

機良膝物

運動訓練

Exercise for
your knees



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本小冊子旨在透過運動及護理教育，使膝痛患者能：
This pamphlet aims to empower you to develop the following abilities through exercise and education.



70 歲以上的人士中，有三分之一人受慢性關節痛影響。其中，膝關節跟大多數活動功能有關，例如走路、站立。雖然退化性膝關節炎無法逆轉，但保持活躍能有正面的效果！我們可以通過運動及自我護理，減輕症狀，改善生活中的功能障礙。

One third of people aged above 70 suffer from chronic joint pain. In those, knee are involved in many functional activities, e.g. walking and standing. Although knee osteoarthritis cannot be reversed, staying active can have positive effects! Through exercise and self-care, we can reduce symptoms and improve function.



膝關節

Knee Joint



退化的膝關節：軟骨變薄和粗糙、關節時會腫脹；關節邊緣有骨質增生。

In the degenerative knee joint, the cartilage becomes thinner and rougher; the joint may swell and osteophytes may also form around the joint edge.

1 自然退化

Natural degeneration

長年累月的活動和受力，使膝關節軟骨退化。加上年齡漸長，新陳代謝減慢和膝關節液流失使復原能力減弱，導致慢性發炎。

The knee joint cartilage degenerates over time, due to the accumulation of activities and loading. Besides, metabolism gets slower and joint lubricant reduces with aging. These all weaken the repair ability of the joint, resulting in chronic inflammation.

2 不正確姿勢及活動

Inappropriate posture and activities

長期蹲下，經常上落樓梯、斜路，及過於劇烈的跳躍及跑步，都會加快膝關節的退化。

Prolonged squatting, frequent stairs climbing or slope walking, and vigorous jumping and running may speed up knee joint degeneration.



3 關節負荷過重

Excessive loading on joints

體胖，經常搬運重物亦會加重膝關節的負擔，加速退化。

Being overweight and frequently carrying heavy objects could overload knee joints and accelerate the degeneration.



4 創傷

Injury

創傷如撞傷和跌傷亦可能會加快關節退化。

Injuries like contusions and falls may accelerate joint degeneration.



1 疼痛
Pain

2 腫脹
Swelling

3 發熱
Increase in
temperature

4 發紅
Redness

5 大腿無力
Thigh weakness

6 膝關節活動幅度受限
Restricted range of knee joint

7 膝關節活動時發出聲響
Crepitus of knee joint

8 膝關節略微增大或突出
Enlargement of knee joint

9 嚴重者膝關節會變形或攣縮
Deformity or contracture may happen in severe
condition



運動的好處 Benefits of exercise

★ 改善肢體功能
Improve functional ability

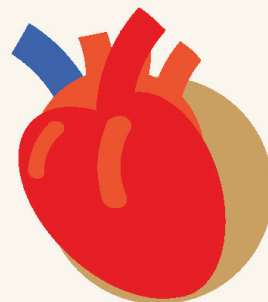
★ 改善生活質素
Improve the quality of life

★ 減少服用止痛藥
Reduce intake of medicine for pain relief

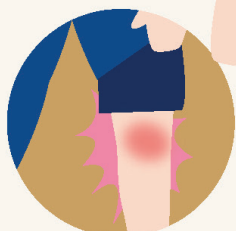
★ 減低手術需要
Reduce the need for surgery



改善心情
Improve mood



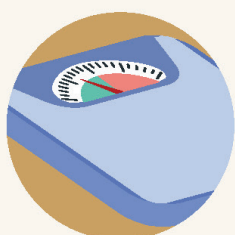
增強心血管健康
Improve cardiovascular health



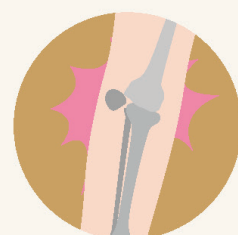
舒緩關節繃緊感覺及
減輕痛楚
Reduce joint stiffness and
reduce pain



強化肌肉
Improve muscle
strength



控制體重
Weight control



改善骨骼及軟骨健康
Improve bone and cartilage health



甚麼是發作？ What is flare up?



