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HEALTH
SCREENING
BOOKLET

INDEX

USES OF TESTS
检 验 用 途

DIABETIC SCREEN
糖尿病检查

Glucose
Glucose is formed from carbohydrate digestion and conversion of glycogen to glucose by the liver. Abnormal glucose metabolism may be caused by inability of pancreas to produce insulin, reduced numbers of insulin receptors, faulty intestinal glucose absorption, inability of the liver to metabolize glycogen or altered levels of hormones that play a role in glucose metabolism.

Use of Test: Detection of hyperglycaemia and hypoglycaemia. A screening test for diabetes mellitus, except in pregnancy where glucose must be measured following a glucose load. Monitoring glycaemic control.

血糖葡萄糖
葡萄糖是碳水化合物消化后，肝脏将糖原转化而成的。异常的葡萄糖代谢的起因是胰腺无法制造胰岛素、胰岛素受体减少、肠胃无法吸收葡萄糖、肝脏无法进行糖原代谢或葡萄糖代谢所需的激素水平产生变化。

检查的作用: 高血糖和低血糖症的诊断。在糖尿病的筛选检测时，除怀孕期外血糖应在服用定量的葡萄糖后检验。糖血症控制的监测。

RENAL FUNCTION SCREEN
肾功能检查

Sodium
Electrolytes in the body include sodium, potassium, calcium, magnesium, chloride, phosphate, bicarbonate and sulphate. The main functions of sodium are to clinically maintain osmotic pressure, acid-base balance, and to transmit nerve impulses. Sodium concentration is dependent on state of hydration, body sodium content and water shifts between plasma and other body fluid compartments.

Use of Test: Assessment and monitoring of fluid and electrolyte status especially in patients with renal or cardiac disease, possible sodium losing states and in those receiving intravenous fluids.

钠
人体内的电解质包括钠、钾、钙、镁、氯化物、磷酸盐、碳酸氢盐和硫酸盐。钠的主要功能是维持渗透压的平衡、维持酸碱性平衡以及传送神经脉冲。钠的浓缩度取决于水合状态、人体内的钠含量以及血浆和其他体液储存部位的水份移动。

检查的作用：检查和观察体液和电解质状态，特别是患有肾脏或心脏病的病人或处于纳流失状态及正接受静脉液体注射的病人。

Potassium

Potassium is the principal intracellular electrolyte (cation). It plays an important role in acid-base balance, osmotic pressure, nerve conduction and muscle function. Decreased blood potassium levels occur with shifting of potassium into cells, potassium loss from gastrointestinal and biliary tracts, renal potassium excretions and reduced potassium intake. Increased potassium levels are associated with potassium shifts from cells, with inadequate renal excretion and excessive potassium intake.

Use of Test: Monitoring potassium status in patients with renal disease, acid-base disturbances, severe fluid and electrolyte loss, on diuretic treatment or intravenous therapy. Investigation of mineralocorticoid status.

钾
钾是细胞内主要的电解质（阳离子），它在维持渗透压及酸碱性平衡、负责神经传导和肌肉功能。血液中的钾量降低的原因是钾渗入细胞内，在肠胃和胆道中流失，肾脏排出过量的钾以及食入钾量的减少。血液中钾含量增高的原因是钾在细胞间流动、肾脏排钾量不足和食入钾量过高。

检查的作用：为患有肾病、酸碱失调、严重的体液和电解质流失及正在接受利尿治疗或静脉注射治疗的病人检测钾含量。检查肾上腺激素的状态。

Chloride
Chloride is the most abundant extracellular anion. It exists in the extracellular space as a combination in sodium chloride or hypochloric acid. Chloride maintains cellular integrity through its influence on osmotic pressure and acid-base and water balance. In general, chloride is affected by the same conditions that affect sodium.

Use of Test: Assessing the possible cause of acid-base disturbances, including calculation of the anionic gap. An increased anionic gap indicates accumulation of an anion other than chloride such as lactate, hydroxybutyrate.

氯化物
氯化物是细胞外数量最多的阴离子。它以氯化纳或次氯酸化合物的形式存在于细胞外。氯化物通过对渗透压，酸碱性及水份平衡等因素的影响，保持细胞的健康。一般来说，影响钠的因素也同时也影响氯化物。

检查的作用：确定导致酸碱性失调的各种可能性，包括计算阴离子间距。更大的阴离子间距表明除了氯化物还有另一种阴离子如乳酸盐或羟基丁酸盐的积累。

Urea
Urea is produced in the liver and excreted by the kidneys. Along with CO2 it constitutes the final product of protein metabolism. The amount of excreted urea varies directly with the dietary protein intake, with increased excretion in fever, diabetes and increased adrenal gland activity. The test is used as a gross index of glomerular function and the production and excretion of urea. Rapid protein catabolism and impairment of kidney function will result in an elevated level.

Use of Test: Investigation of renal function.

尿素
尿素在肝脏合成并由肾脏排出体外，与二氧化碳一起构成蛋白质代谢的最终产物。人体所排出的尿素量与食物中摄取的蛋白量有直接关系。人体在发烧、糖尿病和肾上腺活动量加剧的情况下尿素排泄量会增加。此项检查可作为肾小球功能以及尿素合成与排泄的指标。尿素含量也因急速蛋白分解代谢和肾脏功能受损而上升。

检查的作用：检查肾脏功能。

Creatinine

Creatinine is an end-product of nitrogen metabolism. It is derived from creatine, most of which is present in muscle. Serum creatinine levels are dependent on body muscle mass and creatinine is removed from the body by the kidneys. A disorder of kidney function reduces excretion of creatinine with resultant elevated blood levels. Levels may be increased by up to 50% in normal individuals after a large meat meal.

Use of Test: Detection of decreased glomerular filtration.

肌酐酸

肌酐酸是氮代谢的最终产物，它源自肌酸，大部份存在于肌肉中。血清肌酐酸水平与人体肌肉组织代谢有关。肌酐酸由肾脏排出体外，肾脏功能失调，便会降低肌酐酸的排泄量，导致血液中其含量上升。正常人饱食肉类后，肌酐酸含量会上升达50%。

检查的作用：检查肾小球过滤功能的重要指标。

BONE & JOINT SCREEN
骨和关节检查

Calcium

Calcium is present in plasma in three forms, ionised, complexed and protein bound. Only ionised calcium can be used by the body in vital processes like muscular contraction, cardiac function, transmission of nerve impulses and blood clotting. About 98-99% of the body's calcium is present in the skeleton and teeth. This test measures the concentration of total and ionised calcium in the blood to reflect parathyroid function, calcium metabolism and malignant activity.

Use of Test: Diagnosis of hypercalcaemia and hypocalcaemia.

钙

钙质以离子钙、综合钙或附蛋白质钙三种不同的形式存在于血浆内。人体在一些重要的生理程序如肌肉收缩、心脏功能、传送神经脉冲和血凝结等只能利用离子钙。人体中大约98-99%的钙质存在于骨骼及牙齿内。检查血液内总钙含量以及离子钙含量，以便反映出副甲状旁腺功能、钙质的代谢和恶性病变的情况。

检查的作用：高钙血症和低钙血症的诊断。

Phosphate

Most of the phosphorus in the blood exists as phosphates or esters. Phosphate is required for generation of body tissues and functions in the metabolism of glucose and lipids, in the maintenance of acid-base balance, and in the storage and transfer of energy from one site in the body to another. Increased phosphate levels are most commonly found in response to low parathyroid hormone levels and in renal failure. Decreased levels occur in primary hyperparathyroidism and other conditions.

Use of Test: Evaluation of patients with renal failure, hyperparathyroidism, hypoparathyroidism, metabolic bone disease.

磷酸盐

血液中大部份的磷是以磷酸盐或磷酸酯的形式存在。人体组织的生长需要磷酸盐，它是葡萄糖代谢，脂的代谢、酸碱平衡、能量储存及传送不可缺少的元素。磷酸盐水平升高常见于低副甲状旁腺激素水平和肾功能衰竭病人的血液中。磷酸盐水平下降则基本上是副甲状旁腺功能亢进或其他症状引起。

检查的作用：检查肾脏衰竭，副甲状腺功能。观察代谢性骨病病人的病情。

Uric Acid

Uric acid and its salts are end-products of purine metabolism. The uric acid level in the blood is a balance between its synthesis and elimination. Gout is most often associated with a raised blood uric acid level. However, asymptomatic hyperuricaemia can occur, and a variety of conditions can also raise the blood level (eg increased tissue breakdown, medications such as thiazides and barbiturates, alcohol consumption, renal failure, sarcoidosis, etc).

