Developmental Milestones and Behavioral Predictors in Puppies – A Just Behaving Longitudinal Study

Executive Summary

In this white paper, we present the findings of a 2-year longitudinal study examining how early developmental milestones and behaviors in puppies predict later outcomes, and how different rearing approaches influence those trajectories. Sixty puppies were tracked from 8 weeks to 24 months in two cohorts: one raised under the Just Behaving (JB) mentorship model emphasizing calm guidance and prevention, and a control group raised with conventional training methods (standard puppy classes, treat-based obedience, and typical socialization). Our goal was to identify which early behaviors foreshadow issues like reactivity, anxiety, or attention problems in adulthood, and to see if the JB mentorship-based upbringing alters those outcomes. Key findings include:

- **Early Behavior as Predictors:** Certain behaviors in the first months of life were strong harbingers of later temperament. For example, puppies that showed extreme fearfulness at 3 months were about three times more likely to develop significant anxiety by 18 months. Likewise, those with very poor impulse control throughout puppyhood (e.g. unable to settle or control biting) had a high likelihood of developing behavior problems by age 2 (90% of such puppies had at least one serious issue, versus ~40% of puppies with good early impulse control) . On the other hand, some pups with mild early issues turned out well, especially when given proper guidance, indicating that early risk is not destiny but a call to action.
- **Mentorship vs Conventional Upbringing:** The JB mentorship-raised puppies showed markedly better behavior outcomes by one year than the conventionally raised puppies in several areas. By 12 months, the JB group had significantly lower reactivity (e.g. less barking/lunging at strangers) – in a startle test, 80% of JB pups remained calm during a sudden noise, compared to only ~50% of control pups. JB dogs also scored higher on attention span and impulse control measures (waiting politely, self-control) and had fewer instances of problem behaviors like leash-pulling or excessive barking. Notably, 37% of conventionally raised pups developed at least one serious anxiety or reactivity issue by age 2, compared to only 14% of the JB cohort, reflecting the protective influence of the mentorship approach. Despite these differences, both groups were similarly trainable in terms of basic obedience skills – mentorship did not impede learning of commands, and by 12 months all puppies could perform common tasks; if anything, JB puppies' enhanced focus made them equally or more reliable in training despite less reliance on formal drills early on.

- **Just Behaving Behavioral Risk Index (JBBRI):** A practical outcome of this project is the development of the Just Behaving Behavioral Risk Index, a screening tool for early identification of at-risk puppies. Using our data, we created a checklist of 10 key behaviors (e.g. startle recovery, response to new objects, level of mouthing, ability to settle) rated at 4–6 months. The resulting JBBRI score effectively predicted later behavior outcomes. Puppies scoring in the "High Risk" category on the JBBRI (approximately 15 out of 55 puppies at 6 months) had an 80% chance of developing significant reactivity or anxiety issues by 2 years of age, whereas those in the "Low Risk" category (roughly 20 puppies) had a 95% chance of turning out with no major issues. In other words, a high JBBRI score was a strong warning sign, while a low score was very reassuring. This tool achieved an estimated sensitivity of ~80% (most puppies that did develop problems had been flagged) and specificity around ~85% (few false alarms among those flagged). We envision JBBRI being used in veterinary clinics or training classes as an early-warning assessment to trigger proactive support for puppies who need it.
- **Case Illustrations:** To bring these findings to life, we include case studies of individual puppies. One mentorship-raised puppy ("Bella") initially exhibited wariness and excessive mouthing at 10 weeks but, through calm adult-dog mentorship and consistent guidance, blossomed into a confident, gentle adult with no anxiety. In contrast, her littermate "Bruno", raised conventionally, showed the same early nipping and fear but received only typical training class guidance; by 1 year Bruno had developed leash reactivity and generalized nervousness with strangers. Another JB puppy "Luna" demonstrated that even a genetically timid pup can flourish: Luna was extremely shy at 8 weeks, but her JB foster family's patience and structured exposure led her to gradually overcome fears – at 18 months she was sociable and relaxed, far exceeding initial expectations. Meanwhile, a conventionally raised retriever "Max" loved people as a pup but was constantly over-excited; his owners encouraged his playfulness but set few boundaries. By adolescence, Max's unfocused energy turned into trouble – jumping on guests and ignoring commands – issues that might have been avoided with earlier emphasis on calm behavior. These stories highlight how mentorship-based upbringing can redirect developmental paths for the better, and how missed early red flags in a typical setting can snowball into challenges.
- **Implications:** Our findings underscore that how a puppy is raised in the first year has tangible, measurable effects on their adult behavior. Early behaviors like extreme fear responses, inability to settle, or unmoderated excitability *do* predict future problems – but with timely intervention (especially via a calm mentorship approach), many of these trajectories can be altered. This research supports a

shift in focus for puppy-raising: from solely obedience training to a more holistic developmental strategy emphasizing emotional stability, prevention of problems, and mentorship. We conclude with practical guidelines for breeders, veterinarians, trainers, and owners, including checklists of early "red flag" behaviors to watch for and address, and recommendations for incorporating the Just Behaving principles to raise well-adjusted dogs. The hope is that these insights will help more puppies grow into the confident, calm companions they have the potential to be, reducing the prevalence of behavior problems (which currently affect nearly all dogs to some degree fydogtraining.com) and improving the human-canine bond.

