

# A RUNNERS GUIDE

## TO INJURY PREVENTION & TREATMENT TECHNIQUES

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# HOT TOPICS

- WHY RUNNERS GET INJURED
- IRON DEFICIENCY
- INJURIES COMMON TO BOTH SPECIES
- STAYING OUT OF THE DOCTORS OFFICE
- NUTRITION & SUPPLEMENTATION
- QUESTIONS    QUESTIONS    QUESTIONS

# THE BAD NEWS

INJURIES ARE PART OF THE SPORT AND  
ALMOST EVERY RUNNER SUFFERS AND  
INJURY AT ONE TIME OR ANOTHER

# THE GOOD NEWS

MOST RUNNING INJURIES CAN BE  
PREDICTED & PREVENTED WITH  
UNDERSTANDING AND IMMEDIATE  
TREATMENT

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# WHY RUNNERS GET INJURED

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# OVERUSE

## “THE TERRIBLE TOO’S”

- TOO MUCH
- TOO SOON
- TOO FAST
- TOO HARD
- TOO OFTEN
- **TOO LITTLE REST**

- PROGRESS MILEAGE & SPEED **GRADUALLY**
- INCREASE MILEAGE **10%** PER WEEK
- INTERSPERSE **HARD** DAYS WITH **EASY** DAYS,  
**HARD** WEEKS WITH **EASY** WEEKS
- DROP BACK A SMALL AMOUNT EVERY **3<sup>RD</sup>** WEEK
- **REST** ONE TO TWO DAYS PER WEEK

# INCONSISTENT TRAINING

- MISSING SEVERAL WORKOUTS IN A ROW AND THEN ADDING ADDITIONAL MILEAGE TO CATCH UP
- IGNORING THE SPORT (ONLY SWIMMING TO TRAIN FOR A RUNNING EVENT)
- NOT CROSS TRAINING (MUSCLE IMBALANCES)

# SURFACES

- **UNEVEN SURFACES** (SIDEWALKS)
- **SLANTED ROADS** (PRONATION & SUPINATION)
- **HARD SURFACES** (CONCRETE & ASPHALT)
- **CURVED SURFACES** (SAME DIRECTION ON TRACKS)

# SHOES

- **IMPROPER SHOE TYPE** (MOTION CONTROLLED WHEN YOU NEED CUSHIONING)
- **NOT CHANGING YOUR SHOE TYPE WITH ORTHOTICS**
- **RUNNING IN SHOES MADE FOR A DIFFERENT SPORT**
- **EXCESSIVE MILEAGE** (400 – 600 MAX)
- **GETTING THE RIGHT PRESCRIPTION!**
- **STREET SHOES** (BUNIONS, CORNS & INGROWN TOENAILS)

# IMPROPER NUTRITION & SUPPLEMENTATION

- POOR FOOD CHOICES (CHO, PROTEIN & FAT RATIO)
- DIETING & FAD DIETS
- LOW CALORIC INTAKE (ENERGY FOR YOUR MUSCLES)
- NOT SUPPLEMENTING (IRON & CALCIUM DEFICIENCY)

# POOR HYDRATION

- WATER WATER WATER & MORE WATER
- 1 QUART FOR EVERY 50 LBS OF BODY WEIGHT
- 100 POUNDS = 2 QUARTS OR 2L/DAY
- 150 POUNDS = 3 QUARTS OR 3 L/DAY
- 1 QUART= 32 OUNCES= (4) 8 OZ. GLASSES
- “8 GLASSES”/DAY IS REALLY NOT ENOUGH UNLESS YOU ONLY WEIGH 100 POUNDS

# WATER COMPLAINTS

- BUT I'LL BE IN THE BATHROOM ALL DAY
- BUT I DON'T LIKE THE TASTE OF WATER
- BUT I DRINK A LOT OF COFFEE AND COKE.  
DON'T THOSE COUNT?

