DECISION OF THE WORKERS' COMPENSATION APPEAL TRIBUNAL

Introduction

[1] By decision dated May 25, 2018, a Workers' Compensation Board (Board)[1] case manager informed the worker that his claim was accepted for bilateral thumb tendinitis under the occupational disease provisions (section 6) of the *Workers Compensation Act* (Act). The case manager further advised that he was not accepting bilateral lateral epicondylitis or bilateral thumb osteoarthritis (OA) under the worker's claim. The worker requested a review, submitting that his bilateral lateral epicondylitis and his bilateral thumb OA were due to the nature of his employment duties over time, and should be accepted as occupational diseases under section 6 of the Act.[2]

[2] In *Review Reference #R0239525*, dated November 19, 2018, a review officer confirmed the case manager's decision.

[3] The worker appealed to the Workers' Compensation Appeal Tribunal (WCAT). His appeal proceeded by way of an oral hearing on July 10, 2019 in Courtenay, British Columbia. The employer is not participating in this appeal. The worker obtained representation shortly before the oral hearing. His representative asked that the hearing be rescheduled to a later date, but I advised that it was to proceed as planned. As requested by his representative, I offered an opportunity for the worker to obtain additional medical evidence, and to also provide a sworn affidavit and written submissions following the hearing. The worker's representative participated in the oral hearing by teleconference. The worker attended in person.

Issue(s)

[4] At issue is whether the worker's bilateral lateral epicondylitis and/or bilateral thumb OA are due to the nature of his employment, as contemplated by section 6 of the Act. This includes whether the worker sustained an aggravation, activation, or acceleration of any pre-existing bilateral thumb OA.

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[1] operating as WorkSafeBC

[2] The evidence does not suggest that the worker's thumb and elbow symptoms arose from a specific or identifiable trauma or series of traumas. Accordingly, neither of the two denied conditions were adjudicated as personal injuries under section 5 of the Act. I am satisfied that the worker's claim is properly adjudicated under the occupational disease provisions of the Act. See policy items #C3-12.00 and #27.00 in the Board's *Rehabilitation Services and Claims Manual, Volume II* (RSCM II) in this regard.

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Jurisdiction and Standard of Proof

[5] This appeal was filed with WCAT under subsection 239(1) of the Act. Section 254 of the Act gives WCAT exclusive jurisdiction to inquire into, hear, and determine all those matters and questions of fact, law, and discretion arising or required to be determined in an appeal before it.

[6] Under subsection 250(1) of the Act, WCAT may consider all questions of fact and law arising in an appeal, but is not bound by legal precedent. WCAT must make its decision on the merits and justice of the case, but in so doing, must apply a policy of the Board's board of directors that is applicable in the case. All references to policy in this decision pertain to the RSCM II.

[7] The standard of proof is the balance of probabilities, subject to subsection 250(4) of the Act. Subsection 250(4) states that if on an appeal respecting the compensation of a worker the evidence supporting different findings on an issue is evenly weighted, the issue must be resolved in favour of the worker.

Background and Evidence

[8] The worker has been a machine operator for many years. He has been with his current employer since 2011. He advised the Board that he sits in a processor machine and operates joysticks with both hands, moving his wrists in multiple directions while pressing on the joysticks with his thumbs to manipulate toggles and switches. He has long shifts (11 hours), and he works in remote areas for weeks at a time without days off.

[9] The worker reported that he began to notice pain at the base of his thumbs in late 2016. He later clarified that he first noticed this pain in 2015, but it became constant in late 2016 and his thumbs and wrists were inflamed. He sought medical attention from his family physician, Dr. Sutherland, who wrote in her November 2, 2016 chart note that the worker had pain in his bilateral thumb carpometacarpal (CMC) joints. Dr. Sutherland noted that the worker used his thumbs all day to operate machinery at work and had done so for many years.

[10] Dr. Sutherland indicated in her chart notes that a January 2017 x-ray revealed "minor OA"[3] in the CMC joints bilaterally.

[11] The worker next saw Dr. Sutherland on January 30, 2018. In her chart note of that date, Dr. Sutherland wrote that the worker had bilateral thumb pain for a couple of years. She indicated that he was known to have bilateral CMC joint OA, but the pain he was feeling was in the thenar eminence[4] and also up his arms to his lateral epicondyles. Dr. Sutherland wrote that she thought the worker had a soft tissue repetitive strain injury in addition to CMC joint OA.

[12] The worker initiated a claim on March 15, 2018. He attributed the soreness around the base of his thumbs to his work duties over time. The worker noted in his application, and in a conversation with a Board officer on May 2, 2018, that his pain had been intermittent for a few years, but constant over the last year. Because his symptoms improved when not working, the worker believed his pain was due to overuse at work.

[3] All quotes are reproduced as written.
[4] The thenar eminence refers to the group of muscles on the palm of the hand at the base of the thumb.

[13] The worker's remote locations of employment made a job site visit problematic. Accordingly, the worker provided the Board with videotaped and photographic evidence of him performing his work duties. Multiple videotapes showed how the worker used his wrists and hands while constantly operating the joysticks with his thumbs. They also showed the rough terrain on which he worked.

[14] The Board held a team meeting on May 17, 2018, at which time a Board medical advisor, Dr. Vizsolyi, reviewed the evidence on file, including the videotaped evidence. Although not demonstrated on the videotapes, the case manager informed Dr. Vizsolyi that the worker also infrequently performed mechanical repairs in his job. Dr. Vizsolyi noted that there were a number of possible diagnoses being proposed, including bilateral CMC joint OA, bilateral thumb tendinitis, and bilateral lateral epicondylitis.

[15] In describing the worker's use of his forearms, wrists and hands, as seen in the videotaped evidence, Dr. Vizsolyi observed that there was constant grip, static tendon loading, and repositioning of the thumb, but there was "little motion at the CMC joint." He observed there was only "sporadic excursion into awkward posture of the wrist; with very little forearm supination/pronation…"

[16] With respect to a diagnosis of epicondylitis, Dr. Vizsolyi wrote that there was "certainly" no evidence of activity approaching the identified Board guidelines delineated in the Board's Practice Directive #C4-2 of more than ten awkward elbow movements per minute continuously for greater than two hours, and more than ten awkward wrist movements per minute for greater than two hours.

