# NUTRITION
# & SICKLE CELL

Good nutrition makes a big difference in the management of sickle cell disease and reducing pain crises.



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# NUTRIENTS

People with Sickle Cell Disease consume nutrients more quickly than other people because nutrients are diverted from supporting growth and other functions to make healthy red blood cells. Some people with Sickle Cell Disease need 3 x times more micro and macro nutrients. A balanced diet and supplements together ensure that people get all the nutrients they need.

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Nutrients play an important role in managing the complications associated with SCD. People with SCD have an increased risk of nutrient deficiencies due to factors such as increased nutrient requirements, decreased nutrient absorption, and decreased intake due to dietary restrictions or poor appetite. Some of the nutrients that are particularly important for individuals with SCD include:

**Folate:** Individuals with SCD have an increased risk of folate deficiency, which can lead to anemia and increased risk of infections. Supplementation with folic acid is often recommended to prevent or treat folate deficiency in individuals with SCD.

**Iron:** While iron deficiency is rare in individuals with SCD, iron overload can occur due to frequent blood transfusions. Iron chelation therapy may be necessary to prevent the complications associated with iron overload.

**Vitamin D:** Individuals with SCD are at an increased risk of vitamin D deficiency, which can lead to bone pain and fractures. Supplementation with vitamin D may be necessary to maintain adequate levels.

**Zinc:** Zinc deficiency has been associated with increased risk of infections in individuals with SCD. Supplementation with zinc may help to prevent infections and support immune function.

# HYDRATION

Image by Rhea Yaw Ching by Pixabay

it is very important that people with sickle cell disease stay hydrated because dehydration is a known trigger for a sickle cell pain crisis. Water, coconut or other milk, juice, decaf tea and coffee, herbal teas are all great sources of hydration. Caffeinated tea and coffee and alcohol dehydrate the body so it is best to avoid these as much as possible.

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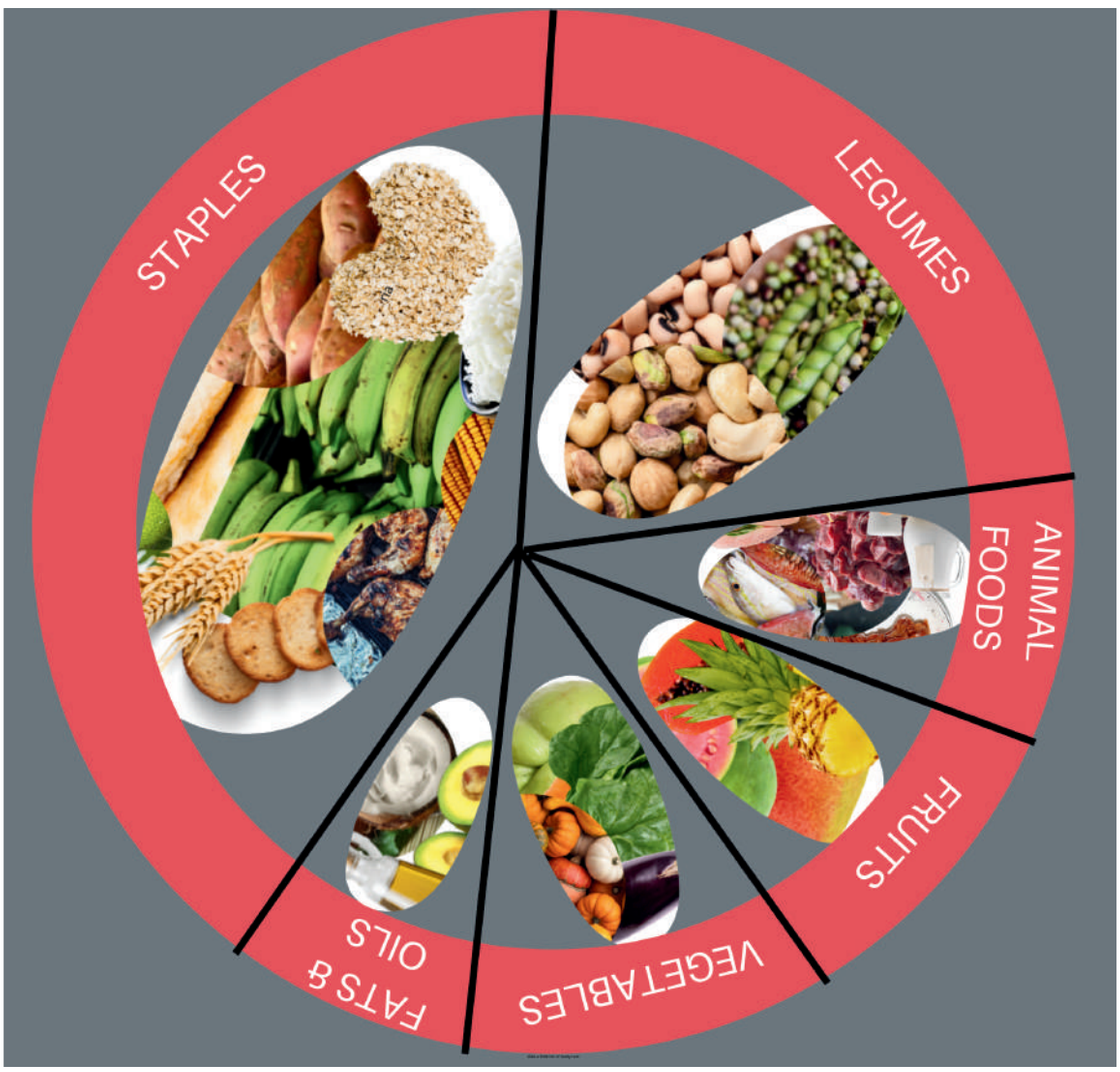
Hydration plays a crucial role in sickle cell disease (SCD) management. In SCD, abnormal hemoglobin causes red blood cells to become rigid and form a crescent or sickle shape, which can block blood flow and cause severe pain and other complications.

