

Diabetes
and
Foot Care

**PUT FEET FIRST
PREVENT
AMPUTATIONS**



An initiative of the International Diabetes Federation and the World Health Organization

Diabetes and foot care

Put feet first: prevent amputations

World Diabetes Day 2005 focuses on diabetes and foot care. The campaign is aimed at people with diabetes and those in a position to influence and improve their health-care. At present, the number of amputations as a result of diabetes is unacceptable. For this reason, the International Diabetes Federation, the World Health Organization and the International Working Group on the Diabetic Foot are promoting the message that, through good healthcare and informed self care, it is possible to prevent diabetes-related amputations in the majority of cases.

Every 30 seconds
a lower limb
is lost to diabetes

- 40-70% of all lower extremity amputations, are related to diabetes.
- 85% of diabetes-related amputations are preceded by foot ulcers.

Over 194 million people
with diabetes

Diabetes is a serious chronic disease. In 2003 the global prevalence of diabetes was estimated at 194 million. This figure is predicted to reach 333 million by 2025 as a consequence of longer life expectancy, sedentary lifestyle and changing dietary patterns. This rise is likely to bring a proportional increase in the numbers of people with diabetes complications, including problems of the foot. Without action, more amputations are likely.

It is imperative that action is taken by those with the authority to influence healthcare provision and organization.

Focus on Foot Care



Diabetes and foot care

By providing appropriate foot care and education, it is possible to bring about significant reductions in the numbers of amputations.

This will require:

- Prevention
- Multi-disciplinary treatment of foot ulcers
- Appropriate organization
- Close monitoring
- Education of people with diabetes and healthcare professionals

A co-ordinated foot-care strategy can reduce amputation rates by between 49% and 85%.

It is this objective that should motivate the advocacy work of those fighting to make a difference for those living with diabetes around the world.

World Diabetes Day 2005 brings together the entire global diabetes community in order to promote forcefully the message that, with relatively low investment, governments can advance education and prevention that will result in lower rates of amputation than the unacceptable figures seen today. The campaign will also seek to raise awareness of the need for improved diabetic foot care among healthcare professionals at all levels of healthcare services worldwide. The time has come to act!

Reduction of amputation rates by between 49% and 85% is a realistic goal

Time to act:
Better foot care through prevention and education



World Diabetes Day

The primary global awareness campaign of the diabetes world

Reaching millions of people around the world

14 November:
birthday of
Frederick Banting

What is World Diabetes Day?

World Diabetes Day is the primary global campaign for raising awareness of diabetes. It aims to inform the public of the causes, symptoms, complications and treatment associated with the condition. World Diabetes Day serves as an important reminder that the incidence and prevalence of diabetes is increasing all over the world. Diabetes brings significant human, social and economic costs, and will continue to do so unless immediate action is taken to curb the epidemic.

How did it all begin?

World Diabetes Day was introduced by the International Diabetes Federation (IDF) and the World Health Organization (WHO) in 1991 in response to concern over the escalating incidence of diabetes around the world. Since then, it has grown in popularity every year. It brings together millions of people in over 145 countries to raise awareness of diabetes, including children and adults with and without diabetes, healthcare professionals, decision makers and the media.

When does it take place?

World Diabetes Day is celebrated every year on 14 November. The date was chosen because it is the birthday of Frederick Banting who, along with Charles Best, first



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World Diabetes Day

conceived the idea which led to the discovery of insulin in 1922. While many events take place on or around the day itself, themed campaigning is spread over the whole year.

Where does it take place?

World Diabetes Day is celebrated worldwide by the 185 member associations of the International Diabetes Federation in more than 145 countries, as well as by other associations and organizations, healthcare professionals and individuals with an interest in diabetes.

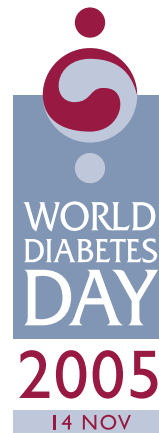
185 IDF member
associations
in 145 countries

The World Diabetes Day logo

In 1996 a permanent logo was designed to create a strong, global identity for World Diabetes Day. The logo combines balance and teamwork and is based on the well-known Chinese symbol of Yin and Yang. A careful balance of medication, diet and physical activity is essential to diabetes management, as is cooperation between people with diabetes, their friends and families, healthcare professionals, and healthcare authorities.

How is it organized?

