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Original Article

The onset of back pain after training, how can it be reduced?

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Abstract:
The present study, based on the existing scientific literature, wants to deepen the correlation between lumbar pain and training. Lumbar pain, or low back pain, is defined as a condition caused by a muscle contraction of the lumbar muscles in which low back pain occurs. There are many factors that can contribute to its onset, such as incorrect postures, stress, psychological factors, sedentary life. To this it can also be added an increase in the stresses of structures such as muscles, ligaments, joints and intervertebral disc, which occur during training sessions. The main objective of the work is to analyze the pain in subjects who practice physical activity, subjects sometimes neglected by the topic as we often hear about a correlation between back pain and a sedentary lifestyle. However the study wants to demonstrate how even in the world of those who have a trained body such problems can arise and as exercises taken for granted or underestimated can contribute to an improvement in the pain itself.
Key words: backache - physical activity - overloads - lower back pain - postural training exercises.

Introduction

Back pain is one of the most common health problems, so much so that it affects up to 8 out of 10 people at least once in a lifetime; in particular, the lumbar part is often affected, the lower one, but in fact the pain can appear in every point of the back (G.Belotti, 2019). The Back Pain is the most frequent osteoarticular disorder, representing, after the common cold, the most frequent human disease (Zhou et al., 2019, Murillo et al., 2019). The determining factors are many: incorrect postural posturing for a long time; body movements and exercises performed incorrectly; excessive muscular tension resulting from physical and psychological stress; poor muscle tone (abdominal, lumbar and dorsal); overweight (Tiziana et al., 2017, Gaetano, 2016, Altavilla, 2014). When we talk about back pain we always tend to always consider that part of the population that leads a sedentary life and to find a solution in physical activity. It is well known that physical activity allows the subject to derive numerous health benefits (Tiziana, 2019, Raiola et al., 2018). In fact the best form of prevention against low back pain has strong and elastic muscles (D'elia et al., 2019, Forte et al., 2019, Forte, Altavilla, 2018). In particular, reference is made to the muscles that surround our spine are considered the "core" of our body (Altavilla & Gateano, 2018). It is composed of the abdominal muscles on your front and sides, the erector muscles of the back and even the larger muscles that span multiple joints (like the lats and psoas muscles). It may surprise you that the glutes are also an important part of the 'core'. Each and every one of these muscles must work together in order to enhance the stability of the spine (A. Horschig 2018). Spinal stability is something Professor McGill has been able to define and measure with his work. First, when muscles contract they create force and stiffness. It is the stiffness part that is important for stability.Think of the spine as a flexible rod that needs to be stiffened to bear load. This is the role of the muscles (D'Elia, 2019). Through his research, he has measured athletes who fail to obtain appropriate muscular stiffness around the spine by coordinating muscle activation, and their subsequent injuries and pain (A. Horschig, K. Sonthana, 2018). Each of these muscles must work together to improve the stability of the spine. In short, the core (the core of our body) dives from the center of the functional kinetic chain where all the movements are generated by the nucleus and transferred to the extremities (Raiola, 2015). It is therefore important to evaluate the stability of the core before setting up any training program. When the nucleus does not respond to stability requests placed on the body during a given lift, parts of the spine will be overloaded by forces that increase the risk of injury and performance will be affected (A. Horschig 2018).

The work carried out has the objective of focusing on those who practice physical activity, even for more than 3 years, with the aim of knowing the relationship between physical activity and back pain. If physical activity is prescribed against back pain, what happens when it is practiced assiduously, with the use of overloads, without respecting the heating, muscle lengthening and discharge the spine after each workout. In addition to the benefits, when the right practices are exceeded and / or not respected, you risk encountering more harm than good.

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Material & methods

The questionnaire was the instrument for measuring information on the phenomenon. It was created through multiple choice questions, with four response options. The prepared questionnaire was administered in paper form to 20 subjects in the month of September 2019. Once the data were collected, they were represented by bar graphs.

The methodology used for the realization of the questionnaire was intended to highlight, in broad terms, the various factors that can cause the onset of back pain following the training by initially analyzing the training methods and methods:

-*Age*

-*Frequency of weekly training:* one, two, three, four or more days a week.

