

**UNITED STATES DISTRICT COURT  
DISTRICT OF MINNESOTA**

IN RE: NATIONAL HOCKEY LEAGUE )	No. 0:14-md-02551 (SRN/JSM)
PLAYERS' CONCUSSION INJURY )	
LITIGATION )	<b>PLAINTIFFS' OPPOSITION TO</b>
_____ )	<b>DEFENDANT NATIONAL HOCKEY</b>
_____ )	<b>LEAGUE'S MEMORANDUM OF</b>
This Document Relates To: )	<b>LAW IN SUPPORT OF MOTION TO</b>
ALL ACTIONS. )	<b>EXCLUDE THE TESTIMONY OF R.</b>
_____ )	<b>DAWN COMSTOCK</b>
_____ )	

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## I. INTRODUCTION

Dr. R. Dawn Comstock is a well-respected epidemiologist with a strong background in sports injuries, particularly concussions. Based upon scores of scientific studies, analyses, and case reports, Dr. Comstock has opined that playing in the National Hockey League increases one's risk of sustaining concussions and that sustaining concussions in turn increases one's risk for long term neurological disorders. (Comstock Decl. ¶¶ 21-22).<sup>1</sup> Those opinions are hardly novel. In fact, the NHL's own expert, Dr. Christopher Randolph, agrees that playing contact sports like ice hockey increases one's risk of concussion (Randolph Tr. 105:8-22),<sup>2</sup> and even the National Football League agrees there is a causal link between concussions and long term mental health issues.<sup>3</sup>

Nevertheless, the NHL seeks to exclude the entirety of Dr. Comstock's opinions. In doing so, the NHL has mischaracterized her Declaration and her testimony. *First*, they

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<sup>1</sup> Citations to "(Comstock Decl. ¶ \_\_)" refer to paragraphs in the Declaration of R. Dawn Comstock, Ph.D, Dkt. No. 642.

<sup>2</sup> Citations to "(Randolph Tr. \_\_)" refer to the transcript of the Video Deposition of Christopher Randolph, Ph.D., from January 30, 2018, attached as Exhibit B to the Declaration of Brian D. Penny in Support of Plaintiffs' Opposition to Defendant National Hockey League's Memorandum of Law in Support of Motion to Exclude the Testimony of R. Dawn Comstock..

<sup>3</sup> *See* Testimony of Jeff Miller, Senior Vice President, National Football League, before the Subcommittee on Comm., Manud. And Trade of the Cttee. On Energy and Commerce, U.S. House of Rep., March 14, 2016, [www.c-span.org/video/?406450-1/hearing-concussion](http://www.c-span.org/video/?406450-1/hearing-concussion) at 1:24:25-1:25:15.

argue Dr. Comstock admitted her opinions were not peer reviewed (Br. p. 1),<sup>4</sup> but she did not admit that the opinions *in her Declaration* were not based upon peer-reviewed science. Rather, she admitted that a statement made during her deposition, in which she noted her personal belief that the association between mTBI and later in life neurological issues was so strong that it might even be deemed “causal,” had not yet been peer-reviewed. (*See* Comstock Tr. 299-300).<sup>5</sup> That personal belief is not an opinion Plaintiffs have asked Dr. Comstock to offer in this case.

*Second*, the NHL avers that Dr. Comstock “*intentionally disregarded* systematic reviews and consensus statements,” (Br. p. 2) even though she cites them in her Declaration. (*See e.g.*, Comstock Decl. ¶¶ 108-112, 114-117). In fact, Dr. Comstock consulted virtually the entire body of scientific literature on the topics of concussion risks and the association between mTBI and later in life neurological disorders. Dr. Comstock explained in her Declaration and at her deposition that blindly adhering to a rigid inclusion/exclusion criteria that systematically excludes a large body of relevant science would arbitrarily skew the results of any study on these issues. This is, in part, because such an approach would exclude the rich body of case studies on concussions and CTE

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<sup>4</sup> Citations to “Br. p. \_\_\_”, refer to pages in Defendant National Hockey League’s Memorandum of Law in Support of Motion to Exclude the Testimony of R. Dawn Comstock, Ph.D., Dkt. No. 777.

<sup>5</sup> Citations to “(Comstock Tr. \_\_\_)” refer to the transcript of the Video Deposition of R. Dawn Comstock, Ph.D., from March 15, 2017, attached as Exhibit A to the Declaration of Brian D. Penny in Support of Plaintiffs’ Opposition to Defendant National Hockey League’s Memorandum of Law in Support of Motion to Exclude the Testimony of R. Dawn Comstock.

performed by groups like those at Boston University. Moreover, the NHL fails to acknowledge that such consistent case reports are highly relevant to (and informative of) Dr. Comstock's opinions of *heightened risk* as opposed to an opinion on *specific causation*.

*Third*, the NHL mischaracterizes the very limited role "extrapolation" plays in Dr. Comstock's Declaration. (Br. pp. 2-3). She does not rely upon extrapolation to support her opinions of heightened risks of concussions and long term neurological disorders, but rather extrapolated data from NFL players only to offer an estimate of the number of NHL players that are likely to develop certain mental health issues later in life. That estimate is not critical to the opinions Dr. Comstock offers, even though her well-founded extrapolation of head injuries and their effects from one contact sport to another is hardly novel.

The NHL has failed to raise any issue sufficient to exclude Dr. Comstock's testimony. For the most part, the best they can do is suggest there is a debate in the scientific community over these issues, but that hardly merits exclusion under *Daubert* and its progeny.

## **II. BACKGROUND**

Dr. Dawn Comstock is an expert in epidemiology. She is a professor in the Department of Epidemiology in the Colorado School of Public Health at the University of Colorado. (Comstock Decl. ¶ 1). For the past 15 years, Dr. Comstock has worked as an injury epidemiologist with a specific focus on sports-related injuries. (Comstock Decl.



¶ 3). She is the founding Director of the National High School Sports-Related Injury Surveillance Study (“High School RIO”), one of the largest sports injury databases in the world. (Comstock Decl. ¶ 1).

In addition to her teaching positions, Dr. Comstock has worked for the Center for Disease Control and Prevention (CDC), the Center for Injury Research and Policy (CIRP), the Naval Health Research Center’s Clinical Epidemiology Division, and the Iowa Department of Public Health’s Center for Acute Disease Epidemiology. She currently serves as a paid consultant on the CDC NCIPC Traumatic Brain Injury Surveillance Project. (Comstock Decl. ¶¶ 4-6).

Dr. Comstock was one of only five panelists invited to speak at the White House Healthy Kids and Safe Sports Concussion Summit in 2014, where former President Barrak Obama noted “[a]s a result of her continued examination of youth sports and injury surveillance, Comstock is considered one of the country’s leading experts on the topic, and her studies have had wide-reaching impact and attention across the national landscape.” (Comstock Decl. ¶ 8). She also testified before the US House of Representatives Committee on Energy and Commerce in 2016 at a hearing entitled “Concussion in Youth Sports” Evaluating Prevention and Research.” (Comstock Decl. ¶ 14).

Dr. Comstock has published well over 100 peer-reviewed papers, many of them frequently cited. At least 46 of these papers dealt with concussions and 92 (including the 46 concussion papers) dealt with sport’s related injuries. (Comstock Decl. ¶ 16). Unlike many of the NHL’s experts, Dr. Comstock is not a frequent expert witness and has

virtually no history of paid expert work in the litigation context. (Comstock Decl. at Ex. 1, p. 38 (showing only one other case in which Dr. Comstock has served as a paid consultant in the last 4 years)).