[17] With respect to the worker's diagnosed thumb conditions, Dr. Vizsolyi wrote that there was "no significant thumb movement at the CMC joint," but there was constant movement in some of the more distal joints (further out from the base of the thumbs), along with sustained flexor tendon grip and repetitive thumb flexion. He also observed there was almost constant vibration and exposure to cold.

[18] Based on his viewing of the evidence, and consideration of the practice directive guidelines for acceptance of repetitive strain disorders or activity-related soft tissue disorders (ASTDs), Dr. Vizsolyi concluded that there were sufficient occupational risk factors to cause bilateral thumb tendinitis, but not to cause bilateral lateral epicondylitis or to aggravate bilateral CMC joint OA.

[19] Dr. Vizsolyi's opinion led to the case manager's May 25, 2018 decision.

[20] On June 13, 2018, Dr. Sutherland reported that the Board had accepted the worker's claim, but only for tendinitis. She noted that the worker's epicondylitis definitely improved towards the end of his seven days off of work.

[21] On July 6, 2018, Dr. Sutherland offered her opinion that the movements the worker did all day at work likely caused wrist, elbow, and thumb tendinitis and aggravated his thumb OA.

[22] In his request for review, the worker (through his former representative) provided additional videotaped evidence of him performing his job duties. He also provided an August 7, 2018[5] four-sentence letter from Dr. Sutherland. She wrote that, having viewed the videotapes showing what the worker does with his hands all day at work, it was her opinion that the job tasks "can very well have both caused the epicondylitis and aggravated underlying OA" in the thumb CMC joints. She added that the worker operates hand controls for 11 to 14 hours a day, for up to 14 days at a time, and he had been doing this for 14 years.

New Evidence on Appeal

[23] The worker provided a September 10, 2019 sworn affidavit confirming that there was no specific event or trauma that brought on his symptoms. He explained that, in addition to operating the processor machine, he spends about one hour per day doing maintenance work. This involves using wrenches, screwdrivers, and hammers; putting on large chains; and latching and opening large caps. Performing these tasks results in thrusting, jerking, and twisting motions of his arms, elbows, wrists, hands, and fingers, often while in awkward positions. In addition, he noted that his elbows, wrists, fingers, and thumbs are sometimes jerked and placed in awkward positions when operating the joysticks. The worker had also testified about the above during the oral hearing.

[24] The worker added that, before his hand symptoms started, he worked 14 to 21 days on and 7 days off. Due to his symptoms, he had to reduce his regular hours significantly and now only works 7 days on and 7 days off at most, working 11 hours per day. During the oral hearing, he testified that his elbows feel "really good now." He still has thumb pain, but it too improved by working reduced hours.

[25] The worker's representative arranged for Dr. Gregory, a plastic and reconstructive surgeon, to provide a medical-legal opinion with respect to the worker's bilateral thumb pain. Dr. Gregory had previously examined the worker in November 2017 (and provided steroid injections in the worker's CMC joints). He provided a copy of the January 2017 x-ray report.

[26] In his July 10, 2019 medical-legal opinion, Dr. Gregory confirmed the diagnosis of bilateral thumb CMC joint OA, noting there was only minimal evidence of de Quervain's tenosynovitis (which he understood was the condition the Board referred to as thumb tendinitis). With respect to causation, Dr. Gregory thought the worker's OA was caused by work, but then added "there is a paucity in the epidemiological literature relating first carpometacarpal osteoarthritis to work exposure, which makes it difficult to determine causality."

[27] The worker's representative followed up with Dr. Gregory and asked him to explain why, if the paucity in the epidemiological literature makes it difficult to determine causality, he was confident in doing so in the worker's case.

[5] The former representative referred to this report as being dated July 8, 2018, but it appears more likely that it was written on August 7, 2018.

[28] Dr. Gregory replied in a July 18, 2019 medical-legal report. He first made some minor corrections to the paragraph entitled "Causation" in his July 10, 2019 report, so that it reads as follows:

> I believe he has had increased bilateral thumb pain over his 20 year career as an equipment operator. As a joystick operator he is required to perform constant, gripping and pinching maneuvers that have exacerbated his bilateral thumb CMCJ osteoarthritis symptoms. He has had specific, work related strain over his 20 year career as a joystick operator of both his first carpometacarpal joints. The clinical presentation and complaints have been consistent and reliable throughout time. There is a reasonable temporal relation between work exposure and disease development, so it would be reasonable to conclude the osteoarthritis may have been caused by work. However, there is a paucity in the epidemiological literature relating first carpometacarpal osteoarthritis to work exposure, which makes it impossible to determine causality with any degree of certainty.

[29] In answer to the representative's question, Dr. Gregory replied as follows: "I was asked about work exposure being causative for thumb CMC joint arthritis. I am not able to make this conclusion as there is not sufficient epidemiological literature." Dr. Gregory added, however, that performing pinching, gripping, and twisting manoeuvres put the risk at the worker of further degenerative changes.

[30] The worker's representative also provided an August 8, 2019 independent medical examination assessment report prepared by Dr. Daneshvar, orthopaedic surgeon. He examined the worker on July 29, 2019. He diagnosed bilateral thumb CMC joint OA, bilateral lateral epicondylitis, and right-sided medial epicondylitis.[6] Dr. Daneshvar reported that his examination did not reveal any evidence of de Quervain's tenosynovitis (which he too understood was the condition the Board referred to as thumb tendinitis). Dr. Daneshvar advised that the worker's symptoms were consistent with bilateral thumb CMC joint OA.

[31] Dr. Daneshvar wrote that he disagreed with Dr. Vizsolyi's conclusions that the worker's job duties would not be the cause of or be aggravating to his painful thumb CMC joints, or result in elbow epicondylitis.

