

# EDUCACIÓN FÍSICA

## 4º E.S.O

### (BILINGÜE)

NOMBRE: \_\_\_\_\_

GRUPO: 4º ESO

- A. ORGANIZACIÓN Y NORMAS DE CLASE. ASPECTOS A TENER EN CUENTA EN EDUCACIÓN FÍSICA
- B. CLASSROOM VOCABULARY REVIEW (PHYSICAL EDUCATION)

## ORGANIZACIÓN Y NORMAS DE CLASE. ASPECTOS A TENER EN CUENTA EN EDUCACIÓN FÍSICA

### 1. ORGANIZACIÓN Y NORMAS DE CLASE

- 1.- Es obligatorio utilizar **ropa deportiva** adecuada para participar en las clases (zapatillas deportivas bien atadas, chándal deportivo,...).
- 2.- Se dejarán **5 minutos después de la clase** para asearse y cambiarse de ropa (mínimo de camiseta). El profesor comprobará si se realiza este hábito higiénico (1 semana de plazo para adaptarse).
- 3.- Se debe hacer un **uso correcto del material deportivo** según las indicaciones del profesor. No se utilizará ningún material sin permiso del profesor.
- 4.- Todos los alumnos colaborarán en la **recogida del material** al finalizar la clase.
- 5.- Cada día un alumno, por orden de lista, será el responsable del **control de vestuarios** (papeles en el suelo, comprobar que los grifos quedan cerrados, luces, reponer papel higiénico, etc).
- 6.- No se permite **comer** dentro del gimnasio ni en las pistas deportivas.
- 7.- Si se descubre a algún/a alumno/a **fumando o pintando en los aseos**, así como en cualquier otra instalación, será firmemente sancionado.
- 8.- No se puede llevar ningún objeto que pueda suponer peligro alguno para la propia integridad física del alumno ni de los compañeros: **piercing, pendientes de aros, collares, etc.**
- 9.- El profesor empleará en las clases un **silbato** únicamente para indicar la finalización de un juego, actividad o ejercicio. Al escucharlo, tendremos que acercarnos al profesor para atender a las nuevas indicaciones.
- 10.- La no presentación de la **hoja del historial médico del alumno/a** firmada por el padre, madre o tutor, en la que se acompañarán todos los detalles de una posible enfermedad, será tenido en cuenta negativamente por el profesor en la calificación de la asignatura.

#### RECOMENDACIONES:

- No olvidar ni descuidar el desayuno todas las mañanas para evitar desmayos y trastornos alimentarios. Del mismo modo, deberemos evitar comidas copiosas antes de una clase de Educación Física.
- Se recomienda traer todos los días una pequeña botella de agua para hidratarlos durante la actividad física (botella con tapón de rosca).
- Os recordamos la importancia que tiene el que transportéis correctamente la mochila para evitar problemas de espalda. ¡No le des la espalda a tu espalda!



## ASISTENCIA

- No se superará la evaluación teniendo más de un 30% de faltas de asistencia sin justificar del total de las clases que hay en un trimestre.  
p.ej.: nº de clases en un trimestre (20)... El 30%.....6 clases.
- La justificación de las faltas de asistencia se realizará a través del modelo oficial del departamento instituto con un plazo de 72 horas.
- La asistencia a clase sin vestimenta deportiva es considerada por falta, a no ser que esté justificada. En este caso, deberán rellenar la ficha de exentos, en las que deberán recoger las actividades realizadas en clase o realizará cualquier otra tarea indicada por el profesor.

## ALUMNOS EXENTOS DEL APARTADO PRÁCTICO

- Deberán presentar el correspondiente justificante médico donde aparezca claramente el problema físico que exime al alumno de la práctica de actividad física.
- Realizarán durante el curso un trabajo diario paralelo al de sus compañeros, indicado en su momento por el profesor, con el fin de valorar objetivamente el apartado práctico.

**PRUEBA EXTRAORDINARIA DE SEPTIEMBRE:** Se realizará una prueba de carácter teórico-práctico para aquellos alumnos que no hayan superado los mínimos exigidos en cada UD.

## CLASSROOM VOCABULARY REVIEW PHYSICAL EDUCATION

<b>VERBS (VERBOS)</b>	
<b>CRECER</b>	<b>GROW</b>
<b>DESARROLLAR</b>	<b>DEVELOP</b>
<b>LEER</b>	<b>READ</b>
<b>ESCRIBIR</b>	<b>WRITE</b>
<b>APRENDER</b>	<b>LEARN</b>
<b>PARTICIPAR</b>	<b>PARTICIPATE</b>
<b>JUGAR</b>	<b>PLAY</b>
<b>CALENTAR</b>	<b>WARM UP</b>
<b>SENTARSE</b>	<b>SIT, SIT DOWN</b>
<b>LEVANTARSE</b>	<b>GET UP</b>
<b>CAMINAR</b>	<b>WALK</b>
<b>CORRER</b>	<b>RUN</b>
<b>SALTAR</b>	<b>JUMP</b>
<b>ATRAPAR</b>	<b>CATCH</b>
<b>LANZAR</b>	<b>THROW</b>
<b>BOTAR</b>	<b>BOUNCE</b>
<b>DISPARAR</b>	<b>SHOOT</b>
<b>ATACAR</b>	<b>ATTACK</b>
<b>DEFENDER</b>	<b>DEFEND</b>
<b>COGER</b>	<b>CATCH</b>
<b>DEJAR CAER</b>	<b>DROP</b>
<b>TOCAR</b>	<b>TOUCH</b>
<b>GIRAR</b>	<b>TURN</b>
<b>COORDINAR</b>	<b>COORDINATE</b>
<b>FLEXIONAR O DOBLAR</b>	<b>BEND</b>
<b>ESTIRAR</b>	<b>STRETCH</b>
<b>CONTRAER</b>	<b>CONTRACT</b>
<b>DESLIZAR</b>	<b>SLIDE</b>
<b>RELAJAR</b>	<b>RELAX</b>
<b>RESPIRAR</b>	<b>BREATHE</b>
<b>PUNTUAR</b>	<b>SCORE</b>
<b>GOLPEAR</b>	<b>HIT, STRIKE</b>
<b>MARCAR</b>	<b>SCORE</b>
<b>SPECIFIC WORDS (PALABRAS ESPECÍFICAS)</b>	
<b>INSTITUTO</b>	<b>SECONDARY SCHOOL</b>
<b>EDUCACIÓN</b>	<b>EDUCATION</b>
<b>EDUCACIÓN FÍSICA</b>	<b>PHYSICAL EDUCATION</b>
<b>PROFESOR</b>	<b>TEACHER</b>
<b>COMPAÑERO DE CLASE</b>	<b>CLASSMATE</b>
<b>EJERCICIO</b>	<b>EXERCISE</b>

<b>TAREA</b>	<b>TASK</b>
<b>JUEGO</b>	<b>GAME</b>
<b>JUGADOR</b>	<b>PLAYER</b>
<b>JUEGOS INDIVIDUALES</b>	<b>INDIVIDUAL GAMES</b>
<b>JUEGOS DE EQUIPO</b>	<b>TEAM GAMES</b>
<b>ACTIVIDAD FÍSICA</b>	<b>PHYSICAL ACTIVITY</b>
<b>SENSACIÓN</b>	<b>SENSATION</b>
<b>DESAYUNO</b>	<b>BREAKFAST</b>
<b>CARACTERÍSTICAS FÍSICAS</b>	<b>PHYSICAL CHARACTERISTICS</b>
<b>ACTIVIDADES</b>	<b>ACTIVITIES</b>
<b>PISTA O CANCHA</b>	<b>COURT</b>
<b>DEPORTE</b>	<b>SPORT</b>
<b>FÚTBOL</b>	<b>FOOTBAL</b>
<b>FUTBOLISTA</b>	<b>FOOTBALLER</b>
<b>PORTERO</b>	<b>GOAL-KEEPER</b>
<b>PORTERÍA</b>	<b>GOALPOST</b>
<b>BALONCESTO</b>	<b>BASKETBALL</b>
<b>BEISBOL</b>	<b>BASEBALL</b>
<b>ATLETISMO</b>	<b>ATHLETICS</b>
<b>HABILIDADES</b>	<b>SKILLS</b>
<b>GIMNASIA</b>	<b>GIMNASTIC</b>
<b>PELOTA</b>	<b>BALL</b>
<b>PALA</b>	<b>PADDLE</b>
<b>RAQUETA</b>	<b>RACKET</b>
<b>COLCHONETA</b>	<b>MAT</b>
<b>ESPALDERA</b>	<b>TRELLIS</b>
<b>ARO</b>	<b>HOOP</b>
<b>CANASTA</b>	<b>BASKET</b>
<b>RED</b>	<b>NET</b>
<b>PETO</b>	<b>BIB, BREAST</b>
<b>SEGUNDOS</b>	<b>SECONDS</b>
<b>MINUTOS</b>	<b>MINUTES</b>
<b>SALUD</b>	<b>HEALTH</b>
<b>TABACO</b>	<b>TOBACCO</b>
<b>ALCOHOL</b>	<b>ALCOHOL</b>
<b>BUENOS Y MALES HÁBITOS</b>	<b>GOOD AND BAD HABITS</b>
<b>DOLENCIAS</b>	<b>PAINS</b>
<b>LESIONES</b>	<b>LESIONS</b>
<b>DOLOR DE ESPALDA</b>	<b>BACKACHE</b>
<b>POSTURA CORRECTA</b>	<b>RIGHT POSTURE</b>
<b>POSTURA INCORRECTA</b>	<b>WRONG POSTURE</b>
<b>ESCOLIOSIS</b>	<b>SCOLIOSIS</b>
<b>CIFOSIS</b>	<b>KYPHOSIS</b>
<b>LORDOSIS</b>	<b>LORDOSIS</b>
<b>DIETA SALUDABLE</b>	<b>HEALTHY DIET</b>
<b>COLUMNA VERTEBRAL</b>	<b>SPINAL COLUMN</b>
<b>HABILIDADES</b>	<b>SKILLS</b>
<b>CAPACIDADES FÍSICAS</b>	<b>PHYSICAL CAPACITIES</b>

