

GYMNASTICS

Gymnastics combines physical skills such as body control, coordination, dexterity, gracefulness, and strength with tumbling and acrobatic skills, which has further evolved from exercises that included skills for mounting and dismounting a horse, and from circus performance skills developed to be performed in an artistic manner. If a patient wishes to be involved in gymnastic training, only certain aspects of the training demands can be used with the aim of making the patient more physically active, stronger and more flexible. Improvements in these elements may have a significant improvement in the patient's functional ability and therefore, the ability to perform everyday tasks. Once these elements are improved, more difficult gymnastics related activities could be performed, but only those that are safe, do not cause pain and are simplified (e.g. tumbling).



Gymnastics focuses mainly on the flexibility and strength of the individual compared to other sports, such as football, which focus on cardiovascular fitness. This is because these are the key skills used during participation, as to perform the majority of techniques the individual would need a combination of both strength and flexibility to perform and hold tasks needed within the sport. Gymnastics requires explosive power and strength to hold and control positions and thus is regarded as high intensity, however, it is not the intention of the training for the patient to develop those at first. Instead, the aim of the main training sessions should be solely based on improving overall cardiorespiratory fitness, strength and flexibility.

Warm up (10minutes)

- Walking/brisk walking/jogging around the matt x 6, head and wrist gentle rolls, trunk gentle twists, toe and foot extensions, 2 steps rebound, high toe 8-16 counts, heel 8-16 counts, open and closing the gate
- Slowly perform basic techniques within the range of motion that does not cause pain that would be used in the session
- Variation of upper and lower range of motion gentle exercises

Main Session (45minutes)

Flexibility

Flexibility in gymnastics is integral as tight muscles can result in injury. It is commonly thought that gymnasts possess unusual muscle strength or elasticity through their genes; however, this is not necessarily true as gymnastics athletes develop their strength and flexibility through a regimen of regular stretching and resistance exercises. Improving flexibility is very important for patients with different chronic diseases, but the exercises should be performed in such a way so that they do not cause any pain. As such, the instructions of the coach/volunteer should always be to stretch to the point that does not cause any pain at all.

Table 20 illustrates exercises that can be performed all or in part, from every patient having any chronic disease:

Table 20: Flexibility Exercises based on a Gymnastics Sessions for Patients with Chronic Diseases

Exercise	Time/Reps	Frequency
Neck stretches	30 sec each side	2 times
Shoulder rotations, forward and back	15-20 reps each arm	2 times
Hip rotations, forward and back	15-20 reps per leg	2 times
Trunk twists	20	2 times
Standing quadriceps	30secs each leg	2 times
Standing hamstring	30sec each leg	2 times
Standing Triceps	30sec each arm	2 times
Hip circles	10 each direction	2 times
Back extension	15sec	2 times

Comments

Avoid overextension and movements that may cause pain

Cardiovascular Fitness

Improving cardiorespiratory fitness should be the aim of this sport in terms of the diseased population, as improvements in fitness result in better quality of life and may prolong life. An intervention that can assist in improving this is aerobic gymnastics, a dance-related physical activity, which can be based on simple moves and involves moving on the matt with gentle strength and flexibility exercises with musicality in the routine, lasting up to 2 minutes. Dance-related activities have been proven to be effective in improving cardiorespiratory fitness in patients with different chronic diseases while having many other health benefits for the patient. The routine could be choreographed and should involve very simple movements tailored to the patient's functional ability.

An example of this can be a 2 minute choreographed piece that can be performed 4-6 times per session with a 1-2 minute break. This should involve walking with range of motion exercises of the upper and lower body, brisk walking to move around the matt and holding gymnastics-related poses that may help increase strength.

To avoid repetition and thus promote adherence to the programme, this choreographed piece can be changed after 4-5 sessions once performed well and without any difficulty and can even progress into a more challenging routine. This does not mean incorporating explosive and/or complex movements. It means providing a variation of the first low intensity piece. Progression should be considered once the patient's fitness improves and they are moving more efficiently and without any pain. The patient and coach/volunteer must understand the pain threshold markers as some movements that create slight discomfort may be beneficial for the progression of the participant.

The coaches/volunteers should employ their experience in developing such low-intensity choreographed pieces that can have elements of gymnastics but incorporating simple movements that do not cause excessive pain. This is why it is always important to discuss this with the participant, before developing the piece, with the patients potential functional disabilities, movements that cause pain but also to have feedback during and after the piece to see if any of the movements were difficult to perform. If this is the case, different exercises should be used. Instructors/coaches should have a compassionate approach to guiding patients into a comfortable activity pattern taking on board elements of the training that they enjoy and those they do not, as this is key to adherence and creating an activity habit.

