NCT02574572	Autologous bone marrow mesenchymal stem cell transplantation in patients with cervical chronic and complete spinal cord injury (location n.s.)	18-65yr Age C5-C7 AIS A	Chronic SCI≥12m F/U 12m	Began 10/2015 Brazil 10 subjects	Phase 1 Single Group Open Label	AE assessed by spinal cord MRI AIS Sensory Mapping Neuropathic Pain	Autologous Mesenchymal Stem Cells Transplantation in Subjects With Cervical Chronic Complete SCI
Hospital Sao Rafael NCT02574585	Autologous mesenchymal cells transplantation. Two percutaneous injections (location n.s.) of mesenchymal stem cells, with a 3-month interval between the injections; vs. randomly assigned control group without any specific intervention	18-65yr Age T1-L2 AIS A	Chronic SCI≥12m F/U 12m	Not yet recruit Brazil 40 subjects	Phase 2 RCT Parallel Group Open Label	AE assessed by spinal cord MRI AIS Sensory Mapping Neuropathic Pain	RCT for the evaluation of autologous mesenchymal stem cell transplantation in thoracolumbar chronic complete SCI
Stem Cells Arabia NCT02687672	Transplantation into the spinal cord of autologous bone marrow- vs. leukapheresis (from a sample of white blood cells)-derived stem cells.	5-50yr Age Level/AIS n.s.	Chronic SCI 6m≤SCI≤60m F/U 60m	Began 1/2016 Jordan 50 Subjects	Phase 2 RCT Parallel Group Open Label	ISNCSCI Urine & Stool Incontinence QoL Independence Questionnaire Safety (n.s.)	Comparing transplantation of purified autologous bone marrow- vs. leukapheresis-derived stem cells for patients with chronic SCI

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Pharmicell Co. Ltd. NCT01676441	Bone Marrow-derived autologous mesenchymal stem cells (cellgram-spine) surgically transplanted intrathecally and directly into spinal cord injury following laminectomy; Implant followed by 4 weeks of rehabilitation	16-65yr Age Cervical level AIS B Stable neuro after 1 m rehab	Chronic SCI SCI≥12m F/U 12m after surgery	Began 8/2008 S. Korea 32 subjects	Phase 2/3 Single Group Open Label	ISNCSCI ASIA Motor Score ASIA Sensory Score EMG, Neurophysiology MRI Adverse events	Ongoing study of autologous BM derived Stem Cells followed by 4 weeks of rehabilitation
Mayo Clinic NCT03308565	Single IT L4-5 level administration of 100 million autologous adipose-derived mesenchymal stem cells. The patient's adipose tissue is harvested from small abdominal or thigh incision, culture-expanded for 4-6 weeks, then transplanted via IT injection.	Age ≥18yrs SCI Level NS AIS A, B	Subacute-Chronic SCI≥2wk to 1yr F/U 96wks	Began 12/2017 Rochester, MN 10 subjects	Phase 1 Single Group Open Label	Safety/Adverse Events AIS MEP, SSEP MRI Lab Hematology/Chemistry	Autologous Adipose Derived Mesenchymal Stem Cells in the Treatment of Paralysis Due to Traumatic Spinal Cord Injury
Ferrer Internacional NCT02917291	Single intramedullary injection of FAB117-HC, a medicinal product containing human allogeneic adipose-derived adult mesenchymal stem cells in either 20 million or 40 million cell doses; Phase 2 includes untreated control group; treatment group receives highest tolerated dose from Phase 1	18-65yr Age T1-12 (Phase 1) T1-12 (Phase 2) AIS A (Phase 1), A, B (Phase 2) ZPP no lower than T12	Acute SCI Phase 1: 72-120hr Phase 2: 24-72hr F/U 12m	Began 12/2016 Spain 46 subjects	Phase 1/2 Randomized Parallel Group Double Blind	Safety/Adverse Events ISNCSCI SCIM III SSEP MEP	Study of medicinal product containing allogeneic adipose-derived adult mesenchymal stem cells pulsed with H_2O_2, injected into SCI during clinical decompressive spine surgery
BioArctic Neuroscience AB NCT02490501	Surgical implantation of SC0806 (a biodegradable device with heparin-activated FGF1 and peripheral nerve implants); both surgical implant and control groups receive rehabilitation (walking training). Control subjects will be offered SC0806 treatment after completion of their rehabilitation	18-65yr Age T2-T11 AIS A	Chronic SCI 4m-10yrs post SCI F/U 18m	Began 6/2015 Sweden 27 subjects	Phase 1/2 Parallel Group RCT	Safety/Adverse Events MEP improvement	Rehabilitation-controlled RCT studying SC0806 (a biodegradable device with heparin-activated FGF1 and nerve implants)
Sun Yat-Sen Univ. 3rd Affil. Hospital NCT03521336	IT administration of 1x 106 umbilical cord mesenchymal stem cells per kg, every month for 4 months vs. sham IT administration of saline every month for 4 months	18-65yr Age SCI Level NS AIS A, B, C, D	Subacute SCI 2w≤SCI≤2m F/U 12m	Began 1/2018 China 84 subjects	Phase 2 RCT Parallel Group Single Blind	ISNCSCI IANR-SCIRFS EMG Change in Residual Urine (US) Adverse Events	IT transplantation of umbilical cord mesenchymal stem cells in patients with sub-acute SCI
Sun Yat-Sen Univ. 3rd Affil. Hospital NCT03521323	IT administration of 1x 106 umbilical cord mesenchymal stem cells per kg, every month for 4 months vs. sham IT administration of saline every month for 4 months	18-65yr Age SCI Level NS AIS A, B, C, D	Early Chronic 2m≤SCI≤12m F/U 12m	Began 1/2018 China 66 subjects	Phase 2 RCT Parallel Group Single Blind	ISNCSCI IANR-SCIRFS EMG Change in Residual Urine (US) Adverse Events	IT transplantation of umbilical cord mesenchymal stem cells in patients with early stage chronic SCI

