

MIRACLE Academy

قال تعالى (يَرْفَعُ اللَّهُ الَّذِينَ آمَنُوا مِنْكُمْ وَالَّذِينَ أُوتُوا الْعِلْمَ دَرَجَاتٍ)

تفريغ OTC
زميلتكم أنفال النعيمات



لجان الدفعات

In-Home testing and Monitoring Products



Non-prescription drugs and parapharmaceuticals

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General Guidelines to Use

Home Test Kits

- Home testing and monitoring kits are designed to detect presence or absence of a medical or physiologic condition and to monitor disease therapy.
- FDA requires home tests to perform as well as the professional use equivalent. However, these products must be used properly to achieve accurate results.

Once they're used they should be equivalent to any professional testing

General Guidelines to Use Home Test Kits

- Follow instructions for storage and check up exp. Date.
- Read instructions carefully before test (best time of day, duration of test, any necessary equipment)
- Use accurate time measuring device (seconds) to ensure you wait the specified length of time between steps or to read test results.

خاصة بالـ
Glucose check test strips
كل الأجهزة الـ
Stripس
الي فيها لها
exp. Date
أو home pregnancy tests
إذا فتغلق يوجد عندها باليت
لا ترم تشيلك على صلاحيتك

General Guidelines to Use

Home Test Kits

هاد الخقي في بعض ال products
لادفها حاجة إلف Recalibration

- When possible, select a test that includes a control to ensure the test is functioning correctly.

Reference

فلنك لما تستخدم قلوب Control
بكت مكتوب انه هاد ال Control لما قلمه على
ال Strip لادزم يعطيل قراءة فلنك
100mg/dL (بالجهاز/ بلا Strip)
إذا اعطى أنك أو أكثر معاناته في مشكلة

- No visual impairment (If the test requires observation of color change, ask someone to help).

بشيلك في صلاحية الجهاز
وعلى صلاحية قلوب ال glucose
إذا ال (2) تمام غالباً المشكلة
من الجهاز.

Pregnancy detection tests

- Early detection of pregnancy is desirable. It allow the woman to make decisions regarding prenatal care and lifestyle changes to avoid potential harm to the fetus.

- **How Kits Work:**

- Detect human chorionic gonadotropin (hCG) hormone in urine 1-2 weeks after conception.