[32] Dr. Daneshvar had reviewed the videotapes of the worker performing his job. He advised that it was clear there was a great deal of motion and stress going through the thumb CMC joints, and this motion was continuous and repetitive for about ten hours a day. He observed that when the top button on the joystick is being moved, there is constant rotation going through the thumb CMC joint. As well, when the buttons are being pressed, although most of the motion may be going through the thumb interphalangeal joint, there is constant pressure on the thumb CMC joint.

[6] The diagnosis of right-sided medial epicondylitis has not previously been adjudicated by the Board, it is open to the worker to ask the Board to adjudicate this newly diagnosed condition.

[33] Further, Dr. Daneshvar noted that, for about one hour per day, the worker is involved in equipment maintenance. This requires him to use wrenches, hammers, and screwdrivers; open lids/tops; and pull heavy objects. Dr. Daneshvar advised that all of these activities place stress on the hands, in particular the thumb CMC joints and the muscles of the upper extremity, including the forearm muscles, which he wrote can lead to or aggravate lateral and medial epicondylitis. Dr. Daneshvar concluded that to suggest little to no motion and stress was going through the thumb CMC joints during the worker's repetitive job activities was incorrect. He explained that the CMC joint is the key joint that allows humans to perform such complicated tasks.

[34] Based on his review of the worker's use of his hands on the controllers and the daily maintenance work, it was Dr. Daneshvar's opinion that the worker's occupation was the direct cause of the aggravation of his thumb CMC joint OA symptoms as well as his lateral and medial epicondylitis. He advised that, in the absence of any specific trauma, it was not possible to decide on the actual cause of the worker's early OA; however, a job that requires regular gripping, pressing of buttons, and constant movement of the thumbs, in addition to about an hour of manual maintenance work would certainly aggravate the worker's hand and elbow symptoms.

[35] Dr. Daneshvar went on to explain that thumb CMC joint arthritis is a common condition, although it affects women far more commonly than men. The CMC joint is capable of abduction/adduction in the radial and palmar planes, flexion, extension, and opposition. Even when there is little motion in the joint, significant loads go through the CMC joint. He referred to a recent study[7], among others, to support his statement that significant loads on the CMC joint impact OA of that joint. The authors of that study wrote that the anatomy of the thumb CMC joint, in combination with "the force transmitted through it," makes it extremely susceptible to OA. Dr. Daneshvar added that when one has developed early OA, this joint can be quite sensitive, and further stressing of it will lead to further pain and disability. He added that it was important to note that the degree of arthritis does not always reflect the degree of symptoms.

[36] Dr. Daneshvar thought that, given the worker's occupation involves continued use of joysticks and manual work, he would not only continue to flare up painful OA symptoms in his thumb CMC joints, he would also "continue the progression of the arthritis" which had developed in his thumbs.

[37] With respect to epicondylitis, Dr. Daneshvar wrote that its etiology is unknown at times, but it does occur as a result of overuse. He explained that once the symptoms have developed, any activity where the hands and wrists are used can aggravate the symptoms. It was his opinion that the repetitive nature and extended hours of work to which the worker was exposed "could both cause and aggravate lateral and medial epicondylitis."

[7] Higgenbotham C, Boyd A, Busch M, Heaton D, Trumble T, *Optimal management of thumb basal joint arthritis: challenges and solutions*. Orthopaedic Research and Reviews 2017:9 93-99.

Submissions on Appeal

[38] The worker's representative submits that Dr. Gregory's opinion with respect to the worker's bilateral thumb OA should be preferred to that of Dr. Vizsolyi owing to Dr. Gregory's greater expertise and to his direct observations and treatment of the worker. He further submits that Dr. Daneshvar's opinion should be preferred to that of Dr. Vizsolyi for the same reasons, and also because Dr. Daneshvar provided a more nuanced and complete analysis of the worker's duties and the potential to aggravate epicondylitis and OA.

[39] In particular, the representative points out that, contrary to the opinion of Dr. Vizsolyi, Dr. Daneshvar explained that significant loads would be placed on the worker's thumb CMC joints even when there was little motion in those joints. As well, with early OA, further stressing of the CMC joint will lead to further pain and disability. In addition, Dr. Daneshvar took into consideration the impact of the worker's daily maintenance work on his bilateral thumb CMC joints and his forearm muscles.

[40] At the oral hearing, I referred the worker's representative to a paper prepared in November 2010 by the Board's Evidence-Based Practice Group (EBPG). It is entitled *"First carpo-metacarpal osteoarthritis and its association with occupation (with emphasis on clerical workers)."* The worker's representative acknowledged that the EPBG found, after a systematic review of the applicable medical literature, that there was no evidence of a causal association between certain occupations or activities and the development of first CMC joint OA. However, the representative commented that the EPBG did find anecdotal evidence on the potential aggravation of pre-existing first CMC joint OA by occupations or activities such as pianist, folding door manufacturing, pharmaceutical pricing, and excessive texting.

[41] I note the EBPG cautioned that the anecdotal evidence was only found in case reports, which were potentially only "hypothesis-generating" and could not be used as "evidence" of either association or causation when addressing first CMC joint OA and work activity.

Analysis and Decision

Is the worker's bilateral lateral epicondylitis due to the nature of his employment, as contemplated by section 6 of the Act?

[42] A worker who suffers from an occupational disease due to the nature of his or her employment, and is thereby disabled from earning full wages, is entitled to compensation under section 6 of the Act. Subsection 6(3) of the Act contains a presumption of causation for certain diseases and conditions. If the presumption does not apply (it does not apply on the worker's claim), the claim is adjudicated under the general provision of subsection 6(1) of the Act.

[43] Subsection 6(1) of the Act provides that the Board must pay compensation to a worker who is disabled by an occupational disease due to the nature of the employment. If the worker does not suffer disablement, only health care benefits may be payable. Policy item #25.10 explains that, for compensation to be payable pursuant to section 6 of the Act, the worker must be suffering from a disease designated or recognized by the Board as an "occupational disease."