When people with SCD become dehydrated, their blood becomes more concentrated, which can increase the likelihood of sickling and blockages in blood vessels. Dehydration can also trigger a painful episode, known as a sickle cell crisis, which can require hospitalization and treatment with intravenous fluids and pain medication.

Therefore, it is essential for people with SCD to stay hydrated by drinking plenty of fluids, especially water, to help prevent complications and manage their symptoms, especially during times of increased physical activity, hot weather, or illness.

Additionally, healthcare providers may recommend hydration therapy as a part of SCD treatment, such as intravenous fluids, to help prevent or manage sickle cell crises.

# BALANCE




Eating a balanced diet is key to getting the nutrients and essential minerals needed to manage sickle cell disease. A balanced diet that includes all the five major food groups (grains, vegetables, fruits, dairy, meats and beans) and a range of oils will provide the key nutrients and minerals needed for optimal health. Optimal health and feeling energetic help in managing SCD.

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A balanced diet is important for people with sickle cell disease because it can help manage the symptoms and complications associated with the condition.  Eating a balanced diet is important for the following reasons:

**Maintaining adequate hydration:** Drinking plenty of water and other fluids can help keep blood flowing smoothly, reducing the risk of blood clots and improving oxygen delivery to the body's tissues.

**Supporting healthy immune function:** People with sickle cell disease are more susceptible to infections due to a weakened immune system. Eating a diet rich in fruits, vegetables, whole grains, and lean proteins can help provide the nutrients needed for a healthy immune system and reduce the risk of infections.

**Reducing inflammation:** Sickle cell disease can cause chronic inflammation in the body, which can contribute to pain and other symptoms. A diet rich in anti-inflammatory foods, such as fatty fish, nuts, seeds, and fruits and vegetables, can help reduce inflammation and improve overall health.

**Preventing nutrient deficiencies:** People with sickle cell disease may be at risk for nutrient deficiencies due to malabsorption and increased nutrient requirements. Eating a balanced diet that includes a variety of nutrient-rich foods can help prevent nutrient deficiencies and support overall health.

# LITTLE & OFTEN

During a sickle cell crisis, when feeling unwell in the lead up to a crisis or when having treatment for sickle cell disease can all cause people to lose their appetite. Grazing on small, nutritious meals and snacks can help to maintain weight and energy without being overwhelming.

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One of the most common symptoms of sickle cell disease is pain. Eating small, frequent meals throughout the day can help maintain stable blood sugar levels and prevent fatigue, reducing the risk of pain and other complications.

In addition, individuals with sickle cell disease may be at increased risk for malnutrition due to a variety of factors, including reduced appetite, malabsorption, and increased nutrient requirements. Eating frequent, nutrient-rich meals can help ensure that individuals with sickle cell disease get the nutrients they need to support healthy growth and development, prevent complications, and manage the symptoms of the condition.

People with sickle cell disease should eat little and often because they are at a higher risk of developing a condition called "splenic sequestration." In this condition, the spleen, which helps the body fight infections and filter the blood, becomes enlarged and can trap a large amount of blood cells, including sickle cells. This can cause a sudden drop in the number of circulating red blood cells, leading to anemia, organ damage, and even death.

Eating little and often helps to maintain a steady blood sugar level and prevent sudden drops in blood pressure, which can trigger splenic sequestration. Eating large meals or skipping meals can cause the body to release more insulin, leading to a drop in blood sugar levels, which can increase the risk of a splenic sequestration episode.

It is important for people with SCD to consult with a healthcare professional or a registered dietitian to develop an individualized meal plan that meets their nutritional needs and helps to prevent complications associated with sickle cell disease.

# FIBRE

Constipation is a side effect of many different medications that people need to take to help manage sickle cell disease. Eating enough fibre helps to prevent constipation but fibre absorbs fluid so be sure to increase fluid intake. Good sources of fibre include chickpeas, black eyed peas, fruit and vegetables, baked beans, nuts, wholemeal breads and pasta, brown rice, oats, potato skins, yam and sweet potato.