Pregnancy detection tests

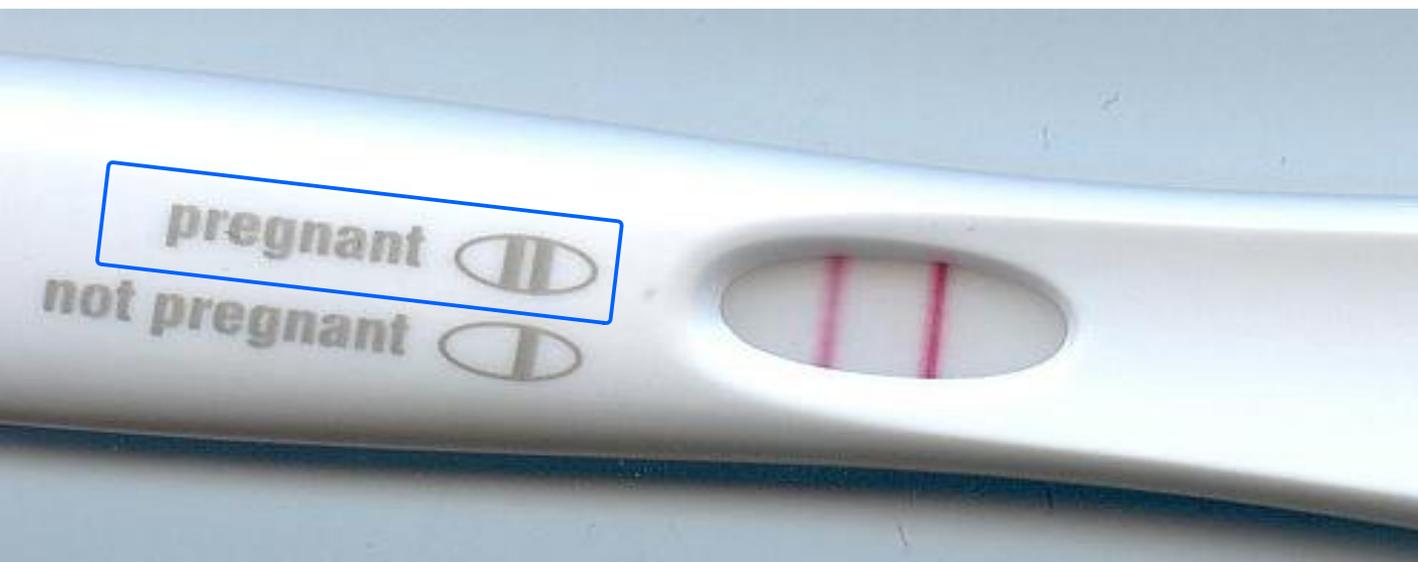
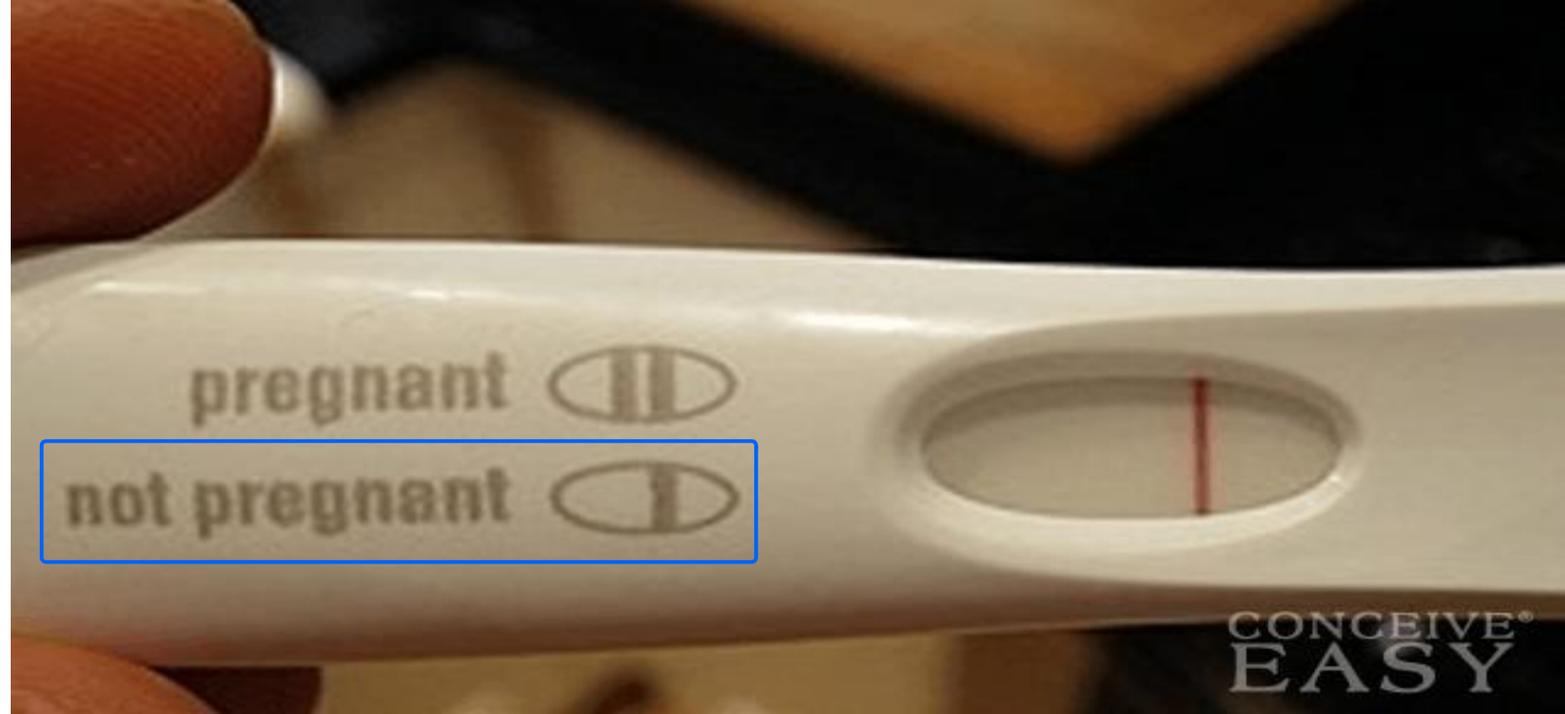
- Accuracy up to 90% if the test is done on the first day of a missed period.

كلما تأخرت بالفحص
تزيد الـ Accuracy
فليجأ متأخر لنتيجة الاختبار بين
بين الأسبوع الأول والأسبوع
الثاني

- Reach up to 97% on the first week of missed period.