Use of Test: Diagnosis and monitoring treatment of gout.

尿酸

尿酸和尿酸盐是嘌呤代谢的最终产物。血液中的尿酸含量维持在合成与排泄的平衡点。痛风通常与血液尿酸含量上升有关，但也可能出现无症状血内尿酸过多的情况，另外其他一些情况也会提高血液中的尿酸含量，例如：细胞组织衰竭量增加、服用利尿剂或巴比妥类等药物、酗酒、肾功能衰竭、类肉状瘤病等。

检验的用途：诊断及观察痛风治疗效果

Rheumatoid Factor

The blood of many people with rheumatoid arthritis contain rheumatoid factors which are antigammaglobulin antibodies. RF is sometimes found in blood serum from patients with other diseases, even though RF incidence and values are higher in patients with rheumatoid arthritis.

Use of Test: Diagnosis and prognosis of rheumatoid arthritis. Also positive in other chronic inflammatory conditions and immune complex diseases.

类风湿因子(RF)

类风湿因子是风湿性关节炎患者血液中常检测出的抗丙种蛋白抗体，虽然关节风湿性关节炎病人血液内RF值较高，但RF也存在于其它疾病病人的血液中。

检查的作用：风湿性关节炎的诊断和预测，其他慢性炎症及免疫性疾病患者血液中RF可呈阳性。

C-Reactive Protein (CRP)

CRP is a special protein that appears rapidly in the blood and body fluids during any inflammatory process. Blood serum CRP can be detected within 18 to 24 hours after the onset of tissue damage. Elevation indicates acute phase response or acute phase disease in chronic inflammatory disorders.

Use of Test: Assessment of acute phase reaction in inflammatory, infective and neoplastic disorders; monitoring disease activity, especially in inflammatory arthritis.

C-反应蛋白 (CRP)

CRP是一种特别的蛋白质，在发炎过程中会迅速在血液和体液中出现。在细胞组织损伤后的18至24小时内便可在血清中检查出CRP。若有上升趋势，则显示慢性发炎的急性反应或急性疾病。

检查的作用：鉴定发炎、感染及肿瘤等的急性反应，观察疾病变化，特别是关节炎的病情。

LIPID SCREEN
血 脂 检 查

Total Cholesterol

Lipids are fatty substances made up of cholesterol, cholesterol esters, triglycerides, nonesterized fatty acids and phospholipids. Majority of endogenous cholesterol is produced by the liver. Exogenous dietary sources include animal fats and oils. A diet high in fat, especially saturated fat, tends to raise blood cholesterol levels. High cholesterol levels in the blood encourage deposition of fat substances on blood vessel walls with potential risk for atherosclerosis especially atherosclerotic coronary artery disease. Total serum cholesterol comprises all of the cholesterol found in various lipoproteins.

Use of Test: Evaluation of lipid status especially as a risk factor for coronary artery disease. It should be performed with HDL and triglyceride tests to assess atherosclerotic risk factors.

总胆固醇

脂类是包含胆固醇、胆固醇脂、甘油三酸酯、非脂化脂肪酸和磷脂的脂肪体。肝脏制造大部份的内源胆固醇。外源胆固醇来自食物中的动物脂肪和油脂。含高脂肪特别是饱和脂肪的食物通常会导致血液中的胆固醇量升高。血液中胆固醇水平过高，就容易在血管壁上累积脂肪，从而导致患动脉粥样硬化，特别是冠状动脉粥样硬化症的可能性增高。血清总胆固醇包含各种脂蛋白中的所有胆固醇。

检查的作用：检查脂类的状况。特别是其导致冠状动脉疾病的可能性，应与高密度脂蛋白胆固醇和甘油三酸酯一起检查，以便确定患上动脉粥样硬化的可能性。

High-Density Lipoprotein Cholesterol (HDL)

Cholesterol and its esters, triglycerides and phospholipids are all transported in the bloodstream attached to protein particles. These lipid-protein complexes are known as lipoproteins. HDL or “good cholesterol” protect against atherosclerosis by removing cholesterol and excess fat from blood vessel walls and transport them to the liver where they are removed from the body.

Use of Test: Assessment of risk for atherosclerosis, especially coronary artery disease. Investigation of lipid status in suspected hyperlipidaemia.

高密度脂蛋白胆固醇
胆固醇和其脂体，甘油三酸酯和磷脂都是依附在蛋白质颗粒上经血液传送至人体各部位，这些脂类与蛋白质的复合体称为脂蛋白。高密度脂蛋白或"良性胆固醇"能预防患上动脉粥样硬化症，因为它会将血管壁上的胆固醇和多余脂肪去除，并将它们输送到肝脏，
再排出体外。

检查的作用：检查患上动脉粥样硬化症特别是冠状动脉疾病的可能性。为疑患高脂血病的病人检查脂类状况。

Low-Density Lipoprotein Cholesterol (LDL)

Most serum cholesterol is present in the LDL. LDL or "bad cholesterol" transports fat and cholesterol to various parts of the body including the blood vessels. They are closely associated with increased incidence of athero-sclerosis and coronary heart disease. LDL cholesterol levels are calculated from fasting values of total cholesterol, HDL cholesterol and triglycerides.

Use of Test: Assessment of risk for atherosclerosis, especially coronary artery disease. Investigation of lipid status in suspected hyperlipidaemia.

低密度脂蛋白胆固醇
血液中的胆固醇大部份是以低密度脂蛋白存在。低密度脂蛋白或"劣性胆固醇"将脂肪和胆固醇输送到人体各部位，包括血管。它与动脉粥样硬化和冠状动脉疾病的患病率增加有着密切的关系。测定总胆固醇、高密度脂蛋白胆固醇和甘油三酸酯的含量，便可计算出低密度脂蛋白胆固醇的含量。

检查的作用：检查患上动脉粥样硬化症特别是冠状动脉疾病的可能性。为疑患高脂血病的病人检查脂类状况。

Cholesterol Ratio

The cholesterol/HDL ratio gives more information than does either value alone. The higher the ratio, the higher the risk for developing atherosclerosis.

Use of Test: Assessment of risk for atherosclerosis, especially coronary artery disease.

胆固醇比例
胆固醇与高密度脂蛋白胆固醇的比例，比个别数值提供更多的信息。比例越高，越有可能患动脉粥样硬化症。

检查的作用：检查患动脉粥样硬化症特别是冠状动脉疾病的可能性。

Triglycerides
Triglycerides form the main lipid component of the diet. Exogenous triglycerides are transported to the systemic circulation via the thoracic duct. The liver is the major site of endogenous triglyceride synthesis, from fatty acids and glycerol. Triglycerides comprise 95% of fat stored in tissues. Storage triglycerides can be broken down to provide energy for the body.

Use of Test: Evaluation of lipid status.

甘油三酸酯
甘油三酸酯是食物中主要的脂类。外源性甘油三酸酯，通过胸导管传送到循环系统中。内源性甘油三酸酯主要由肝脏合成，合成元素包括 脂肪酸和甘油。甘油三酸酯包括储存在于人体组织内95%的脂肪。储存的甘油三酸酯被分解后为人体提供能量。

检查的作用：检查脂类状况。

Apolipoprotein A1, B and Ratio
载脂蛋白A1，B和比率

It has been suggested that Apo B is a more reliable indicator of Cardiovascular disease (CVD) than LDL-C, since measurement of Apo B is a direct quantitation rather than a calculated measurement. Apo B assay is also not affected by hypertriglyceridemia as is the case with the calculated LDL-C. While LDL-C continues to constitute the primary target of therapy, the Canadian Cardiovascular Society (CCS) 2009 guideline has identified Apo B as an alternate primary target of hyperlipidemia therapy.

Apo A1 is the protein component of HDL-C and its concentration is inversely related to risk of CVD. The CCS 2009 guideline includes target values for the ratio of Apo B/Apo A.

Use of Test: Assessment of Cardiovascular Disease Risk.

