

Diabetic foot amputation prevention: wudu could be a boon in disguise

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Citation: Shankhdhar K (2021) Diabetic foot amputation prevention: wudu could be a boon in disguise. *The Diabetic Foot Journal* 24(1): 26–9

Article points

1. The author observed differences in the foot conditions in people with diabetes who do (WY group) and do not (WN group) practice the procedure of wudu
2. Wudu is the ritual washing performed by Muslims before prayer, multiple times a day.
3. The WY group appear to have a lower incidence and prevalence of diabetic foot ulcerations and amputations in the long term.

Key words

- Amputation prevention
- Diabetic foot
- Wudu

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Wudu is the ritual washing performed by Muslims before prayer. Individuals who practice wudu wash their feet multiple times a day. The author’s clinical research has seen him work closely with this group and data are being collected regarding the difference in the foot health status among people who practice wudu (WY group) compared to those who do not practice wudu (WN group). During the foot washing regimen, foreign bodies are washed away. These individuals self-examine their feet during wudu and, thereby, detect changes — e.g. foot lesions or nail changes — earlier. This leads to individuals in the WY group seeking medical attention earlier than the individuals in the WN group. Early presentation of these lesions markedly increases the chance of healing. Due to these factors, the WY group appear to have a lower incidence and prevalence of diabetic foot ulcerations and amputations in the long term.

In 2005, it was estimated that a lower limb was lost every 30 seconds in some part of the world due to diabetes (Bakker et al, 2005). In the subsequent decade, this timeframe had reduced to 20 seconds (International Working Group on the Diabetic Foot, 2016). In the US, the rate of amputations increased by 50% between 2009 and 2015 (Caffrey, 2018). One could possibly conclude that there has been a collective failure to reduce the prevalence of diabetic foot amputations across the world. Interestingly, 80–85% of all amputations caused by diabetes are thought to be largely preventable (Boulton, 2015).

How do we prevent amputations?

The logical question would be: “How could amputations be reduced?” The answer is that diabetic foot amputations could be reduced through meticulous glycaemic control, cardiovascular risk reduction, access to foot protection services and a multidisciplinary team (MDT) in foot care. Early identification of a foot problem and early referral to an MDT will

also reduce the risk of amputation. Crucially, educating patients to check their feet to look for signs of damage could play a key role in this early detection and prompt them to seek help to prevent catastrophic consequences.

The modern busy lifestyle leaves little free time to wash the feet in isolation or perform a self foot examination. It is only during a routine (usually once a day) shower that the feet are exposed to water and some cleaning is done. However, there is a group of individuals who wash their feet, on average, four times a day. This is the group of individuals who practice wudu. Wudu is the ritual washing performed by Muslims before prayer. It is an Islamic purification procedure in which different parts of the body (including feet) are washed with water, multiple times a day.

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Why is wudu performed?

Before Muslims perform salah (prayer), they need to prepare mentally, physically and spiritually. A large portion of this preparation is the wudu. It is such an important part of the salah that if anyone decides to leave it due to ignorance, forgetfulness, or negligence then their prayer will not be accepted by Allah. The Prophet Muhammad (peace be upon him) said: “No salah is accepted without wudu (purification)” (The Qur’an, Sahih Muslim, 2:2).

In the Quran, Allah said: “And I did not create the jinn and mankind except to worship Me”. Allah sent the last messenger as an example to mankind, who taught the importance of personal hygiene. Wudu (ablution) and prayer have health benefits and Muslims believe that it is a direct connection with Allah. Indeed, the prophet Muhammad explained: “Cleanliness is half of faith.”

How are the feet washed during wudu?

One needs to wash feet (including the back of ankles) three times up to the ankles, making sure to wipe in between the toes with the little finger (Muslim Hands, 2018).

What are the things that invalidate and break wudu?

Activities that invalidate wudu include urination, defecation, flatulence, deep sleep, light bleeding and sexual intercourse (Dikmen, 2011).

Psychological impact of wudu

It is believed that wudu (ablution) helps to write off small sins, teaches good attitude, raises the status of a Muslim in the sight of Allah and forms positive aura in the human body (Fatah Yasin, 2012). Wudu is believed to provide relaxation to the nervous system and ease tension, stress and anxiety.

Physical impact of wudu

It is believed that wudu is an effective way to remove germs and promote good health. Gargling during wudu helps clean the oral cavity and ensure reduction in bad breath. Nose cleansing during wudu could help remove allergens and possibly minimise infections, such as flu and

sinusitis. It is believed that face washing can reduce acne. Washing the ears, hands and feet with water helps remove dust and possibly germs (bacteria/fungus).

