

Achieving Peace of Mind: The Benefits of Neurobiological Evidence for Battered Women Defendants

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ABSTRACT: Despite its potential to diminish the culpability of battered women accused of crimes, neurobiological evidence has yet to be meaningfully deployed in the interest of these defendants. This Article describes how neurobiological evidence can provide insights into the effects of battering, at both an individual and ecological level. Domestic violence prevention advocates and medical professionals are becoming increasingly conscious of the neurobiological consequences of battering, producing a wellspring of evidence with potential relevance to the battered woman's case. By distilling this evidence into tangible assertions admissible in myriad legal settings, this Article lays a foundation for the integration of neurobiological evidence into the defense of battered women.

Breaking rank with contemporary literature on the subject, this Article adopts a position of pragmatic acquiescence to the continued use of the embattled battered woman syndrome. Unlike previous reforms advanced, neurobiological evidence does not necessitate the creation of new law nor does it entail the recognition of an archetypal battered woman. The evidence works cooperatively with existing defense strategies to provide a holistic account of battering for the purposes of reducing the battered woman defendant's culpability.

Scholarship is sharply divided about the role of neurobiology in the criminal law. Skepticism abounds about the philosophical relevance of neurobiological evidence to the law. The delicate balancing of legal norms

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reflected in criminal law's current use of neurobiology is placed in a distinctly new light when viewed from the perspective of a battered woman's legal defense.

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INTRODUCTION

Frequently, when a battered woman² is convicted of a crime connected to her history of abuse, she becomes a double victim.³ She is first a victim in the

2. Judith Butler describes the labels that confine and define us as constantly being negotiated above our heads. Audio Recording: Giving Account of Oneself, Reading Group Discussion at Becomings, Misplacements, Departures: Butler and Whitehead as Catalysts for Contemporary Thought (Dec. 4, 2009), <http://deimos3.apple.com/WebObjects/Core.woa/Browse/cgu.edu.3375442510?i=1936454726>. These negotiations, which she aptly refers to as noise, are ongoing and beyond the control of those to whom the labels apply. *Id.* As a potential contributor to the noise negotiating a label for the group of people affected by domestic violence, I believe it is necessary to speak as clearly as I can to the potential costs and benefits of utilizing the term “battered woman” throughout this Article. Feminists were early adopters of postmodern discourse. See Lori G. Beaman, *Women’s Defences: Contextualizing Dilemmas of Difference and Power*, 9 WOMEN & CRIM. JUST. 87 (1998). Language, which feminists recognized as the mechanism for creating social realities, played an especially prominent role in law and policy addressing domestic violence. Kathleen J. Ferraro, *The Words Change, but the Melody Lingers: The Persistence of the Battered Woman Syndrome in Criminal Cases Involving Battered Women*, 9 VIOLENCE AGAINST WOMEN 110, 125 (2003). Arguably, the term “battered woman” is problematic because it suggests that the woman is an object being acted upon, rather than an agent capable of performing an action. The label “survivor of domestic violence” is worth considering, as it is more indicative of the woman’s capability to persevere in spite of the battering. Even more appropriately, “survivor of intimate partner violence” goes further by eviscerating any relationship between intimacy and domesticity. Undoubtedly, such reformed language shifts the woman from being a passive victim to becoming an active agent. In the context of an abuse victim turned defendant, such a “survivor” could be facing prison time or in some cases, the death penalty. In such a situation, it would be oddly ironic to appropriate a term traditionally reserved for those who are free to begin the healing process without fear of punitive legal action. Moreover, the phrase “battered woman” suggests an implicit directionality, which I take up in note 3, *infra*, about who is committing the battering and who is battered. The ambiguity of the phrase “domestic violence” obscures much of the degree and kind of abuse taking place. Hence, I will employ the term “battered woman” or “battered women” for these reasons and for the reasons I outline in note 3, *infra*.

3. It is important, at the outset, to explain why this work focuses on women and not battered people more generally. The specificity of the term has both practical and philosophical dimensions. Not every man or woman who uses violence against a partner is a batterer. Battering is revealed by a course of conduct that, generally speaking, is intended to coerce and induce fear. See, e.g., Sue Osthoff, *But, Gertrude, I Beg To Differ, a Hit Is Not a Hit Is Not a Hit: When Battered Women Are Arrested for Assaulting Their Partners*, 8 VIOLENCE AGAINST WOMEN 1521, 1523-24 (2002). Interestingly, the debate over what constitutes battering as opposed to violence can be understood in terms of “aggression” and “violence” as elucidated by behavioral scientist Johan van der Dennen. See, e.g., Johan M.G. van der Dennen, *Clinical Aggressology: Neuropathology and (Violent) Aggression*, 10 AGGRESSIVE BEHAV. 175 (1984) (proposing that “violence” is purposely motivated, the consequence of some rational decision-making process, whereas “aggression” is an act of affective, emotional, or aroused reactivity to a perceived threat). Osthoff argues poignantly that “domestic violence” can exist without battering. According to van der Dennen’s framework, “domestic violence” would be *either* violence or aggression, but it is violence and not aggression alone that typifies battering. The resolution of this issue is important for women who are lumped together with men under the category of batterers. While research shows that women do exhibit aggression toward their partners, this work does not refute the conventional thinking that battering, as violence and not merely aggression, is predominantly carried out by men. See Osthoff, *supra*, at 1531-34. Regardless of who batters more frequently, the practical reality reflected in numerous medical accounts is that men and women have differing physiological responses to stress and that women, not men, account for nearly all of the head injuries sustained during domestic violence incidents. *Id.*

obvious sense of having been battered by her partner. Less obviously, she is a victim of a legal system that struggles to clarify how her abuse history is relevant to her legal defense—thus, the consequences of the battering fail to inform the jury’s consideration of her culpability, and she is convicted. As a hypothetical example, suppose Kelly had experienced childhood molestation by her uncle Arthur. As an adult, Kelly continues to experience abuse by Arthur. One day, Kelly forces another woman to have sex with Arthur and then viciously attacks them both—killing Arthur in the process. If not for the childhood abuse, it is almost impossible to imagine anyone but the most sadistic individuals committing this crime. To repudiate the prosecution’s claim that she is unusually sadistic, Kelly will offer expert psychological testimony about the consequences of her childhood abuse: her post-traumatic stress disorder, her feeling that she was “out of control” at the time of the alleged crime, and other claims that in front of different audiences may suggest varying levels of sanity. This is a fine approach, and it is one encountered commonly among defendants like Kelly. But the cost of premising a defense upon psychological diagnoses is a risky one given a legal culture that demands clear delineations of who should and should not be responsible and further requires that these delineations be quantifiable and not easily feigned.

In this Article I take the position that Kelly, and any other battered woman defendant charged with a crime that society might interpret as reflecting malice or criminal motive, would benefit from a greater examination of the neurobiological effects of battering on behavior and cognition. If Kelly can demonstrate that at certain times surrounding the commission of the crime, she experienced dysregulated levels of stress hormones such as DHEA and cortisol that led to her dissociation, then her defense becomes immediately more particular and persuasive. Alternately, a defendant like Kelly could assert that concussions inflicted upon her by her batterer left her with fewer choices and a violent antagonistic mood within her—claims made viable by an established and growing body of neurobiological evidence.

Ever since the Victorian-era criminologist Cesare Lombroso first proposed that neurobiology be used to explain criminal behavior, much ink has been spilled over locating the biological basis for, among other crimes, terrorism,⁴ pedophilia,⁵ and domestic violence.⁶ More recently, scholars have considered

4. See, e.g., Dean Mobbs et al., *Law, Responsibility, and the Brain*, 5 PUB. LIBR. SCI. BIOLOGY 693, 695 (2007).

5. See, e.g., Jeffrey M. Burns & Russell H. Swerdlow, *Right Orbitofrontal Tumor with Pedophilia Symptom and Constructional Apraxia Sign*, 60 ARCHIVES NEUROLOGY 437 (2003); Martin Walter et al., *Pedophilia Is Linked to Reduced Activation in Hypothalamus and Lateral Prefrontal Cortex During Visual Erotic Stimulation*, 62 BIOLOGICAL PSYCHIATRY 698 (2007).

6. See, e.g., Gordon Teichner et al., *Assessment of Cognitive Functioning in Men Who Batter*, 111 INT’L J. NEUROSCI. 241 (2001).

the possibility of using brain scanning technology for lie detection.⁷ In response, a formidable body of scholarship has emerged that focuses on the uses to which neurobiological evidence will never be put.⁸ Amidst the controversy about neurobiology's general challenges to culpability and individual responsibility, scholars have overlooked less drastic opportunities for the relevance of neurobiology in legal contexts. In particular, no work has yet addressed the potential for brain injuries, caused by abuse, to buttress the legal defenses of battered women accused of crimes related to that abuse.⁹ This Article approaches the issue with guarded optimism, recognizing both that neurobiological explanations for criminality must be developed incrementally,¹⁰ and that these explanations may not be without unintended consequences. The lack of inquiry into the neurobiology of battering victims has allowed untested scientific hypotheses to become consecrated through repeated application in criminal cases. I argue that using science in these cases is not inherently problematic, provided the science advanced is reliable, convincing to laypersons, and mindful of the battered woman's rationality and own moral agency. Thus, any neurobiological account of the battered woman defendant must heed the larger crosscurrents of both feminism and the law.

Although the neurobiology of battering's effects is arguably still in its infancy, a confluence of scientific and legal developments makes this interdisciplinary question ripe for discussion. Domestic violence advocates are becoming increasingly concerned about screening for brain injuries, including concussion.¹¹ Medical professionals and neuroscientists, too, recognize their important role in assessing the consequences of battering for the brain.¹² When

7. Henry T. Greeley & Judy Illes, *Neuroscience-Based Lie Detection: The Urgent Need for Regulation*, 33 AM. J.L. & MED. 377, 390-94 (describing the business of No Lie MRI, a company that provides fMRI for lie detection).

8. Stephen Morse, *Criminal Responsibility and the Disappearing Person*, 28 CARDOZO L. REV. 2545, 2546 (2007) ("[T]he basic sciences are unlikely soon to displace our view of ourselves as conscious, intentional and potentially rational agents whose behavior can be explained best by our reasons for action."); Stephen Morse, *Determinism and the Death of Folk Psychology: Two Challenges to Responsibility from Neuroscience*, 9 MINN. J.L. SCI. & TECH. 1 (2008) (claiming that neuroscience's challenges to responsibility cannot succeed); accord Selim Berker, *The Normative Insignificance of Neuroscience*, 37 PHIL. & PUB. AFF. 293, 305-13 (2009) (describing several empirical shortcomings of neuroscience evidence).

9. These battered women commit crimes at the behest of their abusers or in retaliation against them. Because this Article is almost entirely informed by scientific and legal research regarding battered women or female subjects, the term "battered woman" is employed over the more encompassing label of "intimate partner violence" (IPV). While battering may exist in any relationship, battered women are a subset of IPV victims, who face and experience particular consequences as a result of their battering. These particular consequences are what this Article seeks to assess.

10. See, e.g., Amanda C. Pustilnik, *Violence on the Brain: A Critique of Neurobiology in Criminal Law*, 44 WAKE FOREST L. REV. 183, 229 (2009) (proposing a less ambitious but more granular integration of neurobiology and criminal law).

11. *Special Collection: Traumatic Brain Injury and Domestic Violence: Understanding the Intersections*, VIOLENCE AGAINST WOMEN NETWORK, <http://snow.vawnet.org/special-collections/DVBrainInjury.php> (last visited July 25, 2010).

12. See generally *infra* Part III.

these victims enter the criminal justice system, however, neurobiological evidence is rarely invoked in service of their defense. Legal actors, both courts and defense attorneys, have relied extensively on a narrow, albeit convenient, conception of battered women that frequently conjures up images of mental illness or psychological disorder. Scholars, sensitive to the consequences of aligning responses to abuse with irrational behavior, have suggested abandoning this approach for a more comprehensive and less stigmatizing accounting of the various economic, social, and legal circumstances of battering. While these alternatives avoid the stigmatization of earlier approaches, their limited traction in altering outcomes in criminal cases suggests the strength of a partly medical model of the battered woman. Neurobiological evidence fulfills this function, but offers distinct advantages over many other types of evidence, such as psychological or social history evidence. Current defenses rely heavily on comparisons between classes of battered women or alternately, attempt to hint at causality through a litany of intractable environmental influences—conclusions that are nearly impossible to prove empirically. Recent studies of battered women reveal this population's exposure to repeated physical forces to the skull and high levels of stress. Neurobiology has the capacity to delineate the effects of such abuse on both cognitions and behavior. Altered cognition and behavior are likely to be significant contributory factors in any criminal act that the battered woman commits. This evidence can offer particular and concrete connections between the battering, as cause, and the crime, as effect.¹³

Readers familiar with the history of battered women's cases may understandably register skepticism about the injection of mental health issues into such cases. While remaining sensitive to these concerns, I argue that neurobiological evidence, offered with sufficient circumspection, can be consistent with upholding the agency of the battered woman. In the past, mental health evidence was used largely to bolster claims of insanity or diminished mental capacity.¹⁴ Concerns about stigmatizing and diminishing the moral agency of battered women led feminists to argue for dispensing with such defenses.¹⁵ In cases where the insanity defense is advanced, the court effectively condemns the battered woman's actions, but regards them as

13. This is not to say that neurobiological evidence offers the only reflection of such abuse. Rather, the evidence is intended to act in concert with other evidence. Given the tremendous complexity of the brain, the absence of neurobiological evidence should never be taken to imply the absence of battering. Rather, the evidence either suggests or confirms abuse.

14. See generally Elizabeth M. Schneider, *Equal Rights to Trial for Women: Sex Bias in the Law of Self-Defense*, 15 HARV. C.R.-C.L. L. REV. 623, 638 (1980); Elizabeth M. Schneider & Susan B. Jordan, *Representation of Women Who Defend Themselves in Response to Physical or Sexual Assault*, 4 WOMEN'S RTS. L. REP. 149, 159-60 (1978).

15. See, e.g., Rebecca D. Cornia, *Current Use of Battered Woman Syndrome: Institutionalization of Negative Stereotypes About Women*, 8 UCLA WOMEN'S L.J. 99, 102 (1997); Anne M. Coughlin, *Excusing Women*, 82 CAL. L. REV. 1, 52 (1994).

excusable because of her putative claim of insanity.¹⁶ Some feminists have argued that the injection of mental health evidence vitiates the legitimacy of the battered woman's actions.¹⁷ Moreover, the interposition of a host of mental health stereotypes threatens to scuttle any reliable retelling of the battered woman's story. An enlightened defense based on objective neurobiological evidence is far more granular and respectful of the battered woman's agency than these previous defenses that often led jurors to infer the battered woman's insanity. In many cases, neurobiological evidence may be extraneous or even unhelpful. However, defendants charged with crimes for which excuse forms the only viable defense theory stand to benefit tremendously from building in more robust excuses that tie the neurobiological effects of abuse closer to the criminal act, both in time and in cause. For example, avoiding mental health issues and attempting to frame the battered woman's actions as reasonable may be desirable if we wish to legitimize the defendant's decision to unlawfully take her children to another state, but what is the battered woman to do if she is accused of less understandable actions? Indeed, even feminists antagonistic toward excuse-based defenses have reversed course in cases where duress was at issue.¹⁸ It is in these cases that neurobiological evidence may be most salient.¹⁹

Unlike some of the previous work, I do not argue for the obsolescence of guilt or the abolition of penological philosophies regarding free will and moral agency. Rather, as I describe in Part I, my argument requires merely acceptance of a weak biological determinism that is already compatible with much of positive law regarding criminality. Instead of forcing the law to relinquish its utilitarian objectives for purely rehabilitative ones, I merely present neurobiological evidence that may have implications for measuring the battered woman's culpability. This assessment is also done within a distinctly different context than in most cases where neurobiological abnormality is alleged. The cause of the abnormality is a culpable moral agent who is likely either a victim or beneficiary of the battered woman's crime. In this sense, neurobiological evidence functions within a unique factual universe that reconfigures its uses.

16. Francisco Muñoz Conde, *Putative Self-Defense: A Borderline Case Between Justification and Excuse*, 11 NEW CRIM. L. REV. 590, 612 (2008) ("Of course, if the mental state of the woman at the moment she kills her partner is abnormal, because of, for instance, the so called 'battered woman syndrome,' it is possible to provide her with a full or partial excuse on the grounds of insanity, duress, or diminished capacity.").

17. Kit Kinports, *So Much Activity, So Little Change: A Reply to the Critics of Battered Women's Self-Defense*, 23 ST. LOUIS U. PUB. L. REV. 155, 169 (2004) (describing the criticism that defenses based on mental disorders detract from the perception of the battered woman defendant's reasonableness).

18. *Id.* at 186 (summarizing an apparent contradiction in Anne Coughlin's attitude toward the "dubious moral position" of battered women who proceed under an excuse, rather than a justification theory of defense).

19. This can be compared with the forty percent success rate of appeals from homicide charges. See Holly Maguigan, *Battered Women and Self-Defense: Myths and Misconceptions in Current Reform Proposals*, 140 U. PA. L. REV. 379, 432 (1991).

In Part II, I will recount the history of legal defenses in battered women's cases, focusing specifically on areas where science has either helped or hindered battered women's claims of innocence. The battered woman syndrome (BWS) is described and its claims to scientific validity examined. I argue that neurobiological evidence does not supplant BWS, but instead could update it, consistent with the syndrome's focus on empiricism. Although the syndrome makes scientific claims that may have catalyzed a broader cultural readjustment in the understanding of battered women, that same body of science has little persuasive force today. Although such scientific evidence, in the form of psychological theories, has figured prominently into the legal defenses of battered women, many of its conclusions about battering are highly contested or only true for a narrow class of victims. Throughout Part II, I discuss the scientific inaccuracy of theories relying on this evidence and conclude by highlighting how this inadequacy has prompted confusion within the courts, skepticism by jurors, and a general distrust that taints the credibility of the battered woman.

In Part III, I distill neurobiological evidence relevant to battered women into its physical and physiological components. As a guiding principle, the Article accepts a weak form of determinism inherent in human agency: that is, there are some instances in which structural or physiological alterations in the brain will have repercussions that cannot be decided against, overcome, or willed away. The physical effects are changes to the structural integrity of the battered woman's brain while the physiological effects are changes to her internal chemical milieu. Both the physical and physiological effects of battering have implications for a variety of mental operations. In describing the physiological effects, I summarize the literature addressing stress responses driven to their limit. Where such alterations persist, they could lead to legally cognizable claims of unconsciousness or involuntariness. I conclude by discussing the process by which these types of evidence could be obtained from battered women.

In Part IV, I outline several applications for neurobiological evidence in defense of battered women charged with crimes related to their abuse. I first show that precedent exists for proffering neurobiological evidence in both trials and sentencing. In the remainder of Part IV, I offer general strategies for integrating neurobiological evidence into diverse legal contexts to reduce culpability or punishment for battered women. In acknowledgement of the widespread use of plea bargaining in criminal cases, I provide several examples of neurobiological evidence and its potential to mitigate sentences of convicted battered women.

Finally, in Part V, I anticipate several criticisms to the integration of neurobiological evidence into a robust defense for the battered woman. Although no commentator has directly addressed this precise issue, I predict

that the proposal will inevitably generate friction with penological and feminist ideologies.

PART I. BATTERED WOMEN AT THE CROSSROADS OF LAW AND NEUROBIOLOGY

It was only in the 1970s that battered women began introducing a history of battering for exculpatory purposes.²⁰ Advancements in the criminal law for battered women's cases have been made through specific defenses rather than a holistic understanding of battering and its effects. Self-defense, perhaps the most indefatigable defense in American jurisprudence, resonated earliest with courts and legal scholars.²¹ As a result, courts selectively reduced the battered woman's culpability in the only context that was believed to merit a claim of self-defense: retaliation against a batterer. There was little recourse for women accused of crimes not of a retaliatory nature.²² Grossly oversimplifying, battering evidence was permitted to support a battered woman's claim to self-defense when the battered woman killed her batterer during an abusive incident but less frequently in non-confrontational settings—for instance, where the batterer was asleep.²³

To account for situations where battered women were barred from claiming self-defense, scholars advanced arguments for various reforms including broadening defense elements to better accommodate battered women's experiences,²⁴ rewriting evidence rules to permit more battering evidence,²⁵

20. Myra MacPherson, *Battered Wives and Self-Defense Pleas*, WASH. POST, Dec. 4, 1977, at A1 (regarding the emerging use of self-defense in battered women's cases as "a controversial new trend in legal attitudes regarding the age-old doctrine of self-defense").

21. Self-defense is a keystone legal defense. See, e.g., Note, *A Trespasser's Right of Self-Defense When Assaulted*, 20 YALE L.J. 219, 220 (1911) (arguing that the law of self-defense is "older than the law itself" and that self-defense is "the natural and inalienable right of every human being, and is to be held sacred and inviolable by every law of human or civil institution"). The battered women's movement appropriated self-defense in cases appearing in the 1970s. See MacPherson, *supra* note 20; Brenda L. Russell & Linda S. Melillo, *Attitudes Toward Battered Women Who Kill: Defendant Typicality and Judgments of Culpability*, 33 CRIM. JUST. & BEHAV. 219, 220 (2006) (explaining that self-defense is the most common defense plea for murder or manslaughter of an abusive partner); see also Myrna S. Raeder, *Domestic Violence in Federal Court: Abused Women as Victims, Survivors, and Offenders*, 19 FED. SENT'G REP. 91, 91 (2006) (discussing how victims' advocates turn away from women offenders except where battered woman syndrome rescues the woman's status as victim).