有人建议在心血管疾病（CVD）检测中载脂蛋白B是一种比LDL-C更可靠的指标，因为载脂蛋白B的检验是直接定量而不是间接定量（通过计算定量）。与计算LDL-C相比对载脂蛋白B的分析不会受到血液中甘油三酸酯过多的影响。虽然LDL-C依然是治疗的重要指标，CCS 2009 准则已经确定载脂蛋白B作为备用高脂血症治疗的首要指标。

载脂蛋白A1是HDL-C的蛋白成分，其浓度与患心血管疾病的风险成反比。CCS 2009 准则包括载脂蛋白B与载脂蛋白A比率的目标值。

检查的作用：患心血管疾病的风险评估

LIVER AND BILIARY SCREEN
肝胆功能检查

Total Protein
Serum protein is comprised of albuminS and globulin, either bound or acting as carrier proteins. Plasma proteins are mostly synthesized in the liver, except for immunoglobulins, which are synthesized in the lymphoreticular system. They are a source of nutrition and a buffer system. Increased levels of total serum protein occur in conditions like dehydration, haemoconcentration states due to fluid loss. Decreased levels are associated with insufficient nutritional intake, severe liver disease, renal disease and other conditions.

Use of Test: Diagnosis and monitoring of hypergammaglobulinaemia and hypogammaglobulinaemia, protein losing states and malnutrition. Used in conjunction with albumin to calculate globulin.

总蛋白质
血清蛋白质包括白蛋白和球蛋白等，它们可以是结合蛋白或载体蛋白。除免疫球蛋白是在淋巴网系统中合成外，血浆蛋白一般是在肝脏合成。它们是营养素的来源，也是缓冲系统。在脱水或液体流失而导致的血液浓度升高情况下血清总蛋白质上升。营养不良、严重肝病、肾病和其他症状时血清总蛋白下降。

检查的作用：丙种球蛋白过高和丙种球蛋白过低症的诊断与观察、蛋白质流失和营养不良。与白蛋白一起定量可计算球蛋白量。

Albumin

Most serum albumin is produced by the liver. It contributes towards maintaining the colloid oncotic pressure of plasma. Albumin also acts as a transport protein for some drugs and substances such as fatty acids, calcium, unconjugated bilirubin, thyroxine and urate. Increased levels may be seen with dehydration. Decreased levels may be associated with conditions such as overhydration, chronic liver disease and protein losing disorders.

Use of Test: Evaluation of nutritional status, protein losing disorders, liver disease, dehydration.

白蛋白

血清白蛋白大部份是由肝脏制造。它有助维持血浆的胶体渗透压。白蛋白也是某些药物，脂肪酸、钙、非结合胆红素、甲状腺素和尿酸盐等物质的输送蛋白质。脱水状态下可能有上升趋势，体液过多、慢性肝病和蛋白质流失时则会下降。

检查的作用：检查营养状况、蛋白质流失、肝病及脱水现象。

Bilirubin (Total)

Bilirubin is formed from the breakdown of haemoglobin in red blood cells by reticuloendothelial cells mainly in the spleen, liver and bone marrow. Total bilirubin comprises unconjugated, conjugated and delta bilirubins. Bilirubin is removed from the body by the liver, which excretes it into the bile. Elevated serum levels occur if the liver is unable to excrete the normal amount of bilirubin produced or if there is an excessive destruction of red blood cells. Jaundice, a condition with visible yellow colouration of the skin, sclera and mucous membrane is characterised by high levels of bilirubin in the blood.

Use of Test: Investigation and monitoring of hepatobiliary disease and haemolysis.

总胆红素

胆红素是脾、肝和骨髓的网状内皮细胞将红细胞内的血红蛋白分解后形成的。胆红素又可分为未结合、结合和其它胆红素。肝脏将其经由胆汁排出体外。如果肝脏无法排出正常量的胆红素，或出现异常的红血球溶血症状，血清胆红素水平上升。患有黄疸病时（皮肤，巩膜和黏膜发黄的症状），血液中胆红素含量会明显升高。

检查的作用：肝胆疾病和溶血现象的检查与诊断。

Alkaline Phosphatase (ALP)

Alkaline phosphatase is a group of closely related enzymes found in many tissues, with highest concentrations in liver and biliary tract epithelium, bone, intestinal mucosa and placenta. ALP activity is increased in many conditions, the two principal categories being liver and bone diseases.

Use of Test: Investigation of hepatobiliary or bone disease.

碱性磷酸酶

碱性磷酸酶是一组与许多人体组织密切相关的酶，主要集中于肝脏、胆道上皮、骨骼、肠黏膜和胎盘组织中。在肝病和骨性疾病等病人体内，碱性磷酸酶活动通常加剧。

检查的作用：检查肝胆或骨病。

Aspartate Aminotransferase (AST/SGOT)

AST is an enzyme found in several organs and tissues, including liver, heart, skeletal muscle, kidney, brain, pancreas, spleen, and lungs. The enzyme is released into the circulation following the injury or death of cells. Increased levels are found with hepatocellular disease, as well as cardiac and skeletal muscle diseases.

Use of Test: Detection and monitoring of liver cell damage.

谷草转氨基酶 (AST/SGOT)

AST是一种广泛存在于肝脏、心脏、骨骼，肌肉、肾脏、脑、胰腺、脾和肺等人体器官和组织中的酶素。在细胞受损或死亡时，AST就被分泌到血液中。患肝细胞疾病、心脏和骨骼肌肉等疾病的病人体内，AST含量会有不同程度的增加。

检查的作用：肝细胞损坏的诊断与监测。

Alanine Aminotransferase (ALT/SGPT)

ALT is an enzyme found predominantly in liver but with lower concentrations in the kidney, heart and skeletal muscle. In general, most ALT elevations are due to liver disease. ALT is more specific for hepatocellular damage than AST.

Use of Test: Detection and monitoring of liver cell damage.

谷丙转氨基酶 (ALT/SGPT)
ALT是一种主要存在于肝脏，少部分存在于肾脏、心脏以及骨骼肌肉组织中的酶素。通常ALT含量的上升，说明肝脏出现了问题。对于肝细胞损坏的检查，ALT比AST准确。

检查的作用：肝细胞损坏的诊断与监测。

Gamma Glutamyltransferase (GGT)
GGT is an enzyme located mainly in the liver, kidney, biliary tract epithelium, intestine, heart, brain, pancreas and spleen. GGT is affected by both acute liver damage and biliary tract obstruction. The test is used to determine liver cell dysfunction and to detect alcohol-induced liver disease. Pancreatitis and prostatitis may also be associated with increased levels.

Use of test: Evaluation of liver disease.

谷氨酰转酞酶 (GGT)
GGT是一种存在于肝脏、肾脏、胆道上皮、肠道、心脏、脑、胰腺和脾脏中的酶素。GGT 的含量受急性肝脏损坏和胆道阻塞影响而增 高。这项检查可用来诊断肝细胞机能障碍和酒精导致的肝病。患胰腺炎或前列腺炎的病人体内GGT的含量有可能上升。

检查的作用：肝病的诊断与治疗观察。

Lactate Dehydrogenase (LDH)
LDH is an intracellular enzyme found in heart, skeletal muscle, red blood cells, brain, lung, liver and kidney. Increases in value usually indicate cellular death and leakage of the enzyme from cells. A considerable number of conditions can elevate LDH level.

Use of Test: A non-specific indicator of disease. Of limited value in supporting the diagnosis of myocardial infarction when testing is performed >48 hours after the onset of chest pain. Maybe useful occasionally in the assessment of patients with liver disease or malignancy (especially lymphoma, seminoma, hepatic metastases); anaemia when haemolysis or ineffective erythropoeisis is suspected.

乳酸盐脱氢酶 (LDH)
LDH是一种广泛存在于人体心、骨骼肌肉、红细胞、脑、肺、肝和肾脏组织细胞内的酶素。组织细胞死亡后释放的酶，使血液中LDH水平上升。另外也有其他因素可能导致LDH水平上升。

检查的作用： LDH是非特定性的指标。血液中的LDH水平升高只能在胸部疼痛 48小时后检测出，因此对于心肌梗塞的早期诊断帮助不大，但仍有辅助诊断的价值。 同时可辅助诊断肝病，恶性肿瘤（特别是淋巴瘤、精原细胞瘤、肝脏转移瘤），及溶血性贫血症或红细胞生长异常。

THYROID SCREEN
甲状腺检查

Thyroxine (Free T4)
Free T4 is the metabolically active form of thyroxine. This test determines thyroid status, rules out hypothyroidism and hyperthyroidism and evaluates thyroid replacement therapy.

