The 05/26/2020 decision denied service connection on both a direct and secondary basis for metatarsalgia: this decision is in error. On a direct basis, the VA examiner determined that my foot pain in service was only due to flatfeet; however, on a February 2015 statement I specifically cited pain at the balls of my feet. The examiner has not considered my in-service symptoms per my statement.

On a secondary basis, the VA medical examiner determined that it is less likely than not that metatarsalgia is related to my service-connected pes planus and foot arthritis; however, medical literature does note both arthritis and flatfeet as causes metatarsalgia. Additionally, neither the adjudicator or medical examiner considered other lower extremity service-connected conditions or aspects of those conditions in determining service-connection of metatarsalgia.

Both my ankles are service connected; medical literature cite ankle conditions as a cause of metatarsalgia. Bunions are service connected; medical literature cite bunions as a cause of metatarsalgia. Hypermobility of the first ray, overpronation, and hallux valgus are all aspects of my service-connected lower extremity conditions; medical literature cites all three as causes of metatarsalgia.

I am submitting medical treatises, in addition to treatises already of record, that clearly establish that metatarsalgia is related and/or caused by my service-connected conditions. Reasons warranting service-connection of metatarsalgia, on a secondary basis, are as follows:

1. **Flatfeet are related to** **metatarsalgia**. The VA medical examiner determined that it is less likely than not that metatarsalgia is related to my service-connected pes planus. Contrary to the VA medical examiner’s opinion, medical treatise does relate metatarsalgia to pes planus:
	1. Medical textbook: *Neale’s Disorders of the Foot*, eighth edition, page 100; states under Consequences of pes planus “Flexible flat foot causes, or is associated with, many foot and lower limb pathologies including…. foot pathologies such as metatarsalgia.”
	2. Treatise: *The effect of metatarsal padding on pain and function ability in Metatarsalgia*, Scandinavian journal of surgery, page 333; states “Metatarsalgia is often related to common foot malpositions such as hallux valgus, hammer toe and flatfoot, or hypermobility of the first ray.”
	3. Treatise: *Managing metatarsalgia in athletic populations*, Lower extremity review magazine page 2; states “Cavus foot and pes planus foot types have been associated with metatarsalgia.”
	4. Treatise: *Forefoot disorders and conservative treatment*, Yeungnam University College of Medicine, page 93; states “common causes of primary metatarsalgia include first ray insufficiency… First ray insufficiency occurs due to several conditions such as hallux valgus, pes planus, and hypermobility of the first metatarsophalangeal (MTP) joint.”
2. **Arthritis at the** **first MTP is related to metatarsalgia**. The VA medical examiner determined that it is less likely than not that metatarsalgia is related to my service-connected arthritis. My foot arthritis is located at the first MTP. Contrary to the VA medical examiner’s opinion, medical treatise does relate metatarsalgia to first MTP arthritis:
	1. Treatise: *Everything you Should Know About Metatarsalgia*, Healthline, page 3; under “What causes metatarsalgia?” states “Some diseases: Bursitis, arthritis, gout…can increase the stress on the ball of the foot.”
	2. Treatise: *Metatarsalgia*, Cleveland Clinic, page 1; under “What causes metatarsalgia?” states “Having… osteoarthritis can also contribute to metatarsalgia.”
	3. Treatise: *Metatarsalgia*, the foot & ankle institute, page 1&2; states “Factors that predispose to the development of metatarsalgia include: a bunion deformity, arthritis of the big toe…an excessively tight calf muscle…”
	4. Treatise: *Metatarsalgia*, British Orthopaedic Foot and Ankle Society, page 2; under “What causes metatarsalgia?” states “A bunion or arthritis in the big toe can weaken the big toe and throw extra stress onto the ball of the foot.”
	5. Treatise: *Stay Ahead in the Game*, Longview Orthopedic Associates, page 2&3; under “Causes” states “Big toe arthritis…Osteoarthritis is the most common type which causes excessive trauma…in the joints of the foot.”
	6. Treatise: *Metatarsalgia*, Patient.info, page 1&2; under “What causes metatarsalgia?” states “Arthritis or gout. This can cause inflammation of the joints in the ball of the foot or of the big toe and can be a cause of metatarsalgia.”
3. **Service-connected ankles are related to metatarsalgia**. Both ankles are rated due to limited dorsiflexion. Limited dorsiflexion and equinus are noted aspects of my ankle conditions. Limited dorsiflexion and equinus are known causes of metatarsalgia per medical treatise:
	1. Treatise: *Metatarsalgia*, Wheeless textbook, page 1; states “limitation of dorsiflexion…can contribute to diffuse metatarsalgia.”
	2. Treatise: *Understanding the biomechanics of equinus*, Podiatry Today, page 1; states “Physicians have implicated ankle equinus in multiple foot pathologies. These pathologies include… metatarsalgia” (of record).
	3. Treatise: *Biomechanical Considerations in treating Metatarsalgia*, Podiatry Today, page 2; states “Secondary metatarsalgia is pain not originating in the

metatarsal area. Secondary causes include Morton’s neuroma, rheumatoid arthritis, equinus deformities and Freiberg’s infraction.”

