

NUTRITION

Its role in health and safety

Sue Scharf RD(SA)
Registered Dietician



fatigue

... the darkroom where
negatives are developed



Responsibility



**FATIGUE MANAGEMENT
IS A RESPONSIBILITY THAT MUST
BE SHARED BETWEEN
EMPLOYER AND EMPLOYEE**

FATIGUE IS A PROBLEM IN INDUSTRY:



Fatigue and worker well-being

CHRONIC FATIGUE:

DAMAGES **creative abilities**

REDUCES **productivity**

and AFFECTS **health**

Fatigue is a major problem in any workforce, its impact on efficiency on the job, and overall productivity of the company.

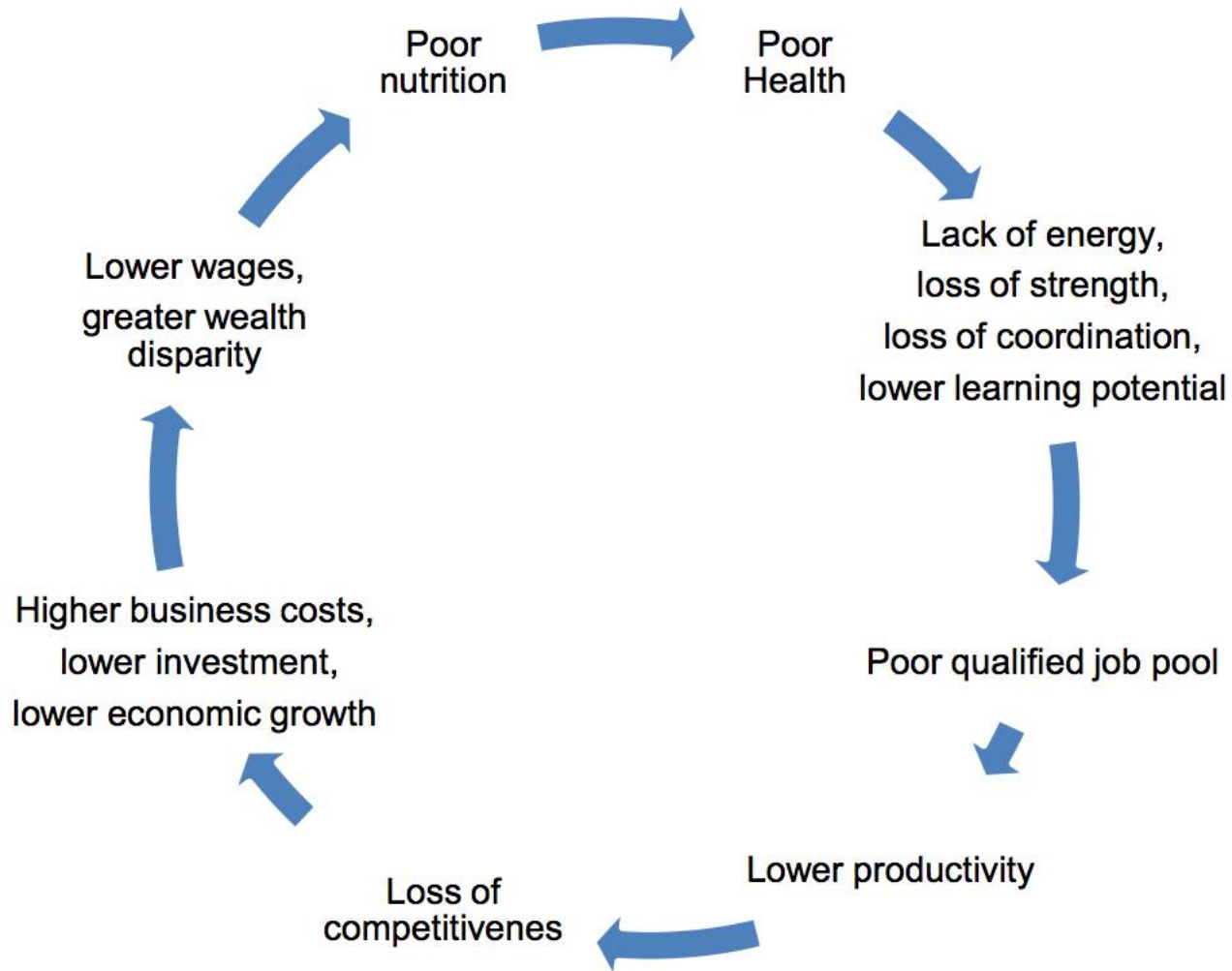


Figure 1 Cycle of poor nutrition and impact on productivity

Chronic Lifestyle Disease