<b>RESISTENCIA</b>	<b>RESISTANCE</b>
<b>FUERZA</b>	<b>STRENGTH</b>
<b>VELOCIDAD</b>	<b>SPEED, VELOCITY</b>
<b>FLEXIBILIDAD</b>	<b>FLEXIBILITY</b>
<b>CUERPO</b>	<b>BODY</b>
<b>PIE</b>	<b>FOOT</b>
<b>PIERNA</b>	<b>LEG</b>
<b>TOBILLO</b>	<b>ANKLE</b>
<b>RODILLA</b>	<b>KNEE</b>
<b>MANO</b>	<b>HAND</b>
<b>MUÑECA</b>	<b>WRIST</b>
<b>CODO</b>	<b>ELBOW</b>
<b>CADERA</b>	<b>HIP</b>
<b>HOMBRO</b>	<b>SHOULDER</b>
<b>CUELLO</b>	<b>NECK</b>
<b>MÚSCULO</b>	<b>MUSCLE</b>
<b>CUÁDRICEPS</b>	<b>QUADRICEPS</b>
<b>ISQUIOTIBIAL</b>	<b>HAMSTING</b>
<b>SOLEO</b>	<b>BASK</b>
<b>ESPALDA</b>	<b>BACK</b>
<b>TRICEPS</b>	<b>TRICEPS</b>
<b>BICEPS</b>	<b>BICEPS</b>
<b>ACCIONES CONCRETAS (CONCRETE ACTIONS)</b>	
<b>DEBEMOS TENER CUIDADO</b>	<b>WE MUST BE CAREFUL</b>
<b>ESTE EJERCICIO TIENE RIESGO DE LESIÓN</b>	<b>THIS EXERCISE IS AT RISK OF INJURY</b>
<b>ESTO PODRÍA SER PELIGROSO</b>	<b>THIS MIGHT BE DANGEROUS</b>
<b>ESTAR EN FORMA</b>	<b>TO BE IN SHAPE</b>
<b>ES IMPORTANTE BEBER MUCHA AGUA</b>	<b>IT IS IMPORTANT TO DRINK PLENTY OF WATER</b>
<b>CARRERA CONTINUA</b>	<b>RUNNING</b>
<b>CORRE DESPACIO</b>	<b>YOU RUN SLOWLY</b>
<b>CORRE MÁS RÁPIDO</b>	<b>YOU RUN FASTER</b>
<b>CORRE TODO LO QUE PUEDas</b>	<b>RUN AS FAST AS YOU CAN</b>
<b>TU SERÁS EL CORREDOR</b>	<b>YOU WILL BE THE RUNNERS</b>
<b>VOSOTROS SERÉIS LOS PERSEGUIDOS</b>	<b>YOU WILL BE THE PURSUERS</b>
<b>MOVILIDAD ARTICULAR</b>	<b>JOINT MOBILITY</b>
<b>ESTIRAMIENTOS</b>	<b>STRETCHING</b>
<b>VAMOS A CALENTAR LOS MÚSCULOS</b>	<b>WE ARE GOING TO WARM UP THE MUSCLES</b>
<b>VAMOS A CORRER DURANTE 10 MINUTOS APROXIMADAMENTE</b>	<b>WE ARE GOING TO RUN FOR ABOUT TEN MINUTES</b>
<b>VAMOS A MOVER TODAS LAS ARTICULACIONES DEL CUERPO</b>	<b>WE ARE GOING TO MOVE ALL THE JOINTS IN THE BODY</b>
<b>MUEVE TUS BRAZOS A LA VEZ, EN CÍRCULOS Y ARRIBA Y ABAJO</b>	<b>MOVE YOUR ARMS FORWARD, IN CIRCLES AND UP AND DOWN</b>
<b>SIENTATE Y LEVÁNTATE EN LA</b>	<b>SIT AND STAND IN THE CORRECT</b>

<b>POSTURA CORRECTA</b>	<b>POSTURE</b>
<b>VAMOS A ESTIRAR TODOS LOS MUSCULOS DEL CUERPO</b>	<b>WE ARE GOING TO STRETCH ALL THE MUSCLES OF THE BODY</b>
<b>FLEXIONA Y ESTIRA</b>	<b>FLEX AND STRETCH</b>
<b>VAMOS A HACER UN JUEGO SENCILLO</b>	<b>WE ARE GOING TO PLAY A SIMPLE GAME</b>
<b>SKIP THE ROPE</b>	<b>SALTAR A LA COMBA</b>
<b>VAMOS A HACER EQUIPOS DE 4 O 5 PERSONAS</b>	<b>WE ARE GOING TO MAKE TEAMS OF 4 OR 5 PEOPLE</b>
<b>VAMOS A HACER JUEGOS COOPERATIVOS</b>	<b>WE ARE GOING TO PLAY COOPERATIVE GAMES</b>
<b>VAMOS A HACER JUEGOS COMPETITIVOS</b>	<b>WE ARE GOING TO PLAY COMPETITIVE GAMES</b>
<b>TIENES QUE PASAR EL BALÓN AL COMPAÑERO</b>	<b>YOU HAVE TO PASS THE BALL TO YOUR MATE.</b>
<b>HAY QUE LANZAR A CANASTA Y ES IMPORTANTE CONSEGUIR PUNTUAR</b>	<b>YOU HAVE TO THROW TO THE HOOP AND SCORING IS IMPORTANT</b>
<b>VAMOS A HACER ABDOMINALES</b>	<b>WE ARE GOING TO DO ABDOMINALS</b>
<b>VAMOS A CONTRAER ESTE MÚSCULO</b>	<b>WE ARE GOING TO CONTRACT THIS MUSCLE</b>
<b>INTENTA GIRAR Y CONTROLAR EL BALÓN</b>	<b>TRY TO SPIN AND CONTROL THE BALL</b>
<b>INTENTA EMPUJAR A TU COMPAÑERO HASTA DETRÁS DE LA LINEA. EMPUJA TANTO COMO PUEDES</b>	<b>TRY TO PUSH YOUR PARTNER BACKWARDS OVER THE LINE BEHIND THEIR BACKS. PUSH AS HARD AS YOU CAN</b>
<b>VAMOS A HACER ESTE EJERCICIO CON LAS PALMAS MIRANDO HACIA LA CARA</b>	<b>WE ARE GOING TO DO THIS EXERCISE WITH THE PALMS OF YOUR HANDS FACING UPWARDS</b>
<b>VAMOS A HACER ESTE EJERCICIO CON LAS PALMAS MIRANDO HACIA AFUERA</b>	<b>WE ARE GOING TO DO THIS EXERCISE WITH THE PALMS OF YOUR HANDS FACING DOWNWARDS</b>
<b>VAMOS A TRABAJAR EL SALTO DE LONGITUD</b>	<b>WE ARE GOING TO WORK THE LONG JUMP</b>
<b>VAMOS A TRABAJAR EL LANZAMIENTO DE PESO</b>	<b>WE ARE GOING TO WORK THE SHOTPUT</b>
<b>VAMOS A TRABAJAR LA RESISTENCIA</b>	<b>WE ARE GOING TO WORK RESISTANCE</b>
<b>VAMOS A TRABAJAR LA FUERZA</b>	<b>WE ARE GOING TO WORK STRENGTH</b>
<b>VAMOS A TRABAJAR LA VELOCIDAD</b>	<b>WE ARE GOING TO WORK SPEED</b>
<b>VAMOS A TRABAJAR LA FLEXIBILIDAD</b>	<b>WE ARE GOING TO WORK FLEXIBILITY</b>