- *Type of training performed:* aerobic or cardiovascular training (running, fitbox, spinning), Functional training, training for hypertrophy and training in the sports equipment room. It is important to know which training methods are used to understand any exercises that may involve the correct / incorrect use of the spine.

-*Performing postural exercises / stretching / joint mobility*: You are asked if you are performing postural or mobility exercises during training (Always, Every now and then, if you have time, never). This key question is of fundamental importance for assessing the correspondence between the onset of back pain following training. In fact, the execution of these exercises reduces the risks that may arise following the training. For example, unloading the column after each workout (through specific unloading and decompression exercises) aims to restore the normal hydration and metabolism of the intervertebral discs.

Then:

-*The correlation between training and back pain:* when training causes back pain: Never, Once in a while, Often, Always.

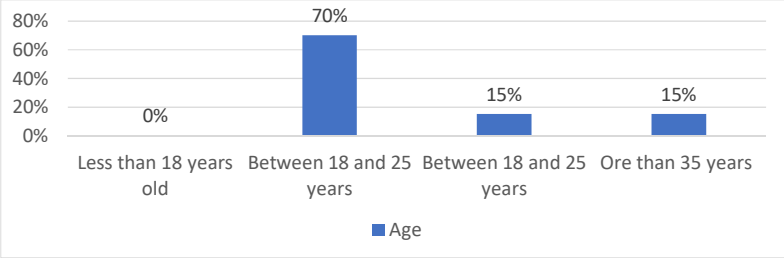
-*The onset of pain:* Is asked when the pain arises (during training, immediately after, the following day, after a few days).

-*The location of the pain*: Provides useful information to learn about the region of the spine affected by pain (cervical area, dorsal area, lumbar area, symptoms move).

- *The reaction to pain:* this question aims to evaluate how subjects react to the presence of pain (they do nothing, take drugs, perform postural exercises or use massages).

Results

Table.1



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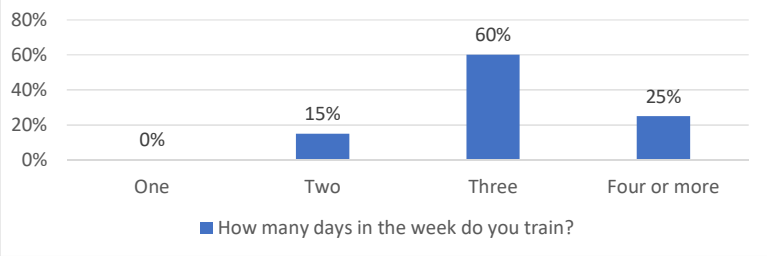

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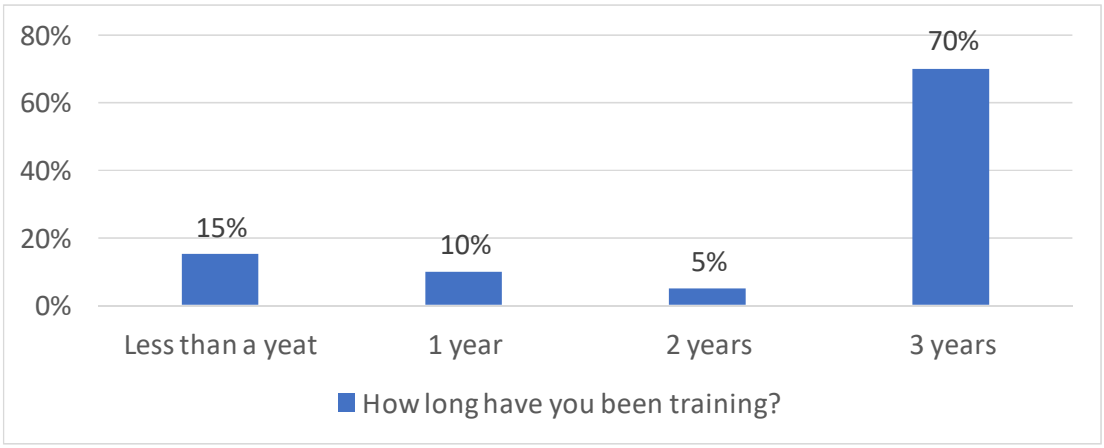