- The earlier the test used, the greater is the likelihood for false-negative results.

Negative



Positive

1

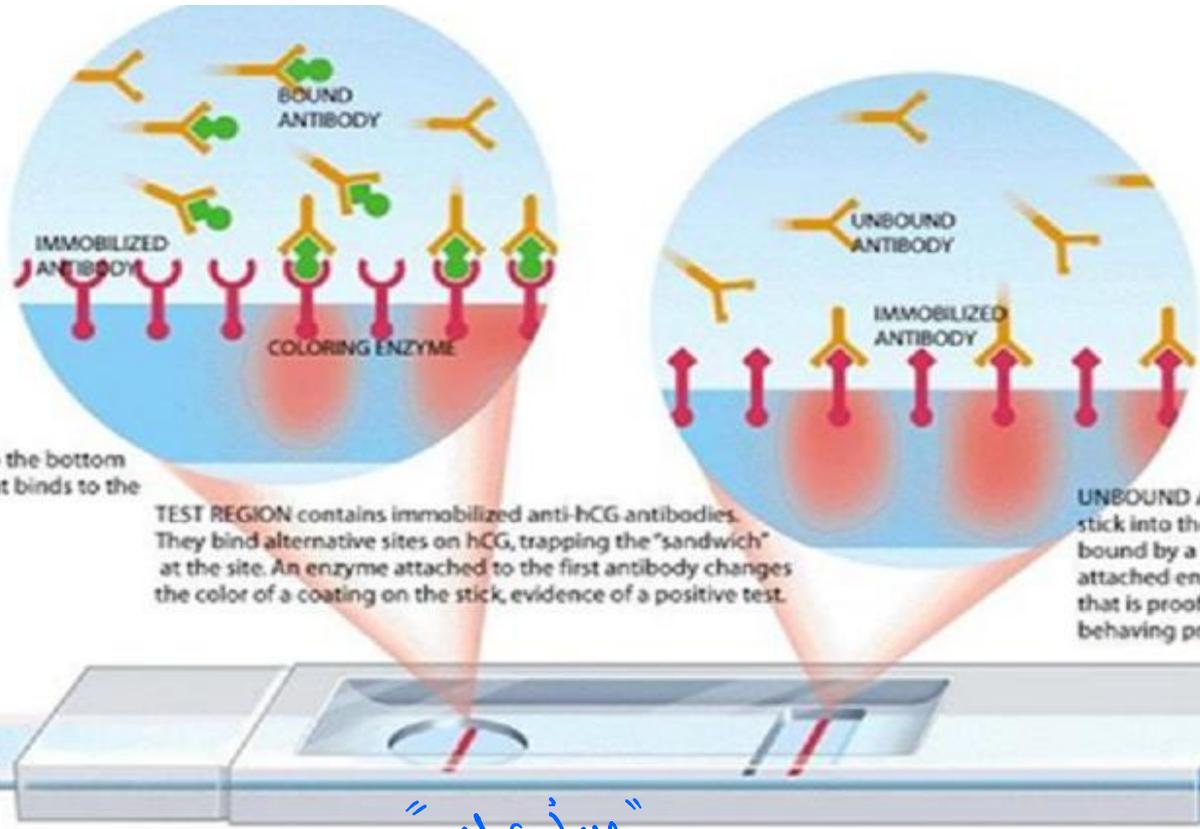
Mechanism of Action

مبدأ عمل الجهاز يعتمد على
Antigen - Antibody reaction
 نوع مبدأ عمل الـ ELISA

The urine is applied to the strip, the strip is saturated with antibodies
 ✓ Urine contain β -hCG will bind to the primary antibodies to yield a " β -hCG + primary AB" complex

This complex bind to immobilized anti-hCG antibodies leading to a color reaction

Development of a new line II
 pregnant



"مبدأ عمله"
 Detection of β -hCG once it's bind to it's own Antibody (AB)

2

هنا اذا ما فيه سنين β -hCG
 Not pregnant

الـ Antibody ح تكون Free
 لانها ما ارتبطت
 "mobile Antibody = Free"

ما فيه عليها β -hCG بتروح بتربط
 نوع آخر من الـ AB اذا كانوا Free
 مش الـ AB الذوب في تاف، هذا
 الارتباط المباشر بين الـ AB الذوب والـ
 الـ AB التاف يرفعه ح يتبع منك

Color reaction

URINE SAMPLE is applied to the bottom of the stick. Any hCG present binds to the first anti-hCG antibody.

