

Emma Sinnott

1907889

Fit to perform

Component A

Stephen Williams

In order to develop a better understanding and knowledge of different areas of fitness, nutrition, anatomy and physiology and psychology within dance, I will explore and review four peer reviewed articles relating to these subjects. Through these articles I hope to strengthen and support my own knowledge with facts and data. I will then analyse the importance of these four things and how they contribute to the overall well-being of the dancer.

The first article I chose to study was focused on fitness. IADMS (2019) describes how studies have found that dancers may not be as fit and healthy as they should be. This has resulted in it now being unacceptable to train dancers without making sure they are physiologically prepared for the choreography they are expected to carry out. Previous training methods have not always been sufficient in preparing dancers for the demands of more physical performances. By improving a dancer's fitness, it reduces the risk of injury, therefore ensuring a longer career. If all of the components of fitness are considered, dancers will become more physically fit and the best dancer possible.

A well-rounded dance programme would contain aerobic training. This helps the dancer work longer at moderate heart rates before getting tired. Aerobic training works the body hard, raising the heart rate to approximately 70-90%. Good examples of aerobic exercises are skipping, swimming, running and cycling.

Anaerobic training is a more intense workout for shorter periods, increasing heart rate to nearer 95-100%. For example jumps, sprints, fast skipping and quicksteps.

Research has shown that strength or endurance training can reduce injury and result in a better dancer. This training will require the use of weights at different levels with repetition and combinations. This will increase muscle strength and endurance.

Power training has been proven to have a positive effect in dancers. To avoid injury, it needs to be approached systematically and gradually. Plyometric jump training is a useful power builder in dancers.

An important element of physical fitness is flexibility training. Stretching is a great factor in building flexibility. There are many different types, some more beneficial than others, but should always be carried out when the body is warm. It is also advised that stretching be done gently so it does not lead to injury and muscle soreness. Ballistic stretches are one of the types that are not recommended for this reason. Some of the more popular and useful types are dynamic, static, and proprioceptive neuromuscular facilitation.

Rest is hugely important in dance. The acceleration and regeneration of muscles is helped with rest with a decrease in injury and fatigue. A negative impact can be had on dancers that do not get sufficient rest during continuous training.

Training levels need to be changed with increased intensity, frequency and volume in order for the body to be challenged. The body improves better through change, the body adapts to fitness levels so changing programme intensity will prevent this.

Studies have shown that using some or all of the elements of fitness will have a positive effect on a dancer's career, long term health, performance and overall fitness as well as reducing their risk of injury.

For my nutrition based article I chose to study the daily eating habits of a dancer. Frost (2018) felt that many people wonder what ballet dancers eat, and how strict their diets are, to maintain their physiques while remaining strong and elegant. A principal dancer with Birmingham Royal Ballet, Celine Gittens, explains her eating habits, along with her exercise regime on a typical day of training.

After moving to Birmingham from Canada, Celine soon found her love of tea in the UK. She has a cup each morning along with eggs on toast. This combination ensures she gets a source of caffeine, protein and carbohydrates, which gives her enough energy to last throughout the morning. She likes to have an avocado also, which will give her a good source of unsaturated fat. A daily multivitamin gives her a boost in anything her body may need. This all sets her up to begin work at 9.30am and gets her through forty five minutes of pilates class which is focused on building stamina.

After class and before her rehearsal, Celine has a banana which helps her focus and gives her a steady flow of energy. Occasionally it will be oatcakes for her snack for the same energy source. The main drink she has is water. It is really important to stay hydrated during training and throughout the day. She tends to sweat a lot so will add a little salt to some juice mixed with water to rehydrate her after activity. Celine finds coconut water helpful in replenishing lost minerals.

For her lunch she likes to cook and bring her own food, as she knows exactly what she is eating and that she will get all of the correct nutrients that her body needs. She has an hour for lunch, and in that time she is able to eat a cheese sandwich with lettuce, which will give her calcium and carbohydrates, and shredded beetroot for protein. Chicken pasta with stir fried vegetables is another option sometimes too. These can all be eaten and digested in time to start dancing again. In between rehearsals, a snack of a banana or nuts helps keep her going until she finishes at 6.30pm.

Celine tries to limit her carbohydrate intake during the evenings during a regular training week. Chicken stir fry or a grilled salmon with salad would be a couple of the meals she would choose for dinner. Pasta bolognese is a more substantial preferred choice after performing.

She tries to avoid fizzy drinks and refined sugars so there will not be extra strain put on the body. Avoiding alcohol during training is also her preference as she feels the

extra calories do not help her. Not everything is banned though, a treat of a Coca-Cola is allowed occasionally if her body craves it.

Skipping meals is not something she believes in. Keeping her metabolism going is important for her body in order to refrain from gaining excess weight.

During her breaks from training, everything is a lot more relaxed. She goes home to Vancouver and eats the delicious doughnuts she loves or whatever her body is craving. Her diet is completely different to when she is training and has no restrictions. There are no exercise routines or structures like other dancers may have on their days off. Celine feels its the time for rest and the most exercise she does is going for a walk.

Celine recommends planning meals and being strict. She says it does not happen easily but discipline is needed in order to reach goals. Getting into a good routine and cutting out bad foods all contribute.