[44] Only certain conditions are recognized as occupational diseases. Policy item #26.00 provides that there are several levels of recognition based on the available medical and scientific evidence, and the Board's experience. The way in which a disease is recognized is primarily based on the strength of medical and scientific knowledge about the role work-related factors may have in its causation.

[45] There are four levels of recognition. The first is by inclusion of the disease in Schedule B of the Act under subsection 6(4.1), which results in the presumption of causation under subsection 6(3) of the Act. The second is under subsection 6(4.2), where the Board can designate or recognize a disease as being one that is peculiar to or characteristic of a particular process, trade, or occupation. The third level is by regulation of general application, where the Board may recognize a disease as an occupational disease, but without specifying that it is peculiar to or characteristic of a particular process, trade, or occupation. Diseases recognized as occupational diseases by regulation of general application are listed in policy item #26.03. The fourth level is by order dealing with a specific case under policy item #26.04.

[46] Policy item #27.31 sets out that the Board has recognized epicondylopathy (medial and lateral) as an occupational disease by regulation. The lateral epicondyle of the elbow is the bony origin for common wrist extensors and supinator tendons. Lateral epicondylopathy, which is known as tennis elbow, is characterized by pain at the lateral elbow with contraction of the muscles that extend the wrist, as in gripping and resisting wrist extension.

[47] Policy item #27.31 states that medical/scientific evidence on epicondylopathy does not as a whole confirm a strong association with employment activities and its mechanisms of development are obscure. Some individual studies do indicate an excess incidence of epicondylopathy in employments with "tasks strenuous to the muscle-tendon structures of the arm." One often referred to theory suggests that microtears at the attachment of the muscle to the bone may be due to repetitive activity with high force sufficient to exceed the strength of the collagen fibres of the tendon attachment. This in turn may lead to the formation of fibrosis and granulation tissue.

[48] The policy further states that as the medical/scientific evidence does not clearly relate epicondylopathy to any particular process or industry, the Board assesses work causation in the context of each individual case based on consideration of all relevant risk factors. In particular, the Board recognizes that where the worker was performing frequent, repetitive, forceful and unaccustomed[8], employment-related movements (including forceful grip) of the wrist that are reasonably capable of stressing the inflamed tissues of the arm affected by epicondylopathy (those tissues would be the wrist extensors and supinator tendons[9]), and in the absence of evidence suggesting a non-work-related cause for the worker's epicondylopathy condition, a strong likelihood of work causation will exist. These factors are not preconditions to acceptance, nor are they the only factors which may be relevant. The issue to be determined in any individual claim is whether the evidence leads to a conclusion that the epicondylitis is due to the nature of the worker's employment.

[8] The policy adds that this factor may not be relevant as tennis players are accustomed to the motions and forces involved, and yet they develop tennis elbow.

[9] The forearm tendons are also called "extensors" and they attach the muscles to bone. They attach on the lateral epicondyle.

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[49] Pursuant to policy item #27.00, "Activity-Related Soft Tissue Disorders ("ASTDS") of the Limbs," when determining whether the worker's employment was of causative significance in causing or aggravating the worker's ASTD, the Board considers the mechanics of the employment activity in question, any changes to the worker's employment or non-employment activities, any evidence of ASTD onset in others who perform the same work, and whether the worker has any pre-existing injuries, conditions or diseases that may be associated with the onset of the ASTD.

[50] To determine whether an ASTD is due to the nature of one's employment, an analysis of risk factors must be undertaken. The Board generally considers how the worker interacts with the work environment and employment-related risk factors of cold temperature (cold may have direct damaging effects on the tissue through vascular constriction and other mechanisms), dose (the level of intensity of a risk factor over a specific duration), duration, force, frequency, grip type, hand-arm vibration, local contact stresses, magnitude (the degree of exposure to a noted risk factor), posture, repetition, static load, task variability, and work and rest cycles.

[51] When assessing whether one or more of the above noted employment-related risk factors caused or contributed to the development of a worker's ASTD, the Board considers the location of the anatomical structure affected; the risk factors involved in the worker's employment activities; the muscle groups, tendons and joints involved in performing the worker's employment activities; and whether there is a biologically plausible connection between the employment activities and the development of the ASTD.

[52] The Board has published Practice Directive #C4-2 with respect to ASTD claims. Although not binding on WCAT, practice directives can provide guidance in interpreting Board policy in the adjudication of ASTD claims. Attached as Appendix 1 to the practice directive are assessment guidelines for certain risk factors relevant to the causation of ASTDs. The practice directive notes that these are guidelines only and not absolute requirements for acceptance of a worker's claim. Consideration must also be given to the cumulative or combined effects of multiple risk factors along with the individual characteristics of each worker.

[53] As noted by Dr. Vizsolyi, the guidelines identify frequent repetitive wrist and elbow movement as a risk factor where movements occur at least twice per minute working through the full range of motion, or at least 10 times per minute at less than full range of movement, for more than 2 hours at a time.

[54] Awkward postures are also identified as risk factors to be considered. In relation to wrist movements, awkward postures are identified as wrist flexion greater than 25 degrees from anatomical, extension greater than 25 degrees from functional, ulnar deviation greater than 10 degrees, and radial deviation greater than 10 degrees. In relation to elbow movements, awkward postures are identified as elbow flexion greater than 120 degrees, extension greater than 180 degrees, pronation greater than 80 degrees and supination greater than 25 degrees.

[55] At the Review Division, the worker's former representative submitted that Dr. Sutherland's opinion supported work causation.

[56] The review officer first noted that policy item #97.31 provides that where a matter requires medical expertise, the decision must be preceded by a consideration of medical evidence. Policy item #97.34 provides that where there are differences of opinion among doctors, the

Board (or decision maker) must select from among them. The Board must not automatically prefer the opinions of one category of doctors over another, nor by counting the number of opinions one way and so many another. The Board must analyze the opinions and conflicts as best as possible on each issue and arrive at a conclusion about where the preponderance of evidence lies. If the evidence is evenly balanced on an issue, it must be resolved in favour of the worker.