TEST REGION contains immobilized anti-hCG antibodies. They bind alternative sites on hCG, trapping the "sandwich" at the site. An enzyme attached to the first antibody changes the color of a coating on the stick, evidence of a positive test.

UNBOUND ANTIBODIES progress up the stick into the control region, where they are bound by a third type of antibody. Again, the attached enzyme causes a color change, but that is proof only that the antibodies are behaving properly, not proof of pregnancy.

لذنه هاد الـ mobilized
 AB مربوط بـ Enzyme
 ونتيجة هاد الارتباط ح
 ينتج Reaction وح ينتج
 لون بين فما خط
 بين انها مش حامل

Pregnancy detection tests

She should follow the instructions

She should know the best time to use the test is early in the morning (morning urine)

Usage Guidelines

- Unless package instructions specify otherwise, use the first morning urine, because the levels of hCG, if present, will be concentrated at that time.
- If testing occurs at other times of the day, **restrict fluid intake for 4–6 hours before urine collection.**
- ✓✓ Remove test stick or cassette from packaging just before use.
For test sticks, remove cap, if present, from absorbent tip.

أول ما تصدق بتكثف Concentrated
وتكثف الـ hCG وجود بكميات أكبر

هكذا إذا لم يحدث اشتراك من السيدلية وما كانت تعرف
عن الموضوع أو نسيت أنه لازم تستخدم مسبقاً وفي يومها
تصلك بنفس اليوم بنجاحها

- **After the urine is applied, lay the testing device on a flat surface. Wait the recommended time (1–5 minutes) before reading results. Waiting the maximum allowed time may improve the sensitivity of the test.**
- **After reading the results, discard the testing device. If the test result is negative, test again in 1 week if menstruation has not started.**

That doesn't mean that she's not pregnant.



If the second test is negative and menstruation has not begun, consult a health care provider.

Home Blood Pressure Monitoring Devices

- Advantages of measuring blood pressure outside the clinician's office:

1. Distinguish sustained hypertension from white-coat hypertension.
2. Assess response to antihypertensive medications.
3. Improve patient adherence to treatment.

جهاز قياس ضغط الدم
الأفضل هو الذي عنده
أعلى reliability للتأثير

However

أريد كلما كانت الدقة أكثر ?
بأن يكون هو أفضل جهاز to be used

نكف في بعض الحالات نعتقد
على المريض

وتفصيلياتك انه
أبي test اختبار منك
اعتماداً على سعره
(ممتاز)

الإلكتروني أرخص من
الترقيبي

Home Blood Pressure Monitoring Devices

- **How devices work:**

"3" main devices they differ in their cost / accuracy

- 3 categories of monitor for home use:

1 ➤ mercury column

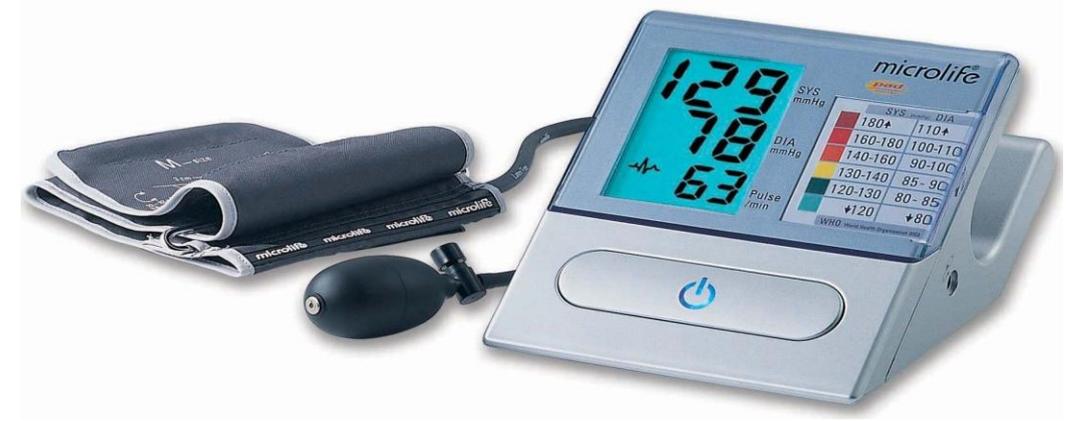
2 ➤ Aneroid

3 ➤ Digital

- Mercury* column and aneroid* meters involve auscultation using a stethoscope to detect korotkoff's sounds.