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Fibre plays a beneficial role in sickle cell disease by helping to prevent and manage its complications.

One complication of sickle cell disease is constipation, which can occur due to dehydration and decreased blood flow to the intestines. Fibre helps to promote regular bowel movements and prevent constipation by adding bulk to stool and promoting the growth of beneficial gut bacteria.

Additionally, fibre can help to reduce inflammation and oxidative stress, which are both key contributors to the development of complications in sickle cell disease. Studies have shown that diets high in fibre are associated with lower levels of inflammatory markers and oxidative stress in people with sickle cell disease.

Overall, incorporating high-fibre foods such as fruits, vegetables, whole grains, and legumes into the diet can be a beneficial strategy for people with sickle cell disease for better overall health.

# NAUSEA

Nausea can be common in people living with sickle cell disease. Plain, dry foods like toast or crackers can help as can ginger drinks such as ginger ale or tea. It might help to sip drinks throughout the day rather than drinking them normally and simple sandwiches have less nauseating smells and do not need to be cooked. The main thing is to keep eating and drinking.

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People with sickle cell disease can experience nausea for a variety of reasons, some of which are related to the disease itself and others that are unrelated.

One reason why sickle cell disease can cause nausea is that the condition can cause the blood vessels to become blocked, which can prevent oxygen from reaching various organs, including the digestive system. This lack of oxygen can lead to inflammation, tissue damage, and nausea.

Another reason why people with sickle cell disease may experience nausea is that the condition can cause a buildup of bilirubin in the blood. Bilirubin is a yellowish substance that is produced when red blood cells break down. In people with sickle cell disease, the lifespan of red blood cells is shorter than normal, which can lead to an excess of bilirubin in the blood. This can cause a condition called hyperbilirubinemia, which can cause nausea and vomiting.

People with sickle cell disease may also experience nausea as a side effect of medications used to treat the disease, such as hydroxyurea, which is commonly used to reduce the frequency of painful sickle cell crises.

It's important to note that nausea can also be caused by a variety of other factors unrelated to sickle cell disease, including infections, dehydration, and other underlying medical conditions.

# SUPPLEMENTS

Talk to a GP before taking supplements as some such as iron may cause iron overload if the patient has regular blood transfusions. Folic acid helps stimulate red blood cells but can be found in a range of green leafy vegetables, legumes, beans and fortified cereals. It is important that supplements are personalised taking into account a person's diet, medications and other treatments.

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Supplements can play a role in sickle cell disease management by helping to address specific nutritional deficiencies or other health conditions that may be contributing to symptoms. For example, people with sickle cell disease may be at increased risk of vitamin D deficiency due to limited sun exposure and poor absorption, which can lead to weakened bones and increased pain. In such cases, vitamin D supplementation may be recommended to help maintain adequate levels and prevent complications.

Other supplements that may be beneficial for people with sickle cell disease include omega-3 fatty acids, which have anti-inflammatory properties and may help reduce pain and inflammation associated with the disease. Antioxidants such as vitamin C and E may also be helpful in reducing oxidative stress and inflammation, which are thought to contribute to sickle cell disease complications.

It is important to note that while supplements may be helpful in managing sickle cell disease symptoms, they should always be used under the guidance of a healthcare provider. Some supplements may interact with medications or exacerbate underlying health conditions, so it is important to have a comprehensive treatment plan that takes into account all aspects of a person's health.

# WELLBEING

Eating well, staying hydrated and optimising general health helps people with sickle cell to manage the disease better. As well as nutrition, it is important to maximise wellbeing by minimising stress, moderating exercise and keeping warm to prevent pain crises and reduce the severity of them when they occur.

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Maintaining wellbeing with sickle cell disease requires a multi-faceted approach that includes lifestyle modifications and medical management. Here are some tips on how to maintain wellbeing with sickle cell disease:

**Stay hydrated:** It is important to drink plenty of water, fruit juices and sports drinks to avoid dehydration,

**Avoid extreme temperatures:** In hot weather, stay indoors in air-conditioned rooms or use a fan, and in cold weather, dress warmly and stay inside.

**Manage stress:** It is important to manage stress through relaxation techniques such as deep breathing, meditation, or yoga.

**Get regular exercise:** Regular exercise can help improve overall health and reduce the risk of complications. It is important to talk to a healthcare provider before starting an exercise program, to ensure that it is safe and appropriate.

**Take medications as prescribed:** People with sickle cell disease may require medications to manage pain, prevent infections, and treat complications.

**Attend regular check-ups:** Regular check-ups with a healthcare provider can help monitor the disease and catch any potential complications early, allowing for timely intervention.

**Seek emotional support:** Living with sickle cell disease can be challenging, so it is important to seek emotional support from friends, family, or support groups.

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