22. Defenses for battered women in Canada have also developed largely within the self-defense context. See Martha Shaffer, *Coerced into Crime: Battered Women and the Defence of Duress*, 4 CAN. CRIM. L. REV. 271, 307-08 (1999) (lamenting the lackluster legal consideration of battering for purposes other than self-defense).

23. While non-confrontational cases have generated significant interest among legal scholars, the majority of cases in which battered women were killed were in fact confrontational. Maguigan, *supra* note 19, at 397.

24. Sarah Baseden Vandenbraak, Note, *Limits on the Use of Defensive Force To Prevent Intramarital Assaults*, 10 RUTGERS-CAMDEN L.J. 643, 658-60 (1979) (proposing an alternative definition of self-defense that eliminates the elements of imminence and duty to retreat and introduces the element of necessity).

25. See Maguigan, *supra* note 19, at 386 (discussing the scholarly focus on reforming evidence rules for cases in which a defendant presents a history of abuse).

and co-opting traditionally “male” defenses, such as provocation.²⁶ Holly Maguigan’s influential work on judicial discretion has highlighted the limited effectiveness of such reform proposals, demonstrating that unfair decisions are often attributable to improper application of the law by trial judges.²⁷ Court watch programs offer one potential solution to this institutional problem. These programs mobilize volunteer observers to observe judicial proceedings where domestic violence is an issue.²⁸ Unfortunately, court watch programs have no supervisory capacity where plea bargains are concerned.²⁹ The overwhelming use of plea bargaining, in up to ninety percent of criminal cases, significantly diminishes the relevance of court watch programs for battered women charged with crimes.³⁰ This reality necessitates the gradual evolution of battered women’s defense theories in order to ensure more favorable pleas. That plea bargains have become so commonplace suggests that defendants could enjoy greater success if their evidence is tailored to be convincing to judges as well as unsupervised prosecutors and defense attorneys.

Concurrently with these developments, the battered woman syndrome was becoming an increasingly popular weapon in combating harmful perceptions about battered women. The reach and significance of battered woman syndrome can hardly be overstated.³¹ For its development, Lenore Walker, the architect of battered woman syndrome, interviewed 400 battered women and caseworkers.³² As part of this pioneering research, Walker collected extensive information regarding the thoughts, behaviors, and feelings of the battered women she examined.³³ Battered woman syndrome is roughly a synthesis of Walker’s extrapolations from this data.³⁴ By delivering a more nuanced view of the battered woman, Walker’s syndrome aims to refute harmful perceptions

26. See, e.g., Brenda M. Baker, *Provocation as a Defence for Abused Women Who Kill*, 11 CAN. J.L. & JURIS. 193, 206 (1998).

27. Maguigan, *supra* note 19, at 447-50.

28. See, e.g., Sarah Buel, *Effective Assistance of Counsel for Battered Women Defendants: A Normative Construct*, 26 HARV. WOMEN’S L.J. 217, 232 (2003).

29. See *id.* at 235 (discussing how court watch programs exercise surveillance over proceedings held in front of judges).

30. MARC L. MILLER & RICHARD F. WRIGHT, *CRIMINAL PROCEDURES* 1107 (3d ed. 2007). On the other hand, court watch programs can be expected to enjoy continued success in overseeing protective orders or custody hearings. See, e.g., Barbara Brotman, *Caring Eyes Focus on Domestic Violence Court*, CHI. TRIB. (Feb. 4, 2009), http://articles.chicagotribune.com/2009-02-04/news/0902030963_1_domestic-violence-court-court-system-court-watch.

31. See Russell & Melillo, *supra* note 21, at 219 (describing BWS as “the most sophisticated theory to capture the plight of women who are assaulted by their intimate partners”).

32. Lenore E.A. Walker, *Psychology and Law*, 20 PEPP. L. REV. 1170, 1183 (1993). For a more comprehensive discussion of the syndrome and its shortcomings, see generally Alafair S. Burke, *Rational Actors, Self-Defense, and Duress: Making Sense, Not Syndromes, Out of the Battered Woman*, 81 N.C. L. REV. 211 (2002).

33. See Walker, *supra* note 32, at 1172-73.

34. *Id.*

about the thoughts and behaviors of battered women.³⁵ Most importantly, the syndrome creates a prototypical battered woman, constructed around narratives provided by the study's subjects. In order to avoid overgeneralization, Walker expanded the syndrome to be applicable in a variety of disparate battering relationships.³⁶ In order to preserve the theory's coherence, Walker attempted to unify the various types under an umbrella of common psychological and neurological symptoms.³⁷

Unlike many of the piecemeal approaches advanced by reformers, the syndrome was theoretically equipped to defend battered women from a variety of criminal charges.³⁸ Nevertheless, differences exist in the ability of the syndrome to diminish the culpability of certain battered women, which some scholars speculate reflects a sympathy premium afforded to some women but not others.³⁹ Battered women who retaliate against a batterer are likely to be viewed more sympathetically than those charged with harming an innocent third party, for example.⁴⁰ Empirical evidence suggests a leading role for a related concept, empathy, in obtaining positive outcomes for battered women on trial.⁴¹ Battered women charged with crimes related to retaliation may be enjoying better legal outcomes to the extent that men can empathize with taking a defensive action. Significant disparities exist between men and women in deciding guilt for battered women,⁴² and perhaps this type of empathy in the self-defense context explains this gap. However the syndrome operates, any successor or supplanting theory must be attentive to the way the syndrome accomplishes either mitigation or exculpation. If empathy is impossible, the defense must appeal to either sympathy or scientific authority.

Despite its pervasiveness and perceived benefits, the battered woman syndrome has not been without its critics.⁴³ Feminists, experts, and jurists alike have voiced their concerns about the doctrine and its implications for battered

35. See Burke, *supra* note 32, at 222-23 (discussing how Walker described domestic violence as occurring in cycles and how these cycles provided explanations for otherwise counterintuitive behavior, such as staying with an abuser).

36. See Walker, *supra* note 32, at 1182 (discussing four different cycles of violence).

37. These symptoms include a dysregulated fight-or-flight response with dissociation and changes in memory and cognition. *Id.* at 1185-87.

38. Burke, *supra* note 32, at 250 (describing the invocation of the syndrome in various criminal contexts outside of retaliation against a batterer).

39. *Id.* This sympathy premium may reflect invidious racial and economic bias, and, as such, it is an unacceptable outcome of contemporary jurisprudence in the area of battered women.

40. See, e.g., *id.*

41. See generally Karyn M. Plumm & Cheryl A. Terrance, *Battered Women Who Kill: The Impact of Expert Testimony and Empathy Induction in the Courtroom*, 15 VIOLENCE AGAINST WOMEN 186 (2009).

42. Regina A. Schuller & Sara Rzepa, *Expert Testimony Pertaining to Battered Woman Syndrome: Its Impact on Jurors' Decisions*, 26 LAW & HUM. BEHAV. 655, 668 (2002) (demonstrating that women viewed testimony regarding abuse more favorably than men and were more sympathetic toward women defendants).

43. For a concise summary of the history of attacks made against the syndrome, see Kit Kinports's discussion "Bashing the Battered Woman Syndrome." Kinports, *supra* note 17, at 168-73.

women and women generally.⁴⁴ In 1997, David Faigman and Amy Wright went so far as to portend the imminent demise of the syndrome.⁴⁵ In spite of this trenchant opposition, legal actors remain reticent, to say the least, about reigning in the use of the battered woman syndrome.⁴⁶ Kathleen Ferraro attributes the syndrome's enduring influence to its compatibility with norms of heterosexual femininity.⁴⁷ By comporting with notions of women as helpless victims rather than active survivors, the syndrome fits squarely within a masculinist legal culture.⁴⁸ These notions are conveyed through the court's willingness to decide cases depending on how sympathetic they deem a particular defendant.⁴⁹ By selectively repudiating certain defendants based on how closely they conform to the expectations of a male decision-maker, it is conceivable that preconceptions about battered women were given legal effect. Explanations like these thoughtfully reflect theories advanced by feminist thinkers such as Gloria Steinem in other contexts. Steinem had posited that Freud's acceptance by the public was catalyzed by a desire to reframe religiously rooted biases against women as empirically verifiable truths, supported by hard science.⁵⁰

Kathleen Ferraro and Alafair Burke, two significant scholars in the area of domestic violence, highlight the syndrome's unfortunate compatibility with chauvinistic perceptions about women in abusive relationships. Their explanations for the syndrome's persistence cannot account for why the syndrome—and not any of a number of alternative defense theories—would be the preferred vehicle for disseminating problematic perceptions about battered women. To fully explain this phenomenon, I postulate that the syndrome is

44. See, e.g., Ferraro, *supra* note 2, at 114 (discussing a joint report by the Department of Justice and the Department of Health and Human Services, published in 1996, in which legal and psychological experts recommend abandoning the battered woman syndrome in favor of a more global accounting of abuse, which they describe as “battering and its effects”).

45. David L. Faigman & Amy J. Wright, *The Battered Woman Syndrome in the Age of Science*, 39 ARIZ. L. REV. 67, 70 (1997) (chronicling “the rise and fall of the battered woman syndrome”).

46. See, e.g., Burke, *supra* note 32, at 221 (“Although not universally embraced by legal commentators, Walker’s description of battered women and her labeling of them as syndromatic has found widespread acceptance. For example, the theory is taught to counselors, police officers, prosecutors, parole board officials, and social-service providers to improve the quality of their responses to domestic violence. In an unusual expansion of resources to assist indigent criminal defendants, the federal government at one time funded the development of training materials to facilitate the use of expert testimony regarding battered woman syndrome in criminal cases.” (internal citations omitted)); see also *id.* at 247 (“Courts have largely ignored the flaws in the scientific research underlying the battered woman syndrome theory and have held that scientific evidence regarding the syndrome is sufficiently reliable to meet evidentiary standards.”).

47. Ferraro, *supra* note 2, at 125.

48. *Id.* at 111.

49. See, e.g., Burke, *supra* note 32, at 249 (discussing the importance of sympathy in motivating decisions in battered women’s cases).

50. Compare Gloria Steinem, *Moving Beyond Words*, Address at the Ford Hall Forum (May 12, 1994), available at http://fora.tv/1994/05/12/Gloria_Steinem_Moving_Beyond_Words, with FIONA E. RAITT & SUZANNE ZEEDYK, *THE IMPLICIT RELATION OF PSYCHOLOGY AND LAW: WOMEN AND SYNDROME EVIDENCE* 85-86 (2000) (describing the “guise of scientific objectivity”).

favored in large part due to the legal system's infatuation with scientifically authoritative explanations. Defense experts prefer it because it associates the charged act with illness, and this association generally absolves the afflicted actor of responsibility.⁵¹ No single theory purporting to describe battered women would accumulate as much facially credible scientific evidence as the battered woman syndrome. Because no strong competing theory emerged, the syndrome's central place in the defense of battered women remained secure.

As the debate over the representation of battered women was unfolding, neuroscientists and neuroethicists were raising poignant questions about the philosophical underpinnings of the criminal justice system. While those who subscribed to a highly deterministic view of behavior argued for abolishing the punishment of criminality-producing brain dysfunction, others rejected this view—claiming instead that even brain disordered individuals retain their ability to choose from among more or less culpable actions.⁵² As jurists and commentators seek to arrive at some compromise between these two positions, there has been a suggestion that neurobiology could influence criminal law without entirely revolutionizing it.⁵³ Amanda Pustilnik recommends a more focused application of neurobiology to the law. In line with Pustilnik's recommendations, a description of the battered woman through the lens of neurobiology should integrate, not eschew, longstanding notions of culpability.⁵⁴ The benefit of using neurobiological evidence for battered women defendants lies with its ability to corroborate other evidence and satisfy law's appetite for rigorous scientific theory with a solid empirical backing.

Supplementing defense theories with neurobiological evidence is an incremental change that also offers the rigorous scientific framework commentators argue battered woman syndrome is lacking. While the claims made by the syndrome diverge in many respects from the claims supported by neurobiology, both use empirically based scientific theories to attempt mitigation of the battered woman's culpability. To be sure, neurobiological evidence could give rise to an updated and reinforced battered woman syndrome just as easily as it could stand alone as a scientific component of battering and its effects.⁵⁵ However it is eventually incorporated, the benefit of

51. See, e.g., Stephen J. Morse, *Addiction, Genetics, and Criminal Responsibility*, LAW & CONTEMP. PROBS. 166, 169 (2006) ("The concepts of illness and disease have powerful associations in our culture, most of which are inconsistent with the sufferer's responsibility for the features of the illness.").

52. Compare Adrian Raine, *Psychopathy, Violence, and Brain Imaging*, in VIOLENCE AND PSYCHOPATHY 35 (Adrian Raine & José Sanmartín eds., 2001), with Morse, *supra* note 51, at 171.

53. Pustilnik, *supra* note 10.

54. *Id.*

55. Several prominent figures have called for the replacement of the battered woman syndrome with the more holistic phrase: "testimony on battering and its effects." Sue Osthoff & Holly Maguigan, *Explaining Without Pathologizing: Testimony on Battering and Its Effects*, in CURRENT CONTROVERSIES ON FAMILY VIOLENCE 225, 227, 229-32 (Donileen R. Loseke, Richard J. Gelles & Mary M. Cavanaugh eds., 2d ed. 2005).

using neurobiological evidence will certainly redound to the battered woman defendant. The potential for neurobiological evidence to do damage to a battered woman's agency and self-determination is a serious concern; some feminist commentators, however, have resolved similar issues in favor of more, not less, discourse about such topics.⁵⁶ To the extent that neurobiological evidence for battered women is considered an integral aspect of the general body of neurolegal jurisprudence, battered women will be the beneficiaries of increased acceptance of neurobiology in the courtroom. If, on the other hand, battered women are forced to rely on the contentious scientific claims of the syndrome, they may actually be imperiled by law and society's increasing invocation of neurobiology-based accounts of behavior. Thus, the defense of battered women stands at a precipice. In the absence of an updated understanding of battering's effects, defense attorneys may have to choose between retaining an unappealing syndrome or replacing it with an untested alternative (in the form of sole reliance on social context evidence). As judges and juries become more exposed to rigorous theories of neurobiology's role in determining behavior, they can be expected to grow in their skepticism toward the controversial claims of the battered woman syndrome. Bringing the defense of battered women into congruence with contemporary neurobiological evidence offers a strong and objective foundation for limitless claims to mitigation and exculpation.

PART II. SYNDROMES, SCIENCE, AND SOCIETY

Since its inception, the battered woman syndrome has had a central role in the defenses of battered women accused of crimes. The syndrome is roughly a synthesis of data collected about battered women and the authors' various theories intended to account for apparent trends in this data.⁵⁷ The syndrome can be thought to function through two distinct avenues: indirectly, by constructing (and reconstructing) society's conceptions about battered women,⁵⁸ and directly, by presenting empirical evidence to decision-makers

56. See, e.g., Lori G. Beaman, *Women's Defences: Contextualizing Dilemmas of Difference and Power*, 9 *WOMEN & CRIM. JUST.* 87, 96 (1998); Margaret G. Spinelli, *Maternal Infanticide Associated with Mental Illness Prevention and the Promise of Saved Lives*, 161 *AM. J. PSYCHIATRY* 1548 (2004). Premenstrual dysmorphic disorder (PMDD) and premenstrual syndrome (PMS) are highly related to neurobiological evidence, as both implicate neuroendocrinological control over decision-making. There is at least some feminist support for using PMDD and PMS in legal settings for their mitigating or exculpating potential. The issues raised by pathologizing and stigmatizing battered women are further explored in Section V.A., *infra*.

57. For example, the syndrome sought to explain, among other things, why battered women would stay in abusive relationships, why they would cover up for their abusers, whether they provoke their abuse, and other questions that had yet to be explored in any meaningful way. LENORE E.A. WALKER, *THE BATTERED WOMAN SYNDROME* (1984).

58. Through her work, Melissa Hamilton has attempted a deconstruction of the battered woman defendant. MELISSA HAMILTON, *EXPERT TESTIMONY ON DOMESTIC VIOLENCE: A DISCOURSE*

such as judges or jurors. Operating in the former capacity, the syndrome relies on education and media penetration to subtly massage society's notions about battering and its effects.⁵⁹ This massaging is accomplished through normalizing the behaviors of battered women⁶⁰ and providing a convenient vernacular to describe their experiences. The language of the syndrome includes various concepts susceptible to ambiguation, such as breaking someone's will,⁶¹ being a hostage,⁶² learned helplessness,⁶³ and psychological paralysis.⁶⁴

To support the idea that battered woman syndrome operates by constructing social knowledge, I refer to the temporal trends in the findings of Follingstad et al.⁶⁵ In this 1989 study, mock jurors from a pool consisting of 388 college students were asked to pick a verdict in a case where a battered woman kills her batterer.⁶⁶ More subjects chose "not guilty by self-defense" than "not guilty by reason of insanity"—regardless of whether expert testimony was presented.⁶⁷ This result was contrary to an analysis conducted eight years earlier, which showed jurors disproportionately believed that battered women who committed violent crimes were in some way insane.⁶⁸ This shift from more to less pathologizing suggests that the conceptions of jurors about battered women have been modified to accommodate the self-defense narrative made popular through numerous media accounts of battered women.

ANALYSIS 23-24 (2009). The analysis in this Article continues this discussion by unpacking the socially constructed elements of the battered woman syndrome. While Hamilton's analysis implies that society constructs the battered woman as being ill, locating the problem within her, rather than within society, this Article takes an alternate position: the syndrome has enabled a social construct that, while substantively imperfect, has contributed to the success of *some* battered women in criminal cases. It is debatable whether a legal system so devoted to upholding the ethos of personal responsibility could recognize the crime of a battered woman as a crime of society.

59. The entanglement of the battered woman's counterintuitive behaviors with popular psychology has turned battered women into somewhat of a cultural curiosity, often producing a maelstrom of media coverage for certain cases. See Leigh Goodmark, *When Is a Battered Woman Not a Battered Woman? When She Fights Back*, 20 YALE J.L. & FEMINISM 75, 76 (2008) ("Over the past thirty years, the public, the media, and the legal system have coalesced around a stereotypical image of victims of domestic violence."); Martha Minow, *Words and the Door to the Land of Change: Law, Language, and Family Violence*, 43 VAND. L. REV. 1665, 1679 (1990) (discussing the way in which the testimony of a battered woman, Hedda Nussbaum, was televised to audiences all over New York City—reaching the level of a soap opera).

60. See Ferraro, *supra* note 2, at 125 ("The battered woman syndrome does not just describe a set of behaviors that develop in response to battering by an intimate partner. It creates a social understanding of the effects of battering that influences responses and establishes expectations.").

61. *Hunt v. State*, 753 So. 2d 609, 611 (Fla. Dist. Ct. App. 2000).

62. *United States v. Johnson*, 956 F.2d 894, 899 (9th Cir. 1992) ("Once battered women believe themselves to be helpless victims of abusive men, they behave like hostages and link themselves to their captors out of fear. . .").

63. See *infra* Section II.B.

64. *Thigpen v. State*, 546 S.E.2d 60, 62 (Ga. Ct. App. 2001).

65. See generally Diane R. Follingstad et al., *Factors Predicting Verdicts in Cases Where Battered Women Kill Their Husbands*, 13 LAW & HUM. BEHAV. 253 (1989).

66. *Id.* at 257-59.

67. *Id.* at 265.

68. *Id.* at 256.

Further evidence of the syndrome's influence on the battered woman construct derives from evidence that battered woman syndrome testimony is becoming less relevant, less necessary, and more integrated within the jury's general base of knowledge. In 2002, Schuller and Rzepa showed that mock jurors who heard expert testimony returned very similar verdicts to those who had not.⁶⁹ While this work demonstrates the syndrome's ability to engender certain beliefs about battered women, the trend also suggests that some forms of expert witness testimony are approaching obsolescence. It remains an open question whether the shift in jurors' conceptions of battered women was ushered in by the constructive force of the syndrome or whether they were the upwelling of a broader feminist movement.⁷⁰

Where the syndrome has been unable to dislodge certain notions about battered women, it attempts to invoke authority through theoretical frameworks backed by empirical data to support its counterintuitive assertions.⁷¹ Aside from providing a convenient language to describe battered women, the syndrome also delivered a deliberately theoretical framework that adopted concepts such as mathematically precise cycles, dynamic equilibria, and thresholds.⁷² The syndrome's attempt to put itself on equal footing with more quantifiable physical phenomena is perhaps intentional, as many of the claims the syndrome makes were later connected by Lenore Walker to theories of human physiology and neuropsychology.⁷³

The scientific strength of the battered woman syndrome's claims is tied up in the syndrome's empirical evidence: the number of times a battered woman responded in the way consistent with the syndrome, the degree to which the battered woman embodies the theory's predictions, the support the theory finds in studied populations—all contribute to the power of the syndrome. For those jurors who have not become acquainted with the syndrome's construction of the battered woman, the empirical evidence serves an important function: to

69. Schuller & Rzepa, *supra* note 42, at 664-65 (finding a non-significant difference in the verdict distribution across the expert and no expert conditions). *But see* Regina A. Schuller & Patricia A. Hastings, *Trials of Battered Women Who Kill: The Impact of Alternative Forms of Expert Evidence*, 20 *LAW & HUM. BEHAV.* 167 (1996) (in which students, as opposed to non-students, were more favorable to the woman's claim in the expert condition).

70. Support for the latter conclusion comes from a line of cases predating the battered woman syndrome, in which women who retaliated against their batterer were nonetheless acquitted. *See* MacPherson, *supra* note 20.

