MyoActivation Explained For Children/Youth and Their Families

Chronic Pain

A Statistics Canada health report identifies chronic pain among 2.4% of males and 5.9% of females aged 12 to 17 years (Ramage-Morin & Gilmour 2010). Typical types of chronic pain seen in children and youths include headaches, Complex Regional Pain Syndrome (CRPS), recurrent abdominal pain, limb and other musculoskeletal pains (Pain arising from skeletal muscles). Chronic pain problems that are typically observed in pediatric patients include complex regional pain syndrome, recurrent abdominal pain, headaches, and musculoskeletal pains (Lauder, 2017). Pain has a significant negative impact on child and adolescent functioning including interference with school attendance, social and extracurricular activities, sleep, and lower overall quality of life (Palermo, 2000; Hunfeld et al., 2001). It should be remembered that musculoskeletal pain is a major contributor to many chronic pain problems in children and youths.

The Complex Pain Service

The Complex Pain Service at BC Children’s Hospital is dedicated to the prevention and management of complex chronic pain in children and adolescents under the age of 18 years. Patients referred to this service have a wide range of complex chronic pain conditions. Some of these are related to a known chronic illness (like cancer or young people’s arthritis), injury, musculoskeletal imbalance, muscle spasm and others are of uncertain cause. The complex pain service utilizes a multi-disciplinary approach to improve functional recovery in children and adolescents which includes what we call the
3P approach (physiotherapy, psychology, pharmacology) and interventional procedures. Myoactivation has been incorporated as part of our interventional procedures since 2015. We have been very impressed with the results we have seen so far and feel that this may revolutionize chronic pain care of the future (Dr Siren and Dr Lauder Observations).

**Musculoskeletal Pain (Pain arising from muscles of the skeleton)**

Musculoskeletal pain in school children is common; 20% report back pain, 16% report limb pain and 40% report chronic and recurrent MSK pain (Abu-Arafeh & Russell 1996, King et al 2011, Payne & Ogilvie 1996, Sherry 2016). MSK pains can be due to a clinical entity called myofascial pain syndrome, which is characterized by myofascial trigger points. Myofascial trigger points are irritable nodules in skeletal muscle (Liu et al., 2015). The presence of these trigger points is associated with muscle soreness and weakness. These triggers can be felt by those who are experienced in looking and feeling for them. Myofascial trigger points have been shown to have increased concentrations of blood cells which release inflammatory chemicals compared to patients with no trigger points (Shah et al., 2008). These inflammatory chemicals are thought to trigger signals which lead to chronic pain states (Menses, 2003).

**Scars**

The skin is an organ, one of the largest in the body. It is the organ which is most exposed to the environment. It has different functions and connections which include connections to the nervous system through the fight or flight nervous system or the nerves that give the brain signals about posture. It is always sending signals to the nervous system and is constantly taking part in maintaining the normal status of the body.

When the skin is breached by surgery or injury a healing process occurs. In the last part of this healing process the normal skin is replaced by a different type of tissue material so that the scar is strong but not so elastic/flexible. Scars are very important as they can limit normal movement and flexibility of skin and the underlying muscles. In patients asked to move actively electrical activity from a scarred area is higher than that from
normal tissue in the same patient doing the same movement (Valouchova & Lewit 2009). It has also been suggested that the skin can, keep a memory of trauma which means a symptom may occur without an apparent cause or direct contact (Minasny B 2009).

**Needling of Skeletal Muscle Trigger Points, Fascial Tension and Scars.**

Dry needling of trigger points is a simple technique that involves the insertion of a simple but very small needle to trigger points, fascia in tension and scars. The way that this needling of trigger points and scars causes immediate pain relief is not fully understood but is currently under review (Cagnie et al., 2013; Tozzi, 2014).

**Myoactivation**

Myoactivation is a term trademarked by Dr Greg Siren (see info@myoclinic.ca). Dr Lauder and Dr Siren have worked together to bring the benefits of myoactivation to children and youth referred to the BCCH complex pain service. Myoactivation is very different from simple dry needling of trigger points because it uses a structured assessment to target which muscles, fascia and scars that are important to minimize muscle related pain. Myoactivation is based on assessment of abnormal postural and subtle changes in muscle balance between right and left sides. It is important to know that the site of pain is often not the source of pain, for example, low back pain often comes from trigger points in the abdomen rather than the back. Immediate changes occur through a needling procedure in muscles and soft tissues like traumatic and surgical scars. There is usually more than one myoactivation session (2-4) to get to the treatment goal of reduced pain and improved flexibility.

**Side Effects of Dry Needling.**

Adverse effects of dry needling are extremely rare but include the possibility of infection, bruising, failure of pain relief, muscle pain flares for 24-48hrs and pneumothorax, a collapsed lung (only when needling in the chest or neck region). Symptoms of a pneumothorax include shortness of breath, cough, and chest pain which may occur a
number of hours after a dry needling procedure. If these symptoms occur this requires attendance at an emergency department. Management of a pneumothorax includes an examination and chest X-ray to determine if the pneumothorax is sufficiently large to require treatment by the insertion of a chest drain.

**After Myoactivation Instructions**

| Goal | Movement of treated tissues every 10 minutes, whilst awake, **without** strain or loading for 5 days THEN **graduated** increase of activity by **20% per week**
| Daily activities |  
| postural change | every 10 minutes  
| Baking | no standing > 10 minutes  
| sitting | walk to other side of room every 10 minutes  
| walking | no more than 10 mins in any 60min period  
| stairs | limit to 2 flights in 1 hour  
| Travelling home in the car | stop every 15 -30 minutes, where safe, to walk around for 1-2 minutes  
| Exercise |  
| swimming | no more than 2 laps  
| yoga / Pilates / Aqua-fit | 40% of usual routine duration and intensity  
| weights / gym machines | not for 5 days  
| Recreational activities |  
| cycling | no more than 10 mins in any 60min period  
| hiking | not for 5 days  
| water sports | not for 5 days  
| Therapy |  
| any manual therapy | avoid for 5 days  
| physiotherapy exercises | stop for 5 days  

References