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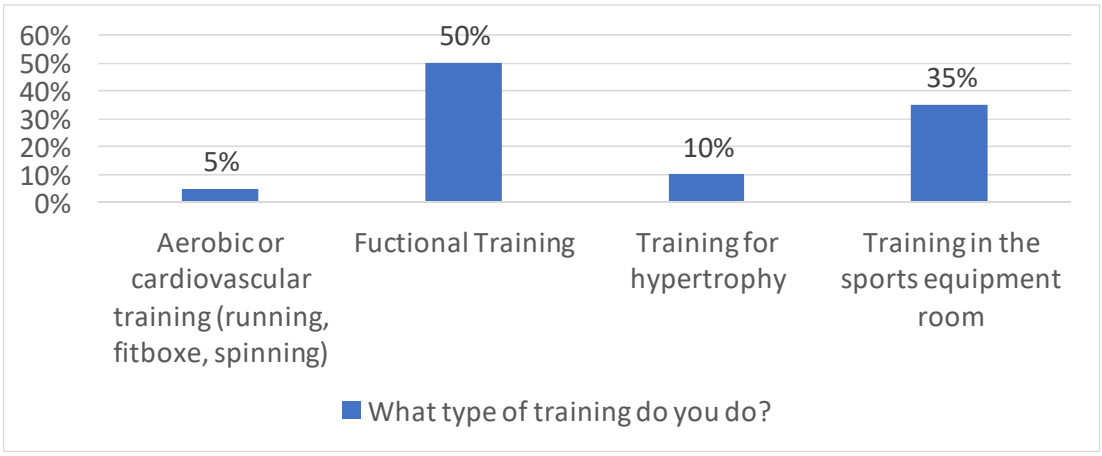

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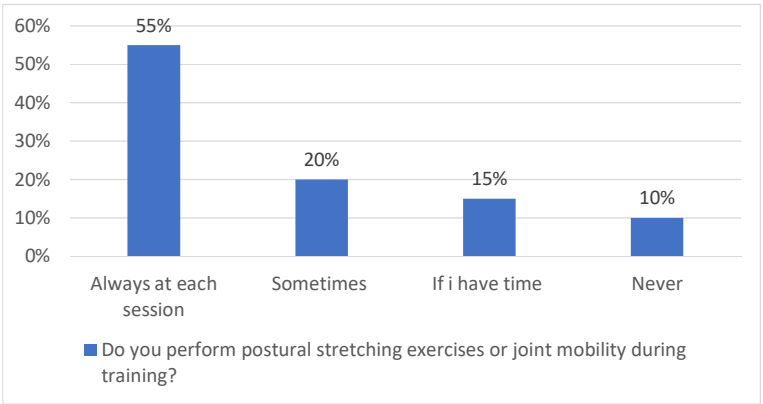

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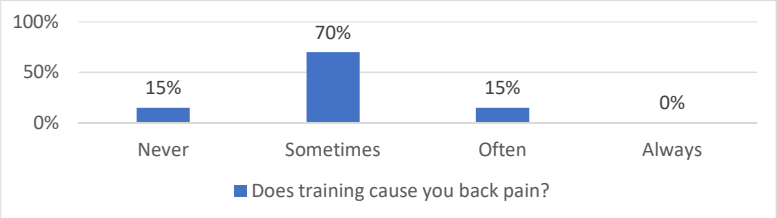

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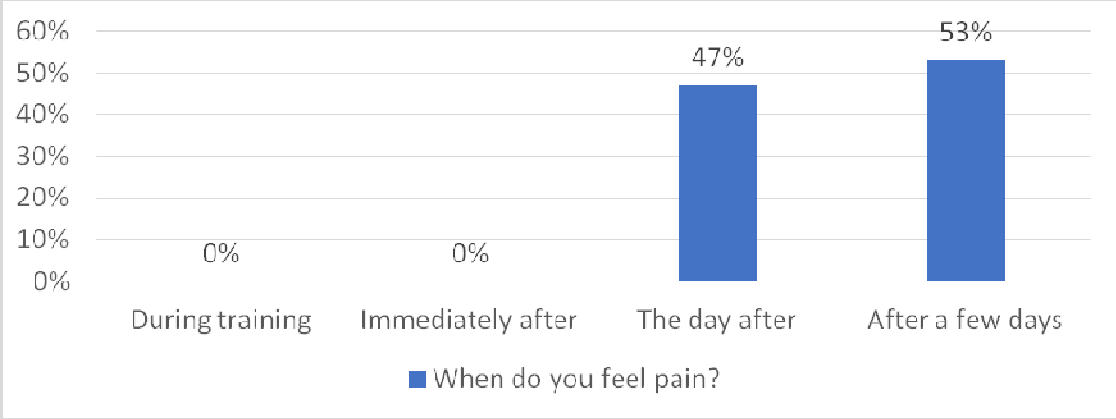