<b>WARM UP AND JOINT MOBILITY</b>	
<b>1. Vamos a correr de forma suave y continuada durante 5 minutos aproximadamente</b>	We are going to run smoothly and continuously for about 5 minutes.
<b>2. Ahora, nos colocamos todos encima de la línea roja de la cancha.</b>	Now we put all above the red line of the court.
<b>3. Vamos a hacer carreras con ejercicios específicos de ida y vuelta. Seguid mis indicaciones.</b>	We are going to make races with specific exercises and back. Follow my instructions.
<b>4. Vamos a desplazarnos desde esta línea roja hasta la línea roja de enfrente con carrera suave. Ahora regresa hasta aquí.</b>	We are going to move from this red line to red line in front with light jogging. Now get back here.
<b>5. Vamos a desplazarnos desde esta línea roja hasta la línea roja de enfrente usando sólo la punta de los pies y sin doblar las rodillas. Ahora regresa aquí haciendo lo mismo pero más rápido.</b>	Let's move from this red line to red line in front using only the toes without bending your knees. Now faster.
<b>6. Vamos a desplazarnos desde esta línea roja hasta la línea roja de enfrente usando sólo los talones de los pies y sin doblar las rodillas. Ahora regresa aquí haciendo lo mismo pero más rápido.</b>	Let's move from this red line to red line across using only the heels of your feet without bending the knees. Now back here doing the same thing but faster.
<b>7. Vamos a desplazarnos desde esta línea roja hasta la línea roja de enfrente elevando las rodillas alternativamente hacia el pecho. Ahora regresa aquí haciendo lo mismo pero más rápido.</b>	Let's move from this red line to red line with knees alternately opposite to the chest. Now back here doing the same thing but faster.
<b>8. Vamos a desplazarnos desde esta línea roja hasta la línea roja de enfrente elevando los talones de los pies hacia los glúteos de forma alternativa. Ahora regresa aquí haciendo lo mismo pero más rápido.</b>	Let's move from this red line to red line across elevating the heels of your feet toward your buttocks alternatively. Now back here doing the same thing but faster.
<b>9. Vamos a desplazarnos desde esta línea roja hasta la línea roja de enfrente moviendo los brazos suavemente y de forma simultánea hacia adelante. Ahora regresa aquí haciendo lo</b>	Let's move from this red line to red line moving across the arms gently and simultaneously forward. Now back here doing the same thing but faster.



<b>mismo pero más rápido.</b>	
<b>10. Vamos a desplazarnos desde esta línea roja hasta la línea roja de enfrente moviendo los brazos suavemente y de forma simultánea hacia adelante. Ahora regresa aquí haciendo lo mismo pero más rápido.</b>	Let's move from this red line to red line moving across the arms gently and simultaneously forward. Now back here doing the same thing but faster.
<b>11. Vamos a desplazarnos desde esta línea roja hasta la línea roja de enfrente moviendo los brazos suavemente y de forma simultánea hacia atrás. Ahora regresa aquí haciendo lo mismo pero más rápido.</b>	Let's move from this red line to red line gently waving the arms in front and back simultaneously. Now back here doing the same thing but faster.
<b>12. Vamos a desplazarnos desde esta línea roja hasta la línea roja de enfrente, nos agachamos, la tocamos y regresamos de nuevo a esta línea roja lo más rápido posible.</b>	Let's move from this red line to red line in front, we bend, we play and returned back to this red line as quickly as possible.
<b>STRETCHING-FLEXIBILITY</b>	
<b>13. Vamos a cogernos todos de las manos y vamos a formar un círculo. Debemos dejar al menos un metro de separación entre los compañeros más cercanos. No debemos estar demasiado juntos.</b>	Let's get us all out of hand and we will form a circle. We must leave at least one meter separation between the closest companions. We should not be too close together.
<b>14. Vamos a realizar estiramientos.</b>	We will perform stretches.
<b>15. Vamos a mantener cada posición de estiramiento durante al menos 15 segundos.</b>	Let's hold each stretch position for at least 15 seconds.
<b>16. Vamos a comenzar estirando el gemelo. Ahora cambiamos de pierna.</b>	Let's start stretching the calf. Now switch legs.
<b>17. Continuamos con los Isquiotibiales. Ahora cambiamos de pierna.</b>	We continue with the Hamstrings. Now switch legs.
<b>18. Seguimos con los cuádriceps. Ahora cambiamos de pierna.</b>	We continue with the quadriceps. Now switch legs.
<b>19. Abductores. Cambiamos de pierna.</b>	Abductors. We changed leg.
<b>20. Tronco.</b>	Trunk
<b>21. Seguimos por el músculo dorsal. Caemos hacia un lado y</b>	We continue by lattisimus. We fall to the side and hold the position. Now fall to the

<b>mantenemos la posición. Ahora caemos hacia el otro lado y mantenemos la posición.</b>	other side and keep the position.
<b>22. Vamos a estirar el abdomen.</b>	We will stretch the abdomen.
<b>23. Ahora seguimos con el hombro derecho. Cambiamos de hombro.</b>	Now we continue with the right shoulder. Shoulder changed.
<b>24. Vamos a estirar los tríceps. Cambiamos de brazo.</b>	Let's stretch the triceps. Change arm.
<b>25. Vamos a estirar el cuello muy suavemente. Delante, detrás, izquierda y derecha. Nos ayudamos de la mano para mantener la posición. Recuerdo, muy suave.</b>	We will very gently stretch the neck. Front, back, left and right. We help the hand to hold the position. I remember, very smooth.

## Diet and Nutrition

"You are what you eat," people sometimes say — that's how vital this subject is. It's very important to know about different foods, what they contain, and why we need to eat them.

### You Need to Eat a Balanced Diet to be Healthy

- 1) Eating a balanced diet is an important part of a healthy, active lifestyle.
- 2) What makes up a balanced diet is slightly different for everyone. E.g. if you exercise loads, you'll need to eat more high energy foods than someone who doesn't.

A balanced diet contains the best ratio of nutrients to match your lifestyle.

- 3) If you don't eat a balanced diet, not only could you be physically unable to do the activities you want to, but you might actually be damaging your body, e.g. if you eat a lot of fatty foods, you might end up with high blood pressure, which increases the risk of heart disease and strokes.

### You Need More of Some Nutrients Than Others

There are two main groups of nutrients your body needs:

Macro nutrients — nutrients your body needs in large amounts.

Micro nutrients — nutrients your body still needs, but in smaller amounts.

#### MACRO NUTRIENTS:

- 1) Proteins
- 2) Carbohydrates
- 3) Fats

#### MICRO NUTRIENTS:

- 1) Vitamins
- 2) Minerals

#### WATER AND DIETARY FIBRE

On top of these, you also need plenty of water and dietary fibre in your diet to be healthy. The best way to get all of these nutrients is to eat a varied diet with plenty of fruit and vegetables, but not too much fat.

### Carbohydrates, Fats and Proteins are Macro Nutrients

Carbohydrates, fats and proteins are macro nutrients — they make up the bulk of your food. They provide you with energy and help you grow.

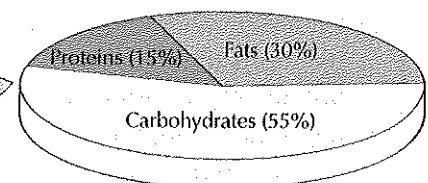
#### CARBOHYDRATES

- 1) Carbohydrates are the main source of energy for the body.
- 2) You can get simple ones, e.g. sugar, and complex ones, e.g. starch.
- 3) Whenever you eat carbohydrates, some will get used by the body straight away.
- 4) The rest gets stored in the liver and muscles ready for when it's needed.

#### PROTEINS

- 1) Proteins help the body grow and repair itself.
- 2) They're made from molecules called amino acids — your body can make most amino acids but some you have to get from food.

This pie chart shows about how much of each nutrient you should eat.



#### FATS

- 1) Fats are made from molecules called fatty acids and glycerol.
- 2) They provide energy for the body but they're also really important for helping keep the body warm and protecting organs. There are also some vitamins that the body can only absorb using fats.
- 3) Some fats are turned into cholesterol by the liver. Cholesterol can be transported in high or low density lipoproteins (HDLs and LDLs). Having too much LDL cholesterol increases the risk of heart attacks and strokes. Having high levels of HDLs is good, as it helps the body get rid of excess cholesterol.

## Diet and Nutrition

Micro nutrients are just as important as macro nutrients — you just need smaller amounts of them.

### You need Small Amounts of Vitamins and Minerals

#### VITAMINS

- 1) Vitamins help keep your bones, teeth and skin healthy.
- 2) They're also needed for many of the body's chemical reactions.

*With a properly balanced diet, you don't need vitamin supplements.*

FAT-SOLUBLE VITAMINS — can be stored in the body.

E.g. Vitamin A — needed for your growth and vision, and can be found in vegetables, eggs and liver.

Vitamin D — needed for strong bones, so you don't get bone-softening diseases like osteoporosis (see p24). Vitamin D can be made by the skin in sunshine, but it's also found in milk, fish, liver and eggs.

WATER-SOLUBLE VITAMINS — can't be stored, so you need to eat them regularly.

E.g. Vitamin C — good for your skin and the stuff that holds your body tissues together. Without it, your body tissues can't form properly and you get a nasty disease called scurvy. Vitamin C is found in fruit and veg — especially citrus fruits like oranges and lemons.

#### MINERALS

- 1) These are needed for healthy bones and teeth, and to build other tissues.
- 2) Minerals help in various chemical reactions in the body.

