Pilates for the Treatment of Chronic Sacroiliac Joint Pain

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April 2014
Course Year 2014
Wimbledon
Abstract

A painful sacroiliac joint is one of the most common causes of mechanical lower back pain. Sacroiliac joint dysfunction is the term used to describe the condition, which is usually associated with too much or too little mobility in the joint. The most common symptoms from sacroiliac joint dysfunction are lower back and buttock pain, pain in the groin area and also pain radiating down the leg to the foot.

Causes of sacroiliac joint pain can be split into four categories; traumatic, biomechanical, hormonal and inflammatory joint disease.

Firstly, non-surgical treatments would be tried, such as anti-inflammatory medications, rest, wearing a sacroiliac belt and seeing an osteopath, physiotherapist and specialist pilates instructor. If conservative treatment is unsuccessful, cortisone injections, radiofrequency denervation and surgery as a last resort can be tried.

This paper shows the effects of BASI pilates on an athlete who has had sacroiliac joint dysfunction for twelve years. For the last twelve weeks, Rebecca has been doing regular pilates classes, twice a week. She is in less pain, has achieved improved pelvis stabilization, posture and muscle balance.
Contents

Abstract 1

Table of Contents 2

Anatomical Description 3

Introduction 5

Case Study 6

Programme 7

Conclusion 11

Bibliography 12
Anatomical Description

The sacroiliac joints are one of the largest joints in the body; you can see these joints from the outside of the body as two small dimples on each side of the lower back at the belt line. They are formed by the connection of the sacrum and the right and left iliac bones. The sacrum is the triangular shaped bone in the lower portion of the spine, below the lumbar spine. Whilst most of the bones of the spine (vertebrae) are mobile, the sacrum is made up of five vertebrae that are fused together and do not move. The iliac bones are the two large bones that make up the pelvis. As a result, the sacroiliac joints connect the spine to the pelvis. The sacrum and the iliac bones (ileum) are held together by a collection of very strong ligaments. The strongest ligaments are in the back of the joint outside of the pelvis. If these ligaments are damaged, the pelvis can become unstable.

There is relatively little motion at the sacroiliac joints. The motion that does occur is a combination of sliding, tilting and rotation. There are normally less than four degrees of tilt and rotation and two mm of sliding at these joints. Most of the motion in the area of the pelvis occurs either at the hips or the lumbar spine. Other than the role the joint plays in pregnancy, it does not appear that motion is important to the function of the joint. It appears that the primary function of the joint is to be a shock absorber and to provide just enough motion and flexibility to lessen the stress on the pelvis and spine.
Sacroiliac Joints
Introduction

As mentioned previously, causes of sacroiliac joint pain can be split into four categories; traumatic, biomechanical, hormonal and inflammatory joint disease. Pain due to biomechanical injuries will usually develop over a period of time and often with increased activity or a change in occupation or sport. The most common biomechanical problems include leg length discrepancy, twisted pelvis and muscle imbalances. Rebecca fitted into this category, she was a rower and her injury was caused by overtraining and swapping sides in her crew boat after a long period of rowing on one side. She has been in pain for the last twelve years, having tried many procedures with no relief. As a last resort Rebecca has been doing regular pilates classes twice a week for twelve weeks. The case study below shows the benefits she gained from doing these pilates classes.
Case Study

Rebecca is a 35 year old Account Manager who spends most of her day sat at her desk. She has been very active throughout her life doing activities such as rowing, running, cycling, spinning, gym, weights and yoga. Fifteen years ago Rebecca started rowing at Thames Rowing Club as a novice. For three years Rebecca rowed on stroke side with no pain, she was then asked to swap sides to bow side and after three months she experienced severe pain in her left sacroiliac joint, left buttock, hip, groin and arch of her foot. She was diagnosed with having sacroiliac joint dysfunction.

Since being diagnosed Rebecca has consulted numerous practitioners (physiotherapist, osteopath, sports masseur and a sports physician) over the last twelve years with limited relief. Rebecca has had many scans and has also tried several invasive procedures recommended by these practitioners; cortisone injections, prolotherapy, radiofrequency denervation, left hip arthroscopy and surgery. As none of these treatments and procedures made any real difference to Rebecca’s pain she agreed to work with a pilates teacher.