- ★ 只是組織受刺激
Maybe tissue irritation
- ★ 警告訊號
Warning signals
- ★ 屬正常
Normal
- ★ 並不代表關節惡化
Doesn't mean joint worsening
- ★ 是暫時性的
Temporary

如何處理？ How to manage?

- ★ 先休息
Take a rest
- ★ 嘗試冰療或熱療
Try ice therapy or heat therapy
- ★ 看病情用藥
Take medications accordingly
- ★ 按症狀調節運動強度
Adjust the exercise according to symptoms
- ★ 鬆弛自己
Relax yourself
- ★ 慢慢回復正常活動
Gradually restore normal activities



如何分別處理急性和慢性膝關節炎？

How to manage acute and chronic inflammation of knee joint?

	急性膝關節炎 Acute inflammation	慢性膝關節炎 Chronic inflammation
紅 Redness	✓	✗
腫 Swelling	✓	✓
痛 Pain	✓	✓
熱 Increased in temperature	✓	✗
處理方法 Treatment	★ 冰療 Ice therapy ★ 適當休息 Proper rest ★ 關節活動 Joint mobilization	★ 熱療 Heat therapy ★ 運動鍛鍊 Mobilization and strengthening

冰療

Ice therapy

可使用冰袋或急凍青豆於膝關節敷十分鐘

Use ice pad or iced peas
Apply for 10 minutes on knee

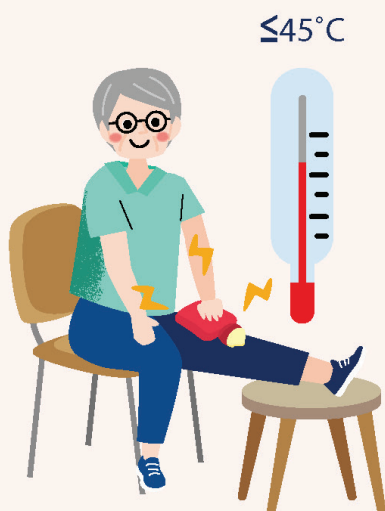
熱療

Heat therapy

- ★ 可使用暖毛巾或暖水袋
Use warm towel or warm pad
- ★ 並用毛巾包裹
Use towel to wrap the pad
- ★ 溫度不應超過攝氏 45 度
Temperature should not exceed 45°C
- ★ 於膝關節暖敷 15 分鐘
Apply for 15 minutes on knee

冷熱治療的注意事項及禁忌症

Precautions & Contraindications of Ice and Heat Therapy



- ★ 熱療的溫度不應超過攝氏 45 度
Heat therapy should not exceed 45°C
- ★ 如使用過久，冰療和熱療可能會導致皮膚灼傷
Both ice and heat therapy can cause skin burn if overtime
- ★ 經常檢查皮膚
Regular skin checking
- ★ 冷或熱療不能和藥膏同時使用
Do not apply heat and cold therapy with ointment

“ 若有以下的禁忌症，則不能使用冷熱治療
Heat or ice therapy would not be suggested with the
contraindications listed as below ”

熱療

Heat therapy

- ✗ 傷口
Open wound
- ✗ 急性發炎
Acute inflammation
- ✗ 喪失溫度感覺
Loss of sensation
- ✗ 血液循環不良
Poor blood circulation

禁忌症

Contraindications

冰療

Ice therapy

- ✗ 傷口
Open wound
- ✗ 對冰敏感
Allergic to ice
- ✗ 喪失溫度感覺
Loss of sensation
- ✗ 血液循環不良
Poor blood circulation

體重管理 Weight management

- ★ 適量減輕體重，以減輕關節負擔。
Reduce weight appropriately to reduce joint loading
- ★ 適量運動 + 控制飲食
Adequate exercise + Diet control

你的體重合乎理想嗎？
Is your body within an ideal range?



$$\begin{array}{ccccccc} \text{體重指標 (BMI)} & = & \underline{\hspace{2cm}} & / & \underline{\hspace{2cm}} & = & \underline{\hspace{2cm}} \\ \text{Body mass} & & \text{體重 (公斤)} & & \text{身高 (米)}^2 & & \\ \text{index (BMI)} & & \text{Weight (Kg)} & & \text{Height (m)}^2 & & \end{array}$$



過輕
underweight
<18.5



標準
normal
18.5 - 22.9



過重
overweight
23 - 24.9



肥胖
obese
≥25

運動篇章 Exercise chapter

關節退化，有得醫嗎？ Is joint degeneration curable?

