

Supporting young age baton twirlers with Pilates

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SUMMARY

I would like to take this research paper as a great chance for me to create a Pilates session for young age baton twirlers to support their everyday life as athletes, in a way I could not do for myself. I will focus on improving twirlers' balance and health, in order to allow them to perform free of pain. In my opinion, it is the key for them to keep on a long and healthy athlete's life. I would like to base this paper on my own experience as baton twirler and find out how Pilates could have supported me. I also want to discuss what type of habits twirlers tend to fall into due to their unique movements compared to other performers or athletes. I would like to analyze twirlers' movements and create specific exercise to help them improving their performance quality while having a better life as athletes.

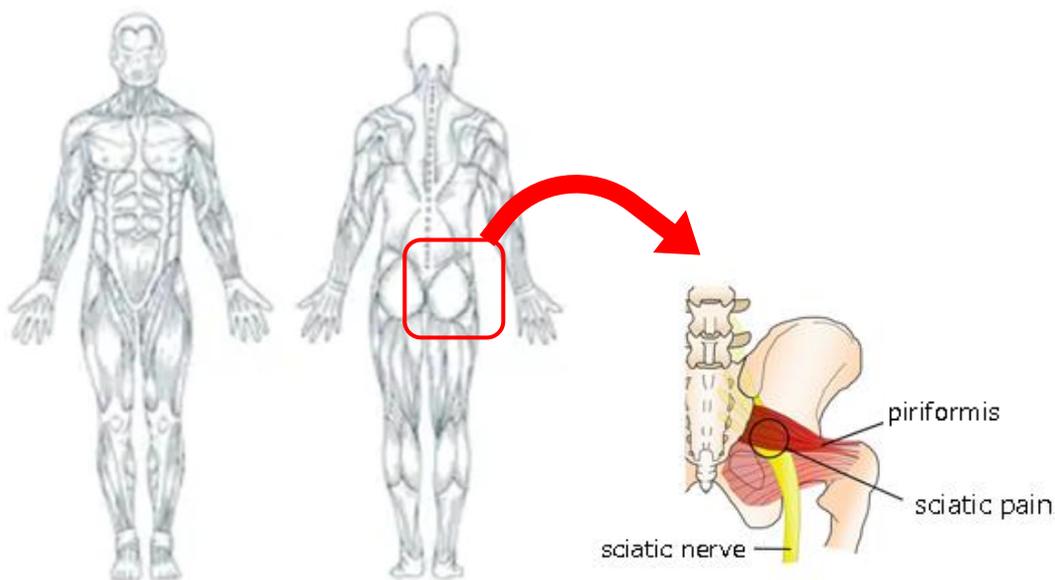
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AN ANATOMICAL DESCRIPTION

【Connection between PIRIFORMIS and LUMBAR LORDOSIS】

Piriformis: The piriformis is a flat, pyramid-shaped muscle that lies parallel to (in line with) the gluteus medius muscle's back margin and underneath the gluteus maximus muscle in the hip area.¹



picture²

Lumbar lordosis³: Lumbar lordosis or lumbar hyperlordosis refers to an increased curve in the lower back region, commonly accompanied by an anterior pelvic tilt⁴.



¹ Healthline Media, retrieved from <https://www.healthline.com/human-body-maps/piriformis#1> accessed on August 11, 2019.

² Picture from Social Welfare Organization, retrieved from https://www.saiseikai.or.jp/medical/disease/piriformis_syndrome/ accessed on August 11, 2019.

³ Figure from OLYMPIA BENEFITS INC, retrieved from <https://www.olympiabenefits.com/blog/good-posture-why-is-it-important-how-can-you-improve-in-the-office> accessed on August 11, 2019.

⁴ Isacowitz, Rael. Clippinger, Karen. Pilates Anatomy: Human Kinetics, 2011, p.23

INTRODUCTION

In less than one year after I started learning twirling baton, I won a prize in Japan. At this moment, my life as a baton twirler begun. Back then, at the age of 6, I was the 1st and only twirler from my baton studio to compete in the National Championship. Learning new tricks, performing in front of many people, surprising them with my unique trick and dancing, I just loved twirling. In parallel, I started to learn classical ballet, jazz dance and gymnastics to improve my twirling skills by myself. Back then, my baton teacher was a beginner trainer. It is very common in the Baton world that trainers are very professional for teaching how to twirl, but do not focus their teaching on how to control the body with movement.

I had twirled baton for about twenty years, until I had to stop twirling and dancing as I started to have a serious pain on my lower back and lower limb with weird numbness on the left side of my body. That pain run from my lower back through my left toes and sometimes I even had problem just walking. I went to see many doctors to find out what was going on with my body, but no one had any answers. After I graduated from university, I decided to go on a new path, working in a company in order to have a career.

