



JAY LUCKEY
USA
Haemophilia B with inhibitors

EDUCATION
STRENGTH
FUTURE
ATTITUDE

TalkingJoints®
feel something, do something

let's talk exercise

for people with haemophilia

Always consult your healthcare professional before commencing an exercise programme, including the activities described in this leaflet.



VICTOR DA SILVA MELCUNAS
Brazil
Victor has severe haemophilia A

contents

Why be active?

Exercises for people with haemophilia

'Dos' and 'Don'ts'

Your exercise plan

Exercises for flexibility

- Knee
- Ankle
- Shoulder
- Elbow
- Wrist

Exercises for strength

- Hamstring
- Thigh
- Ankle and calf
- Elbow
- Wrist

Exercises for balance/joint stability

- Lower body
- Calf muscle and ankle joints
- Tandem walking
- Upper body

Further resources

why be active?

People with haemophilia are at risk of bleeding into joints, particularly into the knees, elbows and ankles.^{1,2} Over time, repeated bleeds can lead to joint damage, such as stiffness, weakness and pain.²

People sometimes avoid physical activity, thinking that it may cause bleeds.³ In fact, when carried out properly, regular activity can help prevent bleeds and joint damage.³ Being physically active offers a number of benefits for people with haemophilia such as:

- Helping to preserve and protect joints^{4,5}
- Improving joint stability, strength and range of motion⁵
- Helping to maintain a healthy weight,^{6,7} so reducing stress on the joints⁶

- Helping you to carry out activities of daily living³ such as dressing, eating and shopping
- Allowing you to participate in activities with friends⁶
- Helping you get mobile again after a bleed⁸
- Improving general health and wellbeing.⁶

Talk to your healthcare professional about which physical activities are right for you, and which specific exercises can help you reach your goals.^{6,8} Knowing what you want to achieve from physical activity – from ‘moving around the office more easily’ to ‘taking part in organised sport’ – will help you and your healthcare professional design an exercise programme that is right for you.⁶

exercises for people with haemophilia

This booklet includes examples of exercises that can be carried out by people with haemophilia, as recommended by a group of specialist haemophilia physiotherapists and nurses. They include exercises for stretching, for strength and for balance/joint stability. In addition to descriptions of each exercise, each page includes tips on what to be aware of when carrying out the exercise, and a ‘functional application’ which suggests when the exercise might be useful. A detailed description of exercises for people with haemophilia has been published by the World Federation of Hemophilia.³

Always follow your healthcare professional’s advice about which activities to undertake.⁸

‘Dos’ and ‘don’ts’

Keep these ‘dos and ‘don’ts’ in mind when undertaking physical activity.

Always listen to your body; some degree of discomfort may be expected when trying out a new exercise, but if you experience a pain that is increasing, it’s important to slow down or to even stop completely.³

Always consult your healthcare professional before commencing an exercise programme.⁸

DO	DO NOT
Use an exercise plan developed with a healthcare professional. ⁸	Exercise a joint during an active bleed. ⁹
Be vigilant for joint or muscle bleeds. ³ Treat any bleeds immediately with clotting factor, ideally within 2 hours. ⁷	Avoid physical activity, as it can help prevent joint bleeds. ³
Start with low intensity exercises and few repetitions, and gradually progress to more advanced exercises as recommended by your healthcare professional. ³	Continue to exercise if you feel pain. ³
Set functional goals that are meaningful for you. ⁸	Overdo things or try to progress too quickly – stick to the exercises recommended by your healthcare professional. ³
Incorporate a range of exercises including flexibility, strength and balance. ^{6,8}	Start a sport/activity following a bleed without discussing with your healthcare professional. ⁶
Measure progress. ⁸	Do high-impact sports or power lifting that may precipitate a bleed. ^{7,9}



your exercise plan

General instructions for stretching:

- Hold in a tolerable position, feeling some tension in the muscle⁹
- Hold the stretch for 15–30 seconds for each repetition⁸
- Avoid bouncing/ballistic stretching as it can cause damage.^{8,9}

Flexibility/stretching	F1	F2	F3	F4	F5	F6	F7	F8
No. of repetitions								
No. of sets								
No. of times/week								
No. of weeks								
Other instructions								

Always consult your healthcare professional before commencing an exercise programme, including the activities described in this leaflet.