- OBESITY
- DIABETES
- HYPERTENSION



Chronic Illness

- HIV/Aids
- TB



POOR NUTRITION AND LIFESTYLE HABITS

CHRONIC DISEASES OF LIFESTYLE
Obesity / Diabetes / Hypertension

**WORSEN MANAGEMENT OF
CHRONIC ILLNESS**
HIV Aids / TB

CHRONIC FATIGUE

*heart disease, skeletal problems,
disabilities, eye problems, kidney disease,
stroke, headaches, depression*

FATIGUE AFFECTS: health and safety → reduced **PRODUCTIVITY**

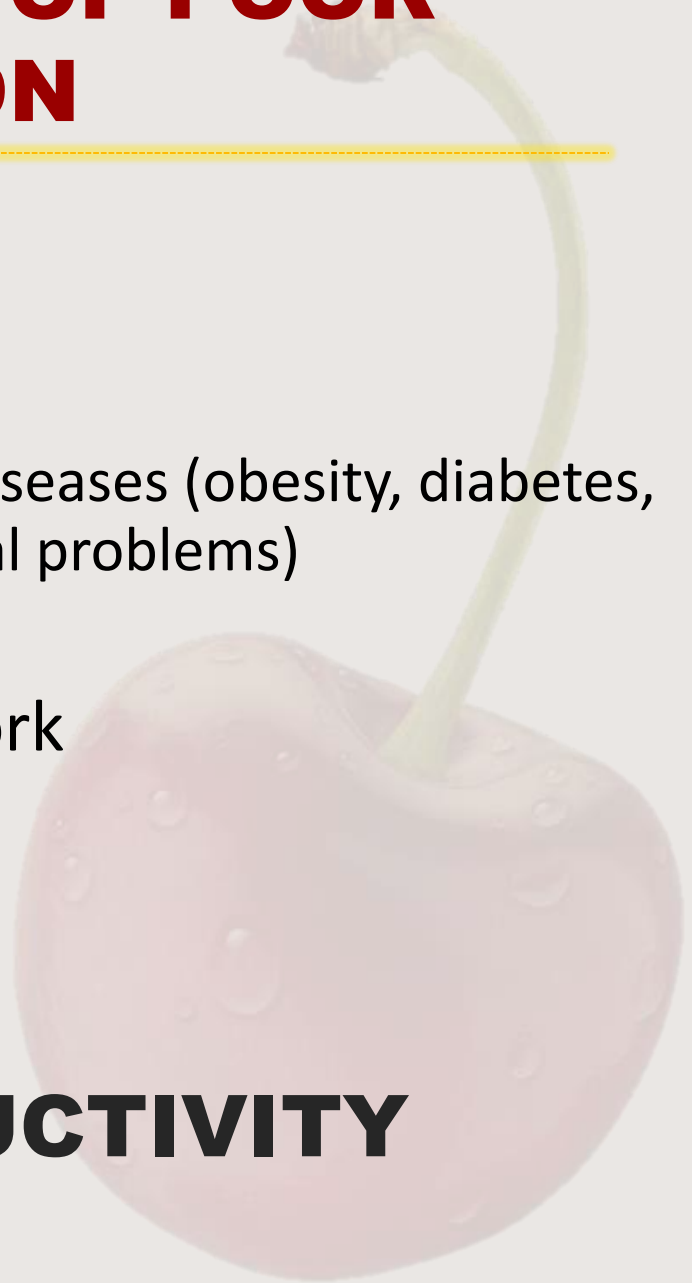
THE PROBLEM: research involving >250 shift workers shows
→ consistently low energy levels = poor performance
= increased risk of injury on duty
= excessive sick days
= overall reduced productivity

