

Exercise and therapeutic interventions

## **SURVEY OF ORTHOPEDIC RESEARCH ON OPTIMAL PLACEMENT OF PELVIC SUPPORTS FOR SACROILIAC INSTABILITY AND PUBIC SYMPHYSIS DIASTASIS**

Hesch, J  
Hesch Institute, Henderson NV, USA

### **Introduction**

Pelvic supports are frequently utilized for chronic pelvic girdle pain, (CPGP) and are typically applied at the ASIS's, or just below. Regarding SI supports an author states, "This treatment regimen is derived from the biomechanical studies primarily with cadavers, and the focus has been on the sacroiliac (SI) joints. This is based on the premise that the symptoms of symphysis pubis dysfunction relate to pelvic and especially SI joints..." The author seems to imply a lack of studies on optimal belt location for the CPGP population; with consideration, that pubic joint dysfunction might be primary. Studies do exist on ideal application for acute symphyseal diastasis (SD) (> 10mm separation) with SI instability (> 2mm joint space).

### **Purpose**

To survey the ortho, obstetric and other relevant literature to compare and contrast differing approaches to pelvic belt application in order to determine optimal anatomical location.

### **Materials and Methods**

Articles primarily from ortho, and obstetric/women's health, spanning 1997-2012 were included.

### **Results**

Placement of pelvic supports was oftentimes vaguely described, except in the orthopedic literature. TR belts were briefly mentioned only occasionally. In contrast, the ortho literature specifically mandates TR application for acute obstetric SD (OSD) and traumatic SD (TSD) and associated SI instability. In vivo and in vitro studies indicate TR application is optimal for TSD and OSD and SI instability, with up to 40% greater compression achieved, compared to application proximal to ASIS's.

### **Relevance Conclusions**

Pregnancy and parturition increase pelvic outlet dimension due to SI and symphysis pubis widening. It may seem counter-intuitive however; that it appears that application of a typical SI support may be counter-productive for OSD with SI instability. Application too high imparts a lower pubic and SI distractive force; essentially replicating obstetric hypermobility pelvic mechanics. This is simple to demonstrate mechanically with a ligamented pelvic model. The line of force with TR compression is direct to the pubic joint inducing upper and lower pubic and SI joint compression, maximizing approximation.

### **Discussion**

The mechanism of OSD involves an intrinsic-to-outward force; TSD is due to an extrinsic-to-inward force. Obstetric SD even if severe typically spares the posterior SI ligaments, unlike severe (grade III) TSD. One severe OSD case (4.7cm) with SI instability was reported, which was successfully treated with pelvic binder at TR. Case studies and cadaveric studies indicate TR pelvic belts are optimal and placement proximal to ASIS's is discouraged for acute OSD and TSD with SI instability. It seems probable that the ortho literature on acute trauma belt location may have relevant implications for the CPGP population.

### **Implications**

In anticipation of large-scale studies, individual trials can readily be conducted in the clinic and are encouraged to determine individual patient's ideal comfort and optimal compression, contrasting placement at the TR, ASIS's, and below ASIS's.

**Keywords** sacroiliac, pelvic belts, obstetric and orthopedic symphyseal diastasis, SI instability, chronic pelvic girdle pain, trochanter.