

Living Well Pitfalls of HIIT

Doctors are seeing more injuries from high-intensity interval training during the pandemic



Amrita Kaur

When team sports were suspended and gyms affected by frequent closures amid the Covid-19 pandemic, Mr Edmond Ong turned to high-intensity interval training (HIIT) videos to keep himself in shape.

The 30-year-old account executive thought HIIT workouts, which combine short bursts of intense exercise with periods of rest, were "a convenient and effective option" to keep up his fitness.

But the workouts, which Mr Ong did thrice a week for 20 to 30 minutes each time, took a toll on his body. He wears shoes for the workout, but does not use an exercise mat.

"I had never done HIIT before, and I realised I was pushing myself too hard to make up for the loss of exercise at the gym and my weekly football session with my friends," he says.

As a result, he had to deal with frequent strains and sprains in his shoulders, back and ankle. HIIT has become popular as it burns more calories in a shorter time than other types of workout, requires little equipment, and can be done anywhere. A HIIT workout can last between four and 60 minutes and involves exercises such as jumping jacks, squats and push-ups.

It is considered high intensity as one's heart rate goes up to between 80 and 95 per cent of his or her maximum heart rate. In comparison, during moderate-intensity exercise, a person's heart rate is between 50 and 70 per cent of his or her maximum heart rate.

Studies have shown that HIIT increases the risk of injury due to the strenuous nature of the exercises.

For instance, a 2019 study in the Journal Of Sports Medicine And Physical Fitness by Rutgers University in the United States found an average increase of 50,944 HIIT-related

injuries a year from 2007 to 2016.

Experts that The Straits Times spoke to say they have noticed an increase in injuries from HIIT as more people in Singapore turn to such workouts while staying at home during the pandemic.

Dr Kevin Koo, an orthopaedic surgeon at Mount Elizabeth Hospital, has seen a 50 to 60 per cent increase in HIIT-related injuries between July last year and October this year.

HIIT, which involves running and jumping, puts pressure on the knee joints and can cause injury in the cartilage, meniscus, ligaments or tendons in the knee when it is exercised repeatedly. An acute injury can be caused if a person twists his or her knee during the workout, says Dr Koo.

A sprained ankle may also result if a person lands awkwardly while working out. This occurs when the ankle rolls inwards and stretches or tears the ligaments on the outer part of the ankle, he explains.

Rotator cuff or labrum injuries at the shoulder are also common among those who do weightlifting and overhead movements during HIIT, says Dr Koo. The rotator cuff is a group of muscles and tendons that surround the shoulder joint, while the labrum is the fibrous rim that lines the shoulder socket.

Dr Koo also sees patients with muscle strain, ranging from a minor overstretch to a more severe muscle tear in areas such as the back and hamstring.

"This can happen due to fatigue, overuse of a particular body part or poor technique when doing the exercise," he adds.

Mr Sahayog Sahay, a principal physiotherapist at Gleneagles Hospital, has seen a 10 to 20 per cent rise in injuries caused by HIIT from January to last month compared with the same period last year.

His patients had been leading a sedentary lifestyle and suddenly started exercising at a higher intensity than their fitness level could tolerate. Others, he says, increased the frequency of their HIIT workouts to a few times a week.

Most of the injuries he sees are related to the back, neck and knee. They range from a minor sprain or strain to a disc prolapse, ligament tears in the knee or ankle and tendinopathy – the breakdown of collagen in a tendon in areas such as the kneecap and thigh.

Experts say such injuries arising from HIIT

HIIT a rough patch?



Studies have shown that high-intensity interval training (HIIT) increases the risk of injury due to the strenuous nature of the exercises. PHOTO: ISTOCKPHOTO

may be due to poor strength and endurance, wrong posture or technique, people progressing to higher levels of exercises too soon and insufficient recovery time between exercise sessions.

Common injuries

- Minor sprain or strain
- Labrum tear
- Prolapsed disc
- Ligament tears in the knee or ankle
- Tendinopathy

"Some may also ignore their injuries or force themselves to exercise despite having pain," says Mr Sahay.

Most of the injuries, he adds, are due to accumulated impact over five to six HIIT sessions.

Ng Teng Fong General Hospital's physiotherapy department has seen a 5 per cent uptick in injuries from workouts including HIIT between August last year and this year.

The hospital's senior physiotherapist, Mr Gordon Soh, often sees patients with repetitive strain injuries in the shoulder, knee, foot, ankle and lower back "as these are load-

bearing joints typically involved in the high-intensity movements" in some HIIT workouts.

The demanding nature of HIIT can put a strain on the body if people do not have a good training base to start with, he stresses.