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Sun Yat-Sen Univ. 3rd Affil. Hospital NCT03505034	IT administration of 1x 106 umbilical cord mesenchymal stem cells per kg, every month for 4 months	18-65yr Age SCI Level NS AIS A, B, C, D	Late Chronic SCI>12m F/U 12m	Began 1/2018 China 43 subjects	Phase 2 Single Group Open Label Cohort Study	ISNCSCI IANR-SCIRFS EMG Change in Residual Urine (US) Adverse Events	IT transplantation of umbilical cord mesenchymal stem cells in patients with late stage chronic SCI
StemCyte, Inc Amarex NCT03979742	Umbilical Cord Blood (UCB) Mononuclear Cell transplant into injured spinal cord combined with either 6-weeks of oral lithium carbonate or placebo followed by the locomotor training for up to 6 hours a day, 6 days a week, for 3-6 months. Comparator group: no surgery, no transplant, no lithium, does get locomotor training	Age 18-60yrs SCI C5-T11 (1st 3 subjects each center T1-T11) AIS A	Chronic SCI SCI≥12m F/U 48wks	Not yet begun Multicenter New Jersey 27 Subjects	Phase 2 Parallel Grp 3 Arm Placebo Cont Double Blind RCT	WISCI II SCIM III ISNCSCI Kunming Locomotor Score Pain SSEP/MEP MRI/DTI Tractography	Study of UCB cell transplant into chronic SCI with/without lithium, combined with locomotor therapy
InVivo Therapeutics NCT03762655	Surgical implantation of a poly(lactic-co-glycolic acid)-b-poly(L-lysine) Neuro-Spinal Scaffold™ into the acutely injured spinal cord ("Scaffold Arm") vs. Standard of Care open spine surgery ("Comparator Arm")	16-70yr Age SCI T2-T12 AIS A Plan for standard-of-care open spine surgery ≤7 days after SCI	Acute SCI SCI≤7d F/U 24m	Began 1/2019 USA multicenter 35 participants	N/A (HDE Trial) RCT Parallel Group Single Blind (participant)	AIS NLI Bowel/Bladder/Sexual Function MRI ISNCSCI MRI	RCT of Neuro-Spinal Scaffold™ for Safety and Neurologic Recovery in Subjects with Complete Thoracic AIS A SCI
Chinese Acad. Sci Univ. of CAPF Soochow University NCT02510365	Collagen scaffold transplanted into spinal cord after acute spinal cord injury	18-65yr Age C5-T12 AIS A	Acute SCI SCI≤21d F/U 12m	Began 4/2015 Soochow, and Tianjin, China 20 subjects	Phase 1 Single Group Open Label	AIS SSEP, MEP Adverse Events	Functional Neural Regeneration Collagen Scaffold Transplantation in Complete Acute SCI
Chinese Acad. of Sci University of CAPF NCT02688049	Surgical implantation of NeuroRegen scaffold with either 10^7 mesenchymal stem cells or 10^7 neural stem cells into the spinal cord in patients with chronic spinal cord injury. All patients have surgical removal of spinal cord scar tissue, and have post-operative comprehensive rehabilitation	18-65yr Age C5-T12 AIS A	Chronic SCI Duration NS F/U 24m	Began 1/2016 *Enrolling by Invitation* Tianjin, China 30 Subjects	Phase 1/2 RCT Parallel Group Double Blind	AIS SSEP/MEP FIM MRI Bladder/Bowel Function Safety/Tolerability/AE	Study to assess the efficacy & safety of mesenchymal stem cells or neural stem cells combined with NeuroRegen scaffold transplantation in patients with chronic SCI
Chinese Acad. of Sci University of CAPF NCT02352077	Surgical implantation of NeuroRegen scaffold with Bone Marrow Mononuclear Cells or Mesenchymal Stem Cells after localized SCI scarring excised; followed by comprehensive rehabilitation, psychological and nutritional treatment	18-65yr Age C5-T12 AIS A	Chronic SCI Duration NS F/U 12m	Began 1/2015 China 30 Subjects *Enrolling by Invitation Only*	Phase 1 Single Group Open Label	Safety/Tolerability/AE AIS SSEP/MEP FIM MRI Bladder/Bowel Function	NeuroRegen Scaffold™ With Bone Marrow Mononuclear Cells or Mesenchymal Stem Cells for Chronic Spinal Cord Injury Repair—enrolling by invitation only