Points to ponder regarding wudu

On average, wudu is performed three to four times a day. This requires the consumption of water. The prophet Muhammad set an example to use only a small amount of water to perform a wudu, around 0.75 litres (The Qur’an, Sahih al-Bukhari, 4: 64). In some parts of the world, larger quantities of water are consumed for wudu. For example, Muslims in Indonesia have a tendency to use a far larger amount of water (Rafsanjani et al, 2018). Even if we estimate the use of 1 litre of water for each session of wudu, this means that, on average, 4 to 5 litres of water is used by every individual practising wudu, per day. As of 2020, 1.8 billion or about 24.1% of the world population are Muslims (Lipka et al, 2018). It is obligatory for a Muslim to perform prayers, five times per day and wudu (as and when needed) is to be undertaken before prayer. One can imagine, therefore, the huge amount of water (often potable) being consumed globally, including areas where access to water may be at a premium.

Besides water consumption, significant time is needed to conduct the obligatory practice of wudu plus prayers, multiple times a day, every day, starting from the age of 10. Each prayer session is approximately 10 minutes, while every wudu session is 1–2 minutes. Therefore, if a person practices three to four wudu a day and practices five prayer sessions, this translates as around 1 hour’s-worth of time investment each day. One may also add the time consumed to travel and return from the mosque (many Muslims visit the mosque for the afternoon prayers). This is a significant time investment, especially considering the fact that some of these prayers occur during office working hours (1pm, 4pm and 5pm prayers).

Muslims walk barefoot inside the mosque (similar to people of other religions walking barefoot in their religious places). Readers of this journal will be well aware that people with diabetes must avoid walking barefoot at all times (Hinchliffe, 2016). Walking barefoot can lead to injuries (ulceration), which could go unnoticed

(especially in those with diabetic sensory neuropathy). These lesions may get infected, deteriorate rapidly (especially in people with uncontrolled diabetes) and end in amputation. As a precaution, many mosques have carpets in place to provide comfort and protection, although walking barefoot does still involve some risk in these areas.

Variations

In interviews conducted by the author, younger individuals (professionals with busy lifestyles) mentioned variations in relation to how they undertake their prayers. There are some who pray once a week (on Friday afternoons only). Prayer is preceded by a single session of wudu. Such individuals invest approximately 1–2 minutes for wudu and 10–12 minutes for prayers, equating to between 11 and 14 minutes time investment per week. There are other individuals who conduct two of the five prayers in the morning and the other three collectively at night. They adopt this method because they fail to find time during the working day for the 1pm, 4pm and 5pm prayers. There are similar variations in wudu and prayer techniques across the globe. Anecdotally, these variations are condemned and discouraged by the Muslim religious heads who insist that all the formal procedure of wudu and prayers should be practiced by the followers, precisely as mentioned in the religious books.

The author's work on wudu

In the author's clinical observations, spanning over a decade, differences have been noticed in the foot conditions in people with diabetes who do (WY group) and do not (WN group) practice the procedure of wudu. Approximately 463 million adults between the ages of 20 and 79 years are living with diabetes. In addition, 79% of adults with diabetes are in low- and middle-income countries (International Diabetes Federation, 2019). In these countries, large number of people walk barefoot or wear open-top, hook-and-loop velcro strap sandals exposing the feet to dust, mud, gravel and other foreign bodies, which can lead to foot ulcerations.

As previously mentioned, every session of wudu involves washing of feet, which helps to keep the

feet clean. In comparison, the individuals in the WN group washed their feet only during regular daily bathing. It is a well-known fact that the foot warms up before it develops an ulcer. Except for traumatic wounds, areas that are likely to ulcerate have been associated with increased local skin temperatures due to inflammation and enzymatic autolysis of tissue (Armstrong, 1997). Today, expensive foot mats and socks exist that have alarm mechanisms, to warn the individual when the skin temperatures of the foot are higher than expected. Wudu is an economical and effective method to keep the feet cool and clean because every session of wudu involves the contact of feet with water and this helps to keep foot temperatures low. To wash multiple times a day, one has to take off footwear multiple times a day. Doing so helps to cool down the feet. Participants in the WN group put on footwear in the morning and usually took off their footwear late in the evening. The act of removing footwear and socks helps to keep foot skin better aerated/ventilated and contributes positively to maintaining skin moisture balance. In the WN group, keeping footwear on for an entire day keeps the feet moist and more prone to fungal infection. In contrast, taking off the footwear three to four times a day (as evidenced in the WY group) helps to keep foot skin better ventilated and also reduces odour.

Diabetic neuropathies are the most prevalent chronic complications of diabetes (Rodica Pop-Busui et al, 2017). Diabetic sensory neuropathy leads to loss of sensation and many reports have been published in which foreign bodies have been found in the footwear of a diabetes patient with the patient unaware of the foreign body in the footwear, leading to ulcerations and amputations (George et al, 2020). Foreign bodies were washed away during the wudu sessions in the WY group. During the foot washing regimen, the individual tends to look at the feet and mildly rub the foot skin. These individuals self-examine their feet during wudu and, thereby, detect foot changes, such as lesions or nail changes, earlier. This leads to individuals in the WY group seeking medical attention earlier than the individuals in the WN group. Early presentation of these lesions markedly increases the chance of healing. Due to these factors, the WY group appear to have a

lower incidence and prevalence of diabetic foot ulcerations and amputations in the long term. ■

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