- ★ 在正常活動下，身體會嘗試修補關節的損傷。
With normal activity, the body tries to repair joint damage.
- ★ 關節退化是衰老的自然過程，運動和適當的關節保護可以減輕關節疼痛。
Degeneration is a natural part of aging, but joint pain can be reduced with exercise and proper joint protection.
- ★ 雖然退化可能隨時間惡化，我們仍可採取措施減少生活中的功能障礙。
Although degeneration may worsen over time, we can take steps to reduce disability.
- ★ 開始運動永遠不嫌晚！
It's never too late to start exercising!

“ 如果你想幫助關節，一定要保持活躍！ ”
If you want to help the joint, you must stay active!

運動的種類 Types of exercise	建議運動頻率 Recommended exercise dosage
關節運動及伸展運動 Joint mobilisation and stretching exercise	每天 Every day
肌肉強化運動 Strengthening exercise	每週兩至三天 2 to 3 days per week
帶氧運動 Aerobic exercise	每週三至五天 3 to 5 days per week

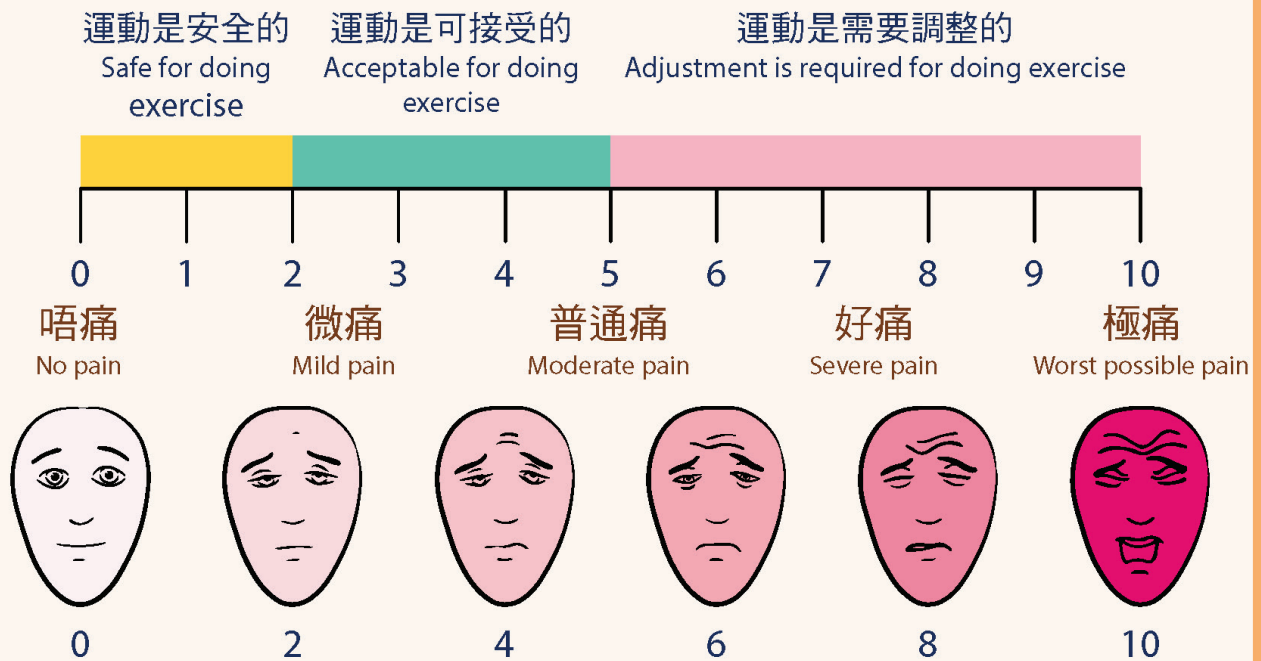
帶氧運動 Aerobic exercise

多長時間？ How long?	<ul style="list-style-type: none"> ★ 每天 30 分鐘或以上 30 minutes or more per day ★ 每次最少 10 分鐘 10 minutes or more per session
要多費力？ How hard?	<ul style="list-style-type: none"> ★ 身感微溫 Increase in body temperature ★ 心跳稍加快 Increase in heart rate ★ 仍能保持談話 Still able to talk
做些甚麼？ What to do?	<ul style="list-style-type: none"> ★ 例子：急步行、踏步、踏單車、游泳 Example: Jogging, Marching, Cycling, Swimming ★ 按你喜好 As you like ★ 融入每天生活中 Integrate into your daily activities

何時需要調整鍛鍊計劃？

When do you need to adjust your exercise program?