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Revised September 6, 2019 Listing 56 Trials

Sponsor/NCT	Intervention	Inclusion/ Exclusion Criteria	Treatment Timing & Follow-up	Enrollment	Phase of Study	Primary Outcome Other Outcomes	Comments
Chinese Acad. of Sci PLA Gen Hospital NCT02688062	NeuroRegen Scaffold™ with bone marrow mononuclear cell transplantation vs. intradural decompression and adhesiolysis in persons with chronic SCI	18-60yr Age Thoracic Level AIS A	Chronic SCI Duration NS F/U 24m	Began 1/2016 *Enrolling by Invitation Only* Beijing, China 22 subjects	Phase 1/2 RCT Parallel Group Double Blind	AIS SSEP/MEP FIM MRI Bladder/Bowel Function Safety/Tolerability/AE	RCT comparing NeuroRegen scaffold with BM mononuclear cells vs. intradural decompression with lysis of adhesions
Chinese Academy of Sciences University of CAPF NCT03966794	Functional neural regeneration collagen scaffold transplantation combined with epidural spinal stimulation (ESS). Three groups: 1) participants with prior functional scaffold implant with motor recovery receive ESS, 2) newly injured acute AIS A SCI receive scaffold and ESS, 3) chronic AIS A SCI receive scaffold and ESS	18-60yr Age C4-L1 AIS A	Acute/Subacute SCI≤14d Chronic SCI SCI≥6m F/U 24m	Began 5/2019 Tianjin, China 9 subjects	Phase 1/2 Non-random Parallel Group Open Label	AIS SSEP/MEP FIM MRI Bladder/Bowel Function Safety/Tolerability/AE	Study of the effect of adding epidural stimulation to implanted functional scaffold; combination intervention of scaffold and epidural spinal cord stimulation
U British Columbia NCT01579604	Supinator branch to posterior interosseous nerve transfer	≥18yr Age Cervical SCI 12m>SCI>6m ICSH 0-5	Chronic SCI 12m>SCI>4m F/U 24m	Began 6/2012 Vancouver, BC 10 Subjects	Phase 4 RCT Parallel Group Open Label	Upper Extremity Strength (Manual Muscle Testing) Active Range of Motion DASH scale GRASSP	Study of early peripheral nerve transfer for improving UE strength in patients with tetraplegia
Washington U. School of Med. NCT04023591	Upper extremity nerve transfer surgery followed by 1-2/week X 48 months of Occupational Therapy/Hand Therapy for motor re-education	Age 18-65yrs 3 m of non-op rehab therapy Stable neuro exam ICSH 0-4 AIS A, B	Chronic SCI 3m≤SCI≤36m F/U 48m	Not yet begun Multicenter N. America 70 Subjects	Phase N/A Single Group Open Label	Upper Extremity Strength (Manual Muscle Testing) Dynamometry DASH SCI-QoL GRASSP	Multicenter trial of nerve transfer surgery and Occupational/Hand therapy in persons with chronic tetraplegia