Strength	S1	S2	S3	S4	S5	S6	S7
No. of repetitions							
No. of sets							
No. of times/week							
No. of weeks							
Other instructions							

Always consult your healthcare professional before commencing an exercise programme, including the activities described in this leaflet.

Balance/Joint stability	B1	B2	B3	B4
No. of repetitions				
No. of sets				
No. of times/week				
No. of weeks				
Other instructions				

Exercises for flexibility

Flexibility/stretching – Lower body

F1 Joint: knee³

A version of this exercise is also good for strengthening muscles around the knee – see **S2** on page 12.



Basic

Lie with the thigh supported (on a cushion or rolled towel) and the knee bent in a comfortable position. The knee is then straightened and the heel slowly lifted off the surface.

Advanced

For an advanced stretch, use the hands or a strap to lift the leg and hold it in position.

Comments

Avoid 'locking' the knee or ankle; do not keep the leg too rigid.

Ensure the back, particularly the lower back, is flat against the floor.

Make sure the head is supported properly with a cushion to prevent strain to the neck.

Functional application

Useful where there is difficulty getting out of bed; carry out the stretching exercise in bed before rising.

Flexibility/stretching – Lower body

F2 Joint: knee³

A version of this exercise is also good for strengthening muscles around the knee – see **S1** on page 12.



Basic

Lie on the stomach and, keeping hips as flat as possible, bend the knee towards the bottom.

Advanced

To increase the stretch, reach back and grab the foot, gently pulling it as far as it will go towards the buttocks. If preferred, stand facing a wall or table for this exercise, balancing with one hand on the wall. Pull the foot towards the buttock while keeping the hip extended. A towel can be used as an aid to stretch.



Comments

Important not to overflex the knee. Use gentle pressure that feels comfortable on the front of the knee.

Try to ensure the hips both remain on the floor and do not tilt to the left or right with the weight of the leg.

For the standing version, be careful to stand up straight rather than leaning to one side or another.

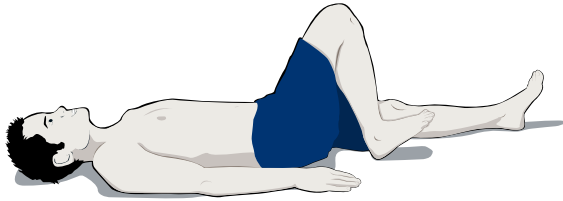
Functional application

Good to maintain movement of the knee and to improve movement after a period of immobility (such as after a bleed or injury).

The lying-down version also stretches the hip muscles and can help improve posture.

Flexibility/stretching – Lower body

F3 Joint: knee³



Lie or sit with both legs straight out. Bend the hip and knee and slide the heel towards and away from the body in a slow, controlled movement.

Comments

It is important to support the back in this exercise, so tilt the pelvis slightly backward, so the lower back does not become arched, and pull in the abdominal muscles.

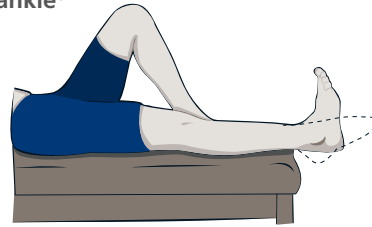
Functional application

Useful for people who want to work on the range of motion of the knee to progress to activities such as cycling, either outside or on a stationary bike at the gym.

Having proper amounts of knee bending makes it more comfortable to sit in a stadium seat/theatre seat.

Flexibility/stretching – Lower body

F4 Joint: ankle³



Lie in a comfortable position and move the foot up and down and in and out.

Comments

If it is more comfortable, lie on a bed or sofa and extend the legs over the end.