- ★ 運動後所增加的痛楚維持多於 1-2 天。
Any pain increase in that lasts for more than 1-2 days.
- ★ 痛楚的嚴重程度大於 5 分。
Pain severity with a score of above 5.



運動小貼士

Exercise Tips

- ★ 運動應量力而為
Do exercise according to your ability.
- ★ 留意運動期間的痛楚變化
Pay notice to the changes of pain pattern during exercise.
- ★ 運動時所感受的痛楚程度是可接受的
Pain should be tolerable when doing exercise.
- ★ 可使用以下方法調整鍛鍊計劃：
You can adjust your exercise program by:
 - 減少運動次數
Reduce the repetition of exercises.
 - 增加運動的休息時間
Increase rest between exercises.
 - 減低運動強度
Reduce the intensity of exercises.
 - 先做溫和運動（例如關節運動）舒緩痛楚
Start with gentle exercises, such as joint mobilisation exercise to relieve pain.

關節運動 Joint mobilisation exercise

仰臥屈膝 Heel slide in supine lying

仰臥，左膝屈曲，維持 5 秒，伸直左腿。
換腳並每邊重複動作 10 次。

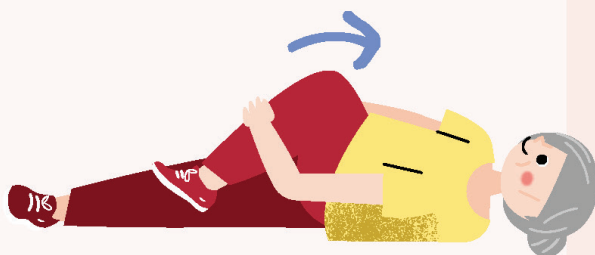
Lie on your back. Bend your left knee and hold for 5 seconds. Straighten your left leg. Switch leg and repeat 10 times for each side.



仰臥抱膝 Knee to chest in supine lying

仰臥，左膝屈曲，雙手抱緊左膝，拉向胸口，維持 5 秒，然後放下。換腳並每邊重複動作 10 次。

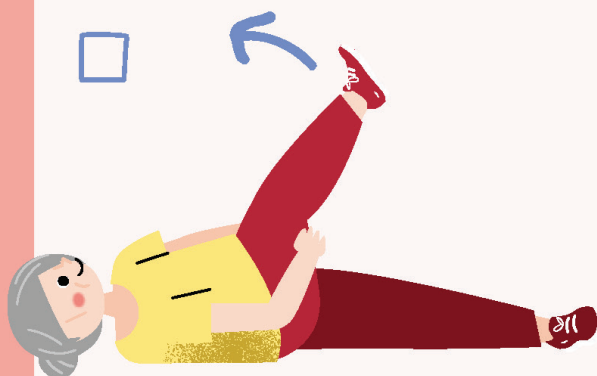
Lie on your back. Bend your left knee and hold onto it. Pull it toward your chest and hold for 5 seconds. Lower your left knee back down. Switch leg and repeat 10 times for each side.



伸展運動 Stretching Exercise

膕繩肌伸展（仰臥）

Hamstring stretch (supine lying)



仰臥，左膝屈曲，雙手抱住大腿，慢慢將左腿伸直，直到感覺大腿後方肌肉拉緊，維持 10 秒。換腳並每邊重複動作 10 次。

Lie on your back and bend your left knee. Hold onto your left thigh with both hands. Slowly straighten your left leg until you feel a stretch in the back of your thigh. Hold for 10 seconds. Switch leg and repeat 10 times for each side.