* 1. Treatise: *Equinus,* American College of Foot and Ankle Surgeons, page 1; under “Foot problem related to equinus?” states “metatarsalgia” (of record).
	2. Treatise: *Interventions for increasing ankle joint dorsiflexion a systematic review and meta-analysis*, Journal of Foot and Ankle Research, page 1; states “Ankle joint equinus occurs when there is reduced dorsiflexion range of motion (ROM) available at the ankle. Studies have shown that the presence of equinus deformity

may cause healthy individuals to adopt compensatory gait patterns such as genu recurvatum, early heel lift and excessive subtalar joint pronation in addition to altering their biomechanical function in gait. Altered biomechanics may predispose individuals to the development of pathologies such as metatarsalgia” (of record).

* 1. Treatise: *Equinus:* *Its surprising role in foot pathologies*, Iermagazine, page 1; states “gastrocnemius contracture in the non-neurologically impaired population is being highlighted as a source of deformity that will lead to excessive strain throughout the foot. It is thought to be a primary factor in the pathogenesis of many common pedal ailments, including plantar fasciitis, hallux valgus, metatarsalgia” (of record).
	2. Treatise: *Managing metatarsalgia in athletic populations*, Lower extremity review magazine, page 1; states “Metatarsalgia may be associated with a tight Achilles’ tendon (equinus).”
	3. Treatise: *Metatarsalgia*, The foot & ankle institute, page 1&2; states “Factors that predispose to the development of metatarsalgia include: a bunion deformity, arthritis of the big toe…an excessively tight calf muscle…”
	4. Treatise: *Metatarsalgia*, British Orthopaedic Foot and Ankle Society, page 2; under “What causes metatarsalgia?” states “a stiff ankle.”
	5. Treatise: *Treatment for metatarsalgia centers on the use of orthoses*, Biomechanics, page 40; under “pain origins” states “typical etiologies for secondary metatarsalgia include…equinus deformities.”
	6. Treatise: *Metatarsalgia*, Patient.info, page 1; under “What causes metatarsalgia?” states “Having a stiff ankle or Achilles tendon (the tendon at the heel). This can affect the way that pressure is distributed across the foot and may lead to extra stress on the metatarsal heads.”
	7. Treatise: *Metatarsalgia*, The American Medical Society for Sports Medicine, page 2; states “Predisposing factors may include… overpronation, tight Achilles tendons, and increased joint mobility of the first toe.”
1. **Service-connected bunions are related to metatarsalgia.**  Bunions are a known cause of metatarsalgia per medical treatise:
	1. Treatise: *Everything you Should Know About Metatarsalgia,* Healthline, page 3;under “What causes metatarsalgia?” states “Foot abnormalities: High arches, a second toe that is longer than your big toe, calluses on the bottom of your foot, bunions, and hammer toe can contribute to metatarsalgia.”
	2. Treatise: *Metatarsalgia*, Mayo Clinic, page 2; under “Causes, Foot deformities” states “painful bumps at the base of your big toes (bunions) can cause to metatarsalgia.”
	3. Treatise: *What is Metatarsalgia*, FootCareMD, page 1; under “Causes” states “Bunions…”
	4. Treatise: *Metatarsalgia*, Cleveland Clinic, page 1; under “Who gets metatarsalgia?” states “People with foot deformities such as… bunions may also experience more metatarsalgia.”
	5. Treatise: *Metatarsalgia*, The foot & ankle institute, page 1&2; states “Factors that predispose to the development of metatarsalgia include: a bunion deformity, arthritis of the big toe…an excessively tight calf muscle…”
	6. Treatise: *Metatarsalgia*, British Orthopaedic Foot and Ankle Society, page 2; under “What causes metatarsalgia?” states “A bunion or arthritis in the big toe can weaken the big toe and throw extra stress onto the ball of the foot.”
	7. Treatise: *Stay Ahead in the Game*, Longview Orthopedic Associates, page 2; under “Causes” states “Shape of the foot: People with… bunion (a painful bump at the base of the big toe) are also more prone to metatarsalgia.”
	8. Treatise: *Metatarsalgia*, Patient.info, page 1&2; under “What causes metatarsalgia?” states “Bunion…”
2. **Hypermobile first ray is related to metatarsalgia.**  Monticello clinic medical record dated 08/31/2010 notes bilateral hypermobile first MTP joints. Hypermobility of the first MTP joint is a known cause of metatarsalgia per medical treatise:
	1. Treatise: *Metatarsalgia*, Wheeless textbook, page 2; states “hypermobility of the first MTC joint may also contribute to transfer metatarsalgia.”
	2. Treatise: *Anatomy and Biomechanics of the First Ray*, Physical Therapy, page 858; states “Hypermobility of the first ray is thought to contribute to acquired flatfoot deformity, metatarsalgia…”
