HORMONES & BLOODWORK

THE TRT, HRT AND BLOOD MARKER GUIDE

A clear, friendly guide to prescribed hormone therapy, what your blood tests really mean and how to work with your doctor

KNOW YOUR NUMBERS.
OWN YOUR HEALTH.

TRT · HRT · BLOODWORK · MARKERS

THE CDTRAINING APPROACH

Learn the basics. Work with your doctor. Track what helps.
Make informed decisions you can keep.

General education only. It does not replace advice from a GP, endocrinologist or pharmacist. Never start or change medicines without a prescriber.

CDTRAINING

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Use this guide as both a first read and a reference you can return to during coaching.

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IMPORTANT

This guide is for general education. It cannot diagnose or treat any condition and it does not give doses. Hormone therapy and blood test results should always be discussed with a GP, endocrinologist, menopause specialist or pharmacist. In an emergency call 999.

SECTION 03

START HERE: HOW TO USE THIS GUIDE

Hormones and blood tests can feel like a foreign language. This guide translates it, so you can ask better questions and make safer decisions alongside your doctor.

GREEN LIGHT

You understand what a test measures, you attend your reviews and you ask questions when something is unclear.

AMBER LIGHT

You have symptoms, borderline results or you are starting or changing treatment. Talk to your prescriber before changing anything.

RED LIGHT

Chest pain, breathlessness, a swollen painful leg, severe headache, sudden weakness or confusion, thoughts of self harm. Get urgent help.

WHAT THIS GUIDE DOES

- Explains how hormones work in plain English
- Explains what TRT and HRT are, and what monitoring looks like
- Decodes the blood markers you are likely to see
- Shows how lifestyle and training fit in
- Helps you prepare for appointments

WHAT IT DOES NOT DO

- It does not give doses or protocols
- It does not replace a prescriber or a laboratory
- It does not diagnose conditions
- It does not tell you to start, stop or change a medicine
- It does not cover non prescribed hormones or performance drugs

BE HONEST WITH YOUR DOCTOR

If you take anything that was not prescribed to you, tell your doctor. Blood tests and advice work far better with the full picture, and clinicians are there to help, not judge.

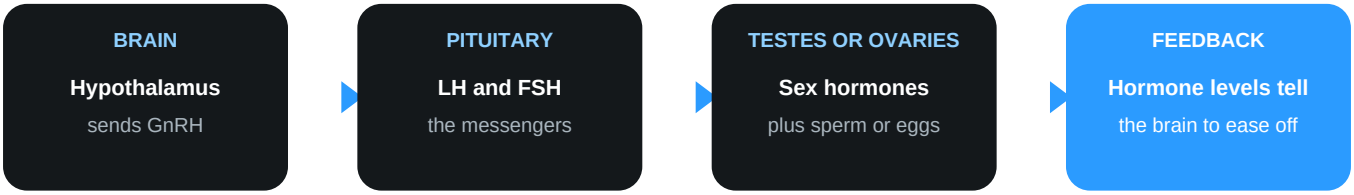
WHERE COACHES FIT

A coach supports training, nutrition, sleep and habits. A prescriber diagnoses, treats and monitors. Keep that line clear and refer when a question is medical.

SECTION 04

HORMONES 101

Hormones are chemical messengers. They travel in the blood and tell tissues what to do. Sex hormones are controlled by a feedback loop, a bit like a thermostat.



THE BIG PLAYERS

- **Testosterone:** muscle, bone, sex drive, red blood cells, mood and energy. Present in everyone, higher in men
- **Oestradiol (oestrogen):** bones, brain, skin, cardiovascular health, reproductive function. Present in everyone, higher in women
- **Progesterone:** regulates the cycle and protects the womb lining
- **LH and FSH:** pituitary hormones that tell the testes or ovaries to work

THE THERMOSTAT IDEA

- Low hormone: the brain sends more signal
- High hormone: the brain turns the signal down
- That is why LH and FSH are so useful. They tell the doctor where a problem sits
- Outside hormones can switch the loop off, which is why monitoring and fertility matter

BOUND AND FREE

Much of your testosterone and oestradiol travels attached to a protein called SHBG. Only the unbound part is available to tissues. That is why doctors may look at free hormone as well as total.

HORMONES FLUCTUATE

Testosterone peaks in the morning and varies from day to day. Oestradiol and progesterone move across the menstrual cycle. One reading is a snapshot, not a verdict.

PRIMARY OR SECONDARY?

Primary problems start in the testes or ovaries (LH and FSH are high). Secondary problems start in the brain or pituitary, or are caused by weight, illness, medicines or poor sleep (LH and FSH are low or normal). The cause changes the treatment.

SECTION 05

LOW TESTOSTERONE IN MEN

Low testosterone (hypogonadism) is real and treatable, but it is also over diagnosed online. Getting the diagnosis right comes first.