U of Texas Med Center, Houston NCT03451474	Upper extremity nerve transfer surgery followed by hand/occupational therapy to retrain motor skills	Age 18-65yr Cervical SCI AIS A, B, C ICSH 0-4 Lives in Houston area	Chronic SCI SCI>6m F/U 24m	Began 4/2018 Houston, TX 10 Subjects	Phase N/A Single Group Open Label	GRASSP Manual Muscle Testing UE UEMS EMG SCIM III DASH SF-36	Study for restoration of hand function utilizing Nerve Transfer Surgery in persons with chronic cervical SCI
Burke Med. Research Inst. NCT04041063	Nerve transfer surgery followed after one year by upper limb interactive robotic training with InMotion Hand™ Robot for 18 one hour sessions (3x/week, 6 weeks). A comparator control group will have upper limb interactive robotic training delayed until one year + 6 weeks after surgery	Age 18-50yrs Tetraplegia Motor impairment in hand-stable 6m AIS A, B, C, D	Chronic SCI SCI≥6m F/U 1yr+6-12wks (following training)	Began 7/2019 White Plains, NY 14 Subjects	Parallel Group RCT Crossover Single Blind	Box & Blocks Test SCIM III Modified Ashworth Transcranial Magnetic Stim (Resting Motor Threshold, MEP amplitude)	Effects of rehabilitation following nerve transfer surgery on dexterous hand movements and cortical motor map changes

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Sponsor/NCT	Intervention	Inclusion/ Exclusion Criteria	Treatment Timing & Follow-up	Enrollment	Phase of Study	Primary Outcome Other Outcomes	Comments
Tokyo University NCT01485458	Early (<24h) vs. Delayed (>2wk) Decompression surgery for acute cervical SCI in patients with cervical canal stenosis without bony injury	20-79yr Age Cervical below C5 AIS C	Acute/Subacute Admitted within 48 hours of SCI F/U 1yr	Began 12/2011 Japan 100 subjects	Phase N/A RCT Open Label	ISNCSCI SCIM walking ability SF-36, Pain Symptom Inventory AE	Test of whether timing of spinal cord decompression is associated with neurological outcome in SCI without fracture/dislocation
Nantes Univ Hosp NCT02673320	Randomized assignment to early (within 48hr) vs. delayed (at 15 days) spinal decompression surgery	≥18 yr Age C2-T1 AIS A-D Contusive SCI on MRI with narrow canal	Acute SCI SCI eligible for surgery within 48hrs F/U 2yr	Began 7/2016 France Multicenter 72 subjects	Phase N/A RCT Parallel Group Open Label	ISNCSCI TMS, UEMS, WISCI II SCIM III SF-36 MRI AE/Complications	RCT to compare SCI outcomes of decompressive spine surgery within 48hr vs. surgery performed at 15 days
Peking University People's Hospital NCT03103516	Early (≤24h) vs. Delayed (>24hr) epidural decompression spinal surgery. Group assignment determined by patient's condition and operation time; i.e. non-randomized trial	Age 16-85yrs SCI Level NS AIS NS	Acute SCI Time NS F/U 6m	Not yet begun Beijing China 200 Subjects	Phase N/A Non-random Parallel Group Single Blind	UEMS, LEMS AIS AE	Non-randomized trial comparing neurological outcomes in persons with acute SCI undergoing early vs. delayed epidural decompression