E.g. Calcium is needed for strong bones and teeth, and also for muscle contractions (see p14). There's lots in green vegetables, milk, cheese and some fish.

Iron is needed for making red blood cells (see p11). Without it your blood can't carry much oxygen. There's tons in liver, beans and green vegetables.

### Water and Dietary Fibre are Just as Important

#### WATER

- 1) Water's needed in loads of chemical reactions in the body. It's also lost in your breath, sweat, urine and faeces.
- 2) If you don't drink enough to replace what your body uses or loses you'll become dehydrated, and you won't perform as well.
- 3) If you drink more than you need, your kidneys will produce more urine to get rid of the excess.

#### DIETARY FIBRE

- 1) You need fibre to keep your digestive system working properly.
- 2) There's lots of fibre in fruit and vegetables — another good reason to eat loads of them.



### Your Diet can help Improve your Performance

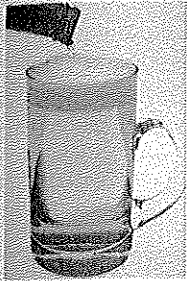
- 1) Most athletes plan their diets to help improve their performance — e.g. runners will eat lots of carbohydrates before an event, while weightlifters eat lots of protein to build up their muscles.
- 2) When you eat is also important — you should eat lots of carbohydrates before exercising, but don't eat anything immediately before, during or immediately after exercising (you should drink lots of water though).
- 3) Thanks to blood shunting (see p22) your digestive system has a limited blood supply when you exercise. Any food in your digestive system won't be able to be digested properly, so you're more likely to feel sick.

## Recreational Drugs

Recreational drugs (i.e. drugs people take for enjoyment) can have a negative effect on your health and can affect your performance in sports. If you're doing a WJEC or AQA course, you can just skip this page.

### Alcohol Damages your Performance

Although alcohol is legal, it's still a drug and can affect your performance badly.



- 1) It affects your coordination, speech and judgement, so you're more likely to hurt yourself. You're also less likely to be able to do things accurately — like shoot in football or return the ball in tennis.
- 2) It slows your reactions, whether it's to a starter gun in a race or a pass in netball.
- 3) It makes your muscles get tired more quickly, so you can't exercise for as long.
- 4) It increases your blood pressure — the more you drink, the higher it gets.
- 5) Eventually it damages your liver, kidneys, heart, muscles, brain, and the digestive and immune systems.

Small amounts of alcohol don't do too much harm, but drinking before you do sports can be dangerous — you're more likely to have an accident or hurt others. If you want to have a healthy, active lifestyle and do well in sports, it's best to only drink in moderation (or not at all).

### Tobacco is Legal but Harmful

Tobacco is another legal drug, but it's really bad for you.

Every cigarette damages your body and affects your performance in sports.

- 1) Smoking causes nose, throat and chest irritations.
- 2) It makes you short of breath, so you find it harder to exercise.
- 3) Smoking and nicotine cause a temporary rise in blood pressure.
- 4) It damages your respiratory system (see below) and your cardiovascular system (see p19 and 22). Smoking increases the risk of developing heart disease, cancer, bronchitis, and other diseases.

For a healthy, active lifestyle it's best to avoid smoking altogether.

### Smoking Clogs Up the Alveoli

- 1) Smoking has a really bad effect on your respiratory system.
- 2) Cigarette smoke contains tar, which clogs up the alveoli and makes it harder for gas exchange to take place. Eventually the alveoli will collapse and stop working.
- 3) Even if the tar is removed and the alveoli are repaired, they'll never be as efficient as they were.
- 4) Cigarette smoke also contains the addictive drug and poison nicotine. Nicotine causes the blood vessels in the lungs to tighten, which slows the blood flow in the lungs making the gas exchange in the alveoli less efficient.

### Doesn't sound like fun to me...

Some people use alcohol and tobacco to calm their nerves and improve their performance — some darts players drink alcohol whilst they play to help get them 'in the zone'. But, alcohol affects your judgement, coordination and reactions — so it usually has a negative effect your performance.

## Performance-Enhancing Drugs

Some people cheat by taking drugs. Drugs can sometimes make them perform better, but there are risks and nasty side effects... If you're doing an AQA course, you don't need to know this page.

### Many Drugs can Improve Performance

Some athletes use drugs to improve their performance. The use of these drugs in sport is usually banned, and they usually have nasty side effects. Unfortunately, some athletes still break the rules by taking them anyway — even with the risks. (Breaking the rules like this is sometimes called deviance.)

These are the drugs you need to know about:

#### REMEMBER — BAD SNaP

B	— Beta blockers
A	— Anabolic steroids
D	— Diuretics
S	— Stimulants
Na	— Narcotic analgesics
P	— Peptide hormones

#### BETA BLOCKERS

- Are drugs that control heart rate.
- They lower the heart rate, steady shaking hands, and have a calming, relaxing effect.

But...

- They can cause low blood pressure, cramp and heart failure.

#### STIMULANTS

- Affect the central nervous system (the bits of your brain and spine that control your reactions).
- They can increase mental and physical alertness.

But...

- They can lead to high blood pressure, heart and liver problems, and strokes.
- They're addictive.

#### ANABOLIC STEROIDS

- Mimic the male sex hormone testosterone.
- Testosterone increases your bone and muscle growth (so you can get bigger and stronger). It can also make you more aggressive.

But...

- They cause high blood pressure, heart disease, infertility and cancer.
- Women may grow facial and body hair, and their voice may deepen.

#### NARCOTIC ANALGESICS

- Kill pain — so injuries and fatigue don't affect performance so much.

But...

- They're addictive, with unpleasant withdrawal symptoms.
- Feeling less pain can make an athlete train too hard.
- They can lead to constipation and low blood pressure.

#### DIURETICS

- Increase the amount you urate, causing weight loss — important if you're competing in a certain weight division.
- Can mask traces of other drugs in the body.

But...

- They can cause cramp and dehydration.

#### PEPTIDE HORMONES

- Cause the production of other hormones — similar to anabolic steroids.
- EPO (Erythropoietin) is a peptide hormone that causes the body to produce more red blood cells.

But...

- They can cause strokes and abnormal growth.

### Blood Doping is Banned

You can improve your performance by increasing the number of red blood cells in your bloodstream to increase the oxygen supply to your muscles.

You can do this by altitude training (see p66) or cheat and get the same effect by blood doping.

Blood doping can be done in different ways.

- 1) Before a competition an athlete can be injected with red blood cells. Possible side effects of injecting red blood cells include allergic reactions, kidney damage and blocked capillaries or, if the blood is from someone else, catching viruses such as HIV.
- 2) Athletes can also take EPO to increase their red blood cell count (see peptide hormones above).

## Warm-Up and Worked Exam Questions

### Warm-Up Questions

- 1) What is the definition of a balanced diet?
- 2) How do the two different types of cholesterol (LDL and HDL) affect the body?
- 3) Explain the effect that smoking has on gas exchange in the lungs.
- 4) What effect does alcohol have on blood pressure?
- 5) Why do some athletes risk taking banned drugs?
- 6) Name two legal drugs that can negatively affect performance in sport.
- 7) Name three performance-enhancing drugs.

### Worked Exam Questions

Take a look over these examples, then try some exam-style questions yourself.

1 This question is about diet and nutrition.

a) List **two** nutrients that provide the body with energy.

*Carbohydrates and fats.*

(2 marks)

b) Describe why the following substances are necessary in a person's diet:

i) Protein

*For repair of tissues and growth.*

ii) Vitamins and minerals

*You could also say that they help keep your teeth, skin and other tissues healthy, and help chemical reactions that happen in the body.*

*To ensure healthy bones.*

iii) Fibre

*To keep the digestive system functioning properly.*

(3 marks)

2 Some athletes take anabolic steroids to improve their performance.

a) Explain how steroids can improve performance.

*They help to build up muscle strength and size, which can improve performance in activities where strength is important, e.g. boxing.*

(2 marks)

b) Give **two** possible negative side effects of taking steroids.

*Infertility and high blood pressure.*

*You could also put heart disease, cancer, facial and body hair on women, or a deeper voice in women.*

(2 marks)

## Exam Questions

1 Which of the following nutrients is **not** a macro nutrient?

- A Protein
- B Fat
- C Fibre
- D Carbohydrate

(1 mark)

2 Chris and Val are both serious athletes. Chris is a weightlifter and Val is a marathon runner. They have both adapted their diets to improve their performance. Suggest how each person may have adapted their diet, and how this change might help improve their performance.

.....

.....

.....

(4 marks)

3 Complete the table below to identify and describe the effects of some performance-enhancing drugs.

Name of Drug	Reason drug is taken	Side Effect
Stimulants		high blood pressure
	kill pain so athlete can train for longer/harder	constipation
EPO / Peptide hormones		abnormal growth
Diuretics	weight loss caused by frequent urination	
Beta blockers		addiction

(5 marks)

4 Explain what is meant by the term 'blood doping' and why an athlete might risk doing it.

.....

.....

.....

.....

