

User's Handbook:



Model S300 Infant Bilateral



Model S301 Form III Single



Model S304 Form III Bilateral

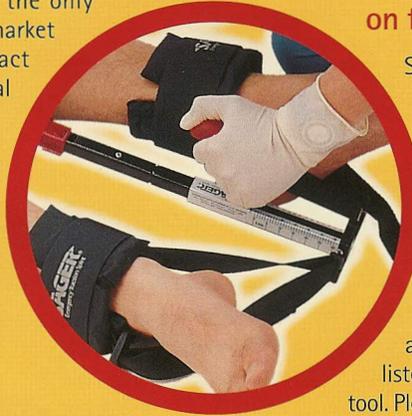


Quantifiable, Dynamic Traction™

Sager Emergency Traction Splints are the only traction splint available on the world market today that continuously shows the exact amount of traction being applied in real time. Besides being Quantifiable, the traction is Dynamic. The dynamic function permits the traction to decrease as the spasm releases. You always have the correct amount of safe traction.

Features and Benefits

- Quantifiable Dynamic Traction™
- Reduces further trauma and pain
- Promotes rapid recovery with fewer complications
- Fits adult or child (Models S301 and S304)
- Treats unilateral or bilateral fractures (Models S300 and S304). Model S301 treats unilateral fractures only.
- Applied in any patient position
- Straight in-line traction
- Does not extend beyond the feet of an adult (Model S304). If the patient fits – the Sager fits!
- Rapid one person application – frees other attendants for other patients or procedures
- Compact and lightweight – fits inside most backpacks
- No risk of overtraction and its detrimental effects to epiphyseal growth centers, knee edema, and excessive distraction of bone ends (Model S300)
- Stainless steel construction, years of use – practically indestructible
- Optimal patient comfort
- All Sager Splints come complete with all accessories required for use, including the Sager Carrying Case.



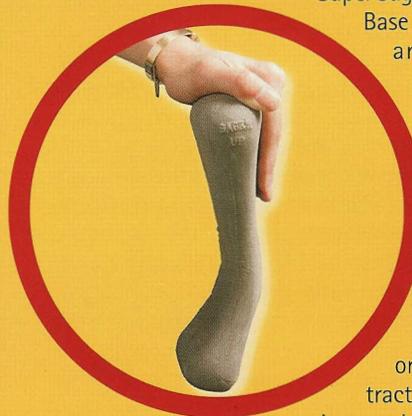
Indications and contraindications for the use of traction splints on femoral fractures.

Sager Splints are indicated for use on proximal third and mid-shaft femoral fractures.

All traction splints of any kind are contraindicated in the case of fractured pelvises unless the medical consultant indicates otherwise, or a MAST Trousers has been applied – in which case a Sager Splint can be applied over the MAST Trousers. Supracondylar fractures of the knee and ankle are also contraindicated. The contraindications listed above are only intended as a basic reference tool. Please defer to federal, state, and/or local protocol for definitive analysis and guidelines.

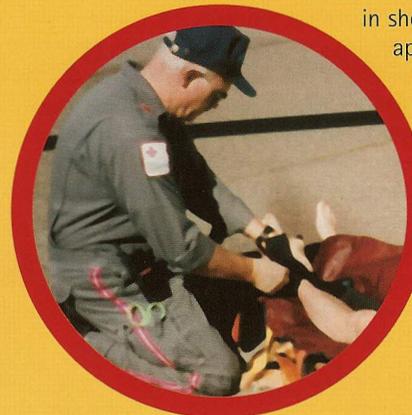
Sager Form III Articulating Base

Super Sager Form III Splints have a patented Articulating Base and Cushion which bends laterally for seating and exacting conformance to the ischial tuberosity. With a Sager Form III Splint, most perineal examinations and procedures can be performed with the splint in place – without compromising the comfort and safety of the patient!



Shock Trousers

If shock trousers are used in cases of multiple trauma, Sager Splints may be used either over or under the shock garment to rapidly provide traction and alignment. The optimum in treatment is to apply the Sager Splint prior to the application of the trousers. In the case where trousers have already been applied, the splint may also be placed over the trousers with good results. If the splint is applied first, the patient's fractured femur is stabilized and it becomes simple to clothe the patient in shock trousers. The shaft of the splint is closely applied to the medial side of the thigh and the Ischial Perineal Cushion is located so that it lies in the perineal opening of the garment. In addition, since the splint is applied closely to the leg, there is excellent contouring of the pressure bladder of the trouser around the shaft of the splint and over the leg. The possibility of tenting between the shock trouser and the splint shaft is so small that it becomes negligible.