Use of Test: Investigation of thyroid function, as an adjunct to TSH which is the preferred test for assessment of thyroid status. Monitoring patients on thyroid replacement therapy.

游离甲状腺素
FreeT4是甲状腺素的代谢体，此项检查可确定甲状腺的状况，排除甲状腺功能减退和甲状腺功能亢进，同时用于评估甲状腺替代疗法的效果。

检查的作用： FT4与 TSH一起作为检查甲状腺功能状态的首选检验项目。同时作为接受甲状腺替代治疗的病人的病情观察。

Thyroid Stimulating Hormone (TSH)
Hormone synthesis in the thyroid is controlled predominantly by plasma thyroid-stimulating hormone from the anterior pituitary gland. TSH output is regulated by the negative feedback effects of free T3 and free T4 acting on both the hypothalamus and the pituitary. TSH is more sensitive than free T4 to alterations of thyroid status in patients with primary thyroid disease. High levels are found in primary hypothyroidism.

Use of Test: It is the preferred initial test for assessment of thyroid function. Monitoring of patients on thyroid replacement or suppressive therapy.

甲状腺刺激激素
甲状腺刺激激素是由脑垂体前叶产生，主要作用是控制 甲状腺合成与分泌激素。TSH的产量受影响下丘脑和垂体的游离T3及游离T4反馈作用的调节。对观察甲状腺疾病病人的甲状腺变化情况，TSH比FreeT4更敏感。甲状腺功能减退患者血液中TSH水平明显增高。

检查的作用：它是甲状腺功能初次检验的首选，可用作观察接受甲状腺替代治疗或抑制治疗的病人。

TUMOUR MARKERS
肿瘤标记

Alpha Fetoprotein (AFP)
Alpha fetoprotein is present in the tissues and plasma of the foetus. Its concentration falls rapidly after birth but minute amounts can still be detected in plasma from adults. Pregnant women have raised levels of plasma AFP. Great increases in AFP occur in patients with hepatocellular carcinoma. Increases in plasma AFP in association with other malignant tumours such as gonadal, gastric, pancreatic and biliary tract neoplasms can also be detected. Lesser elevations may be found in non-neoplastic disease associated with liver cell regeneration.

Use of Test: Detection and monitoring of hepatocellular carcinoma and germ cell tumours, particularly for recurrence after treatment.

甲胎蛋白 (AFP)
甲胎蛋白存在于胎儿组织和血浆中，在出生后含量虽然急速下降，但成人血浆中还存有残留的AFP。孕妇血浆中AFP含量会升高。肝细胞癌患者血液中AFP含量明显升高，其他恶性肿瘤如性腺瘤、胃、胰腺和胆道肿瘤患者血液中的AFP量也会增加。与肝脏细胞再生有关的非肿瘤性质疾病，AFP水平会有不同程度增加。

检查的作用：诊断肝细胞癌和生殖细胞肿瘤，并用于观察治疗效果。

CA 125
CA 125 is a glycoprotein. It is a marker for serious carcinoma especially carcinoma of the ovary, but elevations are also seen in peritoneal disease of any cause.

Use of Test: The test should not be used as either screening or diagnostic test for malignancy. It may be used for monitoring effectiveness of therapy in patients with a malignancy that has been shown to produce this marker.

CA 125
CA 125是一种糖蛋白。它是恶性癌症，特别是卵巢癌的 病发指标。其他各种腹膜疾病也会导致血液中其含量升高。

检查的作用：CA125不应作为肿瘤筛查或诊断的指标。对CA125已呈阳性的肿瘤病人可作为观察治疗效果的指标。

CA 19-9
CA 19-9 is a marker for gastrointestinal malignancy, especially carcinoma of the pancreas.

Use of Test: The test should not be used as either screening or diagnostic test for malignancy. It may be used for monitoring effectiveness of therapy in patients with a malignancy that has been shown to produce this marker.

CA 19-9
CA 19-9 是恶性肠胃肿瘤的标记，特别是胰腺癌。

检查的作用：CA199不应作为肿瘤的筛查或诊断指标。可作为CA199以呈阳性的肿瘤病人的治疗效果的观察指标。

Carcinoembryonic Antigen (CEA)
Slight increases may be seen in smokers and in patients with inflammatory bowel disease. It may be increased in patients with other carcinomas (lung, liver, pancreas). Increasing levels in patients with a history of colorectal or breast adenocarcinoma suggests local recurrence or metastatic disease.

Use of Test: Not sufficiently sensitive or specific to be used as a screening test for malignant disease. Can be used to detect recurrence of colonic adenocarcinoma and breast carcinoma following resection.

癌胚抗原 (CEA)
吸烟者和肠炎病人体内CEA含量会略有上升。癌症（肺、肝、胰）病人体内含量也会上升。如果结肠癌，直肠癌或乳腺癌病人的CEA含量上升，表示有局部病发或出现转移瘤现象的可能性。

检查的作用：CEA的敏感度和特定性不强，因此不能作为恶性肿瘤的筛查指标。CEA可作为结肠癌及乳腺癌切除手术后病情观察的指标。

Prostate Specific Antigen (PSA)

Prostate specific antigen is localized in both normal prostatic epithelial cells and prostatic carcinoma cells. Serum PSA is markedly elevated in prostatic carcinoma. However increased levels are also seen in benign prostatic hypertrophy, prostatitis, prostatic ischemia and/or infarction and acute renal failure. Normal levels do not exclude prostatic carcinoma.

Use of Test: Diagnosis and monitoring the course of prostatic carcinoma. It is not recommended as a screening test for carcinoma of the prostate.

前列腺特异性抗原 (PSA)
PSA存在于正常的前列腺上皮细胞和前列腺癌细胞内。前列腺癌病人血清PSA显著上升。良性前列腺肿大、前列腺炎、前列腺局部缺血或梗塞症以及急性肾衰竭时，PSA含量也会上升。PSA含量正常并不表示没有患前列腺癌。

EBV EA+EBNA-1 IgA

Epstein-Barr virus (EBV), a human herpes virus, is a major aetiologic factor in a number of human diseases, including infectious mononucleosis, Burkitt's lymphoma and nasopharyngeal carcinoma.

Nasopharyngeal carcinoma (NPC) is a malignant tumor which occurs among the Chinese living in this region. Its poor prognosis is due to the late stage at which the disease is detected. Therefore, early diagnosis is important.

Studies show that sera from NPC patients have high titers of EBV specific antibodies. Recently an ELISA method has been developed to detect the presence of IgA antibodies to the EB early antigen (EA) and the EB nuclear antigen-1 (EBNA-1).

EB病毒 早期抗原（EA）+ 核抗原-1（EBNA）IgA 抗体

EB病毒是一种疱疹病毒，是人体多种疾病的病源体，包括传染性单核细胞增多症、伯基特氏淋巴瘤和鼻咽癌等。

鼻咽癌是常见于本区域华族族群中的恶性肿瘤，由于肿瘤多在后期才被发现，因此预期治疗效果不好，所以早期诊断是非常关键的。研究显示鼻咽癌病人血清中含大量EB病毒特定抗体。最近，开发了一种能够检测出EB早期抗原和EB核抗原等抗体的ELISA检测法。

USES OF TUMOUR MARKER		
Tumour Marker	**Indication**	**Comments**
Alpha Fetoprotein (AFP)	Monitoring fetus in pregnancy for developmental abnormalities. Diagnosis and monitoring course and therapy of primary hepatocellular carcinoma and germ cell tumor	Transient increase in AFP levels in some liver diseases eg hepatitis and in normal pregnancy.
Carcino-embryonic Antigen (CEA)	Monitoring course and therapy of colorectal , gastric, pancreatic, medullary thyroid, breast and bronchial carcinoma.	May be raised in some non-neoplastic conditions like ulcerative colitis, pancreatitis, cirrhosis, COPD, Crohn's disease as well as in smokers. 10% of smokers show values of 3 - 5 ng/mL, 4% at 5 - 10 ng/mL and <1% at 10 - 20 ng/mL.
Prostate Specific Antigen, Total (PSA, Total)	Monitoring course and therapy of localized and metastatic prostatic carcinoma	Tissue-specific but not tumour-specific. PSA is present in small quantities in the serum of men with healthy prostates, but is often elevated in the presence of prostate cancer and in other prostate disorders. Important: Blood sample should be taken before rectal examination.
CA 125	Monitoring course and therapy of ovarian carcinoma	Lacks sensitivity and inability to detect early ovarian cancer. May be elevated in other cancers, eg endometrial, fallopian tube, lung, breast and gastrointestinal cancers. May also be elevated in endometriosis and pregnancy. Can be elevated in the presence of any inflammatory condition in the abdominal area, both cancerous and benign.
CA 19-9	Management of pancreatic carcinoma. Can be useful in distinguishing between cancer and other diseases in the presence of pancreatic mass. Marker of 2nd choice in colorectal tumours.	Can be elevated in many types of gastrointestinal cancer, eg colorectal, esophageal and hepatocellular carcinomas. Elevated levels may also occur in pancreatitis, cirrhosis and diseases of the bile ducts.
CA 15-3	Monitoring course and therapy of breast carcinoma	In combination with CEA

Note: Kindly note that tumour markers tests are for screening purposes and cannot be used as confirmatory tests.