Reasons: poor diet:

- excessive refined carbs and sugars
- insufficient essential vitamins
- no dietary fibre (no fruit / veg /wholegrains)
- excessive salt intake

CONSEQUENCES OF POOR NUTRITION

- Poor nutritional status
 - compromised health status
 - increased risk of Lifestyle Diseases (obesity, diabetes, high blood pressure, skeletal problems)
- Compromised safety at work
- Increased absenteeism
- **REDUCED PRODUCTIVITY**



THE DANGERS OF DEHYDRATION

Normal range for body fluid: >50%

DEHYDRATION (i.e. <50% body fluid levels) reduces **CONCENTRATION** on the job

Research shows :

When a FLUID-BASED nutrition supplement regimen

Taken 3-hourly throughout the shift

Which is LOW GI and provides ELECTROLYTES

Results in **hydration status improving by :**

- 4-5% pre- to post-shift
- 20% over a 2-month time period

LEGISLATION

Mineral Resources and Development Act (28/2002)
Housing and living Conditions standards for the minerals industry. (Notice 445/ 2009) :

“3 (b) Sufficient proper food/ nutrition and water are components of an adequate standard of living which has been linked to the productivity of mineworkers and must be provided for at an affordable, equitable and sustainable manner by the employer or necessary facilities for employees to prepare their own foods”

LEGISLATION

- MHSA 9.2 (4) The employer must ensure that sufficient portable and palatable water ... is readily available to all employees and clearly identified as drinkable
- Mining Charter 2017 section 2.7 refers to housing and living conditions and refers to the housing standard

Section 2.7.2 refers to “Principles of Working Conditions” bullet three refers to proper nutrition requirements and standards

THIS PROBLEM IS MOSTLY PREVENTABLE!

UNDERSTANDING THE CAUSE HELPS DEFINE THE SOLUTION

Primary cause: many South Africans

- **Eat and drink too much**
- **Eat too much food of **poor quality (pap)****
- **Exercise too little**

AND

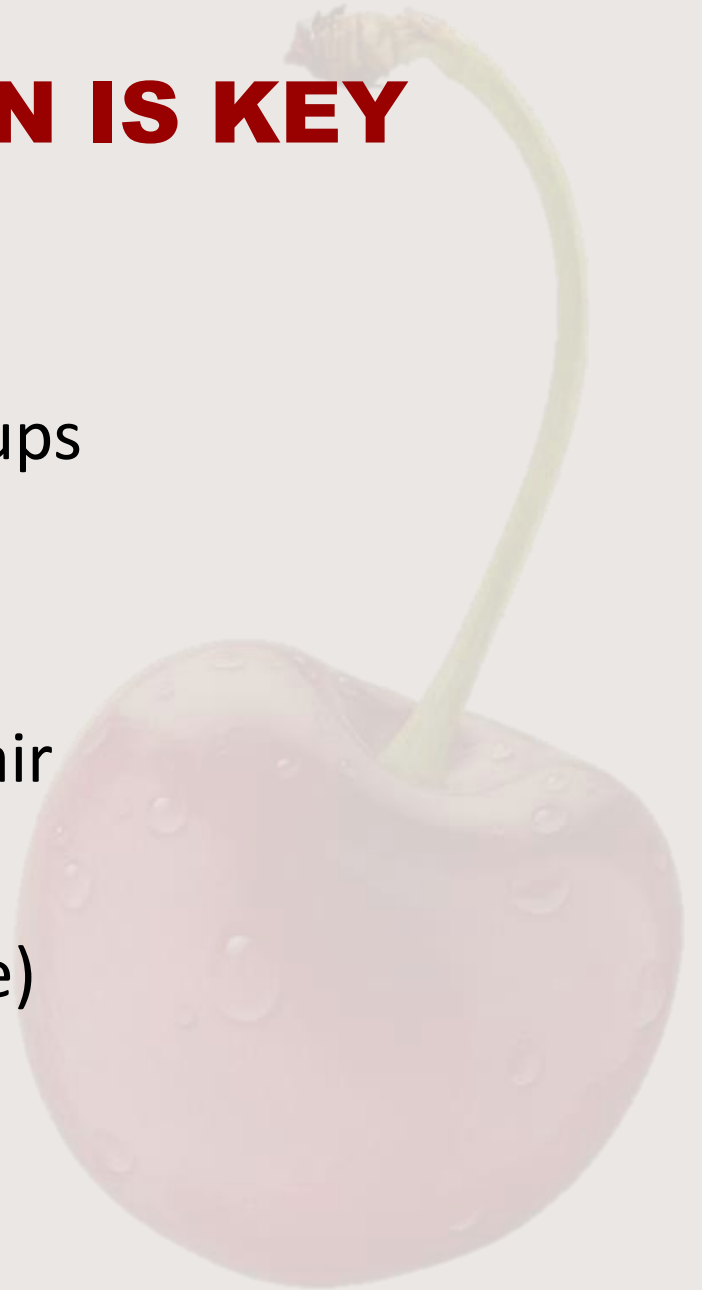
- **lack of understanding of the link between**