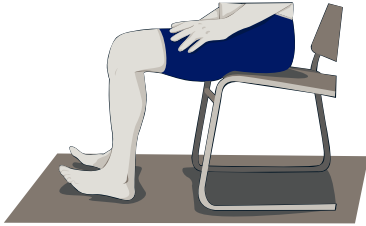
Functional application

Useful where there is difficulty getting out of bed; carry out the stretching exercise in bed before rising.

Useful where walking distance is limited because of stiffness in the ankles.

Flexibility/stretching – Lower body

F5 Joint: ankle³



Sit in a chair with the feet flat on the floor and slowly raise the front of the foot while keeping the heels down.

Can also be done lying or standing.

Comments

Sit towards the edge of the chair, in a comfortably upright position, and think about using the abdominal muscles to support the trunk. In this sitting position tilting the pelvis slightly forward will help to activate the trunk muscles.

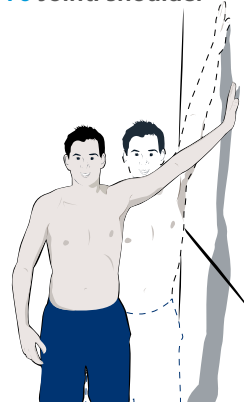
Functional application

Useful where walking distance is limited because of stiffness in the ankles.

An advantage of this exercise is that it can be done at school or work, or on the train, bus or plane.

Flexibility/stretching – Upper body

F6 Joint: shoulder¹⁰



Stand slightly closer than arms-length away from a wall. Then raise the arm to shoulder level and gently 'walk' the fingers up the wall as high as possible.

Hold for a few seconds, and then walk the fingers back down.

Comments

Be careful not to overstretch but gradually increase how high over time.

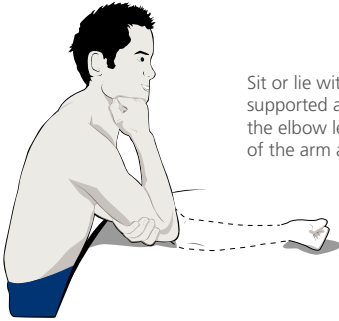
Functional application

A good range of shoulder motion is useful for activities of daily living such as washing and dressing.

Flexibility/stretching – Upper body

F7 Joint: elbow³

A version of this exercise can also be used to strengthen muscles around the joint – see **S5** on page 14.



Sit or lie with the elbow supported and slowly extend the elbow letting the weight of the arm assist.

Comments

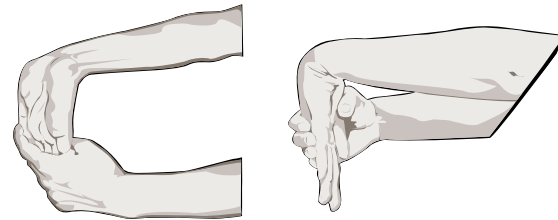
Be careful not to over-flex or overextend the joint: never stretch into the straight position far enough to elicit 'crunchiness' or 'grinding' in the joint.

Functional application

A good range of elbow motion is vital to activities of daily living such as washing, dressing, eating, shaving etc.

Flexibility/stretching – Upper body

F8 Joint: wrist¹⁰



Hold the arm out as straight as possible. Use the other hand to gently apply pressure to the palm of the hand to pull it back.

Apply gentle pressure to the front of the hand to stretch the wrist in the opposite direction.

Comments

Do not lock the elbow while doing this stretch.

Functional application

A good range of wrist motion is vital to activities of daily living such as washing, dressing, eating, shaving etc.

Exercises for strength

Strength – Lower body

S1 Hamstring muscle³

The prone version of this exercise also serves as a stretch for the knee joint – see **F2** on page 8.



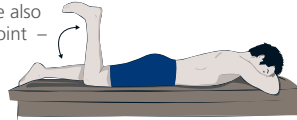
Basic

Lie on the stomach and bend the knee slowly through 90 degrees, then slowly lower the foot to its resting position.