[57] In her brief medical letter, Dr. Sutherland stated only that the worker's tasks "can very well have" caused the worker's epicondylitis. The review officer acknowledged that Dr. Sutherland viewed the videotaped footage; however, she did not address any of the risk factors. Nor did Dr. Sutherland explain why or how the worker's job duties could very well have played a causative role in the worker's epicondylitis.

[58] On the other hand, the review officer observed that Dr. Vizsolyi considered the repetitive nature of the worker's job duties, along with other risk factors considered in policy item #27.31, such as the use of force and awkward postures. I note that Dr. Vizsolyi actually only addressed the duration of repetitive and awkward wrist and/or elbow movements with reference to the practice directive guidelines.

[59] The review officer advised that he had reviewed the additional videotaped evidence the worker provided to the Review Division, which had not been seen by Dr. Vizsolyi. He found that the additional videotaped evidence provided for the review was very similar to the earlier videotaped evidence provided to the case manager and viewed by Dr. Vizsolyi. Like the review officer, I could not discern any appreciable differences in the motions or actions required by the job duties (i.e. manipulating the joysticks) in the additional videotaped evidence that might bring into doubt Dr. Vizsolyi's observations of the lack of repetitive and awkward elbow or wrist movements. But, as earlier noted, Dr. Vizsolyi did not turn his mind to any other potential risk factors for epicondylitis. This significantly limits the weight to be given to his opinion.

[60] Of interest, however, Dr. Vizsolyi also observed that the worker had constant static tendon loading of the forearms, wrists and hands, but he did not address that risk factor when discussing causation of epicondylopathy. From my review of the videotapes, when operating the joysticks, there is constant static loading of the worker's extensor (forearm) tendons. These are the very tendons involved in lateral epicondylopathy. Policy item #27.00 identifies "static loading" as a risk factor for ASTDs because it involves sustaining a given level of muscle force/exertion for a duration of time, against gravity or against some other force.

[61] Dr. Daneshvar explained that the repetitive nature and extended hours of work to which the worker was exposed "could both cause and aggravate lateral and medial epicondylitis." Dr. Daneshvar's opinion on causation of epicondylitis is based on his viewing of the videotaped evidence. I interpret Daneshvar's reference to "repetitive nature" as meaning constant or static loading as that is clearly observed on the videotapes. I further note that "repetition" in policy item #27.00 is defined as including repeated muscular effort without movement.

[62] I am also mindful that the worker is exposed to hand-arm vibration and cold temperatures during the operation of the processor, which policy item #27.00 also lists as risk factors for ASTDs. I further find the worker was exposed to risk factors in relation to a lack of task variability, and his work cycles involved the cyclical use of the same body tissues (his extensor tendons) with little

to no time for rest/recovery, especially given his extended work hours and working for two to three weeks continuously without days off.

[63] Further, Dr. Daneshvar addressed the worker's daily mechanical maintenance duties, which Dr. Vizsolyi did not address (of note, the Board did not gather any evidence about those duties). It is Dr. Daneshvar's opinion that, for about one hour per day, the worker's activities of equipment maintenance "place stress" on the worker's forearm muscles, which he wrote can lead to or aggravate lateral and medical epicondylitis.

[64] Based on the worker's description of his equipment maintenance duties, I find as fact that the worker's extensors and supinator tendons were likely exposed to some awkward postures, along with force, including forceful gripping.

[65] I am mindful that the specific risk factors under policy item #27.31 are not present; however, they are not the only risk factors for ASTDs. As stated in policy item #27.31, the factors outlined in that policy are not preconditions to acceptance of the claim and they are not the only factors that may be relevant. In addition, policy item #27.31 provides that some studies indicate that "tasks strenuous to the muscle-tendon structures of the arm" are of relevance to causation of epicondylitis. I have no hesitation in finding the worker's job tasks are unrelentingly strenuous to the muscle-tendon structures of his arms. I again point out that the practice directive guidelines are clearly not the only factors that may be relevant; yet, Dr. Vizsolyi appeared to limit his opinion to those guidelines.

[66] Taking into consideration the constant static loading of the worker's extensor tendons while operating the joysticks for 10 hours per day over extended periods of time with little recovery time, while exposed to cold and constant hand-arm vibration, coupled with a further hour of maintenance work per day that also stresses the same tendons, I find the worker was likely exposed to sufficient risk factors outlined in policy item #27.00 that were capable of stressing the tissues associated with his diagnosed bilateral lateral epicondylitis.

[67] There is no evidence suggesting a non-work-related cause of the worker's epicondylopathy. As well, his condition is bilateral and his work activities expose his hands, wrists, and forearms to essentially identical activities for 10 hours per day. Moreover, once the worker significantly reduced the amount he was working, he experienced relief of his symptoms. These factors all provide further support for a causal connection between work activities and the worker's bilateral lateral epicondylopathy.

[68] For the above-noted reasons, I find the worker's bilateral lateral epicondylopathy was likely due to the nature of his employment. I allow the worker's appeal of this issue.

Is the worker's bilateral thumb joint OA due to the nature of his employment, as contemplated by section 6 of the Act?

[69] As previously explained, an occupational disease may be recognized by the Board in a variety of ways. Thumb joint OA is not a condition recognized by the Board as being an occupationally-related disease. It would have to be recognized under policy item #26.04 as a "special case."

[70] I begin by finding that the evidence does not establish the worker's employment caused his OA in the first place. Neither Dr. Vizsolyi nor Dr. Sutherland were able to conclude the worker's OA was directly caused by his employment. The worker's representative submitted that Dr. Gregory's July 10, 2019 opinion established the worker's employment was of causative significance to the worker developing OA; however, Dr. Gregory followed up on July 18, 2019 to clarify his earlier opinion. I do not interpret his opinion as being supportive of the worker's thumb CMC joint OA having been directly caused by his work duties.