IDF produces a variety of support materials for its member associations, who in turn distribute them to people with diabetes and their families, the general public, healthcare professionals, the media, as well as local and national



World Diabetes Day

A powerful global voice
for diabetes awareness

decision makers. Member associations use the materials to complement their own awareness-raising initiatives and develop a World Diabetes Day campaign that best meets the needs of their respective communities.

IDF material is also sent, on request, to other like-minded associations, hospitals and clinics, healthcare professionals, and individuals with an interest in diabetes. World Diabetes Day unites the international diabetes community to produce a powerful global voice for diabetes awareness.

How is it celebrated?

IDF member associations develop an extensive range of activities, tailored to a variety of groups. Activities that are organized every year include:

- Radio and television programmes
- Sports events
- Free screenings for diabetes and its complications
- Public information meetings
- Poster and leaflet campaigns
- Diabetes workshops and exhibitions
- Press conferences
- Newspaper and magazine articles
- Events for children and adolescents



World Diabetes Day

Is there a special theme every year?

Each year, World Diabetes Day is centred on a theme related to diabetes. Topics covered in the past have included diabetes and human rights, diabetes and lifestyle, and the costs of diabetes. Since 2001, particular attention has been paid to diabetes complications affecting the heart, the eyes and the kidneys. Recent and future themes include:

2003 Diabetes and Kidneys

2004 Diabetes and Obesity

2005 Diabetes and Foot Care

2006 Diabetes and the disadvantaged

2007 Diabetes in children and adolescents

The International Diabetes Federation

Founded in 1950, the International Diabetes Federation works together with its member associations to enhance the lives of people with diabetes. The mission of IDF is to promote diabetes care, prevention and a cure worldwide. IDF currently counts over 185 member associations in more than 145 countries. IDF activities aim to raise awareness of diabetes and its related complications, improve the provision of and access to diabetes education and raise standards of treatment and care throughout the world. IDF is a non-governmental organization in official relations with the World Health Organization.



IDF - Promoting diabetes care,
prevention and a cure worldwide

Focus on Foot Care



Diabetes a chronic condition

Three million deaths
every year

In many cases diabetes
can be prevented

Diabetes: a global epidemic

Diabetes is an increasing global health threat. In 2003, the International Diabetes Federation estimated that there were 194 million people with diabetes around the world. By 2025 this figure is predicted to rise to 333 million, amounting to 6.3% of the world's population living with diabetes. Each year, over three million deaths worldwide are attributable to diabetes-related causes and diabetes is now the fourth leading cause of death in most developed countries.

In many cases diabetes and its related complications can be prevented. Various studies have shown that this can be done through:

- Simple lifestyle changes (healthier diets and increased physical activity)
- Appropriate healthcare
- Improved healthcare education for the general public, particularly those at risk of diabetes

It is possible to take action to slow the increasing diabetes epidemic and to limit the often devastating consequences of the disease on those affected by it. This requires an integrated, international approach that involves the individual, healthcare professionals, national health authorities, civil society, and the private sector.



Diabetes a chronic condition

What is diabetes?

Diabetes is a chronic condition that arises when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin produced. Insulin is a hormone made by the pancreas that enables cells to take in glucose from the blood and use it for energy. Failure of insulin production, insulin action or both leads to raised glucose levels in the blood (hyperglycaemia).

There are two main types of diabetes:

Type 1: people with type 1 diabetes produce very little or no insulin and require injections of insulin to survive. It is the most common type in children and young adults.

Type 2: people with type 2 diabetes cannot use insulin effectively. They can often manage their condition with lifestyle measures alone. In many cases oral drugs are needed. Sometimes insulin is required.

Both type 1 and type 2 diabetes are serious.

A third type of diabetes develops during some cases of pregnancy but usually disappears afterwards.

Other rarer types of diabetes also exist.

Type 2 diabetes accounts for over 90% of diabetes cases



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Diabetes a chronic condition

Symptoms of uncontrolled diabetes

Common symptoms of type 1 diabetes include:

- Excessive thirst
- Frequent urination
- Sudden weight loss
- Extreme tiredness
- Blurred vision

Almost 50% of people with type 2 diabetes are not aware that they have the condition

People with type 2 diabetes may have the same symptoms, but these may be less apparent. Many have no symptoms and are only diagnosed after several years with the condition.

