Dance/USA
Task Force on Dancer Health

BUILDING STRONG PERFORMERS:
Weight Lifting or Resistance Training for Dancers

Dancers are often hesitant to lift weights or participate in resistance training programs as a form of cross training and conditioning. There are many reasons why dancers do not participate in these forms of training, but some of these reasons are based in myth. In general, these programs can be very effective, safe and beneficial for dancers. This resource will discuss these myths and educate dancers on safe participation in these types of programs.

MYTHS

1. Weight lifting or resistance training will make a dancer's muscles "bulky" or "huge".
   Reality: Increasing muscle size is actually quite challenging for the average person! It is a very slow process that requires years of training at a very high intensity with very heavy weights for at least 4-6 days every week. A high-calorie diet is also required. Genetics and hormones can influence body shape and muscle size, as well.

2. Dancers don't need resistance training.
   Reality: Dance training by itself does not build enough strength to prevent injuries. Decreased strength can actually cause injuries! Weight training or resistance training can improve lean muscle mass, improve bone density, improve tendon strength, help muscle imbalances, positively influence mental health, and help prevent chronic health conditions.

3. Lifting weights will decrease a dancer's flexibility
   Reality: Just like every exercise program, dancers need to perform proper warm-ups and proper stretching at cool-down, to maintain their normal flexibility.

4. Weight training is dangerous, especially if I am hypermobile
   Reality: In general, weight training is no more dangerous than other activities. The dancer needs to maintain correct form and warm-up properly. For hypermobile

dancers, weight training is especially important. Weight training creates an active support for the joints in the hypermobile dancer.

WEIGHT TRAINING PRINCIPLES TO GUIDE DANCERS

In general, weight training for dancers is used to develop a foundation of strength and fitness rather than improve specific dance technique or movements. These programs can be good cross-training for dancers since the movement patterns used during traditional weightlifting lifts are not very dance specific. Weight training programs are not a replacement or alternative to dance class or dance specific conditioning. Instead, weight training programs are used to help develop a baseline level of physical fitness and physical preparedness which should make the development of dance skills easier and more effective. Many sport medicine and physical training principles can help dancers understand and utilize a weight training program safely and effectively.

General Physical Preparation (GPP) is a term often used in physical training or strength and conditioning literature. GPP is the opposite of specific Specialized Physical Preparation (SPP), which would consist of class, rehearsal, and dance specific conditioning programs.
GPP programs for any athlete, including dancers, consist of resistance or weight training, endurance training or aerobic conditioning, power training plyometrics (jumping and power training), and speed training. All of these aspects of fitness are required during dance and need to be trained.

The timing of this generalized training, which includes weight training, is also important. This leads to another sport medicine or physical training principle: periodization. Periodization or periodizing training, means setting specific time periods of training, known as blocks, for specific goals in order to prevent overtraining and allow continued improvements in fitness and skill development. Periodization in sport often comes with in-season and off-season training blocks, but in dance, there is not always a well defined off-season. Periodization for dance can look different for each dancer, but a simple way to look at periodization is to think in terms of “rehearsal period” and “performance period.” There may be overlap of these time frames, but this gives a simple framework for considering training periodization.

During a performance period, a training strategy could look more like Figure 1 below. Less time is spent on weight training and generalized fitness exercises that are part of GPP, and more time and effort are spent on the specialized and technical preparation required to be capable of performing the specific choreography for a performance. During a layoff or during a less intense rehearsal period, a training strategy could look more like Figure 2, with more time and energy spent on developing overall general fitness and less time on specific technical skills.

Figure 1

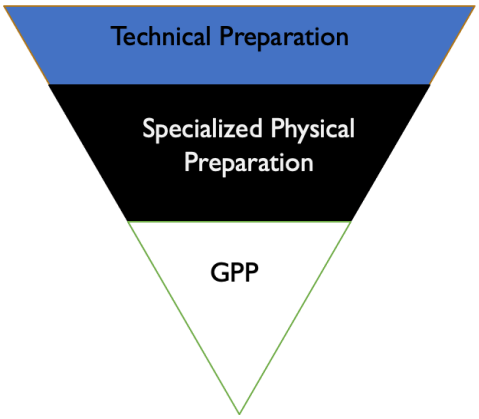
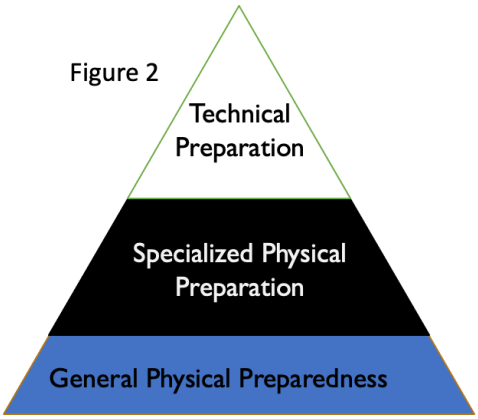


Figure 2



Like with all forms of training, weight training needs to be tailored to a specific goal. For example, a dancer performing many overhead lifts would benefit from doing more weight training movements that involve moving weight equipment overhead. A dancer that is required to do a lot of deep pliés, lunge movements, or get on and off the floor, would benefit from doing more squat based weight training. This is another sport medicine training principle called specificity of training.