[71] The worker's representative also submitted that the EBPG paper supported causation. With respect, I must disagree. To the contrary, the EBPG determined that there was nothing other than hypotheses (based on case studies) that certain occupations (of which equipment operator was not mentioned) might play a role in the development of first CMC joint OA.

[72] Finally, Dr. Daneshvar was also unable to conclude that the worker's job duties caused him to develop OA. Dr. Daneshvar advised that, in the absence of any specific trauma, it was not possible to decide on the actual cause of the worker's early OA.

[73] In short, none of the medical opinions or the EBPG paper have led me to conclude that the nature of the worker's occupation played a role of causative significance in the worker developing CMC joint OA in the first place. Of note, CMC joint OA is recognized as a common condition.

[74] With respect to an aggravation of that condition, Dr. Vizsolyi was of the opinion that the risk factors in the worker's work duties were not of sufficient degree to cause an aggravation. In considering his opinion, I must first be mindful that he was not aware of the worker's additional daily mechanical repair and maintenance duties.

[75] Drs. Gregory and Daneshvar disagreed with Dr. Vizsolyi. Dr. Gregory wrote that the constant gripping and pinching manoeuvres while operating the joystick exacerbated the worker's symptoms of OA. Dr. Daneshvar wrote that, based on his review of the worker's work duties of using his hands on the controllers (regularly gripping, pressing buttons, and moving his thumbs) and the daily maintenance work, it was his opinion that the worker's occupation was the direct cause of the aggravation of his thumb CMC joint symptoms.

[76] Practice Directive #C4-2 provides that where a claim is for an aggravation of a disease that has not been recognized as an occupational disease, the Board adjudicates the aggravation of the disease under policy item #26.55 and section 6 of the Act. The practice directive adds that it is the "aggravation" of that disease that is being adjudicated and not the disease itself and, therefore, the procedure set out in policy item #26.04 is not required.

[77] Policy item #26.55 provides that there must be evidence that the pre-existing disease was "significantly accelerated, activated, or advanced more quickly than would have occurred in the absence of the work activity" to find that an aggravation occurred. Policy explains, however, that this must be distinguished from the situation where the work activities have the effect of drawing the pre-existing disease to the worker's attention without significantly affecting its course. For example, policy states that a worker who experiences hand or arm pain due to an arthritis condition affecting that limb will not be entitled to compensation simply because they experience pain in that limb from performing employment activities.

[78] Practice Directive #C4-2 further states that it is important to be aware that what policy intends by "aggravation" is often not what physicians mean. A physician's reference to "aggravating a pre-existing degenerative condition" may include a description of symptom onset. Policy requires more. Evidence is required to show in what way the pre-existing condition has been accelerated, activated, or advanced more quickly.

[79] The practice directive goes on to explain that in cases where the worker feels increased symptoms from a pre-existing condition while working, but work has not significantly affected the course of the disease, an aggravation of the pre-existing condition is not accepted and the symptoms are not compensable. An example given is where a worker, who experiences pain and numbness in a hand/wrist due to pre-existing carpel tunnel syndrome, is not entitled to compensation just because they experience those same symptoms while performing their work activities. For an aggravation of the pre-existing condition to be accepted, there must be reliable evidence that the worker's underlying condition has been significantly accelerated, activated, or advanced more quickly as a result of the work duties in question**.**

[80] There is also potentially relevant guidance in policy item #26.50, which explains that workers may develop a disability due to the "natural aging process." Natural degeneration may be influenced by a wide variety of factors, some occupational, some not, but where the degeneration is "of a kind that affects the population at large" (which I interpret to include OA), it is difficult for the Board to measure the significance of each occupation on each kind of degeneration. The policy notes that it would also be difficult to determine whether a particular occupation had any significant effect in advancing the pace of degeneration. Accordingly, where a worker has a kind of bodily deterioration that affects the population at large, it is not compensable simply because of a possibility that work may be one of the variables influencing "the pace of the degeneration." For the disability to be compensable, the evidence must be able to establish that the job duties brought about a disability that would probably not otherwise have occurred, or that the work significantly advanced the development of a disability that would otherwise not have occurred until later.

[81] Dr. Vizsolyi seemed to consider "occupational risk factors" when addressing whether the worker's employment activities had caused an aggravation of his bilateral CMC joint OA. As earlier noted, the general risk factors for ASTDs are set out in policy item #27.00. OA is not an ASTD. It is a condition of the bone and joint, rather than of the soft tissues. The policy does not indicate that the risk factors for ASTDs are relevant to OA. Based on the medical opinions on file; however, it appears that some aspects of policy item #27.00 may be of assistance. In my view, the question of what risk factors, if any, are associated with an aggravation of CMC joint OA is a matter that requires expert evidence.

[82] The review officer concluded there was no reliable evidence that the trajectory of the worker's bilateral thumb OA had been altered by his work duties. He decided, in reliance on Dr. Vizsolyi's opinion, that the worker's bilateral thumb OA was not aggravated by his job duties.

[83] Like the review officer, I observe that Dr. Sutherland did not explain how the course of the worker's bilateral CMC joint OA was altered. Dr. Sutherland simply made a statement that the condition was aggravated. I do not find her opinion to be of assistance.

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[84] The need for more than just symptoms of an underlying OA being brought to light is encapsulated in Practice Directive #C4-2. It further provides an example of a worker with bilateral hand pain. The worker's symptoms persist even after being off work for some time. After medical investigations, the worker is diagnosed with rheumatoid arthritis. A medical advisor explains that rheumatoid arthritis is a systemic condition and is not caused by physical activity. The worker's employment duties involved intensive use of her hands and the worker experienced pain associated with her arthritic condition while performing these duties. However, the medical evidence did not support a finding that the worker's arthritis was accelerated, activated, or advanced by the work duties. The practice directive reiterates that a distinction must be made between a situation where an underlying condition has been significantly accelerated, activated, or advanced more quickly by the employment activity and one where the work activity merely brought the symptoms to light.