Caution: This product contains Natural Rubber Latex, which may cause allergic reactions.

Position



Set



Secure



Model S300 – Infant Bilateral

Position

With the splint fully collapsed and the calibrated Pulley Wheel facing up, position the Sager S300 between the patient's legs resting the Ischial Perineal Cushion (the saddle) against the ischial tuberosity. In the case of a unilateral fracture, the splint should be placed in the perineum on the side of the injury. In bilateral fractures – excluding pelvic trauma – the side with the greatest degree of injury should be the side of placement. Apply the Abductor Bridle (thigh strap) around the upper thigh of the fractured limb. Tighten the strap snugly. Lift the Spring Clip to extend the inner shaft until the Pulley Wheel extends just beyond the heel. Note that the splint will still perform if an infant is so small that the Wheel extends further.

Set

Note the absence or presence of distal pulses, check for sensation. Position the Malleolar Harnesses (ankle harnesses) beneath the heels and just above the ankles. Fold down the number of Comfort Cushions needed to engage all of the ankle above the medial and lateral malleoli. Using the attached Hook and Loop Straps, wrap the ankle harness

Easy Application

around the ankle to secure snugly. **Note:** On very small children with mobile ankles, it is often necessary to apply tape over the ankle harness and to the skin of the heels to prevent slippage of the harnesses. Pull the Control Tabs to engage the ankle harness against the Pulley Wheel. This will ensure that the Cable Rings are pulled snugly against the soles of the feet. Apply Quantifiable Dynamic Traction™. With one hand holding the Outer Shaft, gently extend the Inner Shaft of the splint by pulling it out until the desired amount of traction is recorded on the calibrated Pulley Wheel. It is suggested to use 10% of the patient's body weight per fractured femur up to 3½kg (7½ pounds) for each leg. If bilateral fractures are present, the maximum amount would be 7kg (15 pounds), or as directed by the pediatric traumatologist. At the hollow of the knees, gently slide the large elastic Tensor Cravat through and upwards to the thigh, repeating with the smaller Cravats to minimize lower and mid-limb movement. **Note:** On small infants, one or both of the smaller Cravats may be sufficient for secure immobilization.



Secure

Adjust the Abductor Bridle (thigh strap) at the upper thigh making sure it is not too tight, but snug and secure, then firmly secure the elastic Tensor Cravats. Apply the Pedal Pinion (figure 8 strap) around the feet to prevent distal rotation. Note the absence or presence of distal pulses, check for sensation. Patient is now ready for transport. **Warning:** All operators should receive full and proper initial/refresher instruction sessions from a qualified person on detailed use of this equipment and regarding the particular situations in which it should be used.

Form III Series and Infant Bilateral: Size Guidelines

The multi-patented Form III Series will fit patients ranging from a four-year-old to an adult well over 2m (7 feet) in height.

With the Sager's unique design the patient's weight is not a problem in application. For infants and children, the multi-patented Infant Bilateral

Emergency Traction Splint will fit patients ranging in size from an infant to children six (6) years of age.

Childhood Fractures are Serious Injuries

The greatest incidence of femoral fractures in children occur around the age of three (3). Two-thirds of all femoral fractures and the most frequent fractures occur in the middle shaft of the femur¹. In North America, fractures of the femoral shaft are common in childhood and are serious injuries. Extensive soft tissue damage occurs and blood loss of 500ml, or up to 20% of blood volume, is common. Usually

the distal fragments are laterally rotated with variable amounts of overriding².

Clinically, pain, deformity, swelling at the fracture site, shortening of the limb and external rotation occurs. Application of traction splinting aligns the fragments, restores near normal tissue pressure in the limb, reducing further blood loss and tissue injury, and decreasing pain. Early

traction may minimize blood loss and reduce transfusions and possible complications.