COMMON SYMPTOMS

- Low sex drive and erectile difficulties
- Fewer morning erections
- Low energy and low mood
- Loss of muscle and strength
- Increased body fat
- Reduced body hair and shrinking testes (in longer standing cases)

BUT THESE ARE NOT SPECIFIC

- Poor sleep, stress, depression and alcohol cause the same symptoms
- Obesity, type 2 diabetes and sleep apnoea lower testosterone
- Opioids, steroids and some other medicines can too
- Thyroid and pituitary conditions need to be ruled out

HOW UK DOCTORS DIAGNOSE IT

STEP	WHAT HAPPENS
1. Symptoms	Persistent, relevant symptoms need to be present
2. Morning blood tests	Total testosterone measured on at least two separate mornings (before about 11am), fasted, when you are well
3. Interpret	Below 8 nmol/L is consistent with deficiency. 8 to 12 is a grey zone where free testosterone and symptoms guide decisions. Above 12 is not usually deficiency
4. Find the cause	LH, FSH, prolactin, SHBG, full blood count, glucose, thyroid and other checks. Reversible causes are addressed
5. Decide together	Benefits, risks and fertility wishes are discussed. Treatment is not always needed

LIFESTYLE FIRST, WHERE POSSIBLE

Weight loss, better sleep, resistance training, less alcohol and managing sleep apnoea can raise testosterone in many men. Doctors often address these alongside any treatment.

SECTION 06

TESTOSTERONE REPLACEMENT THERAPY (TRT)

TRT is a prescribed treatment for confirmed testosterone deficiency. It replaces testosterone. It is not the same as taking high doses to build muscle.

WHAT IT IS

- A medicine prescribed for confirmed deficiency with symptoms
- Started by a specialist or GP following local guidance
- Aims to bring levels into a healthy range, not a bodybuilding range
- Reviewed regularly

COMMON FORMS

- Daily gels applied to the skin
- Short acting injections given every 1 to 2 weeks
- Long acting injections given every 10 to 12 weeks or so
- Other options exist. Your prescriber chooses with you based on lifestyle and results

WHAT PEOPLE MAY NOTICE

- Sex drive and morning erections often improve first, over weeks
- Energy and mood can improve over a few months
- Body composition and strength change slowly, and training and food still matter
- Not everyone benefits to the same degree

WHO IT IS NOT FOR

- Men hoping to father children (it suppresses sperm production)
- Raised haematocrit
- Some prostate or breast cancers
- Severe heart failure or untreated severe sleep apnoea
- People without confirmed deficiency

THE EVIDENCE IN BRIEF

Large trials show TRT improves sexual function and some symptoms in men with confirmed deficiency. A big 2023 trial (TRAVERSE) found no increase in major heart events over about two years in men with low testosterone and heart risk, with slightly more atrial fibrillation, kidney injury and pulmonary embolism. Treatment is a decision to make with your prescriber.

GETTING IT SAFELY

- Use an NHS service or a CQC registered private clinic
- Be wary of "no appointment needed" online sellers
- Never buy hormones from unregulated sources
- Keep your GP informed whoever prescribes

FERTILITY WARNING

Testosterone treatment lowers the body's own testosterone and sperm production. If you may want children, tell your doctor before starting. Fertility specialists can discuss alternatives.

SECTION 07

TRT: RISKS, SIDE EFFECTS AND MONITORING

Monitoring is not a hassle. It is what makes treatment safe. Every side effect on this page is something your prescriber can adjust, so report it rather than fix it yourself.

POSSIBLE EFFECT	WHAT IS WATCHED	WHAT HAPPENS NEXT
Thickened blood (raised haematocrit)	Full blood count. Haematocrit, haemoglobin	Prescriber reviews. Treatment may be adjusted or paused if haematocrit rises above about 0.54
Prostate changes	PSA, symptoms, examination as advised	A significant PSA rise leads to specialist review
Blood pressure and fluid	Blood pressure, swelling	Review of treatment and heart risk
Cholesterol shifts	Lipid profile	Lifestyle and risk review
Acne and oily skin	Symptoms	Prescriber adjusts approach
Breast tenderness or enlargement	Symptoms, sometimes oestradiol	Prescriber assesses and adjusts. Do not self treat
Sleep apnoea may worsen	Snoring, daytime sleepiness	Sleep assessment
Mood and irritability	How you feel, partner feedback	Tell your prescriber
Reduced fertility	Family plans	Discuss before and during treatment

TYPICAL MONITORING PATTERN

- Baseline tests before starting
- An early review at around 3 months
- Again at about 6 and 12 months
- Then at least annually once stable
- Exact schedules follow your local protocol

WHAT TO REPORT PROMPTLY

- New breast lumps or pain
- Difficulty passing urine
- Chest pain, palpitations or breathlessness
- A swollen, painful or red leg
- Severe headaches or confusion
- Low mood or thoughts of self harm

WHY NOT DIY?

