Author Year Country Research Design PEDro Score Sample Size	Methods	Outcomes
Halim et al., (2014) India RCT PEDro=7 N=74	**Population:** Mean age: not specified; Gender: males=35, females=2 (group I), males=25, females=12 (group II); Level of injury: not specified; Severity of injury: American Spinal Injury Association Impairment Scale (AIS) A-D. paraplegia=32, tetraplegia=42. **Chronicity**: Only individuals with acute SCI (≤ 5 days) were studied for a 2-week duration following injury. **Chronicity:**<7 days post SCI. **Intervention:** Individuals were randomly allocated to receive only physical measures "like compression stockings" (group I), or low molecular unfractionated heparin (LMWH) (Enoxaparin) 40 mg subcutaneously once daily starting from the day of admission along with physical measures as in group I (group II). **Outcome Measures**: Incidence of deep vein thrombosis (DVT) or pulmonary embolism (PE). **Method of Diagnosis:** Clinical examination and color Doppler venous ultrasonography.	**Timing of DVT onset:** Screening for DVT was done in all subjects at the end of 2 weeks +/-2 days following injury (earlier or later if symptoms arose). **Incidence of DVT:** 1. Incidence of DVT was 21.6% in group I and 5.4% in group II; this difference was significant (p=0.041). 2. 6/8 individuals in group I had asymptomatic DVT, whereas no asymptomatic DVT events occurred in group II. 3. No PE events occurred overall. 4. Pharmacological prophylaxis decreases the incidence of DVT in acute SCI individuals.
Spinal Cord Injury Thromboprophylaxis Investigators (2003a) USA RCT PEDro=9 $N_{Initial}$=476; N_{Final}=107	**Population:** Mean age=40.6 yr (unfractionated heparin (UFH)-intermittent pneumatic compression (IPC) group), mean age=38.5 yr (Enoxaparin group); Gender: males=79.6% (UFH-IPC group), males=89.7% (Enoxaparin group); Level of injury: not specified; Severity of injury: American Spinal Injury Association Impairment Scale (AIS) A-D. **Chronicity**: All individuals were studied beginning within 72 hr of sustaining injury and monitored for approximately 2 weeks during acute treatment (mean=13.4 days for UFH-IPC group, mean=14 days for Enoxaparin group). **Intervention:** Individuals were assigned to receive either low-dose UFH (5000 IU	**Timing of DVT onset**: DVT/PE screening/data collection was performed at the end of the 2-week acute treatment phase or within 2 days of the last dose of acute-phase medication. **Incidence of DVT:** 1. Incidence of DVT was 44.9% for UFH-IPC group versus 60.3% for Enoxaparin group; non-significant difference (p=0.11). 2. Incidence of PE was 18.4% for UFH-IPC group, significantly higher than 5.2% of individuals in the Enoxaparin group (p=0.03). 3. Among all randomized individuals, the incidence of major bleeding was 5.3% for low dose unfractionated heparin-IPC

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	subcutaneously every 8 hr) plus IPC (used at least 22h/day), or only Enoxaparin (30 mg subcutaneously every 12 hr). **Outcome Measures:** Incidence of deep vein thrombosis (DVT), pulmonary embolism (PE) and major bleeding. **Method of Diagnosis:** Doppler ultrasonography, venography, ventilation-perfusion lung scanning, spiral computed tomographic scanning, and pulmonary angiography.	group versus 2.6% for Enoxaparin group (p=0.14).
Spinal Cord Injury Thromboprophylaxis Investigators (2003b) USA Prospective Controlled Trial $N_{Initial}$=172; N_{Final}=119	**Population:** *LDUH* (n=60): Mean age=34 yr; Gender: males=47, females=13; Level of injury: paraplegic=18, tetraplegic=32; *Enoxaparin* (n=59): Mean age=30.5 yr; Gender: males=53, females=634; Level of injury: paraplegic=15, tetraplegic=34. **Chronicity:** 2 weeks post SCI. **Intervention:** Continuation of study 2003a above. Individuals previously receiving low dose unfractionated heparin (LDUH) continued on this regimen. Those previously on the enoxaparin had an increase in dosage to 40mg. **Outcome Measures:** Deep venous thrombosis (DVT), pulmonary embolism (PE), major bleeding.	1. New DVT was demonstrated in 13/60 LDUH versus 5/59 enoxaparin individuals (p=0.052).
Green et al., (1982) USA RCT PEDro=7 $N_{Initial}$=28; N_{Final}=27	**Population:** Gender: males=24, females=4; Severity of injury: complete=28. **Chronicity:**<1 mo post SCI. **Intervention:** Subjects were randomized to one of two regimens: external pneumatic calf compression (EPCC) alone (n=15), or EPCC combined with aspirin (ASA) 300 mg bid and dipyridamole (Dip) 75mg bid (n=13). **Outcome Measures**: Incidence of deep venous thrombosis (DVT); Factor VIII coagulant activity.	1. Thrombi developed in 6/15 individuals treated solely with EPCC, and in 3/12 receiving EPCC+ASA/Dip (p<.100). 2. Factor VIII levels of individuals treated with EPCC alone as compared to EPCC+ASA/Dip were higher.
Giorgi Pierfranceschi et al., (2013)	**Population:** Mean age=40.3 yr; Gender: males=80, females=14; Level of injury: not specified; Severity of injury: paraplegia=52, tetraplegia=42.	**Timing of DVT onset**: All VTE events occurred after a median of 15 days from SCI; 90.9% of VTE events occurred during the first 3 mo after