WHAT we eat and the WAY food AFFECTS us

GOOD NUTRITION IS KEY

Definition of good nutrition:

- Balanced intake of all Food Groups
- Appropriate portion sizes
- Energy sustaining foods
- Sufficient protein for tissue repair
- Sufficient micronutrient intake
- Adequate hydration (fluid intake)



GOOD NUTRITION IS KEY

Understanding how food behaves
in the body helps us understand
the link between

poor / good nutrition

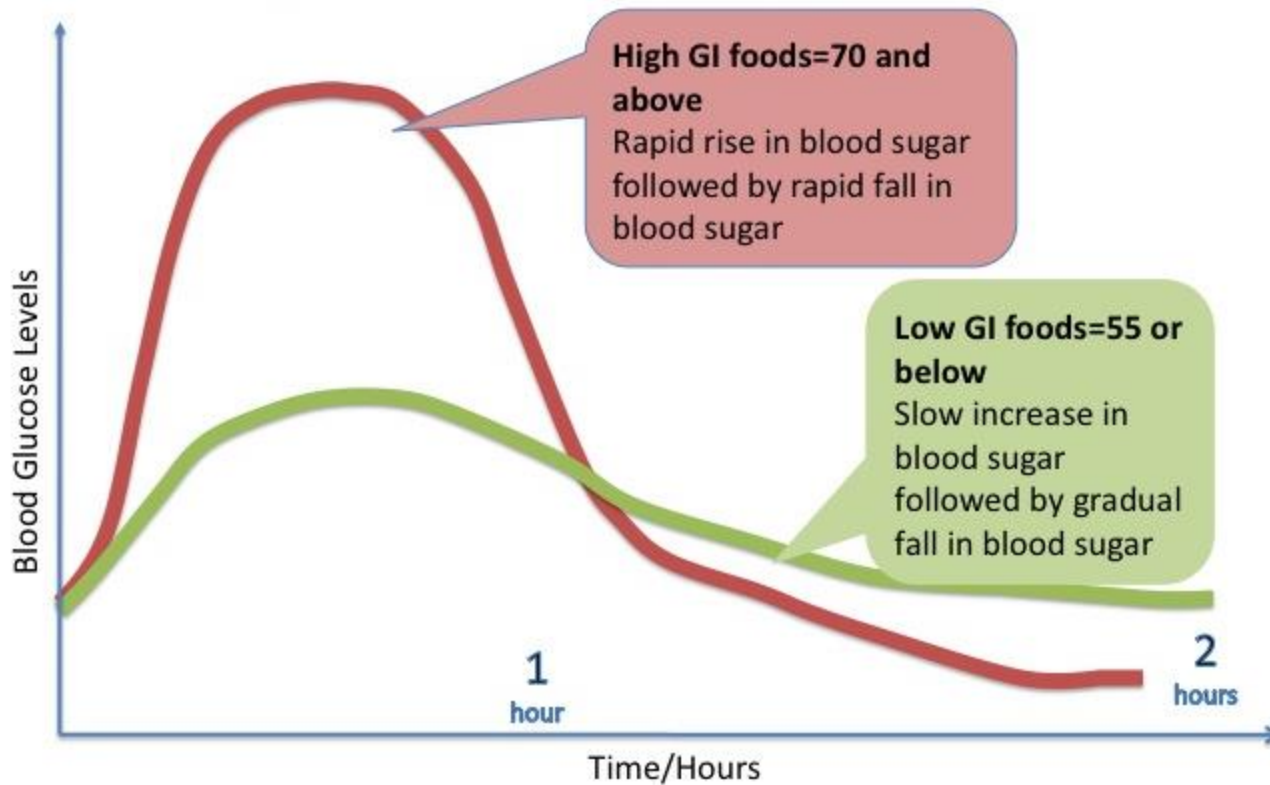
AND

THE WAY WE FEEL!



High GI vs. Low GI

High GI vs Low GI Foods



Low GI food & drinks provide slow-release energy for 3-4 hours

While High GI foods/drinks only last for one hour max.

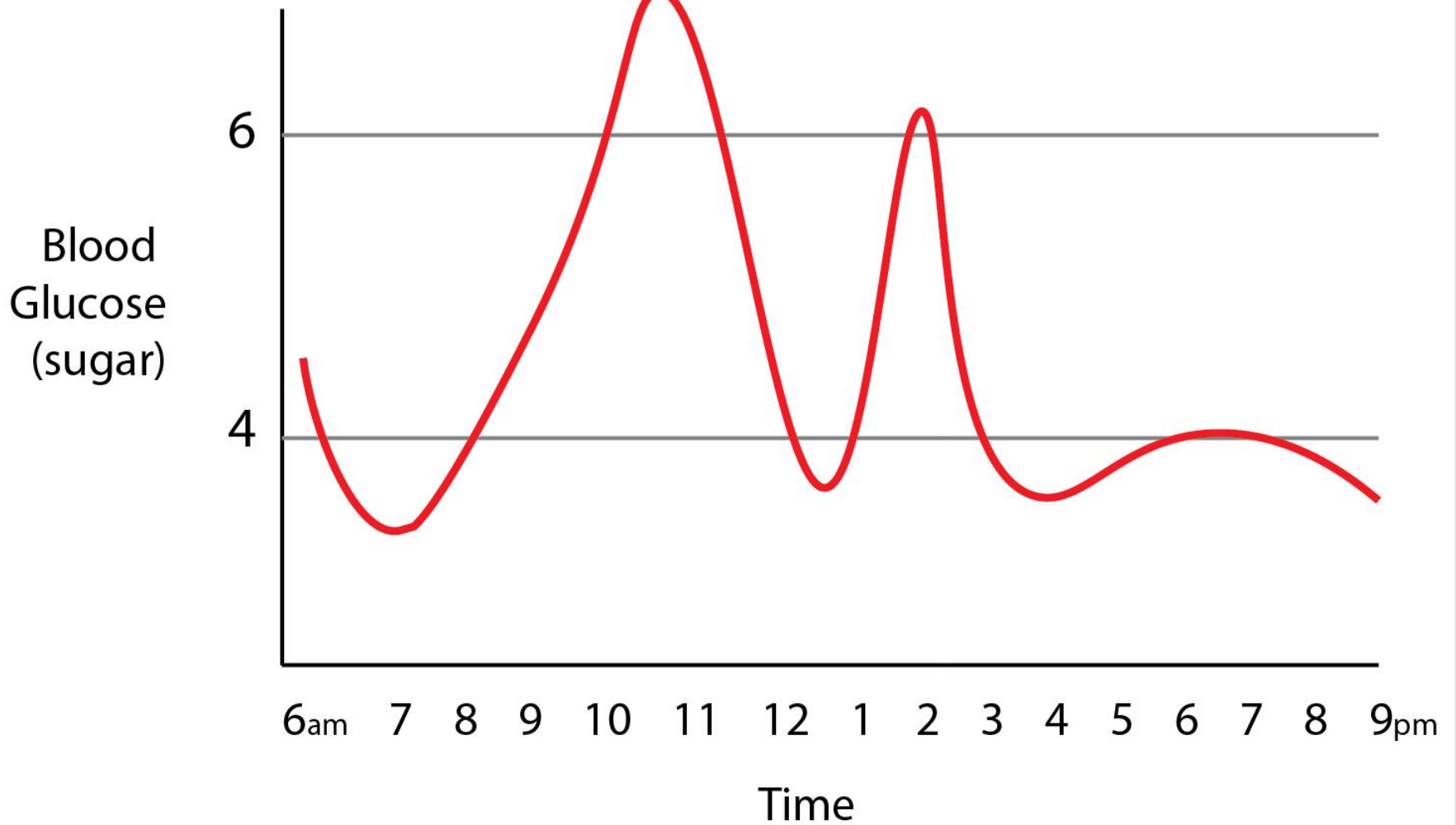
LOW GI FOODS (only applies to carbohydrates)