Hormone levels, red blood cell counts and prostate markers can change without symptoms. Self managed treatment skips the checks that catch problems early. If a doctor is prescribing, keep every appointment.

SECTION 08

MENOPAUSE AND HRT

Menopause is a natural transition, but the symptoms can be life limiting. HRT replaces the hormones the ovaries make less of and is the most effective treatment for many symptoms.

PERIMENOPAUSE AND MENOPAUSE

- Perimenopause: hormones fluctuate and periods become irregular, often in the 40s
- Menopause: 12 months without a period
- Common symptoms: hot flushes, night sweats, poor sleep, low mood, anxiety, brain fog, joint aches, vaginal dryness
- Symptoms can last for years

DIAGNOSIS: USUALLY NO BLOOD TEST

- Over 45 with typical symptoms: diagnosed from symptoms, without blood tests
- FSH is considered mainly under 40, or 40 to 45 in some cases
- Hormone levels bounce around in perimenopause, so a single test can mislead
- Other causes such as thyroid problems may be checked

TYPES OF HRT

TYPE	WHAT IT IS	NOTES
Oestrogen	Patches, gels, sprays or tablets	Transdermal (patch, gel, spray) has a lower clot risk than oral
Progestogen	Tablets, or a hormonal coil	Needed alongside oestrogen if you still have a womb, to protect the lining
Vaginal oestrogen	Pessaries, creams, rings	For vaginal and urinary symptoms. Can be used long term, even alongside systemic HRT
Testosterone for women	Gel or cream, specialist led	Considered for low sexual desire when HRT alone is not enough. Used off licence in the UK
Non hormonal options	CBT, certain medicines	For people who cannot or prefer not to use HRT

THE RIGHT HRT IS INDIVIDUAL

The choice depends on symptoms, whether you have a womb, personal and family history, preferences and risk factors. Always discuss this with a GP or menopause specialist.

SECTION 09

HRT: BENEFITS, RISKS AND MONITORING

Understanding the numbers helps you make an informed choice. For many people under 60, the benefits outweigh the risks.

BENEFITS

- Reduces hot flushes, night sweats and vaginal symptoms
- Can improve sleep, mood and quality of life
- Lowers the risk of fragility fractures while taking it
- Does not increase heart disease risk when started under 60

RISKS TO KNOW

- Oral HRT slightly increases the risk of blood clots and stroke. Transdermal HRT at standard doses is not higher than baseline
- Oestrogen plus progestogen is linked to a small increase in breast cancer risk, related to how long it is used. Oestrogen alone has little or no change
- Risk depends on age, weight, family history and type of HRT

MONITORING

- Review at about 3 months, then annually
- Blood pressure and general health checks
- Blood tests are not needed routinely
- Hormone levels are not usually used to adjust doses. Symptoms guide treatment
- Keep up with NHS breast, cervical and bowel screening

COMMON EARLY SIDE EFFECTS

- Breast tenderness
- Bloating
- Headaches
- Spotting or irregular bleeding
- These often settle within the first 3 months. Report persistent bleeding

STOPPING HRT

You can stay on HRT as long as the benefits outweigh the risks. If you stop, you can reduce gradually or stop at once. Symptoms may return for a while, with no difference in the long run between the two.

WHO NEEDS SPECIALIST ADVICE

- Personal history of breast cancer or high risk
- Previous blood clots
- Unexplained bleeding (needs checking first)
- Early menopause under 40 (usually needs HRT until the average age of menopause)

RED FLAGS ON HRT

Breast lumps, a swollen painful leg, sudden breathlessness, severe headache with visual changes, or unusual heavy or postmenopausal bleeding need prompt medical attention.

SECTION 10

OTHER HORMONE TREATMENTS YOU MAY MEET

Hormone therapy is wider than TRT and menopause HRT. A few others come up in gyms and clinics.

GENDER AFFIRMING HORMONE THERAPY

- Specialist led treatment for trans and non binary people
- Monitoring uses many of the same markers: testosterone, oestradiol, haematocrit, lipids, liver and kidney function
- Reference ranges and targets are individualised
- Coaches can support with respect, correct names and pronouns, and training that suits the person

THYROID REPLACEMENT

- Levothyroxine treats an underactive thyroid
- Monitored with TSH and sometimes free T4
- Taken on an empty stomach, apart from calcium and iron
- Biotin supplements can interfere with thyroid tests

HORMONAL CONTRACEPTION

- Pills, implants, coils and injections change cycle patterns
- They can mask irregular periods that might signal low energy availability
- They can affect the interpretation of some hormone tests

FERTILITY TREATMENT

- Specialist led and carefully monitored
- Protocols are individualised
- Training and nutrition advice should come from the fertility team

WHY THIS MATTERS FOR COACHES

When a client is on any hormone therapy, the plan should be shared with their prescriber. Ask what monitoring they have and encourage them to keep up with it.