71. For instance, Lenore Walker uses firsthand accounts of over four hundred battered women and caseworkers to refute the myth that women masochistically provoke their batterers. Lenore E. Walker, *Who Are the Battered Women?*, 2 *FRONTIERS: J. WOMEN STUD.* 52, 54 (1977). Walker consistently defers to numerical data and quantitative methods of data presentation to combat conventional thinking about battered women. *See generally* Walker, *supra* note 32, at 1181-85 (using statistics and graphs to represent various battering cycles).

72. For a summary of these, as well as evidence of Lenore Walker's sustained reliance on such concepts, see Walker, *supra* note 32.

73. *Id.* at 1186-90 (making reference to memory distortion, the parasympathetic nervous system, and the "fight or flight" response).

quickly and forcefully convince.⁷⁴ In one study, subjects presented with a general expert testifying about battered women were more than twice as likely to convict of murder as those subjects who heard a scientific expert discuss the battered woman syndrome.⁷⁵ This is strong evidence of the battered woman syndrome's empirical force in action.

In the remainder of this section, I argue that the battered woman syndrome, with its dubious claims to scientific validity, stands much like a skyscraper built on a sandbar. Despite its tendentious assertions about battered women, the syndrome offers little in the way of valid science to support its central theory. Secondly, I explain why this science, however flawed, is foundational for the syndrome. Finally, I provide examples of judicial attacks on the ex post methodology underlying battered woman syndrome "diagnoses." As I argued above, the contributions of the syndrome to educating potential jurors have likely been realized; now, the scientific foundation for the syndrome must either be reinforced or its claims to scientific validity abdicated, otherwise even those who were persuaded by the syndrome previously may become skeptics.⁷⁶ The alternatives to the syndrome are briefly explored, and neurobiological evidence's place within the realm of new approaches is justified.

A. *The All-or-Nothing Potential of the Battered Woman Syndrome*

The battered woman syndrome facilitates the tweaking of traditional defense elements to accommodate the characteristics of the prototypical battered woman.⁷⁷ Contrary to popular belief, the theory has no exculpatory force of its own, nor does it constrain the legal purposes of its deployment.⁷⁸

74. If the syndrome derives at least some of its force through a constructivist modality—vis-à-vis the work of the feminist movement—then cultures where these shifts have been less momentous may also be more skeptical of non-empirical depictions of the battered woman.

75. Regina A. Schuller, *Expert Evidence and Its Impact on Jurors' Decisions in Homicide Trials Involving Battered Women*, 10 DUKE J. GENDER L. & POL'Y 225 (2003).

76. See, e.g., ALAN M. DERSHOWITZ, *THE ABUSE EXCUSE AND OTHER COP-OUTS, SOB STORIES, AND EVASIONS OF RESPONSIBILITY* 3 (1994) (discussing societal concerns about excusing through claims of abuse).

77. For example, reasonableness of a battered woman's action is viewed relative to what would be expected from someone with battered woman syndrome. See SANFORD H. KADISH, STEPHEN J. SCHULHOFER & CAROL S. STEIKER, *CRIMINAL LAW AND ITS PROCESSES* 757 (8th ed. 2007) (stating that most courts consider syndrome evidence in determining the reasonableness of the defendant's action in self-defense cases). Legal scholars advocated for the use of syndrome evidence in order to understand how battered women's predictions about imminence, another requirement for self-defense, would be affected by violence. Elizabeth M. Schneider, *Describing and Changing: Women's Self-Defense Work and the Problem of Expert Testimony on Battering*, 9 WOMEN'S RTS. L. RPTR. 195, 211 (1986).

78. It was only several years after the syndrome's claims had been published and invoked in legal settings that the author, Lenore Walker, addressed the use of the syndrome in legal settings where a battered woman was accused of retaliating against her abuser. The topic is taken up in less than one page, and Walker offers a rather perfunctory directive to defense attorneys: establish the battered woman as being inextricably tied to her abuser. LENORE WALKER, *THE BATTERED WOMAN* 220-21 (1980). Although Walker made various appearances as an expert witness in such cases, the appropriate use of the syndrome in legal contexts remained open to interpretation.

Battered woman syndrome appears to have been repurposed by lawyers and legal scholars for supporting various defenses.⁷⁹ The syndrome was most potent in cases where defenses depended on the satisfaction of certain subjective elements: the reasonableness of the battered woman's use of force, the feeling that an attack was imminent.⁸⁰ For example, in cases where a battered woman killed her abuser during a lull in the violence, arguments were occasionally made unifying imminence with futility of escape,⁸¹ effectively importing the learned helplessness concept from the battered woman syndrome.

Unconstrained by any fixed legal rule or psychological definition,⁸² attorneys often frame the syndrome in a way that reflects their own conceptions of who has battered woman syndrome. Given the importance of precedence in legal practice, defendants could expectably be compared to those who came before them.⁸³ Members of this class of defendants typically have ambiguous inferences resolved in their favor and are more likely to be excused for their transgressions.⁸⁴ For example, if a woman failed to protect her child from a batterer, the jury could decide she was an irresponsible parent or, alternately, that the battering relationship was too intense for her to challenge her batterer in any meaningful way.⁸⁵ A woman within the class of battered women with the syndrome would receive the benefit of the latter inference. The syndrome may be conceived of, then, as creating a class where membership is attained by satisfying certain shifting criteria. The mitigating power of the syndrome for a particular fact correlates with how prevalent that fact is for others in the class. Thus, a woman whose case could be hurt by a particular fact receives sympathy, provided that the fact is shared by some other class members.⁸⁶ The

79. See Burke, *supra* note 32. The scholarship that produced the battered woman syndrome gave no indication of its use for defending battered women from criminal charges. Rather, the work focused on explaining counterintuitive behavior by battered women: staying with an abuser, blaming oneself, covering up for an abuser. These explanations, it was believed, would create more possibilities for battered women to receive assistance in escaping their situations. Walker, *supra* note 71, at 54.

80. KADISH ET AL., *supra* note 77, at 757-60.

81. *State v. Norman*, 378 S.E.2d 8, 19 (N.C. 1989) (Martin, J., dissenting) (arguing that "if there is no escape . . . then the next attack, which could be the fatal one, is imminent").

82. The common law offered little guidance for when battered woman syndrome evidence could be properly excluded (or included). Maguigan, *supra* note 19, at 427-28. Similarly, the gold standard for defining all colors of psychological disorder, the Diagnostic and Statistical Manual of Mental Disorders (DSM), offered no definition of the syndrome. See, e.g., ROBERT C. CARSON, JAMES N. BUTCHER & SUSAN MINEKA, *ABNORMAL PSYCHOLOGY AND MODERN LIFE* (11th ed. 2000).

83. Buel, *supra* note 28, at 296 (explaining how practitioners tend to demand strict adherence to the syndrome's requirements).

84. See generally Schuller, *supra* note 75.

85. In *People v. Novy*, 597 N.E.2d 273, 296 (Ill. App. Ct. 1992), the appellate court considered the sufficiency of the evidence convicting a mother who was alleged to have permitted the beating death of her son by her abusive husband. In that case, the court recognized that although the defendant had been abused extensively by her husband, an inference of "common design" was reasonable in the killing of their child.

86. This interpretation varies somewhat from previous interpretations of the syndrome's operation. In other interpretations, invoking empathy, not sympathy, is described as the critical facet of the syndrome's operation. See, e.g., Schneider, *supra* note 77, at 220 (describing the syndrome as uncovering the "public dimension" of the battered woman's experience).

facts include both pre- and post-crime behavior, trial demeanor, and appearance or social status.⁸⁷

The stereotyping that underlies battered woman syndrome has adverse implications for future defendants who fail to comport with shifting requirements for class membership and likewise for those women whose facts may be uncommon to other battered women but nevertheless were an effect of battering for *them*.⁸⁸ Even more problematic for defendants is the inevitable creation of a “bad” class of battered women—battered women implicated in cases where highly incriminating inferences seem tempting to jurors. To tap into the all-or-nothing potential of the syndrome, battered women attempt to shoehorn themselves into the class of “good” battered women or else lose the mitigating effects of having been battered.⁸⁹

B. *Syndrome or Pseudoscience?*

Since battered woman syndrome’s inception, legal scholars have cast doubt upon its scientific force.⁹⁰ Although the syndrome was developed from interviews with nearly 700 battered women and service providers, the methodology for these interviews has been challenged on numerous grounds. Faigman and Wright outline several significant flaws in the study’s design: interviewers asked leading questions that hinted at the answers desired, interviewers were aware of the hypothesis, no control group was interviewed, and the study drew conclusions about battered women, generally, without regard to the proportion of battered women for whom such conclusions were supported by the interview data.⁹¹ The psychological evidence that is the lynchpin of the syndrome’s conceptual framework has yet to be subjected to the rigorous testing that courts often require of scientific theories before admitting them to support legal claims.⁹² Despite these objections, courts appeared outspokenly unconcerned with the scientific rigor of the syndrome.⁹³

87. See Russell & Melillo, *supra* note 21, at 225-26.

88. One such adverse consequence is that battered women will feign certain behaviors or manufacture facts that place them more “within” the class of battered women. See discussion *infra* Section II.C.

89. In some cases, attorneys quibble over the facts necessary to declare a defendant a “battered woman.” These debates often become so contrived that they border on absurd. See, e.g., *Pickle v. State*, 635 S.E.2d 197, 201 (Ga. Ct. App. 2006) (citing the trial court’s statement to defense counsel, “[i]t sounds like . . . you’re not going to call your client a battered wife or a battered person because that’s going too far, but you’re going to pick up instances that occurred and say this is battered.”).

90. See Faigman & Wright, *supra* note 45, at 73 n.37; accord David L. Faigman, *The Battered Woman Syndrome and Self-Defense: A Legal and Empirical Dissent*, 72 VA. L. REV. 619 (1986).

91. Faigman & Wright, *supra* note 45, at 76-79. For a description of the multiple flaws in the study design, see *id.* at 77.

92. See *id.* at 104-05 (questioning law’s acceptance of “bad evidence” in lieu of science).

93. Compare *Smith v. State*, 486 S.E.2d 819, 822 (Ga. 1997) (regarding syndrome testimony as admissible where it offers conclusions the jury “could not ordinarily draw for themselves” (quoting *Smith v. State*, 247 Ga. 612, 619 (1981)), and *State v. Anaya*, 438 A.2d 892, 894 (Me. 1981) (“[W]here the psychologist is qualified to testify about the battered wife syndrome, and the defendant establishes

One explanation for the court's willingness to relax scientific standards as applied to the syndrome is that the syndrome is understood to be a necessary evil.⁹⁴ According to Robert Mosteller, the jury's inability to comprehend the realities of being a battered woman, combined with the increasing recognition of the domestic violence epidemic, have compelled courts to retain the syndrome despite its methodological shortcomings.⁹⁵ While tempting, this view fails to account for the syndrome's continued prevalence in light of various emergent alternative contexts for combating misconceptions about battered women.⁹⁶ Moreover, it cannot account for why some jurisdictions conceive of the syndrome in more medical terms while others focus on increased contextualization of the battered woman's situation.⁹⁷ What the syndrome offers over alternatives are theories backed by empirical support. It is likely that the preservation of the syndrome is due in part to the empirical rebuttal the syndrome can offer to harmful misconceptions about battered women. Mosteller may be correct that the syndrome is retained because of its ability to shield a sympathetic defendant from undeveloped intuitions about abuse. However, it is important to keep in mind that the syndrome is the singular comprehensive scientific account of battering backed by a substantial amount of empirical evidence.

Because the syndrome's theoretical assertions are so multifaceted, challenges to the syndrome must be particularized. One of the critiques yet to be fully explored is the battered woman syndrome's specious reliance on learned helplessness,⁹⁸ a foundational feature of the battered woman syndrome imported from Martin Seligman's canonical studies of male canines.⁹⁹ Learned helplessness is a process by which individuals, after learning of their inability to control aversive stimuli, discontinue any measures taken to avoid those stimuli—even at much later times when such avoidance measures would be successful.¹⁰⁰ By associating battered woman syndrome with knowledge acquired through traditional laboratory science, the importation of learned

her identity as a battered woman, expert evidence on the battered wife syndrome must be admitted"), with *Fielder v. State*, 683 S.W.2d 565, 590 (Tex. App. 1985) (holding that state of the art evidence was "not adequately demonstrated to the court, and because of inadequate foundation the proposed opinions would not aid the jury" (quoting *Buhrle v. State*, 627 P.2d 1374, 1378 (Wyo. 1981))).

94. Robert P. Mosteller, *Syndromes and Politics in Criminal Trials and Evidence Law*, 46 DUKE L.J. 461, 487 (1996).

95. *Id.*

96. Alternatives include defenses based on "battering and its effects" and social agency framework evidence. See *infra* Section II.D (discussing the various alternatives to the syndrome).

97. See *infra* Section II.C (distinguishing between states that connect the syndrome to PTSD and those that do not).

98. LENORE E. WALKER, *THE BATTERED WOMAN* 42 (1979) [hereinafter WALKER, *BATTERED WOMAN* (1979)]. The concept of learned helplessness is revisited in a later version of a book on the syndrome, along with its converse "learned optimism." LENORE E. WALKER, *THE BATTERED WOMAN SYNDROME* (2009), at 69.

99. See, e.g., Martin E. Seligman & Steven F. Maier, *Failure To Escape Traumatic Shock*, 74 J. EXPERIMENTAL PSYCHOL. 1 (1967).

100. *Id.*

helplessness was likely intended to color the syndrome with a patina of scientific legitimacy.¹⁰¹ Anecdotal evidence that learned helplessness, although ubiquitous, is not an inevitable consequence of battering, has yet to be confirmed empirically.

Walker's reliance on the Seligman studies undermines her appropriation of learned helplessness because the Seligman studies failed to consider the effect of the sex of the animal on its response to inescapable stress.¹⁰² As early as 1985, scientists began questioning the assumption that both male and female animals experienced learned helplessness.¹⁰³ More recent work highlights the pronounced differences between male and female rats in their susceptibility to learned helplessness.¹⁰⁴ This work reveals that learned helplessness is largely a symptom of depression experienced by male, not female rats.¹⁰⁵ Studies that have found some enhanced measure of learned helplessness in female animals have found it to correlate strongly with the estrous cycle.¹⁰⁶ Studies of battered women have yielded disparate results, and regardless, such studies are unavoidably wrought with problems in their experimental design.¹⁰⁷ If the syndrome relies on its empirical foundation to receive favorable treatment from courts, and this empirical foundation is eroded, so too might the syndrome be undermined.

C. Psychology Validating the Syndrome

Those utilizing the battered woman syndrome have made a valiant effort to use the doctrine to satiate the law's appetite for scientific validation.¹⁰⁸ Perhaps

101. In the 1977 edition of *The Battered Woman*, Walker analogizes being battered to receiving an electric shock, drawing upon the "learned helplessness" observation of Seligman. The former represents a highly heterogeneous class of experiences, while the latter is a traditional laboratory stimuli used in well-controlled conditioning experiments. Walker writes: "Repeated batterings, like electric shocks, diminish the woman's motivation to respond. She becomes passive . . . she does not believe her response will result in a favorable outcome, whether or not it might." WALKER, *BATTERED WOMAN* (1979), *supra* note 98, at 49.

102. Seligman & Maier, *supra* note 99.

103. Hans L. Steenbergen et al., *Sex-Dependent Effects of Inescapable Shock Administration on Shuttlebox-Escape Performance and Elevated Plus-Maze Behavior*, 48 *PHYSIOLOGY & BEHAV.* 571, 571 (1990) (describing multiple studies that found no suppression in behavior of female rats after exposure to inescapable stressors).

104. Christina Dalla et al., *Females Do Not Express Learned Helplessness Like Males Do*, 33 *NEUROPSYCHOPHARMACOLOGY* 1559, 1559 (2008).

105. *Id.*

106. Jennifer A. Jenkins et al., *The Influence of Gender and the Estrous Cycle on Learned Helplessness in the Rat*, 58 *BIOLOGICAL PSYCHOL.* 147, 154-55 (2001) (hypothesizing that estrogen and its metabolites contribute to the female animal's ability to avoid learned helplessness).

107. Margaret H. Launius & Carol Ummel Lindquist, *Learned Helplessness, External Locus of Control, and Passivity in Battered Women*, 3 *J. INTERPERSONAL VIOLENCE* 307, 316 (1988) (discussing the assumptions and shortcomings of learned helplessness research with battered women).

108. In some cases, experts debate how much significance to accord the tacit acceptance of the American Psychological Association (APA) that the syndrome is a trigger for post-traumatic stress disorder (PTSD). See *infra* notes 110-111.

rightly so, given how instrumental scientific labels have been in imbuing both social and physical conditions with legal gravitas.¹⁰⁹ By linking up with recognized psychological disorders, battered woman syndrome has gained significant credibility. Even if the empirical evidence underlying battered woman syndrome is unconvincing, advocates of the doctrine could lend it some scientific validity—however tenuous—by linking it with post-traumatic stress disorder (PTSD). States, faced with this association, are divided about whether the syndrome is a form of PTSD or something more open-ended—a suite of psychological and social effects that arise out of battering.¹¹⁰ Seven states have stated that the syndrome is a form of PTSD.¹¹¹ Among states regarding the syndrome as a form of mental disease or PTSD, some nevertheless treat it as something different from a mental disease or disorder that would affect legal culpability.¹¹² The most open-ended interpretations of the syndrome hold that it has social, psychological and physiological features.¹¹³ Only one state has

109. See, e.g., Lori D'Agincourt, *PET Findings Support Insanity Defense Case*, 15 DIAGNOSTIC IMAGING 45 (1993) (discussing how the presence of an “arachnoid cyst” could lead to a favorable plea for one murder defendant); Mosteller, *supra* note 94, at 461 (describing the emergence of so-called “trash” syndromes that sought to gain purchase with juries through their scientific appeal, no matter how specious they were).

110. Cases from various jurisdictions point to drastically different definitions of the syndrome. See, e.g., *United States v. Willis*, 38 F.3d 170, 175 (5th Cir. 1994) (“psychological condition”); *United States v. Johnson*, 956 F.2d 894, 899 (9th Cir. 1992) (“not a mental disease or defect; rather, battered woman syndrome is a post-traumatic stress disorder”); *Bechtel v. State*, 840 P.2d 1, 7 (Okla. Crim. App. 1992) (“a mixture of psychological and physiological symptoms . . . make it a medical issue”).

111. These states are Illinois, Massachusetts, Montana, New York, Tennessee, Wisconsin, and Wyoming. *People v. Evans*, 648 N.E.2d 964, 965 n.1 (Ill. App. Ct. 1995) (“The battered woman syndrome is a type of post-traumatic stress syndrome . . .” (citation omitted)); *Comm. v. Conaghan*, 720 N.E.2d 48, 59 (Mass. 1999) (“Rather, battered woman syndrome is considered to be a form of post-traumatic stress disorder, which is ‘an anxiety-related disorder . . . occurring in response to traumatic events outside the normal range of human experience.’” (citation omitted)); *State v. Stringer*, 897 P.2d 1063, 1069 (Mont. 1995) (“The battered woman’s syndrome is recognized as a subcategory of posttraumatic stress disorder.” (citation omitted)); *State v. Hagerty*, No. E2001-01254-CCA-R10-CD, 2002 WL 707858, at *3 n.1 (Tenn. Crim. App. April 23, 2002) (“The *DSM IV* does not use the phrase ‘battered spouse syndrome’ or ‘battered woman syndrome’ to separately describe domestic-type battering that can lead to posttraumatic stress disorder. For that reason, we shall speak of ‘posttraumatic stress disorder’ in this opinion.”); *State v. Bednarz*, 507 N.W.2d 168, 172 (Wis. Ct. App. 1993) (“The battered woman’s syndrome is recognized as a subcategory of posttraumatic stress disorder.” (citation omitted)); *Campbell v. State*, 999 P.2d 649, 660 (Wyo. 2000) (“The ‘battered woman syndrome’ is defined as a subset under the diagnosis of Post-Traumatic Stress Disorder . . .” (citing WYO. STAT. ANN. § 6-1-203(b) (1999))); see also *United States v. Johnson*, 956 F.2d 894, 899 (9th Cir. 1992) (“[B]attered woman syndrome is a post-traumatic stress disorder.”).

112. When courts make this move, they seem to be asserting a distinction between the syndrome, on the one hand, and mental disorders like insanity that would have the potential to bear on culpability, on the other. This is a rather dubious distinction because it seems to manufacture a problematic conclusion about the syndrome: that insanity-like conditions such as dissociation do not occur as a result of battering. See *Conaghan*, 720 N.E.2d at 59 (acknowledging that BWS is a form of PTSD, but holding that “the defendant has offered no evidence to show that battered woman’s syndrome is a mental disease or defect that could have prevented her from being held criminally responsible for Garrett’s death”); see also *Bechtel*, 840 P.2d at 7 (asserting that battered woman syndrome is “not a mental disease in the context of insanity”).

113. See, e.g., *People v. Humphrey*, 921 P.2d 1, 7 (Cal. 1996) (holding that BWS “has been defined as ‘a series of common characteristics that appear in women who are abused physically and

acknowledged that the syndrome may have a physiological or medical character to it.¹¹⁴

Within this psychological framework, there is a general concern that a battered woman who claims to have the syndrome may simply be malingering or “working over” her story.¹¹⁵ Even Lenore Walker expressed concerns that during certain periods, the battered woman may be suggestible to the psychologist’s interpretations.¹¹⁶ Moreover, when a jurist’s intuitions about behavior contravene explanations given by a psychologist, the expert must be highly credible—especially since such experts may be viewed with skepticism.¹¹⁷ This is further complicated by cases wherein the defendant’s credibility is undermined, and this mistrust “spills over” to the defense’s experts.¹¹⁸ Jurists may believe that experts are not entirely objective.¹¹⁹ Occasionally, defendants are even suspected of being groomed to conform to the syndrome criteria.¹²⁰ For example, in *State v. Bockorny*, the court cited to the following testimony of the defense’s expert witness:

Well, it’s just been my observation that the longer people are in the system, criminal justice system, the more they work over their story. I’m not sure whether it’s conscious or unconscious, but it seems to change. I’ve noticed that the times I’ve been able to interview people very close to the crime, it’s a more accurate picture but not always, but there’s a tendency to get a more accurate picture.¹²¹

psychologically over an extended period of time by the dominant male figure in their lives.” (citation omitted)).