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Italy Cohort N=94	**Chronicity:** Individuals were monitored during their stay in the neurosurgery unit (NSU, median=20 days after injury) and rehabilitation unit (RU, median=6 mo, admitted after NSU discharge). **Intervention:** Individuals received prophylactic thigh-length graduate compressive stockings plus low molecular unfractionated heparin (LMWH) (Enoxaparin 4000 U daily or Dalteparin 5000 U daily) within 72 hr upon admission to the RU after neurosurgery (which occurred 48-72 hr after trauma). **Outcome Measures:** Incidence of deep vein thrombosis (DVT) or pulmonary embolism (PE). **Method of Diagnosis:** Compression ultrasonography, color Doppler ultrasonography, perfusion lung scintigraphy, and computed tomography pulmonary angiography.	SCI. Of 22 VTE events, 59.1% were diagnosed during NSU stay, 27.3% were diagnosed within one week of RU admission, 9% were diagnosed during RU stay, and 5% were detected during follow-up after rehabilitation discharge (>6mo). **Incidence of DVT:** 1. 23.4% of individuals had VTE events (22 individuals; 19 DVT, 2 PE, 1 DVT/PE).
Germing et al., (2010) Germany Pre-Post N=139	**Population:** Age range=19-90 yr; Gender: Males=63.5%; Level of injury: not specified; Severity of injury: tetraplegia=68, paraplegia=71. **Chronicity:** All individuals were studied beginning within the first 36 hr of admission and monitored for 21 days. **Intervention:** All individuals received low molecular unfractionated heparin (LMWH) (Enoxaparin) 40 mg subcutaneously and compression stockings. **Outcome Measures:** Incidence of and localization of deep vein thrombosis (DVT). **Method of Diagnosis:** Color duplex ultrasonography.	**Timing of DVT onset**: DVT screening was performed within the first 36 hr after admission, and after 7 and 21 days. DVT occurred in 38.1% of individuals within the first 36 hr, in 5% of individuals after 7 days, and in 2% of individuals after 21 days. **Incidence of DVT:** 1. The cumulative incidence of DVT was 45.3%. 2. 71.4% of DVTs were localized below the knee. 3. 84.5% of distal vein thromboses were in the Vena tibialis. 4. Recanalization occurred in 33.3% of individuals after 3 weeks of prophylaxis, no change in 30.2%, and residual thrombi in 36.5%.