Diabetes complications

Diabetes is a chronic, life-long condition that requires careful monitoring and control. Without proper management it can lead to hyperglycaemia, which is associated with long-term damage to the body and the failure of various organs and tissues. Short and long-term complications of diabetes include:

Cardiovascular Diseases (CVD) - Diseases of the circulatory system including those affecting the heart. The most common manifestations of CVD include angina, heart attack, heart failure and stroke. CVD is the main cause of

Poor circulation
puts the foot at risk

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Diabetes a chronic condition

death among people with diabetes and is the number one cause of death in industrialized countries.

Kidney disease (diabetic nephropathy) - Results from increasing amounts of protein in the urine and progresses slowly, ultimately resulting in kidney failure. This usually occurs many years after the initial diagnosis of diabetes and can be delayed with tight blood pressure and blood glucose control. Diabetes has now become the most common cause of kidney failure, requiring dialysis or kidney transplantation, in most developed countries.

Nerve disease (diabetic neuropathy) - Damage to the nerve fibres caused by diabetes. Numbness and loss of sensation in the feet is the most common manifestation, resulting from damage to the nerves of the legs. Neuropathy can sometimes lead to severe pain, but more often goes unnoticed. Even in the absence of symptoms, diabetic neuropathy results in a higher risk of foot ulceration and amputation.

Eye disease (diabetic retinopathy) - Damage to the blood vessels servicing the retina of the eye. The small blood vessels in the retina can be damaged by high blood sugar and high blood pressure. Diabetes is the leading cause of blindness and visual impairment in adults in developed countries.

Diabetes is the most common cause of kidney failure in most developed countries

Nerve damage results in an increased risk of amputation

Diabetes is the leading cause of blindness in developed countries



Diabetes a chronic condition

Risk factors for diabetes

Type 1

Both genetic and environmental influences appear to be important in the development of type 1 diabetes. Potential environmental triggers include viruses, toxins in the food chain and dietary components, though to date the involvement of these factors has not been proven in the majority of cases.

Type 2

The risk factors for type 2 diabetes include:

- Overweight and obesity
- Physical inactivity
- High-fat and low-fibre diet
- Ethnicity
- Family history
- Age
- Low birth weight

The more risk factors an individual has, the greater their likelihood of developing type 2 diabetes

The prevalence of type 2 diabetes increases rapidly with age. People over the age of 45 are at higher risk of developing the condition. The chances of developing the condition increase further when age is accompanied by other risk factors for type 2 diabetes.



Focus on Foot Care

Diabetes and foot care

World Diabetes Day 2005

Although many serious complications, such as kidney failure and blindness, can affect people with diabetes, it is the complications of the foot that take the greatest toll from a human and economic point of view.

It is estimated that up to 70% of all lower-limb amputations are related to diabetes. The goal of the 2005 campaign is to convey and promote the message that it is possible to reduce amputation rates by up to 85% through prevention, the aggressive management of existing diabetes, and the provision of appropriate education for people with diabetes and healthcare professionals.

Diabetes and feet

People with diabetes are at risk of nerve damage (neuropathy) and problems with the blood supply to their feet (ischaemia). Both neuropathy and ischaemia can lead to foot ulcers and slow-healing wounds. Infections in these wounds may result in amputation.

It is possible to reduce amputation rates by up to 85%

Up to 70% of leg amputations happen to people with diabetes



Diabetes and foot care

People with diabetes are 25 times more likely to lose a leg than people without the condition

Somewhere in the world a leg is lost to diabetes every thirty seconds

Most amputations begin with a foot ulcer

Diabetic foot ulcers are common. In developed countries, up to five per cent of people with diabetes have foot ulcers, and one in every six people with diabetes will have an ulcer during their lifetime. Foot problems are the most common cause of admission to hospital for people with diabetes. In developing countries, foot problems related to diabetes are thought to be even more common.

Half of all leg amputations happen to people with diabetes. In some areas where such factors as ethnicity, climate and social conditions increase risk, the number of amputations is proportionally even higher in people with diabetes. The impact of diabetic foot disease on people's lives is devastating.

For most people who have lost a leg, life will never return to normal. Amputation may involve life-long dependence upon the help of others, inability to work and much misery.

Aggressive management of the diabetic foot can prevent amputations in most cases. Even when amputation takes place, the remaining leg and the person's life can be saved by good follow-up care from a multidisciplinary foot team.

Prevention can be achieved by:

- Education to help identify problems early



Diabetes and foot care

- An emergency service
- Early detection and treatment of infection
- Excellent diabetes control
- Expert ulcer care

These are often not available. They should be.

The diabetic foot is also a significant economic problem. If amputation results in a prolonged hospital stay, a rehabilitation programme and an increased need for home care and social services, the costs are enormous.