Plaintiffs retained Dr. Comstock to provide expert opinion on i) the epidemiology of concussions and repeated subconcussive impacts among NHL players, ii) the relative risk of concussions and repeated subconcussive impacts among NHL players compared to other sports, iii) the current state of knowledge regarding NHL players' risk of long-term negative health effects as a result of concussions and repeated subconcussive impacts, iv) how an epidemiologic study of retired NHL players would be beneficial to the health and safety of both retired and current NHL players, and v) methodological options for conducting such a study of retired NHL players. (Comstock Decl. ¶19).

After an extensive review of the relevant scientific literature, and springing from her work on sports related mTBI, Dr. Comstock offered the following opinions: (i) NHL hockey players are at increased risk for sustaining concussions and repeated subconcussive impacts compared to younger athletes, athletes playing at lower competitive levels, and athletes participating in most other team sports popular in the United States; (ii) NHL hockey players are at significantly increased risk of sustaining concussions and repeated subconcussive impacts in competition compared to practice; (iii) NHL hockey players who sustain concussions and repeated subconcussive impacts are at increased risk of developing long-term negative health effects compared to individuals who do not play ice hockey or some other full contact sport (*e.g.*, football, boxing, etc.); and (iv) evidence outlining several risk factors for head injury in ice hockey

is sufficient to drive new or enhanced concussion prevention efforts. (Comstock Decl. ¶¶ 20-23).

These are the opinions Dr. Comstock offers in this case. At her deposition, however, she was also asked if she personally believes there is a causal link between mTBI and later in life neurocognitive decline. After explaining several times the opinions she offers in her Declaration (that playing contact sports heightens your risk of concussions and that sustaining concussions elevates your risk on long term neurological disorders)<sup>6</sup>, Dr. Comstock stated:

**A** So, again, I think the science is very, very clear that there's a strong risk association, that playing contact sports clearly elevates your risk of sustaining a concussion.

**Q** Yes.

**A** And that having a history of concussion is associated with, increases your risk of having late in life neurocognitive deficit.

**Q** And that's as far as you will go.

**A** Well, that's the –

**Q** Or that's where you are.

**A** That's where I am.

**Q** Okay.

**A** That's established -- for me that's established what I believe to be a causal pathway from playing contact sports, sustaining a concussion, having long-term negative outcomes.

\* \* \*

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<sup>6</sup> See e.g., Comstock Tr. at 78:18-80:13; 116:7-14; 117:17-118:22; 120:11-18; 121:13-20; 140:9-19; 145:21-146:8; 227:1-229:15.

**A** I currently believe that for me personally there's a preponderance of evidence, given a strong association between playing contact sports and brain injury --

**Q** M-hm.

**A** -- and the strong association between brain injury and long-term negative effects, that I personally believe that I will be incredibly surprised if there is not at some point in the near future consensus regarding this causality.

(Comstock Tr at 231:6-17; 257:16-258:3). Defense counsel then returned to this opinion later in the deposition, wherein the following exchange occurred:

**Q** Now, **here today, as compared to your Declaration**, you've said what I think is for the first time, at least in what I've read, is that you think the association -- that the literature supports the proposition that the association between concussion and subconcussive blows and long-term neurodegenerative diseases is strong enough in your view, at least as you sit here today, to be causal. Do you recall that?

**A** Yes, I believe I said that.

**Q** Okay. And if that were submitted, that opinion were submitted to a peer review, what qualifications would you put on that statement?

**A** If I was going to make that statement, I would only do it as a result of my own version of a meta-analysis or systematic review, so I wouldn't make that statement unless I felt that there was strong enough evidence that I could point to, and then a reviewer should not ask me to qualify the statement because I try very hard to only make statements based -- that can be drawn directly from the data that I present in my papers, the results that I present in my papers.

**Q** And you agree that that opinion that you stated on the record today has not been peer reviewed.

**A** Oh, correct. It has not been peer reviewed.

(Comstock Tr. at 299:16-300:21)(emphasis added).

It is important to note, as both Dr. Comstock and defense counsel did, that this opinion on a “causal pathway” was not an opinion Dr. Comstock offered in her Declaration, but was rather her personal belief that the scientific literature supporting her conclusions about *heightened risk* was so well established that it might even support an opinion on specific causation. Nevertheless, it is this testimony about a causal link, and not the opinions offered in Dr. Comstock’s Declaration in support of Plaintiffs’ Motion for Class Certification, that the NHL spends most of its time attacking.

### **III. LEGAL STANDARD**

Rule 702 of the Federal Rules of Evidence provides that “[a] witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) The expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) The testimony is based on sufficient facts or data;
- (c) The testimony is the product of reliable principles and methods; and
- (d) The expert has reliably applied the principles and methods to the facts of the case.

Ultimately, Rule 702 is a “rule clearly...of admissibility rather than exclusion.”

*Lauzon v. Senco Prods., Inc.*, 270 F.3d 681, 686 (8th Cir. 2001) (quotation omitted).

Determining whether to admit expert testimony under the rule requires the trial court to fulfill a “gatekeeping role.” *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S.

579, 597 (1993). When exercising this role, the judge's first line of inquiry is to determine "whether the expert has sufficient qualifications to testify." *Humphrey v. Diamant Boart, Inc.*, 556 F. Supp. 2d 167, 174 (E.D.N.Y. 2008). An expert meets the qualification requirement when he or she "possesses sufficient knowledge gained from practical experience," even though that person "may lack academic qualifications in the particular field of expertise." *Fox v. Dannenberg*, 906 F.2d 1253, 1256 (8th Cir. 1990).

As the Eighth Circuit has noted, Rule 702 "does not rank academic training over demonstrated practical experience." *Circle J. Dairy, Inc. v. A.O. Smith Havestore Products, Inc.*, 790 F.2d 694, 700 (8th Cir. 1986). And ultimately, the court's main focus in determining competency is in assessing "whether the expert's testimony will assist the trier of fact." *Fox*, 906 F.2d at 1256. The weight of the expert's testimony is for the trier of fact, and "challenges to the expert's skill or knowledge go to the weight to be accorded the expert testimony rather than to its admissibility." *Id.*

Once the court has decided the question of competency, the second inquiry is "whether the proffered testimony has sufficiently reliable foundation." *Amorgianos v. Nat'l R.R. Passenger Corp.*, 303 F.3d 256, 265 (2d Cir. 2002). To answer this question the court assess whether the testimony is based on sufficient facts or data; whether the testimony is the product of reliable principles and methods; and whether the expert has reliably applied those principles and methods to the facts of the case. *Id.*; Fed. R. Evid. 702.

The court's focus when applying these factors must be "solely on principles and methodology, not on the conclusions that they generate." *Id.* at 594-95. Indeed, "even if

the judge believes there are better grounds for some alternative conclusion, and that there are some flaws in the scientist's methods, if there are good grounds for the expert's conclusion, it should be admitted." *Heller v. Shaw Indus.*, 167 F.3d 146, 152-53 (3d Cir. 1999) (quotation omitted). Therefore, "the district court could not exclude the [scientific] testimony simply because the conclusion was 'novel' if the methodology and the application of the methodology were reliable." *Id.* (quotation omitted). The court must take a "flexible" approach when applying the *Daubert* factors because the "overarching subject" of the analysis is "the scientific validity—and thus the evidentiary relevance and reliability—of the principles that underlie a proposed submission." *Daubert*, 509 U.S. at 594-95. Given the design of the *Daubert* test, courts are *not* required to rigidly apply all of the various factors; rather, the aim is to ensure that the proffered testimony is reliable and relevant. *Id.* at 593 (recognizing that "many factors will bear on the inquiry, and [courts] do not presume to set out a definitive checklist or test"); *see Jenson v. Eveleth Taconite Co.*, 130 F.3d 1287, 1298 (8th Cir. 1997) (stating, "[i]t is clear the Court did not intend for a trial judge to automatically exclude relevant evidence if one of these conditions was not fully satisfied."); *Unrein v. Timesavers, Inc.*, 394 F.3d 1008, 1011 (8th Cir. 2005) (stating, "[t]here is no single requirement for admissibility as long as the proffer indicates that the expert evidence is reliable and relevant.").