114. *Bechtel*, 840 P.2d at 7 (“Based upon our independent review of the available sources on the subject, we believe that the syndrome is a mixture of both psychological and physiological symptoms but is not a mental disease in the context of insanity”); see also *id.* at 17 (arguing that the syndrome is a medical issue).

115. This concern reflects some of the empirical findings in the area. See Randy K. Otto, *Bias and Expert Testimony of Mental Health Professionals in Adversarial Proceedings: A Preliminary Investigation*, 7 BEHAV. SCI. & L. 267, 271 (1989) (reporting empirical results that mental health professionals in criminal cases will testify differently depending on which side retains them).

116. Lenore E. Walker, *Post-traumatic Stress Disorder in Women: Diagnosis and Treatment of Battered Woman Syndrome*, 28 PSYCHOTHERAPY 21, 22 (1991).

117. Even in cases of well-studied conditions such as mental retardation, defendants may draw the court’s suspicion. See, e.g., *United States v. Johnson*, 416 F.3d 464, 469 (6th Cir. 2005) (refusing to admit psychiatric testimony because unlike physical debilitation, mental retardation is “difficult to identify, more difficult to quantify, and more easily feigned”).

118. *Comm. v. Pike*, 726 N.E.2d 940, 949 n.10 (Mass. 2000) (“The judge stated: ‘As [the defendant’s] version of the facts is unreliable, [the expert’s] opinion that she suffered from battered woman[] syndrome or was still subject to Loring’s pervasive control at the time of her trial, is also unreliable.’” (omissions in original)); *Long v. Krenke*, 138 F.3d 1160, 1161 (Wis. 1998) (“The court found that these doctors’ opinions deserved little weight because they relied too heavily on affidavits supplied by Long, including Long’s analysis of her own mental condition.”).

119. There is a longstanding perception among many lawyers that mental health experts who testify in extreme cases on behalf of battered women are “hired guns.” Faigman, *supra* note 90, at 633.

120. *State v. Bockorny*, 863 P.2d 1296, 1299 (Or. Ct. App. 1993).

121. *Id.* at 1299-1300.

The court held that the prosecutor was entitled to impugn the expert testimony by attacking the foundation of its claims: namely, interviews with the defendant after she committed her crime.¹²² Because the court believes psychological symptoms can be manufactured, and because interviews with the defendant took place several months after the crime, the prosecution was able to cast a considerable amount of doubt on the expert's opinion. The trial court's decision to sentence the defendant to five counts of aggravated murder and one count of murder was affirmed on the appeal.¹²³ Several other cases illustrate courts' suspicions about a psychologist's ability to extract truthful statements from battered women.¹²⁴ Even where malingering is not a concern, commentators have cast doubt upon the ability of mental health experts to reconstruct past mental states based upon later examination.¹²⁵

As evidenced, the reach of the syndrome benefits significantly from its commensalistic relationship with psychology. PTSD is recognized by the courts and highly authoritative institutions including the American Psychological Association and the National Institutes of Mental Health.¹²⁶ Backed by empirical research and forming the basis for a highly prevalent DSM-IV diagnosis,¹²⁷ PTSD has been instrumental in a variety of contexts, both lending credibility to defendants and making them more sympathetic to juries.¹²⁸ It may well be the battered woman syndrome's potential to connect battering to a traditionally recognized disorder, PTSD, that accounts for its persistence in legal contexts. If this is true, then supplementing the existing empirical foundation with knowledge gained through neurobiology will further bolster theories of mitigation, as well as the defendant's appeal to the jury.

122. *Id.* at 1300.

123. *Id.*

124. *See, e.g.,* *People v. Sanders*, No. C046991, 2005 WL 1953364, at *8 (Cal. Ct. App. Aug. 16, 2005) (conviction affirmed) (holding no error in prosecutor stating, on rebuttal, that "no psychologist or psychiatrist is a lie detector"). When a trial judge determines a battered woman is not credible, the judge may completely disregard the opinion of a qualified psychiatrist. *See, e.g.,* *Comm. v. Pike*, 726 N.E.2d 940, 949 n.10 (Mass. 2000).

125. Stephen J. Morse, *Undiminished Confusion in Diminished Capacity*, 75 J. CRIM. L. & CRIMINOLOGY 1, 13 (1984) ("It is extremely difficult for mental health professionals accurately to reconstruct past mental states. They must rely on the reports of the person being examined and other observers, reports that decrease in accuracy as time passes.")

126. J. Vincent Aprile II, *PTSD: When the Crime Punishes the Perpetrator*, 23 CRIM. JUST. 39, 39 (2009).

127. It is estimated that 6.8% of the population will be afflicted with PTSD during their lifetime. Jaimie L. Gradus, *Epidemiology of PTSD*, NAT'L CTR. FOR PTSD, <http://www.ptsd.va.gov/professional/pages/epidemiological-facts-ptsd.asp> (last visited Feb. 15, 2011).

128. PTSD has been invoked in a variety of contexts to explain the reasonableness of some conduct. These contexts include home invasion, combat-related trauma, and childhood abuse. *See generally* Mosteller, *supra* note 94, at 463 (describing one use of syndrome evidence as establishing the reasonableness of conduct).

D. Alternatives to the Syndrome

Several alternatives have emerged in response to the increasing recognition of the battered woman syndrome as a problematic doctrine for battered women defendants. Social framework evidence, which first took hold during the 1980s, makes social science research relevant to legal fact-findings.¹²⁹ Where the battered woman syndrome creates rigid categories for battered women, social framework evidence presents a viable threat to this taxonomy by unpacking the complex personal and societal dimensions of battering.¹³⁰

Regina Schuller details various approaches for applying social science evidence in battered women's cases, all of which place an increased emphasis on the battered woman's social context, with the spillover effect of de-emphasizing her psychology.¹³¹ Narratives centered on social context would describe "the batterer's domination and control, lack of effective community alternatives, inadequacy of police response, and risks of leaving."¹³² Unlike the battered woman syndrome, social context evidence is intended to give a more comprehensive and less stigmatizing contextualization of the battered woman's experience.¹³³ The increased emphasis on the social context subverts the narrowing of the syndrome class membership. Social framework makes battering relevant on an individual scale, as well as an ecological scale, through a greater consideration of the battered woman's relationships with her family, economy, and community.

Schuller and Hastings have attempted to provide some empirical insight into whether expert testimony emphasizing social context would produce outcomes different from expert testimony on traditional battered woman syndrome.¹³⁴ Their study focused on 195 York University undergraduate students and 202 volunteers who had visited the Ontario Science Centre.¹³⁵ Of the latter group, nearly sixty percent had received some form of higher

129. Neil J. Vidmar & Regina A. Schuller, *Juries and Expert Evidence: Social Framework Testimony*, 52 LAW & CONTEMP. PROBS 133, 135 (1989) (describing the goal of social frameworks as "employing general conclusions drawn from social science research to help evaluate factual issues in a specific case").

130. Faigman, *supra* note 90, at 644 (implored the court to admit testimony about the battered woman's various circumstances rather than focusing narrowly on her status as having the battered woman syndrome).

131. Schuller, *supra* note 75, at 236. For examples of this evidence at work, see *People v. Humphrey*, 921 P.2d 1, 3 (Cal. 1996) ("[B]attered women often employ strategies to stop the beatings, including hiding, running away, counterviolence, seeking the help of friends and family, going to a shelter, and contacting police. Nevertheless, many battered women remain in the relationship because of lack of money, social isolation, lack of self-confidence, inadequate police response, and a fear (often justified) of reprisals by the batterer.").

132. See Faigman, *supra* note 90, at 644.

133. See, e.g., *id.* (lamenting the way expert witnesses and researchers focus on "the psyche of the defendant rather than her environment"); Janet Parrish, *Trend Analysis: Expert Testimony on Battering and Its Effects in Criminal Cases*, 11 WIS. WOMEN'S L.J. 75, 79-80 (1996).

134. Schuller & Hastings, *supra* note 69, at 172.

135. *Id.*

education (university or above).¹³⁶ The two types of expert testimony, syndrome testimony and social framework, had very similar consequences for decision-making.¹³⁷ For the non-students, the expert testimony had less bearing on certain facts about the battered woman, but the verdicts returned were nonetheless the same.¹³⁸ If, in fact, the social framework evidence is equally convincing, then it should be preferred over syndrome evidence *ceteris paribus*, merely for being less stigmatizing and more general.

Even if an alternative to the battered woman syndrome were adopted, there could be many unintended consequences of complete departure from the syndrome toward a new, untested framework. For one, the social context evidence approach is largely new, appearing in only a few cases compared to the perennial syndrome testimony. Secondly, the battered woman syndrome is an important bargaining chip for defense counsel in a case where battering is alleged.¹³⁹ The syndrome also forms precedent for *habeas* relief on the basis of newly discovered evidence.¹⁴⁰ Most jurisdictions have not determined how and whether social context evidence could even be relevant to the defense of a battered woman.

At the federal level, it appears that courts are recalcitrant in granting even sentencing departures based on childhood abuse.¹⁴¹ Only when such abuse rises to “extraordinary” levels will it be sufficient to justify a downward departure in sentencing a defendant.¹⁴² Even absent these legal shortcomings, the persuasiveness of testimony on battered women has been shown to vary among groups by education and age, among other things.¹⁴³ For the time being, social framework evidence may best operate outside the courtroom to revise our intuitions about battered women, or within sentencing proceedings, where the constraints on admissibility are significantly relaxed.

Additionally, some battered women’s defenses involve claims of dissociation, a phenomenon wherein a person’s perceptions do not align with

136. *Id.*

137. *See generally id.* at 179-81.

138. *Id.* at 179.

139. *See, e.g.,* Ting Ting Cheng, *Notes from the Field: Challenges of Indigent Criminal Defense*, 12 N.Y. CITY L. REV. 203, 252 (describing how the use of battered woman syndrome served as an important strategy for obtaining plea bargains); *see also In re Nourn*, 52 Cal. Rptr. 3d 31, 45 (Cal. Ct. App. 2006) (quoting an expert, Dr. Wexler, as stating that “domestic violence and its effects” is synonymous with “battered woman’s syndrome”).

140. *See, e.g.,* *Comm. v. Conaghan*, 740 N.E.2d 956, 959 (Mass. 2000); *Comm. v. Pike*, 726 N.E.2d 940, 948 (Mass. 2000).

141. *See, e.g.,* *United States v. Brady*, 417 F.3d 326, 334 (2d Cir. 2005) (“Thus, we adopted these high standards in *Rivera* not because—as the government inappropriately suggests—victims of child abuse might exaggerate or stretch the truth, but rather because it is the sad fact that so many defendants have unfortunate pasts and we cannot apply a disfavored departure to many or most defendants.” (citations omitted)).

142. *Id.*

143. *See generally* Schuller & Hastings, *supra* note 69.

his or her thoughts.¹⁴⁴ Indeed, dissociation is understood by psychologists as an important mechanism for individuals to avoid the harmful consequences of acknowledging their trauma.¹⁴⁵ A defense based solely on social context evidence would offer no account of dissociation, other than that it happens. To present an objective account of dissociation, the battered woman could either demonstrate similarity with others who also claimed dissociation, or alternately, show that she had a neurochemical profile that would produce a dissociative state.¹⁴⁶

Far from eschewing an objective scientific approach in favor of more subjective testimony, experts and courts seem to be on a quest for accurate science to describe a battered woman's experiences.¹⁴⁷ Although much can be learned about battered women through their testimony and the testimony of other witnesses, the potential unavailability of objective scientific evidence makes it a highly desirable feature of a legal defense.¹⁴⁸ At present, psychology evidence offers an attractive source of evidence because its claims can be

144. See, e.g., *Dunn v. Roberts*, 768 F. Supp. 1442, 1445 (Kan. 1991) (granting a new trial where defense counsel failed to pursue experts on the dissociative response, *inter alia*).

145. Dissociation has taken on various meanings over time. In the context in which I employ the term, it is a measure encompassing how perceptually disconnected an individual is from his or her environment. J. Douglas Bremner et al., *Measurement of Dissociative States with the Clinician-Administered Dissociative States Scale (CADSS)*, 11 J. TRAUMATIC STRESS 125, 126 (1998). This clinical manifestation of dissociation is more general than some definitions that describe it as an intentional coping mechanism. JEROME L. SINGER, REPRESSION AND DISSOCIATION 262 (1990) (defining dissociation as "short-term refusal to perceive responsibility for one's own acts or feelings"); accord Walker, *supra* note 116, at 26 (describing dissociation as a learned rather than involuntary response to stress).

146. Rachel Yehuda has suggested that a specific neuroendocrine profile may underlie other disorders of the allostatic response, such as PTSD. Rachel Yehuda, *Current Status of Cortisol Findings in Post-Traumatic Stress Disorder*, 25 PSYCHIATRIC CLINICS NORTH AM. 341 (2002).

147. The Federal Judicial Center has increased science training opportunities for district court judges and also publishes a handbook on scientific evidence. See Paul S. Miller & Bert W. Rein, *Whither Daubert? Reliable Resolution of Scientifically-Based Causality Issues in Toxic Tort Cases*, 50 RUTGERS L. REV. 563, 565 (1998); accord *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 149 (1997) ("[C]ases presenting significant science-related issues have increased in number . . .") (Breyer, J., concurring); Kristie Kline, Comment, *Frye Remains the Standard for Determining the Admissibility of Expert Testimony in Pennsylvania Courts: Blum v. Merrell Dow Pharmaceuticals, Inc.*, 40 DUQ. L. REV. 429, 445 (2001) (predicting that technological advances will lead to more science in the courtroom). Lenore Walker, too, appears to recognize the value in biological explanations. In her latest edition of *The Battered Woman Syndrome*, Walker describes the involvement of "biological neurotransmitters" and the autonomic nervous system in sustained trauma. LENORE E.A. WALKER, THE BATTERED WOMAN SYNDROME 413 (2d ed. 2000). Walker stops short, however, of implicating physical abuse or chronic stress in altered cognitive processing, and omits any discussion of elevated basal levels of stress, which I discuss in Section III.B. For example, despite the significant controversies surrounding PTSD and its physiological correlates, Walker cites only one such study. *Id.* at 256 (describing a study by Charney et al. as finding "changes in the levels of some neurotransmitters associated with PTSD").

148. As a historical matter, it may have been the scientific character of the battered woman syndrome that insulated defendants from the paroxysms of media outlets lambasting courts for permitting battered women to engage in what many described as vigilante justice. See, e.g., Elisabeth Ayyildiz, *When Battered Woman's Syndrome Does Not Go Far Enough: The Battered Woman as Vigilante*, 4 AM. U. J. GENDER & L. 141 (1995); Helen Birch, *Women: Down by Law—Helen Birch Asks Ann Jones, Author of Women Who Kill, About the Gender Divide in Homicide*, GUARDIAN, Aug. 7, 1991 (discussing the response of the media to what it termed "vigilante justice" in battered women's acquittals).

molded to accommodate the statutory elements of a legal system that focuses largely on mental state—a legal system in which there is some ambiguity about how such mental state is proven. Ambiguity in the way intent is defined, in conjunction with the legal system's emphasis on philosophical notions of "free will," has turned psychology into a *deus ex machina* for ascertaining thoughts and intents in battered women's cases. Indeed, the fluidity of psychological assessment permits various conclusions about a defendant to enjoy some degree of legitimacy and a high degree of potential utility. A purely psychological treatment inevitably fails to reflect the corporeal context in which battering occurs. Domestic violence is not merely a suite of psychological states, fit to challenge or corroborate subjective appraisals of fear and anger. By omitting facts regarding shared and evolved biological responses to abuse, a purely psychological approach inevitably paints the battered woman as somehow differently weaker or more susceptible than the reasonable person; in reality, any reasonable person could be expected to respond similarly under the same neurobiological circumstances. A greater appreciation of how the brain functions under persistently threatening circumstances and physical violence may reveal that the battered woman and the person judging her are actually more similar than previously thought.

PART III. NEUROBIOLOGY AND THE EFFECTS OF BATTERING

When a battered woman presents herself to a doctor, the first examination may be of her brain: X-rays or CT scans checking for head trauma. Ideally, this meeting takes place relatively soon after a battering incident occurs. In practice, when a battered woman is visited by an expert witness, possibly many months after her incarceration, the first examination will be of her mind: a battery of psychological tests administered to uncover any sign of dysfunction. A doctor may testify summarily about the battered woman's injuries; a psychologist will testify about the battered woman's behavior and cognitions. Why has testimony by these two failed to merge in any meaningful way? Obviously, the law places one substantial limitation. Generally, the law focuses less on what is happening in the brain and more on the outward behaviors of an individual.¹⁴⁹ One impediment has certainly been the legal system's complacency toward the continued use of the battered woman syndrome. The syndrome's alliance with psychology has allowed it to curry favor with a legal system where psychology is viewed as the science of first resort for ascertaining intents and thoughts at the time of an alleged crime. The inherent ambiguity in language and law's

149. Cases involving battered women as defendants have invoked BWS as fulfilling this function. As the court wrote in *Myers*, "involved here is the matter of insight into the operations of defendant's mind, which defendant seeks to illuminate and explain through the testimony of experts who have had the opportunity to examine her." *State v. Myers*, 570 A.2d 1260, 1266 (N.J. 1990).

general reliance on societal intuitions about behavior to determine mens rea have made psychology the preferred plane of intersection between science and criminal law.

When assessing the culpability of an individual, jurists often use the same language that a scientist or medical professional would use in assessing the effects of battering on an individual: capacity, judgment, awareness.¹⁵⁰ While an attorney may argue lack of judgment to defend an accused adolescent perpetrator, a neuroscientist would argue that an individual's judgment is impaired by repeated instances of head trauma.¹⁵¹ Despite their shared vocabulary, there is a dearth of legal precedent merging scientific thought on the effects of battering with the defense of a battered woman who commits a crime.¹⁵²

Neurobiological evidence, much like social framework evidence, could operate through making neurobiology research relevant to the specific battered woman on trial. To have any sustained effect on the criminal trials of battered women, the research must be proffered in such a way as to make it relevant to some adjudicative fact or cognizable legal argument. To a scientist, such constraints may seem like a cumbersome requirement, but unlike science, legal standards exist in a strongly normative universe. While both criminal law and science are normative, the norms animating criminal law vary depending on the lawmakers who create it and the judges and jurists who interpret it. Ideally, science will only be normative in the weak sense, in that norms of accuracy and repeatability are incidental to the process of science's central truth-gathering objective. Thus, a neuroscientist's attempt to make her statement relevant to a jury may be frustrated by the particularized way the jurisdiction interprets mens rea.¹⁵³ Suppose that the neuroscientist concludes that a schizophrenic defendant did not act intentionally, because in fact, a sudden and severe chemical imbalance prompted a hallucination. The neuroscientist may insist that intent flows from the normal functioning of the prefrontal cortex. The State, however, may adhere to a more philosophical conception of intent, as in, unless an individual is insane, the natural consequences of his action are presumed to be intended.¹⁵⁴ No matter how absurd the results may seem to a scientist, the issue

150. See, e.g., Martha E. Banks, *Overlooked but Critical: Traumatic Brain Injury as a Consequence of Interpersonal Violence*, 8 TRAUMA, VIOLENCE & ABUSE 290 (2007).

151. *Id.* at 291 ("Sustaining a second brain injury before healing an initial brain trauma has been demonstrated to result in poor memory, poor judgment, inability to perform at the prior level of achievement, and, in the most severe cases, death.").

152. In response to this deficiency, I have tried to employ language common to both fields. This Article incorporates scientific facts only insofar as they would be important to an attorney considering an expert or an academic determining the legal plausibility of a defense stemming from such facts.

153. Mens rea may be understood to be something different depending on how a particular legal body has weighed competing normative interests, including clarity, responsibility, and predictability, among others.