**“AS A RUNNER YOU SHOULD SPEND  
TIME BUILDING YOUR BLADDER  
CAPACITY”**

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# DEHYDRATION

- NOT ENOUGH WATER
- YELLOW URINE

HEADACHES

KIDNEY STONES

FATIGUE

MUSCLE CRAMPS

COLDS/ALLERGIES/SINUS TROUBLE

IMPROPER FUNCTIONING INTERNAL ORGANS

RENAL FAILURE/LIFE THREATENING

# IRON DEFICIENCY

- 30 – 40% OF US FEMALES ARE IRON DEFICIENT
- UP TO 19% ARE SWIMMERS AND RUNNERS
- UP TO 10% OF MALE ATHLETES ARE IRON DEF
- IRON DEFICIENCY AFFECTS PERFORMANCE
- IRON DEFICIENCY IF NOT CORRECTED WILL LEAD TO ANEMIA (LOW HAEMOGLOBIN LEVELS)

- **LOST WITH:** DEFICIENCY IN DIET, MENSTRUATION, BLEEDING IN THE DIGESTIVE SYSTEM, POOR ABSORPTION & SWEAT AND URINE
- AVERAGE **FEMALE** DIET = 2000 CAL
- AVERAGE **MALE** DIET = 3000 CAL
- LIMITED BECAUSE OF SLIMMING PHYSIQUE
- AVE AMERICAN DIET CONTAINS ONLY **5MG** OF IRON PER **1000 CALORIES**
- RDA IS **15 MG PER DAY** = NEED 3000 CAL DIET

## VEGETARIAN DIETS

- LIMIT IRON THROUGH INTAKE
- MAKE IRON ABSORPTION DIFFICULT

## MENSTRUATION

- BIGGEST LOSS OF IRON OCCURS WITH MENSTRUAL FLOW
- $\frac{1}{2}$  MILLIGRAM LOST EACH DAY OF CYCLE
- > WITH HEAVY FLOW

## AMMENORHEA (ABSENCE OF MENSTRUATION)

- VERY COMMON IN FEMALE ATHLETES
- GREATER RISK FOR IRON DEFICIENCY
- DECREASED CALORIC INTAKE

## BOWEL MOVEMENTS

- SIGNIFICANT AMOUNT OF IRON LOST IN FAECES
- 85% OF RUNNERS TEST (+) FOR BLOOD IN STOOL FOLLOWING A STRENUOUS RUN
- WOMEN RUNNING > 5 MILES PER DAY HAVE TWICE AS MUCH BLOOD IN THEIR FAECES THAN SEDENTARY WOMEN
- USE OF ASPIRIN AND NSAIDS INCREASES LOSS

# EFFECT ON PERFORMANCE

## ANEMIA REDUCES O<sub>2</sub> CARRYING CAPACITY OF BLOOD

- DECREASED MAX AEROBIC CAPACITY (VO<sub>2</sub> MAX)
- LOWER ENDURANCE
- INCREASED FATIGUE

# PSEUDOANEMIA

- **LOW** HAEMOGLOBIN LEVELS BUT **NORMAL** IRON LEVELS
- SEEN IN RUNNERS
- TRAINING **INCREASES** BLOOD VOLUME 5-20%
- LOWERING HEAMOGLOBIN LEVELS
- DOCTORS FOOLED INTO THINKING ANEMIA IS PRESENT

# DOES NOT RESPOND TO IRON SUPPLEMENTATION

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# WHAT SHOULD I DO?

- IF FATIGUE HITS
- IF DIFFICULTY IN TRAINING
- NOT REACHING TRAINING GOALS
- IRON AND HAEMOGLOBIN LEVELS TESTED
- IMPROVE DIET WITH IRON FOOD CHOICES (LEAN MEAT, FISH, POULTRY, GRAINS, DRIED FRUITS, SPINACH, BEANS & TOFU)
- IRON SUPPLEMENTATION (FERROUS SULPHATE) + VIT C (TO ENHANCE ABSORPTION, 500-2000 MG PER DAY)
- TAKE ON AN EMPTY STOMACH

# RESTRICTING CALORIES

WANTING TO BE LEAN!!!