Ultimately, application of the *Daubert* factors should result in "the liberal admission of expert testimony." *Johnson v. Mead Johnson & Co., LLC*, 754 F.3d 557, 562 (8th Cir. 2014). Therefore, "[o]nly if the expert's opinion is so fundamentally unsupported that it can offer no assistance to the jury must such testimony be excluded."

*Id.* Indeed, whether an expert’s opinion meets the Daubert standard is not based on whether that opinion “has the best foundation,” but rather, whether “the particular opinion is based on valid reasoning and reliable terminology.” *Oddi v. Ford Motor Co.*, 234 F.3d 136, 145 (3d Cir. 2000).

Adherence to this liberal spirit is particularly important when motions attacking expert testimony are brought at the class certification stage, as is the case in this matter. “A court’s inquiry on a motion for class certification is ‘tentative,’ preliminary,’ and ‘limited’” because it must decide “only if ‘questions of law or fact common to class members predominate over any questions affecting only individual members [and if] a class action is superior to other available methods for fairly and efficiently adjudicating the controversy.” *Cox v. Zurn Pex, Inc. (In re Zurn Pex Plumbing Prods. Liab. Litig.)*, 644 F.3d 604, 613 (8th Cir. 2011) (internal citations omitted). Indeed, “expert disputes ‘concerning the factual setting of the case’ should be resolved at the class certification stage only to the extent ‘necessary to determine the nature of the evidence that would be sufficient, if the plaintiff’s general allegations were true, to make out a prima facie case for the class.’” *Id.* at 611 (quoting *Blades v. Monsanto Co.*, 400 F.3d 562, 567 (8th Cir. 2005)).

Given the limited nature of a court’s examination of expert testimony at the class certification stage, “an exhaustive and conclusive *Daubert* inquiry before the completion of merits discovery cannot be reconciled with the inherently preliminary nature of pretrial evidentiary and class certification rulings.” *Id.* “The main purpose of *Daubert* exclusion is to protect juries from being swayed by dubious scientific testimony. That interest is



not implicated at the class certification stage where the judge is the decision maker” simply because ““there is less need for the gatekeeper to keep the gate when the gatekeeper is keeping the gate only for himself”” or herself. *Id.* (quoting *Untied States v. Brown*, 415 F.3d 1257, 1269 (11th Cir. 2005)). As the Eighth Circuit has noted “[w]e have never required a district court to decide conclusively at the class certification stage what evidence will ultimately be admissible at trial.” *Id.* at 611.

In fact, attempts to exclude experts at the class certification stage have not typically been successful within the Eighth Circuit in the wake of *Zurn*. *E.g.*, *In re Gobal Tel\*Link Corp. ICS Litig.*, 2016 U.S. Dist. LEXIS 163900, \*17 (W.D. Ark. Nov. 29, 2016)(stating, “[t]he Court believes that judicial economy is poorly served, and the likelihood of prejudicial error is increased, by striking or excluding expert evidence prior to making any ruling on class certification.”); *In re Target Corp. Customer Data Sec. Breach Litig.*, 2015 U.S. Dist Lexis 119063, \*3 (D. Minn. Sept. 8, 2015)(rejecting defendant’s attempt to exclude expert based on argument that it was not possible to measure a common impact from data breaches on financial institution class members); *Ascaro LLC v. NL Industries, Inc.*, 106 F. Supp.3d 1015, 1022-23 (E.D. Mo. 2015)(denying motion to exclude contamination expert’s Declaration at class stage due to absence of sampling locations or methodology in light of *Zurn* standard; questions concerning factual bases and underpinnings of such a Declaration go to weight); *Ebert v. General Mills, Inc.*, 2015 U.S. Dist. LEXIS, \*17 (D. Minn. Feb. 27, 2015)(finding fact that expert in environmental exposure case could not testify as to uniform exposure or homogenous threat not a basis for exclusion at class certification stage).

Yet the NHL ignores this pattern, choosing instead to cite almost exclusively to non-class cases in which *Daubert* was being applied to the ultimate merits.<sup>7</sup> The only two class stage cases that it does cite have little impact on the matter before this Court. *In re Blood Reagents Antitrust Litig.*, 783 F.3d 183 (3d Cir. 2015)(simply remanding for a finding as to whether expert opinion was sufficiently reliable without any questioning of that opinion)(Def. Mem. at 5); *Grodzitsky v. Am. Honda Motor Co.*, 2015 WL 2208184, \*3 n.2 (C.D. Cal. Apr. 22, 2015)(stating it would exclude testimony under *Daubert* or an alternative without citing *Zurn* or specifying the alternative)(Def. Mem. at 6).

But even when applying *Daubert* to determine admissibility at trial, courts must be careful not to overstep their bounds by making determinations about weight and

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<sup>7</sup> *Kumho Tire Co. v. Kirby Inland Marine Inc.*, 526 U.S. 137 (1999)(Def. Mem. at 2, 7, 11); *General Electric Co. v. Joiner*, 522 U.S. 136 (1997)(Def. Mem. at 7, 18, 24, 25, 28); *Chapman v. Procter & Gamble Distributing, LLC*, 766 F.3d 1296 (11<sup>th</sup> Cir. 2014)(Def. Mem. at 7, 18); *Wells v. SmithKline Beecham Corp.*, 601 F.3d 375 (5<sup>th</sup> Cir. 2010)(Def. Mem. at 8); *McClain v. Metabolife Int'l, Inc.*, 401 F.3d 1233 (11<sup>th</sup> Cir. 2005)(Def. Mem. at 1, 12, 15, 16, 18, 29, 30); *Sappington v. Skyjack, Inc.*, 512 F.3d 440 (8<sup>th</sup> Cir. 2008)(Def. Mem. at 7); *Knight v. Kirby Inland Marine Inc.*, 482 F.3d 347 (5<sup>th</sup> Cir. 2007)(Def. Mem. at 23); *Norris v. Baxter Healthcare Corp.*, 397 F.3d 1296 (10<sup>th</sup> Cir. 2005)(Def. Mem. at 7, 12); *Bonner v. ISP Technologies, Inc.*, 259 F.3d 924 (8<sup>th</sup> Cir. 2001)(Def. Mem. at 12); *Glastetter v. Novartis Pharms. Corp.*, 252 F.3d 986 (8<sup>th</sup> Cir. 2001)(Def. Mem. at 12, 13, 23, 24, 27); *Nat'l Bank of Commerce of El Dorado v. Associated Milk Prods. Inc.*, 191 F.3d 858 (8<sup>th</sup> Cir. 1999)(Def. Mem. at 15); *In re Mirena IUD Prods. Liab. Litig.*, 169 F. Supp.3d 396 (S.D.N.Y. 2016)(Def. Mem. at 24); *In re Zolof Products Liab. Litig.*, 26 F. Supp.3d 449 (E.D. Pa. 2014)(Def. Mem. at 29); *Rimbert v. Eli Lilly & Co.*, No. Civ. 06-0874 JCH/LFG, 2009 WL 2208570 (D.N.M. July 21, 2009)(Def. Mem. at 23); *Maras v. Avis Rent A System, Inc.*, 393 F. Supp. 2d 801 (D. Minn. 2005)(Def. Mem. at 6, 10, 20, 22); *In re Rezulin Prods. Liab. Litig.*, 369 F. Supp.2d 398, (S.D.N.Y. 2005)(Def. Mem. at 23); *Miller v. Pfizer, Inc.*, 196 F. Supp.2d 1062 (D. Kan. 2002), *aff'd*, 356 F.3d 1326 (10<sup>th</sup> Cir. 2004)(Def. Mem. at 12); *Anderson v. Bristol Myers Squibb Co.*, No. Civ.A. H-95-003, 1998 WL 35178199 (S.D. Tex. Apr. 20, 1998)(Def. Mem. at 7-8, 10, 24); *Pick v. Am. Med. Sys., Inc.*, 958 F. Supp. 1151 (E.D. La. 1997)(Def. Mem. at 25).