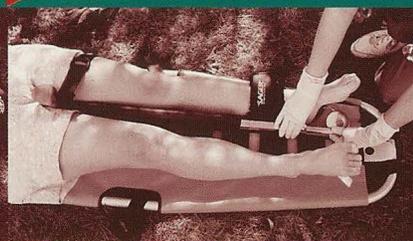
Reference:

- 1 Reisdorff, E. J., MD, FACEP, Roberts, M.R., MD, FACEP, J.G. Wiegenstein, MD, Pediatric Emergency Medicine, W. B. Saunders Company, 1993, pgs: 961-969
- 2 Rockwood, C.A. Jr., MD, Wilkins, K.E., MD, R.E King, MD, Fractures in Children, J.B. Lippincott Company, 1991, 1129-1132

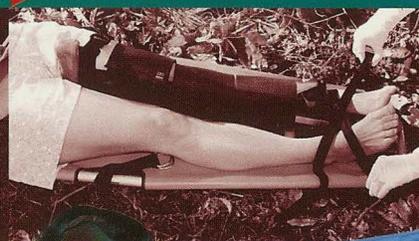
Position



Set



Secure



Model S301 – Form III Single

Position

Position the Sager S301 between the patient's legs, resting the Ischial Perineal Cushion (the saddle) against the ischial tuberosity, with the shortest end of the Articulating Base towards the ground. When positioning, note that the Pulley Wheel should be on the same side and towards the injured limb. Apply the Abductor Bridle (thigh strap) around the upper thigh of the fractured limb. Push the Ischial Perineal Cushion gently down while at the same time pulling the thigh strap laterally under the patient's thigh. This will seat the lower end of the cushion comfortably against the ischial tuberosity. Tighten the thigh strap snugly. Lift the Spring Clip to extend the inner shaft until the Pulley (Traction) Wheel is adjacent to the patient's heels.

Set

Note the absence or presence of distal pulses, check for sensation. Position the Malleolar Harness (ankle harness) beneath the heel and just above the ankle. Fold down the number of Comfort Cushions needed to engage all of the

ankle above the medial and lateral malleoli. Using the attached Hook and Loop Straps, wrap the ankle harness around the ankle to secure snugly. Pull Control Tabs on the ankle harness to shorten the ankle sling, pulling it up against the sole of the foot. Apply **Quantifiable Dynamic Traction™**. Extend the splint shaft to achieve the amount of traction desired, while observing the amount registered on the Traction Scale. It is suggested to use 10% of the patient's body weight per fractured femur up to 7kg (15 pounds). At the hollow of the knees, gently slide the large elastic Tensor Cravat through and upwards to the thigh repeating with the smaller Cravats to minimize lower and mid-limb movement.



Secure

Adjust the thigh strap at the upper thigh making sure it is not too tight, but snug and secure, and then firmly secure the elastic Tensor Cravats. Apply the Pedal Pinion (figure 8 strap) around the feet to prevent rotation. Note the absence or presence of distal pulses, check for sensation. Patient is now ready for transport. **Warning:** All operators should receive full and proper initial/refresher instruction sessions from a qualified person on detailed use of this equipment and regarding the particular situations in which it should be used.

Model S301, Super Sager Form III Single: Button Latch Operation

Application of Model S301, Super Sager Form III Single Leg Traction Splint is similar to that of its bilateral cousin – Model S304. However, the unilateral nature of the S301 requires that when positioning the splint, the Traction (Pulley) Wheel be

placed on it's side and towards the injured limb. To accomplish this, the S301 Outer Shaft must be disconnected from the Articulating Base and Cushion. Simply press the Button Release Latch and rotate the splint until the Traction Cable is on

the same side as the fractured femur. Reconnect the Outer Shaft to the Articulating Base and Cushion. Follow the easy application stages of "Position, Set and Secure" to complete the operation.



Press Button Release Latch.

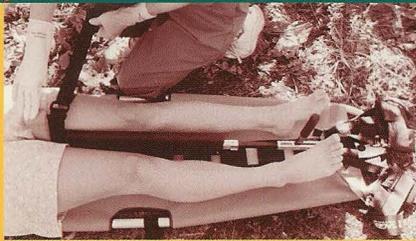


Rotate splint so that the Traction (Pulley) Wheel is on the same side as the injured limb. Reconnect the Outer Shaft to the Articulating Base and Cushion.