## TOO LITTLE PROTEIN

- LEADS TO IRON DEFICIENCY
- LEADS TO POOR MUSCLE TONE
- LEADS TO DECREASED MUSCLE STRENGTH
- LEADS TO DECREASED MUSCULAR ENDURANCE

## TOO LITTLE CALCIUM

- LEADS TO DECREASED BONE STRENGTH
- LEADS TO STRESS FRACTURES

# COMMON RUNNING INJURIES

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# RUNNER'S KNEE

- AKA “CHONDROMALACIA PATELLA”
- SOFTENING, WEARING AWAY OR CRACKING OF THE CARTILAGE UNDER THE KNEE CAP
- PATELLA DOESN'T RIDE SMOOTHLY OVER THE KNEE
- PAIN AROUND OR UNDER THE KNEECAP
- PAIN INCREASES WHEN SITTING WITH KNEES BENT FOR A LONG TIME
- PAIN CLIMBING STAIRS OR RUNNING UP HILL

# WHAT SHOULD I DO?

- ICE AFTER USE
- VMO EXERCISES (SQUATS WITH BALL BETWEEN KNEES)
- ORTHOTICS??? (TOO MUCH PRONATION)
- STRENGTHEN LATERAL HIP MUSCLES
- FOAM ROLL ITB
- STRETCH ITB
- RUNNING SHOES WITH MOTION CONTROL
- AVOID UNEVEN SURFACES, DOWNHILL AND TIGHT TURNS

# PLANTAR FASCIITIS

- HEEL & ARCH PAIN
- MOSTLY ALONG THE INSIDE ARCH
- PAIN WITH ACTIVITY
- “MORNING PAIN”
- TIGHT ACHILLES TENDON & GASTROC SOLEUS GROUP
- OVERPRONATORS
- HIGH ARCHES
- RIGID FEET
- INFLEXIBLE SHOES

# HELP ME #!#!

- **STRETCH THE CALVES** (ROCKER BOARD STRETCHES WORK BEST)
- **PROPER SHOE FIT** (NOT TOO RIGID)
- **GAIT EVALUATION** (WALKING & RUNNING)
- **STRENGTHEN TIBIALIS ANTERIOR** (TOE TAPS & THERABANDS)
- **ORTHOTICS**
- **ICE ROLLING**
- **AVOID TOO HARD & TOO SOFT SURFACES**  
**BAREFOOT**

# ACHILLES TENDINITIS

- PAINFUL INFLAMMATION OF THE ACHILLES TENDON
- OVERUSE SYNDROME
- ACHILLES TENDON HELPS US RISE UP ON OUR TOES AND FACILITATES THE ACT OF WALKING AND RUNNING
- **CAUSES:** OVERPRONATION, TIGHT CALF MUSCLES, SHOES THAT FIT TOO HIGH AGAINST YOUR HEEL, POOR GAIT BIOMECHANICS & RIGID FEET

# FIX ME !!!!!

- CUT BACK ON RUNNING
- REST REST REST REST REST
- ICE
- ANTI-INFLAMMATORIES (BROMELAIN, NSAIDS)
- HEEL LIFTS IN STREET SHOES
- PROPER SHOE FIT (TOO RIGID FOR A RIGID FOOT???)
- STRETCHING ONCE YOU RECOVER
- PLEASE REFRAIN FROM THE TOE RAISES!!??
- LAST BUT NOT LEAST = SURGERY

# ITB SYNDROME

- INFLAMMATION AND PAIN ON THE OUTER THIGH (KNEE TO HIP)
- ITB STABILIZES THE MUSCLES OF THE THIGH AND KNEE WHEN YOU RUN
- **CAUSES:** BOWLEGS, OVERPRONATION, WORN-OUT RUNNING SHOES, RUNNING ON UNEVEN SURFACES & EXCESSIVE DOWNHILL RUNNING

# WHAT CAN I DO?

- CUT BACK ON MILEAGE
- AVOID DOWNHILL
- CHANGE SHOES IN A TIMELY MANNER (400-600 MILES)
- INCREASE BAND FLEXIBILITY (STRETCH & FOAM ROLL)
- STRENGTHEN INNER THIGH MUSCLES (WALL SQUATS & CABLES)
- ICE
- ANTI-INFLAMMATORIES

# SHIN SPLINTS

- TINY TEARS IN THE MUSCLES THAT ATTACH TO THE SHIN BONE (TIBIA)
- MOST COMMON IN BEGINNER RUNNERS (BENT FORWARD TRYING TO WIN)
- CAUSES: TIRED OR INFLEXIBLE CALF MUSCLES, WEAK SHIN MUSCLES, OVERSTRIDING, OVERPRONATION, RUNNING ON HARD SURFACES (SIDEWALKS)

# HELP I REALLY NEED SOMEBODY!!!

- REST REST REST
- ICE
- CUT BACK ON MILEAGE/SLOW RETURN
- ANTI-INFLAMMATORY MEDS
- STRENGTHEN CALF & SHIN MUSCLES
- CHANGE TO SOFT RUNNING SURFACES
- ORTHOTICS IF THE PAIN DOES NOT SUBSIDE
- BONE SCAN ?!#!?