伸展運動 Stretching Exercise

坐式腘繩肌伸展 Hamstring stretch in sitting



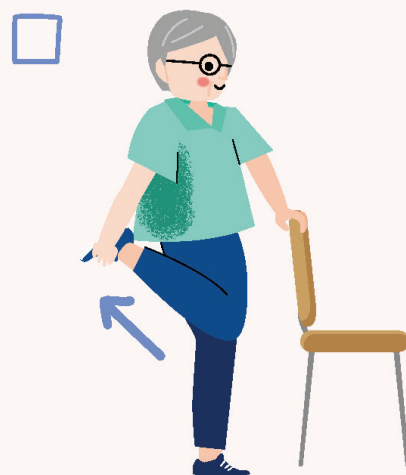
坐著，伸直其中一隻腳，保持腰背挺直。慢慢向前傾，直至感覺大腿後方肌肉拉緊，維持 10 秒。換腳並每邊重複動作 10 次。

In sitting, straighten one leg while keeping your back straight. Slowly lean forward until you feel a stretch in the back of your thigh. Hold for 10 seconds. Switch leg and repeat 10 times for each side.

站式股四頭肌伸展 Quadriceps stretch in standing

站立並扶穩，將其中一隻腳屈曲，用手捉住腳踝，向上拉腳並向後提起，保持腰背挺直，直至感到大腿前方肌肉拉緊，維持 10 秒。換腳並每邊重複動作 10 次。

Stand and hold onto a stable surface. Bend one leg and use your hand to hold your ankle. Keep your back straight and gently bring your heel close to the buttock until you feel a stretch in the front of your thigh. Hold for 10 seconds. Switch leg and repeat 10 times for each side.



站式腓腸肌伸展 Calf stretch in standing



弓步站立並扶穩，前膝微曲，後腿保持伸直，慢慢向前傾，直至感覺後腳小腿肌肉拉緊，維持 10 秒。換腳並每邊重複動作 10 次。

Take a bow stance and hold onto a stable surface. Slightly bend the knee in front while keeping the back leg straight, until you feel a stretch in the calf of your back leg. Hold for 10 seconds. Switch leg and repeat 10 times for each side.

仰臥提腿 Straight leg raise in supine lying

仰臥，保持右腿伸直，提起右腿，維持 5 秒。換腳並每邊重複動作 10 次。

Lie on your back. Lift your right leg while keeping it straight. Hold for 5 seconds. Switch leg and repeat 10 times for each side.



仰臥肩橋運動 Bridging exercise



◆ 初級難度 • Easy



曲膝仰臥，收緊腹部及臀部，然後慢慢提高臀部，維持 5 秒。重複動作 10 次。

Lie on your back. Bend your knees and raise the buttock. Hold for 5 seconds. Repeat 10 times.



◆ 中級難度 • Medium



如圖示，曲膝仰臥，收緊腹部及臀部，雙腳腳尖離地，慢慢提高臀部，維持 5 秒。重複動作 10 次。

Lie on your back and bend your knees. Lift your toes off the floor and raise your buttock. Hold for 5 seconds. Repeat 10 times.



◆ 高難度 • Hard



如圖示，仰臥時把右腳曲膝提起，收緊腹部及臀部，然後慢慢提高臀部，維持 5 秒，重複動作 10 次。換腳。

Bend your right leg and raise your buttock. Hold for 5 seconds, then lower the buttock to the original position. Repeat 10 times. Switch legs.

俯臥屈腿 Hamstring curl in prone lying

◆ 初級難度 • Easy



俯臥。右腿屈曲將腳跟帶向臀部，維持 5 秒，再緩緩將右腿放下。換腳重複動作 10 下。

Lying on your stomach, bend your right knee to bring your heel toward your buttock and hold for 5 seconds. Slowly bring your right leg down. Switch leg and repeat 10 times.



◆ 中級難度 • Medium



把橡筋帶繫於腳踝以上以提高難度。左腿伸直貼地，右腿屈曲將腳跟帶向臀部，維持 5 秒，再緩緩將右腿放下。換腳重複動作 10 下。

Tie an elastic band around the ankles for progression. Keep the left foot straight on the floor. Bend your right knee to bring your heel toward your buttock and hold for 5 seconds. Slowly bring your right leg down. Switch leg and repeat 10 times.



蚌殼式臀中肌訓練 Clams exercise

側臥，髖、膝關節屈曲。保持雙腳腳跟貼攏的同時，抬起上方膝蓋，維持 5 秒。每邊重複動作 10 次。

In side-lying, bend your hips and knees. Lift your top knee while keeping your heels together. Hold for 5 seconds. Repeat 10 times for each side.