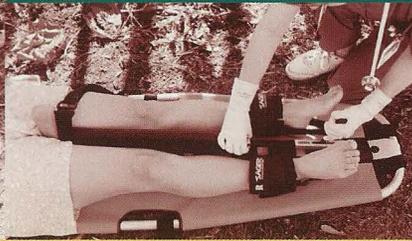


Release, Rotate, Reconnect.

▶ Position



▶ Set



▶ Secure



Model S304 – Form III Bilateral

▶ Position

Position the Sager S304 between the patient's legs, resting the Ischial Perineal Cushion (the saddle) against the ischial tuberosity, with the shortest end of the Articulating Base toward the ground. In the case of a unilateral fracture, the splint should be placed in the perineum on the side of the injury. In bilateral fractures, excluding pelvic trauma, the side with the greatest degree of injury should be the side of placement. Apply the Abductor Bridle (thigh strap) around the upper thigh of the fractured limb. Push the Ischial Perineal Cushion gently down while at the same time pulling the thigh strap laterally under the patient's thigh. This will seat the lower end of the cushion comfortably against the ischial tuberosity. Tighten the thigh strap snugly. Lift the Spring Clip to extend the inner shaft on the S304 until the Crossbar rests adjacent to the patient's heels.

▶ Set

Note the absence or presence of distal pulses, check for sensation. Position the Malleolar Harness (ankle harness) beneath the heels and just above the

ankles. Fold down the number of Comfort Cushions needed to engage all of the ankle above the medial and lateral malleoli. Using the attached Hook and Loop Straps wrap the ankle harness around the ankle to secure snugly. Pull Control Tabs to engage the ankle harness tightly against the Crossbar. Apply Quantifiable Dynamic Traction™. Grasp the padded shaft of the S304 with one hand and the Traction Handle with the other; gently extend the inner shaft until the desired amount of traction is recorded on the Traction Scale. It is suggested to use 10% of the patient's body weight per fractured femur up to 7kg (15 pounds) for each leg. If bilateral fractures are present, the maximum amount would be 14kg (30 pounds). At the hollow of the knees, gently slide the large elastic Tensor Cravat through and upwards to the thigh repeating with the smaller Cravats to minimize lower and mid-limb movement.



▶ Secure

Adjust the thigh strap at the upper thigh making sure it is not too tight, but snug and secure, then firmly secure the elastic Tensor Cravats. Apply the Pedal Pinion (figure 8 strap) around the feet to prevent rotation. Note the absence or presence of distal pulses, check for sensation. Patient is now ready for transport. **Warning:** All operators should receive full and proper initial/ refresher instruction sessions from a qualified person on detailed use of this equipment and regarding the particular situations in which it should be used.

Model S304: Malleolar Harnesses and Unilateral Fractures

Even with a unilateral fractured femur, it is recommended that the ankle harness be attached to the uninjured limb (without tightening the Control Tabs). This provides padding against the splint. After traction

has been applied, apply the Tensor Cravats to bind both legs to the splint – you will not be applying traction to the uninjured limb and will give the legs superior stability during transport.



Small Package. Big Value. Low Price.

Super Sager Combo Pac(s).

Imagine being able to treat 99% of all patients and 93% of the most common fracture types with one unique combination of traction splints! Could traction splinting really be this easy, this simple?

We're happy to say that YES it can! Super Sager Combo Pac(s) enable just that – you can treat infants and children up to age six (6), and children and adults – age four (4) and up (5th to 99th percentile). Even better, Super Sager Combo Pac #2 enables you to treat bilateral fractures on infants, children and adults (6 times the potential of all Ischial Pad type traction splints). Traction splinting doesn't get any better than this!



Super Sager/Combo Pac #1

features the S301 Form III Single and the S300 Infant Bilateral.



Super Sager/Combo Pac #2

features the S304 Form III Bilateral and the S300 Infant Bilateral. The adult/child and infant splints are contained in one forest green Sager Carry Case (the infant model is stored in a specially designed inside pocket).

Sager Components

The splint proper is manufactured from 303 stainless steel. The Sager Form III Series Articulating Base is comprised of Dupont's Crastin Polyester Resin. The Form III Shaft Cushion is manufactured from Closed Cell CPE (Chlorinated Polyethylene) Foam. The S300's outer shaft is encased in a vinyl form-fitting cover.