USES OF TUMOUR MARKER		
Tumour Marker	**Indication**	**Comments**
Beta Human Chorionic Gonadotropin (Beta HCG)	Diagnosing or monitoring germ cell tumours eg. non seminomatous germ cell tumour, testicular or placental choriocarcinomas, hydatidiform moles, seminomas (combination tumours) and gestational trophoblastic disease.	A glycoprotein hormone produced during pregnancy by the developing embryo and by the placenta. Some cancers produce this hormone: therefore elevated levels measured when the patient is not pregnant requires further investigations to exclude a cancer diagnosis.
Squamous Cell Carcinoma Antigen	Monitoring course and therapy of squamous cell carcinomas of the head and neck region, ears, nose, and throat, the lungs and the esophagus	Important: contamination with skin or saliva leads to false-high values.
EBV EA+EBNA-1 IgA Antibody	Screening and monitoring of nasopharyngeal carcinoma (NPC)	

Note: Kindly note that tumour markers tests are for screening purposes and cannot be used as confirmatory tests.

肿瘤标记的使用		
肿瘤标记	**指示**	**注解**
甲胎蛋白	怀孕期胎儿异常监控诊断和观察初期肝细胞癌和生殖细胞瘤的起因及治疗	在某些肝脏疾病如肝炎或正常妊娠期甲胎蛋白会短暂升高。
癌胚抗原	监测直肠癌，胃癌，胰腺癌，乳腺癌和支气管癌的起因和治疗	某些非肿瘤性疾病，如溃疡性结肠炎，胰腺炎，肝硬化，慢性阻塞性肺病，克罗恩病和吸烟者会使癌胚抗原含量上升。 10％的吸烟者显示值为3-5ng/mL, 4% 的吸烟者显示值为 5 - 10 ng/mL <1％的吸烟者显示值为10 - 20 ng/mL.
前列腺特异性抗原	监测原发性与转移性前列腺癌的起因和治疗	是组织特异性但非肿瘤特异性的指标。前列腺健康的男性体内会有少量的前列腺特异性抗原出现，但患前列腺癌或其他前列腺疾病时其含量升高。 重点：血液检查应在直肠检查前进行。
癌原125	确定卵巢癌的起因和观察治疗效果	缺乏敏感性并无法检测早期卵巢癌。在患其它癌症如子宫内膜癌，输卵管癌，肺癌，乳腺癌和胃肠道癌症时其含量可能升高。子宫内膜异位症和妊娠也可能导致其含量升高。恶性和良性肠胃炎症也可以导致其含量升高。
癌原19-9	胰腺癌的观察。在区别癌症和其他胰腺肿块时起一定作用。结肠直肠肿瘤检查的第二选择。	多种类型的消化道肿瘤，如大肠癌，食道癌，肝癌等引起其含量增加。胰腺炎，肝硬化，胆道疾病也可能导致其含量升高。
癌原15-3	乳腺癌的监测和治疗观察	应与癌胚抗原一起检验
绒毛膜促性腺激素	诊断和监测生殖细胞肿瘤，如非精原生殖细胞瘤，睾丸肿瘤，胎盘绒毛膜癌，葡萄胎，精原细胞瘤（结合肿瘤）和妊娠滋养细胞疾病。	是胚胎发育和胎盘在怀孕期间产生的糖蛋白激素。某些癌症可产生这种激素，因此激素含量升高但病人并没有怀孕时，需做进一步检查以确诊。

肿瘤标记的使用		
肿瘤标记	**指示**	**注解**
鳞状细胞癌 抗原	检查子宫颈，耳鼻喉，肺和食道的鳞状细胞癌	C重点：皮肤和唾液的污染会导致假性增高
EB 病毒早期抗原/核抗原IgA 抗体	鼻咽肿瘤的检测	

SEXUALLY TRANSMITED DISEASE (STD SCREENING)
传染性性病检查

SYPHILIS AB SCREENING
Syphilis is a venereal disease caused by Treponema pallidum. VDRL or RPR are nontreponemal (nonspecific) tests used as screening tests for syphilis while the Syphilis TP assay is a qualitative detection of antibody to T. pallidum in human serum or plasma (treponemal specific) . They are also used for monitoring treatment. They may show negative results in some cases of late syphilis. False positive results can occur in nonsyphilitic conditions such as malaria, leprosy, viral infections, bacterial infections, rheumatoid arthritis, pregnancy and others. Diagnosis of syphilis must be confirmed by Confirmatory Test for specific antibody to T. pallidum.

Use of Test: Screening test for syphilis. Non-specific cardiolipin antibody test. Can be used for monitoring treatment of syphilis. Confirmatory test for specific antibody to T. pallidum is required.

梅毒抗体筛查试验 （快速血浆反应素试验VDRL 或RPR）
梅毒是由梅毒螺旋体引发的性病。VDRL或RPR是梅毒的非梅毒螺旋体（非特异性）检验，用于检查人体血液中有无梅毒螺旋体抗体的定性试验。后期梅毒病人血液中可能会呈现阴性反应。某些疾病如疟疾、麻风、病毒感染、细菌感染、风湿性关节炎、孕妇及其他非梅毒病患者血液中可呈假阳性反应。诊断梅毒，必须同时进行梅毒螺旋体特定抗体的确认检测。

检查的作用：梅毒的检验，非特异性具体的心磷脂抗体测验，可用作梅毒治疗疗效的观察工具，必需进一步做梅毒螺旋体菌特定抗体的确认检测。

Treponema Pallidum Haemagglutination (TPHA)
TPHA is a treponema (specific) test that detects antibodies to T.pallidum. Positive results confirm the diagnosis of syphilis but do not indicate whether the disease is active, inactive or cured. The titre may not fall after effective treatment except in early syphilis.

Use of Test: Confirmatory test for syphilis.

梅毒螺旋体血凝反应试验(TPHA)
TPHA是梅毒螺旋体抗体的特性检测。阳性结果可确诊为梅毒，但无法进一步显示疾病是否处于活跃期、非活跃期或已痊愈。除初期梅毒外，阳性滴度未必在治疗后下降。

检查的作用：梅毒的确诊检测。

TOTAL VITAMIN D TEST
总维生素D检测

Total Vitamin D or 25-Hydroxyvitamin D level is the best indicator of overall Vitamin D status because it reflects total Vitamin D from dietary intake, sunlight exposure and conversion of Vitamin D from adipose stores in the liver. Vitamin D deficiency may lead to muscle weakness, bone pain and fragility fractures. Insufficiency may be associated with both skeletal and nonskeletal health outcomes eg. atherosclerosis, diabetes Mellitus (Type 1 and 2), multiple sclerosis and other autoimmune disorders, neoplasms and cardiovascular diseases.

Use of Test: Assessment of deficiency or insufficiency of Vitamin D

总维生素D或25 - 羟基维生素D含量是说明整体维生素D状态的最好的指标。它反映了总维生素D包括从饮食中摄取，阳光照射和肝脏储存的脂肪转换的维生素D。维生素D缺乏可导致肌肉无力，骨骼疼痛和脆弱性骨折。并伴有骨骼和非骨骼健康问题，如动脉粥样硬化，糖尿病（1型和2型），多发性硬化症及其他自身免疫性疾病，肿瘤和心血管疾病。

检查的作用：维生素D缺乏或不足的检查。

HAEMATOLOGICAL STUDIES
血液学检验

Blood
Blood consists of several different types of cells suspended in plasma. The function of blood is to provide oxygen to the tissues, to prevent invasion by microorganisms and to promote haemostasis. The formed elements of the blood or blood cells consist of the red cells (erythrocytes), the white cells and the platelets. The cells are produced primarily by bone marrow. Plasma fluid derives from the intestines and organs and provides vehicle for cell measurement.