Rebecca’s limitations include an extreme anterior tilt caused by weak abdominal muscles, tight hip flexors, lengthened hamstrings, overactive shortened back extensors and weak gluteal muscles. Rebecca’s likes to keep as active as she can, but often exercise will result in severe pain in the sacroiliac joint.
Programme

Rebecca attended one hour pilates classes, twice a week for twelve weeks. The goal being to strengthen her deep abdominals, stretch her hip flexors and lower back extensors as well as strengthening her hamstrings and gluteals which will help bring Rebecca’s pelvis into a neutral position and achieve pelvic stabilization. As well as working on these specific areas the programme has been designed to create a balanced session for all muscle groups.

- **Warm Up - Mat**
  
  Roll Down, Pelvic Curl, Spine Twist Supine, Chest Lift, Chest Lift with Rotation, Leg Lifts or Leg Changes.

  The Roll Down is done initially so that I can assess Rebecca’s alignment, as well as allowing her to stretch her back and increase mobility in her legs, neck and spine. It also helps to release tension and stress in her body. The other warm up exercises will help to warm up her core muscles and prepare her muscles for the more challenging exercises to come.

- **Foot Work - Reformer**


  Throughout these exercises Rebecca focuses on a neutral spine and working her hamstrings.
• **Abdominal Work - Reformer**

   **Hundred Prep, Coordination**

   Specific focus on abdominal strength and pelvic lumbar stabilization. The spine is also supported whilst on the reformer.

• **Hip Work - Cadillac**

   **Supine Leg Series: Frog, Circles Down, Circles Up, Walking, Bicycles**

   This series strengthens her hamstrings and adductors as well as achieving increased hip mobility. We also work on keeping her pelvis neutral, avoiding an anterior tilt. We do this by keeping the hip circles smaller with more control.

• **Spinal Articulation - Reformer - Not introduced until lesson 11**

   **Bottom Lift**

   This exercise opens up her hip flexors, strengthens her hamstrings and abdominals as well as articulating the spine which helps release the stiffness in her sacroiliac joint.

• **Stretches - Ladder Barrel**

   **Gluteals, Hamstrings, Adductors, Hip Flexors**

   These exercises are ideal for improving flexibility in all four muscle groups, in addition her back extensors should be activated. I chose to do the stretches on the ladder barrel as it is easier to see the position of her pelvis.
• **Full Body Integration F/I - Reformer - Not introduced until lesson 11**

  **Elephant, Down Stretch**

  Both of these exercises will focus on strengthening the abdominals and back extensors which Rebecca needs to work on. In addition she can improve her shoulder and trunk stabilization.

• **Arm Work - Cadillac**

  **Arms Standing Series: Chest Expansion, Hug a Tree, Circles Up, Circles Down, Punching, Biceps**

  In this arms series Rebecca was able to work her arms, whilst maintaining a neutral spine and stabilizing her trunk as standing.

• **Leg Work - Wunda Chair**

  **Hip Opener, Backward Step Down**

  The Hip Opener will help to improve hip external rotator control which is often overlooked when addressing lumbar spine injuries. Flexibility and strength deficits in the hip rotators can add substantial stress to the pelvis and sacroiliac joint. In addition, the Backward Step Down will engage Rebecca’s gluteals, hamstrings and quadriceps.

• **Lateral Flexion/Rotation - Wunda Chair**

  **Side Kneeling Stretch**

  As she is kneeling in this stretch, her sacroiliac joint is protected. This exercise will strengthen Rebecca’s abdominals with a specific focus on her obliques.
• **Back Extension - Ladder Barrel**

  **Swan Prep**

  This exercise focuses solely on Rebecca using her back extensors whilst engaging her abdominals to protect her lower back.

• **Cool Down - Mat**

  **Roll Down**

  The Roll Down is a great way to finish the class. As well as restoring balance to the body it stretches and increases mobility in the spine, neck and hamstrings, improves posture and releases tension and stress.
Conclusion

Rebecca is delighted with the benefits from her BASI pilates programme. The pain in her sacroiliac joint doesn’t happen as frequently and when the pain arises, it isn’t with the same intensity and duration as previously.

Through increased strength in her abdominals, hamstrings, gluteals and lengthening of her hip flexors and back extensors she can now stabilize her pelvis and maintain correct placement for the majority of the time. This in turn places less pressure on her sacroiliac joint.

Rebecca is continuing with her weekly classes, but she now feels that she can start doing regular group mat and reformer classes to compliment these. She will continue to work on her pelvic alignment and muscular imbalances, as well as integrating the principals of BASI pilates into her daily life.
Biography


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