SECTION 11

WHY BLOODWORK MATTERS

Think of a blood test as the dashboard on your car. It does not drive for you, but it warns you before the engine overheats.

WHAT BLOOD TESTS CAN DO

- Confirm a diagnosis
- Check treatment is working
- Catch side effects early, often before symptoms
- Track trends over time
- Reassure you

WHAT THEY CANNOT DO

- Tell the whole story on their own
- Replace how you feel
- Be interpreted well without context
- Diagnose from one number
- Guarantee anything

PREPARING FOR A TEST

- Morning appointments suit hormones (testosterone peaks early)
- Fast for 8 to 12 hours if asked (water is fine)
- Avoid very hard training for 24 to 48 hours, as it can raise some markers
- Stay hydrated
- Tell the lab about supplements, especially biotin, which can interfere with tests
- Use the same lab and time of day for repeat tests

UNDERSTANDING A RESULT

- Results show a number, a unit and a reference range
- The range is the middle 95 percent of a healthy population, so some healthy people sit outside it
- Ranges differ by lab, age and sex
- Look at trends, not a single value
- Always ask your clinician what it means for you

"NORMAL" IS NOT ALWAYS "OPTIMAL"

A result within range can still need action in the right context, and a result slightly outside range can be perfectly fine for you. Context is everything.

A WORD ON PRIVATE TESTS

Online and private panels can be useful, but ask who will interpret the results and what the follow up is. Results without clinical context can cause needless worry or false reassurance.

SECTION 12

HORMONE MARKERS: TESTOSTERONE

Start here for anyone investigating low testosterone or monitoring TRT.

MARKER	WHAT IT MEASURES	WHAT THE RESULT MAY MEAN
Total testosterone	All testosterone in the blood	Below 8 nmol/L (men) is consistent with deficiency. 8 to 12 is a grey zone. High or very high results should be explained
Free testosterone (calculated)	The unbound, active share, worked out from total testosterone, SHBG and albumin	About 0.225 nmol/L is used by UK guidance as a useful threshold alongside symptoms
SHBG	The carrier protein	Higher with age, thyroid overactivity and liver disease. Lower with obesity, insulin resistance and an underactive thyroid
Albumin	A blood protein that loosely binds hormones	Needed to calculate free testosterone
LH	Pituitary hormone telling the testes to make testosterone	High with low testosterone: the testes are the problem. Low or normal: the brain or pituitary, or other factors
FSH	Pituitary hormone supporting sperm production	High in testicular failure. Low in pituitary problems and on testosterone treatment
Prolactin	Pituitary hormone	Raised by some medicines, stress and pituitary tumours. Can lower libido and testosterone

TIMING MATTERS

Testosterone is highest early in the morning. Guidance advises morning samples before about 11am, repeated on a second day, when you are well and ideally fasted. Shift workers are tested a few hours after waking.

SECTION 13

HORMONE MARKERS: OESTROGEN AND OTHERS

Oestradiol is a tricky marker. It swings across the cycle and the units differ, so a single value rarely tells the full story.

MARKER	WHAT IT MEASURES	WHAT THE RESULT MAY MEAN
Oestradiol (E2)	The main active oestrogen, made in the ovaries and in men from testosterone	In women it varies across the cycle and falls after menopause. In men a small amount is normal and important for bones, brain and libido. Treat symptoms, not just numbers
Progesterone	Hormone made after ovulation	Used mainly to check ovulation. Not routinely measured on HRT
FSH (women)	Pituitary hormone	Rises as the ovaries slow. Used only in specific situations such as suspected early menopause, not to diagnose menopause in over 45s
DHEA-S	An adrenal hormone	Sometimes checked in PCOS or adrenal problems
Cortisol (morning)	The stress hormone	Checked for suspected adrenal problems. Usually needs specialist interpretation
Prolactin	Pituitary hormone	Can disrupt periods and fertility when raised

OESTRADIOL IN MEN

Men make oestradiol from testosterone. Too low or too high can both cause symptoms. Breast tenderness or swelling should be reviewed by a doctor, not treated from guesswork.

OESTRADIOL ON HRT

Doctors mostly adjust HRT by symptoms and clinical judgement. Blood levels are not routinely used, apart from in specific cases.

UNITS CAN CONFUSE

Oestradiol may be reported in pmol/L or pg/mL. Always compare like with like and use the lab's own range.

SECTION 14

FULL BLOOD COUNT (FBC)

The FBC counts your blood cells. On testosterone treatment it is one of the most important tests because testosterone stimulates red blood cell production.