血液

血液包含血浆中的各种血细胞。血液的功能是为人体组织提供氧气，防止微生物侵袭，以及促进止血功能。血液或血细胞包括红细胞、白细胞和血小板，这些细胞主要由骨髓制造，血浆液体主要源自肠道及内脏，可作为细胞测量的工具。

Haemoglobin (Hb)

Haemoglobin is the oxygen-carrying component contained in red blood cells (RBCs). It is composed of a single protein called globin and a compound called haem, which contains iron atoms and the red pigment porphyrin. The oxygen-combining capacity of the blood is directly proportional to the haemoglobin concentration, rather than to the number of RBC. Haemoglobin determination is part of a complete blood count that screens for disease associated with anaemia, determines the severity of anaemia, follows the response to treatment for anaemia and evaluates polycythemia. Anaemia is defined as Hb below normal for age and gender.

Use of Test: Suspected anaemia or erythrocytosis.

血红蛋白 (Hb)

红细胞内的血红蛋白负责输送氧气，它是由珠蛋白的单一蛋白质和血红素复合组成的。血红素中包含铁原子和卟啉红色素。血液的氧气结合量和血红蛋白量有密切关系，并非取决于红细胞的数量。血红蛋白检验是完整血液学检查的一部份，可用于诊断和贫血有关的病症、贫血的严重性、追踪贫血治疗的效果，以及检查红细胞增多症。贫血症是指Hb的数量低于该年龄和性别应有的含量。

Red Blood Cell (RBC) Count

Red blood cells contain haemoglobin and a variety of other proteins, salts, and vitamins. The cells are shaped like biconcave discs to enable the maximum amount of haemoglobin to be used. The primary functions of RBCs are to transport oxygen from the lungs to the body tissue and to carry carbon dioxide from the tissues to the lungs. RBC count determines the total number of red blood cells found in a cubic millimeter (mm3) of blood. It is an important measurement in the determination of anaemia or polycythemia.

Use of Test: Investigation of anaemia or erythrocytosis.

红细胞计数
红细胞内包含血红蛋白和其他几种蛋白、盐和维生素。红细胞的双凹碟型，是为了确保最大程度的使用血红蛋白。红细胞的主要功能是将氧气从肺输送至人体组织，并将组织中的二氧化碳输送到肺部。红细胞计数可测量出每立方毫米血液中的红细胞数量，是诊断贫血症或红细胞增多症的重要检查项目。

Haematocrit (Hct), (PCV)

Haematocrit determines red blood cell mass. The results are expressed as the percentage of packed red cells in a volume of whole blood. It is part of the complete blood count.

Use of Test: Assessment of anaemia and erythrocytosis. Monitor haemodilution, haemoconcentration.

红细胞容积 (Hct)，红细胞压积(PCV)
红细胞容积的检查可确定红细胞的量。测量结果表示血液中红细胞的体积百分比。它是完整血液学检查的一部份。

检查的作用：诊断贫血症或红细胞增多症。血液稀释或浓缩的监测。

Mean Cell Volume (MCV)

The mean cell volume gives an indication of the size of RBCs. This index expresses the volume occupied by a single RBC and is a measure in cubic microns (um3) of the mean volume. It is useful for classifying anaemias.

Use of Test: Guide to investigation of anaemia; blood film should also be requested.

平均红细胞体积 (MCV)
平均红细胞体积显示红细胞的大小，结果表示单一红细胞所占的体积，以每立方微米作为测量标准，是贫血病分类的指标。

检查的作用：诊断贫血病，应同时进行血片检验。

Mean cell Haemoglobin (MCH)

MCH gives an indication of the amount of haemoglobin per RBC. It is expressed in picograms. An increase of MCH is associated with macrocytic anaemia and a decrease of MCH is associated with microcytic anaemia.

Use of Test: Guide to investigations of anaemia; blood film should also be requested.

平均红细胞血红蛋白含量 (MCH)

平均红细胞血红蛋白含量的检验结果显示每个红细胞内的血红蛋白量，MCH是以微微克
为测量标准。MCH上升和大红细胞贫血病有关，而MCH下降则与小红细胞贫血病有关。

Mean Cell Haemoglobin Concentration (MCHC)

This test measures the average concentration of haemoglobin in the average RBC. It gives the ratio of the weight of haemoglobin to the volume of the red blood cell.

Use of Test: Guide to investigation of anaemia; blood film should also be requested.

平均红细胞血红蛋白浓度 (MCHC)

计算平均红细胞内的血红蛋白平均密度，显示血红蛋白量和红细胞体积的比例。

检查的作用：诊断贫血症，应同时进行血片检验。

White Blood Cell Count (WBC)

White blood cells or leucocytes fight infection and defend the body by phagocytosis, a process in which the leucocytes encapsulate foreign organisms. They also produce, transport and distribute antibodies as part of the immune response. White blood cells can be differentiated into neutrophils (polymorphonuclear leucocytes), lymphocytes, monocytes, eosinophils and basophils. WBC count determines the total number of white blood cells circulating in the blood. Variation in count can occur in the same individual at different times, such as during the menstrual cycle, normal human development, activity and others.

Use of Test: Possible infection, inflammatory disease, bone marrow failure, haematological or other malignancy. Monitoring drugs with potential or predictable bone marrow toxicity.

白细胞计数 (WBC)
人体通过白细胞的噬菌作用抗感染（白细胞包围外来生物体）。白细胞作为免疫系统的一部份同时也合成、输送和分泌抗体。白细胞可分为中性粒白细胞、淋巴细胞、单核细胞、嗜酸性粒细胞和嗜碱性粒细胞。白细胞计数是确定血液循环中的白细胞数量。人体在不同时间白细胞数量会有差异，如在月经期期间、正常人体发育、运动与其他状况时。

检查的作用：感染、炎症、骨髓功能衰竭、血液病或其他恶性疾病。对骨髓有毒害的药物负作用的监测。

White Blood Cell (WBC) Differential Count

The white blood cells are categorized into 5 main types, each of which performs a specific function. The differential count is expressed as a percentage of the total number of white cells. The percentage is the relative number of each type of WBC in the blood.

Neutrophils:	Ingest and kill bacteria.
Lymphocytes:	T lymphocytes are principally concerned with cell-mediated immune processes. B lymphocytes are concerned with humoral immunity and are the precursors of antibody-producing plasma cells.
Monocytes:	Remove injured and dead cells, microorganisms and insoluble particles from the circulating blood.
Eosinophils	Phagocytic cells but less efficient than neutrophils. Production is increased in association with allergy and parasitic infestation.
Basophils	The least numerous of WBCs, basophils may be increased in myeloproliferative diseases and occasionally in other nonmalignant conditions.

Use of Test: To establish the numbers of individual leukocytes such as neutrophils, lymphocytes, monocytes, eosinophils and basophils.

白细胞分类计数
白细胞分为五大类，各有特定的功能。分类计数是各类细胞占白细胞总数的百分比。也就是血液中每种白细胞的相对数量。

中性白细胞:	吞噬和消灭细菌。
淋巴细胞:	T型淋巴细胞主要和细胞免疫功能有关 。 B型淋巴细胞和体液免疫有关，它也是制造抗体的血 浆细胞的前身。
单核细胞	从血液循环中清除受伤和死亡细胞、微生物以及不 溶解的颗粒。
嗜酸性细胞:	具有吞噬功能但比中性白细胞的效果低。受到过敏 和寄生虫侵袭时数量增加。
嗜碱性细胞:	是白细胞中数量最少的细胞，在骨髓及外骨髓增殖 疾病及其他非恶性疾病时有增加的可能性 .

检查的作用：确定各种白细胞的数量。

Blood Film

An examination of the stained blood film is the most important investigation in haematology. Each of the cell types will be studied separately.

Use of Test: Evaluation of changes in numbers or morphology of red blood cells, white blood cells and platelets. It clarifies abnormalities detected by automated haematology instruments and guides further investigation.

血片检验
血片染色检验是血液学检查中最重要项目。分别鉴定各类血细胞。

检查的作用：鉴定红细胞、白细胞和血小板的数量及形态的转变，它可确定自动血液检验仪器所检查出的异常情况，并确定进一步检查的方向。

Platelet Count

Platelets are the smallest of the formed elements in the blood. They are developed primarily in the bone marrow. They are necessary for blood clotting, vascular integrity, vasoconstriction and formation of plugs to occlude breaks in small vessels.

