



Tong Wen Yee, Ballet Teacher
Photo credits: Chu Chen IG: chuchen_sg

Returning to dance post – COVID-19: Moving forward instead of “going back”

Charmaine Tay, June 2020



Tong Wen Yee, Ballet Teacher
Photo credits: Natalie Wong

Travel plans aside, all the meticulous hours of work we have put in to curriculum planning this year has been abruptly disrupted by a pandemic that has forced us into a global lockdown, disabling us from precious time in the studio and on stage. This is new for all of us - it is something we haven't been through in this generation. While it is difficult to speculate exactly what to expect of our bodies by the time we return to the studio, we might have some ideas of how the body has changed since our last day in the studio from a dance science stand point. From understanding these physiological changes in our bodies, we might be better equipped in preparing our programmes for dancers returning to the studio.

Disclaimer: *SCAPE strongly recommend that you consult with your physician before executing any exercises. Information contained within this article are for educational and informational purpose only while authors draw on their professional expertise and research available. In the event that you use the information provided through our website and or article, *SCAPE and the authors assume no responsibility.

Don't expect to pick up right where we left off

Dance requires a high level of athleticism. It entails the ability to repeatedly perform a range of movements with precision and confidence in a variety of environments, which require competent levels of motor skills, strength, power, speed, agility, balance, coordination and endurance. Some skills, such as the muscle memory, will be retained¹-especially for trained dancers. Younger dancers learning new vocabulary or starting pointe work may have to be retrained again to get their bodies used to the movement pattern.

Being away from training for an extended period of time means a loss of skill level². There will be some residual effects of training retained, however, depending on level of fitness prior to the lockdown. Your body may lose its ability and deteriorate in certain aspects³.

Take the last day of training at the studio as Day 0, where we are at our optimal, and assuming we have not done taken any classes since, by:

Day 5(± 3 days), we lose our maximum acceleration (**one jump at maximum height**)

Day 15(± 5days), a decrease in strength (endurance)- (**performing fouettes (turns) optimally**)

Day 18 (±4 days) a decrease in anaerobic endurance (**a solo less than 1.5 min**)

Day 30 (± 5 days) a decrease in aerobic endurance (**a solo more than 1.5min**)

and a decrease in maximum strength (**one lift of maximum weight**)

Given that we have been and will be away from the studio indefinitely, what are the changes in the body we can expect?

- 1. Decreased ability to utilize oxygen efficiently within our bodies, affecting our muscle contractility, nerve signalling, neuromuscular coordination and overall cardiovascular fitness.**

Due to physiological adaptations to our new "norm"- a decline in physical activity and exercise, our body loses its ability to utilize oxygen efficiently. Oxygen is needed to produce energy for our muscles to contract (muscle fibre contractility* *contractility is defined as shortening of muscles fibres*) and for our nerves to send signals to our brain and the rest of the body to negotiate physical demands⁴ (motor unit recruitment and neuromuscular control). Neuromuscular control involves coordination, sequencing and muscle patterning. The ability to repeat movement and sustain positions for long periods, also known as aerobic endurance, is also compromised when the body is unable to meet oxygen demands. Due to the inefficient delivery of oxygen supply to the muscle and nerves, the body goes into fatigue a lot quicker, even at the same work load, pre COVID-19. Fatigue has always been associated to an increased injury risks^{5, 6} and it is important for us to have an awareness of how the body might react when we return to training.

Disclaimer: *SCAPE strongly recommend that you consult with your physician before executing any exercises. Information contained within this article are for educational and informational purpose only while authors draw on their professional expertise and research available. In the event that you use the information provided through our website and or article, *SCAPE and the authors assume no responsibility.

2. Increased risk of injuries when returning the studio post-Covid19

As a result of dancing in the constraints of our own home, we have avoided practicing our pirouettes (turns), allegros (fast movements) and across-the-floor sequences due to improper flooring and space restrictions. Exercises requiring power and speed (agility), such as kicks, jumps and leaps, may bring about injuries when returning to the studio post COVID-19. Let's break down the components of jumps and turns to understand how it will be affected:



Tong Wen Yee, Ballet Teacher
Photo credits: Shaun Ho

Initiating a jump- concentric muscle activation. A decrease of strength in large muscle groups will result in smaller muscle groups to over compensate because there is not enough force coming from the larger muscle groups. The dependency on smaller groups will cause muscular strains because those muscles are not able to handle forces required in an efficient manner.