154. Debates circulate about whether intent exists where mental abnormality was a factor. Stephen Morse provides a compelling argument that an act can be intended even in the presence of "rationality or

is a matter of law decided through successive acts of legislative decision-making and judicial interpretation. Ultimately, the State perceives mens rea elements as it deems appropriate, and as such, these elements will vary over time but always remain within the discretion of the states.¹⁵⁵

The physical effects of battering on the brain will be understood to mean the consequences of suffering concussions and other head trauma, occasioned by the use of physical force. Brain injury may be discovered through screening by domestic violence advocates as well as with the aid of medical imaging technology, hence the crucial role of medical professionals.¹⁵⁶ In contrast, there are physiological effects of battering, which may result from any of the conditions imposed by the battering dynamic: sexual abuse, captivity, threats of harm, abuse of children and pets. Physiological evidence is difficult to ascertain without some proxy such as the amount of a hormone in the blood stream of an individual. It may be helpful to think of physical effects as being physical damage to the structure of an individual—physiological consequences on the other hand consist of chemical changes *within* the individual. Occasionally, physiological changes may result in physical damage, through the action of chemicals.¹⁵⁷

Bodily and physiological effects are contra-distinguished from a third class of effects, namely, psychological effects. Not to be given short shrift, psychological effects serve as a relevant but oftentimes incomplete indicator of the effects of battering. Because psychological effects are the foundation of the battered woman syndrome, they are discussed extensively in the literature on that subject.

self-control problems” because the reasons to avoid criminality are so numerous: “parental, religious, and school training; peer pressures and cultural expectations; internalized standards (“superego”); fear of capture and punishment; fear of shame; and a host of others.” Going further, Morse asks us to consider, “Is intentional behavior motivated by a delusion any less ‘chosen’ than intentional behavior motivated by rational reasons?” Morse, *supra* note 125, at 40. The Supreme Court essentially answered this question in *Clark v. Arizona* when deciding that Arizona could hold a behavior motivated by a delusion to nonetheless be intended. 548 U.S. 735, 771 (2006) (accepting Arizona’s *Mott* rule, which prohibits mental abnormality evidence from being used to challenge the intent needed for a crime, permitting it only within a more stringent insanity defense). While the Court acknowledged the constitutionality of Arizona’s unique *Mott* rule, it also left states free to consider mental abnormality evidence as rebutting the intent needed for a crime. *Id.* at 778 (“[N]ot every State will find it worthwhile to make the judgment Arizona has made”). Indiana followed Arizona’s example, adopting a similar rule. *Marley v. State*, 747 N.E.2d 1123, 1128 (2001) (holding that evidence relating to mental defect is only admissible as part of a complete affirmative insanity defense); *accord* *State v. Mott*, 931 P.2d 1046, 1051 (Ariz. 1997) (*en banc*) (barring evidence of mental impairment, not rising to the level of insanity, from negating mens rea).

155. In *Powell v. Texas*, the Court emphatically held: “The doctrines of *actus reus*, *mens rea*, insanity, mistake, justification, and duress have historically provided the tools for a constantly shifting adjustment of the tension between the evolving aims of the criminal law and changing religious, moral, philosophical, and medical views of the nature of man.” 392 U.S. 514, 536 (1968).

156. *Special Collection: Traumatic Brain Injury and Domestic Violence: Understanding the Intersections*, *supra* note 11.

157. This interaction between physical and physiological effects certainly merits careful examination, but this Article will focus on each in isolation. It should be noted that physical effects of battering may magnify physiological effects of battering and vice versa.

To imbue neurobiology with legal relevance, it is necessary to first acknowledge that the brain is *the* source of all behavior. This notion is not a novel concept in the law. Insanity, diminished capacity and intoxication defenses all presume decreased culpability for individuals with a brain “defect.” The brain defect can be organic, as in the case of insanity for a schizophrenic, or it can be exogenous, as in the case of involuntary intoxication. Here again, it is important to acknowledge that what science considers brain damage may not be sufficient or even appropriate evidence to advance a legal theory premised on brain function.

Upon recognizing that human behavior is determined through the operation of the brain, the next step in the inquiry focuses on how the brain of a battered woman is affected by her batterer’s abuse.¹⁵⁸ Succinctly, as any organ responding to its environment, the human brain will be altered by external forces acting upon it. The duration and extent of that alteration are what should concern us in ascribing legal significance to brain changes. To say that a battered woman’s brain is altered in some way by her batterer’s repeated punches is simply a statement of scientific fact. For many battered women, the brain is altered both exogenously, because of the physical trauma of battering, and also endogenously, namely through changes in the levels of certain stress hormones and other biologically relevant chemicals. How these alterations manifest themselves in behavioral changes remains an empirical question, one which I take up in the following Sections.

A. *Physical Effects of Battering*

There is no dearth of studies showing that battered women experience head and face injury as an outcome of battering.¹⁵⁹ In one study, 94.4% of 127 battered women seeking medical attention in an emergency department presented with head, face, or neck injuries.¹⁶⁰ In another study, 81% of 236 women treated for domestic violence were found to have maxillofacial injuries.¹⁶¹ Maxillofacial surgeons likewise report that in a sample of 546 battered women, 67% had been injured by a husband or boyfriend.¹⁶² In a sample of 9057 women who presented for any reason to the emergency

158. See *infra* Sections III.A-B.

159. In one sample of fifty-three battered women, 92% reported that they had been hit in the head or face by a partner. Helene Jackson et al., *Traumatic Brain Injury: A Hidden Consequence for Battered Women*, 33 PROF. PSYCHOL.: RES. & PRAC. 39, 41 (2002).

160. Howard A. Ochs, Michael C. Neuenschwander & Thomas B. Dodson, *Are Head, Neck and Facial Injuries Markers of Domestic Violence?*, 127 J. AM. DENTAL ASS’N 757, 757 (1996).

161. Bach T. Le et al., *Maxillofacial Injuries Associated with Domestic Violence*, 59 J. ORAL & MAXILLOFACIAL SURGERY 1277, 1277 (2001).

162. Nicholas Zachariades, Fani Koumoura & Elina Konsolaki-Agouridaki, *Facial Trauma in Women Resulting from Violence by Men*, 48 J. ORAL & MAXILLOFACIAL SURGERY 1250, 1250-53 (1990).

department of ten major city hospitals, battering was the second most common means of injury—surpassed only by falls.¹⁶³ Head and face injuries often lead to traumatic brain injury.¹⁶⁴

Between 33% and 50% of women who experience physical violence also experience sexual violence by their partner.¹⁶⁵ Traumatic injury was found to be over twice as prevalent in women who were both sexually and physically assaulted as opposed to just physically assaulted.¹⁶⁶ In addition, women who were sexually abused were more likely to report neurological symptoms than those who were only physically abused.¹⁶⁷

Of the mechanism of injury, Jackson et al. found that 68% of the women surveyed had reported being severely shaken by their batterer.¹⁶⁸ Additionally, assaults by fist were demonstrated to be highly common, with 67% of one sample of 236 domestic violence patients having been injured that way.¹⁶⁹ The total number of fractures was tabulated in this population and they tended to be disproportionately localized to the middle and lower face, with eighty-two women (35%) having fractures in those areas.¹⁷⁰ These types of fractures are often associated with concussions.¹⁷¹

In a 1999 study examining 256 battered women in emergency departments, sixty-nine women (27%) had injuries inflicted through the use of a weapon, the majority of these weapons being blunt objects.¹⁷² A similar study found that a weapon was used on thirty-six patients out of 236 (15%) admitted to the emergency room between 1992 and 1996 for domestic violence.¹⁷³ Weapons and blunt objects are typically more massive than a human fist, delivering more momentum over a localized area. Thus, the potential for focal sites of brain injury is higher when weapons are used to inflict damage.

163. Robert L. Muelleman, Patricia A. Lenaghan & Ruth A. Pakieser, *Battered Women: Injury Locations and Types*, 28 ANNALS EMERGENCY MED. 486, 489, tbl.1 (1996).

164. Sharon R. Wilson, *Traumatic Brain Injury and Intimate Partner Violence*, in INTIMATE PARTNER VIOLENCE: A HEALTH-BASED PERSPECTIVE 183, 183 (Connie Mitchell & Deirdre Anglin eds., 2009).

165. Ron Acierno, Heidi S. Resnick & Dean G. Kilpatrick, *Health Impact of Interpersonal Violence: Prevalence Rates, Case Identification, and Risk Factors for Sexual Assault, Physical Assault, and Domestic Violence in Men and Women*, 23 ANNALS BEHAV. MED. 53 (1997).

166. Collin B. Smikle et al., *Physical and Sexual Abuse: A Middle-Class Concern?*, 40 J. REPROD. MED. 347-50 (1995).

167. Jacquelyn Campbell et al., *Intimate Partner Violence and Physical Health Consequences*, 162 ARCHIVES INTERNAL MED. 1157, 1160 (2002), available at http://www.nnvawi.org/pdfs/alol/Campbell_6.pdf.

168. Jackson et al., *supra* note 159, at 42.

169. Le et al., *supra* note 161, at 1279.

170. *Id.*

171. J.R. DeKruijk, A. Twijnstra & P. Leffers, *Diagnostic Criteria and Differential Diagnosis of Mild Traumatic Brain Injury*, 15 BRAIN INJ. 99 (2001).

172. Demetrios N. Kyriacou et al., *Risk Factors for Injury to Women from Domestic Violence*, 341 NEW ENGLAND J. MED. 1892, 1894 (1999).

173. Le et al., *supra* note 161, at 1279.

In order to focus in on the specific consequences of the injuries sustained by battered women, Jackson et al. also reported the neurological effects of battering on women. Among battered women, 77% reported post-concussive symptoms and 40% lost consciousness after a battering incident.¹⁷⁴ Additionally, many battered women are likely to suffer multiple instances of head trauma, rather than a single incident.¹⁷⁵ A similar study corroborated the result from Jackson et al., finding concussive symptoms in all of the fifty-two battered women studied.¹⁷⁶ These varied studies demonstrate that large numbers of women experience severe battering—ranging from choking, to punches to the face, to impacts with blunt objects—and that the recurrence of such abusive episodes must be closely probed.

Despite the extensive literature documenting the types of injuries sustained by battered women, few studies have looked at how neurological changes in these battered women precipitate behavioral and cognitive changes.¹⁷⁷ To rectify this, where appropriate, I have chosen to cite studies of an alternative group that experiences repeated physical insults to the head, face, and neck: athletes in full-contact sports. If this analogy seems to overstate the physical force that an average batterer is capable of delivering, consider the following: first, the frequency, not the severity, of blows to the head has been correlated with morphological changes in brain structure;¹⁷⁸ second, because brain damage often results from forced rotation of the head,¹⁷⁹ which may be tempered by an athlete's developed neck musculature or training, even forces not amounting to an athlete's trained movement may have similar consequences; third, some injuries, including "complex" concussions, those characterized by multiple concussive episodes, seem to be more detrimental to cognitive function than simple concussions.¹⁸⁰

Aside from concussions, battering may also result in hematomas. Studies involving athletes who experience head injury frequently document instances

174. Jackson et al., *supra* note 159, at 42.

175. *Id.* at 40-41.

176. Albert R. Roberts & Jung H. Kim, *Exploring the Effects of Head Injuries Among Battered Women*, 32 J. SOC. SERV. RES. 33, 42 (2006).

177. As of 2007, at least eight studies had been conducted on traumatic brain injury in battered women. See, e.g., Banks, *supra* note 150, at 292 (stating that "there is scant research on traumatic brain injury as a consequence of interpersonal violence" and citing eight such studies).

178. Robert L. Heilbronner et al., *Neuropsychological Consequences of Boxing and Recommendations To Improve Safety: A National Academy of Neuropsychology Education Paper*, 24 ARCHIVES CLINICAL NEUROPSYCHOLOGY 11, 12 (2009) ("[T]he cumulative effects of multiple subconcussive head blows appear to be the primary cause of neurologic injury in boxers.").

179. Julian E. Bailes & Vincent Hudson, *Classification of Sport-Related Head Trauma: A Spectrum of Mild to Severe Injury*, 36 J. ATHLETIC TRAINING 236, 236 (2001) ("Energy directed to the head may cause transmission of force in a rotatory direction, often producing diffuse brain injury with shearing of the white-matter fiber tracts.").

180. Grant Iverson, *Predicting Slow Recovery from Sport-Related Concussion: The New Simple-Complex Distinction*, 17 CLINICAL J. SPORT MED. 31, 31 (2007) (reporting decreased performance on a variety of neuropsychological measures for individuals having complex concussions).

of hematomas.¹⁸¹ Of the hematomas that athletes sustain, Bailes and Hudson describe epidural and subdural types.¹⁸² Epidural hematomas result from large acceleration-decelerations that occur when the brain strikes a solid object or is shaken.¹⁸³ Both of these types of abuses have been documented in battered women.¹⁸⁴ These epidural hematomas are often accompanied by skull fractures,¹⁸⁵ which are also documented in battered women.¹⁸⁶ Patients may also often appear neurologically normal upon examination, but a CT scan would reveal the true extent of the damage.¹⁸⁷ Subdural hematomas, on the other hand, have been sustained by football players who had experienced two mild concussions without *any* loss of consciousness.¹⁸⁸ These hematomas are also caused by linear acceleration-deceleration forces but, unlike epidural hematomas, are less frequently associated with fractures of the skull.¹⁸⁹ If these injuries persist for three weeks, mental disturbances and personality changes may follow.¹⁹⁰ A third type of head injury, cerebral contusion, is one of the most frequent among athletes with head injuries.¹⁹¹ Behavioral or mental effects may follow due to the involvement of the frontal lobe in this type of injury.¹⁹² All three of these types of injuries are diagnosable by CT scan.¹⁹³ Even when no hematoma or contusion forms, repeated instances of brain injury may result in increases in intracranial pressure (ICP), which may then result in behavioral and mental changes.¹⁹⁴

Clearly, brain injuries figure prominently into the abuse of battered women. For these injuries to be relevant in a legal context, however, they must be related to some behavioral or cognitive consequence. Concussions, also referred to as mild traumatic brain injuries, are the most common brain injuries among athletes and their effects on the brain are well-documented.¹⁹⁵ Although concussions vary in severity, it is important to note that loss of consciousness is not a necessary condition for concussion.¹⁹⁶ Concussive symptoms are tied to a range of important neuropsychological changes, including: cerebral cortex dysfunction;¹⁹⁷ information-processing abnormalities,¹⁹⁸ difficulty with

181. Bailes & Hudson, *supra* note 179, at 238.

182. *Id.*

183. *Id.*

184. Wilson, *supra* note 164, at 190.

185. Bailes & Hudson, *supra* note 179, at 238.

186. Wilson, *supra* note 164, at 192.

187. Bailes & Hudson, *supra* note 179, at 238.

188. *Id.*

189. *Id.*

190. *Id.* at 238-39.

191. *Id.* at 239.

192. *Id.*

193. *See generally id.* at 238-40 (describing various types of traumatic intracranial lesions diagnosable by CT scan).

194. *Id.* at 238-40.

195. *Id.*

196. *Id.*

197. *Id.* at 241.

planning and understanding;¹⁹⁹ amnesia;²⁰⁰ “a volatile antagonism against the environment, other people, and the self;”²⁰¹ agitation, confusion, psychosis, apathy, and other cognitive and behavioral changes.²⁰² In 2008, the *New England Journal of Medicine* published an editorial in which the implications of mild traumatic brain injury for an individual’s fear response were discussed:

Mild traumatic brain injury often involves damage to the prefrontal cortex due to shearing forces of the frontal regions against the skull. It is possible that a person’s capacity to regulate the fear reaction may be impaired after mild traumatic brain injury because the neural networks involved in the regulation of anxiety may be damaged as a result of the mild traumatic brain injury.²⁰³

Depending on the index used to measure aggressiveness, marked shifts toward more aggressive behavior occurred in 11% to 96% of traumatic brain injury (“TBI”) victims studied.²⁰⁴ Tateno et al. used the overt aggression scale, a highly reliable indicator, to determine that 33.7% of TBI victims demonstrated significant aggressive behavior within six months from the time of the injury.²⁰⁵

Conventional wisdom within legal settings is that a battered woman’s fear amounts to a conditioned response to a threatening stimulus. The research above, however, suggests that in some instances, heightened fear may not merely be a conditioned response to frightening interactions with a batterer. Instead, the fear of future battering may actually be exaggerated by the physical effects of battering and not just the battered woman’s perception or memory of having been battered. Stated more succinctly, the research suggests that a battered woman who experienced a concussion during her battering will be more reactive to fear than if she had experienced the same level of battering but without a concussion.

198. *Id.* at 240.

199. Roberts & Kim, *supra* note 176, at 36.

200. Every concussion, regardless of severity, results in some amnesia. Sairah Chachad & Atiya Khan, *Concussion in the Athlete: A Review*, 45 *CLINICAL PEDIATRICS* 285, 286 (2006).

201. Roberts & Kim, *supra* note 176, at 43.

202. Vani Rao & Constantine Lyketsos, *Neuropsychiatric Sequelae of Traumatic Brain Injury*, 41 *PSYCHOSOMATICS* 95, 97 (2000).

203. Richard A. Bryant, *Disentangling Mild Traumatic Brain Injury and Stress Reactions*, 358 *NEW ENGLAND J. MED.* 525, 526 (2008).

204. Amane Tateno, Ricardo E. Jorge & Robert G. Robinson, *Clinical Correlates of Aggressive Behavior After Traumatic Brain Injury*, 15 *J. NEUROPSYCHIATRY & CLINICAL NEUROSCI.* 155, 155 (2003).

205. *Id.* at 155-57.

Aggressive behavior often imperils a battered woman's claim to having been a victim of abuse.²⁰⁶ The peculiar intuition that someone in fear would be less likely to act aggressively could be readily combated by science. What if some aggressiveness is attributable to the consequences of traumatic brain injury? The study by Tateno et al. shows exactly this: patients with closed head injury scored significantly higher than controls on aggressiveness and tendency to exhibit aggressive behavior.²⁰⁷ The aggressive group was not significantly different from the non-aggressive group in a number of important control measures.²⁰⁸ The aggressive group had a significantly higher frequency of mood disorders and a greater frequency of frontal lobe lesions.²⁰⁹ The authors speculate that TBI may concomitantly produce both major depressive disorder and frontal lobe dysfunction.²¹⁰ Researchers have demonstrated that battered women often suffer from major depressive disorder and, as I have demonstrated here, TBI is also a major component of battering. Previously, the psychological strain of being in a battered relationship had been understood to cause aberrant and occasionally hostile behavior—this research reflects that TBI may also play a role. Currently, if a battered woman is thought to have depression, psychological examinations are conducted to examine the nature of her malady. In the future, indications of a depressive condition may also warrant the involvement of a neurologist or examination of neurological records to detect battering that may have led to TBI. Where TBI is demonstrated to have existed, there will be support for the idea that the battered woman's aggression was not due to some fault of her own, but a biological consequence of her battering.

In addition to aggressive behavior and fear appraisal, changes in decision-making are also a consequence of brain injury. Koenigs et al., in a 2007 work published in *Nature*, demonstrated a significantly higher tendency for individuals with prefrontal cortex damage to endorse emotionally aversive utilitarian decisions.²¹¹ This experiment, with its potentially far-reaching

206. *People v. Bolden*, 84 Cal. Rptr. 2d 111, 117 (Cal. Ct. App. 1999) (holding that because prior assaults were instances of mutual combat, often initiated by the defendant, no self-protection jury instruction was warranted for the battered woman); *State v. Cramer*, 841 P.2d 1111, 1114 (Kan. Ct. App. 1992) (holding that refusal to instruct on BWS was appropriate because of previous violent conduct between the battered woman and other parties); *State v. Higgs*, No. 15554, 1992 WL 281348, at *6 (Ohio Ct. App. Oct. 7, 1992) (affirming a murder conviction over the lower court's admitting prejudicial hearsay, holding no plain error because the evidence showed that the battered woman and her batterer were engaged in mutual combat). In some cases, prosecutors will exploit a battered woman's aggressiveness or minor violent acts to show that she was not in fact a "battered woman." Ferraro, *supra* note 2, at 117-19. These examples reinforce the rigid delineations that could be broken apart through a more nuanced examination of aggressiveness in battered women.

207. Tateno et al., *supra* note 204, at 157.

208. These measures were age, gender, race, years of education, socioeconomic status, or history of anxiety disorder. *Id.* at 157. In the month preceding the onset of the patient's aggression, the two groups were also matched for substance abuse and alcohol use. *Id.* at 156.

209. *Id.* at 156-57.

210. *Id.* at 159.

211. Michael Koenigs et al., *Damage to the Prefrontal Cortex Increases Utilitarian Moral Judgments*, 446 NATURE 908 (2007).

consequences for defendants with brain injuries, had researchers present subjects with classical utilitarian dilemmas—asking them to choose between two alternatives: either commit an emotionally aversive action against one individual or abstain from acting to the detriment of the general welfare but avoiding the emotionally aversive act.²¹² Those individuals with damage to the ventromedial prefrontal cortex exhibited a statistically significant preference for the emotionally aversive stimuli over neurologically normal controls, or in other words, they were not inhibited in their decisions by the emotional content of the utilitarian act.²¹³ Battered women, who may have damage to the areas assessed by Koenigs et al., are often faced with utilitarian dilemmas. These women are forced to choose, for example, between being complicit in the batterer's abuse of their child or acting to stop him and potentially having themselves and their child killed.²¹⁴ Research such as that of Koenigs et al. may be helpful to demonstrate that the batterer's physical abuse, and not moral depravity on the part of the battered woman, was the catalyst for such emotionally aversive acts.

B. Physiological Effects of Battering

The physiological effects of battering are best defined by what they are not: physically visible. Physiology, by definition, entails dynamism that could not be captured in a single image or scan. Unlike the physical effects discussed above, these effects would not be visible at the level of the naked eye or even with the aid of brain imaging technology. To measure the physiological effects, some proxy is used, for example the concentration of a certain chemical in the blood. Of course, physiological effects have consequences we can observe once they manifest themselves as behavioral changes. A helpful analogy might be

212. An example of one of the scenarios presented by the experimenters:

You are the leader of a mountaineering expedition that is stranded in the wilderness. Your expedition includes a family of six that has a genetically caused vitamin deficiency. A few people's kidneys contain large amounts of this vitamin.

There is one such person in your party. The only way to save the lives of the six members of this family is to remove one of this man's kidneys so that the necessary vitamins may be extracted from it. The man will not die if you do this, but his health will be compromised. The man is opposed to this plan, but you have the power to do as you see fit.

Would you forcibly remove this man's kidney in order to save the lives of the six vitamin-deficient people?

Id. app. at 17.

213. *Id.* at 910.