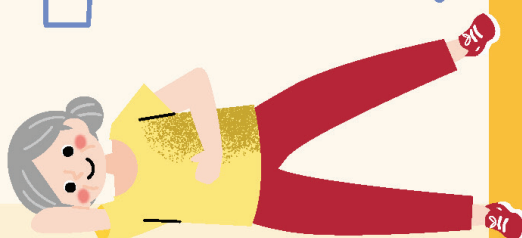
側臥側提腿 Hip abduction exercise in side lying

側臥，上方的腳伸直並向上提起，維持 5 秒，每邊重複動作 10 次。

注意：避免向前踢腳或轉動腰部。

In side-lying, keep the top leg straight and lift it upward. Hold for 5 seconds and repeat 10 times for each side.

Remarks: Avoid lifting the leg forward or rotating the trunk.



橡筋帶肌肉強化運動

Strengthening Exercise with Elastic Band

股四頭肌 Quadriceps



坐著，將橡筋帶綁在雙腳腳踝位置，然後將腳舉起伸直，維持 5 秒後將腳放下，左右交替。重覆 10 次。

In sitting, tie the elastic band around ankle level, straighten one leg. Hold for 5 seconds, then bring your leg down. Do it alternately. Repeat 10 times.

髋關節外展肌肉

Hip abductor



坐著，雙腳併攏，將橡筋帶綁在雙膝上方位置，收腹，然後將大腿打開，維持 5 秒後將腿併攏。重覆 10 次。

In sitting with your feet placing together, tie the elastic band just above both knees, spread your thighs apart while tucking your tummy in. Hold for 5 seconds, then return slowly to the starting position. Repeat 10 times.

站式側提腿

Hip abduction exercise in standing

站立並緊扶固定物，腰背挺直，腳往旁邊提高，每次停留 5 秒再緩緩放下。換腳重複動作 10 次。

In standing, hold onto a stable object. Keep your back straight. Lift your leg to the side. Hold for 5 seconds each time, then slowly lower it. Switch legs and repeat the movement 10 times.



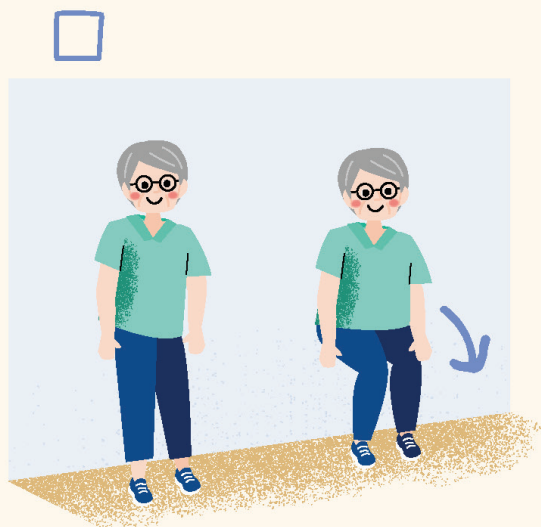
腳尖站立 Heel raise in standing

站立並緊扶固定物，提高腳跟並以腳尖支撐身體。停留 5 秒，重複動作 10 次。

In standing, hold onto a stable object. Raise the heels and hold for 5 seconds. Repeat 10 times.



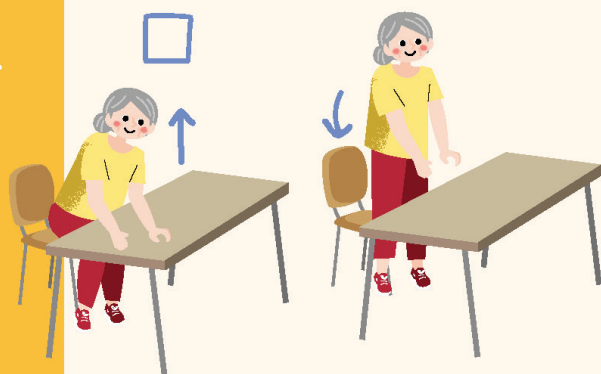
倚牆半蹲 Wall squat



在稍微離開牆壁的距離企立，背部向後依靠牆壁。屈膝，背部沿著牆下滑，直至半蹲。維持5秒，然後緩緩站起。重複動作10次。

Stand slightly away from the wall, with your back leaning against it. Bend your knees and slide your back down the wall until half-squat. Hold for 5 seconds, then slowly stand back up. Repeat the movement 10 times.