Advanced

This exercise can be performed while standing and holding on to a wall or furniture for support.

The most advanced version involves standing and using a weight attached to the ankle for additional resistance.



Comments

The standing version of this would not be recommended if there is an active problem with the ankle or if ankle pain prevents standing on one foot.

If done in a standing position, ensure that the weight is evenly spread across the ball and heel of the foot on the floor.

Functional application

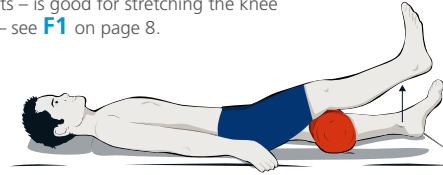
Useful if the hamstring muscles have become tight:

- In people who spend a lot of time sitting
- Following a bleed or a period of pain in the knee joint.

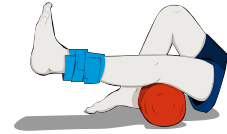
Strength – Lower body

S2 Thigh (quadriceps) muscle³

A version of this exercise – without the weights – is good for stretching the knee joint – see **F1** on page 8.



Lie on the back with a roll support under the knee. The knee to be exercised should then be extended and the heel lifted. Additional resistance can be added to the exercise by adding weights at the ankle.



Comments

Do not keep the leg too rigid.

Ensure that the back is flat against the floor.

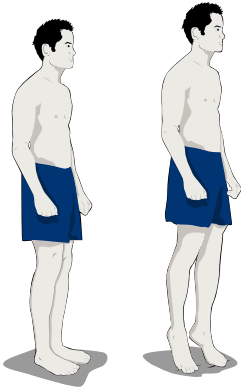
The head should be well supported comfortably on a pillow or cushion.

Functional application

Maintaining good strength in the quadriceps helps reduce the risk of injury or pain in the knee.

Strength – Lower body

S3 Ankle and calf muscles³



In a standing position, lift both heels and stand on the toes.

Aim is to go straight up and down – *imagine a string at the top of your head, pulling you up*. Make sure the knees are kept straight and keep the speed slow and controlled.

Comments

Best done following ankle flexibility exercises.

The feet should be comfortably hip width apart.

Hold on to a chair or wall, or raise the arms for additional balance.

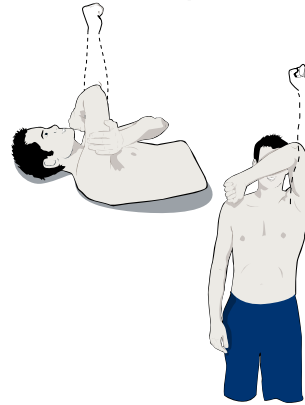
Functional application

Ankle strength is useful for numerous functional activities, including walking and climbing stairs.

This exercise can also aid improvements in balance in the ankles.

Strength – Upper body

S4 Elbow (triceps)³



Elbow extension strengthening exercises can be performed at a number of different levels.

1. From a bent position, push the arm down into the other hand, holding the position for 5-10 seconds.

2. In a sitting or lying position, begin with the elbow bent (hand near the shoulder) and extend the hand towards the ceiling, straightening the elbow.

3. Weights can be added for further resistance. Start with a low weight, and combine movements with 'palm up' and 'palm down' movement.

Comments

Avoid sustained 'locking' of the elbow.

Keep the shoulders relaxed and avoid tensing. Before beginning the exercise, shrug then relax the shoulders.

Keep the speed slow and steady.

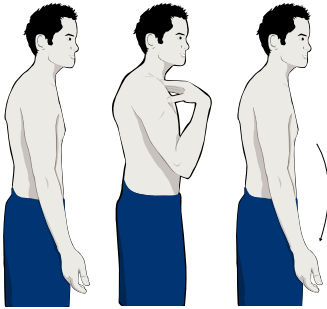
Functional application

Practical applications of elbow strength include being able to push up out of a chair, open doors and carry shopping bags.

Helps with the flexibility and range of motion of the elbow joint.