(4 marks)



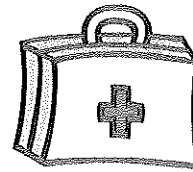
## Injuries — Types and Treatment

You need to know the different types of injury, and if they affect the hard tissues (bones) or the soft tissues (everything else). If you're doing a WJEC course, you can jump straight to the revision summary.

### Know What to Do if Someone Gets Injured

Doing any kind of physical activity means you might get injured. But there are some things you can do beforehand in case someone gets hurt:

- 1) Try and have a first aider present — sports competitions and events often hire members of the St John Ambulance in case of any injuries.
- 2) Make sure you have a well stocked first aid kit. Keep it nearby, so you can get it quickly and easily.
- 3) Make sure you have access to a phone — if someone seems seriously injured call 999 for an ambulance.



### Most Sporting Injuries are to Soft Tissue

Your soft tissues are all the bits of you that aren't bone — muscles, skin, ligaments, tendons and stuff... The most common injuries you can get are cuts, bruises and swelling.

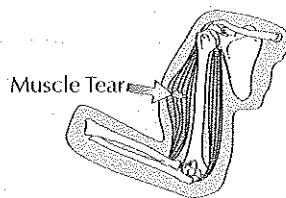
- 1) Cuts, grazes, blisters and chafing can break the skin and cause bleeding. Little ones will heal on their own but large or deep cuts will need medical attention.
- 2) Bruising is where your blood vessels get damaged — you bleed inside.
- 3) Inflammation is where the area around an injury swells up and is usually very sore.

### Inactivity or Overuse can Injure Muscles and Tendons

- 1) If you never use your muscles, they'll eventually waste away, getting smaller and weaker. This is known as muscle atrophy.
- 2) And if you're not using your muscles, you won't be using your tendons either, so they'll get weaker too.
- 3) If your muscles and tendons are in this state, you're far more likely to injure or strain them, e.g. during strenuous activity, or by trying to lift heavy loads.

#### STRAIN

Strained (pulled) muscles and tendons are tears in the tissue — they're caused by sudden overstretching.



*Pulled hamstrings and calf muscles are common injuries in loads of sports like football and cricket.*

- 4) Whenever you exercise, you damage your muscles and tendons a little bit — it's what makes them sore the next day.
- 5) If you do anaerobic exercise, e.g. lifting weights, your muscles build up lactic acid. This eventually causes them to become tired and stop contracting properly. This is when you're most likely to strain and injure them.
- 6) Eventually this lactic acid build-up can cause your muscles to stop working, forcing you to stop exercising and recover. By regularly exercising anaerobically you can increase the amount of lactic acid your muscles can stand before this happens. Your body will also get better at getting rid of the lactic acid, which means you should be able to anaerobically exercise for longer.

## Injuries — Types and Treatment

Here's some more stuff on soft tissues and also how to treat them using RICE... learn it well. (Unless you're doing one of the WJEC courses of course, then you can skip these pages.)

### Joint Injuries can be Caused by Overuse...

Continuous stress on part of the body over a long period of time can cause all sorts of problems:

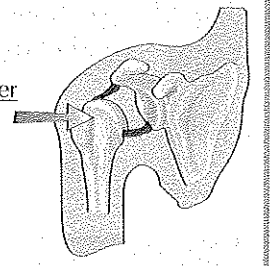
- 1) If you injure or overuse your tendons they can become inflamed and sore — this is called tendonitis. Tennis players can develop tennis elbow — a painful inflammation of tendons in the elbow. Golfers get a similar injury called, wait for it... golfer's elbow.
- 2) Long-distance runners can develop a nasty bone injury in the leg called shin splints.
- 3) You're more at risk of these types of injury if you train too hard or don't rest enough between training sessions.

*You can also develop bone diseases that affect your joints, like osteoarthritis.*

### ... or Sudden Stress

- 1) Sprains are joint injuries where the ligament has been stretched or torn, usually because of violent twisting.
- 2) Joints can get dislocated as well. The bone is pulled out of its normal position — again, it's twisting that usually does it.
- 3) Cartilage can also be damaged. E.g. the cartilage of the knee can be torn by a violent impact or twisting motion.

Dislocated shoulder  
Humerus pulled out of joint.



⚡ This injury is common in sports like football.

### Use the RICE Method to Treat Injuries

- |          |                           |   |
|----------|---------------------------|---|
| <b>R</b> | <b><u>REST</u></b>        | ➡ Stop immediately and <u>rest</u> the injury — if you carry on, you'll make it <u>worse</u> .  |
| <b>I</b> | <b><u>ICE</u></b>         | ➡ Apply <u>ice</u> to the injury. This makes the blood vessels <u>contract</u> to reduce internal bleeding and swelling.                        |
| <b>C</b> | <b><u>COMPRESSION</u></b> | ➡ <u>Bandaging</u> the injury will also help reduce swelling. But <u>don't</u> make it so tight that you stop the blood circulating altogether. |
| <b>E</b> | <b><u>ELEVATION</u></b>   | ➡ Support the limb at a <u>raised</u> level (i.e. above the heart). The flow of blood reduces because it has to work against gravity.           |

- 1) The RICE method is a good treatment for joint and muscle injuries like sprains or strains. It helps reduce pain, swelling and bruising.
- 2) As with everything, a little bit of common sense goes a long way. If the person has hurt their head, neck or spine — trying to elevate the injury is probably not a good idea.

### RICE — Rest, Ice, Compression, Elevation...

Your joints can get injured if you use them too much without giving them time to recover in between. Sudden stresses can sprain ligaments, tear cartilage or even dislocate joints. You can use the RICE method to help reduce the pain and the swelling that goes along with sprains and strains.

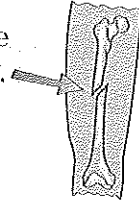
## Injuries — Types and Treatment

You need to know four different types of fracture and how to treat some other common injuries that you might come across when doing physical activity. Remember, if you're doing a WJEC course you don't need to know this stuff.

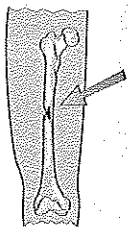
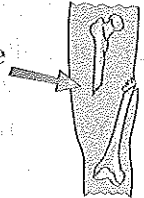
### Bones can Break in Different Ways

- 1) A fracture is a break in a bone. They're usually accompanied by bruising and swelling.
- 2) This is because a fracture also damages the blood vessels in or around the bone.
- 3) They'll also cause a lot of pain because of the damaged nerves inside the bone.
- 4) There are four types of fracture you need to know:

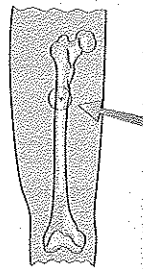
In a simple or closed fracture it all happens under the skin. The skin itself is alright.



In a compound or open fracture the skin is torn and the bone pokes out.



Greenstick fractures happen in young or soft bone that bends and partly breaks.



A 'stress fracture' is a small crack in a bone. It's caused by continuous stress over a long period of time. All other bone fractures are caused by a sudden stress.

### Cramp, Concussion, Stitch — other Common Problems

#### CRAMP

**SYMPTOMS:** Involuntary contraction of a muscle caused by a lack of salt minerals in the blood, or by a lack of blood flowing to a muscle. It's painful, but easy to treat.

**TREATMENT:** Just stretch the muscle and hold it like that; massaging it gently, until the muscle relaxes.

#### WINDING

**SYMPTOMS:** Difficulty in breathing, pain in the abdomen, and you might feel sick. It's caused by a blow to the abdomen.

**TREATMENT:** Stop exercising, lean forward, and rub the affected area.

#### STITCH

**SYMPTOMS:** A sharp pain in your side or abdomen. It's caused by the diaphragm cramping, so it can make breathing difficult.

**TREATMENT:** Stop exercising, take deep breaths, and breathe out slowly.

#### CONCUSSION

**SYMPTOMS:** Unconsciousness, disorientation and memory loss. It's caused by a blow to the head.

**TREATMENT:** If unconscious, place the person in the recovery position (in this position, the head is tilted so that the airway won't be blocked by the tongue or by vomit) and get an ambulance. If they're conscious, keep the casualty under observation for 24 hours.

#### SHOCK

**SYMPTOMS:** Pale, clammy skin. Rapid, weak pulse and breathing. The casualty may feel weak, faint, sick, dizzy or thirsty. It's caused by a drop in blood pressure.

**TREATMENT:** Call an ambulance, try to stop any external bleeding, reassure them and place them in the recovery position.

#### HYPOTHERMIA

**SYMPTOMS:** Body temperature falls below 35 °C. Muscles go rigid, heart beats irregularly, casualty may fall unconscious.

**TREATMENT:** Steadily raise body temperature to 37 °C. Put them into warm, dry clothing or wrap them in a blanket. Give them hot drinks, and maybe a warm bath.

## Warm-Up and Worked Exam Questions

### Warm-Up Questions

- 1) What should you do if someone gets injured in a physical activity?
- 2) Name two types of soft tissue injury.
- 3) What is inflammation?
- 4) Name a joint injury caused by overuse.
- 5) What does RICE stand for?
- 6) What is the difference between an open fracture and a closed fracture?
- 7) What should you do if you get a stitch?