credibility, which are questions for the jury. Indeed, “it is not the role of the district court to make ultimate conclusions as to the persuasiveness of the proffered evidence,” nor is the *Daubert* analysis “intended to supplant the adversary system or the role of the jury.” *Quiet Tech. DC-8, Inc. v. Hurel-Dubois UK Ltd.*, 326 F.3d 1333, 1341 (11<sup>th</sup> Cir. 2003).

The *Quiet Technology* case, which the Eighth Circuit relied upon in *Zurn*, provides a good prism through which to view the NHL’s motion. *Id.*; *See Zurn*, 644 F.3d at 614-15. There, relying on authority spanning across the federal circuit courts, the Eleventh Circuit emphasized that arguments about alleged deficits in an expert’s analysis—such as supposed shortcomings in calculations and inadequacies in studies and reports—are more properly attacked through the well-worn adversarial techniques of cross-examination, presentation of contrary evidence, and competing expert testimony, because such alleged defects go to the weight of the expert’s testimony, rather than to its admissibility. *Id.* The court emphasized that “in most cases, objections to the inadequacies of a study are more appropriately considered an objection going to the weight of the evidence rather than its admissibility.” *Id.*, 1345 (*quoting Hemmings v. Tidyman’s Inc.*, 285 F.3d 1174, 1188 (9<sup>th</sup> Cir. 2002)).

The NHL will have every opportunity to cross-examine Dr. Comstock about her analysis at trial. Its attempt to preclude her opinions at this stage of the case is improper, and should be denied.

#### IV. ARGUMENT

##### A. Expert opinions don't need to be "peer reviewed" to be admissible.

The NHL asserts that Dr. Comstock's opinions have not been peer-reviewed and therefore should not be admissible. (Br. pp. 8-11). But trying to make its point here, the NHL completely *misstates* Dr. Comstock's testimony. In her Declaration, Dr. Comstock opined that NHL hockey players are at an *increased risk* of developing long term neurological disorders compared to the general population. (Comstock Decl. ¶ 22). This opinion is based upon dozens of peer-reviewed studies, analyses, and articles cited in her Declaration. (*See e.g.* Comstock Decl. ¶¶82-100). In fact, this opinion is hardly debatable and even the NFL has admitted as much.

This is the well-supported opinion Dr. Comstock offers in her Declaration, *but* it is not actually the opinion that the NHL challenges as lacking peer-review. (Br. pp. 9-10). While the NHL says in its brief that Dr. Comstock "admitted" that her opinion "has never been submitted for peer-review," the opinion being referenced here is one of *direct causation* between head hits and long term neurological disorders, not her opinion on general causation<sup>8</sup> that NHL hockey players are at a *heightened risk* for these disorders. (Comstock Tr. at 299:16-300:22).

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<sup>8</sup> "General causation is concerned with whether an agent increases the incidence of disease in a group and not whether the agent caused any given individual's disease." *See McClain v. Metabolife Int'l, Inc.*, 401 F.3d 1233, 1239 (11th Cir. 2005) (quoting Michael D. Green et al., *Reference Guide on Epidemiology*, in *Reference Manual on Scientific Evidence* 392 (Federal Judicial Center, 2d ed.2000)).

At her deposition, Dr. Comstock was asked if she also believes there is a *causal link* between concussions and sub-concussions sustained while playing a contact sport and later in life neurological disorders. It is important to recognize, as Dr. Comstock did, that this line of questioning was asking for her personal opinion on a matter outside the scope of the opinions she offers in her Declaration. Nevertheless, based on the incredibly strong correlation of concussions and long term neurological disorders in numerous studies, Dr. Comstock said she also believes a causal link has been established, but acknowledged *that* opinion had not yet been published or peer reviewed. (Comstock Tr. at 299:16-300:22)

In its vigor to establish some basis for excluding her Declaration, the NHL has tried to pass off this testimony as if it were Comstock's acknowledgement that the opinions *in her Declaration* have not yet been peer reviewed. In fact, its entire argument on this point is based on that very testimony. (*See* Br. pp. 9-10). The opinions in Dr. Comstock's Declaration, however, *are* based upon a wealth of published peer-reviewed science. (*See* Comstock Decl. at pp. 8-38)<sup>9</sup>

As the Supreme Court in *Daubert* itself recognized, “[e]stablishing that an expert’s proffered testimony grows out of pre-litigation research or that the expert’s research has been subjected to peer review are the two principal ways the proponent of expert testimony can show that the evidence satisfies the first prong of Rule 702.” *Daubert v.*

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<sup>9</sup> The NHL criticizes Dr. Comstock for not submitting her Declaration in this matter for peer-review. Br. at p. 9. That Declaration, though, is currently sealed pursuant to the protective order in this case and is based, in part, on her review of other private personal health information that is also subject to the strict protective order. It is ludicrous to criticize Dr. Comstock for not submitting her Declaration in this matter for peer-review.

*Merrell Dow Pharm., Inc.*, 43 F.3d 1311, 1318-19 (9th Cir. 1995) (emphasis added). Dr. Comstock’s opinion on general causation is based upon scores of published studies and years of extensive research on the epidemiology of sports related mTBI. While there may be *some* debate in the scientific community that mTBIs cause later in life neurological issues, or that playing contact sports heightens your risk of these problems, it is hardly a novel theory. As the 8<sup>th</sup> Circuit made clear in *Bonner*,

There is no requirement “that a medical expert must always cite published studies on general causation in order to reliably conclude that a particular object caused a particular illness.” *Heller v. Shaw Indus.*, 167 F.3d 146, 155 (3d Cir.1999); *see Turner*, 229 F.3d at 1207–08 (citing *Heller*, 167 F.3d at 155). “[E]ven if the judge believes there are better grounds for some alternative conclusion, and that there are some flaws in the scientist’s methods, if there are good grounds for the expert’s conclusion, it should be admitted .... [T]he district court could not exclude [scientific] testimony simply because the conclusion was ‘novel’ if the methodology and the application of the methodology were reliable.” *Heller*, 167 F.3d at 152–53 (internal quotation marks and citation omitted). Likewise, there is no requirement that published epidemiological studies supporting an expert’s opinion exist in order for the opinion to be admissible. *National Bank of Commerce v. Associated Milk Prods. Inc.*, 191 F.3d 858, 862 (8th Cir.1999). Both our cases and the decisions of the Supreme Court make clear that it is the expert witnesses’ methodology, rather than their conclusions, that is the primary concern of Rule 702. *See Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999); *Daubert*, 509 U.S. at 594–95, 113 S.Ct. 2786; *Turner*, 229 F.3d at 1209.