Strength – Upper body

S5 Elbow (biceps)¹⁰



Basic
Start with the arm down, palm facing forward, then lift up to the shoulder and back again.

The exercise can be done in either a standing or sitting position.

Advanced
Using weight to increase the resistance.

Comments

Keep the body still, and the back straight avoiding rocking back and forth. The quality of the exercise is more important than the quantity of repetitions.

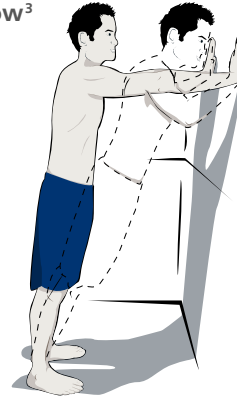
Be careful not to lock the elbow when the arm is extended.

Functional application

Practical applications of elbow strength include being able to push up out of a chair, open doors and carry shopping bags.

Strength – Upper body

S6 Elbow³



Stand facing a wall with arms as straight as possible.

Lean in towards the wall, allowing the elbows to bend. Return to upright position by pushing with arms and straightening elbows.

Comments

Avoid if there are shoulder or active elbow problems.

Start with only small amounts of bending and progress gently.

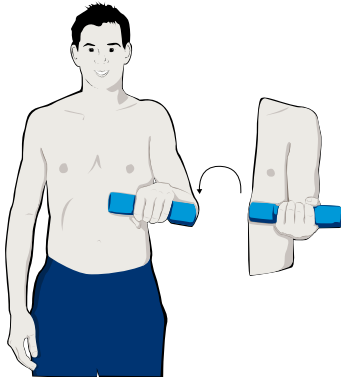
Wear non-slip shoes or bare feet to reduce the risk of slipping.

Functional application

Practical applications of elbow strength include being able to push up out of a chair, open doors and carry shopping bags.

Strength – Upper body

S7 Wrist³



Basic

Sit supported on a chair with the forearm resting either on a table or along the arm of the chair.

Holding a small weight in the palm of the hand, alternate between palm up to palm down.

Advanced

The exercise can be progressed to starting with the forearm still supported and the hand hanging over the edge of the table. Do the exercise with the weight through the full range of movement.

Comments

Do not try to overextend the wrist.

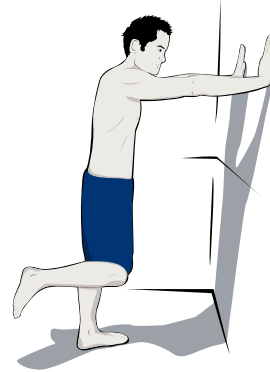
Remember to relax the shoulders.

Functional application

Wrist strength is required for tasks such as turning a door knob, or using a kitchen spatula while cooking.

Balance/stability

B1 Lower body³



Stand on the affected leg and attempt to maintain balance.

Basic

Perform the exercise first with the eyes open then closed. Progress from holding on to a chair or wall to standing unsupported.

Advanced

Progress to balancing on an unstable surface, such as a pillow or block of foam.

Comments

Start by holding on to a wall or chair until balance improves.

Start by placing weight on the ball of the foot, and then the heel, moving between these two extremes to find a point where the weight is balanced across the whole of the sole of the foot.

Use with caution if there are problems with the ankle joint.

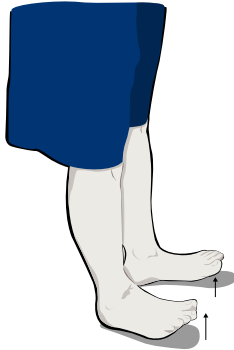
Keep shoes on if it is more comfortable or orthotics are worn.

Functional application

Useful where balance is a problem.

Balance/stability

B2 Calf muscle and ankle joints¹¹



Raise toes as high as possible so that body weight rests on the heels. Walk for around 10 feet/3m.

Repeat walking on the toes.

Comments

May need to start by holding on to a wall when attempting this exercise until balance improves.