Times went by and when I was looking for something to treat my body right - instead of simply working in front of a PC on my desk every day - Pilates caught my eyes. It did not take me long to fall in love with it.

I felt I could truly control my body in the right way for the first time in my life. Pilates also allowed me to answer many questions I used to have regarding the pain I experienced when I was a twirler. I wish I knew Pilates long time ago, so I could complete my life with greater satisfaction as a twirler and a dancer. I believe there are many twirlers who are struggling and suffering from unexplained pain in their bodies, without knowing how to face them. I hope this research paper can help some of them by answering their questions and support them to build stronger bodies as twirlers.

WHAT IS BATON TWIRLING⁵

Before going on to specific common problems twirlers face, I would like to explain a little bit about baton twirling itself.

Baton twirling is a sport involving the manipulation of a metal rod with the hands and body to a co-coordinated routine. The metal rod weighs approximately half pound and is between 18 and 32 inches long.

⁵ 2018 World Baton Twirling Federation website, retrieved from <https://www.wbtf.org/About/History>, accessed on August 11, 2019.

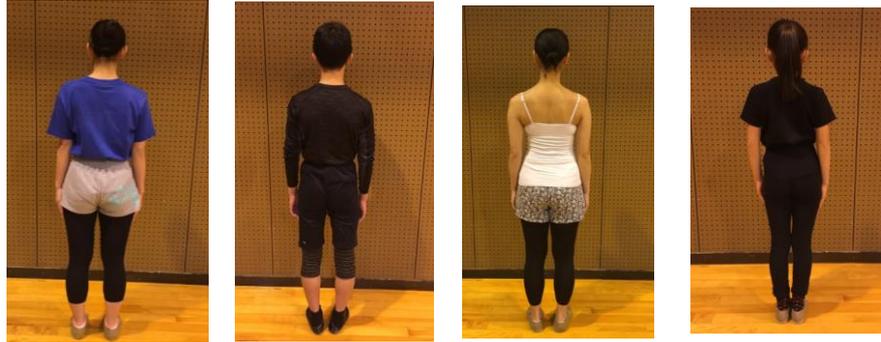
Here are some of the distinguishing fundamental characteristics of baton twirling:

- Handling of the baton instrument to create visual images, pictures and patterns, executed with dexterity, smoothness, fluidity, and speed, both close in and around the body and by releasing the baton into the air.
- Expression of the body through dance and movement to create a demonstration of strength, flexibility, physical fitness, beauty, aesthetics, and harmony in coordination with the manipulation of the baton.
- Incorporation of acrobatic movements adapted to baton twirling to create additional elements of risk and excitement.

COMMON ALIGNMENT DEVIATION AND INJURIES

As you can see in the twirlers' pictures below, the level of their right shoulder is much lower than their left shoulder. This alignment deviation is caused by twirling baton on their stronger side all the time, which is here their right side. This shows that twirling a 1/2 pounds baton has enough impact to cause imbalance on twirlers' bodies. In this paper I will however not focus on this shoulders issue.

1. Shoulders⁶



The second alignment deviation I want to address is lumbar lordosis.

As mentioned before, the baton weighs about 1/2 pounds. The movements of baton create a big centrifugal force with momentum. Because of that strong force of the weight and energy, twirlers' center of gravity might change through certain movements. At the same time, they twirl and represent themselves to the judges and audience who sit in much higher level.

Consequently, twirlers keep their body extended all the time while performing, so that without correct body alignment with strong core muscle and pelvic stability, they will suffer from lower back problems or the like.

2. Lumbar lordosis



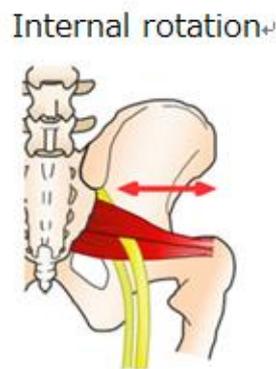
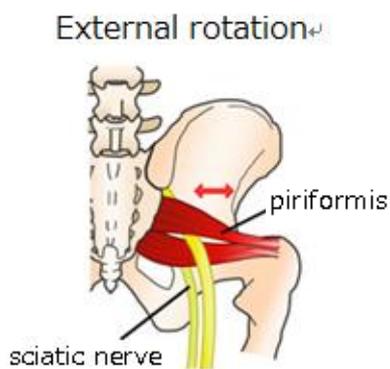
⁶ Pictures taken at the Miyuki Baton School in Kobe, Japan

From my experience, performing while keeping an unbalanced body position, can aggravate lumbar lordosis and with some additional strain create major body problems, such as sciatic pain and numbness.