In developed countries up to five per cent of all people with diabetes have a foot problem. They account for 12%-15% of total healthcare resources. In developing countries, it has been estimated that foot problems may account for as much as 40% of the total available resources. In western countries, the economic costs of an ulcer in people with diabetes is thought to be between US\$7,000 and US\$10,000.

The direct cost of an amputation associated with the diabetic foot is estimated to be between US\$30,000 and US\$60,000. The estimated cost for three years of subsequent care for individuals who have healed their ulcer without the need for an amputation has been estimated to be between US\$16,000 and nearly US\$27,000. The corresponding costs for someone who eventually needs an amputation ranges from US\$43,000 to US\$63,000 – mainly due to the increased need for home care and social services.

Many ulcers can be prevented with suitable healthcare and informed self-care

A significant economic problem

Foot problems account for up to 15% of healthcare resources in developed countries

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Diabetes and foot care

Infection often complicates foot ulcers and injuries

Nerve damage results in reduced sensation in the feet

Neuropathy can lead to changes in the shape of the foot

What causes diabetic foot ulcers?

In the main, foot ulcers are caused by:

- Nerve damage (peripheral neuropathy)
- Common deformities such as hammer toes and bunions, or unusually shaped feet for which suitable shoes are hard to find
- Poor blood supply to the feet (peripheral vascular disease)
- Injuries, which may at first appear trivial

Nerve damage

Peripheral neuropathy results in a reduced ability to feel pain. The foot becomes numb and injuries often go unnoticed because they do not hurt. The skin of the foot is often very dry and prone to cracking, which is a common cause of ulceration and infection. When people have nerve damage in their feet and do not wear suitable shoes, ulceration is a very common problem.

Deformity

Feet vary in shape. Changes in the shape of the feet may be present from birth, caused by unsuitable shoes or due to previous surgery. Neuropathy can lead to further changes in the shape of the foot, unusual walking patterns and a subsequent increase in pressure and stress on parts of the sole of the foot. Repeated stresses lead to the development of hard skin (callus) where the pressure is highest. When callus forms on the foot it increases pressure even further, until an ulcer develops under the hard skin.



Diabetes and foot care

Poor blood supply

When the blood supply to the foot is poor, the situation becomes even worse. Healthy feet require oxygen and essential nutrients that are delivered by the blood. In people with diabetes, the supply is sometimes inadequate, and this slows wound healing. When the blood supply is severely reduced, the foot is at high risk of tissue damage and parts of the foot may become threatened. The tissue may decay, leading to a part of the foot dying and turning black. This is called gangrene.

Poor blood supply results in slower wound healing

Injury

Injuries are common in people with nerve damage because they have reduced pain to warn them of problems. Many ulcers are caused by pieces of grit within shoes, rough seams, sharp objects which have penetrated the sole of the shoe, blisters from tight shoes, or burns. Walking barefoot greatly increases the risk of severe injury because people step on sharp objects or stub their toes.

Walking barefoot greatly increases the risk of serious injury

Infection

When the skin is broken, bacteria can infect the foot. In people with diabetes who have reduced sensation or poor blood supply, wound healing is slow and the body's ability to fight infection may be weakened. The signs of infection may be hard to detect until the infection has become very serious.



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Diabetes and foot care

What you can do to prevent ulcers

In most cases diabetic foot ulcers and amputations can be prevented. Researchers say that between 49% and 85% of all amputations can easily be prevented. People with nerve damage or poor blood supply should take the following precautions:

Things to do

- Check your feet daily for cuts, blisters, bruises or colour changes, swelling and open sores. Report them to your healthcare team without delay. (Use a mirror to see the soles of your feet or, if this is difficult, seek help from someone else.)
- Always protect your feet. Wear suitable footwear inside and outside your home to avoid injuring your feet.
- Check inside your shoes for stones, sharp objects and rough places before putting your shoes on.
- Buy new shoes late in the day. This is because feet become more swollen towards the end of the day and you can be more sure that your shoes are not too tight and fit well.
- Wearing socks can help to prevent injury. Make sure they are not too tight and wash them daily. Make sure they have no holes.

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Diabetes and foot care

- Always wash your feet with soap and water. Take care to wash between your toes. Dry your feet carefully, especially between the toes. Use oil or lotion to keep your skin soft.
- Cut toe nails straight across and file any sharp edges.
- Have your feet checked periodically by a healthcare professional.
- Keep any wounds covered with clean dressings.