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Maxwell et al., (2002) USA Case Series N=111	**Population**: Mean age=37.5 yr; Gender: males=81%, females=19%; Level of injury: not specified; Severity of injury: paraplegia=41.4%, tetraplegia=58.6%. **Chronicity**: Individuals were hospitalized and monitored for an average of 23 days following injury. **Intervention**: Retrospective review of individuals using sequential compression devices alone or in combination with 5000 IU low dose unfractionated heparin (LDUH) subcutaneously every 12 hr or low molecular unfractionated heparin (LMWH) (Enoxaparin) 30 mg subcutaneously every 12 hr. **Outcome Measures:** Incidence of deep vein thrombosis (DVT) or pulmonary embolism (PE). **Method of Diagnosis:** Venous duplex ultrasonography.	**Timing of DVT onset**: Screening for DVT was performed on average 2.3 times during each admission. No other information was provided. **Incidence of DVT:** 1. The incidence of DVT and PE in individuals using compression alone was 7.1% and 2.4%, respectively. 2. The incidence of DVT and PE in individuals using compression and LDUH was 11.1% and 2.8%, respectively. 3. The incidence of DVT and PE in individuals using compression and LMWH was 6.9% and 0%, respectively. 4. No significant difference was found among these groups ($p>0.05$).
Aito et al., (2002) Italy Pre-Post N=275	**Population:** Mean age=41.3 yr (early admitted individuals (EAP)), mean age=42.3 yr (late admitted individuals (LAP)); Gender: males=81, females=20 (EAP), males=185, females=37 (LAP); Level of injury: not specified; Severity of injury: AIS A-D. **Chronicity:** Individuals were either EAP (within 72 hr from injury) or LAP (on average 12 days after injury, range=8-28 days). **Intervention:** All individuals received permanently dressed gradient elastic stockings (GES), external sequential pneumatic compression and low molecular unfractionated heparin (LMWH) (Nadroparine) beginning within 72 hr post injury for EAP and	**Timing of DVT onset**: Examinations to detect the presence of DVT were performed immediately on admission, after 45-60 days and when requested. DVT was detected 25 and 29 days after injury in EAP; 60% of LAP had DVT detected on admission, 40% developed DVT within 6 weeks. **Incidence of DVT:** 1. DVT incidence was 2% for EAP. 2. DVT incidence was 26% for LAP. 3. 65% of detected DVTs had no clinical signs evident. 4. Individuals with ASIA A SCIs were more likely to develop DVTs (36%). 5. No comparisons between the two groups were done due to lack of homogeneity of treatment, however a dramatic

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	upon admission for LAP, lasting for at least 30 days from injury. **Outcome Measures**: Incidence of deep vein thrombosis (DVT). **Method of Diagnosis:** Color Doppler ultrasonography.	reduction in thromboembolic events was observed in the EAP group, supporting the use of pharmacological and mechanical treatment early after injury.
Deep et al., (2001) UK Case Series N=276	**Population:** Mean age=39.8 yr; Gender: not specified; Level of injury: cervical=150, thoracic and lumbar=126; Severity of injury: not specified. **Chronicity:** All individuals were studied beginning upon admission to the spinal injuries unit. **Intervention:** A retrospective review of SCI individuals receiving full length anti-thromboembolic stockings (up to mid-thigh) from admission to discharge and 40mg of Enoxaparin once daily beginning the day of injury or admission. **Outcome Measures:** Incidence of deep vein thrombosis (DVT) or pulmonary embolism (PE). **Method of Diagnosis:** Venous ultrasonography, venography, ventilation-perfusion scanning, and computed tomography angiography.	**Timing of DVT onset:** DVT developed 8-30 days after discontinuing Enoxaparin in 6 individuals (which was stopped after 26-46 days); 1 episode of PE developed 33 days after discontinuing Enoxaparin (which was stopped after 56 days). **Incidence of DVT:** 1. 6 (2.2%) individuals developed DVT, 2 (0.7%) individuals developed DVT while still receiving Enoxaparin. 2. 2 (0.7%) of individuals developed PE (1 individual developed PE while still receiving Enoxaparin).
Merli et al., (1992) USA Case Control $N_{Initial}$=38; N_{Final}=36	**Population:** Age range=15-69 yr (control), age range=18-70 yr (treatment); Gender: males=11, females=6 (control), males=14, females=5 (treatment); Level of injury: not specified; Severity of injury: Frankel A-B. **Chronicity:** Individuals were studied beginning within 48 hr of acute SCI for the duration of the first 2 weeks following injury. **Intervention:** Individuals received external pneumatic compression with gradient elastic stockings (GES) and low dose unfractionated heparin (LDUH)	**Timing of DVT onset**: Screening was performed beginning within 18 hr of admission and daily thereafter for 2 weeks. **Incidence of DVT:** 1. 2 individuals (11%) in the treatment group developed a positive fibrinogen scan on days 6 and 8 of the study, only 1 individual (5.2%) was confirmed to have DVT by venography. 2. 6 individuals (35%) in the control group had positive fibrinogen scans for DVT, all of which were confirmed by venography.

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	5000 U subcutaneously every 12 hr (treatment group, n=19), and were compared to a group of individuals from a previous study receiving no treatment (control group, n=17). **Outcome Measures:** Incidence of deep vein thrombosis (DVT). **Method of Diagnosis:** 125 I fibrinogen scanning and venography.	3. The incidence of thrombosis was significantly lower in the treatment group compared to the control group (p=0.04). 4. A significant difference favouring the treatment group was found in terms of the extent of the clot (p=0.02).