FOOD GROUP	LOW GI	HIGH GI
BREADS	Dense, whole-grain seed / low GI / rye bread	White / Brown bread
CEREALS / PORRIDGE	Oats, muesli, ProNutro, Hi Fibre Bran	PAP Rice Krispies; Corn Flakes
STARCH	Rice; Durum wheat pasta; baby and new potatoes; corn on the cob; Provitas; Ryvita	Vetkoek Marie biscuits
BEANS AND LEGUMES	Baked beans; lentils; chickpeas; any beans	-
VEGETABLES	All vegetables	-
FRUIT	Most fruit	-
DAIRY	Low fat, sugar-free Dairy	-
OTHER	Back To Basics Supa Shake and Supa Energy Drinks Popcorn	Coke, Red Bull; all soft drinks; sweets; sugar; biscuits; cake; crisps

A DIETARY RECALL AS FOLLOWS:

MEAL	Typical Day
BREAKFAST	Nothing
MID-MORNING (High GI)	4 slices white bread + butter / Vetkoek + 1l Coke/Oros
LUNCH (High GI)	Mealie pap and gravy <u>OR</u> 2 slices white bread and meat + Coke
MID-AFTERNOON (High GI)	Crisps / chocolate + Coke
SUPPER	Big plate of food: Potatoes, rice Meat Very little veggies

will produce a blood glucose graph as follows...