Use of Test: History of excessive and/or inappropriate bleeding, bruising; purpura. Monitoring drugs with potential or predictable bone marrow toxicity; monitoring heparin therapy.

血小板计数

血小板是血液成份中最小的元素，主要由骨髓制造。血小板是止血、血管健康、血管收缩和毛细血管破裂后，堵塞体制造的必需体。

检查的作用: 检查异常出血、淤血、血管收缩。观察可能或预计会对骨髓有负作用的药物作用；观察胆素治疗效果。

Erythrocyte Sedimentation Rate (ESR)

ESR is the rate at which erythrocytes clump or aggregate together and settle out of anticoagulated blood in 1 hour. A normal ESR does not exclude active disease. The ESR increases with age and is raised in pregnancy, anaemia, acute and chronic inflammatory diseases, neoplastic diseases, collagen diseases, renal insufficiency and any disorder associated with a significant change in the plasma proteins.

Use of Test: A non-specific indicator of inflammatory and neoplastic disease. Should not be used to screen asymptomatic patients for the presence of disease.

红细胞沉降率(ESR)

红细胞沉降率是血红细胞在一小时内聚集和沉降的比率。ESR检查结果正常并不表示无活跃性病症，ESR检查结果升高与年龄，怀孕、贫血、急性或慢性发炎、肿瘤、胶原蛋白疾病、肾功能不足及血浆蛋白明显失调有关。

检查的作用：炎症和肿瘤等疾病的非特异性检查指标，不应作为无症状病人的疾病测试。

URINE STUDIES
尿液研究

URINALYSIS (DIPSTICK)
尿液分析（试纸法）

Urine pH
Urine pH is an indicator of the ability of renal tubules to maintain normal hydrogen ion concentration in the plasma and extracellular fluid. Inability to acidify urine may indicate distal renal tubular acidosis. Diet, medication, renal disease and certain metabolic disorders may affect urinary pH.

Use of Test: Check for successful therapeutic acidification or alkalinisation.

尿液酸碱度
尿液酸碱度显示肾小管维持血浆和细胞外液体的正常氢离子浓度的能力。若尿液无法酸化，证明末端肾小管酸中毒。饮食、药物、肾病以及某些代谢失调都有可能影响尿液的酸碱度。

检查的作用：检验酸化或碱化治疗的效果。

Urine Protein
In a healthy renal and urinary tract system, the urine contains no protein or only a slight trace amount of protein. One-third of normal urine protein is albumin. The persistent presence of protein in the urine is the single most important indication of renal disease.

Use of Test: Suspected nephrotic syndrome, glomerulonephritis, urinary tract inflammation.

尿蛋白
在健康的肾脏和泌尿道系统中，尿液是不含或只含微量的蛋白质。三分之一正常尿液中的蛋白质是白蛋白。尿液中长期存有蛋白质是肾病的主要指标。

检查的作用：针对疑患肾病、肾小球性肾炎、尿道发炎的病人的检查。

Urine Glucose

Sugar may be present in the urine (glycosuria or glucosuria) when the blood glucose level exceeds the reabsorption capacity of renal tubules. Heavy meal, emotional stress or a low tubular reabsorption rate in some persons may account for glycosuria in the presence of normal blood

尿糖

当血液中的血糖量超出肾小管再吸收能力的负荷量时，尿液中便会出现糖份（糖尿症）。若血糖水平正常时仍有糖尿现象，与饱餐、精神压力或某些人肾小管再吸收率偏低有关。糖尿现象常见于糖尿病患者。

检查的作用：检查糖尿病及糖尿症。

Urine Ketones

Ketones are formed in the liver from the metabolism of fatty acid and fat. The excess presence of ketones (ketonuria) in the urine is associated with diabetes or altered carbohydrate metabolism.

Use of Test: Diabetic ketoacidosis, starvation ketosis.

尿酮体

脂肪酸和脂肪代谢后，在肝脏中形成酮体。尿液中酮体过多与糖尿病或糖类代谢改变有关。

检查的作用：糖尿病酮症酸中毒，饥饿型酮症。

Urine Blood

The presence of blood in urine may be due to red blood cells from inflammation, trauma or tumour of the renal tract. In the female vaginal blood may contaminate ordinary voided urine specimens.

Use of Test: One of the early indicators of possible renal or urinary tract disease.

尿血

尿液中有血成分与肾导管发炎、肿瘤或创伤有关。女性阴道血液有可能污染尿液样本。

检查的作用：检查肾病或泌尿道疾病的最早指标之一。

Urine Bilirubin
Urine bilirubin aids in the diagnosis and monitoring of treatment for hepatitis and liver dysfunction. It is an early sign of hepatocellular disease or intrahepatic or extrahepatic biliary obstruction.

Use of Test: Differential diagnosis of jaundice.

尿胆红素
尿液胆红素有助于诊断和检测肝病及肝功能失调的治疗效果。它是肝细胞，肝内或肝外胆汁受阻的最早指标。

检查的作用：黄疸病的分辨诊断。

Urine Urobilinogen
Urine urobilinogen is increased in haemolysis. It is unreliable as a guide to liver disease.

Use of Test: Evaluation of liver disease

尿胆素原
溶血症患者的尿液中尿胆素原增加。非肝病诊断的可靠指标。

检查的作用：检测肝病。

Urine Nitrite
It is positive in most bacterial urinary tract infections. Negative in urinary tract infections caused by Gram-positive organisms or Pseudomonas species. A negative result should never be interpreted as indicating absence of bacteriuria.

Use of Test: Screening test for urinary tract infection. Result must be confirmed by urine culture.

尿亚硝酸盐
尿亚硝酸盐在大部份泌尿系统细菌感染情况下呈阳性。革兰氏阳性微生物或假单胞细菌所导致的尿道感染则呈阴性，阴性反应不能完全排除泌尿系统感染。

检查的作用：泌尿系统感染的检验，需与尿细菌培养一起确诊。

URINE MICROSCOPY

Use of Test: Investigation of renal and urinary tract disease and renal involvement in systemic

尿液显微镜检查

检查的作用：检验肾脏和尿道疾病。 识别肾脏系统疾病。

Urine Red Blood Cell (RBC)

In health, RBCs occasionally appear in the urine. Presence of persistent RBCs in urine may be associated with stone, renal disease, tumour, trauma, infections and other conditions including bleeding and clotting disorders. Possible presence of menstrual blood, vaginal bleeding or trauma to perineal area in the female patient should be ruled out.

尿红细胞

健康人的尿液中偶尔有红细胞出现。红细胞长期存在则与结石、肾病、肿瘤、创伤、感染及出血和止血功能失调有关。应排除月经血、阴道出血或女性阴道创伤等因素。

Urine White Blood Cell (WBC)

Leukocytes (WBCs) may originate anywhere in the genitourinary tract. High counts of leukocytes can be seen in infection of urinary tract and other renal disease. In females, precautions should be taken to avoid artifactual increases in urine WBCs from contamination by vaginal or labial secretions. Culture of urine can be performed to confirm urinary tract infection.

尿白细胞

尿液中白细胞源于泌尿生殖器。 在泌尿道感染和其他肾病情况时，白细胞数量升高。应排除因女性阴道，阴唇分泌物污染而导致的尿液白细胞数量增加的假象。同时进行尿液细菌培养以确诊泌尿道感染。

Urine Epithelial Cells

Squamous epithelial cells are common in normal urine samples. They are useful as an index of possible contamination by vaginal secretions in females or by foreskin in uncircumcised males.

尿上皮细胞
正常尿液中常出现鳞状上皮细胞，表示有来自女性阴道分泌物或未割包皮男性的包皮的污染。

Urine Casts

Casts are protein conglomerates that outline the shape of the renal tubules in which they are formed. Fatty casts, RBC casts, white cell casts and mixed cell casts may indicate renal disease. The presence of granular and/or hyaline casts, as an isolated finding, is of uncertain clinical significance. They may be seen in patients with dehydration.

尿管型
管型是在肾小管内形成的管状蛋白合成体。尿液中出现脂肪管型、红细胞管型、白细胞管型或混合细胞管型时表示患有肾病。人体脱水时尿液中可出现颗粒管型或透明管型，但并无明确的临床意义。

Urine Crystals

A variety of crystals may appear in the urine. The type and quantity of crystalline precipitates vary with the pH of the urine. Although they are seen frequently, they are not usually of any clinical significance. They may, however, be a clue to stone formation and certain metabolic diseases.