\* \* \*

“Although it is common that medical experts often disagree on diagnosis and causation, questions of conflicting evidence must be left for the jury’s determination.” *Hose*, 70 F.3d at 976.

*Bonner v. ISP Techs., Inc.*, 259 F.3d 924, 928–29 (8th Cir. 2001).

As the NHL acknowledges in its brief, the Supreme Court stated “peer-review is not a *sine qua non* of admissibility” and “in some instances well-grounded but innovative theories will not have been published.” (Br. p. 9 (citing *Daubert*, 509 U.S. at 593)). Here, though, Dr. Comstock’s opinions are neither novel nor unsupported. They are grounded in numerous peer-reviewed scientific studies, a sound methodology and a well-developed set of credentials that demonstrate she is not just an expert in epidemiology, but one with a career’s worth of experience dealing with sports related mTBI.

**B. Dr. Comstock’s opinions are supported by the studies she relies upon.**

The NHL argues that Dr. Comstock’s opinions are not supported by the studies she relies upon. (Br. pp. 11-17). But once again, the NHL misrepresents what opinions Dr. Comstock is actually offering. The NHL’s entire argument here is based on the proposition that Dr. Comstock opines a definitive *causal* link exists between concussions and long term neurological disorders. As explained above, however, this is not an opinion that Dr. Comstock has offered in her Declaration. And while the NHL appears to be the only North American contact sports league that seriously refutes that conclusion, Plaintiffs have not indicated they would offer that opinion to a jury, and that opinion does not appear in either of Dr. Comstock’s Declarations. It is simply a red herring.

There can be no serious debate that the opinions Dr. Comstock offers in her Declaration— that NHL players are at a *heightened risk* for long term neurological issues as a result of their heightened exposure to head trauma through playing in the NHL— is supported by serious research in the scientific community.

The fact that there exists some disagreement in the scientific community about an opinion offered by a proposed expert witness does not preclude the opinion from reaching the jury. If that were the case, then the NHL's experts (advocating the competing view) would be excluded as well. Rather, competing evidence is a matter of credibility of the witness to be dealt with on cross examination.

For example, in *Huggins v. Stryker Corp.*, 932 F. Supp. 2d 972, 994–95 (D. Minn. 2013), the defendant argued the plaintiff's expert should be excluded because he did not analyze at least three publications the defendants alleged contradicted the expert's opinion. While noting “[i]t is possible for an experts’ omission of articles to render his or her opinion inadmissible on reliability grounds” the Court held “as a general rule, the factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is up to the opposing party to examine the factual basis for the opinion in cross-examination.” *Id.* at 995 (citing *Bonner*, 259 F.3d at 929 (quoting *Hose*, 70 F.3d at 974)). After reviewing the overlooked studies, the Court found the defendant's arguments went more to the weight and credibility to be afforded the expert's opinions, and did not affect their admissibility. *Id.* The Court added that the defendant would have ample opportunity to cross examine the expert and provide its own expert testimony on the subject, and further noted *Daubert's* instruction that “[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.” *Id.* (citing, *Daubert*, 509 U.S. at 596, 113 S.Ct. 2786).



Likewise, in *In re Levaquin Prod. Liab. Litig.*, No. MDL 08-1943 JRT, 2010 WL 8399942, at \*4 (D. Minn. Nov. 4, 2010), the defendant argued the studies relied upon by the plaintiff's expert were "factually flawed." But the Court found those studies "present a wide enough range of results regarding the connection between ATR and fluoroquinolones that the expert cannot be said to have 'selectively chose[n] his support from the scientific landscape.'" *Id.*

A review of Dr. Comstock's entire deposition transcript demonstrates she is aware of virtually the entire body of epidemiological research on this topic. (*See generally*, Comstock Tr.). Her opinions in this case are well-informed, open minded and her analysis springs from years of research on the topic of sports related mTBI. In short, they meet all the criteria of *Daubert*, *Zurn*, and their progeny.

**C. Dr. Comstock did not "cherry-pick" certain studies or "ignore" others.**

The NHL argues that Dr. Comstock has "cherry-picked" the studies she includes in her Declaration and that she "ignores" contrary science. (Br. pp. 17-22). They also argue that she "turned the hierarchy of scientific evidence on its head." (Br. pp. 23-24). None of these criticisms is valid.

Here, there were *thousands* of studies Dr. Comstock could have specifically cited in her Declaration. (*See* Comstock Decl. ¶24; Comstock Tr. at 58:17-59:2; 408:21-409:6). As it is, Dr. Comstock cited studies that *both* supported *and* challenged her opinions. (*See e.g.*, Comstock Decl ¶¶ 85-87, 92-93; Ex 2; and Comstock Tr. at 374:20-375:2). It cannot be said that she "ignored" contrary science in her Declaration and it

certainly cannot be asserted that she was unaware of the studies the NHL finds more credible. Rather, as an expert in the field of epidemiology, and specifically in the field of sports injuries, Dr. Comstock selected studies for her Declaration that she believed were most appropriate for the questions she was asked to opine upon, which incidentally, were issues regarding a *heightened risk* for long term neurological disorders, not *causation*. (See *e.g.*, Comstock Decl. ¶¶82-100; Rebuttal Decl. pp. 5-11, 24-25, 28-34, 36-40).<sup>10</sup>

Rather than apply a strict inclusion/exclusion criteria for her Declaration based solely upon study designs that might lie at the higher end of the hierarchy of medical evidence, Dr. Comstock employed a more appropriate and reasoned selection process to inform her opinions.<sup>11</sup> As she explained numerous times at her deposition, applying strict inclusion/exclusion criteria to this area of study would more likely skew the results, because it would systematically exclude a large body of evidence that is based on the broad body of methodology published to date including case reports, cross-sectional studies, case control studies, and retrospective cohort studies as well as systematic reviews. (See *e.g.*, Comstock Tr. at 56:8-19; 58:3-5; 366:21-369:9; 370:20-371:3; 410:11-22; 416:7-417:11; 420:19-421:4; 427:15-18).

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<sup>10</sup> Citations to (Rebuttal Decl. pp. \_\_) refer to pages in the Rebuttal Declaration of R. Dawn Comstock, Ph.D, filed contemporaneously with this brief.

<sup>11</sup> It bears noting that the “hierarchy of scientific evidence” is not nearly as rigid as the NHL suggests. As Dr. Comstock explained, there are instances of well-designed cross-sectional studies that are better and more reliable than certain case-control studies and vice versa. (See *e.g.* Comstock Tr. at 333:14-334:1; Rebuttal Decl. pp. 10-11, 24-26, 28-31)

For example, by excluding cross-sectional studies and case Declarations, one would be excluding the entire body of research performed by scientists (like those at Boston University) that have dissected brains postmortem to diagnose CTE and then consulted the subject's history to assess causation. (*See e.g.*, Rebuttal Decl. pp. 4, 11). In one such recent study,<sup>12</sup> the researchers found 110 of 111 brains of former NFL football players showed CTE. All that research would be ignored if such a strict inclusion/exclusion criteria were employed. That research, even though not at the top of the hierarchy, provides useful information here, and to discredit it solely based on study design would itself be overly myopic. (Rebuttal Decl. pp. 5, 8, 10-12, 23-24, 32-34, 36-37, 39-40, 42-43, 54-55, 63). Good science considers all the available evidence when possible.