This table is abstracted from the clinical trial registration website www.clinicaltrials.gov using the search term "Spinal Cord Injuries" and is updated periodically. The most recent update occurred September 6, 2019 at which time the www.clinicaltrials.gov search found a total of 1092 SCI trials. Of these, there were 321 interventional trials that are enrolling or not-yet-enrolling. Review of these 321 studies for those that are targeting improvement in neurological or related functional outcomes yielded the current list. The table includes 56 SCI trials from the search that: 1) are currently actively recruiting or soon-to-be recruiting subjects; 2) are interventional (testing an intervention/treatment) using drugs, cell therapies, surgery, hypoxia, hypothermia, hyperbaric oxygen, low energy extracorporeal shock wave therapy, or near infrared laser light; and 3) targeted sensorimotor neurological or related functional improvement of the spinal cord as outcome measures. Trials meeting these criteria are included if sufficient information is available on the clinicaltrials.gov webpages to adequately determine basic protocol design, the nature of the intervention, its delivery method, and relevant outcome measures.

Interventional clinical trials are routinely registered on www.clinicaltrials.gov based on legal requirements* and because scientific journals may require registration for publication of the trial results. The clinicaltrials.gov website is the largest repository of current and past clinical trials for all diseases and disorders—as of September 6, 2019 the registry contained information on 315,659 trials including research conducted in all 50 states in the USA and 209 countries. Investigators may choose not to register some early phase trials and those testing behavioral interventions, even though they may be important and scientifically rigorous studies.

*U.S. Public Law 110-85 requires the registration and reporting of results of "certain applicable clinical trials," i.e., controlled interventional clinical trials that are subject to FDA regulation and that involve a Drug or Biologic (other than Phase I investigations), or Device (other than small feasibility studies); http://prsinfo.clinicaltrials.gov/fdaaa.html.

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More detailed information on individual trials may be accessed by using the NCT number found in the first column of the table. All trials registered with www.clinicaltrials.gov are assigned a registration number that begins with NCT (e.g. NCT01321333). Entering the NCT number into the search field of www.clinicaltrials.gov or www.google.com will access the webpage describing the trial, the study centers, and contact information in more detail. When an electronic version of the tables is used (e.g. when downloaded as a pdf file from www.scope-sci.org), the webpages describing a specific trial can be directly accessed by using the hyperlink (left Click to follow the link) of the NCT number in the table. Listing of a clinical trial on the clinicaltrials.gov website does not reflect an endorsement by SCOPE or the National Institutes of Health. Information appearing on the clinicaltrials.gov website is provided by study sponsors/investigators and is not verified by SCOPE or clinicaltrials.gov for scientific validity or relevance. Before volunteering to participate in a clinical trial, patients are urged to discuss all options with their healthcare provider and other trusted advisors.

Terms/Abbreviations

AIH: Acute Intermittent Hypoxia. Short duration (<2 min) exposure to breathing reduced oxygen concentration levels (~10% inspired oxygen), with alternating exposures to breathing air with normal oxygen concentration (~21% inspired oxygen). This intervention is commonly delivered with a breathing mask device as a series of multiple brief hypoxic exposures alternating longer breathing exposure to "room air" with normal oxygen content.