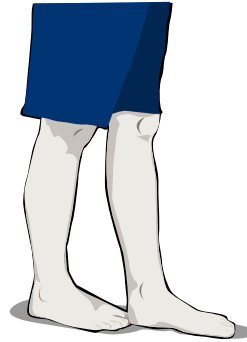
The arms can also be raised or placed on the hips for additional balance.

Functional application

Maintaining good strength in the quadriceps helps reduce the risk of injury or pain in the knee.

Balance/stability

B3 Tandem walking¹¹



Place one foot in front of the other so that the heel of the forward foot touches the toes of the rear foot.

Walk as if on a tightrope with the heel of one foot touching the toes of the other.

Walk for around 10 feet/3m.

Comments

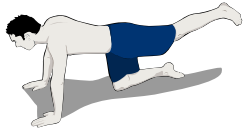
Carry out this exercise on firm flooring e.g. without carpeting or on a low-pile carpet.

Functional application

Useful where balance is a problem.

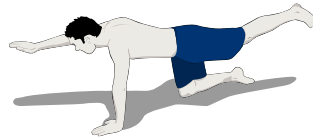
Balance/stability

B4 Upper body³



Basic

Start with the hands and knees on the floor; knees under hips and wrists under shoulders. The back should be flat and the neck straight. Raise one leg backwards, balance should be maintained on both arms. Do not raise the leg too high; the back should not dip.



Advanced

Raise the affected arm and the opposite leg and maintain balance. Try to raise and lower the arm and leg at the same time. Always bring the knee and wrist back to the original position.

Comments

Should only be attempted if there are no active elbow, knee or shoulder problems.

Must be confident and able to get down on the floor and kneel as well as being able to get off the floor unaided.

May need to cushion the knee and under the foot if the ankle has limited plantarflexion (pointing down movement).

The exercise should be done slowly and in a controlled way.

Functional application

Useful for improving posture.

Further reading

- National Hemophilia Foundation Playing It Safe: Bleeding Disorders, Sports and Exercise 2005, New York: National Hemophilia Foundation. Available from <https://www.hemophilia.org/sites/default/files/document/files/PlayingItSafe.pdf>
- Mulder K. (2006) World Federation of Hemophilia: Exercises for people with haemophilia. Available from www.wfh.org [under Resources > Search the Library]

Reference list

1. Rodriguez-Merchan EC. Haemophilia 2012; 18(1): 8–16.
2. Lafeber FP *et al.* Haemophilia 2008; 14 Suppl 4: 3–9.
3. Mulder K. Exercises for people with haemophilia. 2006, Montreal, Quebec, Canada: World Federation of Hemophilia.
4. Gilbert MS. Musculoskeletal complications of hemophilia: the Joint. 1997, Montreal, Quebec, Canada: World Federation of Hemophilia.
5. Mulder K and Llinás A. Haemophilia 2004; 10: 152–156.
6. Negrier C *et al.* Haemophilia 2013; 19(4): 487–98.
7. Srivastava A *et al.* Haemophilia 2013; 19(1): e1–47.
8. Blamey G *et al.* Haemophilia 2010; 16 Suppl 5: 136–45.
9. National Hemophilia Foundation: Playing It Safe: Bleeding Disorders, Sports and Exercise. 2005, New York, USA: National Hemophilia Foundation.
10. Kisner C and Colby LA. Therapeutic exercise (6th edition). 2012, Philadelphia, USA: FA Davis Company
11. Judge JO. Am J Prev Med 2003;25(3Sii):150–56

Version 3.0 Updated January 2016

“let’s talk exercise” is part of the **TalkingJoints®** programme to encourage better understanding of how physical exercise can help look after the body and joints of patients with haemophilia.



TalkingJoints® is a programme of information, education and support that talks to healthcare professionals, patients and carers about haemophilia and its impact on joint function. TalkingJoints® aims to help individuals detect changes early (feel something) and act accordingly (do something). We hope that by helping people with their joint function we can help improve the way they live with haemophilia, for the better.