There is also the challenge, in this case, that empirical studies directly on the issue of general and specific causation are difficult to come by, for one, because of ethical and safety concerns presented. (*See e.g.*, Comstock Tr. at 38:9-39:4; Rebuttal Decl. p. 33). In other words, researchers cannot simply start concussing members of a study cohort and then follow their brain damage for years to come. Rather, researchers performing longitudinal studies of concussions and their long term effects need access to highly sensitive patient data, information the NHL and other sports leagues closely guard. *See e.g., Milward v. Acuity Specialty Prods. Grp., Inc.*, 639 F.3d 11, 24 (1st Cir. 2011) (finding lower court placed too much emphasis on lack of epidemiological evidence

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<sup>12</sup> Mez, Jesse, et. al, Clinicopathological Evaluation of Chronic Traumatic Encephalopathy in Players of American Football, *JAMA* 2017;318(4):360-370.

because “to obtain statistically significant results, one would need hundreds of thousands of highly exposed workers, the same number of controls, and millions of dollars in funding”); *Newman v. Sikeston Dep't of Pub. Safety*, No. 1:00-CV-74 CAS, 2002 WL 34365839, at \*4–5 (E.D. Mo. Mar. 14, 2002) (stating “[t]his may be an instance in which there will be no publication of a reliable theory because the statistical pool of term pregnant women who are exposed to extreme short-term physical and mental stress may be small, and it would be unethical for medical researchers to perform a controlled study subjecting pregnant women to such conditions, as it would expose participants and their fetuses to a risk of harm or death”); and *Glastetter*, 252 F.3d at 992 (finding absence of epidemiological evidence not surprising where pool of childbearing women who suffer strokes is small and it would be unethical to induce strokes in postpartum women in order to further medical knowledge of drug).

That is not to say that studies that inform this important topic are non-existent, but rather they are not as numerous as those found in other fields. In this environment, arbitrarily casting aside studies that are perhaps less rigorous in design, but that yield useful information, would present a greater criticism.

Dr. Comstock’s approach in this case yields more useful and more considerate opinions than would be obtained by casting aside the bulk of studies on this topic. In this way, it is actually the few studies that the NHL relies upon (which employed overly conservative exclusion criteria which left only a small handful of studies to be analyzed) that ignored useful science. (*See e.g.*, Rebuttal Decl. pp 8, 10-12, 23-24, 34, 36, 39-40, 42-43, 54-55, 63).

As Dr. Comstock explains in her Rebuttal Declaration,

By limiting their evaluation to only a small fraction of the existing studies these systematic reviews [that the NHL favors] are themselves deeply flawed by selection bias. This “cherry picking” of only those study designs [Dr. Cassidy] personally approves of coupled with his discounting of the value of Hill’s Criteria for Causation in making causal inferences result in Cassidy’s failure to draw appropriate conclusions from the existing body of knowledge.

\* \* \*

It is simply not appropriate to conclude that most epidemiologists would not contend that a well-conceived cross sectional study that mitigates, to the extent possible, bias and which was conducted in a large sample providing adequate statistical power would be considered to be higher quality than a poorly conceived cohort study that failed to take available actions to mitigate known biases and which used a sample size too small to achieve adequate statistical power.

(Rebuttal Decl. pp. 5, 9-10). And,

I contend the systematic reviews cited here (which Cassidy co-authored) suffer severely from selection bias due to an overly restrictive study inclusion criteria, which inappropriately excluded the majority of peer-review publications in this field. While I took the widely approved and long valued epidemiologic approach of evaluating the entire range of peer-review publications and utilizing indicators of preponderance of evidence (including Hill’s Criteria for Causation) in my conclusions regarding inference of causality, Cassidy instead decided that only a very small fraction of the available peer-review literature was worthy of his review and thus, his conclusions are limited to that dramatically skewed sample. In other words, while I analyzed the entire body of research and used accepted methodology to select studies with more rigorous or relevant designs, Cassidy blindly excluded a huge body of well-designed studies to reach his conclusions.

(Rebuttal Decl. pp. 32-33).

Dr. Comstock’s approach in this case is markedly more reliable than the NHL’s experts’ approach. If anyone can be said to have “excluded” or “ignored” relevant

science in forming their opinions, it is the NHL's experts and not Dr. Comstock. (*See e.g.*, Rebuttal Decl. pp. 8, 10-12, 23-24, 34, 36, 39-40, 42-43, 54-55, 63).

**D. Dr. Comstock Does Not “Ignore” Contrary Opinions in the Consensus Statements**

The NHL goes on to assert Dr. Comstock ignored contrary positions in certain papers she cited in her Declaration, namely the 2008 and 2012 consensus statements. (Br. p. 26). But those statements all addressed whether there was scientific consensus that sports concussions *cause CTE*. That very specific issue is not one that Dr. Comstock has opined on in her Declaration. Again, she did not study whether concussions specifically *cause* long term neurological disorders and she certainly did not limit her analysis of later in life maladies to *CTE*, as the discussions in the consensus statements did. (*See* Br. p. 26). Moreover, as she explained at her deposition, those consensus statements were not epidemiological studies, were not based on a systematic review of the available scientific literature, and merely reflect a lack of consensus among the conference attendees on the specific issue of a causal link between *concussions* and *CTE*. (Comstock TR at 243:3-245:5) Accordingly, those disclaimers were not critical to the opinions she offers here, and her approach to those statements is certainly not “fatal to her opinions.” (Br. p. 25).

**E. Dr. Comstock’s opinion is not based on “defective extrapolation methodology”**

The last item in the kitchen sink is the NHL's argument that Dr. Comstock inappropriately extrapolates evidence from other head injuries and applies them to the

population of former NHL players. (Br. pp. 27-31). Again, the NHL's arguments are clouded first by their misconstruction of Dr. Comstock's opinions and second by a misreading of her Declaration.

In developing her opinion that NHL players are at a greater risk of concussion than members of the general public, Dr. Comstock pulled from the full body of epidemiological research on mTBI in contact sports, including football, boxing, rugby *and ice hockey*. For these opinions, she does not rely on extrapolation. Rather, she *compares* incident rates and mechanism of injury between various contact sports to conclude that NHL hockey players are at an increased risk of concussion (Comstock Decl. ¶¶ 26-65; Comstock Tr. at 62:16-63:15), a conclusion the NHL's expert agrees with. (Randolph Tr. at 105:8-22) That comparison also demonstrates that incident rates, mechanism of injury, symptomology and recovery time for concussions in hockey are at par or greater than other contact sports, including football (Comstock Decl. ¶¶ 26-65; Comstock Tr. at 70:14-71:8; 73:11-21; 75:1-13; Rebuttal Decl. pp. 35, 59).

She then consults the body of literature on the association of playing contact sports (including hockey and football) and long term neurological issues to opine that playing such sports increases your risk of issues such as CTE, dementia, violence, depression, and suicide. (Comstock Decl. ¶¶ 82- 100). As demonstrated by many of these studies, and other systematic reviews cited in her Declaration, epidemiologists routinely analyze the association between head injuries and long term neurological disorders without much regard to what sport or activity was to blame for the head trauma. In fact, even the

NHL's experts routinely do so in their own research. (*See e.g.*, Rebuttal Decl. pp. 35, 59-60). None of these opinions in Dr. Comstock's Declaration rely upon extrapolation.

The only place in Dr. Comstock's Declaration in which she does rely on extrapolation is in her conservative estimates of the actual number of former NHL players that will likely develop various neurological maladies later in life. (Comstock Decl. ¶¶ 101-104). As Dr. Comstock notes, the estimate of future injury rates is necessarily imprecise, but not without basis. (*Id.*; Comstock Tr. at 432:8-433:17; 435:12-21). Dr. Comstock also qualified her estimates by noting the limitations of extrapolation. (Comstock Decl. ¶¶ 101-104; Comstock Tr. at 438:4-13). Those estimates are offered in her Declaration at face value, and while they inform issues about the usefulness or need for further studies (including medical monitoring), they are not critical to elements of Plaintiffs' causes of action or to the opinions Dr. Comstock offers in her Declarations.