وانت عم تنفخ مشب المضروب
 تسمع أي صوت بعدين لما
 تنفس الهواء أول صوت دقات
 هاد الـ systolic - Korotkoff sound
 بعدين لما يخف صوت دقات
 القلب الرقم الي اختف عنده الصوت
 هو الـ Diastolic



Blood pressure monitors Usage guideline

هنا كثير يكون موجود بال
Digital

- Wrist monitors are typically smaller than the arm devices and can be used in obese people because the wrist diameter is little affected by obesity.

في بعض الأجهزة ما يتفعل
نستخدمها لا obese لأنه
ال cuff العادية بالنسبة لهم
رج تكون صغيرة وسادة

- Using the appropriate size cuff is essential to accurately measure a patient's blood pressure.

- If cuff size is too small > significant "overestimation" of BP.

false positive results

Home Blood Pressure Monitoring Devices

- **Choosing a Device:**

- No device is best for every patient, choice depends on ability of patient to learn, physical handicaps, economic status and preference.

Product selection guideline

- **Mercury column devices:**
 - Still the reference standard in blood pressure measurement.
 - Although they are the most accurate and reliable of the devices, their routine use for home measurement is discouraged, because:
 1. They pose the risk of mercury toxicity.
 2. They require good eyesight and hearing for effective use.
 - If the mercury does not rest at zero when the cuff is lying flat and completely deflated, the device needs recalibration.

لا تفرغ الزئبق ما بين لها
الكمبيوتر تكون منفصلة

وهي الشفافة
فتبين فيها أهلب
علامات الدمجزة الطبية



Product selection guideline

She said android device 🤖😅

- **Aneroid devices:**

- Aneroid devices come next to mercury column monitors in accuracy.
- option of choice for home use: light, ^{سهل الحمل} portable, affordable, no toxicity.
- Good eyesight and hearing are necessary with standard models. However, devices with large-type print are available for patients with reduced visual capacity.

تتوقف على الـ cuff
تتوقف على سماعة + نظر جيد



Product selection guideline

- When the cuff is completely deflated and lying on the table, the needle of the gauge should rest in the box. If not, the device needs recalibration.
- Many manufacturers sell recalibration tools to allow health care professionals to adjust the device.

Home Blood Pressure Monitoring Devices

▪ Digital:

- quick, easy to use

- **Drawbacks:** - inability of the user to determine when device is out of calibration

2 - many devices lack accuracy and reliability



Home Blood Pressure Monitoring Devices

- **Proper Technique of BP Measurement:**

- room should be at comfortable temperature
- Chair should be comfortable, with back supported and feet straight on the floor
- Arm should be supported to be at heart level
- Remove restricting clothing from arm
- Cuff should be *snug* but *not tight*.

Home Blood Pressure Monitoring Devices

- Have the patient rest at least 5 minutes in this position
- Measure BP
- Take 2-3 measurements separated by at least 2 minutes at the same arm
*في اختلاف جوداً قليل من إيد لإيد
نسب في بعض الحالات المرهنة
بكون الاختلاف واضح*
- Record the results including: time and date of measurement, any medications that pt is taking and time of last dose of each
- Supply results to primary care provider

Home Blood Pressure Monitoring Devices

- **Factors That Affect Results:**

- The most common error among doctors is failure to use the correct cuff size.

- Holding the arm higher or lower the heart can also affect reading.

تأكد من أن مستوى

Blood Glucose Tests

- Blood sugar tests provide instant results and let you know the following:
 - your diet or exercise routine needs to change
 - how your diabetes medications or treatment is working
 - if your blood sugar levels are high or low
 - your overall treatment goals for diabetes are manageable

Blood Glucose Tests

- The ease of a skin puncture makes the procedure possible for patients to perform at home
- Skin puncture performed by a hand held lancet or an automatic lancet device
- Both methods require a large drop of blood
- Follow manufacturer's instructions



Carrying case

Self-test logbook



Lancing device

Automated lancing



Lancet

hand-held lancet
تستخدم مرة واحدة



Control solution
glucose soln.