Another aspect of specificity when developing a weight training program for GPP is understanding how to determine an appropriate number of sets and repetitions, as well as understanding how heavy of a weight should be lifted. A general way to think about repetitions and sets is to consider the goal. To build strength and be able to move the heaviest amount of weight possible the most amount of times, a higher weight with a small repetition range is required. To create muscle fiber size increase, called hypertrophy, a moderate weight with a moderate number of repetitions is required. To build muscular endurance, a lighter weight with more repetitions is required. In order to determine how heavy the weights should be, you could estimate a 1RM (one repetition max) which is the maximum amount of weight you could possibly lift once. A strength and conditioning coach or a dance trainer can help you determine this number in a safe way. If you are unable to work with a strength professional, a nice rule of thumb is the last 2-3 repetitions of your sets should be very challenging to perform. If you are fatigued by the first 2-3 repetitions, the weight is likely too heavy. If you can do the entire set of repetitions with ease and no fatigue, the weight is likely too light. See Figure 3 for some generalized recommendations.

Figure 3

Fitness Goal	Weight	Repetitions	Sets
Muscular Strength	Heavy weight (80% or more of 1RM)	2-6	3-5
Muscular Size/ Hypertrophy	Medium weight (60-80% of 1RM)	5-12	3-5

Muscular Endurance	Light weight (less than 60% 1RM)	15-20	2-3

WEIGHT TRAINING MOVEMENTS

Movements: Dancers, like all athletes, benefit from large, full body movements when exercising. The reason is twofold: it creates strength in a global, coordinated fashion and it is highly efficient because it trains multiple areas at once. You can work the entire body in as little as half an hour and need not go any longer than one hour. Here are some basic movements we recommend:

DIAPHRAGMATIC BREATHING: All good movement starts with breathing! Lie on your back, place your hands on your belly, and breathe in deeply. Imagine that you are filling your lungs like balloons and that they are expanding into the space under your hands. With each breath, your hands should rise towards the ceiling and you should feel the ribs pressing backward toward the ground. Diaphragmatic breathing is a three dimensional breathing technique to fill the lungs and expand the ribcage in all directions.

3 sets of 10 breaths

PLANKS: Planks are another time to work on good breathing technique. Once in position with your hands or forearms, continue to focus on breathing into the diaphragm. Your abs should be engaged, keeping your low back from dropping. Even with this stability running through the front of your core, your belly should still expand with each breath. It can be a little tricky, but with practice, it will become more self-evident. Think of it like meditating—a little bit everyday will take you a long way.

3 sets of 10 to 15 breaths

SQUAT: These can be performed with body weight, goblet style (holding a weight in front of your body), or with a barbell. Performing squats in front of a mirror can be a good way to monitor form.

FORM BASICS:

1. The knees should be pushed to the outside of the body and not allowed to fall inward toward the midline. If you imagine the kneecap as a flashlight, the beam should shine over the outer two toes.
2. Your upper body should maintain an upright posture– draw your shoulder blades together (imagine holding a pencil between them or flattening them to the ribcage), keep your upper traps relaxed, and lift your sternum up and out. The lower you go in your

squat, the more you'll want to collapse, so keep the chest nice and open and the knees out.
3. The goal is to get your hips lower than your knees—that's pretty deep! In that position, the weight of your body and any load you are using is being directed into the hips, which are strong and stable. If your hips are higher than the knees, more pressure will be put on the knees. Plus, the depth brings more challenge and thus more strength!
4. If you find yourself struggling with any of these points, we highly recommend consulting a professional. Squatting with correct form is challenging and can take a lot of practice!

   3 sets of 8 at body weight to warm up
   3 sets of 10 with an appropriate weight

OVERHEAD PRESS: The overhead press is an all-around strengthener. It requires excellent core control, especially around the pelvis. It also trains good shoulder mechanics when executed properly. Lastly, it is an indispensable tool in preparing for partner dancing.

FORM BASICS:

1. Start by standing tall with your pelvis neutral. The knees should be fully extended (not hyperextended) and the head should be neutral with the chin level and eyes facing forward.
2. Whether holding a barbell or dumbbell, keep elbows directly under the hands. From a side view, there would be a straight line from the hand to the elbow. (It should not appear as if the elbow is behind the hand.) The wrists should also be neutral while gripping the weight.
3. When performing the press, the finish position should end with arms parallel to ears. If you are holding a barbell, the bar will be directly over the crown of the head. If holding dumbbells, the hands will be lined up with the crown of the head. Avoid arching the back as you get there. (Think of your planks!)

RECOMMENDATIONS

SAFETY: Our recommendation is always to consult a strength and conditioning coach when learning a new lifting routine. Without expert eyes, it can be hard to know where to start or what form issues need the most attention. The truth is, every lifter eventually needs coaching. Some general rules of thumb for safety include starting slow– err on the side of too light rather than too heavy, err on the side of fewer reps and sets, and listen carefully to your body. If something doesn't feel right after working out, have it evaluated. When using weights, be especially mindful of your feet—don't drop a weight on them! If not working with a coach, see if you can get a buddy to work out with you.

EXERCISE SELECTION: The above recommendations target the most important areas. You could maintain excellent strength with nothing but these; however, that's kind of like cooking with only salt and pepper. You can't go wrong, but you'll be missing out on broader possibilities. Like cooking, it's easier with a recipe! We recommend consulting a coach to broaden your horizons.

Disclaimer: The information on weight lifting or resistance training contained in this paper is intended to help guide and inform the dancer. It is not meant to take the place of the advice of a medical professional. This information is provided by Dance/USA Task Force on Dancer Health.

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