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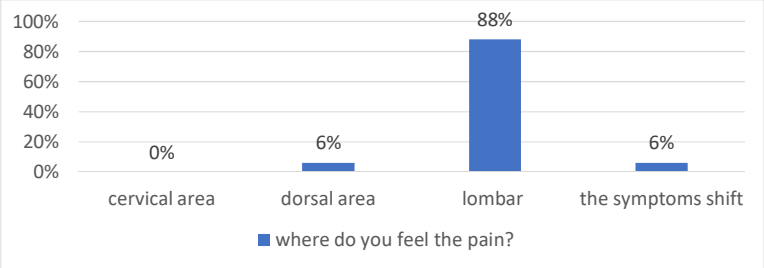
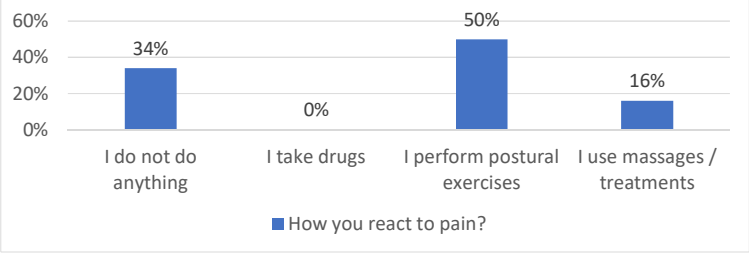


[Table.9]



Dicussion

The main objective of the study is to analyze in subjects who practice physical activity the onset of low back pain. However, it may seem a contradiction, as it is well known that it represents physics can be of great help in the treatment of bothersome muscle pains, however it is important to underline that the sample examined is composed of subjects (95%) training. Physical activity is certainly the best antidote against muscle pain if it is practiced correctly, otherwise it is difficult to derive its benefits.

More than half of the sample examined (70%) is aged between 18 and 25, 15% between 26 and 35 and the other 15% is over 35 years old. It was therefore considered a particularly suitable age group for sports performance as the period between the ages of 15 and 30 is one in which the human body can achieve maximum performance, provided of course that one constantly trains. 70% of the sample said they have been training for 3 years or more than 5 years for 5% for 2 years, 15% for 1 year and 15% for less than a year. Whether it is a novice, intermediate or advanced it is important that everyone perform the exercises correctly in order to avoid, for example, unnecessary spinal loads.

To the question "Do you perform postural / joint / joint mobility exercises during training?", The sample is divided into: 55% always, 20% every so often, 15% if I have time and finally 10% never [table.5] . Of this 55% of the sample who practices postural exercises, stretching and mobility, 55% always state that training causes them back pain, 27% often and 18% ever. Why is it important to know if during training these subjects perform these exercises? In these subjects the presence of post-training back pain is attributable, if particular osteo-articular pathologies are not found, to an incorrect postural attitude during training, incorrect execution of exercises, failure to perform heating and stretching at the end of workout. Moreover, certain exercises to unload after training serve to quickly rehydrate the discs by stimulating an influx of nutrients to the discs themselves. An inadequately performed exercise, bad postures, absence of heating and stretching, excessive loads: all this causes the lumbar region to suffer, constantly stressing the intervertebral discs reducing their elasticity, causing inflammation and, therefore, pain. Those who train in the gym tend to strengthen (for aesthetic reasons) above all abdominals, pectorals, shoulders, biceps, triceps: they neglect the warming and strengthening of the lumbar muscles that serve to support the spine in excessive loads. Failure to reinforce the lumbar region exposes to the risk of stretching, tearing, strong contractures, hernia.