Test strip



Meter

How to use

اقتباس

- First, wash your hands or clean your finger or other site with alcohol.
- Second, prick the site with a lancing device
- Lightly squeeze site to allow a large drop of blood to form
- Third, put a drop of blood on a test strip
- Finally.. in seconds, the blood glucose meter reads your blood sugar level



Finger Stick Sites

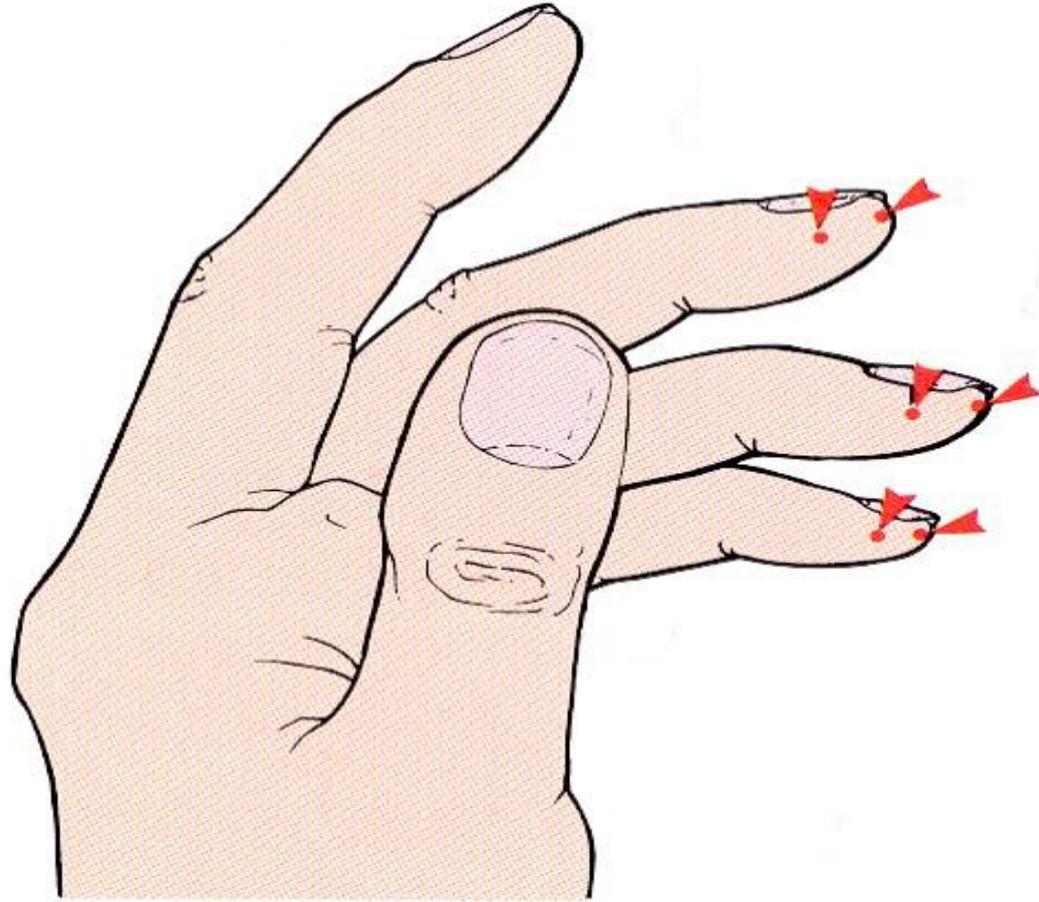
- Sites for skin punctures: *finger tips, ear lobes, and heels (infants)*

- Finger tips most common

- Avoid sites that are swollen, bruised, cyanotic, scarred, or calloused (poor blood flow)

In this case no adequate blood volume which will affect the results

Finger Stick Sites



Blood Glucose Tests

1. All meters are **calibrated**, thus will analyse blood glucose levels based on programmed data;
easy to know if the device needs to be recalibrated depending on the programmed data
2. Provide a **digital readout** and **visual indicator**;
3. some have **audio components**.
4. Several have **memories** for later recall of recent blood glucose levels.

Pulse oximeter

one of the most important devices
that were widely used due to

Covid-19

As you know Corona affect
Oxygen Saturation in the blood

- Pulse Oximeter used to measure oxygen saturation in the body i.e how much of the hemoglobin in the blood is carrying the oxygen.
- Normal oxygen saturation values are 97% to 99% in a healthy individual on room air.