### Worked Exam Questions

Work carefully through the questions below, making sure you understand them. Then move on to the practice questions on the next page. It's not too late to have another flick through the last few pages.

1 Many sports performers suffer from injuries during their careers.

a) Explain the difference between a sprain and a strain.

*A sprain is a joint injury where a ligament is stretched or torn.*

*A strain is a tear in a muscle or tendon.*

(2 marks)

b) Explain how you would treat a strain.

*Rest the injury, apply ice to it, apply compression using a bandage*

*and elevate the injured body part so that it is higher than the heart.*

*Don't just say RICE — say what you would actually do.*

(4 marks)

2 Many professional football players plant their studs in the ground and try to turn as they kick the ball. Name and describe **one** type of injury this movement could cause.

*It could cause a dislocation — where the bone is pulled out*

*of its normal position. It could also cause a sprain or torn cartilage.*

(2 marks)

3 What is tendonitis?

Explain how an athlete could reduce the risk of developing this injury.

*Tendonitis is a condition where tendons become inflamed and sore.*

*It's mainly caused by overuse, so you reduce the risk of developing it*

*by allowing enough time to rest between exercise sessions.*

(3 marks)

# Exam Questions

1 Which of the following **best** describes tennis elbow?

- A A sprain
- B An inflammation
- C A fracture
- D A dislocation

(1 mark)

2 George has fractured his leg.

a) What is a fracture?

.....

(1 mark)

b) Describe the difference between a compound fracture and a greenstick fracture.

.....  
.....  
.....

(4 marks)

3 Rosie is completing her Duke of Edinburgh Award. She camped out with her group overnight in freezing conditions.

a) Name the condition the group are at risk of developing.  
Describe the symptoms of this condition.

.....  
.....  
.....

(3 marks)

b) Explain how Rosie should treat someone in the group who is suffering from this condition.

.....  
.....

(3 marks)

4 Describe the symptoms of concussion and the treatment for it.

.....  
.....  
.....

(5 marks)

# Diet and Nutrition

Micro nutrients are just as important as macro nutrients — you just need smaller amounts of them.

## You need Small Amounts of Vitamins and Minerals

### VITAMINS

- 1) Vitamins help keep your bones, teeth and skin healthy.
- 2) They're also needed for many of the body's chemical reactions.

With a properly balanced diet, you don't need vitamin supplements.

**FAT-SOLUBLE VITAMINS** — can be stored in the body.

E.g. Vitamin A — needed for your growth and vision, and can be found in vegetables, eggs and liver.

Vitamin D — needed for strong bones, so you don't get bone-softening diseases like osteoporosis (see p17). Vitamin D can be made by the skin in sunshine, but it's also found in milk, fish, liver and eggs.

**WATER-SOLUBLE VITAMINS** — can't be stored, so you need to eat them regularly.

E.g. Vitamin C — good for your skin and the stuff that holds your body tissues together. Without it, your body tissues can't form properly and you get a nasty disease called scurvy. Vitamin C is found in fruit and veg — especially citrus fruits like oranges and lemons.



Earl



Mini-earl

### MINERALS

- 1) These are needed for healthy bones and teeth, and to build other tissues.
- 2) Minerals help in various chemical reactions in the body.

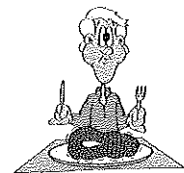
E.g. Calcium is needed for strong bones and teeth, and also for muscle contractions (see p11). There's lots in green vegetables, milk, cheese and some fish.

Iron is handy for making red blood cells (see p8). Without it your blood can't carry much oxygen. There's tons in liver, beans and green vegetables.

## Water and Dietary Fibre are Just as Important

### WATER

- 1) Water's needed in loads of chemical reactions in the body. It's also lost in your breath, sweat, urine and faeces.
- 2) If you don't drink enough to replace what your body uses or loses you'll become dehydrated, and you won't perform as well.
- 3) If you drink more than you need, your kidneys will produce more urine to get rid of the excess.



Not the best way to increase your fibre intake

### DIETARY FIBRE

- 1) You need fibre to keep your digestive system working properly.
- 2) There's lots of fibre in fruit and vegetables — another good reason to eat loads of them.

## Your Diet can help Improve your Performance

- 1) Most athletes plan their diets to help improve their performance — e.g. runners will eat lots of carbohydrates before an event, while weightlifters eat lots of protein to build up their muscles.
- 2) When you eat is also important — you should eat lots of carbohydrates before exercising, but don't eat anything immediately before, during or immediately after exercising (you should drink lots of water though).
- 3) Thanks to blood shunting (see p15) your digestive system has a limited blood supply when you exercise. Any food in your digestive system won't be able to be digested properly, so you're more likely to feel sick.

## A balanced diet — a pie in each hand...

There's lots of fun stuff to learn on this page. Each point's a doddle by itself, so just take it a bit at a time — soon you'll be reeling those facts off faster than a puppy can pull on toilet paper...

## Recreational Drugs

Recreational drugs (i.e. drugs people take for enjoyment) can have a negative effect on your health and can affect your performance in sports. If you're doing the WJEC or AQA courses you can just skip this page.

### Alcohol Damages your Performance

Although alcohol is legal, it's still a drug and can affect your performance badly.



Does that mean  
ee!s time to go?



- 1) It affects your coordination, speech and judgement, so you're more likely to hurt yourself. You're also less likely to be able to do things accurately — like shoot in football or return the ball in tennis.
- 2) It slows your reactions, whether it's to a starter gun in a race or a pass in netball.
- 3) It makes your muscles get tired more quickly, so you can't exercise for as long.
- 4) It increases your blood pressure — the more you drink, the higher it gets.
- 5) Eventually it damages your liver, kidneys, heart, muscles, brain, and the digestive and immune systems.

Small amounts of alcohol don't do too much harm, but drinking before you do sports can be dangerous — you're more likely to have an accident or hurt others. If you want to have a healthy, active lifestyle and do well in sports, it's best to only drink in moderation (or not at all).

### Tobacco is Legal but Harmful

Tobacco is another legal drug, but it's really bad for you.

Every cigarette damages your body and affects your performance in sports.

- 1) Smoking causes nose, throat and chest irritations.
- 2) It makes you short of breath, so you find it harder to exercise.
- 3) Smoking and nicotine cause a temporary rise in blood pressure.
- 4) It damages your respiratory system (see below) and your cardiovascular system (see p12-14). Smoking increases the risk of developing heart disease, cancer, bronchitis, and other diseases.

You know, your smoking  
really irritates me.



For a healthy, active life it's best to avoid smoking altogether.

### Smoking Clogs Up the Alveoli

- 1) Smoking has a really bad effect on your respiratory system.
- 2) Cigarette smoke contains tar, which clogs up the alveoli and makes it harder for gas exchange to take place. Eventually the alveoli will collapse and stop working.
- 3) Even if the tar is removed and the alveoli are repaired, they'll never be as efficient as they were.
- 4) Cigarette smoke also contains the addictive drug and poison nicotine. Nicotine causes the blood vessels in the lungs to tighten, which slows the blood flow in the lungs making the gas exchange in the alveoli less efficient.

### Doesn't sound like fun to me...

Some people use alcohol and tobacco to calm their nerves and improve their performance — some darts players drink alcohol whilst they play to help get them 'in the zone'. But, alcohol affects your judgement, coordination and reactions — so it usually has a negative effect your performance.

# Performance-Enhancing Drugs

Some people cheat by taking drugs. Drugs can sometimes make them perform better, but there are risks... If you're doing an AQA course, you don't need to know these bits.

## Many Drugs can Improve Performance

Some athletes use drugs to improve their performance. The use of these drugs in sport is usually banned, and they usually have nasty side effects. Unfortunately, some athletes still break the rules by taking them anyway — even with the risks. (Breaking the rules like this is sometimes called deviance.) These are the drugs you need to know about:

REMEMBER — BAD SNaP

B — Beta blockers  
A — Anabolic steroids  
D — Diuretics  
S — Stimulants  
Na — Narcotic analgesics  
P — Peptide hormones

### BETA BLOCKERS

- Are drugs that control heart rate.
- They lower the heart rate, steady shaking hands, and have a calming, relaxing effect.

But...

- They can cause low blood pressure, cramp and heart failure.

### STIMULANTS

- Affect the central nervous system (the bits of your brain and spine that control your reactions).
- They can increase mental and physical alertness.

But...

- They can lead to high blood pressure, heart and liver problems, and strokes.
- They're addictive.

### ANABOLIC STEROIDS

- Mimic the male sex hormone testosterone.
- Testosterone increases your bone and muscle growth (so you can get bigger and stronger). It can also make your more aggressive.

But...

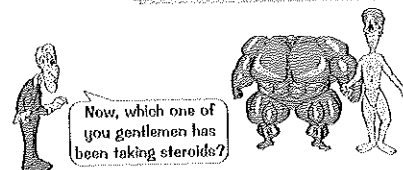
- They cause high blood pressure, heart disease, infertility and cancer.
- Women may grow facial and body hair, and their voice may deepen.