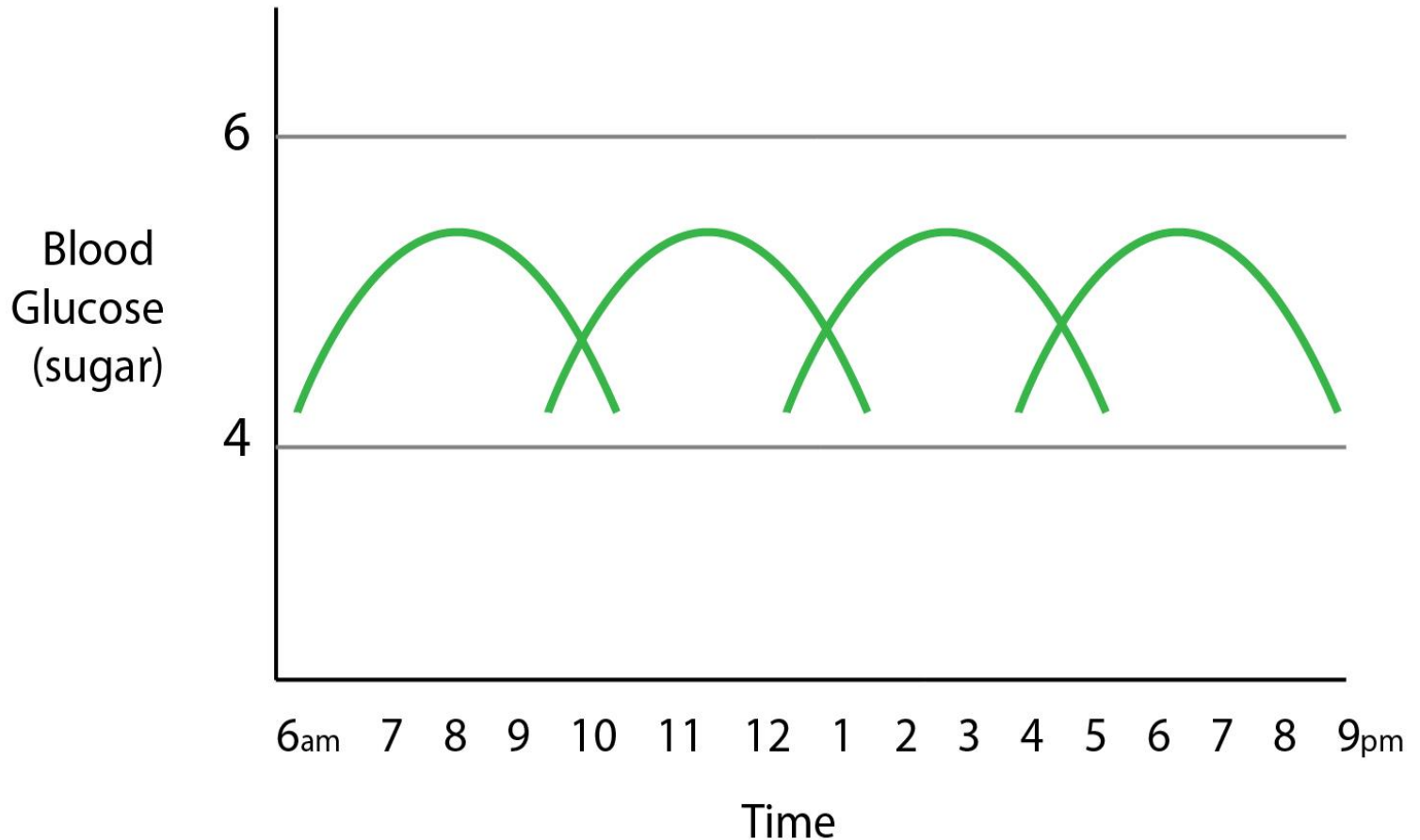
A DIETARY RECALL AS FOLLOWS:

MEAL	Typical Day
BREAKFAST	Low GI toast + egg + Fruit
MID-MORNING	Low GI bread and lean cold meat
LUNCH	Rice, chicken, veggies
MID-AFTERNOON	Fruit
SUPPER	Potatoes OR rice Palm-size Meat/chicken/ fish Large portions veggies

Will produce a blood glucose graph as follows...

Stable blood sugar levels ALL day

- = Increased energy levels, improved concentration
- = improved safety and productivity



Putting SUGAR into perspective

- “Sugar” has many names :
SUCROSE / GLUCOSE / SUCRALOSE
/ DEXTROSE / FRUCTOSE
- A small amount of table sugar/day is allowed:
2-3tsp/day
- Most South Africans eat TOO MUCH TABLE SUGAR
(>4tsp/day)
» OBESITY and DIABETES

Putting SUGAR into perspective



- Most manufactured food products/ drinks contain a small amount of sugar: enhances the taste of the product

THIS IS FINE SO LONG AS:

– it is not >10g/serving

OR

– If the products has been tested as being LOW GI (which despite having sugar still stabilise blood glucose levels)