	3. Treatise: *The effect of metatarsal padding on pain and function ability in Metatarsalgia*, Scandinavian journal of surgery, page 333; states “Metatarsalgia is often related to common foot malpositions such as hallux valgus, hammer toe and flatfoot, or hypermobility of the first ray.”
	4. Treatise: *Biomechanical Considerations in treating Metatarsalgia*, Podiatry Today, page 2; states “primary metatarsalgia includes…hallux valgus, hallux rigidus, and first ray hypermobility.”
	5. Treatise: *Managing metatarsalgia in athletic populations*, Lower extremity review magazine, page 2; states “hypermobile first ray and fifth rays have been associated with increased shearing at the forefoot.”
	6. Treatise: *Forefoot disorders and conservative treatment*, Yeungnam University College of Medicine, page 93; states “common causes of primary metatarsalgia include first ray insufficiency… First ray insufficiency occurs due to several conditions such as hallux valgus, pes planus, and hypermobility of the first metatarsophalangeal (MTP) joint.”
	7. Treatise: *Metatarsalgia*, WebMD, page 2; under “Causes” states “hypermobile first foot bone.”
	8. Treatise: *Metatarsalgia*, The American Medical Society for Sports Medicine, page 2; states “Predisposing factors may include… overpronation, tight Achilles tendons, and increased joint mobility of the first toe.”
3. **Overpronation is related to metatarsalgia.** Central Minnesota foot and ankle medical record dated 06/10/2014 notes overpronation; medical record dated 03/26/2015 (signed by Micheal O’Borsky, DPM) notes severe pronation. Overpronation is a known cause of metatarsalgia per medical treatise:
	1. Treatise: *Overpronation* — Symptoms, Prevention, and Treatment (record), FootVitals, page 2; under “Will Overpronation Cause Problems?” states “overpronation can lead to… metatarsalgia” (of record).
	2. Treatise: *Hyperpronation and Foot Pain*, The Physician and Sportsmedicine, page 1; states “common problems often associated with hyperpronation are plantar fasciitis, posterior tibial tendon dysfunction, metatarsalgia, and hallux valgus” (of record).
	3. Treatise: *Metatarsalgia*, WebMD, page 2; under “Causes” states “excessive pronation.”
	4. Treatise: *Metatarsalgia*, The American Medical Society for Sports Medicine, page 2; states “Predisposing factors may include… overpronation, tight Achilles tendons, and increased joint mobility of the first toe.”
4. **Hallux valgus is related to metatarsalgia**. Numerous medical documents of record note hallux valgus. Hallux valgus is a known cause of metatarsalgia per medical treatise:
	1. Treatise: *The effect of metatarsal padding on pain and function ability in Metatarsalgia*, Scandinavian journal of surgery, page 333; states “Metatarsalgia is often related to common foot malpositions such as hallux valgus, hammer toe and flatfoot, or hypermobility of the first ray.”
	2. Treatise: *Forefoot disorders and conservative treatment*, Yeungnam University College of Medicine, page 93; states “common causes of primary metatarsalgia include first ray insufficiency… First ray insufficiency occurs due to several conditions such as hallux valgus, pes planus, and hypermobility of the first metatarsophalangeal (MTP) joint.”
	3. Treatise: *Biomechanical Considerations in treating Metatarsalgia*, Podiatry Today, page 2; states “primary metatarsalgia includes…hallux valgus, hallux rigidus, and first ray hypermobility.”
	4. Treatise: *Metatarsalgia*, Wheeless textbook, page 1; states “hallux valgus: as proximal phalanx moves into valgus, and the splay between first and second metatarsals increases, the first metatarsal base at first cuneiform-first metatarsal joint also moves into varus and elevates creating in many instances, less wt bearing than normal on 1st metatarsal head relative to the 2nd…”
	5. Treatise: *Managing metatarsalgia in athletic populations*, Lower extremity review magazine, page 1; states Metatarsalgia also results from pathological alterations in forefoot structure due to hallux valgus…”
	6. Treatise: *Treatment for metatarsalgia centers on the use of orthoses*, Biomechanics, page 40; under “pain origins” states “Common diagnoses of primary metatarsalgia include… hallux valgus.”
	7. Treatise: *Plantar Pressure Characteristics in Hallux Valgus Feet*, Journal of Orthopaedic Research, page 1688; “Recent studies suggested that forefoot kinematics are altered by morphologic changes associated with hallux valgus deformity. These changes alter the kinematics of the first metatarsophalangeal (MTP) joint, leading to reduced force generation capacity of the plantar flexors and therefore causing decreased weight bearing by the great toe and the first ray. Load transfer during stance phase of gait is increased over the metatarsal heads of the lesser toes. Several authors reported this phenomenon as the reason for lesser toe metatarsalgia.”
	8. Treatise: Metatarsalgia, Patient.info, page 1&2; under “What causes metatarsalgia?” states “hallux valgus…”