### NARCOTIC ANALGESICS

- Kill pain — so injuries and fatigue don't affect performance so much.

But...

- They're addictive, with unpleasant withdrawal symptoms.
- Feeling less pain can make an athlete train too hard.
- They can lead to constipation and low blood pressure.



### DIURETICS

- Increase the amount you urinate, causing weight loss — important if you're competing in a certain weight division.
- Can mask traces of other drugs in the body.

But...

- They can cause cramp and dehydration.

### PEPTIDE HORMONES

- Cause the production of other hormones — similar to anabolic steroids.
- EPO (Erythropoietin) is a peptide hormone that causes the body to produce more red blood cells.

But...

- They can cause strokes and abnormal growth.

## Blood Doping is Banned

You can improve your performance by increasing the number of red blood cells in your bloodstream to increase the oxygen supply to your muscles.

You can do this by altitude training (see p40) or cheat and get the same effect by blood doping.

Blood doping can be done in different ways.

- 1) Before a competition an athlete can be injected with red blood cells. Possible side effects of injecting red blood cells include allergic reactions, kidney damage and blocked capillaries or, if the blood is from someone else, catching viruses such as HIV.
- 2) Athletes can also take EPO to increase their red blood cell count (see peptide hormones above).

## Anna Bolic — don't mess with her...

Athletes have to give blood and urine samples to be tested for drugs. Testing can happen at any time, and refusing to give a sample can be just as bad as failing a drug test. Punishments for failing a drug test can include lifetime bans from the sport — that's not to mention all the damage the drugs do to their bodies.



# Injuries — Types and Treatment

Now for the gruesome bit — injuries. You need know the different types of injury, and if it affects the hard tissues (bones) or the soft tissues (everything else). If you're doing the WJEC courses you can jump straight to the revision summary. For everyone else it's first aid, and then onto the squishy bits...

## Know What to Do if Someone Gets Injured

Doing any kind of physical activity means you might get injured.

But there are some things you can do beforehand in case someone gets hurt:

- 1) Try and have a first aider present — sports competitions and events often hire members of the St John Ambulance in case of any injuries.
- 2) Make sure you have a well stocked first aid kit — and keep it near by you can get it quickly and easily.
- 3) Make sure you have access to a phone — if someone is seems seriously injured call 999 for an ambulance.

## Most Sporting Injuries are to Soft Tissue

Your soft tissues are all the bits of you that aren't bone — muscles, skin, ligaments, tendons and stuff...

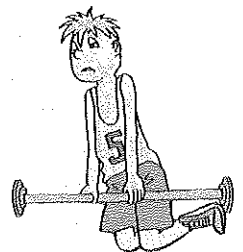
The most common injuries you can get are cuts, bruises and swelling.

- 1) Cuts, grazes, blisters and chafing can break the skin and cause bleeding. Little ones will heal on their own but large or deep cuts will need medical attention.
- 2) Bruising is where your blood vessels get damaged — you bleed inside.
- 3) Inflammation is where the area around an injury swells up and is usually very sore.



## Inactivity or Overuse can Injure Muscles and Tendons

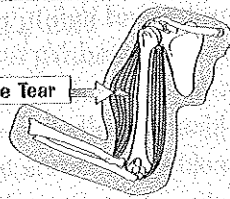
- 1) If you never use your muscles, they'll eventually waste away, getting smaller and weaker. This is known as muscle atrophy.
- 2) And if you're not using your muscles, you won't be using your tendons either, so they'll get weaker too.
- 3) If your muscles and tendons are in this state, you're far more likely to injure or strain them, e.g. during strenuous activity, or by trying to lift heavy loads.



### STRAIN

Strained (pulled) muscles and tendons are tears in the tissue — they're caused by sudden overstretching.

Muscle Tear



Pulled hamstrings and calf muscles are common injuries in loads of sports like football and cricket.

- 4) Whenever you exercise, you damage your muscles and tendons a little bit — it's what makes them sore the next day.
- 5) If you do anaerobic exercise, e.g. lifting weights, your muscles build up lactic acid. This eventually causes them to become tired and stop contracting properly. This is when you're most likely to strain and injure them.
- 6) Eventually this lactic acid build-up can cause your muscles to stop working, forcing you to stop exercising and recover. By regularly exercising anaerobically you can increase the amount of lactic acid your muscles can stand before this happens. Your body will also get better at getting rid of the lactic acid, which means you should be able to anaerobically exercise for longer.

## Hard tissue! — Bless you — A soft tissue, please...

So the important things to remember from this page are the effects of overuse and inactivity on your muscles and tendons. Oh, and make sure you know the different types of soft tissue injury you might get, too.

# Injuries — Types and Treatment

Here's some more stuff on soft tissues and how to treat them using RICE (no, not the food)... learn it well. (Unless you're doing one of the WJEC courses of course... no tennis elbow fun for you I'm afraid.)

## Joint Injuries can be Caused by Overuse...

Continuous stress on part of the body over a long period of time can cause all sorts of problems:



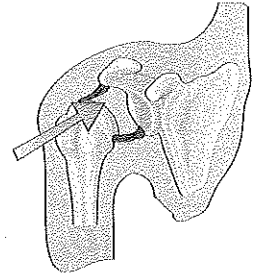
- 1) If you injure or overuse your tendons they can become inflamed and sore — this is called tendonitis. Tennis players can develop tennis elbow — a painful inflammation of tendons in the elbow. Golfers get a similar injury called, wait for it... golfer's elbow.
- 2) Long-distance runners can develop a nasty bone injury in the leg called shin splints.
- 3) You're more at risk of these types of injury if you train too hard or don't rest enough between training sessions.

You can also develop bone diseases that affect your joints, e.g. osteoarthritis (see p 17).

## ... or Sudden Stress

- 1) Sprains are joint injuries where the ligament has been stretched or torn, usually because of violent twisting.
- 2) Joints can get dislocated as well. The bone is pulled out of its normal position — again, it's twisting that usually does it.
- 3) Cartilage can also be damaged. E.g. the cartilage of the knee can be torn by a violent impact or twisting motion.

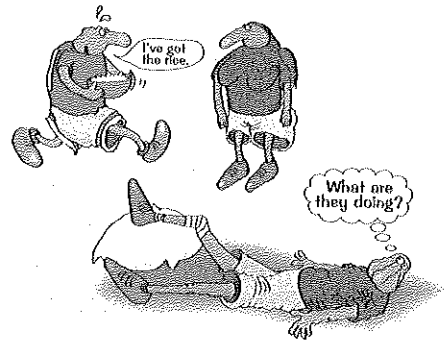
Dislocated shoulder  
Humerus pulled out of joint.



This injury is common in sports like football.

## Use the RICE Method to Treat Injuries

- |          |                    |   |   |
|----------|--------------------|---|---|
| <b>R</b> | <u>REST</u>        | ➔ | Stop immediately and <u>rest</u> the injury — if you carry on, you'll make it <u>worse</u> .  |
| <b>I</b> | <u>ICE</u>         | ➔ | Apply <u>ice</u> to the injury. This makes the blood vessels <u>contract</u> to reduce internal bleeding and swelling.                        |
| <b>C</b> | <u>COMPRESSION</u> | ➔ | <u>Bandaging</u> the injury will also help reduce swelling. But <u>don't</u> make it so tight that you stop the blood circulating altogether. |
| <b>E</b> | <u>ELEVATION</u>   | ➔ | Support the limb at a <u>raised</u> level (i.e. above the heart). The flow of blood reduces because it has to work against gravity.           |



- 1) The RICE method is a good treatment for joint and muscle injuries like sprains or strains. It helps reduce pain, swelling and bruising.
- 2) As with everything, a little bit of common sense goes a long way. If the person has hurt their head, neck or spine — trying to elevate the injury is probably not a good idea.

## If the RICE treatment doesn't work, try noodles...

You can get lots of different types of rice — brown, white, long, short, sticky, egg fried, boiled, steamed, in a bag or as a pudding. But all of this is completely irrelevant, because what you need to know is that RICE stands for rest, ice, compression and elevation. And what the different joint injuries are too.

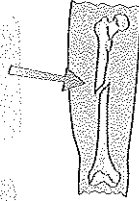
# Injuries — Types and Treatment

You need to know four different types of fracture and how to treat some other common injuries that you might get when doing physical activity. Remember if you're doing a WJEC course you don't need to know this stuff.

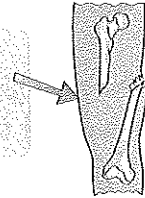
## Bones can Break in Different Ways

- 1) A fracture is a break in a bone. They're usually accompanied by bruising and swelling.
- 2) This is because a fracture also damages the blood vessels in or around the bone.
- 3) They'll also cause a lot of pain because of the damaged nerves inside the bone.
- 4) There are four types of fracture you need to know:

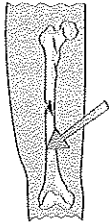
In a simple or closed fracture it all happens under the skin. The skin itself is alright.



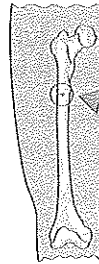
In a compound or open fracture the skin is torn and the bone pokes out. Urrghh.