起立坐下 Sit to stand



慢慢地由坐到站立，維持站立5秒，再慢慢坐下。重複動作10次。如有需要可扶固定物以保持平衡。

Stand up from sitting and hold for 5 seconds then slowly sit down. Repeat 10 times. You may hold onto stable object for support if needed.

半蹲 / 弓步微蹲運動

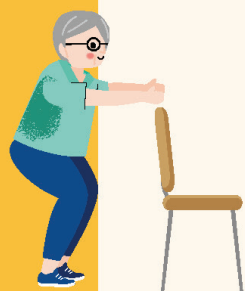
Half squat/ Mini-lunge exercise

◆ 中級難度 • Medium



雙腿分開站立至肩膀闊度，腰板挺直，雙膝微微向下彎曲。每次停留5秒，重複10次。如有需要可扶固定物以保持平衡。

Legs apart in shoulder width, keep your back straight and slightly bend your knees. Hold it for 5 seconds and repeat 10 times. You may hold onto stable object for support if needed.



◆ 高難度 • Hard



身體站直，兩腳與肩同寬，左腳往前跨大步，兩腳膝蓋微微屈曲往下蹲，然後慢慢回到原始位置，重複動作10次。換腳。

注意：避免身體前傾或後仰，膝蓋與腳尖方向呈一直線。

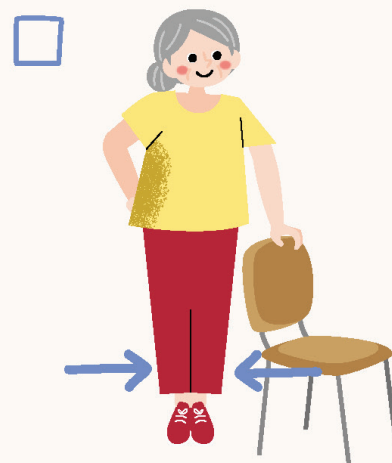
Step one foot forward and slowly slightly bend both knees and then return. Hold it for 5 seconds and repeat 10 times. Switch legs.



雙腳併攏站立 Closed feet standing

站立，將雙腳併攏，盡量保持平衡 10 秒，然後稍作休息。重複動作 10 次。如有需要可扶固定物以保持平衡。

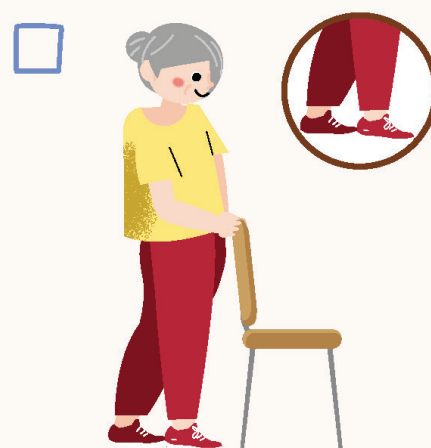
Stand with your feet together, hold for 10 seconds and then relax. Repeat 10 times. You may hold onto a stable object for support if needed.



前後腳站立 Tandem standing

前後腳站立，前腳腳跟緊貼後腳腳尖，盡量保持平衡 10 秒，然後稍作休息。重複動作 10 次。如有需要可扶固定物以保持平衡。

Stand and place one foot directly in front of the other foot, with the toes of one foot touching the heel of the other foot. Hold for 10 seconds and then relax. Repeat 10 times. You may hold onto a stable object for support if needed.



單腳站立 Single leg standing

◆ 中級難度 • Medium



單腳站立，緊扶固定物。慢慢將右腳抬起維持 5 秒，重複動作 10 次。換腳。

Hold onto a stable object and stand on one leg. Hold for 5 seconds and repeat 10 times. Switch legs.