[85] In the above example, I note that there is a medical opinion that rheumatoid arthritis could not be aggravated by physical activity. I do not have such a definitive opinion in this case in relation to CMC joint OA. To the contrary, the opinions of Drs. Vizsolyi, Gregory, and Daneshvar all suggest that physical activity may play a role of causative significance in an aggravation of CMC joint OA.

[86] I am mindful, however, that the opinions from Drs. Gregory and Daneshvar address an aggravation of the worker's "symptoms" of bilateral CMC joint OA. This does not establish causation of an aggravation. It may provide some evidence of a possible aggravation, but it is not determinative.

[87] That said, I cannot ignore that Dr. Daneshvar also wrote, contrary to Dr. Vizsolyi's opinion, that even when there is little motion in the joint, significant loads go through the CMC joint. He further explained when one has developed early OA (as has the worker), this joint can be quite sensitive, and further stressing of it will lead to further pain and disability. In particular, I note that Dr. Daneshvar was of the opinion that the use of joysticks and manual work would not only continue to cause a flare up of symptoms in the worker's thumb CMC joints, it would also "continue the progression of the arthritis which has developed in his thumbs."

[88] I interpret Dr. Daneshvar as stating that not only would the worker's job duties of near constant movement and force through his thumbs for ten hours per day when operating the joysticks and constant gripping when performing mechanical duties, increase his symptoms of OA, they would also "continue the progression" of his OA. I recognize that there is no imaging evidence to establish a progression of OA[10], but I have no compelling reason to reject Dr. Daneshvar's opinion in this regard. I give it greater weight than I do to the opinion of Dr. Vizsolyi for several reasons.

[89] Deciding whether work activities or exposures accelerated or aggravated the course of an underlying disease is primarily a medical question. The review officer pointed out that the brevity of Dr. Vizsolyi's opinion may bring into question the quality of that opinion; however, he observed that Dr. Vizsolyi stated that he had viewed the videotaped evidence. As I determined previously, Dr. Vizsolyi was not aware of the worker's additional duties. This lessens the weight

[10] Dr. Daneshvar also pointed out that the degree of arthritis does not always reflect the degree of symptoms.

to be given to his opinion. As well, given Dr. Daneshvar's expertise in orthopaedics, I find his comments about significant loads going through the CMC joints even without movement of those joints, to be more reliable than Dr. Vizsolyi's observations in this regard. This too lessens the weight to be given to Dr. Vizsolyi's opinion on aggravation.

[90] Moreover, Dr. Daneshvar referred to a study (which was published after the EBPG paper) to support his opinion that significant loads on the CMC joint impact OA of that joint, making it extremely susceptible to joint OA. There is no question that the worker was exposed to significant loads to his CMC joints due to the nature of his work.

[91] In addition, Dr. Gregory was of the opinion that the worker was at risk of further "degenerative change" in his thumb CMC joints from operation of the joysticks, which Dr. Gregory noted requires the worker to perform constant pinching, gripping, and twisting manoeuvres. I interpret Dr. Gregory as also indicating there is constant loading of the worker's thumb CMC joints from his work activities and this places him at risk of degenerative changes. Thus, while Dr. Gregory could not say the worker's job actually caused his CMC joint OA in the first place (owing to the lack of epidemiological literature[11]), I understand him to be saying that the worker's job duties could result in the progression of degenerative changes in that joint once started.

[92] Based on the expert evidence from Drs. Daneshvar and Gregory, which I give greater weight to than that of Dr. Vizsolyi, for the reasons outlined above I find the worker's job duties likely caused an aggravation of his bilateral CMC joint OA, in keeping with policy item #26.55. I allow the worker's appeal of this issue.

Conclusion

[93] I vary *Review Reference #R0239525* by finding, pursuant to subsection 6(1) of the Act, that the worker's bilateral lateral epicondylitis is due to the nature of his employment and also by finding that he sustained an aggravation of his pre-existing bilateral CMC joint OA due to the nature of his employment. I have not found, however, that the worker's bilateral CMC joint OA was directly caused by his employment. The Board will now determine the nature and extent of any benefits available to the worker as a result of my findings.

Appeal Expenses

[94] The worker seeks reimbursement in the amounts of $5,486.25 (inclusive of $261.25 for GST) for Dr. Daneshvar's August 8, 2019 medical-legal opinion, and $2,625 (inclusive of $125.00 for GST) for Dr. Gregory's July 10, 2019 medical-legal opinion[12]. Dr. Gregory indicated that he billed pursuant to the BC Medical Association (BCMA)[13] Fee Code 00073. Dr. Daneshvar only indicated that he was billing for an "Independent Medical Evaluation." He did not provide a breakdown of his fee.

[11] I am unaware if Dr. Gregory was familiar with the study cited by Dr. Daneshvar. I note that Dr. Gregory is a plastic surgeon and therefore it may be that he is not as familiar with the literature in the field of orthopaedic medicine. In any event, I have no compelling reason to reject Dr. Daneshvar's reliance on the study from 2017.

[12] There was no separate invoice for the July 18, 2019 addendum.

[13] Now known as Doctors of BC.

[95] Item #16.1.3 of WCAT's *Manual of Rules of Practice and Procedure* (MRPP) provides that WCAT will generally order reimbursement of expenses for obtaining or producing evidence, regardless of the result in the appeal, where the evidence was useful or it was reasonable for the party to have sought such evidence in connection with the appeal. I consider it reasonable for the worker to have requested medical-legal opinions from Drs. Daneshvar and Gregory in the pursuit of his appeal.

[96] At the oral hearing, after agreeing to provide the worker's representative with time to obtain expert medical opinions, I informed the representative that he should familiarize himself with the information on WCAT's website concerning appeal expenses. I explained that there were guidelines for expenses related to expert evidence and he should keep that in mind when requesting any expert evidence. Item #16.1.3.1 of the MRPP states that WCAT will usually order reimbursement of expert evidence at the rates or fee schedule established by the Board for similar expenses. The Board's current fee schedule provides that physicians can bill for medical-legal opinions in an amount up to $1,581.57.