It bears repeating that in this limited instance of extrapolation, Dr. Comstock is only consulting data from various contact sports that she has already established are similar to hockey. This is a far cry from the extrapolation that courts have found to be unwarranted in the cases cited by the NHL. For example, in *McClain v Metabolife Int'l Inc.*, 401 F.3d 1233, 1247 (11<sup>th</sup> Cir. 2005), the expert extrapolated from data showing phenylpropanolamine (PPA) caused heart attacks and strokes to opine that ephedrine also *caused* those events. But the Court found the expert offered no explanation as to why the extrapolation was valid, especially where the chemical composition of both substances was different.



This is not at all analogous to what Dr. Comstock does here. First, she is not relying on extrapolation to support an opinion that head injuries specifically *cause* long term neurological issues. Second, she has supported the basis for her extrapolation of data among various contact sports by demonstrating the similarity of incidence, severity and recovery among the various sports related mTBIs. And third, she is not extrapolating across different chemical substances, but rather from the same type of head injury (mTBI) that was merely caused by different activities.

## V. CONCLUSION

In all, the NHL fails to raise any basis sufficient to exclude Dr. Comstock's testimony. For the most part, they attack an opinion on specific causation that was discussed at her deposition (at the prodding of defense counsel), but is *not* being offered in the case.

Dr. Comstock is a well-qualified expert in epidemiology, particularly in the area of sports related mTBI. She has been studying incident rates, injury patterns, injury mechanisms, and prevention strategies for these mTBIs for years and has even testified in front of Congress on these important issues. Her opinions in this case are grounded in numerous peer reviewed studies and they grow naturally from her extensive work in this arena. Her methodology is reasoned and sound, and simply because the NHL and its experts disagree with her opinions is not an adequate basis to exclude them. To the extent the NHL challenges her selection criteria or the various studies she relies upon in

founding her opinions, the proper vetting of those criticisms will be on cross-examination.

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*/s/ Brian D. Penny*

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Brian D. Penny  
GOLDMAN SCARLATO & PENNY, P.C.  
Eight Tower Bridge, Suite 1025  
161 Washington St.  
Conshohocken, PA 19428  
Tel.: (484) 342-0700  
penny@lawgsp.com

*Member, Plaintiffs' Executive Committee*

Charles S. Zimmerman  
Brian C. Gudmundson  
Hart L. Robinovitch  
David M. Cialkowski  
Brad Buhrow  
ZIMMERMAN REED, PLLP  
1100 IDS Center, 80 S. 8th St.  
Minneapolis, MN 55402  
Telephone: (612) 341-0400  
charles.zimmerman@zimmreed.com  
brian.gudmundson@zimmreed.com  
hart.robinovitch@zimmreed.com  
david.cialkowski@zimmreed.com  
brad.buhrow@zimmreed.com

Stuart A. Davidson  
Mark J. Dearman  
Leonard B. Simon  
Kathleen B. Douglas  
Janine D. Arno  
ROBBINS GELLER RUDMAN  
& DOWD LLP  
120 E. Palmetto Park Road, Suite 500  
Boca Raton, FL 33432  
Telephone: (561) 750-3000  
sdavidson@rgrdlaw.com  
mdearman@rgrdlaw.com  
lens@rgrdlaw.com  
kdouglas@rgrdlaw.com  
jarno@rgrdlaw.com

Steven D. Silverman  
Stephen G. Grygiel  
William Sinclair  
SILVERMAN, THOMPSON,  
SLUTKIN & WHITE, LLC  
201 N. Charles Street, Suite 2600  
Baltimore, MD 21201  
Telephone: (410) 385-2225  
ssilverman@mdattorney.com  
sgrygiel@mdattorney.com  
bsinclair@mdattorney.com

*Plaintiffs' Co-Lead Counsel*

Lewis A. Remele  
Jeffrey D. Klobucar  
J. Scott Andresen  
BASSFORD REMELE  
33 S. 6th Street  
Minneapolis, MN 55402  
Telephone: (612) 333-3000  
lremele@bassford.com  
jklobucar@bassford.com  
jandresen@bassford.com

*Plaintiffs' Liaison Counsel*

Thomas Demetrio  
William T. Gibbs  
Katelyn D. Geoffrion  
CORBOY & DEMETRIO  
33 N. Dearborn Street  
Chicago, IL 60602  
Telephone: (312) 346-3191  
tad@corboydemetrio.com  
wtg@corboydemetrio.com  
kdg@corboydemetrio.com

Vincent J. Esades  
James W. Anderson  
HEINS MILLS & OLSON, PLC  
310 Clifton Ave.  
Minneapolis, MN 55403  
Telephone: (612) 338-4605  
vesades@heinsmills.com  
janderson@heinsmills.com

Thomas J. Byrne  
Mel Owens  
NAMANNY, BYRNE, & OWENS, APC  
2 S. Pointe Dr.  
Lake Forest, CA 92630  
Telephone: (949) 452-0700  
tbyrne@nbolaw.com  
mowens@nbolaw.com

David I. Levine  
THE LEVINE LAW FIRM P.C.  
1804 Intracoastal Drive  
Fort Lauderdale, FL 33305  
Telephone: (954) 385-1245  
agentdl@bellsouth.net

Michael R. Cashman  
Richard M. Hagstrom  
Shawn Stuckey  
ZELLE LLP  
500 S. Washington Ave., #4000  
Minneapolis, MN 55415  
Telephone: (800) 899-5291  
mcashman@zelle.com  
rhagstrom@zelle.com  
sstuckey@zelle.com

Daniel E. Gustafson  
Daniel C. Hedlund  
GUSTAFSON GLUEK PLLC  
Canadian Pacific Plaza  
120 S. 6th Street, Suite 2600  
Minneapolis, MN 55402  
Telephone: (612) 333-8844  
dgustafson@gustafsongluek.com  
dhedlund@gustafsongluek.com

Jeffrey D. Bores  
Bryan L. Bleichner  
CHESTNUT CAMBRONNE PA  
17 Washington Ave. North, Suite 300  
Minneapolis, MN 55401  
Telephone: (612) 339-7300  
jbores@chestnutcambronne.com  
bbleichner@chestnutcambronne.com

*Plaintiffs' Executive Committee*



Conshohocken, PA 19428  
Telephone: (484) 342-0700  
penny@gskplaw.com  
goldman@gskplaw.com

***Member, Plaintiffs' Executive  
Committee***

**Yolanda Sherman**

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**U.S. District of Minnesota**

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**Case Name:** IN RE: National Hockey League Players' Concussion Injury Litigation

**Case Number:** [0:14-md-02551-SRN-BRT](#)

**Filer:** Plaintiffs' Executive Committee

**Document Number:** [913](#)

#### **Docket Text:**

**MEMORANDUM in Opposition re [772] MOTION to Exclude Expert Testimony of R. Dawn Comstock, Ph.D. filed by Plaintiffs' Executive Committee. (Attachments: # (1) LR7.1/LR72.2 Word Count Compliance Certificate)(Penny, Brian)**

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Aaron D Van Oort aaron.vanoort@faegrebd.com, deb.schuna@faegrebd.com

Adam M. Lupion alupion@proskauer.com

Andrew G. Slutkin ASlutkin@MdAttorney.com

Andrew T Rees arees@rgrdlaw.com, e\_file\_fl@rgrdlaw.com, e\_file\_sd@rgrdlaw.com