لأنهم لم يلاحظوا
They did not recognize

نقص كوروننا انهم لم يلاحظوا
O₂ had low

Severe hypoxemia

→ In this case the patient should be brought to the ER ASAP

SpO₂ % - 95-100 = Normal

SpO₂ % - 91-94 = Mild hypoxemia

SpO₂ % - 86-90 = Moderate hypoxemia

✓✓ SpO₂ % - < 85 = Severe hypoxemia

Patient preparation

قراءة وفهم

- Explain the need for determination of oxygen saturation with a pulse oximeter to inform the patient of the purpose of monitoring and to enhance patient cooperation and decrease patient anxiety
- Explain that the value displayed may vary by patient movement, patient level of consciousness (awake or a sleep), and position of the sensor to decrease patient and family anxiety over the constant variability of the values

بالنسبة للمرسلات تحت هي بس شرح
الكلام المكتوب فوق الرسومات وما عكس
انف عن باقي التفاصيل.

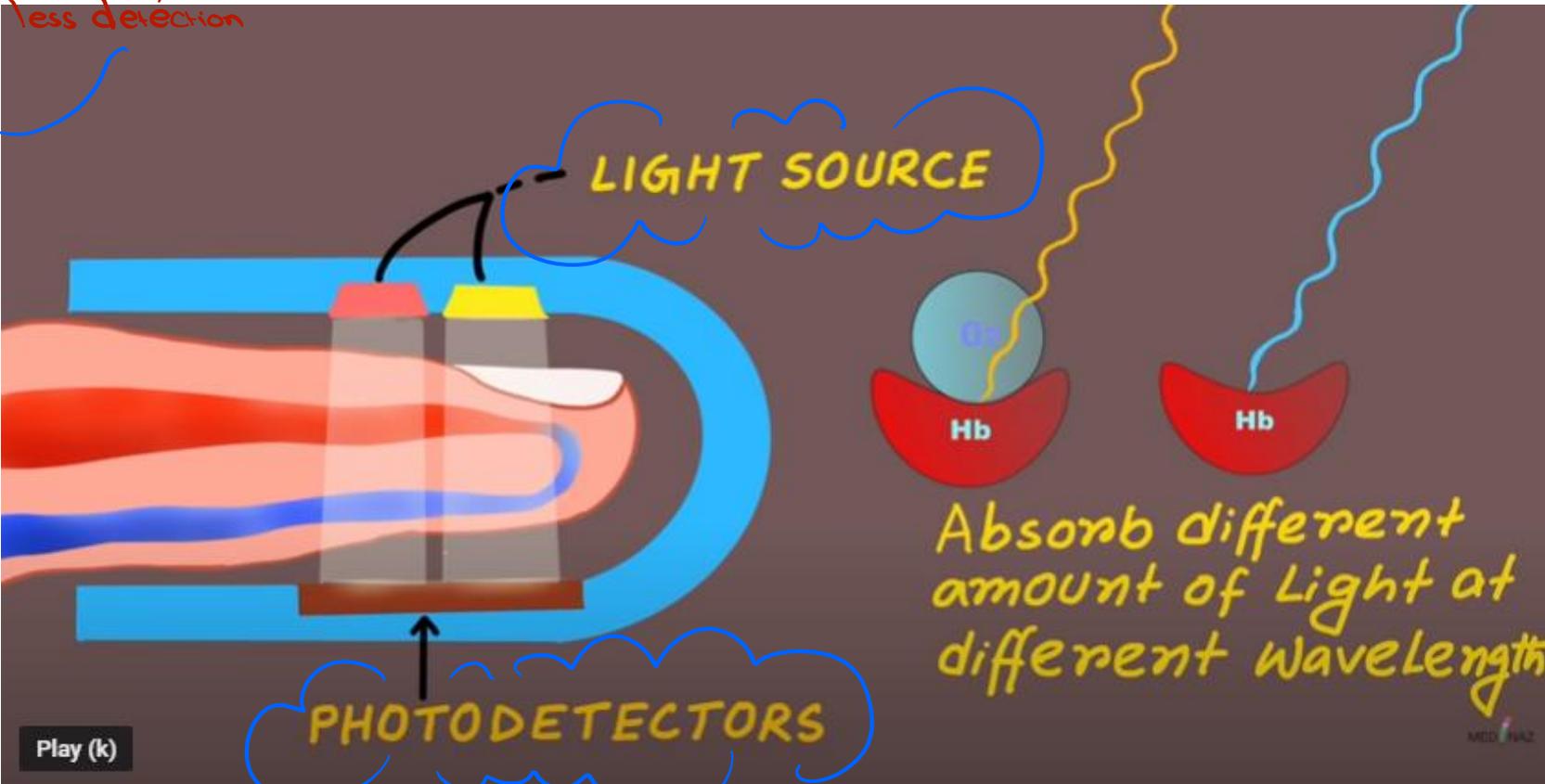
Operation

Infrared + Red

2 different wavelengths

light source
فينا
وقينا
Photodetectors

less light path length
كلما كان سدى
بوسى
less absorption
بالتالى



والعكس
if it is more

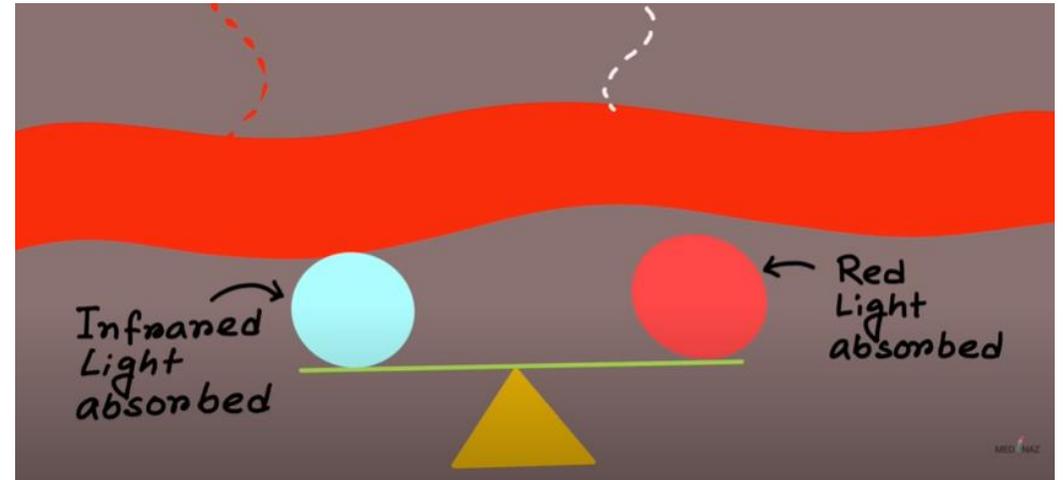
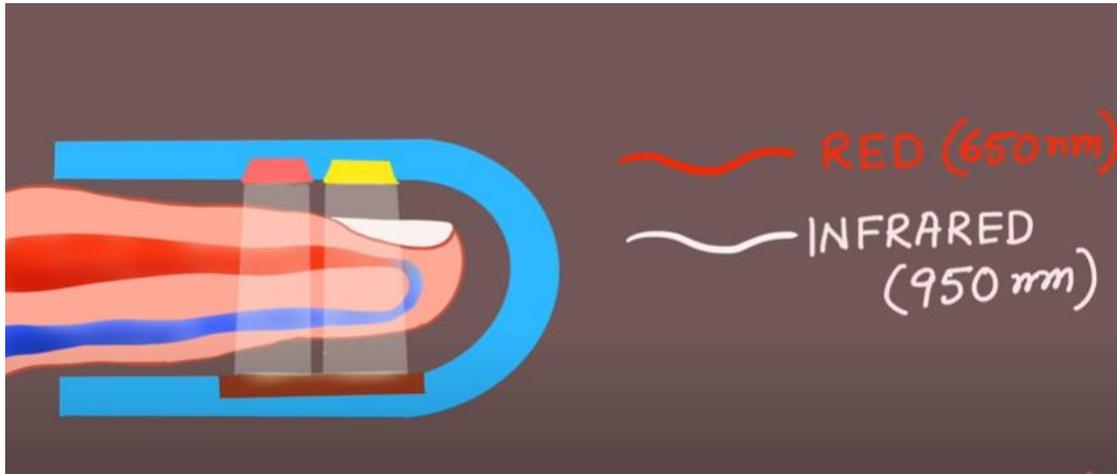
less detection

Light is emitted from light sources which goes across the pulse oximeter probe and reaches the light detector.

- Oxyhemoglobin absorbs infrared more
- Deoxyhemoglobin absorbs red more

Operation

أنزاقية الجهاز حسب الـ Ratio
 بين الـ infrared التي تقاس على
 طول موجي 950 وبين الـ Red التي
 تقاس على طول موجي 650 وطلعنا
 النتيجة على الجهاز Total O₂ Sat.



oxyhemoglobin and deoxyhemoglobin absorbs red and infrared light differently

Using this ratio, the pulse oximeter can then work out the oxygen saturation.