214. In other cases, battered women have chosen to sacrifice their own body parts to protect themselves from death at the hands of their batterer. *In re Nourn*, 52 Cal. Rptr. 3d 31, 42 (Cal. Ct. App. 2006) ("Then he wanted me to cut my left pinky off to prove I wouldn't betray him.").

blood alcohol content. While the amount of undigested alcohol in a person's blood stream is not visible to us, we can use a breath alcohol testing device to measure the amount of alcohol in one exhalation. This measurement is a proxy for the level of alcohol in the person's blood, knowledge of which is useful in predicting that individual's ability to think, respond, or react in the moment. Of course, we can suspect intoxication based on the individual's behavior, but the proxy offers a reliable, objective confirmation. Unlike the physical effects of battering on the brain, the relationship between the concentration of a certain chemical in the battered woman's blood and her behavior is much less obvious. To imbue stress with legal relevance for battered women, the physiological effects of battering must somehow implicate the brain's ability to regulate behavior and cognitions.

Rather than anchoring the discussion in amorphous notions of "stress," it is far more precise to speak of allostatic load.²¹⁵ This term, coined by the prominent neuroscientist Bruce S. McEwen, is defined as the "wear and tear" of persistent exposure to stress or an inability to manage stress effectively.²¹⁶ The way individuals manage or respond to stress is defined as allostatic response.²¹⁷ As an example, everyone at some point has experienced the stress created by an impending obligation come due or new responsibility. Our bodies mobilize a response that allows us to manage this stress. Within a battering relationship, the unpredictability and escalation of abuse places a tremendous allostatic load on the battered woman. At certain levels of allostatic load, the mechanism by which individuals respond to the next stressful event becomes dysregulated. While helpful in small doses, chronically present stress hormones are damaging to the prefrontal cortex and hippocampus²¹⁸—areas of the brain in control of decision-making and judgment. Animal studies suggest that this damage is reversible in adults but not in children.²¹⁹ The detrimental effects of stress are magnified when the individual feels unable to control the stressor—in this case, the batterer.²²⁰

By recognizing a relationship between allostatic overload and unusual behavior, we are not presupposing that overloaded individuals are mentally impaired or insane; rather, this recognition merely acknowledges that recurring stress can overtax any person's natural, adaptive responses to stress. Recent work has shown that chronic exposure of the brain to epinephrine and norepinephrine, two molecules released by the body during a stressful situation,

215. Bruce S. McEwen, *Physiology and Neurobiology of Stress and Adaptation: Central Role of the Brain*, 87 *PHYSIOLOGY REV.* 873, 880 (2007).

216. *Id.* at 874.

217. Allostasis is defined literally as "achieving stability through change." *Id.* at 880.

218. Amy F.T. Arnsten, *Stress in the Brain*, *NATURE* (May 29, 2009), <http://www.nature.com/neurosci/neuropod/index-2009-05-29.html>, at 2:06.

219. *Id.* at 7:17.

220. *Id.* at 5:29.

can result in loss of important neuronal structures in the prefrontal cortex.²²¹ At the same time, structures in the amygdala actually expand.²²² This coupling of prefrontal diminution with amygdalar potentiation leads to impaired decision-making and other consequences for behavior.²²³ Other studies discussed below examine the differences between traumatized and non-traumatized groups in terms of the level of elevation or diminution in certain allostatically relevant chemicals. Because these chemicals are secreted and taken up as part of myriad feedback loops, it should be noted that the effect of any one chemical may be mediated by another in a number of non-obvious ways before it has consequences for behavior. In describing the findings of such studies, ratios and trends will be more instructive for juries than straightforward increases or decreases.²²⁴ To the extent that such ratios and trends may bear upon the battered woman defendant's legal theory of defense, I will attempt to relate them in greater detail here.

In order to make sense of the literature on the allostatic overload of battered women, a discussion of two chemicals that mediate the allostatic response is necessary. Perhaps the most familiar of the pair is cortisol, which popular opinion typically associates with the myriad negative effects of stress.²²⁵ Stressful events, perceived by the brain, trigger a set of reactions within the body that ultimately signal the adrenal cortex to produce cortisol.²²⁶ Upon release from the adrenal cortex, cortisol travels through the blood stream and some of it enters the brain. Cortisol is ubiquitous in the life of an individual, exerting its influence as early as infancy.²²⁷ Not only does cortisol act early, it acts broadly, having effects on many regions of the brain.²²⁸

221. Amy F.T. Arnsten, *Stress Signaling Pathways that Impair Prefrontal Cortex Structure and Function*, 10 NATURE NEUROSCI. REV. 410, 418 (2009).

222. *Id.*

223. *Id.* at 411 (describing a "vicious cycle" where amygdalar potentiation leads to further impairment of the prefrontal cortex).

224. "Endocrine risk" has been defined as a particular ratio of cortisol to DHEA and is considered a predictor of depression and other abnormal psychological processes. I.M. Goodyer et al., *Possible Role of Cortisol and Dehydroepiandrosterone in Human Development and Psychopathology*, 179 BRITISH J. PSYCHIATRY 243 (2001).

225. See, e.g., *The Tortured Brain*, NEWSWEEK, Sept. 21, 2009 ("Stress such as that caused by torture releases the hormone cortisol, which can impair cognitive function, including that of the prefrontal cortex and hippocampus."); David Bjerklie & Michael D. Lemonick, *Depression: Evolution's Role: A Frazzled Mind, a Weakened Body*, TIME (Jan. 20, 2003), <http://www.time.com/time/magazine/article/0,9171,1004080,00.html#ixzz0uqqb8Swm> ("Cortisol in particular can weaken the immune system, potentially making cancer and infectious diseases worse."); see also E. Ron de Kloet, Marian Joëls & Florian Holsboer, *Stress and the Brain: From Adaptation to Disease*, 6 NATURE NEUROSCI. REV. 463, 464 (2005).

226. The adrenal cortex is a part of the adrenal gland, which is located near the kidneys and pancreas. William E. Rainey & Yasuhiro Nakamura, *Regulation of the Adrenal Androgen Biosynthesis*, 108 J. STEROID BIOCHEMISTRY & MOLECULAR BIOLOGY 281 (2008).

227. Assisted delivery methods involving forceps, for example, tend to be traumatic. Infants birthed this way have higher cortisol responses to subsequent inoculations. Alyx Taylor, Nicholas M. Fisk & Vivette Glover, *Mode of Delivery and Subsequent Stress Response*, 355 LANCET 120, 120 (2000). I.M. Goodyer et al. summarized various transitions in cortisol activity beginning from the earliest stages of life, when general stressors elicit a strong increase in cortisol, to the second year of life, when many

In contrast to cortisol, DHEA is synthesized both in the adrenal glands and the brain.²²⁹ DHEA is unlike cortisol in its action, because while both DHEA and cortisol are able to regulate the production of other molecules in the body, DHEA also serves as a neurotransmitter directly.²³⁰ This is in contrast to cortisol, which exerts most of its effects on neurotransmission indirectly through regulating other molecules or determining which genes are activated.²³¹ DHEA has been implicated in protecting the brain from injuries.²³² Cortisol, on the other hand, modulates the loss of synapses and the loss of neuron complexity.²³³ DHEA and cortisol are secreted simultaneously from the adrenal gland in response to stress, but the two are regulated independently; thus, the level of the two compounds may be significantly at variance at any given time.²³⁴ Nonetheless, it is important to recognize that in terms of behavior, relative amounts of certain chemicals tell more of a story than any individual chemical could. Additionally, because of their multifaceted regulation of the brain, very well-controlled studies must be undertaken to tease out specific effects. General statements about high cortisol causing a specific behavior must be carefully scrutinized.

Research suggests that correlations do exist between allostatic overload and psychological disorder, but research also shows that some dysregulation of the natural allostatic response may go “under the radar” of psychological diagnosis while nonetheless producing altered behavior or cognition.²³⁵ While psychological tests may overlook the dysregulation of the allostatic response, the allostatic overload suggested by this dysregulation could be producing

stimuli (inoculations or physical exams) no longer elicit the strong increases in cortisol activity they had previously. Goodyer et al., *supra* note 224.

228. See generally McEwen, *supra* note 215.

229. Etienne-Emile Baulieu & Paul Robel, *Dehydroepiandrosterone (DHEA) and Dehydroepiandrosterone Sulfate (DHEAS) as Neuroactive Neurosteroids*, 95 PROC. NAT’L ACAD. SCI. UNITED STATES AM. 4089, 4089 (1998).

230. *Id.*

231. Goodyer et al., *supra* note 224, at 246.

232. *Id.*

233. de Kloet et al., *supra* note 225, at 467 (describing studies where dendritic branching of neurons is reduced in the hippocampus and prefrontal cortex).

234. Goodyer et al., *supra* note 224, at 246.

235. Some studies suggest that chemical abnormalities amongst battered women may not necessarily be reflected in a DSM-IV diagnosis. The one study to date to examine diurnal cortisol found higher evening salivary cortisol levels, collected over four days, in physically abused women compared to non-abused controls, but no significant difference in cortisol levels between women with or without PTSD status and women with or without depression. See, e.g., Sabra S. Inslicht et al., *Increased Cortisol in Women with Intimate Partner Violence-Related Posttraumatic Stress Disorder*, 31 PSYCHONEUROENDOCRINOLOGY 825, 832 (2006) (finding that healthy women differed from battered women, but that there was no difference for those battered women with lifetime positive PTSD and those without it); Maria A. Pico-Alfonso et al., *Changes in Cortisol and Dehydroepiandrosterone in Women Victims of Physical and Psychological Intimate Partner Violence*, 56 BIOLOGICAL PSYCHIATRY 233, 236 (2004) (“There were no significant correlations between depression, anxiety, and DHEA levels. Finally, there was no correlation between total PTSD score and hormonal levels.”). This reflects a broader discussion about the inadequacy of PTSD to be an all-encompassing paradigm for assessing the effects of trauma exposure. See, e.g., Linda J. Metzger, *Basal and Suppressed Salivary Cortisol in Female Vietnam Nurse Veterans with and Without PTSD*, 161 PSYCHIATRY RES. 330, 330 (2008).

behaviors that are later the basis for criminal charges.²³⁶ In this sense, understanding the physiological effects, like knowing the physical effects of battering on the brain of the battered woman, merely helps construct a complete picture.

Adding to the possible confusion over cortisol is that measurements in different populations may point in very different directions. For instance, cortisol, a key mediator of stress, has been found to be both elevated in one set of studies on traumatized individuals and diminished in another set.²³⁷ These variations may arise from differences in the type and severity of trauma incurred,²³⁸ the sex of the subject,²³⁹ and the presence or absence of other psychological conditions.²⁴⁰ An absolute elevation or diminution may be less meaningful than comparisons between groups, comparisons of levels at different times of day, or ratios of different chemical indicators throughout the day. Specifically, where studies conflict, it may be more helpful to consider the size and significance of the difference between the battered and non-battered groups. Furthermore, close attention should be paid to the time of day when the cortisol measurements are made since cortisol levels naturally vary from morning to night. Any testimony relying on a single measurement of a particular chemical to argue dysregulation should be scrutinized.

While research in the area is sparse,²⁴¹ several studies have drawn correlations between battering and dysregulation of the allostatic response. Most notably, in a 2004 study involving battered women, Pico-Alfonso and colleagues demonstrated abnormally high levels of cortisol in the *evening*, and abnormally high levels of DHEA in both morning and evening.²⁴² The researchers were attempting to determine whether being a victim of intimate partner violence led to any elevation or diminution of the two compounds, which act together to produce allostasis.²⁴³ Their study collected saliva samples in the morning and evening for seventy physically abused women, forty-six psychologically abused women,²⁴⁴ and forty-six non-abused women.²⁴⁵ Most

236. See, e.g., discussion on dissociation, *supra* note 145.

237. Michael G. Griffin, Patricia A. Resick & Rachel Yehuda, *Enhanced Cortisol Suppression Following Dexamethasone Administration in Domestic Violence Survivors*, 162 AM. J. PSYCHIATRY 1192, 1192 (2005) (citing six studies showing elevation and four showing diminution).

238. Griffin et al. found that the linear relationship between trauma symptom severity and baseline cortisol levels was absent within a severely and chronically victimized group of battered women. *Id.* at 1198 (citing two studies where a linear relationship had been discovered).

239. See, e.g., Metzger, *supra* note 235.

240. *Id.*

241. Dawn M. Johnson et al., *The Cortisol Awakening Response as a Function of PTSD Severity and Abuse Chronicity in Sheltered Battered Women*, 22 J. ANXIETY DISORDERS 793, 794 (2008) (describing the “paucity of research” addressing these questions).

242. Pico-Alfonso et al., *supra* note 235, at 236-37.

243. *Id.*

244. Psychological abuse was defined as “verbal attacks (insults, humiliations), control and power (isolation from family and friends; impeded decision making, economic abandonment), pursuit and harassment, verbal threats (woman and family’s life threatened, threats regarding the custody of children, intimidating phone calls), and blackmail (economic or emotional).” *Id.* at 234-35.

of the women surveyed were currently being abused or had been abused recently.²⁴⁶ The researchers made sure that subjects were not significantly different in age, tobacco use, pharmacologic treatment, childhood abuse, and adulthood victimization (abuse outside of the battering relationship)—thus, none of these factors contributed to the study’s central findings: that being either psychologically or physically abused correlates highly with increased levels of DHEA and evening cortisol.²⁴⁷ Also important was that the same rise in evening cortisol was present regardless of whether or not the battered woman had depression or PTSD. These results could factor strongly in cases against battered women whose actions were influenced by elevated cortisol, but who did not fall into the DSM-IV’s diagnosis for depression or PTSD at some prescribed time. Finally, the results demonstrate that psychological abuse could produce equally dramatic consequences for behavior as physical abuse. While the Pico-Alfonso study pointed to elevations in evening levels of cortisol, Griffin et al. found that battered women with PTSD demonstrated lower baseline *morning* levels of cortisol.²⁴⁸ When read together, the Pico-Alfonso and Griffin studies highlight the dramatic and long-lasting differences in allostatic responses between abused and non-abused women.

Further evidence that cortisol levels may highlight allostatic dysregulation that psychological diagnoses miss comes from Sabra Inslicht and colleagues, who demonstrated that cortisol levels were not significantly different between battered women who currently had PTSD and those with PTSD that had remitted ($p=0.59$).²⁴⁹ Battered women with remitted PTSD showed elevated levels of cortisol, but did not have any more PTSD symptoms than those battered women who never developed PTSD.²⁵⁰ That cortisol levels would remain elevated even after the abuse had ended and PTSD symptoms seemed to subside has two important consequences for battered women defendants. Battered women who experienced abuse may have lingering allostatic responses shaped by that abuse. When examined, those same battered woman may score low on tests for PTSD, but could nonetheless have been operating under dysregulated allostatic responses. Cortisol measurements, taken at a later time, could reflect the earlier condition of the battered woman.

Results from a 2006 study by Inslicht et al. also showed that cortisol levels did not correspond to the severity of abuse in the severely abused group,

245. *Id.* at 234.

246. *Id.* at 239.

247. *Id.*

248. The seventy women in the sample “suffered bruises to the head (81%), bruises to the body (84%), broken bones in the head (17%), broken bones in the body (22%), cuts to the face or head (64%), cuts to the body (41%), loss of consciousness (49%), damage to the teeth (26%), ruptured eardrums (19%), damage to internal organs (12%), transmission of sexually transmitted diseases from their abusive partner (25%), and miscarriages (13%) as a result of the violence.” Griffin et al., *supra* note 237, at 1194.

249. Inslicht et al., *supra* note 235, at 833.

250. *Id.*

confirming several previous studies.²⁵¹ While these studies show no correlation between abuse severity and cortisol level in severely battered women, they did not attempt to correlate abuse severity and cortisol level in battered women who experienced less chronic abuse. Previous work has shown that cortisol does vary with trauma severity in populations of war veterans,²⁵² so it may be possible that severely battered women reach some plateau level of cortisol. Beyond this, no amount of additional abuse can change cortisol in a predictable way.

Now that we have evidence of allostatic dysregulation, the next question is what happens at the margins? If in fact there is some plateau for certain responses to stressful stimuli, what result obtains when the individual is functioning at the plateau? Cortisol, shown to be elevated in battered women, has also been shown to interact with DHEA to produce dissociation.²⁵³ This has critical implications for the defense of a battered woman. One of the experiences that battered women describe is feeling that their environment and their thoughts did not align. Heretofore, defense experts relied on showing that other battered women complained of the same problem during the commission of their crime. These several studies operate together to suggest that dissociation is not a manufactured or even imagined problem; it is, in fact, an empirically demonstrable reality of stress and has practical consequences for a battered woman's actions.

C. *Gathering Evidence*

Generally speaking, neurobiological evidence can be used to produce a reasonable doubt that certain legal facts, such as malice or recklessness, were present. To be relevant at the individual level, evidence of battering's neurobiological effects needs to be measured and collected. Ideally, the evidence would be collected at various times prior to and after the commission of the battered woman's alleged crime or crimes.²⁵⁴ By having evidence collected at times prior to the alleged crime, the battered woman can establish the causal presence of neurobiological effects. Lawyers currently do regard hospital records as important in trials of battered women. In *Dando v. Yukins*, appellate counsel went so far as to claim trial counsel was ineffective for failing to obtain emergency room records concerning treatment the defendant received

251. See Inslicht et al., *supra* note 235 (confirming the results of Griffin et al., *supra* note 237).

252. See, e.g., Michael Kellner, Dewleen G. Baker & Rachel Yehuda, *Salivary Cortisol in Operation Desert Storm Returnees*, 42 SOC'Y BIOLOGY PSYCHIATRY 849 (1997).

253. Charles A. Morgan III et al., *Relationships Among Plasma Dehydroepiandrosterone Sulfate and Cortisol Levels, Symptoms of Dissociation, and Objective Performance in Humans Exposed to Acute Stress*, 61 ARCHIVES GEN. PSYCHIATRY 819, 822 (2004).

254. Ideally, levels of cortisol would be known before any abuse began, providing an instructive baseline. Even in the absence of such a baseline, the battered woman could be compared to others similar to her who had not experienced abuse.

prior to going on a crime spree.²⁵⁵ EEG recordings have also been used previously to prove abnormal brain function.²⁵⁶ Another type of evidence that may be particularly useful is a blood test to measure hormonal imbalance.²⁵⁷

Although the most obvious method for gathering neurobiological evidence is through doctor visits, it may not be the most preferred. Fortunately, domestic violence advocacy groups are increasingly becoming aware of the need to conduct screening for health-related effects of battering. In March of 2010, the Pennsylvania Coalition Against Domestic Violence ("PCADV") established a special collection of materials to assist advocates in the field of domestic violence in screening possible victims of traumatic brain injury.²⁵⁸ A significant number of battered women have their diagnoses of TBI omitted.²⁵⁹ By alerting advocates who provide care for battered women to the possibility of TBI, the PCADV's move represents a promising step in understanding battering as the infliction of a medical condition.

While the response by advocacy groups is appropriate and necessary, the focus should be broadened to include screening for neurophysiological effects. Saliva collection is a convenient and easily administered method for gathering physiological evidence of battering. Cooperation between domestic violence shelters and scientists should be encouraged in order to conduct more expansive studies of battered women and the content of stress-mediating hormones. It may be the case that the most convincing utilization of neurobiological evidence comes through the concurrent use of both the physical effects, such as traumatic brain injury, and the physiological effects, such as heightened levels of cortisol.

PART IV. THE LEGAL CONSEQUENCES OF NEUROBIOLOGICAL EFFECTS EVIDENCE

In the context of battered women defendants, neurobiological evidence creates an overlap between the batterer's abusive acts and the battered woman's alleged crimes, an overlap that has as a proxy the discrete and measurable consequences of abuse. Due to the unique assemblage of characters and criminal acts involved in the battered woman's case, the use of neurobiological evidence in such a case could insulate itself from many of the criticisms that have hindered its applicability in other cases. In *Powell v. Texas*, a landmark case on compulsion, the Supreme Court, expressing uneasiness about the

255. *Dando v. Yukins*, 461 F.3d 791, 804 (6th Cir. 2006).

256. *See Comm. v. Monico*, 488 N.E.2d 1168, 1173 (Mass. 1986).

257. *See People v. Sims*, 750 N.E.2d 320, 325 (Ill. App. Ct. 2001).

258. *Special Collection: Traumatic Brain Injury and Domestic Violence: Understanding the Intersections*, supra note 11.

259. *Banks*, supra note 150, at 291 ("Often, diagnosis of mild traumatic brain injury is not made, even when a woman has had an obvious head injury (e.g., broken teeth, ruptured eyeball, sudden hearing loss) or has been unconscious after interpersonal violence.").

exculpatory force of psychiatric evidence, wrote that “[a]lmost all of the traditional purposes of the criminal law can be significantly served by punishing the person who in fact committed the proscribed act, without regard to whether his action was ‘compelled’ by some elusive ‘irresponsible’ aspect of his personality.”²⁶⁰

As the Court intimated, law is uncomfortable ascribing criminal responsibility to some inscrutable processes of the defendant’s mind. This hurdle is overcome within the specific context of battering because the battering produces a tangible, measurable effect on discrete parts of the brain. In battered women’s cases, it is the batterer who, through his abuse, produces the brain injury and sets into motion a sequence of events that makes the criminal act possible. Rather than some elusive aspect of the defendant’s personality, the particular brain injury is fingered as being the contributory causal factor.²⁶¹ Once it is established that the act of battering by a batterer may disrupt normal cognitive processing, making the criminal act more likely, the battered woman’s excuse has the potential to transcend the Court’s critique of psychiatric evidence in excusing a defendant’s behavior.