MARKER	WHAT IT MEASURES	WHAT THE RESULT MAY MEAN
Haemoglobin (Hb)	Oxygen carrying protein in red cells. Typical adult ranges: men 130 to 180 g/L, women 115 to 165 g/L	Low suggests anaemia. High can be dehydration, smoking, sleep apnoea, altitude or testosterone
Haematocrit (HCT/PCV)	The share of blood made of red cells. Typical adult ranges: men about 0.40 to 0.52, women 0.36 to 0.47	Testosterone can raise it. About 0.54 or above prompts review and a pause or change in treatment
Red cell count (RBC)	Number of red cells	Moves with Hb and haematocrit
MCV	Average red cell size	Small in iron deficiency, large in B12 or folate deficiency or with alcohol
White cells	Immune cells. Typical range 4 to 11	High in infection, inflammation or stress. Low in some illnesses and medicines
Platelets	Clotting cells. Typical range 150 to 400	Abnormal values need explanation

WHY HAEMATOCRIT MATTERS ON TRT

Higher haematocrit makes blood thicker, which can raise the risk of clots. That is why UK guidance has a safety ceiling and why regular checks are essential.

THINGS THAT RAISE IT

- Dehydration
- Smoking
- Untreated sleep apnoea
- Living at altitude
- Testosterone treatment

DEHYDRATION CAN FOOL THE TEST

Being dry on the day can push haemoglobin and haematocrit up. Drink normally before tests and repeat when something looks off.

SECTION 15

CHOLESTEROL AND LIPIDS

Hormones and cholesterol are linked. Oestrogen tends to be protective, and some testosterone treatments can shift lipids, so a lipid profile is a staple of monitoring.

MARKER	WHAT IT MEASURES	UK GUIDE FOR HEALTHY ADULTS
Total cholesterol	All cholesterol in the blood	5 mmol/L or below
LDL cholesterol	The "bad" cholesterol that builds up in artery walls	3 mmol/L or below
Non-HDL cholesterol	Total minus HDL. Captures all harmful particles	4 mmol/L or below
HDL cholesterol	The "good" cholesterol that helps clear fat	Above 1 in men, above 1.2 in women
Triglycerides	Blood fats linked to diet, alcohol and insulin resistance	Non-fasting 2.3 or below. Fasting 1.7 or below
Total to HDL ratio	A simple risk ratio	Lower is better. Above 6 is high

THINGS THAT HELP

- Regular exercise
- More fibre and unsaturated fats
- Less saturated fat
- Healthy weight
- Less alcohol
- Statins when advised

KNOW THESE NUMBERS

- Doctors may set stricter targets after a heart attack or stroke
- Total above 7.5 or LDL above 4.9 can suggest inherited high cholesterol
- Targets are individual. Ask what yours should be

FASTING OR NOT?

Lipids are fine non-fasting for screening. A fasting sample is used mainly when triglycerides are high. Follow the instructions given for your test.

SECTION 16

LIVER FUNCTION TESTS

The liver processes hormones and many medicines, so liver tests are a routine safety check.

MARKER	WHAT IT MEASURES	WHAT THE RESULT MAY MEAN
ALT	Enzyme mainly from the liver	Raised in fatty liver, alcohol, some medicines and supplements. Can also rise slightly after very hard training
AST	Enzyme from liver and muscle	Rises after heavy resistance training as well as with liver problems
GGT	Enzyme sensitive to alcohol and bile duct issues	Raised by alcohol, fatty liver and some medicines
ALP	Enzyme from liver and bone	Raised in bile duct and bone conditions
Bilirubin	A breakdown product of red cells	High levels can cause yellow skin or eyes
Albumin	A protein made by the liver	Low in liver disease and illness
CK (creatine kinase)	Enzyme from muscle	Can be very high after hard training, which can confuse the picture

LIFTERS, TAKE NOTE

Intense training raises AST, ALT and CK because of muscle damage. Tell the clinician you train and, if a result is out of range, repeat after a few easy days.

PROTECT YOUR LIVER

- Keep alcohol within UK guidance
- Maintain a healthy weight
- Be cautious with supplements and herbal products
- Check medicine labels for liver warnings

PERSISTENT ABNORMAL RESULTS

Results that stay raised after rest, or come with yellow skin, dark urine, pale stools or itching need medical review.

SECTION 17

KIDNEY FUNCTION AND ELECTROLYTES

Kidney tests can be misread in people who lift weights or take creatine, which is why context matters.

MARKER	WHAT IT MEASURES	WHAT THE RESULT MAY MEAN
Creatinine	A waste product from muscle	Higher in muscular people and with creatine supplements without kidney damage. Interpret in context
eGFR	An estimate of kidney filtering from creatinine, age and sex	90 or above is normal. Persistently below 60 can indicate chronic kidney disease. Muscle mass and creatine can distort it
Cystatin C	An alternative kidney marker not affected by muscle	Used when creatinine may be misleading
Urea	Waste from protein metabolism	Raised with dehydration, high protein intake and kidney problems
Sodium	Main salt in blood. Typical range 133 to 146 mmol/L	Low or high values affect fluid balance
Potassium	Essential for muscles and heart. Typical range 3.5 to 5.3 mmol/L	Both low and high levels can affect the heart
Urine albumin (ACR)	Protein leak in urine	An early sign of kidney or vascular stress

CREATINE AND THE KIDNEY TEST

Creatine supplements can raise creatinine without harming the kidneys. Tell your GP you take it. They may use cystatin C or repeat the test.