AIS: the ASIA (American Spinal Injury Association) Impairment Scale is a component of the ISNCSCI that classifies the degree of motor/sensory sparing below the level of injury. The AIS scale ranges from A (most severe, complete injury with no sparing of sensory/motor function in the sacral segments S4-S5 that innervate the anus/rectum) to E (normal). AIS B describes sensory only sparing; AIS C describes sensory and very weak motor sparing; AIS D describes sensory and stronger but not normal motor sparing.

Ashworth/Modified Ashworth: a scale used to measure spasticity severity

Barthel Index: a measure of performance in Activities of Daily Living (ADL) and Mobility

Box and Block Test: a test of manual dexterity—how many blocks a person can grasp and transfer in one minute.

Central Cord Syndrome/Cervical Central Cord Syndrome: motor incomplete cervical SCI in which the upper extremities are significantly more impaired than the lower extremities

COPM: Canadian Occupational Performance Measure

DASH: Disability of Arm, Shoulder, Hand scale is a measure of the upper extremity function

EMG: the electromyogram refers to a physiological test of muscle and nerve function.

ESWT: extracorporeal shock wave therapy. Delivery of sound wave energy to the spinal cord using a transducer applied to the skin (extracorporeal i.e. outside of the body).

FIM: the Functional Independence Measure was developed to measure the burden of care in persons who were not independent in ADL, hygiene/self-care, and mobility. The FIM and its subscales have been used as an outcome measure of a research subject's independence in the performance of a variety of specific activities.

Frankel Scale: an older scale for classifying severity of injury that was modified in 1992 to create the AIS.

F/U: follow-up

GRASSP: Graded Redefined Assessment of Strength, Sensibility, and Prehension is a clinical measurement of upper limb function for use in person with tetraplegia (quadriplegia).

HDE: Humanitarian Device Exemption is a U.S. Food & Drug Administration (FDA) application that, if successful, authorizes the applicant to market a Humanitarian Use Device (HUD) subject to certain profit and use restrictions. See: https://www.fda.gov/downloads/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/UCM110203.pdf

HUD: Humanitarian Use Device is a designation of the U.S. FDA for medical devices intended to benefit patients in the treatment or diagnosis of a disease or condition that affects or is manifested in fewer than 4,000 persons in the United States per year. HUDs cannot be sold for profit, except in narrow circumstances, and they can only be used in a facility after an Institutional Review Board has approved their use in that facility except in certain emergencies.

IANR-SCIFRS: the International Association of Neurorestoratology-Spinal Cord Injury Functional Rating Scale. Changes in motor and sensory scores assessed by IANR-SCIRFS scale (total score range from 0 to 51, higher values represent a better outcome)

ICSH: International Classification for Surgery of the Hand in Tetraplegia is a clinical measure of hand function used by surgeons performing reconstructive surgery to improve function in persons with tetraplegia.

IRB: Institutional Review Board is a multidisciplinary group that has been formally designated by an institution such as a hospital to review, approve and monitor biomedical research involving human subjects.

ISAFSCI: International Standards to document remaining Autonomic Function after Spinal Cord Injury.

ISNCSCI: International Standards for Neurological Classification of Spinal Cord Injury—sometimes referred to as the ASIA (American Spinal Injury Association) standards. This refers to the accepted international standards for performing motor/sensory physical examination of persons with spinal cord injury and the classification scheme for documenting the neurological level and the severity (completeness) of injury.

IT: intrathecal, within the subarachnoid space surrounding the spinal cord—e.g. administration of a drug into the subarachnoid space which contains the cerebrospinal fluid (CSF)

IV: intravenous—administration of a drug by vein

Kinematics: analysis of movement

Kunming Locomotor Scale: a 10-grade Roman numeral locomotion scoring system describing ability to stand, ability to walk, and required support/devices.