This union distinguishes the battered woman’s case from other cases in which neurobiology would be submitted to the court. Because the neurobiological consequences arise from the decisions of a conscious actor—the abuser—and not by mere accident or act of negligence, it is a matter of relocating the culpability for the crime to within that morally culpable agent. This distinction implies the existence of a somewhat analogous class of individuals: those who had their neurobiology altered not by a legal actor, but by some other environmental or genetic factor. A car accident or naturally high testosterone are examples of such factors.²⁶² Whether these individuals should be exonerated for their transgressions is a matter for both criminologists and legal scholars to debate; what is clear is that the uneasiness that many people feel about ascribing criminal intent to intractable causes or acts of chance is alleviated in large part by the presence of the batterer as a fulcrum for criminality. Furthermore, these cases could be distinguished in terms of the individual’s “brain reserve capacity.” This is a term that captures the idea that those individuals with support systems and high levels of pre-injury functioning are better able to withstand the mental and behavioral deterioration following

260. *Powell v. Texas*, 392 U.S. 514, 540 (1968).

261. This is not a novel use of brain injury evidence. In the case of *State v. Stuard*, the boxing career of a defendant was tied to organic brain damage which the expert stated “may have contributed significantly to [Defendant’s] acting-out of violent impulses.” 863 P.2d 881, 899 (Ariz. 1993). The court went on to hold that “conditions and mental illness diagnosed by the experts were significant causative factors of the crimes.” *Id.* at 901.

262. Van der Dennen provides a comprehensive outline of the various ways an individual’s neurobiology could make them more prone to acting violently or aggressively. See van der Dennen, *supra* note 3.

brain injury.²⁶³ Although it may seem as if a new class of “reasonable” person is created by the involvement of the brain reserve capacity concept, this is not necessarily so. The idea of brain reserve capacity merely establishes how likely it was that an individual’s injury played a causal role in the criminal activity. In a more accessible example, consider alcohol tolerance. Individuals with high alcohol tolerance would be less likely to receive the mitigating benefits of voluntary intoxication, despite having consumed intoxicants, because their high tolerance made them less susceptible to having their behavior altered.

Temporal proximity of the abuse to the alleged crime is also at issue when gauging the influence of any neurobiological effects on culpability. This creates two classes of defendants: those abused contemporaneously with their crime and those abused in the past. The contemporaneous-violence group might include battered women, but also other less sympathetic actors such as gang members. Without a limiting principle, courts will be skeptical of evidence that could exculpate these less sympathetic actors. However, existing legal principles already foreclose any such uses. For example, to receive a duress or involuntary intoxication defense, the defendant often has to demonstrate that she was not reckless in placing herself within the situation where coercion or intoxication was likely. This could act to exclude gang members, for instance. Individuals deciding to participate in an enterprise where criminal behavior is almost inevitable would likely be deemed reckless.

The second class of defendants, those who were previously abused but were not suffering abuse contemporaneously with the commission of their crime, would likely be limited in their use of neurobiological evidence through a different mechanism. Cultural notions of self-help and introspection would likely curtail the use of neurobiological evidence where the impairment is well-known to the defendant. These notions would frustrate the ability of defendants to procure favorable legal outcomes based on events taking place in the distant past. If the defendant knew, for instance, that previous abuse had altered his neurobiology through stress or physical violence, then the court may wish to consider that abuse alongside any diligence exercised in minimizing the likelihood of future criminality.

Intransigent disputes over neurobiology’s potential to revolutionize criminal law have largely forestalled the debate about its more modest uses in American trials. Eagerness on behalf of reformers, matched by a similarly zealous skepticism by opponents, has culminated in exchanges that are far less nuanced than they could be. Disagreements about a future in which neurobiology could send shockwaves through the legal system should not

263. Seven of the nine factors that Carson, Butcher, and Mineka list as favorably influencing outcomes in cases of TBI relate to support and pre-injury function: (1) well-functioning pre-injury personality, (2) higher educational attainment, (3) stable pre-injury work history, (4) motivation to recover, (5) favorable life situation to which to return, (6) early intervention, and (7) suitable program of rehabilitation. CARSON ET AL., *supra* note 82, at 523.

overshadow the ripples it is presently making. Today, law considers neurobiological evidence for a handful of purposes. Courts have also acknowledged the admissibility of physiological effect evidence in the past to corroborate different arguments about the mental state of a defendant. In *Sims*, an appeal alleging ineffectiveness of counsel, the court wrote that a claim of postpartum depression could be supported by blood tests.²⁶⁴ The use of blood tests in confirming a certain mental state, stemming from repetitive instances of battering, has never been suggested. If disrupted hormonal levels resulting from postpartum depression are admissible for defenses, then the same disruptions caused by a third party should surely be admissible—even if they do not corroborate a syndrome or other disorder. Post-conviction proceedings have also seen a surge in the amount of neurobiological evidence presented to determine the appropriate punishments.²⁶⁵ As such evidence becomes increasingly commonplace, battered women will be well-positioned to integrate it into their various legal defenses.

A. *Traditional Defenses*

For a practitioner wishing to incorporate neurobiological evidence into the defense of a battered woman, the pragmatic approach would be to deliver this evidence within a traditional defense. The term traditional defense in this context is taken to mean a defense, such as self-defense or duress, that many battered women have relied on to successfully mitigate charges or attain exculpation in the past.

In both self-defense and duress, the purview of the juror is often to decide the question: “could she have avoided committing the crime?” Both duress and self-defense implicitly entreat jurors to consider how much the battered woman’s control was subordinated by fear of the batterer. Duress goes further and asks how the batterer maintained general control over the defendant’s autonomy. In both contexts, any indicator of courage, assertiveness, autonomy, or independence from the batterer can imperil the battered woman’s defense. Jurors are invited to speculate about the appropriate level of fear or control needed to render a particular crime excusable or justifiable.

When evaluating the defendant’s fear, the inquiry is not whether fear was present but whether it controlled the defendant’s behavior. Facts bearing upon a

264. *People v. Sims*, 750 N.E.2d 320, 328 (Ill. App. Ct. 2001) (“Blood tests may have revealed the type of hormonal imbalance indicative of postpartum disorders, evidence in support of the defense.”).

265. *See, e.g., Roberts v. State*, 102 S.W.3d 482 (Ark. 2003) (exploring the effects of a childhood injury on petitioner’s frontal lobe and its relevance to culpability); *Cooper v. State*, 739 So. 2d 82 (Fla. 1999) (discussing frontal lobe dysfunction and using both EEG and CAT scans to dispute such dysfunction).

battered woman's fear have included: promiscuity,²⁶⁶ combativeness,²⁶⁷ proximity of the abuse,²⁶⁸ proximity of the abuser,²⁶⁹ and rather circularly, the way the battered woman responds to the abuse.²⁷⁰ If fear of the batterer is necessary for self-defense, an even greater degree of control is necessary for a battered woman offering a duress defense. The elements of duress go beyond a fear of harm—the defendant must be completely constrained in her decision-making in order to invoke duress. The constraint is understood, in most cases, to be the batterer's control over the defendant.

Courts often wrestle with the question of exactly how much control a batterer exerts through his abuse. In *Wonnum*, Judge Ridgeley, concurring with the trial judge's motion to *in limine* bar a duress defense, wrote that because the defendant had left the batterer's home for another location, taking him out of proximity, the battered woman could not have been acting under his control.²⁷¹ Similarly, in *State v. Daoud*, the judge compared a battered woman, coerced by her batterer to drive while intoxicated, to someone who chose to drive an injured co-worker even with a driver's license restriction—practically trivializing the control a batterer exerts.²⁷² At the other extreme, courts have described the battering relationship as one in which the batterer can “break down the personality of the actor, rendering him [or her] submissive to whatever suggestions they make,”²⁷³ or where the battered woman “had no alternative but to obey” her batterer.²⁷⁴ Over time, the statements of battered women have been supplanted with the court's characterizations of control although it is unclear which came first.²⁷⁵

Neurobiology skirts the philosophical issue of whether batterers “control” their victims directly, focusing instead on how the effects of battering have limited the set of decisions that the battered woman could have made given her stress levels and cognitive function at the time the alleged criminal act took place. Where certain types of abuse had occurred, it may be that the battered

266. *United States v. Wilson*, No. 92-10346, 1993 WL 55193 (9th Cir. Mar. 3, 1993) (holding that testimony about defendant's sex with a man other than her husband was relevant to whether she feared for her life).

267. *State v. Cramer*, 841 P.2d 1111, 1114 (Kan. Ct. App. 1992) (quoting an expert witness claiming that fighting with others is inconsistent with the behavior of a battered woman); see also Ferraro, *supra* note 2, at 202.

268. *State v. Lundgren*, No. 90-L-15-125, 1994 WL 171657, at *19 (Ohio Ct. App. Apr. 22, 1994) (holding that there must be some “recent action on the part of the abuser” to cause the fear).

269. *State v. VanZant*, No. 64010, 1993 WL 437590, at *3 (Ohio Ct. App. Oct. 28, 1993) (holding that no immediate threat sufficient for duress existed when the batterer was absent).

270. *People v. Moseler*, 508 N.W.2d 192, 193 (Mich. Ct. App. 1993) (drawing the defendant's claim of fear into question where she fled from her batterer in a vehicle without regard to pedestrians).

271. *Wonnum v. State*, 942 A.2d 569, 576-79 (Del. 2007).

272. *State v. Daoud*, 679 A.2d 577, 582 (N.H. 1996) (citing *State v. O'Brien*, 567 A.2d 582, 584 (N.H. 1989) and *State v. Fee*, 489 A.2d 606, 608 (N.H. 1985)).

273. *United States v. Marengi*, 893 F. Supp. 85, 94 (D. Me. 1995) (quoting MODEL PENAL CODE § 2.09 cmt. 3).

274. *Hunt v. State*, 753 So. 2d 609, 611 (Fla. Dist. Ct. App. 2000).

275. See, e.g., *Comm. v. Lambert*, No. 0423-1992, 1998 WL 558749, at *53 (Pa. Com. Pl. Aug. 24, 1998) (citing the battered woman's claim that her abuser “dominated her every move”).

woman's capacity for control was perfectly intact, but her decisions were strongly skewed towards being more utilitarian or more risk-averse. Perhaps choosing to alert the police to her batterer's abuse of a child would have been the ideal choice, but the neurobiological effects of battering made this choice unlikely. In this capacity, neurobiological evidence would cleanse the battered woman's traditional defenses of vague and amorphous "control" definitions that merely invite subjective post hoc speculation by judges and jurors. As outlined in Part III, *supra*, both physical and physiological effects of battering have repercussions for behavior and cognition.

B. Involuntary Intoxication

One way to conceptualize the neurobiological effects of battering is through the involuntary intoxication defense. Even if such evidence is proffered through alternative channels, its integration into a defense premised upon the involvement of another may be instructive to defense counsel and expert witnesses alike. To lay the philosophical foundation for an involuntary intoxication defense, three propositions need to be revisited. First, the brain is the necessary apparatus for making decisions and exercising what is colloquially termed "free will." Decisions are made, but some decisions can become increasingly likely or even inevitable given a prevailing chemical state in the brain.²⁷⁶ Dramatic alterations in brain structure or brain chemistry have the potential to impact brain operation, and therefore, behavior.²⁷⁷ Second, for battered women, some dramatic alterations in brain structure or brain chemistry have an identifiable proximate cause: battering. Finally, for these women, the battering compels the recognition of a separate actor: the batterer, who is culpable in committing the battering. While it may seem unconventional, a defense of involuntary intoxication may be the defense most consistent with the central argument that a batterer's abuse leads to neurobiological effects that make criminality either more likely or inevitable.

An inspection of appeals cases turns up no evidence that involuntary intoxication has ever been employed in battered women's cases.²⁷⁸ To be sure, related notions of diminished capacity and insanity do figure prominently into some defenses of battered women. Thus, these defenses may effectuate some of the same legal consequences for battered women defendants, but there inhere specific advantages to advancing involuntary intoxication as a defense. These

276. For instance, we may *choose* to remain calm under stress, but the natural release of adrenaline prevents us from exercising this choice.

277. On the other hand, minute changes in an individual's neurochemistry may take place from moment to moment, but have imperceptible consequences for behavior.

278. To arrive at this conclusion, I examined every appellate case from all fifty states in which the words "involuntary" and "intoxication" appeared. None of the cases in which the defense was invoked involved battered women.

advantages will be discussed below, but first I present a justification for extending involuntary intoxication to cover this unconventional class of cases. Suppose an individual, X, places a toxin into the beverage of another individual, Y: the chemical consequences of Y's having consumed the toxin are admissible evidence. Now suppose Y commits a crime in the induced intoxicated state. In the majority of states, the evidence of Y's intoxication exculpates Y entirely; in others, it may negate the state's evidence that Y had the mens rea for the crime.²⁷⁹

As demonstrated above, some instances of battering result in or have the potential to result in pronounced injuries to the brain. In these cases, the battering contributes to the likelihood of the criminal act. By considering the battering a cause of the criminality, some degree of culpability shifting logically follows, if we consider the most voluntary act in the chain was the batterer's infliction of harm. The batterer was thereby either complicit in his own downfall by setting into motion a sequence of events that made his death more likely, or lowered the battered woman's inhibition to commit criminal acts when threatened. Thus, one simple way to guarantee the exculpation of battered women defendants would be to deflect some or all criminal responsibility from them onto their batterer.

The most obvious objection to invoking involuntary intoxication in service of the battered woman defendant is that no substance has been *introduced* into her body. The discussion in Part III, *supra*, illustrates how chronic exposure to stress could disrupt the battered woman's internal chemical balance. This imbalance leads to various consequences for her cognition and voluntariness. One approach to presenting this evidence would be to analogize to overdosing on common antidepressants or combining antidepressants with alcohol.²⁸⁰ There is no principled reason why involuntary intoxication should hinge on the mechanical act of introducing a foreign substance into the body. Courts must recognize that a chemical imbalance can be produced in various ways: by introducing a substance, by making the natural production of an endogenous substance more likely, by depriving an individual of a substance necessary for normal functioning, by preventing the operation of an endogenous process, or by the removal of something necessary for maintaining homeostasis. On the

279. These states are Alabama, Alaska, Arizona, Arkansas, California, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Louisiana, Maine, Maryland, Michigan, Missouri, Montana, Nebraska, New Jersey, New York, North Carolina, Oregon, South Dakota, Tennessee, Texas, Virginia, Wisconsin, West Virginia, and Wyoming. Paul H. Robinson, *Intoxication*, 2 CRIM. L. DEF. § 176 (2009).

280. Precedent for involuntary intoxication when an individual has an adverse response to these anti-depressants is abundant. *See, e.g.,* *Boswell v. State*, 610 So. 2d 670 (Fla. Dist. Ct. App. 1992) (reversing murder conviction to permit the defendant to testify about involuntary intoxication caused by taking Prozac and Xanax); *People v. Hari*, 843 N.E.2d 349 (Ill. 2006) (reversing and remanding a murder conviction where the defendant argued that he was experiencing the unexpected adverse side effect of taking Tylenol PM concurrently with Zoloft); *State v. Jones*, No. 93-114, 2010 WL 2471214, at *3 (Ohio Ct. App. June 17, 2010) (holding that a claim of involuntary intoxication could have a bearing upon whether the defendant acted with requisite recklessness).

other hand, a limiting rule must exist to constrain defendants from always alleging that a chemical imbalance contributed to the crime's occurrence. This rule would ideally capture the multifaceted nature of chemical imbalance while restricting its use in cases where the imbalance was unrelated to the abuse or where the imbalance was too small to have altered the defendant's cognitions or behavior. The same level of abuse may be sufficient to produce "intoxication" in one defendant but not another. This is no different from current involuntary intoxication jurisprudence, however. The true cynic might suggest that defendants would claim involuntary intoxication as the result of harassment or frustration, like road rage, for example. These claims, however, could only be supported by valid scientific evidence of the defendant's chemical imbalance. The defendant would need to proffer a strong scientific theory to corroborate any account of intoxication. The operation of evidence rules in conjunction with limitations already applicable to involuntary intoxication may dispense with many potential abuses of this defense.

Acknowledging that the battering is the proximate cause of the battered woman's altered judgment or cognition, however fleetingly, would catalyze the acceptance of this defense strategy. Some courts have implicitly, and possibly inadvertently, acknowledged the batterer as a causal force in the battered woman's behavior. The court's connection between a course of mistreatment and an "induced" homicidal response reifies the concept that a batterer's persistent abuse may causally contribute to criminality. When the processes of the defendant's mind are tangibly altered by a third party, the involvement of that third party has been understood to induce a certain mind state. Consider, for example, that in *Tierney v. Ricci*, a case involving a battered woman who retaliated against her batterer, the court wrote:

[P]rovocation may be premised on "a course of ill treatment which can induce a homicidal response in a person of ordinary firmness and which the accused reasonably believes is likely to continue." The jury must be instructed "to consider not only decedent's conduct and threats that night, but also his prior mistreatment of defendant."²⁸¹

Involuntary intoxication has numerous advantages over alternate defense theories such as provocation. For one, involuntary intoxication is frequently a complete defense,²⁸² that is, it exculpates entirely. In addition, involuntary intoxication does not attach the same stigma as a defense hinting at long-term psychological impairment. Perhaps most significantly, involuntary intoxication

281. *Tierney v. Ricci*, No. 08-1918, 2009 WL 929306, at *7 (D.N.J. Apr. 2, 2009) (emphasis added).

282. Todd Paul Myers, Comment, *Halcion Made Me Do It: New Liability and a New Defense—Fear and Loathing in the Halcion Paper Chase*, 62 U. CIN. L. REV. 603, 638 (1993).

is essentially a chemical defense: the source of the intoxication is detectable, measurable, and less susceptible to false positives than a subjective assessment of the battered woman's behaviors. As discussed in Part II, *supra*, commentators have consistently impugned the battered woman syndrome for failing to provide scientific support for its claims. A defense of involuntary intoxication would be, first and foremost, a defense theory that hinges upon scientific evidence.

One drawback to proceeding under involuntary intoxication is that in some jurisdictions, the defense may need to satisfy the same standard as it would to show insanity.²⁸³ However, several states have a test for involuntary intoxication that is significantly less exacting than the corresponding insanity test.²⁸⁴ The benefits of having to satisfy a requirement for an excuse less exacting than insanity are many: battered women could attempt to be excused for conduct that was ongoing, the language by which the battered woman's conduct would be excused would be far less damaging to her moral agency, and in the case of the *Durham* rule, a direct relationship would be established between the battering and the criminal conduct.

In Philadelphia, a woman was recently acquitted in the death of a child under her supervision, after a night of sleeplessness and stress led to "stress-induced chemical and physiological changes in the brain."²⁸⁵ An involuntary intoxication defense would read almost identically: a night of abuse and weeks of threats, leading to chemical and physiological changes that altered her judgment or placed her in such fear that she could not act in accordance with the law. When a battered woman's criminal conduct is even marginally justified, conventional defenses such as self-defense are well-equipped to persuade jurists or at least appeal to their sympathy. For other criminal conduct, however, greater moral purchase could obtain from excusing the act as the probable outcome of battering. The intoxication excuse also offers a formidable parry to opponents of traditional abuse excuses who base their opposition on the reality that not *everyone* who was abused committed a crime. In the context of intoxication, not everyone who unwittingly takes a noxious combination of pharmaceuticals or endures a shocking event will necessarily commit a crime—yet the law exempts those who claim to have been affected by such factors. Given that neurobiological evidence could serve to explain heightened responses to fear or stress, increased apathy to child abuse, or reckless

283. See, e.g., Robinson, *supra* note 279, § 176 (discussing the divergence among states in formulating a definition of intoxication).

284. Some states, including Louisiana, Indiana, and Wyoming, adopt the *Durham* rule for intoxication, asking only whether the involuntary intoxication was the cause of the criminal conduct. A sizeable number of states, eleven in all, adopt some variant of the American Law Institute definition which permits acquittal through a defense of intoxication by showing that the intoxication prevented the defendant from conforming her behavior to the requirements of the law.

285. See, e.g., Larry King, *Day-care Owner Acquitted in Child's Death*, PHILA. INQUIRER, Mar. 23, 2010, at B1.

endangerment of the lives of others, it presents significant exculpatory potential for battered women accused of crimes.

C. *Reshaping the Narrative*

In battered women's cases, battering evidence is infrequently given a holistic treatment by courts, perhaps reflecting a lack of involvement by medical professionals in trials of battered women.²⁸⁶ When discussing the defendant's case, courts often rely on generic statements such as "he would curse, yell, and hit her,"²⁸⁷ "he beat her,"²⁸⁸ "[he] kicked, punched, smacked and choked her,"²⁸⁹ "bruises and even . . . a black eye."²⁹⁰ In addition to providing a limited verbal retelling, photographs depicting the battered woman's bruises only tell a narrow part of the story; as discussed in Part III, *supra*, neurobiological evidence is both visual²⁹¹ and also non-visual. While such narratives may rouse the sympathies of the jury, they do not capture how the battering would impact her behavior. Moreover, if the victim's external injuries are relevant for the jury's assessment of guilt, her internal injuries should also be relevant.

Battered women's cases sometimes pose a challenge to defense counsel when the defendant's otherwise sympathetic account is tainted by facts that inflame the passions of the jury. For instance, the defendant may have been especially ruthless in carrying out a crime or she may have seemed unremorseful at trial. Presented with such cases, jurors may respond emotionally by vilifying or discrediting the battered woman. Neurobiological evidence could be used as a screen, keeping the emotional responses of the jury out of their assessment of her behavior. Rather than combating the jury's emotional investment in the facts of the case, some scholars suggest emotions are integral to the administration of the criminal law.²⁹² While this may be true in some sentencing contexts where questions of guilt have been resolved, in the battered woman's case, emotions have the potential to color the jury's opinion of the defendant and, consequently, predetermine the verdict.