Landing a jump- eccentric muscle control. This is where both strength and coordination are involved. Apart from the usual worry over misalignment of the knee caving in or foot rolling in static, the bigger concern here would be the dynamic forces involved in the over reliance on tissues and structures that are less extensible, such as the ligaments and joint capsules, that the body is relying on for passive tension to keep things in place during the landing. This in turn would cause discomfort on the from bad landing.

Agility- quick change of directions. Attributable to the decrease in strength to maintain stability in the upper body, additional stress will be placed at the knees and ankles when the upper body tries to negotiate quick directional changes in exercises such as petit allegro (small jumps) or travelling turns.

The overall quality of leaps and kicks will not be at the level where we left off. Sub-optimal activation of certain muscle groups will inevitably lead to the use of compensatory mechanism that utilise smaller muscle to do work of big muscles, leading to compensated movement injuries.

Turns- While balancing exercises can be practiced at home, pirouettes are avoided due to lack of proper surfaces to practice on. Moreover, younger dancers who rely more on visual feedback from the mirrors in dance studios may find it difficult to balance when they are without full length mirrors at home, thus decreasing their balance confidence.

Disclaimer: *SCAPE strongly recommend that you consult with your physician before executing any exercises. Information contained within this article are for educational and informational purpose only while authors draw on their professional expertise and research available. In the event that you use the information provided through our website and or article, *SCAPE and the authors assume no responsibility.

Focus on moving forward rather than going back

As we return to our studios post COVID-19, instead of rushing back to pick up where we left off, we need be prepared mentally for the fact that yours or your students' bodies may have changed. We will all be excited to get back to the studio when the precautionary health measures are lifted, but pushing them too hard at the beginning can lead to an injury and set them back for a longer period of time. Take time to communicate with your dancers⁷, how much conditioning they have done by themselves to understand where they have left off and create a culture where dancers dare to open up and voice out that they may not be as fit as before. We have to remember that everyone has different living conditions, arrangements and resources and it is important to validate their experiences during the circuit breaker and identify their concerns when they return. Check in with them without a judgements and establish new norms and expectations with the dancer so we don't make them feel like they have to be right where they left off.

Be cautious of getting dancers to execute movements in full range as they now have less control of their bodies. Incorporate resistance training with exercises bands or weights to assist in reprogramming their bodies to regain control over the movements and reintroduce awareness to proper alignment. It is important to plan a structured and gradual return to form, focusing on gently increasing flexibility, strength and intensity. Meanwhile, keep active and stay healthy!

Disclaimer: *SCAPE strongly recommend that you consult with your physician before executing any exercises. Information contained within this article are for educational and informational purpose only while authors draw on their professional expertise and research available. In the event that you use the information provided through our website and or article, *SCAPE and the authors assume no responsibility.



Currently a dance science and anatomy lecturer at the dance department, as well as a body conditioning, advance ballet and jazz at the musical theatre department of LASALLE College of The Arts. Charmaine also coaches competition group and elite programme at City Ballet Academy for local and international dance competitions. Charmaine is the first Singaporean to graduate with a MSc in Dance Science from Trinity Laban Conservatoire of Music and Dance in 2013.

References

1. Batson, G. Proprioception. Resource Paper. International Association for Dance Medicine and Science, 2008.
2. Graves, J. E., Ploutz-Snyder, L. L., & Pollock, M. L. (2004). Physiological consequences of deconditioning in physically active populations. In *Deconditioning and Reconditioning* (pp. 39-58). CRC Press.
3. Convertino, Victor A.; Bloomfield, Susan A.; Greenleaf, John E. An overview of the issues: physiological effects of bed rest and restricted physical activity, *Medicine & Science in Sports & Exercise*: February 1997 - Volume 29 - Issue 2 - p 187-190
4. Rivera-Brown, A. M., & Frontera, W. R. (2012). Principles of exercise physiology: responses to acute exercise and long-term adaptations to training. *Pm&r*, 4(11), 797-804.
5. Hopper, L., & Blevins, P. (2016). Maybe you should stop dancing... a little. IADMS blog post. Available at: www.iadms.org/blogpost/1177934/249918/Maybe-you-should-stop-dancing-a-little.
6. Irvine, S., Redding, E., & Rafferty, S. (2015). Dance fitness. IADMS Resource Paper. Available at: c.ymcdn.com/sites.
7. Krasnow, D., Kerr, G., & Mainwaring, L. (1994). Psychology of dealing with the injured dancer. *Med Probl Perform Art*, 9(1), 7-9.

Disclaimer: *SCAPE strongly recommend that you consult with your physician before executing any exercises. Information contained within this article are for educational and informational purpose only while authors draw on their professional expertise and research available. In the event that you use the information provided through our website and or article, *SCAPE and the authors assume no responsibility.