To the question "Does training cause you back pain?" 70% of the sample responded "occasionally", the rest is divided into 15% "never" and 15% "often", the option has always received 0 replies . The sample that answered "occasionally" is divided into 50% of people who practice functional training. 35% who train in the equipment room and 15% training for hypertrophy. Therefore, it can be deduced that most of the subjects who have pain in the lumbar area post loosen are mainly subjects who practice functional training, therefore with a free body and with the use of overloads. This training mode is characterized by no expensive machinery but only free body and simple tools like fitball, medicine balls, TRX, kettlebell, Bulgarian bags, clubs, jump rope, pull-up bar. Despite being considered as one of the most complete workouts that exists (it improves the body's ability to carry out your daily activities, it trains the body as a whole by activating all the muscles and also improving posture, flexibility and balance (Altavilla et al., 2015). It improves strength without exaggerating the muscles Increases power, speed and physical endurance, develops coordination, agility and flexibility, but unstable exercises are often provided which can only be done if in excellent health and with an excellent performance technique. It is also a training mode marked by time rules (execution of exercises in a certain predetermined time range), which often leads to fast, rapid but incorrect exercise. Even those who follow a workout for hypertrophy often incur lumbar pain. For example an athlete who experiences pain only when lifting over 70% of their 1RM is experiencing symptoms that are directly related to the amount of compression or shear forces acting on the spine due to the weight on the barbell (A. Horschig, K. Sonthana, 2018).

Pain in 47% of those interviewed arises the following day, in the remaining 53% after a few days. it is good to remember that after training of any type, which stresses the lumbar area, it is perfectly normal for the lumbar area to become fatigued and a little sore the next day. It is therefore important that stretching exercises are performed to ensure that the intervertebral disc hydrates and regains its thickness. Normal muscle recovery and hypercompensation take several days, and symptoms will improve the day after day.

Finally, it should be noted that 50% of the subjects in the presence of pain are helped with the exercise of postural exercises, 16% resort to massages and 34% prefer nothing far away and fortunately nobody (0%) takes drugs [Table 9].

Conclusion

From the performed study it can be inferred that in subjects who have been training frequently for more than two or three years, the common back pain "after the gym" is common. It should be stressed that this is a "normal" consequence of training caused by various factors such as incorrect exercise exercises, not maintaining the physiological curves of the neutral spine, but accentuating them, absence of muscle warming, absence of joint or stretching exercises.

This can help to counteract the benefits of physical activity. It is essential to have an elastic and flexible body, which can allow you to perform any exercise taking advantage of the maximum range of movement allowed by the exercise itself, without risking joint problems. Performing an exercise incorrectly may cause

injury, for example, creating contractions or injuries due to poor mobility and inappropriate use of overloads. The insertion of muscle stretching becomes fundamental and must be an integral part of a training card. It is therefore important to learn the correct execution of the exercises and not to use loads that are too heavy and outside your possibilities.

When you stretch your low back, you are stimulating the stretch receptors deep inside the muscles that give the perception of pain relief and the feeling of less stiffness (A. Horschig, K. Sonthana, 2018). Most of the muscle pain and stiffness you may feel in your back is consequence of a chemical reaction called inflammation that occurs from the real injury located deeper in the spine (disc bulge, facet irritation, etc) (Indahl A, Kaigle A, Reikeras O, Holm S,1995)The underlying injury is what causes the secondary contraction or spasm of the surrounding muscles and pain. For this reason, rehabbing from a back injury for a large majority of athletes should aim to stabilize the core and reeducate proper movement to treat why the problem started rather than stretch the surrounding muscles to increase mobility of the low back and treat the symptoms (A. Horschig, K. Sonthana, 2018). It is common to see athletes with back pain also have an inability to properly activate and coordinate their glute muscles (Altavilla et al.,2018). Simply put, the butt muscles can fall asleep (McGill, 2007). When this happens the body naturally starts to use the hamstrings and low back muscles more to create hip extension (both are problematic in creating efficient movement and place excessive stress on the spine) (McGill,2009).

Most back pain is due to a repeated posture, motion or load that eventually leads to injury. Trying to modify and eliminate these particular motions, postures or loads that causes back pain and replacing them with those that feel good is the first step in fixing your pain (A. Horschig, K. Sonthana, 2018).

In conclusion the movement is a very effective medicine if performed in an optimal manner and gives results that are going to be established over time giving us a high quality (motor) of life.

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