286. In one recent case, however, the court capitalized on a doctor's relating specific consequences of battering. *State v. Harden*, 679 S.E.2d 628, 630 (W. Va. 2009) (citing, in the first paragraph of the case, evidence from an emergency room physician about the defendant having sustained particular injuries, including contusions and fractures of the head).

287. *Wonnum v. State*, 942 A.2d 569, 574 (Del. 2007).

288. *Id.*

289. *Tierney v. Ricci*, No. 08-1918, 2009 WL 929306, at *2 (D.N.J. Apr. 2, 2009).

290. *People v. Bolden*, 71 Cal. App. 4th 730, 739 (Cal. Ct. App. 1999).

291. *Comm. v. Crawford*, 706 N.E.2d 289, 292 n.11 (Mass. 1999) ("Photographs of Crawford's bruises were taken by the police and introduced in evidence at trial.").

292. See, e.g., Douglas A. Berman & Stephanos Bibas, *Engaging Capital Emotions*, 102 NW. U. L. REV. 355, 356 (2008) ("Normatively, emotion is crucial to a criminal justice system that seeks both to educate citizens with its symbolism and to channel their justified outrage.").

To neutralize the jury's negative emotional response to harmful facts in battered women's cases, the defense can attempt to distance the battered woman from the incendiary behavior. Accomplishing this distancing involves describing the neurobiological effects of battering as an intervening cause separating the battered woman's actual self from her alleged criminal act. Distancing may be done either through an appeal to the empirical power of neurobiological evidence or by shifting the focus onto the battering's effects and thereby eliciting sympathy from the jurors.²⁹³ The most desirable outcome for the defense is to show that because of this intervening cause, the battered woman's altered neurobiology produced a mental state entirely alien to the jury's intuitions about normal behavior. The jury is then forced to reconstruct the battered woman's mental state through the defense's proffer of neurobiological evidence.

A primitive attempt at this type of defense is apparent in the California case of *People v. Soma*.²⁹⁴ In *Soma*, the court acknowledged "that the defense could bring out 'testimony that a battered woman would react differently than someone who has not been battered.'"²⁹⁵ The court continued by citing the testimony of the expert in that case:

Dr. Kaser-Boyd then testified to the possible physiological reactions to a threat. She said a threat could cause people to be impulsive and focused on their own survival rather than careful and thoughtful, leading to frantic or irrational behavior. Such a person could have a reaction that is more intense, more explosive.²⁹⁶

Dr. Kaser-Boyd admitted that she was not an expert in neuroanatomy, neurophysiology, or neurochemistry—but that she was primarily a forensic psychologist.²⁹⁷ Her ability to implicate the battering as an intervening cause between the battered woman and her alleged crime rested on the jury's acceptance that a "threat" could have contingent effects, such as impulsivity and irrational behavior. This left the jury to speculate about how *they* or others they know would respond to threats—creating little difference between them and the battered woman. The jury did not receive any information about what tangible consequences this "threat" creates in the brain or how it would threaten the brain's integrity following chronic abuse. As the court stated, the defense could have brought out evidence that would distinguish the battered woman

293. These two routes likely capture the *modus operandi* of the battered woman syndrome. See *supra* Part III.

294. *People v. Soma*, No. B204682, 2009 WL 1743607 (Cal. Ct. App. June 22, 2009).

295. *Id.* at *4.

296. *Id.* at *5.

297. *Id.*

from other individuals.²⁹⁸ However, without an understanding of how brains are affected by battering, such distinctions cannot convincingly be made. A more complete description of how battering produces neurobiological consequences would argue that such consequences, and not vague concepts such as threats or stress, are the proximate cause of the criminal conduct.

While admittedly an early entrant into the jurisprudential landscape combining neurobiology effects and the defense of a battered woman, the court approached the scientific testimony with an open mind.²⁹⁹ In the future, however, defense counsel may wish to rely less on generic phrases such as “a threat could cause” and “more intense” and turn instead to more informative language borrowed from contemporary thinking in the area of neurobiology. It is both confusing to the judge and jury, and damaging to the defendant, to merely offer conjectures based upon imprecise and outmoded generalizations.

Distancing may also entail pitting experts’ competing claims about a defendant’s neurological makeup against one another and permitting only the most convincing empirical arguments to prevail. By placing emotionally aversive facts under the microscope, the lawyer asks the jurors to at least temporarily suspend their initial inflammation regarding her behavior. The involvement of experts at least forces the jury to scrutinize the behavior from within the context of neurobiology. In the penalty phase of one criminal trial, the defense expert testified that as a result of childhood abuse, the defendant “is brain-damaged, has a history of seizures, and suffers from frontal lobe dysfunction, which causes him to have impaired judgment and poor impulse control.”³⁰⁰ As a consequence of the abuse, the expert explained to the court that the defendant acted under extreme emotional disturbance and duress.³⁰¹ To connect the defendant’s claim of mental dysfunction to the defendant’s criminal actions, the expert offered a subjective theory that suggested that the defendant had used his mother as his “surrogate frontal lobe,” and upon her departure, his codefendant, Tivan Johnson, became his “frontal lobe.”³⁰² The state, in rebuttal, offered an expert who rejected any claims of mental dysfunction for lack of objective evidence proving its existence.³⁰³ The state’s expert examined CAT scans and EEG’s of the defendant’s brain and found no evidence of brain

298. *Id.*

299. The court did not find error with either of the two experts’ scope of testimony, despite their lack of scientific rigorousness. It held instead that Dr. Kaser-Boyd and the prosecution’s expert, Dr. Hirsch, both forensic psychologists, were sufficiently well versed in the necessary disciplines to “testify about the subject of the limbic system and its impact on behavior in response to a threat.” *Id.* at *6.

300. *Cooper v. State*, 739 So. 2d 82, 83 (Fla. 1999). Interestingly, the defense also found it appropriate to testify as to the source of the beatings: the defendant’s father. This was either an attempt to produce sympathy for the defendant or a culpability-shifting fact that ossified the father’s actions as a contributing cause of the defendant’s criminality.

301. *Id.*

302. *Id.* at 87.

303. *Id.*

damage.³⁰⁴ The appeals court, apparently so swayed by the state's expert's appeal to objectivity, offered a redounding rejection of the defendant's multiple requests for consideration of mitigating circumstances based on mental dysfunction.³⁰⁵ By calling upon the jury to engage analytically with competing theories and factual evidence, the defense creates an opportunity for the jury's logic to overcome its emotions.

PART V. CRITICISMS

A. *Neurobiological Evidence Pathologizes Battered Women*

Certainly, it may seem unpalatable to think of *any* battered woman as having her cognitive capability altered by battering, because in so doing we risk diminishing her agency, stamping out any rationality we may have ascribed to her decisions, and possibly stigmatizing her. Notwithstanding these theoretical concerns, practical consequences are equally likely to beset the success of any legal defense that calls a battered woman's agency into question: custody determinations, civil commitment, and sex offender registration are all potential outcomes of a blunt defense strategy. To be sure, utmost sensitivity is warranted in cases where children are involved and custody makes legal determinations of mental soundness an especially thorny issue. Neurobiological evidence, no matter how comprehensive or how carefully tailored to the questions it is intended to answer, will be vulnerable to attack on this premise. Uneasiness about science's interference with legal understandings of responsibility and cognition, along with law's outmoded treatment of mental illness, work concurrently to frustrate the progress of defenses based on neurobiological evidence.³⁰⁶ Only in a particular normative universe will the outcomes of introducing neurobiological evidence be entirely concordant with the best outcome a battered woman could receive. Lawyers, armed with this knowledge, should be especially mindful to tailor their proffer of evidence to the particular goals the defendant would like to see advanced.

During the development of the battered woman syndrome, many feminists claimed that by pathologizing battered women, the syndrome reinforced problematic gender stereotypes.³⁰⁷ The claim was that the syndrome casts an arguably reasonable response to abuse, namely retaliation, as a hallmark of

304. *Id.*

305. *Id.* at 87-89.

306. For a thorough discussion of the legal system's handling of mental disorder and related issues, see Stephen Morse & Morris B. Hoffman, *The Uneasy Entente Between Insanity and Mens Rea: Beyond Clark v. Arizona* (Scholarship at Penn Law, Working Paper No. 143, 2007), available at http://lsr.nellco.org/upenn_wps/143.

307. Ferraro, *supra* note 2, at 113.

disorder for an otherwise docile woman.³⁰⁸ One scholar cogently notes that the battered woman syndrome implied that women who remained in abusive relationships were “too emotionally damaged to react in a ‘normal’ way.”³⁰⁹ Yet, that much of the jurisprudential development in the defense of battered women defendants is focused on the syndrome³¹⁰ suggests law’s reluctance to think of battered women as reasonable. This inability to reckon with the experiences of battered women outside of a pathological paradigm is highly reflective of the development of positive law around the experiences of men.

That reasonableness is defined from a male’s perspective is almost trivial in light of the historical disenfranchisement of women in American lawmaking. Considering that the Supreme Court did not find a Sixth Amendment requirement for the empanelment of female jurors until 1975,³¹¹ and that until Jimmy Carter took office in 1977 only eight women had ever served as Article III federal judges,³¹² it was almost certain that positive law would be tailored to fit the facts of men’s lives. From a constructivist perspective,³¹³ if a pretermitted population’s knowledge and experiences never enter the standard-making process, that standard will necessarily be comprised of only the included group’s perspectives, and to the extent that such a group has beliefs about the pretermitted group, those beliefs will be contained in the standard as well.³¹⁴ Although the number of women participating in judicial standard-setting has increased, the principle of *stare decisis*, cultural and political forces, and a conservative legal practice militate against the overall impact women could have on reconstructing the standards in battered women’s cases. Supposing the present standards were replaced with a more gender-inclusive alternative, these new standards would still encompass only those behaviors agreed upon as being “reasonable” by a significant segment of men, women, or both. Unfortunately, there will be some battered women whose behavior might still lie outside of this more democratic understanding of reasonableness; consequently, at least some battered women’s behavior would fall outside of the reach of these new standards. Rather than believing that any battered

308. See, e.g., Marina Angel, *Why Judy Norman Acted in Reasonable Self-Defense: An Abused Woman and a Sleeping Man*, 16 BUFF. WOMEN’S L.J. 65, 78-79 (2008).

309. Martha Shaffer, *The Battered Woman Syndrome Revisited: Some Complicating Thoughts Five Years After R. v. Lavallee*, 47 U. TORONTO L.J. 1, 11 (1997).

310. See, e.g., Burke, *supra* note 32 (describing the ways that the syndrome influenced and continues to influence the legal understanding of battered women).

311. *Taylor v. Louisiana*, 419 U.S. 522, 537 (1975) (“Accepting as we do, however, the view that the Sixth Amendment affords the defendant in a criminal trial the opportunity to have the jury drawn from venires representative of the community, we think it is no longer tenable to hold that women as a class may be excluded or given automatic exemptions based solely on sex if the consequence is that criminal jury venires are almost totally male.”).

312. Mary L. Clark, *Carter’s Groundbreaking Appointment of Women to the Federal Bench: His Other “Human Rights” Record*, 11 AM. U. J. GENDER, SOC. POL’Y & L. 1131, 1132-33 (2003).

313. For a general discussion of constructivism and how it provides social constructs that motivate law, especially in the area of battered women, see HAMILTON, *supra* note 58.

314. For example, the currently understood “reasonable person” standard fails because even if it is framed as gender neutral, it is inherently one-sided in that it has been shaped largely by men.

woman can act as a reasonable person who has never been battered, the responses of the reasonable person could be enlarged to include the responses a reasonable person would have after enduring recent, chronic, and severe abuse. Indeed, in *Dando v. Yukins*, the Sixth Circuit aptly characterized this intuition when the court wrote:

[T]hose of us who are not so unfortunate to have to live with constant, imminent threats of violence might look at the actions of a defendant in Dando's situation from the relative comfort of a judge's chambers or a jury box and wonder what reasonable person would have facilitated Doyle's shocking crime spree³¹⁵

By acknowledging that a reasonable person, under certain conditions, could act in a way that does not reflect how a majority of society's members conduct themselves, we both rescue the battered woman's reasonableness and simultaneously permit the use of neurobiological evidence to explain how a reasonable person could be induced to act in a certain way.

One last permutation of the concern regarding pathologizing is that battered women will be stigmatized, institutionalized, and have their parental rights compromised if they are demonstrated as exhibiting some level of cognitive or neurological impairment. Ideally, this unintended consequence would be avoided by a more holistic understanding of the brain: much like the side-effects of legally obtainable pharmaceuticals, the consequences of battering are largely reversible. As society reorients itself to the contemporary scientific view of the brain, it will no longer conceive of brain changes as arcane and interminable derangement but rather as the brain's natural response to injury. Unlike brain disorders that spring from ineffable genetic and environmental influences, the abuse of battered women has notable causes and effects. While incumbent upon lawyers and experts to explain that brain changes within the battered woman are precipitated by a course of abuse and many are reversible upon its cessation, there will inevitably be jurisdictions which constrain defendants to choosing between "sanity" and "insanity." Previously, women who chose to pursue insanity or diminished capacity defenses faced the practical undesirability of lifetime confinement as well as loss of child custody. Effective lawyering requires an acute awareness of these consequences which, while they may not attach within the criminal court context, are nonetheless dramatic and could render counsel ineffective under recently elaborated Supreme Court precedent.³¹⁶ The utmost circumspection is necessary when proffering neurobiological evidence, as the court has

315. *Dando v. Yukins*, 461 F.3d 791, 802 (6th Cir. 2006).

316. See generally *Padilla v. Kentucky*, 130 S. Ct. 1473 (2010) (holding defense counsel ineffective for failing to consider the adverse immigration consequences of agreeing to a plea bargain).

occasionally floundered when trying to assess highly technical arguments invading upon what is traditionally within the province of well-established criminal law.

I would posit that much of the leftover consternation about neurobiological evidence in defense of battered women arises out of a misalignment between legal and scientific understandings of the mind, as well as the unfortunate commingling of such evidence with the expansive literature on “free will.” Although much legal scholarship has been mired in abstruse speculation about where the brain ends and the mind begins, it is not impossible to envision a future where neurobiological evidence links up with pragmatic, practical lawyering. Even in the absence of such reforms, the unfortunate misuse of scientific knowledge to reincarnate misogynistic stereotypes about battered women will inevitably invade the public domain.³¹⁷ If nothing else, a comprehensive account of the battered woman’s neurobiology can combat pernicious claims about battered women masquerading as scientific truth.

B. Neurobiological Evidence Is Cumulative of Psychological Evidence

In a provocative and well-researched discussion on the limitations of functional magnetic resonance imaging (fMRI), Teneille Brown and Emily Murphy inveigh against the premature use of brain imaging data in criminal trials. Because no part of this Article relies directly on such imaging, it is largely immune to Brown and Murphy’s critiques. One obvious point of friction, however, springs forth from the implied claim that neurobiological evidence is extraneous in light of behavioral evidence obtained through psychology. For instance, the authors exclaim:

Inferences about mental state may also be made from evidence of the defendant’s flight, her attempts to conceal evidence, or from the defendant and victim’s prior relationship. It requires far fewer logical leaps to infer intent from evidence of what actually happened at the time of the crime than from heavily processed and statistical brain-activation maps.³¹⁸

The most obvious issue with this statement is that it strips the rich context from the battered woman’s narrative and gives jurors carte blanche to speculate about the motivations of a defendant they are unlikely to understand. It is exactly this vulnerability that precipitated the emergence of the problematic

317. See, e.g., Ali Binazir, *Addiction Recovery: Why We’re Addicted to Negative Behaviors*, HUFFINGTON POST (June 15, 2010), http://www.huffingtonpost.com/dr-ali-binazir/addiction-recovery-why-we_b_603566.html.

318. Teneille Brown & Emily Murphy, *Through a Scanner Darkly: Functional Neuroimaging as Evidence of a Criminal Defendant’s Past Mental States*, 62 STAN. L. REV. 1119, 1197 (2010).

battered woman syndrome. Clearly, then, something of the sort that reformers suggest—sociology evidence—is needed to at least reconstruct the entirety of the battered woman’s reality. However, there is no principled reason to exclude the physical and physiological consequences for the brain, and for behavior, from this contextualization. Neurobiological evidence, when presented alongside the social science evidence, can bolster the social science claims and make them relevant to the specific defendant on trial. Indeed, Brown and Murphy point to this possibility when they describe fMRI as a “legitimizing illustrative accompaniment for social and behavioral psychology data.”³¹⁹

Going further, Brown and Murphy claim that behavioral psychology is “much better equipped” than fMRI to resolve questions about intent, although fMRI does avoid drawing the suspicions that jurors have about psychology evidence.³²⁰ It is unclear whether they would extend their critique of fMRI evidence to the far more unequivocal types of neurobiological evidence I have summarized here. Supposing this critique is generalizable to other types of neurobiological evidence, a possibility which the authors do not foreclose, and, regardless, a legitimate critique of its own, such critique is susceptible to attack on several grounds. For one, that behavioral psychology should enjoy a monopoly over ascertaining intents is a troubling assertion: the discipline of psychology has frequently shown itself to be less than objective in neutralizing harmful stereotypes about women.³²¹ The most salient example is the inseparable relationship between antifeminist accounts of female psychology and Freud’s psychoanalytic theory.³²² More recently, an example is the embarrassing introduction and successive retraction of the highly gendered self-defeating personality disorder, which the American Psychiatric Association had suggested might account for the tendency of battered women to seek abusive relationships.³²³

Another variation on Brown and Murphy’s critiques about functional imaging data is that neurobiological evidence cannot reveal information about past mind states.³²⁴ This critique, however, is equally applicable to behavioral

319. *Id.*

320. *Id.*

321. See generally, e.g., Phyllis Chesler, *Sexual Violence Against Women and a Woman’s Right to Self-Defense*, CRIM. PRACTICE L. REP., October 1993.

322. Hannah Lerman, *From Freud to Feminist Personality Theory: Getting Here from There*, 10 PSYCHOL. WOMEN Q. 1, 12 (1986) (describing how Freud’s concepts of women are “analogues with male experience” and the undisputed negativity implicit in his psychoanalytic theory); accord *id.* (explaining that the “principal subject matter of psycho-analysis” is ideas about sexuality, which are central to its practice) (paraphrasing 18 SIGMUND FREUD, *Two Encyclopaedia Articles*, in THE STANDARD EDITION OF THE COMPLETE PSYCHOLOGICAL WORKS OF SIGMUND FREUD 235, 247 (James Strachey ed. & trans., 2001) (1955); Martha T. Shuch Mednick & Hilda J. Weissman, *The Psychology of Women*, 261 ANN. REV. PSYCHOL. 1, 10-13 (1975) (describing the unsatisfactory and sexist treatment of women within psychology literature at the time, beginning with Freud’s theory of female psychosexual development).

323. ANNE E. FIGERT, *WOMEN AND THE OWNERSHIP OF PMS* 164, 167 (1996) (discussing the clash over the incorporation and eventual rejection of self-defeating personality disorder from the DSM-IV).

324. Brown & Murphy, *supra* note 318.

psychology evidence. Other aspects of functional brain imaging are too dissimilar to merit comparison with the more rudimentary brain scans and blood tests I have proposed here.³²⁵ The persuasive power of these types of evidence lies more with the theories about behavior that correspond to them—theories which have been tested empirically and through the observation of patients. Thus, neurobiological evidence in this context largely circumvents the concerns that plague functional imaging.

CONCLUSION

The history of the battered woman syndrome should serve as a cautionary tale about overly reductive defense theories, the application of which abounds with stereotypes and weak causal argument.³²⁶ Excessive reliance on categorical delineations premised upon suspect scientific evidence is bound to generate numerous false negatives. While battered woman syndrome may continue to be an effective proxy for battering evidence, battered women defendants stand to gain significantly from the integration of neurobiology into their defenses. Defense attorneys and experts must move beyond outdated associations between the syndrome and protean narratives of mental dysfunction—where necessary, neurobiology can deliver an individualized account of how battering may have catalyzed a battered woman's actions.

Neurobiological evidence avoids the essentialist criticism because it is capable of transcending racial, economic, and social distinctions to produce individualized conclusions about facts, not defendants. Because of the limitless variations possible, neurobiological evidence shares many features with social framework evidence, which is considered to be a more inclusive method for presenting evidence in battered women's cases. By forcing jurors to wrestle with objective scientific facts regarding the effects of battering, the prejudicial and often discriminatory sympathies of the jury will be diminished in importance—leading to increasingly equitable trials for all battered women. To argue coarsely about the mental health of any defendant would be a disservice when more particular facts could be alleged. Constructing a cohesive argument about the battered woman's past will require both attorneys and experts to become aware of the objective and measurable content of neurobiological evidence.

The gradual displacement of the battered woman syndrome for a more holistic approach focusing on battering and its effects is widely understood to be a welcome sea change. Simultaneously, the increasing awareness of the

325. *Id.* For example, CT scans and quantitative measures of hormone levels lack the visual flair that Brown and Murphy are concerned will bias jurors.

326. See generally Buel, *supra* note 28, at 296-302 (discussing essentialist versus revised models of the battered woman syndrome).

neurobiological effects of battering by physicians and domestic violence advocates will facilitate evidence procurement and interpretation. The meaningful union between battered women's defense jurisprudence and neurobiology would benefit from, but does not necessitate, a modernized philosophy of neurobiology's relationship to the law. As long as courts are willing to disentangle the effects of battering from the traditional conception of the battered woman, defense attorneys can use neurobiological evidence to provide at least a more complete, if not more accurate, understanding of the battered woman's case.