SUPA SHAKE AND SUPA ENERGY DRINK HAVE

A TESTED GI VALUE OF 49*

*A GI <55 is classified as being Low GI

RECOMMENDATIONS TO MINES

NUTRITION INTERVENTION

is thus essential for ALL shift workers in mining and industry

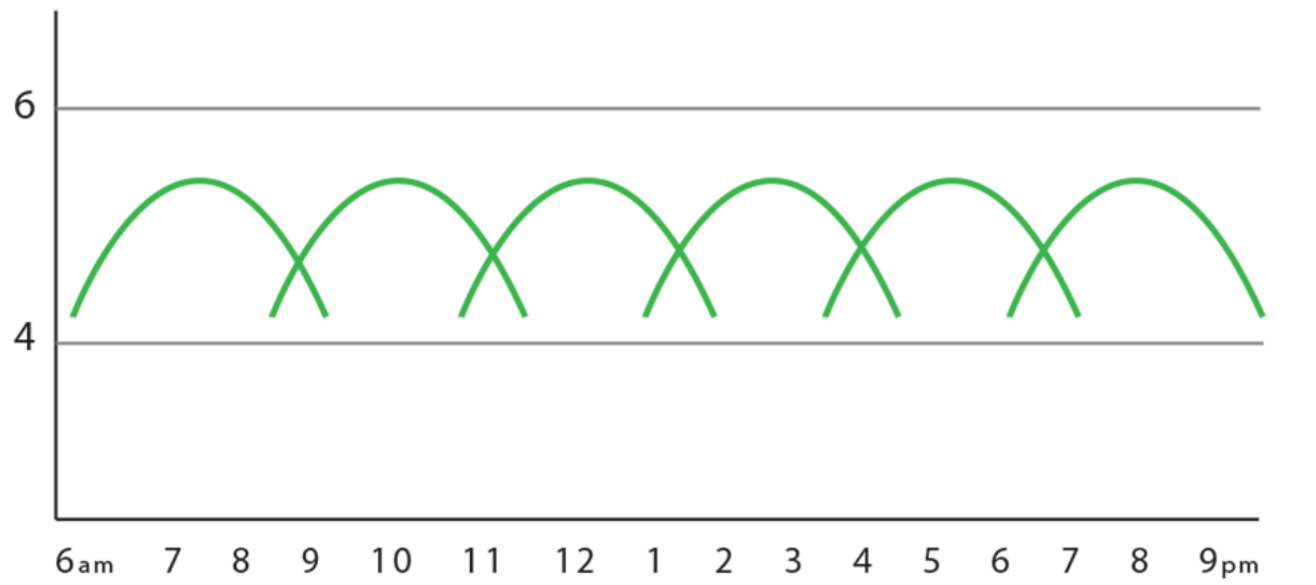
This intervention should be in the format of :

- a daily pack of DRINKS (ideally in single-serve powder format to be mixed with fresh water)
- provided at 2-3 hourly intervals (MID SHIFT FEEDING)

RECOMMENDATIONS

EXAMPLE of a recommended Pack for a 12-HOUR shift:

START SHIFT	3 HOURS	3 HOURS = MID-SHIFT	3 HOURS	END SHIFT
50g Sachet SUPA SHAKE	46g Sachet SUPA ENERGY DRINK	50g Sachet SUPA SHAKE OR 60g BAR	46g Sachet SUPA ENERGY DRINK	50g Sachet SUPA SHAKE



RECOMMENDATIONS TO MINES

Recommended Pack for a 12-HOUR shift:

Start shift 3hours

3hours

3hours

End



This COMBO sustains energy for THE FULL 12 HOURS

Provides: **33%** of the total ENERGY requirement
33% of the daily PROTEIN requirement

By following these recommendations

The employer and employee are ensured that
DEHYDRATION is prevented

ENERGY LEVELS are sustained

= PREVENTION & REDUCTION IN FATIGUE

With enormous benefits to employee

- ✓ **Health**
- ✓ **Safety**
- ✓ **Morale**

**= Exponential increase in
PERFORMANCE & PRODUCTIVITY**