Arun S Subramanian asubramanian@susmangodfrey.com

Bradley C Buhrow brad.buhrow@zimmreed.com, stacy.bethea@zimmreed.com

Brian C Gudmundson brian.gudmundson@zimmreed.com, heidi.cuppy@zimmreed.com,  
leslie.harms@zimmreed.com

Brian D Penny penny@lawgsp.com, mummert@lawgsp.com

Brian P Murray bmurray@glancylaw.com

Bryan L Bleichner bbleichner@chestnutcambronne.com, dproulx@chestnutcambronne.com

Charles J LaDuca charlesl@cuneolaw.com, brendant@cuneolaw.com

Charles S Zimmerman charles.zimmerman@zimmreed.com, Jacqueline.Olson@zimmreed.com,  
Jenifer.Watson@zimmreed.com, Tina.Olson@zimmreed.com

Christine B Cesare cbcesare@bryancave.com

Christopher John Schmidt cjschmidt@bryancave.com, ekrulo@bryancave.com

Christopher P Renz crenz@chestnutcambronne.com, jheckman@chestnutcambronne.com

Clifford H Pearson cpearson@pswlaw.com

Cullin A O'Brien cobrien@rgrdlaw.com

Daniel E Gustafson dgustafson@gustafsongluek.com, mmorgan@gustafsongluek.com

Daniel J Connolly daniel.connolly@faegrebd.com, darcy.boehme@faegrebd.com

Daniel L Warshaw dwarshaw@pswlaw.com, egrant@pswlaw.com, mwilliams@pswlaw.com

David Newmann david.newmann@hoganlovells.com

David A Goodwin dgoodwin@gustafsongluek.com

David A Rosenfeld drosenfeld@rgrdlaw.com, dmyers@rgrdlaw.com

David I Levine agentdl@bellsouth.net, jcohen@thecohenlawfirm.net

David M Cialkowski david.cialkowski@zimmreed.com, heidi.cuppy@zimmreed.com

Geoffrey M. Wyatt geoffrey.wyatt@skadden.com

Hart L Robinovitch hart.robinovitch@zimmreed.com, sabine.king@zimmreed.com

Howard B Miller hmiller@girardikeese.com

J Scott Andresen scotta@bassford.com, mmooney@bassford.com, receptionist@bassford.com

James A. Keyte james.keyte@skadden.com



James W Anderson janderson@heinsmills.com, ikovarik@heinsmills.com

Janine D Arno jarno@rgrdlaw.com

Jeffrey D Bores jbores@chestnutcambronne.com, dproulx@chestnutcambronne.com

Jeffrey D. Klobucar jklobucar@bassford.com, pcarter@bassford.com

Jessica D Miller jessica.miller@skadden.com

John Zaremba jzaremba@zbblaw.com

John Herbert Beisner john.beisner@skadden.com

Jonathan Barton Potts jonathan.potts@bryancave.com, clbelleville@bryancave.com

Joseph Baumgarten jbaumgarten@proskauer.com

Joseph F. Murphy josephmurphy@mdattorney.com

Joseph M Price joseph.price@faegrebd.com, kathy.olmscheid@faegrebd.com

Joshua J Rissman jrissman@gustafsongluek.com

Katherine C Bischoff kbischoff@zelle.com, agarberson@zelle.com

Kathleen L Douglas kdouglas@rgrdlaw.com, e\_file\_fl@rgrdlaw.com, e\_file\_sd@rgrdlaw.com

Kenneth J Mallin kjmallin@bryancave.com

Kristin L. Bittinger kbittin@bu.edu

Lawrence G Scarborough lgscarborough@bryancave.com, mavilla@bryancave.com

Lee Albert lalbert@glancylaw.com

Leonard B. Simon lsimon@rgrdlaw.com, tdevries@rgrdlaw.com

Lewis A Remele , Jr lewr@bassford.com, lremele@bassford.com, docket@bassford.com, mbordian@bassford.com

Linda S Svitak linda.svitak@faegrebd.com, christine.kain@faegrebd.com, darcy.boehme@faegrebd.com, joe.winebrenner@FaegreBD.com

Lionel Z Glancy info@glancylaw.com

Mario Alba , Jr malba@rgrdlaw.com, e\_file\_sd@rgrdlaw.com

Mark J. Dearman mdearman@rgrdlaw.com, 9825585420@filings.docketbird.com, e\_file\_fl@rgrdlaw.com, e\_file\_sd@rgrdlaw.com

Mark R Anfinson mranfinson@lawyersofminnesota.com, debmauer@q.com

Mark S Goldman goldman@gsk-law.com

Matthew Stein matthew.stein@skadden.com

Matthew Michael Martino matthew.martino@skadden.com, alissa.turnipseed@skadden.com,  
matthew.lisagar@skadden.com, michael.menitove@skadden.com

Michael H Menitove michael.menitove@skadden.com

Michael Harrison Pearson mpearson@pswlaw.com

Michael J Flannery mflannery@cuneolaw.com

Michael R Cashman mcashman@hjlawfirm.com, lharris@hjlawfirm.com

Peter H Walsh peter.walsh@hoganlovells.com, sharon.mcmahon@hoganlovells.com,  
stephen.loney@hoganlovells.com

Rebecca A. Peterson rapeterson@locklaw.com

Richard M. Hagstrom rhagstrom@hjlawfirm.com, jebensperger@hjlawfirm.com

Richard R Gordon richard.gordon@gordonlawchicago.com

Robert K Shelquist rkshelquist@locklaw.com, aanewfield@locklaw.com, brgilles@locklaw.com,  
kjleroy@locklaw.com

Robert M Rothman RRothman@lerachlaw.com

Samuel H Rudman srudman@rgrdlaw.com, e\_file\_ny@rgrdlaw.com, e\_file\_sd@rgrdlaw.com

Shawn D Stuckey stuckey@allsportslaw.com, Damian@allsportslaw.com, Drice@allsportslaw.com,  
Pham@allsportslaw.com

Shawn M Raiter sraiter@larsonking.com, lburks@larsonking.com

Shepard Goldfein shepard.goldfein@skadden.com

Stephen Allen Loney, Jr stephen.loney@hoganlovells.com

Stephen G. Grygiel sgrygiel@mdattorney.com, cgoldsmith@mdattorney.com

Steve W Gaskins sgaskins@gaskinsbennett.com, jtakata@gaskinsbennett.com

Steven D. Silverman ssilverman@mdattorney.com

Stuart A Davidson sdavidson@rgrdlaw.com, 5147990420@filings.docketbird.com, e\_file\_fl@rgrdlaw.com,  
e\_file\_sd@rgrdlaw.com, jdennis@rgrdlaw.com

Thomas A Demetrio tad@corboydemetrio.com

Thomas Joseph Byrne tbyrne@nbolaw.com

Timothy J Hasken tim.hasken@bryancave.com, timothy.howard@bryancave.com

Vincent J Esades vesades@heinsmills.com, ikovarik@heinsmills.com, lgehrking@heinsmills.com

W Joseph Bruckner wjbruckner@locklaw.com, ctevans@locklaw.com, emsipe@locklaw.com, hnpotteiger@locklaw.com, sljuell@locklaw.com

William Christopher Carmody bcarmody@susmangodfrey.com

William N. Sinclair bsinclair@mdattorney.com

William T Gibbs wtg@corboydemetrio.com, agonzalez@corboydemetrio.com, mbrophy@corboydemetrio.com, nleftakes@corboydemetrio.com, sdudak@corboydemetrio.com

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