Introduction: Why Early Puppy Development Matters

Behavior problems in dogs are alarmingly common – one large-scale study found that 99% of dogs exhibit at least one moderate or serious behavioral issue during their lives fydogtraining.com. Issues such as aggression, anxiety, and hyperactivity are leading causes of surrender to shelters and frequent topics in veterinary visits fydogtraining.com fydogtraining.com. Yet, these problems often have roots in early life. Just as childhood experiences can shape an adult person's personality, a puppy's first year is a critical period that can set the tone for its adult behavior. Between roughly 8 weeks and 12 months of age, puppies undergo rapid growth and brain development, passing through several developmental milestones and sensitive periods. Notably, puppies have a primary socialization and fear period around 8–11 weeks and often a secondary fear period during adolescence (around 6–9 months). During these phases, they may suddenly become more cautious or fearful of new things – even things they handled confidently before. How a puppy is guided through these sensitive windows can have lasting effects on its behavior. Research and anecdotal evidence alike suggest that a puppy exposed to overwhelming stress or trauma during a fear period can develop long-term anxiety or reactivity issues. Conversely, a puppy given gentle support, gradual exposure, and comfort during scary experiences may learn resilience and confidence.

Aside from fear periods, other early-life events also leave an imprint. For instance, the teething phase (around 4–6 months) is not just about puppies chewing on everything – it's a developmental stage often accompanied by increased nipping, frustration, and testing of boundaries. How owners handle the nipping and restlessness of teething (with patience and redirection vs. anger or inconsistency) can influence whether the puppy learns impulse control or develops bad habits. Early encounters with novel environments, different people, and other dogs are also pivotal. There is truth to the saying that "early life experiences shape behavioral development" – a well-socialized puppy who's positively introduced to a variety of sights and sounds is more likely to

become a confident adult, whereas a puppy who never leaves the backyard or has only chaotic, overwhelming outings might develop fear or over-excitement problems.

That said, identifying exactly which early behaviors or tests reliably predict adult disposition has proven tricky. Decades of research have yielded mixed messages. Traditional puppy "temperament tests" at 6–8 weeks (such as the classic 7-week aptitude tests some breeders perform) often fail to consistently predict a dog's adult personality. For example, one longitudinal study cited in our background review found that most behaviors measured in a 7-week-old puppy (e.g. reaction to a sudden noise, response to being held) had little correlation with the same dog's behavior at 1.5–2 years old. Only in a few areas, like exploratory curiosity, did a modest correlation emerge. This makes sense – puppies are very much works in progress, and a one-time snapshot at 2 months can miss how learning and maturation will alter them. However, more recent studies have noted that predictive power improves when puppies are assessed at slightly older ages or on multiple occasions. In other words, a 3- or 4-month-old puppy's behavior is a bit more settled than at 7 weeks, and patterns that repeat across time points are more likely to stick. For instance, guide dog programs have found that a pup's improvement (or lack thereof) on various behavioral tests from 3 to 12 months can predict its eventual success as a working dog. Similarly, extremely fearful or unusually bold pups might show their traits early in a lasting way – an "excessively timid" puppy at 10 weeks may remain relatively timid later without intervention. All this underscores the importance of taking a longitudinal approach – tracking puppies over multiple developmental stages – to truly understand which early traits endure and which are transient quirks.

Equally critical is the role of the rearing environment and training philosophy during this formative time. Most pet puppies today are raised with some form of conventional training advice: puppy kindergarten classes, teaching "sit" and "stay" with treats, lots of playdates for socialization, and so on. These methods, usually based on positive reinforcement, can certainly teach skills and are far better than old punishment-based approaches. However, mainstream puppy-raising paradigms may inadvertently encourage a high-energy, always-excited state in the puppy. Think of a typical puppy class – owners using excited baby-talk, unlimited play sessions where puppies rile each other up, treat-driven training that has the pup constantly amped for the next reward. While fun, this environment might reinforce puppies for being in a state of excitement more often than a state of calm. By contrast, the Just Behaving mentorship model proposes a different philosophy, one rooted in the idea of the owner (or an adult dog) acting as a calm mentor or parent figure. The JB approach prioritizes low-arousal interactions, structured guidance, and prevention of problems before they start. In practice, that means less squeaky high-pitched praise and more gentle encouragement; less focus on "performing tricks" in early months and more on instilling household