尿晶体
尿液中可出现各类型晶体。其种类和数量与尿液的酸碱度有关。一般没有任何临床意义，但可提示结石或某些代谢疾病。

BONE MARKERS FOR OSTEOPOROSIS

With the aging of the population, osteoporosis is becoming more common. It is characterized by a decrease in the matrix and mineral content of bone. This results in a decrease in bone density and consequently, weakness of the bone.

Clinically, the condition is usually asymptomatic. But it may present as boneache of varying degrees of severity, and even spontaneous fracture may occur. There are multiple factors which contribute to osteoporosis. The risk factors include age, women who are post-menopausal, hormonal excesses (parathyroid, thyroid, adrenal), malignancy, alcohol intake, smoking, dietary deficiency, lack of exercise, etc. The detection of osteoporosis can be established by means of bone densitometry.

Recent advances in laboratory technology have enable tests to be available which can assist in the identification of patient at risk of developing osteoporosis, and in monitoring anti-resorptive therapy. Bone tissue in the body is continually being renewed. The renewal process involves the degradation of existing bone matrix. This is accomplished via bone resorption by osteoclasts. At the same time, new bone matrix is being formed by osteoblasts. These cells synthesize type 1 collagen which makes up of over 90% of bone matrix.

The B-CrossLaps assay is specific for the detection of degraded type 1 collagen fragments. Elevated levels of such fragments indicate increased bone resorption. It is also used in monitoring the efficacy of antiresorptive therapy.

Osteocalcin is the most important non-collagen calcium-binding protein in bone matrix. It is produced by osteoblasts during bone synthesis, and is used as marker for bone turnover. Its level in the blood is related to the rate of bone turnover in various bone disorders (osteoporosis, hyperparathyroidism, Paget's disease). It is therefore used to monitor therapy with antiresorptive agents

骨质疏松症的检查标志

随着人口老化，骨质疏松症变得越来越普遍。它的特证是骨骼中的基质和矿物质含量减少，这导致骨密度降低，随之而来的是骨骼变得脆弱。

临床上，这种状况通常是无症状的，但它也可以表现为不同程度的骨痛，甚至可以发生自发性骨折。这些危险因素包括年龄增长，绝经期后的妇女，激素过多（甲状旁腺素，甲状腺素，肾上腺素）恶性肿瘤，酗酒，吸烟，饮食不足，缺乏锻练等。骨密度测定可以检测骨质疏松症。

目前实验技术的发展可以帮助鉴定患者发生骨质疏松症的危险程度，并且监测抗吸收疗法。

人体内的骨组织处于持续更新状态。这种更新过程涉及现有骨质的退化。这是由破骨细胞吸收骨骼所引起的。同时，成骨细胞形成新的骨基质。成骨细胞合成构成90％以上骨基质的1型胶原蛋白。

B-特殊胶原序列测定是专门用于检测降解的1型胶原蛋白片段。这些片段含量增高表明骨吸收的增加。这有助于鉴定有骨质疏松危险的病人。它也可以用于监测抗吸收治疗的疗效。

骨钙素是骨基质中最主要的非胶原钙质结合蛋白。它产生于成骨细胞在合成骨骼的过程中，被用作是骨形成的标志。它在血液中的含量与在许多骨骼疾病（骨质疏松症，高甲状旁腺激素症，PA GET)中骨变化的比例有关。因此，它也可以用来监测抗吸收治疗。

FOOD CALORIE CHART

HOW MANY CALORIES HAVE YOU EATEN?

Food	Portion	Calories
Mee Rebus	1 plate	558kcal
Mee Siam	1 plate	519kcal
Mee Soto	1 bowl	432kcal
Mee Goreng	1 plate	660kcal
Noodles with Minced Pork & Mushroom (Dry)	1 bowl	511kcal
Ban Mian (with egg, meat & vegetables)	1 bowl	475kcal
Fried Kway Teow (with cockles)	1 plate	743kcal
Hor Fun	1 plate	708kcal
Laksa	1 bowl	589kcal
Fried Beehoon (plain)	1 plate	252kcal
Lor Mee	1 bowl	383kcal
Fishball Noodles, Dry	1 bowl	364kcal
Fishball Noodles, Soup	1 bowl	330kcal
Fish Head Beehoon Soup	1 bowl	666kcal
Fish Slice Beehoon Soup	1 bowl	349kcal
Fried Hokkien Prawn Mee	1 plate	615kcal
Prawn Noodles, Dry	1 bowl	459kcal
Prawn Noodles, Soup	1 bowl	293kcal
Wanton Noodles, Dry	1 bowl	409kcal
Wanton Noodles, Soup	1 bowl	217kcal
Kway Chap (with meat, intestine & taupok)	1 bowl	648kcal

FOOD CALORIE CHART

HOW MANY CALORIES HAVE YOU EATEN?

Food	Portion	Calories
Chicken Porridge	1 bowl	214kcal
Fish Porridge	1 bowl	261kcal
Pork Porridge	1 bowl	362kcal
Century Egg Porridge	1 bowl	422kcal
Char Siew Rice	1 plate	600kcal
Duck Rice	1 plate	706kcal
Chicken Rice (with meat)	1 plate	702kcal
Fried Rice	1 plate	508kcal
Nasi Lemak	1 plate	494kcal
Nasi Briyani with Chicken	1 plate	880kcal
Fish & Chips	1 serving	848kcal
Stingray (with chili sauce; grilled)	1 serving	347kcal
Bak Kut Teh	1 bowl	342kcal
Herbal Black Chicken Soup	1 bowl	186kcal
Tom Yam Seafood Soup	1 bowl	271kcal
Pig Organ Soup	1 bowl	158kcal
Watercress and Pork Ribs Soup	1 bowl	92kcal
Chicken Curry	1 bowl	450kcal
Fish Head Curry	1 plate	288kcal

FOOD CALORIE CHART

HOW MANY CALORIES HAVE YOU EATEN?

Bread, Local Snacks/Bites	Portion	Calories
Bread (white)	1 slice	77kcal
Bread (whole meal)	1 slice	72kcal
Doughnut	1 piece	304kcal
Char Siew Pau	1 bun	212kcal
Chicken Pau	1 bun	204kcal
Pork Pau	1 bun	246kcal
Egg Tart	1 piece	177kcal
Ham Chim Peng (red bean filling)	1 piece	273kcal
Mee Chiang Kueh (peanut filling)	1 piece	186kcal
Roti Prata (plain)	1 piece	122kcal
Roti Prata (with egg)	1 piece	289kcal
Roti John	1 piece	571kcal
Carrot Cake (mashed & fried)	1 plate	467kcal
Oyster Omelette	1 plate	650kcal
Chee Cheong Fun	1 piece	133kcal
Chwee Kuay	1 whole	57kcal
Curry Puff (with chicken)	1 piece	246kcal
Yam Cake	1 piece	174kcal
You Tiao	1 piece	123kcal
Popiah	1 piece	92kcal
Soon Kueh	1 piece	98kcal
Siew Mai	1 piece	105kcal
Otah (Fish)	1 piece	18kcal
Satay (Chicken)	1 stick	35kcal
Chinese Rojak	1 plate	443kcal
Indian Rojak	1 plate	756kcal

FOOD CALORIE CHART

HOW MANY CALORIES HAVE YOU EATEN?

Desserts	Portion	Calories
Ice Kachang	1 bowl	257kcal
Chendol (with coconut & evaporated milk)	1 bowl	593kcal
Bubor Cha Cha	1 bowl	390kcal
Pulut Hitam (with coconut milk)	1 bowl	290kcal
Tau Suan (with you tiao)	1 bowl	293kcal
Green Bean Soup	1 bowl	237kcal
Cheng Tng	1 bowl	257kcal
Herbal Jelly	1 bowl	71kcal

Drinks	Portion	Calories
Coca Cola	100ml	42kcal
Sugar Cane Juice	1 cup	158kcal
Bandung	1 cup	153kcal
Soya Bean Milk (sweetened)	1 cup	163kcal
Barley Water	1 cup	55kcal
Bubble Tea (with milk)	1 cup	232kcal
Bubble Tea (with milk & pearls)	1 cup	340kcal

Sources:

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