[97] In the letters of instruction to Drs. Gregory and Daneshvar, the worker's representative did not address what would be paid for their medical-legal opinions. The worker's representative acknowledged that Dr. Daneshvar's opinion was higher than the rate paid by the Board for a one-day assessment under its fee schedule. He submitted that, in seeking a privately-funded report, the worker "did not have the luxury of" the Board's negotiated fee schedule with approved service providers. He was required to pay more to have the opinion done prior to the deadline for it.

[98] The Board's fee schedule indicates that there is no rate for independent medical examinations; however, WCAT's appeal expenses information on the website explains that the Board's practice is to consider these assessments as being equivalent to a medical-legal opinion so that the Board's fee schedule for medical-legal opinions should apply.

[99] Item #16.1.3.1 also provides that a WCAT panel has the discretion to award reimbursement of an expert opinion in an amount greater than the Board's fee schedule, but will do so only in limited circumstances. If the bill or account exceeds the Board's fee schedule, the party seeking reimbursement of the full amount must explain why the account exceeds the fee schedule and why the panel should order reimbursement of the full amount. In the absence of a request and a satisfactory explanation of the circumstances, WCAT will limit reimbursement to the Board's fee schedule.

[100] Item #16.1.3.1 lists some of the limited circumstances for consideration. They include whether the issue being addressed is unusually complex; the expert was required to review a significant body of evidence and it was reasonable to do so; the expert has a high level of expertise in a unique area and it was reasonable to engage such an expert; there is limited availability of experts in the geographical area and it was reasonable to engage such an expert; and the expert was required, for the purposes of providing the opinion, to test or examine parties or witnesses.

[101] With respect to Dr. Gregory's report, there was no explanation why he charged more than the fee schedule allowed. I accept that he too would have been asked to provide a report within a short time-frame; however, there is no indication that played a role in the fee he charged. Rather, he charged under the BCMA Fee Code, which differs from that negotiated by the Board.

[102] I do not consider that the issue Dr. Gregory addressed was unusually complex. As well, there was not a substantial amount of evidence to review on this appeal, and there is no indication that Dr. Gregory examined the worker for purposes of preparing his report. Rather, it appears he relied on a previous examination of the worker in 2017. I am not persuaded that reimbursement for Dr. Gregory's medical-legal opinion should exceed the Board's fee schedule for a medical-legal opinion. I decline to exercise my discretion to allow for full reimbursement of Dr. Gregory's medical-legal opinion. I direct the Board to reimburse the worker in the amount of $1,581.57 plus applicable taxes.

[103] With respect to Dr. Daneshvar's report, again I do not consider the issues being addressed were unusually complex and he was not required to review a significant body of evidence. I agree, based on his curriculum vitae, that he has a high level of expertise in orthopaedic medicine, but I do not consider that Dr. Daneshvar's expertise was in "a unique area." The evidence also does not suggest that there was a limited availability of orthopaedic surgeons in the geographical area (the worker was able to travel to the Lower Mainland to see Dr. Daneshvar). The only circumstance met is that Dr. Daneshvar considered it necessary to examine the worker for purposes of providing his opinion. I am also mindful that Dr. Daneshvar would have been asked to provide a report within a short time-frame; however, there is no indication that played a role in the fee he charged.

[104] Section 249 of the Act allows a WCAT panel to seek independent medical assistance or advice from one or more health professionals from a list established by the chair of WCAT, if the panel believes that it would assist in reaching a decision. Such assistance is known as an independent health professional (IHP) opinion. It is similar to requesting an independent medical examination. I consider the worker's appointment with Dr. Daneshvar to be comparable to that of an IHP. The MRPP provides that the chair may determine the terms and conditions, including remuneration and reimbursement of expenses, under which a health professional may be retained under section 249. In so doing, the chair will take into account any fee schedule established by the Board for services provided by health professionals.

[105] WCAT currently pays $1,750.00 for an IHP opinion. In the unique circumstances of this claim, where I granted additional time for the worker to obtain an "Independent Medical Evaluation" from an expert in orthopaedic medicine in circumstances where the worker did not have a treating orthopaedic surgeon and I considered an opinion from an expert in the field of orthopaedic medicine would be useful on this appeal, I direct the Board to reimburse the worker in the amount of $1,750.00 plus applicable taxes for Dr. Daneshvar's "Independent Medical Evaluation" report dated August 8, 2019.

[106] The worker also seeks reimbursement for his lost wages and his travel expenses to attend the appointment with Dr. Daneshvar on July 29, 2019 in Vancouver, BC. The worker resides and works on Vancouver Island. He claims the following amounts: (1) $169.10 for round-trip BC Ferries fares; (2) $29.15 for lunch on July 29, 2019; (3) mileage on July 29, 2019 (340 kilometres); and (4) $1,429.33 in lost wages. The latter is calculated on the basis of

24 hours straight time, five hours overtime, three hours “Grease time,” 29 hours at $1.00 per hour for having a first aid ticket, and 6% vacation pay. The worker had to leave camp on July 28, 2019 to attend the medical appointment and he was unable to return to camp until July 31, 2019 (the employer confirmed work was available throughout that time).

[107] Under item #12.5.1 (Expenses for Medical Examination) of the MRPP, it states that where a worker is required to travel to attend an examination by the independent health professional, WCAT will direct the Board to pay for the necessary arrangements for travel and accommodation. WCAT will also direct the Board to reimburse the worker’s expenses for attending the examination according to their criteria (see policy item #100.14 of the RSCM II). Such expenses may include lost time from work.

[108] As I consider the worker’s appointment with Dr. Daneshvar to be comparable to that of an IHP, I direct the Board to reimburse the worker for his lost wages, and his travel and meal expenses in accordance with the Board’s criteria.

[109] No other expenses were requested. As none are apparent, I make no further order for appeal expenses.

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Vice Chair

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