Remember that even if foot problems are painless they can still be serious.



Diabetes and foot care

Things to avoid

- Avoid pointy-toe shoes, high heels, stilettos and strapless and backless shoes.
- Don't wear tight socks.
- When washing your feet be careful that the water is not hot enough to burn them.
- Don't use a heater or hot water bottle to warm your feet.
- Avoid walking barefoot whenever possible. If this cannot be avoided because of cultural or religious reasons, you must be extremely careful and avoid the risk of burns from hot surfaces in hot climates.
- Never try to treat your own feet with corn medicines or razor blades. Always seek help from a professional if you have a problem.
- Avoid becoming overweight.
- Don't smoke – smoking damages the supply of blood to the feet.
- Don't wear jewellery on your feet.



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Diabetes and foot care

The ideal environment

Foot care is best delivered when it is provided by a multidisciplinary team. This should closely involve the person with diabetes and his or her family, along with healthcare professionals from different specialties. Ideally the team will include a physician, a nurse, a specialist educator, a podiatrist, a surgeon, an orthotist (shoemaker) and an administrator.

The ideal environment will also have:

- Regional and national collaborations between key players in foot care
- Adequate provision of resources to ensure that minimum standards are reached
- A process of diabetic foot screening
- Foot-care education programmes and training for people with diabetes and healthcare professionals, including a programme for training podiatrists
- A diabetic foot emergency service to ensure the rapid treatment of infection and other foot emergencies
- Good record keeping
- A footwear service to ensure the use of appropriate shoes
- Sufficiently frequent preventative foot care and ulcer care

Striking reductions in amputations can be achieved by well-organised diabetic foot teams



Diabetes and foot care

Treatment

In order to treat a person with a diabetic foot ulcer, the following principles should be applied:

- Relief of pressure on the foot
- Correction of poor blood supply
- Treatment of infection
- Good control of diabetes, blood pressure, and blood fats
- Cleaning and dressing wounds and removing hard skin and dead tissue
- Education of people with diabetes and their relatives
- Determining the cause of ulcers and helping people to prevent recurrence

Protection from
abnormal pressure

Once nerves have been damaged by diabetes, sensation cannot be restored. Numb feet need protection from abnormal pressure. If this pressure is not relieved, ulcers can recur. Many different ways to relieve pressure are available, from simple bed-rest to the use of devices such as special plaster casts.



Diabetes and foot care

When the blood supply is poor, treatments can be offered to unblock blood vessels or otherwise improve blood flow. Foot infection should be treated with appropriate antibiotics, if these are available. Sometimes it is necessary also to remove infected tissue.

In order to improve the chances of healing, blood glucose needs to be tightly controlled and other possible complicating factors need to be treated. Ulcers and wounds should be kept covered with gauze or dressings and cleaned every day or two with salty water. The education of people with diabetes and their relatives is essential so that they know how to manage and prevent foot problems. By determining the cause of ulceration and taking appropriate measures, recurrence can often be prevented.

Education of people with diabetes and their relatives is essential

The ideal management in the prevention and treatment of diabetic foot problems includes:

- Regular inspection of the foot
- Identification of the foot at risk
- Education of people with diabetes and healthcare professionals
- Appropriate foot wear
- Rapid treatment of all foot problems

Focus on Foot Care



George Lilanga

George Lilanga is a famous Tanzanian painter. He exhibits all over the world. In 1974, he was diagnosed with diabetes. He recently wrote the following letter:



"I, George Lilanga, am painter and craft man by profession. I was diagnosed to have diabetes since 1974. I was feeling very tired and was not able to do my routine daily life job, so I decided to go to local hospital for health check up and doctors diagnosed me to have diabetes. At that time it was suggested by my relatives and colleagues to go to referral hospital for further management as diabetes care in 1974 were very rare in other hospitals. I was taken to Muhimbili National Hospital and was seen by a diabetic specialist who happened to be a white-man in 1974 at that particular time.

In 2000 October I experience very serious pain on my right leg and then all my five toes went dry. When I went to see my doctor he decided to admit me, he examined my leg and he found there was no enough blood circulation in my leg, and the doctor told me it is too late and need to be removed as it has already rotten. So the decision was to cut my leg. In October 2000 my right leg was amputated. At this time I had already developed high blood pressure and heart disease.

The same year (2000) December my left leg got the same problem. I was admitted again in the hospital on 9th December my left leg was also amputated. This time I was under the care of Dr. Abbas and the ulcer took very short time to heal. Since then I am following advice of my doctor and doing fine. Daily I take medication for high blood pressure, heart disease and injections for diabetes.

