

# Common Contributors to Pain in Outpatient Medicine

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# Somatic Dysfunction

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- “The impaired or altered function of related components of the somatic system including the skeletal, arthroidal, and myofascial structures and their related vascular, lymphatic, and neural structures.”

# Abnormal Lab Values

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- Anemia
- Iron Deficiency
- B12 Deficiency
- Hypothyroidism
- Autoimmune Illness
- Electrolyte Imbalance
- Vitamin D Deficiency

# Anemia

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- Fatigue
- Elevated heart rate
- Muscle weakness and /or pain
- Hemoglobin <13 male/<12 female

# Iron Deficiency

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- Serum iron
- Total Iron Binding Capacity
- Ferritin (<50)
- C-Reactive Protein

# Iron Deficiency Symptoms

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- Fatigue
- Muscle Aches
- Anxiety
- Elevated Heart Rate
- Head aches
- Periodic Nocturnal Limb Movement
- Hair Loss

# B12 Deficiency

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- <211 pg/ml
- Labcorp ranges 211-946 pg/ml
- May still be present without macrocytic anemia

# B12 Deficiency Symptoms

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- Muscle weakness
- Fatigue
- Paresthesia
- (Most commonly described by patients as pins and needles sensation in fingers and toes)



# Hypothyroidism

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- Elevated TSH ( $>5, >4, >3,$ ) ??
- Decreased T4
- Decreased T3
- (Consider totals)
- Positive for Thyroid antibodies

# Hypothyroidism Symptoms

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- Fatigue
- Muscle Weakness
- Dry Skin
- Depression
- Irritable digestion
- Weight Gain

# Autoimmune Illness

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- Rheumatoid Arthritis
- Lupus
- Mixed Connective Tissue Disorder
- Helpful Labs...
- ---ANA Panel (Anti-Smith, etc.)
- ---RA Panel (RA, CCP Antibodies)

# Electrolyte Abnormalities

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- Sodium
- Potassium
- Calcium
- Magnesium
- -Water-

# Vitamin D Deficiency

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- Lab Value  $<30$
- Range 30-100(110,120,130)???

# Vitamin D Deficiency Symptoms

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- Muscle aches
- Bone pain
- Depressed Mood
- Frequent Infections
- Fatigue

# Sleep Disturbance

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- Poor Sleep Hygiene
- Obstructive Sleep Apnea
  - ---positional?
- Central Sleep Apnea
  - ---Mild, moderate, severe?
- Hypoxemia (<88%)

# Sleep Disturbance Symptoms

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- Fatigue
- Muscle Aches
- Headache (usually in morning)
- Restless Legs
- Paresthesia (usually finger and toes)



# Deconditioning

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- Sedentary Lifestyle
- Chronic Illness
- Age Related Decline
- Osteopenia
- Sarcopenia
- Osteoporosis

# Treatment Considerations

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- Conservative treatments over time can yield impressive results in a motivated, compliant population.
- These approaches tend to carry a much lower side-effect profile.
- A final thing to note is less cost to the patient.

# Somatic Dysfunction Tx.

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- Osteopathic Manipulative Treatment
- ----Gross articular exam for discrepancies
- Leg length
- Scapular spine
- Clavical
- Flexion tests

# Anemia Tx.

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- Complete Blood Cell Count
- Tight control of patient expected norms
- Explore underlying causes
- Monitor improvements (RDW as example)

# Iron Deficiency Tx.

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- Ferrous sulfate 325 mg tid.?
- Hemaplex 1 tablet per day (OTC)
- Floradix liquid (OTC) 15ml daily
- Iron dextran IM monthly?

# B12 Deficiency Tx.

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- Oral B12 or B complex
- B12 Sublingual
- B12 injection

# Hypothyroidism

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- Synthroid (T4) 100 mcg
- Cytomel (T3) 5 mcg
- Armour (T3/T4) 45 mg bid

# Electrolyte Tx.

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- Complete Metabolic Panel
- Increase/Decrease salt intake
- OTC Potassium 99 mg ( mEqu. RX)
- Calcium (OTC gluconate) Vit. D?
- Magnesium (OTC) 250 mg-500 mg (Epsom salt)
- Water 1-2 liters per day (filtered, distilled?)



# Vitamin D Deficiency Tx.

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- RX—50,000 units/week?
- Sun exposure?
- Tanning Bed?
- Pure Essence Labs (OTC)
- --10,000 IU per day

# Sleep Disturbance Tx.

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- Diagnostic tests
  - ---In-patient sleep study
  - ---Out-patient sleep study
  - ---Overnight pulseoximetry

# Sleep Disturbance Tx

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- Interventions
  - ---Breathe right strips
  - ---Inhaled Antihistamine
  - ---C-PAP/Bi-PAP
  - ---Nocturnal Oxygen
  - ---Dental Appliance
  - ---Combination of above

# Deconditioning Tx.

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- Walking 20-30 minutes 5-7 days per week
- Stretching
- Resistance training
- Consultations
- ---Physical Therapy
- ---Strength and Conditioning Coach

# Resources

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- Foundations of Osteopathy
- Blood Rev. 2009 May;23(3) 95-104  
Ferritin for the Clinician
- HemOnc Today, April 1, 2003  
Green,R.MD,PhD,FRCPath.Vitamin B12: Finding and Treating Deficiency
- Vitamindcouncil.org.Why Does the Vitamin D Council Recommend 5000 IU/day?Dec.10.'13.
- Mercola.com/articles. Effective Treatment Protocols for Hypothyroidism.June 15, 2004.
- Stretching:30<sup>th</sup> Anniversary Edition.2010.Anderson,Robert.