MECHANISM OF SCIATIC PAIN IN GENERAL

Sciatic pain is caused in particular by squeezing and pressuring the sciatic nerve with the piriformis muscle. This sciatic nerve indeed passes completely between the branch shaped piriformis muscle. If the thigh is externally rotated, the piriformis muscle is relaxed creating enough space for the nerve to pass through. In the contrary, if the thigh is internally rotated, the piriformis will stretch making the space smaller and tighter, consequently constricting the nerve⁷. This is the normal mechanism of sciatic pain. For people who have alignment deviation with unique enforcement, such as twirlers, things work differently.

⁷ Social Welfare Organization, retrieved from https://www.saiseikai.or.jp/medical/disease/piriformis_syndrome/ accessed on August 11, 2019.



pictures⁸

SCIATIC PAIN FOR TWIRLERS

The major alignment deviation for twirlers is aggravated lumbar lordosis. Twirlers' pelvis tends to show anterior tilt, and at the same time, their upper body is extended. Most of the time, twirlers' iliopsoas are weak and tight, and their core is not engaged enough to support their body with various movements⁹. What would happen if the person has deep lumbar lordosis and try to straighten and turnout her or his legs? It is very hard for them to externally rotate their thigh from their hip flexor joints, so they tend to reconnect the alignment from their hips-knees-ankles. They would just externally rotate their ankles, and maybe knees, but not from their hip joint.

⁸ Picture from Social Welfare Organization, retrieved from https://www.saiseikai.or.jp/medical/disease/piriformis_syndrome/ accessed on August 11, 2019.

⁹ Haas, Green, Jacqui. *ダンス解剖学 Dance Kaibougaku*. Tokyo, Japan: BASEBALL MAGAZIN SHA Co., Ltd. 2015, p.131

They think they are externally rotated their thigh, but their hip joints are going opposite way, internally rotated. As a result, the piriformis are stretched to close the space for sciatic nerve.

This having been explained, I would like to introduce a suggestion of one hour session to help twirlers to address the above mentioned issues.

ONE HOUR MODEL PILATES SESSION FOR TWIRLERS

Cadillac	【WARM UP】	Pelvic curl/Spine twist supine/Chest lift/Chest lift with rotation
	【FOOT WORK】	Parallel heels /Parallel toes /V-position toes /Opening V-position heels /Opening V-position toes /Calf raises /Prances /Single leg heel /Single leg toes
Reformer	【ABDOMINAL WORK】	Double leg /Double leg with rotation
	【HIP WORK】	Frog /Circles (Down and Up) /Extended frog /Extended frog reverse
	【SPINAL ARTICULATION】	Short spine /Long spine
	【STRETCHES】	Kneeling Lunge
	【FULL BODY INTEGRATION F/I】	Round back /Flat back /Up stretch3
	【ARM WORK】	Arms keeling series
Wunda Chair	【LEG WORK】	Hamstring curl /Hip opener

	【LATERAL FLEXION/ROTATION】	Side stretch
	【BACK EXTENSION】	Swan on floor

FOCUS POINTS

Knowing the correct alignment and controlling their bodies are the first step and forever key for performers and athletes. Some people might say that my session would be too easy for the people who train their body every day. I am sure most of them would be able to do these exercises easily by imitating the movements. However they might not really understand the connection of each body part or where the movement is coming from and how to control them. This is the main point for my exercises, to give them a time to focus on their bodies to know how to own their bodies truly with right alignment.

1. Pelvic stabilization by learning the natural position.

-Using many exercises with prone position to help them feel and remember the natural position.

2. Building a strong core, "Power house" to stabilize their body, not to be easily swayed by baton itself.

3. Making all the movement equal by right and left to be well-balanced.

-Switching the starting side all the time for the exercises.

4. Develop the flexibility of iliopsoas area and supporting the lower back.

5. Using the proper breathing to recruiting the muscles¹⁰.

CONCLUSION

No pain comes without reason; there is always a cause to it. There are many beautiful twirlers suffering without knowing the reason. The hardest things for twirlers are not physical pain but the psychological struggle not to manage to move their bodies in the way they want and not being able to perform. If you can develop your body with strong stability and correct alignment, nothing will prevent your will towards your body. But if you created some bad habits linked to external factors, Pilates is one of the best solutions to reset your body. One good example is my case, I am no longer suffering from mysterious pain, and my mind and body are working together in a healthy way thanks to Pilates. I would like to challenge myself to twirl and dance again. I might not be able to dance as I used to, but even better.

I got invited to be a coach for one baton studio from next season.

¹⁰ Isacowitz, Rael. Study Guide: Comprehensive Course. Costa Mesa, California: Body Arts and Science International, 2013, p.10

This is going to be a great opportunity to prove that I can support young twirlers with Pilates!

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