Greenstick fractures happen in young or soft bone that bends and partly breaks.



A 'stress fracture' is a small crack in a bone. It's caused by continuous stress over a long period of time. All other bone fractures are caused by a sudden stress.

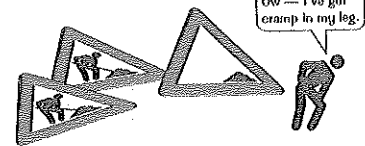


## Cramp, Concussion, Stitch — other Common Problems

### CRAMP

**SYMPTOMS:** Involuntary contraction of a muscle caused by a lack of salt minerals in the blood, or by a lack of blood flowing to a muscle. It's painful, but easy to treat.

**TREATMENT:** Just stretch the muscle and hold it like that, massaging it gently, until the muscle relaxes.



### WINDING

**SYMPTOMS:** Difficulty in breathing, pain in the abdomen, and you might feel sick. It's caused by a blow to the abdomen.

**TREATMENT:** Stop exercising, lean forward, and rub the affected area.

### STITCH

**SYMPTOMS:** A sharp pain in your side or abdomen. It's caused by the diaphragm cramping, so it can make breathing difficult.

**TREATMENT:** Stop exercising, take deep breaths, and breathe out slowly.

### CONCUSSION

**SYMPTOMS:** Unconsciousness, disorientation and memory loss. It's caused by a blow to the head.

**TREATMENT:** If unconscious, place the person in the recovery position (in this position, the head is tilted so that the airway won't be blocked by the tongue or by vomit) and get an ambulance. If they're conscious, keep the casualty under observation for 24 hours.

### SHOCK

**SYMPTOMS:** Pale, clammy skin. Rapid, weak pulse and breathing. The casualty may feel weak, faint, sick, dizzy or thirsty. It's caused by a drop in blood pressure.

**TREATMENT:** Call an ambulance, try to stop any external bleeding, reassure them and place them in the recovery position.

### HYPOTHERMIA

**SYMPTOMS:** Body temperature falls below 35 °C. Muscles go rigid, heart beats irregularly, casualty may fall unconscious.

**TREATMENT:** Steadily raise body temperature to 37 °C. Put them into warm, dry clothing or wrap them in a blanket. Give them hot drinks, and maybe a warm bath.

## I don't ever remember having concussion before...

Well, it goes without saying that you need to learn everything on this page. Check you know the four types of fracture and for each condition or injury, practise scribbling down both the symptoms and the treatments.

## TEMA 4. MEJORA TU RESISTENCIA, MEJORA TU SALUD

NOMBRE Y APELLIDOS:

CURSO:

Periodo conseguido en el "test INICIAL de Course Navette":

Periodo conseguido en el "test FINAL de Course Navette":

### PLAN DE TRABAJO PARA LA MEJORA DE RESISTENCIA AERÓBICA

En función de los resultados del test de resistencia realizado, comenzarás tu plan de trabajo para la mejora de tu Resistencia Aeróbica por uno u otro nivel, según la siguiente tabla:

Períodos conseguidos	Nivel de inicio
Menos de 2	3
2 y 2,5	4
3 y 3,5	5
4 y 4,5	6
5 y 5,5	7
6 y 6,5	8
7 ó más de 7	9

Por ejemplo, si en este test aguantaste hasta el palier o período 2,5 tu nivel de inicio para plan de mejora de tu resistencia será de 4. Una vez conocido tu nivel inicial, podrás observar en la siguiente tabla cual será tu entrenamiento para la 1ª semana.

## INFORMACIÓN EXTRA SOBRE LA FICHA DE RESISTENCIA

Siguiendo con el mismo ejemplo, si conseguiste llegar hasta el período 2,5 en el test, siendo tu nivel inicial para la mejora de la resistencia 4, tu entrenamiento para la 1ª semana estará en la columna que indica el 4, y sería: 3 minutos corriendo + 2 minutos andando + 3 corriendo + 2 andando + 3 corriendo + 2 andando + 3 corriendo + 2 andando (tiempo total de entrenamiento: 20 minutos).

Permaneceremos en este nivel de trabajo durante una semana. A la siguiente semana, pasaremos al siguiente nivel. La duración del plan de trabajo será de 4 semanas y la frecuencia será de 3 veces a la semana. Algunas sesiones se llevarán a cabo en clase y otras en el horario extraescolar (2 sesiones a la semana en clase y la tercera en casa).

Al final del período de trabajo, se volverá a repetir el test de resistencia para contrastar las mejoras.

Frecuencia cardiaca (FC) de trabajo: 140-160 pulsaciones por minuto (ppm), ya que pretendemos trabajar en la zona 3 de desarrollo (trabajo aeróbico 2). Nos tomaremos la FC **justo cuando empezamos a andar**. Si estamos dentro del anterior rango de FC, el ritmo de carrera será adecuado. Si no es así, deberemos aumentar o disminuir el ritmo en la siguiente serie o período de trabajo.

Para realizar este trabajo es fundamental que lleves un reloj con cronómetro, un boli y una hoja para apuntar las pulsaciones por minuto del corazón en cada período y tu entrenamiento de la sesión (ver anexo).

### RECOMENDACIONES:

- Encuentra a los compañeros/as que tengan un mismo nivel de Resistencia aeróbica y corre con ellos, podrás hablar con moderación y será más entretenido. Por otro lado, puedes traerte tu reproductor de música.
- No olvides tu botella de agua para hidratarte antes, durante y después de la sesión (pequeños sorbos).
- Evita los desayunos copiosos antes de practicar Actividad Física.
- ¿Te acuerdas de lo importante que era la vestimenta en el deporte? Comprueba si tus zapatillas y tu ropa son apropiados para la actividad y el clima. Átate bien los cordones para evitar caídas y lesiones.
- Recuerda: si olvidas controlar tu respiración, puedes sufrir flato.

**CONTROL DE LA FRECUENCIA CARDÍACA DURANTE EL PLAN DE TRABAJO:**

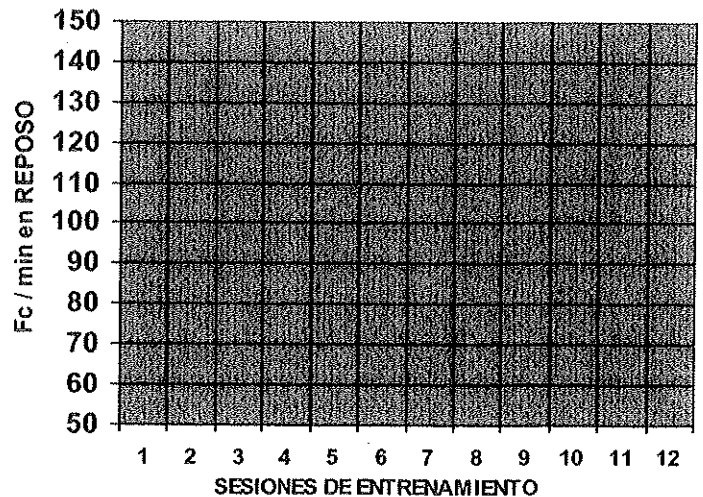
FECHA	Nivel	Entrenamiento (minutos corriendo y minutos andando)	Tiempo total	PUL. REPOSO	P1 <sup>1</sup>	P2 <sup>2</sup>	P3 <sup>3</sup>	P4 <sup>4</sup>
0 01/01/2012	4	<u>3C+2A+3C+2A+3C+2A+3C+2A+3C</u> +2A	25	60	150	160	170	140
1 _/_								
2 _/_								
3 LIBRE _/_								
4 _/_								
5 _/_								
6 LIBRE _/_								
7 _/_								
8 _/_								
9 LIBRE _/_								

Indica con una cruz. En la sesión fin de semana (trabajo de tu resistencia en casa), ¿qué tipo de trabajo has hecho?

- Igual que en clase, carrera continúa.
- Otro tipo de actividad, ¿cual?: .....

¿Has registrado en alguna aplicación en el móvil, ej, endomondo o sports tracker, las sesiones libres.? Si lo has hecho puedes enviar el enlace a la cuenta de correo que se te facilitará

**GRAFICA DE LAS PULSACIONES EN REPOSO A LO LARGO DEL PLAN DE TRABAJO PARA EL DESARROLLO DE LA RESISTENCIA AERÓBICA.**



<sup>1</sup> N° pulsaciones la primera vez que vamos andando  
<sup>2</sup> N° pulsaciones la segunda vez que vamos andando  
<sup>3</sup> N° pulsaciones la tercera vez que vamos andando  
<sup>4</sup> N° pulsaciones la cuarta vez que vamos andando

PLANES DE TRABAJO PARA LA MEJORA DE LA RESISTENCIA AERÓBICA  
NIVEL DE TRABAJO

	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17	FINAL											
18												
19												
20												
21		FINAL	FINAL									
22												
23												
24												
25												
26				FINAL	FINAL							
27												
28						FINAL						
29												
30							FINAL					
31												
32								FINAL				
33												
34												
35									FINAL			
36												
37												
38										FINAL	FINAL	
39												
40												

Correr   
Andar 