I believe Celine has a good healthy balanced diet, with good sources of energy to keep her going, as well as all the nutrients her body needs. She also enjoys everything in moderation, and allows herself treats when her body wants them. This all helps her stay on track and keep up with the demands of a busy dancer's life.

For my choice of anatomy and physiology, I chose to research dance injuries with the foot and ankle being the main focus. According to Schoene (2013) injury levels in dancers can be quite high, and due to the high demand placed on the foot and ankle,

these two can suffer the greatest. In order to protect the greatest tool, the foot, there are different shoes for different dance styles. Some include tap shoes, ballet slippers, jazz shoes and pointe shoes. A good fitting shoe is extremely important and a qualified shoe fitter is recommended to ensure this. Issues like blisters, bunions and skin lesions can be caused from poor fitting shoes. Some shoe styles can be modified with padding.

Good foot hygiene is also needed. Nail injuries are common with some getting infected, although these can be quickly and easily treated. If dancing barefoot, the risk of blisters, floor burns and splinters are greater.

One of the most traumatic injuries is the ankle sprain. Less common injuries are in the achilles but do still happen. Dance shoes with a small lift can help with this. Another very common injury is thickening of the posterior capsules of the ankle. Fluid on the joint can become inflamed and tissue can protrude. This leads the dancer experiencing a feeling of the ankle needing to pop. Ankle bone spurs, tibial stress fracture, anterior ankle joint impingement syndrome, anterior ligament and tendon pathology are other ankle issues that can occur. These are all very painful to the dancer whilst in plie position. Mature or retired dancers may develop small spurring and lipping in the ankle.

Tibial stress injuries are less common injuries but may have been left untreated for a long period. The dancer can then try to improve the appearance of the pointed foot by using extreme over stretching devices or methods. This can then result in injury to

the ligaments surrounding the metatarsal and tarsal joints. It is believed that dancers need better educating on strengthening the foot muscles. When a ligament is injured, it can cause further injury and instability.

The most common injury is the flexor hallucis longus, which is due to bad alignment of the foot. This tendon is very long so it is prone to injury due to its delicate lever system. Foot and hip strengthening should be done when treating any of the medial tendons. The hip, knee, core muscles and the spine can all be affected by the foot, so it is advised that the whole lower body be evaluated unless a dermatology issue is the main complaint.

There are a number of varying physical therapies to treat issues effectively. Massage therapy is perfect for muscle injury. It helps increase range of motion and improves blood flow. There are traditional hot and cold therapies. Walking boots are used to quickly treat ankle sprains. Strapping, taping and padding have been effective in other injuries. Unless absolutely essential, surgical procedures are the last case scenario. Traditional methods have a quicker recovery rate so the dancer can get back to what they do best as quickly as possible.

Through this article I have learned that with proper advice and training, along with the correct footwear, injury occurrence can be reduced. Also everything is connected to the foot so these need to be looked after with great care.

In the fourth article I reviewed, Edwards (2019) explains that patients with Parkinson's disease have responded well to dance. These patients have a

motor-system disorder which affects the dopamine producing area of the brain.

Dopamine is needed to control movement and coordination. A great amount of observational research has shown a relief in symptoms, tremors, poor coordination and stiffness of limbs among other symptoms. Dance has been considered a “good form of rhythmic auditory stimulation (Edwards,2019)”. Patients have been asked to move to specific rhythms with positive results.

Professor Peter Wayne, AM’89, PhD’92, conducted some clinical trials with the chinese martial art Tai chi, which he considers to be a structured form of dance. He has aimed these trials specifically to patients with balance disorders like Parkinson’s disease. Tai chi has been shown to have benefits in mental function and balance, improving patient’s memory as well as their strength and flexibility. A reduction of falls has also been noted. In comparison to those who did stretching and weight training, patients that practiced Tai chi weekly showed better balance and physical strength. It is believed that with more practice of movement, the mind can get stronger and compensate for some of the cells being lost, and can slow down the process of the symptoms and restrictions.

Dance requires mental coordination but has only recently been linked to effects on the brain by scientists. PET imaging has recognised areas of the brain that are used for movement memory and performing. Some of these areas are cerebellum, which helps the planning of the actions, motor cortex which carries out the voluntary movement execution. The somatosensory plays a role in motor control and is responsible for hand-eye coordination.

Research has shown that dance can improve brain health greatly, even helping the risk of dementia.

Another study on the Latin style dance fitness crazy Zumba was carried out. The results of this showed improvement in mood, increased levels of the feel good hormone serotonin, helped reduce stress and develop new neural connections.

With all of these different research methods and results coming to light, it is exciting to see so many great effects of dancing on the brain. These effects are not only for the feel good factor but for memory and stability building exercises as well as the possible reversing or slowing down of some neurological diseases.

During my research I have found that all four of these subjects play an important part in the overall health of the dancer. If one component is neglected the others are affected, they all go hand in hand. A common theme which has been a factor throughout them all is injury prevention. Prevention is better than cure to ensure career longevity. A physically fit dancer has a better chance of enhancing performance. A healthy balanced diet gives the body the correct fuel to perform and recover. Looking after your body from the outside as well as the inside is key and dance itself having a positive impact on brain health. Everything is a cycle, look after one area and in turn that ensures the health of another, with the result being a fit and healthy dancer.

2292 words.

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