All Sager Splints come complete with all components and accessories required for use, including;

- One Carrying Case
- One Abductor Bridle (thigh strap)
- One Splint

- One Tensor Cravat Kit
- One Pedal Pinion (figure 8 strap)
- One Malleolar Harness Set (ankle harness)



Additional Sager Facts

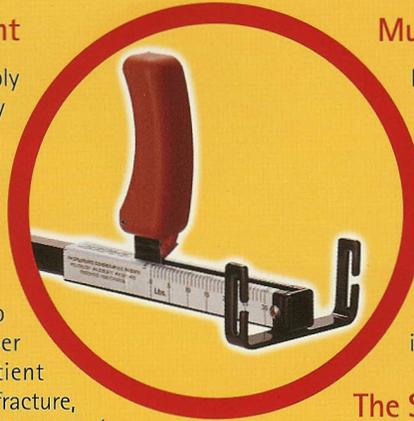
Recommended traction amount

How much traction should I apply? Apply the amount of traction recommended by your medical consultant, or that required by protocol. For adults, the American Academy of Orthopedic Surgeons recommends gentle traction to a maximum of 7kg (15 pounds) per fractured femur (14kg (30 pounds) for a bilateral fracture). A general rule of thumb is 10% of the patient's body weight per fractured femur. For example; if a patient weighing 45kg (100 pounds) has a single fracture, the appropriate amount of traction would be 4½kg (10 pounds). If that same person has a bilateral fracture, 9kg (20 pounds) would be estimated. The S304 Sager Splint is designed to register a maximum of 14kg (30 pounds) of traction. There are rare circumstances, such as patients who have highly developed muscles, where the initial traction of more than the maximum of 14kg (30 pounds) is required. This is easily accomplished by extending the splint shaft beyond the 14kg (30 pounds) stop, increasing the traction beyond the maximum registered.

The Sager S300 Splint is designed to register a maximum of 7kg (15 pounds) of traction. For infants and children, the maximum per fractured femur would be 3½kg (7½ pounds); 7kg (15 pounds) for bilateral fractures.

Comfort

How comfortable are Sager Splints against male and female genitalia? The Ischial Perineal Cushion of the splint rests against the ischial tuberosity and with natural genital mobility the male genitalia can be checked and moved to ensure it is not under any pressure. During actual accident situations the clothing should be opened, cut and/or removed during the general assessment procedures. In practice trials, loose clothing should be worn to enable genital mobility. (Note: The structures used and pressed on are the same as sitting on a bicycle seat.)



Multiple Fractures

If a patient has multiple fractures, femur as well as tibia-fibula fractures, use of the Sager is recommended. In the case of ankle fractures along with a femur fracture, an air splint should be placed over the ankle with the Sager Malleolar Harness (ankle harness) applied over the air splint. This method was developed by innovative paramedics to provide traction with alignment and immobilization of all fractures.

The Sager Instructor's Package

Provides training and lecture guidelines. Includes: Manual with student exam and exercise, Application video, Power Point, and student Handouts.

Cleaning Instructions

Software Goods and Stainless Steel: Manu-Klenz¹ (i.e. Sodium Dodecylbenzine Sulfonate and Coconut Diethylthanolamide). Effective manual washing of heavily soiled washable surfaces, medical instruments, counters, glass and plastic surfaces.

Directions: 1 ounce Manu-Klenz to 1 gallon water.