# STRESS FRACTURES

- SMALL OR INCOMPLETE BREAKS IN A BONE
- SHIN & FOOT COMMON
- CAUSED BY CONTINUOUS STRESS ON A BONE THAT BECOMES OVERWORKED
- **RUNNING ERRORS** = BUILDING MILEAGE TO QUICKLY, LACK OF CUSHIONING IN THE SHOE, HARD SURFACE RUNNING & POOR BIOMECHANICS (BOUNCING/HIGH IMPACT)

# FIX ME DOC!

- STOP RUNNING
- UPON RETURN CORRECT THE PROBLEM
- CALCIUM INTAKE MUST BE INCREASED (DIET &/OR SUPPLEMENTS)

# INJURY PREVENTION

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# IN GENERAL

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## PROPER REST

## RUNNING DIARY

- TO HELP AVOID OVER TRAINING

## HYDRATION

- 1 QUART OR LITER FOR EVERY 50 LBS OF BODY WT

## SHOES

- REPLACE EVERY 400-600 MILES (SHOES HAVE SHELF LIVES)
- PROPER SHOE FOR YOUR FOOT TYPE (CONTROL & CUSHIONING)
- ALTERNATE SHOES (PURCHASE TWO PAIRS)

## TRAINING SCHEDULES

- DON'T DEVIATE (AVOID JUNK MILES)
- DON'T OVER DO IT
- IF YOU MISS TIME, EASE BACK INTO YOUR PROGRAM
- HAL HIGDON'S "HOW TO TRAIN"

## RUNNING SURFACES

- RUN ON SOFTER SURFACES
- AVOID TIGHT TURNS

## PAY ATTENTION TO INJURY WARNING SIGNS

- PAIN
- FAVORING THE INJURED AREA
- CHANGING YOUR NATURAL RUNNING STYLE

## START TREATMENT AT FIRST SIGN

- REST
- STRETCH
- STRENGTHEN THE OPPOSITE
- ICE
- ANTI-INFLAMMATORIES

## CROSS TRAIN

- DEVELOPS PARTS OF BODY THAT RUNNING NEGLECTS
- FIGHTS MUSCLE IMBALANCE INJURIES
- BURNS ADDITIONAL CALORIES
- INCREASES AEROBIC CAPACITY
- I LOVE YOGA

## RECOVERY TECHNIQUES

- MASSAGE
- WARM WHIRLPOOL
- LONG WALKS
- EASY BIKE RIDES

# NUTRITION

- FEMALES AT LEAST 2000 CAL PER DAY
- MALES AT LEAST 3000 CAL PER DAY
- CHO 50-60%, PROTEIN 20%, FATS (GOOD ONES) 10-20%
- AVOID THE FAD DIETS
- FOOD VARIATION IS KEY

# SUPPLEMENTATION

- **MULTIPLE VITAMIN** (GENDER SPECIFIC)
- **IRON** (20-40 mg/day)
- **VITAMIN C** (IMMUNE SUPPORT, SOFT TISSUE SUPPORT)
- **CALCIUM** (STRONG BONES)
- **MAGNESIUM** (MUSCLE RELAXANT)
- **GLUCOSAMINE SULFATE** (JOINT SUPPORT, MUSCLE RECOVERY)
- **ANTIOXIDANTS** (SELENIUM, GREEN/ORANGE FRUITS & VEGGIES, PREVENT CANCER, HEART ATTACK & STROKE, BUILD THE IMMUNE SYSTEM, RELIEVE SYMPTOMS OF ARTHRITIS, 400 ug/day)

# QUESTIONS ???

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