KIDNEY FRIENDLY HABITS

- Stay hydrated
- Control blood pressure and blood sugar
- Avoid regular anti inflammatory painkillers unless advised
- Do not take unprescribed medicines

HOW TO SPOT A PROBLEM

Persistent swelling, foamy urine, blood in urine, reduced urine or new fatigue deserve a check. Do not wait for the next scheduled test.

SECTION 18

BLOOD SUGAR AND METABOLIC HEALTH

Hormones and blood sugar are tightly linked. Low testosterone, PCOS and menopause all shift insulin sensitivity.

MARKER	WHAT IT MEASURES	UK GUIDE
HbA1c	Average blood sugar over about 3 months	Below 42 normal. 42 to 47 prediabetes. 48 or above diabetes (mmol/mol)
Fasting glucose	Blood sugar after an overnight fast	5.5 to 6.9 mmol/L suggests raised risk. 7.0 or above suggests diabetes and needs confirming
Fasting insulin / HOMA-IR	How hard the body works to control sugar	Not a routine NHS test. Specialist use
Uric acid	A waste product linked to gout	Higher with some diets, alcohol, kidney issues and weight gain

WHY IT MATTERS HERE

- Low testosterone is common in type 2 diabetes
- Menopause can raise belly fat and insulin resistance
- Resistance training and walking improve glucose control
- HRT does not usually harm blood sugar control

LIFESTYLE LEVERS

- Move after meals
- Lift weights two to three times a week
- Prioritise protein and fibre
- Sleep and manage stress
- Aim for gradual weight loss if needed

HBA1C CAN BE MISLEADING

HbA1c can read off in anaemia, some blood conditions and very recent changes. Doctors may use other tests to confirm.

SECTION 19

THYROID, VITAMINS AND MINERALS

Fatigue, low mood and poor recovery are common to low hormones and low nutrients. These tests help sort out the cause.

MARKER	WHAT IT MEASURES	WHAT THE RESULT MAY MEAN
TSH	Pituitary signal to the thyroid. Typical range about 0.4 to 4.0 mU/L	High suggests an underactive thyroid. Low suggests overactive
Free T4	Active thyroid hormone	Interpreted alongside TSH
Vitamin D	Vitamin D status. Under 25 to 30 nmol/L is usually deficient. Above 50 is usually adequate (ranges vary by lab)	Low in the UK winter and with little sun exposure
Vitamin B12 and folate	Needed for red blood cells and nerves	Low in vegan diets, some gut conditions and some medicines
Ferritin	Iron stores. Below about 30 µg/L often suggests low stores	Can rise with inflammation, so interpret with other tests
Iron and transferrin saturation	Iron in circulation	Assessed alongside ferritin
Calcium	Typical adjusted range 2.2 to 2.6 mmol/L	Linked to bones, parathyroid and vitamin D

FIX THE BASICS FIRST

Low vitamin D, iron or B12 can mimic low testosterone or menopause symptoms. Fixing them can transform energy and mood.

DO NOT GUESS WITH SUPPLEMENTS

High doses of iron, vitamin D or other nutrients can harm. Test, treat as advised and retest.

SECTION 20

PROSTATE, BONE AND OTHER CHECKS

A few non blood checks and special tests complete the picture of long term safety.

PSA (PROSTATE SPECIFIC ANTIGEN)

- A blood marker linked to the prostate
- Checked before and during TRT in men over 40, as advised
- PSA also rises with infection, recent ejaculation, cycling and an enlarged prostate
- A rise of more than about 1.4 ng/mL in a year on treatment prompts specialist review
- Interpreted by age, so ask your GP

BONE HEALTH (DEXA SCAN)

- Measures bone density
- Used for low testosterone, early menopause and osteoporosis risk
- Strength training, calcium, vitamin D and treating hormone deficiency protect bone
- Bone loss is silent, so the scan matters

BLOOD PRESSURE AND HEART

- Check at every review
- Home monitors are useful
- ECG or heart checks if symptoms or risk factors
- Hormone therapy and blood pressure can interact

SCREENING PROGRAMMES

- NHS breast screening, cervical screening and bowel screening continue on HRT
- Know your own body. Report new lumps or changes
- Attend invitations when offered

URINE AND OTHER TESTS

Urinalysis can pick up blood, protein and sugar. Doctors may add other tests depending on your history, so it is normal for panels to differ.

SECTION 21

READING YOUR RESULTS LIKE A PRO

You do not need to become a clinician. A simple approach makes results far less scary.

THE FIVE QUESTIONS

- What does this marker measure?
- Is it in the reference range, and which range was used?
- Has it changed since last time?
- Could training, diet, supplements, illness or timing explain it?
- What does my clinician want to do about it?