◆ 高難度 • Hard



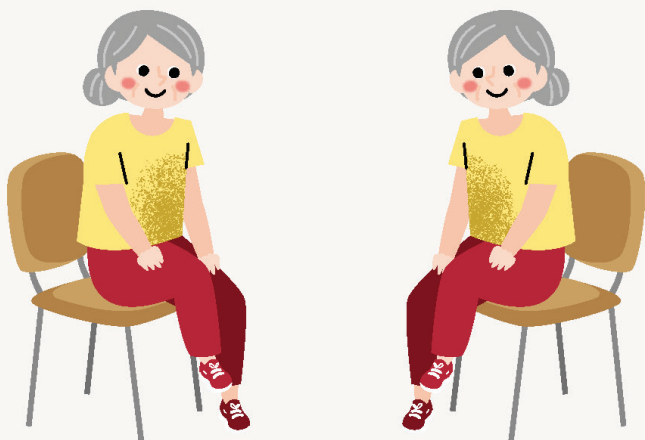
站在不平的地面，例如軟墊上，以增加平衡難度。提腿維持 5 秒，重複動作 10 次。換腳。

Stand on uneven surface (e.g. thick mattress). Hold for 5 seconds and repeat 10 times. Switch legs.

踏步運動 Stepping exercise



◆ 初級難度 • Easy



坐在穩固的椅子上，雙腳交替做踏步動作，運動時間維持 15 至 30 分鐘。

March in sitting. Exercise lasts for 15-30 minutes.



◆ 中級難度 • Medium

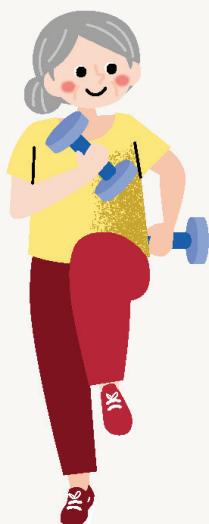


如能力許可，站在平地上，雙手叉腰，雙腳交替做踏步動作，運動時間維持 15 至 30 分鐘。

March in standing. Exercise lasts for 15-30 minutes.



◆ 高難度 • Hard



如能力許可，站在平地上，如圖示雙手拿著水樽或啞鈴，雙腳交替做踏步動作，運動時間維持 15 至 30 分鐘。

March with dumbbells or water bottles in standing. Exercise lasts for 15-30 minutes.

了解膝痛的真相，學習運動及自我護理

Understanding knee pain,
empowering yourself with
exercise and self-management

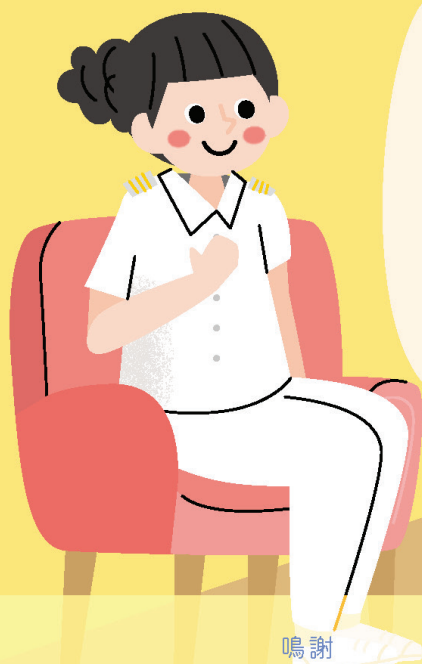
緊記 Remember

- ★ 無懼痛楚
Show no fear of pain
- ★ 懂得處理病徵
Manage your symptoms
- ★ 保持活躍的生活
Maintain active lifestyle
- ★ 朝目標進發
Achieve your goals



身體成份分析（中英對照） Body composition result (bilingual)

體重	Weight
骨骼肌質量	SMM
體脂重量	Fat Mass
體重指標	BMI
體脂百份比	PBF
基礎代謝率	BMR
總熱量消耗	Total Daily Energy Expenditure
目標體重	Target Weight



不正確運動可引致受傷，例如肌肉拉傷、脫臼、骨折、摔倒等，請遵從物理治療師的指示進行運動。

Please consult your physiotherapist for proper ways of exercise to prevent injuries such as muscle strain, dislocation, fracture, fall etc.

新界西醫院聯網 病人啟力基金

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Patient Empowerment Programme
New Territories West Cluster

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