I have now developed another problem. My doctor, Dr. Abbas tells me that I have now kidney problems after checking my blood. Since I have been diagnosed to have kidney problems I am very careful with my diet and have been strictly restricted not to take protein diet. My blood pressure and my heart are all now under control. I am able to do my daily work and also busy doing exhibition and traveling abroad. Thanks to God and Dr. Abbas to keep me fit: I was able to get around again".



Diabetes and foot care

Conclusion

It is now time to take appropriate action to ensure that people with diabetes everywhere receive the quality of care that they deserve. It is hoped that World Diabetes Day 2005 will be instrumental in raising global awareness of diabetes and its complications and that the campaign will draw attention to the need for improved foot care for people with diabetes throughout the world.

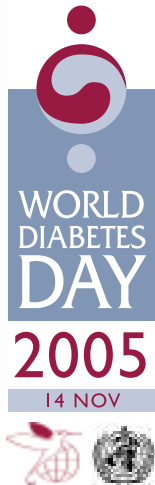
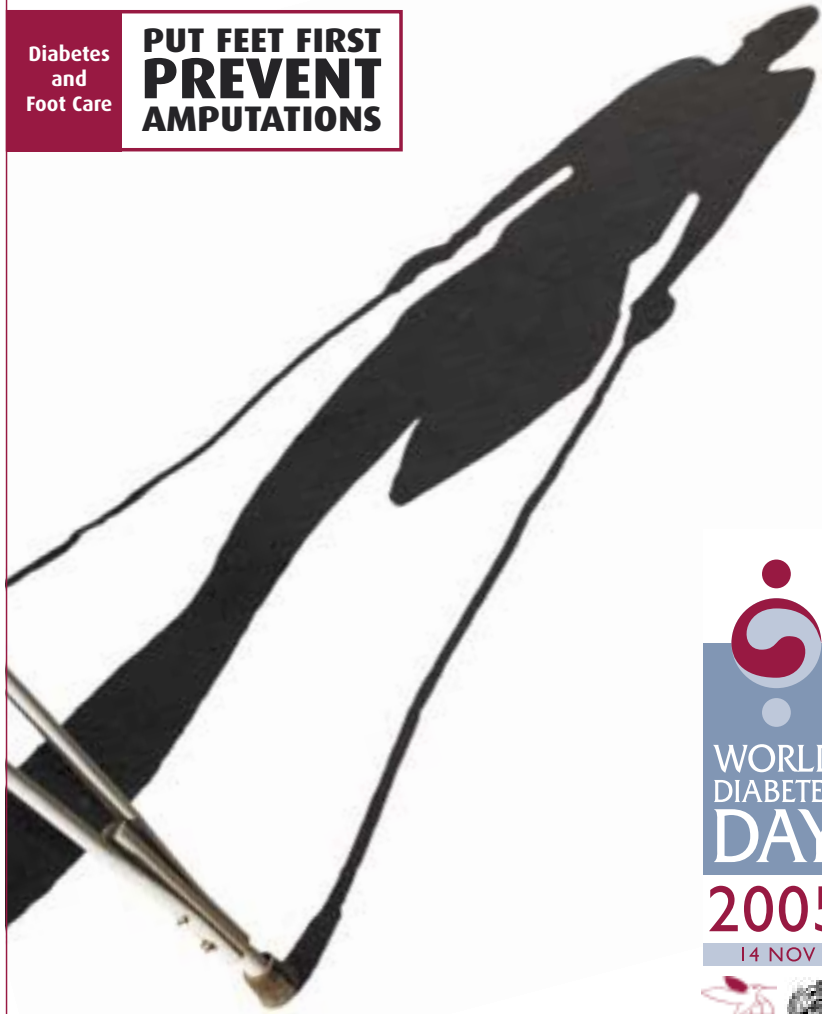
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An initiative of the International Diabetes Federation and the World Health Organization

www.worlddiabetesday.org

For more information on diabetes and foot care, please consult
'Diabetes and Foot Care: Time to Act',
a joint publication of the International Diabetes Federation
and the International Working Group on the Diabetic Foot.
www.idf.org/bookshop



INTERNATIONAL WORKING GROUP
ON THE DIABETIC FOOT



International Diabetes Federation

Information and materials are also available for consultation
and download from the World Diabetes Day website at
www.worlddiabetesday.org

Donate to the World Diabetes Day campaign online

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