TRAFFIC LIGHT YOUR RESULTS

- **Green:** in range and stable. Keep going
- **Amber:** slightly out of range or trending. Repeat or discuss
- **Red:** clearly out of range, or you have symptoms. Contact your clinician promptly

EXAMPLE SCENARIOS FOR LEARNING

SCENARIO	POSSIBLE EXPLANATIONS TO DISCUSS
ALT and AST raised, nothing else	Heavy training the day before, alcohol, fatty liver or a medicine. Repeat after rest and ask the doctor
Creatinine high, eGFR low, but you lift and take creatine	Muscle mass and creatine can raise creatinine. Ask for cystatin C or a repeat
Haematocrit above range on testosterone	Dehydration, smoking, sleep apnoea or treatment effect. Needs prompt review by the prescriber
Total testosterone borderline	Poor sleep, weight, illness or timing. Repeat on another morning and check SHBG and free testosterone
LDL higher than last year	Diet, weight, alcohol, treatment or genetics. Review overall risk

KEEP A COPY

Ask for a copy of your results and keep them in one place. Trends over years are far more powerful than one test.

SECTION 22

LIFESTYLE THAT SUPPORTS YOUR HORMONES

Medication works best when the basics are in place. These habits support hormone health whether or not you take treatment.

SLEEP

- Aim for 7 to 9 hours
- Treat snoring and suspected sleep apnoea
- Keep a regular routine
- Poor sleep can lower testosterone and worsen menopause symptoms

TRAINING

- Resistance training two to three times a week
- Include some cardio and plenty of walking
- Progress gradually and recover well
- Avoid chronic under fuelling

FOOD

- Eat enough protein and plenty of fibre
- Include healthy fats, oily fish, nuts and olive oil
- Keep a healthy weight, not a crash diet
- Get calcium and vitamin D

ALCOHOL, SMOKING AND STRESS

- Keep alcohol within 14 units a week
- Stopping smoking helps heart and bone health
- Manage stress with walking, social time and rest
- Get help for low mood

WEIGHT AND BODY FAT

Excess body fat converts testosterone to oestradiol and lowers SHBG. Gradual weight loss can improve testosterone in many men and menopause symptoms in many women.

SUPPLEMENTS

Most "hormone boosters" have poor evidence. Vitamin D (in winter), creatine and protein are the well supported basics. Always check with a pharmacist if you take medicines.

MORE IN THE OTHER GUIDES

The CDTraining Nutrition Guide covers calories, protein, hydration, alcohol and supplements in more depth.

SECTION 23

TRAINING AND NUTRITION ON HORMONE THERAPY

Hormone therapy is not a shortcut. Training and food still do most of the work. A few practical points help coaches and clients.

ON TRT

- Expect gradual changes in energy, mood and strength
- Keep training progressive and well fuelled
- Stay hydrated and limit alcohol, as hydration affects haematocrit
- Report blood pressure rises, swelling or chest symptoms
- Keep your monitoring appointments

ON HRT

- Strength training protects muscle and bone
- Exercise helps hot flushes, sleep and mood
- Prioritise protein, about 1.6 g per kg is a common starting point
- Heat and hot flushes: dress in layers and keep cool
- Pelvic floor and impact exercise should be gradual

FUELLING AND RECOVERY

- Eat enough to support training
- Spread protein across the day
- Sleep consistently
- Allow rest days

SIGNS TO STOP A SESSION

- Chest pain or tightness
- Severe breathlessness
- Dizziness or faintness
- Sudden severe headache
- Unusual swelling in a calf

FOR COACHES

Ask your client what monitoring they have, respect their privacy, and refer medical questions to their prescriber. Never advise on doses or medicines.

SECTION 24

MYTH BUSTING

Hormones attract strong opinions. Here is what the evidence says.

MYTH: TRT is the same as taking steroids to bulk.
FACT: TRT replaces a deficiency under medical supervision, aiming for a healthy range. It is not designed for building a physique.

MYTH: Everyone over 40 needs TRT.
FACT: Testosterone declines slowly with age, but only men with confirmed deficiency and symptoms are advised treatment.

MYTH: HRT is dangerous for everyone.
FACT: For most healthy people starting under 60, benefits outweigh risks. Risk depends on the type of HRT and your own history.

MYTH: You need blood tests to get HRT.
FACT: Over 45 with typical symptoms, doctors diagnose from symptoms without blood tests.

MYTH: Free testosterone is the only number that matters.
FACT: Symptoms, total testosterone, SHBG, LH and FSH all contribute to the picture.

MYTH: High oestrogen is always bad.
FACT: Men and women both need oestradiol. Problems come from imbalance and symptoms, not a single number.

MYTH: If my bloods are normal, I cannot feel unwell.
FACT: Many conditions and symptoms are not captured by one panel. Persistent symptoms deserve discussion.

