

GLP-F020

اسم القسم: هندسة تقنيات الأجهزة الطبية / اسم المختبر: مختبر الأجهزة الطبية I / المرحلة : الثانية / رمز المختبر: BL 405

سجل التجارب للعام الدراسي 2024 - 2025

رقم التجربة :- Experiment No. 1

اسم التجربة: مقدمة عن الأدوات الطبية

الغرض من التجربة

الغرض من تجربة المقدمة عن الأجهزة الطبية هو تعريف المتدربين أو المستخدمين بكيفية عمل واستخدام الأجهزة الطبية بشكل آمن وفعال. الهدف هو فهم وظيفة كل جهاز، كيفية تشغيله، وضبطه، وأهمية صيانتها. هذه التجربة تهدف إلى التأكد من أن الأجهزة تعمل بشكل صحيح قبل استخدامها في البيئات الطبية لتقديم الرعاية الصحية للمرضى.

طريقة العمل:

التعريف بالجهاز: يتم تقديم شرح للمستخدمين حول مكونات الجهاز ووظائفه. التشغيل والإعداد: يتم تعلم كيفية تشغيل الجهاز وضبط الإعدادات المطلوبة (مثل الشدة، السرعة، أو الدقة) حسب الحاجة.

التفاعل مع الجهاز: يقوم المتدرب بتشغيل الجهاز واستخدامه على النحو الصحيح، مثل قياس الضغط أو تنظيم التنفس.

المراقبة والتقييم: يتم مراقبة الجهاز أثناء الاستخدام للتأكد من عمله بشكل سليم. التوثيق: تسجيل نتائج التجربة والتأكد من أداء الجهاز بشكل مناسب.

Practical Lecture: Introduction to Medical Instruments

Part 1: Introduction and Definition

1.1 What Are Medical Instruments?

Medical instruments are specialized tools and devices used by healthcare professionals to diagnose, monitor, and treat medical conditions. These instruments are essential for accurate measurements, successful surgeries, and effective treatment of patients.

1.2 Importance of Medical Instruments

The proper use of medical instruments is crucial for ensuring:

- **Accurate diagnosis:** Instruments like thermometers, stethoscopes, and blood pressure cuffs help in identifying diseases and conditions.
- **Effective treatment:** Surgical instruments, defibrillators, and infusion pumps play a key role in treating patients.
- **Patient safety:** Ensuring that medical instruments are used correctly helps prevent errors and injuries.

1.3 Types of Medical Instruments

Medical instruments can be categorized based on their use:

- **Diagnostic Instruments:** Stethoscopes, otoscopes, thermometers.
 - **Therapeutic Instruments:** Syringes, defibrillators, infusion pumps.
 - **Surgical Instruments:** Scalpels, forceps, scissors.
 - **Monitoring Instruments:** ECG machines, blood pressure monitors, pulse oximeters.
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Part 2: How Medical Instruments Are Used

2.1 Purpose of Medical Instruments

The main purpose of medical instruments is to:

- **Diagnose medical conditions:** Instruments such as stethoscopes and blood pressure cuffs are used to identify health conditions.
- **Administer treatments:** Medical instruments such as syringes or infusion pumps help to administer medications or fluids.
- **Monitor patient status:** Instruments like ECGs or blood pressure monitors provide real-time data on a patient's condition.
- **Aid in surgical procedures:** Surgical instruments, such as scalpels and forceps, are used in operations to perform precise incisions or manipulate tissues.

2.2 The Role of Medical Instruments in Patient Care

- **Pre-operative stage:** Instruments like thermometers, stethoscopes, and blood pressure cuffs are used to evaluate the patient's health before surgery or treatment.
- **During surgery:** Surgical instruments are used to perform precise cuts, remove tissues, or control bleeding.
- **Post-operative stage:** Instruments like thermometers, pulse oximeters, and ECGs are used to monitor recovery and detect any complications early.

2.3 Medical Instrumentation in Emergency Care

In emergency situations, instruments such as defibrillators, airway management devices, and heart monitors are crucial for stabilizing the patient and providing immediate care.

Part 3: Components of Medical Instruments

3.1 Basic Components of Medical Instruments

While each medical instrument has specific components based on its type and function, most instruments share common components:

- **Power Source:** Many medical instruments, such as ECG machines and infusion pumps, require a power source to operate.
- **Measurement Mechanism:** This could be a sensor, gauge, or screen that provides readings or measurements of the patient's condition.
- **Display/Output:** The information gathered by the instrument is usually shown on a screen or displayed in a readable format for the healthcare professional.
- **Control Mechanism:** This could be knobs, buttons, or touchscreens that allow the healthcare professional to interact with and adjust the instrument.

User Interface: The way the healthcare provider interacts with the device, which could be manual (e.g., using a stethoscope) or digital (e.g., using a computerized blood pressure monitor).

3.2 Example: Stethoscope Components

- **Chest Piece:** Contains the diaphragm and bell, which pick up sound from the heart and lungs.
- **Tubing:** Carries sound from the chest piece to the earpieces.
- **Earpieces:** Used to listen to sounds transmitted through the tubing.

3.3 Example: Syringe Components

- **Barrel:** The cylindrical tube where the medication or fluid is held.
- **Plunger:** The part that is pushed to draw in or inject the fluid.
- **Needle:** The sharp, hollow tube used to inject the fluid into the patient.

3.4 Example: Blood Pressure Cuff Components

- **Cuff:** The inflatable band that wraps around the patient's arm.
 - **Bulb:** The pump used to inflate the cuff.
 - **Manometer:** The gauge that measures the pressure within the cuff.
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Part 4: Conclusion

4.1 Summary of Medical Instruments

Medical instruments are indispensable tools in healthcare that help diagnose, monitor, and treat patients. These instruments come in many forms and are tailored to meet the needs of different medical disciplines. Understanding how to use these instruments safely and effectively is essential for patient care and safety.

4.2 Importance of Proper Training

It is important for healthcare providers to receive proper training in the use of medical instruments to:

- Ensure the accuracy of diagnoses and treatments.
- Avoid complications or errors during procedures.
- Enhance patient safety and comfort.