N/A: not applicable

NS: not specified

Penn Spasm Frequency Scale: a measure of spasticity based on frequency of spasm occurrence

Phase of Study: Clinical trials usually progress in phases from 1 to 4. (Note: trials that are not on the path to FDA/regulatory approval (e.g. trials of surgical techniques or rehabilitation therapies) may not have a phase designation.)

1. **Phase 1 trials are usually first-in-human or first-in-disease/condition experiments that are intended to demonstrate feasibility (can it be done), safety (is it reasonably safe), and tolerability (are the side effects tolerable). Phase 1 trials usually do not include a comparison control group and as such, do not provide direct evidence of the interventions efficacy. Phase 1 trials usually enroll a small number of subjects and are commonly done at a single study center but may use a small number of collaborating centers.**
2. **Phase 2 trials follow successful completion of Phase 1. Phase 2 trials are used to develop information on intervention administration (how to give), dose (how much to give), timing (when and how long to give), effect of the intervention on the body (what does it do, beneficial or harmful). Phase 2 trials commonly utilize multiple study centers, many subjects, and include a randomized control group to provide direct information about efficacy and safety of the intervention. Phase 2 trials enable refinement of how to administer the intervention and how to measure its beneficial effects (what Outcome Measurement to use).**
3. **Phase 3 trials are conducted using the refined protocols developed from Phase 2 trials. Phase 3 trials are often termed "pivotal" studies because they are sufficiently well-designed and rigorously conducted that their results, if positive, can be used to make the case for regulatory approval (e.g. trials that lead to FDA approval for clinical use). Phase 3 trials almost always enroll large numbers of subjects (in the hundreds or more), use multiple study centers, and randomized control group design (with placebo control and double blinding if feasible). The FDA generally requires two successful confirmatory Phase 3 trials of an intervention for approval.**
4. **Phase 4 trials are conducted after regulatory (e.g. FDA) approval to gather additional safety and efficacy data.**

Pharmacokinetics: study of the absorption, distribution, metabolism, and excretion of drugs; commonly involving periodic sampling of bodily fluids (e.g. blood, serum, CSF, urine) to determine drug concentration changes over time.

Open Label: a trial in which there is no attempt to conceal the identity of the intervention from the subjects; i.e. there is no "blinding" or "masking" of the intervention—the subjects know that they are receiving either an "active ingredient" or a placebo.

RCT: Randomized Controlled Trial—a clinical trial in which subjects are randomly (like flipping a coin) assigned to either receive the active treatment or an alternative (control). Well-designed RCT's minimize the influence of variables other than the intervention that might have an effect on the desired outcome. For this reason, they provide the best evidence of efficacy and safety. The most rigorous RCT's utilize a placebo (inactive) control group and blinding (concealing active vs. control assignment) to minimize bias in the interpretation of study results.

Residual Urine: Changes in residual urine measured after voiding by ultrasound test (volume of urine in mL, lower values represent a better outcome)

ROM: Range of Motion

SCIM/SCIM II/SCIM III: the Spinal Cord Independence Measure is a measure of a person's ability to perform certain activities independently

SQ: subcutaneous—administration of a drug by injection beneath the skin

SF-36: the Short Form-36 is a patient-reported survey of health status. The SF-36 is commonly used as a measure of Health-Related Quality of Life

TMS/UEMS/LEMS: Total Motor Score/Upper Extremity Motor Score/Lower Extremity Motor Score are components of the ISNCSCI that include the ASIA Motor Index Score (the TMS) and the sub-components of the UEMS and the LEMS which are commonly analyzed and reported separately.

Tardieu Scale: test of spasticity by assessing muscle resistance to passive movement at both slow and fast speed.

VAS: Visual Analogue Scale—a scale commonly used to assess the severity of pain

9 Hole Peg Test: a test of manual dexterity

6MWT: 6 minute walk test. An assessment of the distance that the subject can walk in 6 minutes.

10MWT: 10 meter walk test. An assessment of the time required to walk 10 meters.