This is why experts advise people not to overexert themselves when doing HIIT, to start slowly and gradually increase the intensity and duration of the workout.

Says Dr Koo: "They should also learn the proper techniques of the exercise, which may involve engaging a fitness trainer at the start."

Fitness trainer May Phua says people should know their purpose in doing HIIT and understand the workout before trying it.

"When doing any workout in high intensity, the velocity of force is tremendous. Hence, the rate of injury is increased too. If you cannot do the exercise properly, you might have reached your limit," she says.

People should take a break of three to four days before trying it the next time, she adds.

Smokers and people who lead a sedentary

lifestyle or have a history of medical conditions such as hypertension, diabetes and obesity should not engage in HIIT without basic preparation, says Mr Sahay. This is because the risk of cardiac problems like a heart attack or muscle or ligament injury is higher.

Basic preparation, he explains, refers to moderate-intensity exercise three to five times a week for 20 to 60 minutes each time. This includes brisk walking, running, cycling and swimming as well as strength training using body weight or resistance bands. The sessions can be done for several weeks before trying HIIT.

"Generally speaking, HIIT is a good and safe workout, provided it's done in the correct manner under professional supervision. It is important to ensure that the duration, intensity, frequency and type of exercise are in line with the fitness level of the participants," says Mr Sahay.

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Pitfalls of HIIT

7 tips to prevent injury

Amrita Kaur

People who engage in high-intensity interval training (HIIT) face greater risk of injury due to the strenuous nature of the workout.

Dr Jong Sze Chin, an associate consultant at Ng Teng Fong General Hospital's division of sports medicine and surgery, and Mr Gordon Soh, a senior physiotherapist at the hospital, share seven tips to prevent injury when doing HIIT.

1

ADEQUATE WARM-UP AND COOL-DOWN

Warming up for five to 10 minutes before exercising is the key to preventing injury. It increases muscle flexibility and joint mobility and gradually increases the heart rate and body temperature, thus preparing the body for more intense exercise.

An example of a useful warm-up is dynamic stretching, which is movement-based and includes arm circles and butt kicks.

Doing cool-down exercises for five to 10 minutes allows one's blood pressure, heart rate and breathing to return to the baseline at a slower pace. Examples of cool-down exercises include stretching, a slow jog or a brisk walk.

2

CUSHIONING

If you are training at home, consider getting workout shoes and an exercise mat to cushion yourself from the impact of explosive and fast movements such as clapping push-ups or jumping.

This will help mitigate forces on load-bearing joints such as the knees and ankles.

3

ENSURE GOOD POSTURE

Always maintain good form when doing HIIT workouts, even when you are tired, as injuries often arise from exercising with poor form.

If you are unsure of the proper technique, ask a fitness professional or physiotherapist to guide you.

If you suffer an injury during HIIT, stop exercising immediately and seek professional attention.

4

REST BETWEEN SESSIONS

As HIIT workouts are more exhausting than typical steady state endurance workouts, a

longer recovery time is often needed. This prevents the overuse of certain muscles or body parts and allows the muscles to recover.

It is recommended to start with one HIIT session a week.

Consider increasing to two sessions a week when you feel more conditioned over time.

Factor in three to four days for recovery between the workouts.

If you develop persistent pain that does not resolve within a week of rest, stop your workout routine and consult a doctor or physiotherapist before continuing.

5

SUFFICIENT SLEEP

Having enough sleep helps with exercise performance and recovery.

Getting at least eight hours of uninterrupted sleep will help you to not only perform better in HIIT workouts, but also recover well afterwards.

6

GOOD NUTRITION AND HYDRATION

Adequate energy intake is important as it supports optimal body function and sports performance.

Take 1.2g to 2g of protein per kilogram of body weight before and after your HIIT workout to build and repair muscles.

For example, a woman weighing 50kg should eat 60g to 100g of protein such as eggs, yogurt, chicken, salmon or tofu before and after the workout. A man of about 70kg should consume 84g to 140g of the same protein sources.

Also drink water several hours before exercising so you are well hydrated.

Do not forget to have water if you are thirsty during the workout to prevent excessive dehydration.

After exercising, drink water or a beverage of your choice to restore hydration.

7

INCORPORATE OTHER EXERCISES FOR OVERALL FITNESS

Proper neuromuscular training – or exercises that condition the nerves and muscles to react well under stress – can improve balance and muscle strength and help prevent HIIT-related injury. Such exercises include lateral jumps and lunge jumps.

Strengthening exercises can also help prevent HIIT-linked injury. Such exercises include leg curls and chest presses.