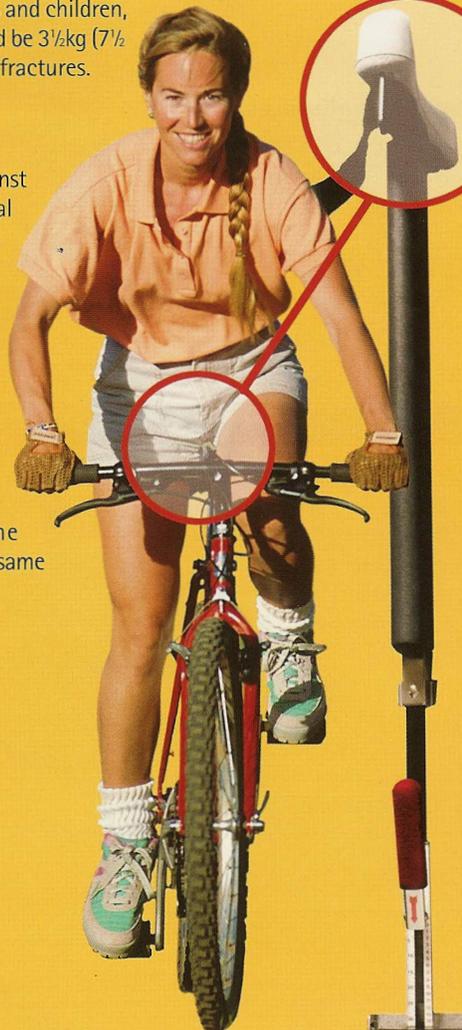
Stainless Steel: 70% Alcohol solution or above instructions.

Foam Rubber: "Precise"² Hospital Foam Cleanser/Disinfectant.

^{1,2} Or other comparable product.

Guarantee

This product has been tested and is guaranteed by Minto Research & Development, Inc. to be free of defects for a period of five years under normal usage.



Caution: Sager Emergency Traction Splints are just that - short-term emergency traction devices for use at the scene of an accident and while transporting the patient for more definitive care. Prolonged use of any traction device can cause pressure sores and/or other medical problems. If prolonged use is unavoidable, the splint contact areas should be monitored frequently and reduced traction and/or no traction and/or repositioning of the device should be considered. Please refer to local/state/federal splinting protocols for definitive guidance.

Sager Emergency Traction Splints

GSA, NSN and NATO Catalog Numbers

NSN# 6515-01-313-0207 (Model S304)

NATO CAT # 6515-99-898-5651

NSN# 6515-01-191-9016 (Model S301)

Parts and Accessories

Models S304 Form III Bilateral, S301 Form III Single & S300 Infant Bilateral

Minto Catalog #	Description	Minto Catalog #	Description
S322	Articulating Base (IPC Base) Sager	S304	Model S304, Sager Form III Bilateral
S323	Carry Case, Blue	S3001	Super Sager Combo Pac #1 (1 ea) S300 Infant Bilateral and (1 ea) S301 Form III Single
S324	Ischial Perineal Cushion (saddle)	S3004	Super Sager Combo Pac #2 (1 ea) S300 Infant Bilateral and (1 ea) S304 Form III Bilateral
S325	Shaft Cushion (leg)	S314	Malleolar Harness (ankle) Left, Model S300
S341	Malleolar Harness (ankle), Left, Model S304	S315	Malleolar Harness (ankle) Right, Model S300
S342	Malleolar Harness (ankle), Plain, Model S301	S316	Malleolar Harness Set (1 Left and 1 Right), Model S300
S343	Malleolar Harness (ankle), Right, Model S304	S318	Sager Carry Case, Blue, Model S300
S344	Malleolar Harness Set (1 Left and 1 Right) Model S304	S319	Pedal Pinion (figure 8 strap), Model S300
S345	Pedal Pinion (figure 8 strap)	S320	Ischial Perineal Cushion, Model S300
TC304	Tensor Cravat Kit (2 Short, 1 Long, 1 Extra Long), Model S304	S321	Abductor Bridle (thigh strap), Model S300
TC301 & TC300	Tensor Cravat Kit (2 Short, 1 Long), Model S301 & S300 (specify)	6150	Sager Application Video (includes 400 and 300 series splints). Available in DVD format only.
TC440-24	Tensor Cravat, Short (S300 only)	6160	Sager Instructor's Package: includes Manual, Overhead Projections and Video, User's Handbook: Models S301, S304 and S300
TC460-24	Tensor Cravat, Short		
TC460-32	Tensor Cravat, Long		
TC460-53	Tensor Cravat, Extra Long		
S352	Sager Carry Case (Super Sager		
S357	Combo Pacs, Green)		
S300	Abductor Bridle (thigh strap)		
S301	Model S300, Sager Infant Bilateral Model S301, Sager Form III Single		

Sager is a registered trademark of Minto Research and Development, Inc., Redding, CA, USA.

Contact your Authorized Sager Distributor for pricing and demonstrations:



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Visit our web site www.sagersplints.com for a full review of our product line.