The coach/volunteer should have in mind that the patient should not be trained to become a gymnast or to perform at high intensities. The coach/volunteer should aim to get the patient to start moving more and become more physically active and agile. This is the reason why cardiorespiratory fitness training for gymnastics should be low-to-moderate intensity based on the benchmark comparison of walking and brisk walking with progression to more vigorous forms, only if the patient is fit and strong (which can be the case after a 3 month exercise programme).



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Strength

In gymnastics, a combination of improving upper and lower body strength is essential because the sport requires control to hold certain positions. Predominately, gymnastics is a sport that employs explosive power (i.e. to increase jumping height). However, for patients with chronic diseases, the focus should be more on improving overall strength, which can be achieved by incorporating (in the training) sport-specific strength training elements, but at lower intensities and more simplified. Patients that attend gymnastics training regularly and long term, will improve their strength so the possibility of performing and practising more gymnastics-specific exercises is also possible. This, however, should be the case when the patient does not experience any pain in these movements.



The exercises highlighted in table 21 can be performed all or in part, from every patient having any chronic disease:

Table 21: Strength Exercises based on a Gymnastics Training Session for Patients with Chronic Diseases

Exercise	Time/Reps	Progression	Frequency	Break
UPPER BODY				
Rows with Elastic Band	8-12reps	15-20reps	3 times	30 sec
Supine/Standing Side Bend	30 secs	1 min	3 times	30 sec
Supine/Standing Knee Raise	30 secs	1 min	3 times	30 sec
Supine/Standing Pelvic Tilt	10reps	-	3 times	30 sec
Abdominal Curl	1-15reps	20 reps	3 times	30 sec
LOWER BODY				
Heel Walk	30 secs		3 times	
Toe Walk	30 secs		3 times	
Plié	8-10 reps	15-20 reps	3 times	
Leg Lift to front, back ,side	8-10 reps	15-20 reps	3 times	
Side-To-Side Lunge	8-10 reps	15-20 reps	3 times	

Comments

Rows with Elastic Band

Light elastic bands can be used by all patients

Supine/Standing Side Bend

Avoid overhead arm movement in patients with upper body functional disabilities/pain

Supine/Standing Knee Raise

Avoid full movement in patients with recent hip replacement or inflammation of the hip/knee

Supine/Standing Pelvic Tilt

Avoid full movement in patients with recent hip replacement or inflammation of the hip/knee

Abdominal Curl

Focus on flat back and correct technique

Heel Walk

Avoid in patients with knee inflammation/surgery/severe osteoarthritis

Toe Walk

Avoid in patients with knee inflammation/surgery/severe osteoarthritis

Plié

Avoid in patients with knee inflammation/surgery/severe osteoarthritis

Leg Lift to front, back ,side

Avoid in patients with knee inflammation/surgery/severe osteoarthritis

Side-To-Side Lunge

Focus on technique. Avoid in patients with knee inflammation/surgery/severe osteoarthritis

Cool Down (10 minutes)

Walk around the matt with light stretching of the worked muscles.

General Comments

It is important to understand that when training patients, the focus of the training should be to improve overall cardiorespiratory fitness, strength and flexibility, not to become a competitive gymnast. Therefore, the coach should tailor the gymnastics program according to this and the patient's functional ability. Most patients can perform all the exercises described above, provided that none of these cause pain. In addition, performing these exercises will improve the patient's overall fitness and therefore, this will result in major improvements in their everyday life. We should also make sure that the patient is cleared for exercise from their consulting doctor.

Although gymnastics has not been utilised in research studies as a sport to improve patient's overall fitness and/or strength and/or flexibility, the suggested exercises above follow basic principles of exercise rehabilitation, so if developed with appropriate care for the patient, they can have major health benefits. Certainly, difficulties can exist particularly for patients who have major functional limitations of either the lower or upper body. For example, patients with lower (e.g. ankle/hip/knee replacement, osteoarthritis of the ankle/hip/knee) or upper (breast surgery, bypass surgery, inflammation of the elbow/shoulder/wrist) functional disability should still be active but their exercise programme should be developed so that it involves only exercises with limited range of motion (so it does not cause pain) but still enables the performance of all the training elements