MYTH: You can fix hormones with supplements alone.
FACT: Sleep, weight, training and treating underlying causes matter far more than "boosters".

THE TAKEAWAY
Good hormone care is individual, evidence based and monitored.

SECTION 25

PREPARING FOR YOUR APPOINTMENT

A well prepared appointment gets better answers. Take ten minutes beforehand.

WHAT TO BRING

- A list of symptoms: what, when, how bad
- Your medicines and supplements (names and amounts)
- Previous blood results
- Family history of heart disease, cancer and clots
- Your goals and your questions

QUESTIONS TO ASK

- What is my diagnosis, and how sure are we?
- What are the options, including not treating?
- What are the benefits and risks for me?
- What monitoring will I have, and how often?
- What should I do if I get side effects?
- How does this affect fertility?

IF TRT IS DISCUSSED

- Have I had at least two morning tests?
- Have other causes been checked?
- What are the baseline tests?
- Who will monitor me?

IF HRT IS DISCUSSED

- Which type suits my symptoms and history?
- Do I need a progestogen?
- When will we review?
- What should I report?

IT IS YOUR APPOINTMENT

It is normal to take notes, ask for explanations in plain language and request time to decide. Good clinicians welcome questions.

SECTION 26

WHEN TO GET URGENT HELP

Most side effects are minor, but some need rapid action. Know these signs.

CALL 999 OR GO TO A AND E

- Chest pain or pressure
- Sudden severe breathlessness
- Signs of stroke: face drooping, arm weakness, slurred speech
- Severe sudden headache
- A red, swollen painful leg with breathlessness
- Thoughts of harming yourself

SEE A DOCTOR URGENTLY

- Sudden vision changes
- Persistent calf swelling or pain
- New breast lump
- Blood in urine or difficulty passing urine
- Yellow skin or eyes
- Abnormal bleeding on HRT

CONTACT YOUR PRESCRIBER SOON

- Persistent mood changes or irritability
- Worsening snoring or daytime sleepiness
- Swelling in ankles
- Skin problems that bother you
- Questions about your results

MENTAL HEALTH MATTERS

Hormone changes can affect mood. If you feel persistently low, anxious or hopeless, talk to your GP. In a crisis, call 999 or use NHS 111.

WHEN IN DOUBT

It is always better to check than to wait. NHS 111 can advise on urgent concerns.

SECTION 27

BLOOD TEST TRACKER

Print this page or copy it into a notebook. Fill in the numbers you are given and keep a note of what your clinician says.

MARKER	DATE 1	DATE 2	DATE 3	DATE 4	DATE 5
Total testosterone (nmol/L)					
Free testosterone (nmol/L)					
SHBG (nmol/L)					
LH / FSH					
Oestradiol					
Haemoglobin / haematocrit					
Total / LDL / HDL cholesterol					
Triglycerides					
ALT / AST					
Creatinine / eGFR					
HbA1c					
Vitamin D / B12 / ferritin					
PSA (if advised)					
Blood pressure					

NOTES FROM MY LAST REVIEW

QUESTIONS FOR NEXT TIME

TIP

Write down the lab's reference range next to each result, since it can differ between labs.

SECTION 28

ACTION PLAN AND EVIDENCE

Turn the guide into a small number of habits you can repeat.

AREA	MY ACTION	HOW I WILL MEASURE IT	FREQUENCY
Appointments	Attend every review and monitoring test	Calendar reminders	As scheduled
Bloods	Keep a record of results and ranges	Tracker page	After each test
Sleep	Protect a consistent routine	Usual sleep and wake time	Daily
Training	Strength training and walking	Sessions and steps	Weekly
Nutrition	Protein, fibre, fruit and veg	Meal pattern	Daily
Alcohol	Stay within 14 units a week	Weekly total	Weekly
Questions	Write questions down before each appointment	List ready	Before reviews

SELECTED EVIDENCE AND FURTHER READING

- British Society for Sexual Medicine: Guidelines on the management of adult testosterone deficiency (Hackett et al., 2017, and updates).
- Society for Endocrinology: UK guidance on the use and monitoring of testosterone in men.
- Bhasin et al. 2018. Testosterone therapy in men with hypogonadism: Endocrine Society clinical practice guideline.
- Lincoff et al. 2023. Cardiovascular safety of testosterone replacement therapy (TRAVERSE trial). New England Journal of Medicine.
- NICE guideline NG23: Menopause, diagnosis and management.
- British Menopause Society: guidance on HRT, risks and benefits.
- NHS: Hormone replacement therapy, menopause, testosterone deficiency and blood tests.
- British Heart Foundation and HEART UK: Understanding your cholesterol results.
- NICE: Type 2 diabetes in adults, and diabetes diagnosis thresholds.
- UK Chief Medical Officers: Low risk alcohol guidance.

General education only. Individual medical advice is essential. Thanks for reading :)