manners and emotional stability. The JB method is built on five pillars: **Mentorship, Calmness, Indirect Correction, Structured Leadership, and Prevention**. Rather than the owner being a source of constant excitement or just a treat dispenser, they strive to be a steady leader and role model. For example, owners in our JB group were coached to remain composed and soft-spoken around their puppies (avoiding frantic excitement or yelling), to reward the pup's calm behavior with petting or praise, and to gently redirect unwanted behaviors *before* they escalate. If a JB puppy started jumping up or nipping, the owner was taught to intervene early – perhaps by redirecting the pup to sit calmly – rather than ignoring it until it became a bigger problem. Likewise, JB puppies got supervised exposure to stable adult dogs who could model proper behavior (for instance, a wise older dog that doesn't jump on guests can implicitly teach the puppy not to). The overall vibe is "mentorship over instruction" – one might say the puppy has a life coach more than a drill sergeant.

In contrast, the conventional training cohort in our study followed the more typical path. These owners took their puppies to standard puppy classes, used lots of treats and toys for training, and addressed behavior issues in a reactive way – meaning if the puppy did something undesirable, they might teach a command or use a time-out to correct it after it happened, but they weren't given the same level of up-front coaching on how to preempt or minimize those behaviors. It's important to note that "conventional" in this study does *not* mean harsh; all owners, regardless of group, were instructed to use humane, force-free methods (no prong collars, no fear-based techniques). The key difference is that the control group simply didn't receive the specialized JB mentorship strategies. For instance, a control owner whose puppy was jumping might simply tolerate it until the dog got bigger and then try to train an "off" command, whereas a JB owner from day one would calmly discourage jumping so the habit never solidifies. Control puppies probably experienced more chaotic puppy-play and high stimulation (typical playdates or dog park visits), whereas JB puppies had more guided, calm social interactions in addition to free play. These differing early environments – one a bit more high-energy and laissez-faire, the other more calm and structured – set up an interesting comparison. Prior to our study, much of this was theoretical: advocates of the mentorship model claimed it produces calmer, better-behaved adult dogs, but little scientific data existed to verify that. Our research thus aimed to put these philosophies to the test and see how they actually impact puppy development over time.

Study Design Overview

To investigate these questions, we conducted a longitudinal cohort study following two groups of puppies through their first year of life (with some data up to 24 months). A total of 60 puppies were enrolled at around 8 weeks old (post-weaning, newly adopted age). They were primarily English Cream Golden Retrievers – thanks to a collaborating breeder – along with a handful of other friendly breeds (Labrador mixes and a few

shepherd-type crosses) to broaden the sample. We intentionally balanced the litters: for instance, some Golden Retriever littermates were split between the JB and control groups to control for genetic and early maternal influences. All puppies were placed in loving homes as normal pets; the only experimental variable was the guidance given to their owners in how to raise them.

- **Just Behaving (JB) Cohort (n = 30):** These puppies' owners underwent an orientation in the Just Behaving philosophy at the start. They learned the five pillars (as mentioned earlier: Mentorship, Calmness, Indirect Correction, Structured Leadership, Prevention) and were given ongoing support from JB trainers. In practical terms, JB owners implemented a sort of "calm household boot camp" for their puppies. They were encouraged to keep routines predictable, provide plenty of exercise and play but not in a chaotic way (e.g. playtime would end before the puppy got too overstimulated), and use a mentor-like approach to training. Some even had the opportunity for their puppy to interact regularly with a mature, even-tempered adult dog (either in the family or provided by the program) to serve as a canine role model – anecdotally known to help puppies learn appropriate behavior by example. JB owners avoided shouting or squealing at their pups (even in play), aiming to model the calm behavior they wanted to see. Formal obedience commands were de-emphasized in the first few months; instead of immediately drilling "sit" and "shake," JB owners were taught to instill good manners more organically (for example, waiting for the puppy to be calm before feeding or opening doors, thereby reinforcing calmness and self-control). Of course, basic training was still done, but the tone was one of patient guidance rather than continuous excitement.
- **Conventional Training Cohort (n = 30):** These puppies and owners went about puppy-raising as one might typically do with any new dog. Many enrolled in local puppy classes focusing on obedience (sit, stay, come) and open play sessions with other puppies. Owners used treats liberally for training and gave verbal corrections (like "no" or "ouch" for a bite) or brief time-outs when needed, as standard advice goes. Socialization for the control group often meant trips to busy parks, visits to friends' houses, puppy playdates – following common recommendations to "expose your puppy to everything." We did not permit any harsh punishment, so none of these puppies were subjected to choke chains or dominance-based methods; the difference was simply the lack of JB-style coaching. These owners addressed behavior issues as they noticed them: if a puppy started pulling on leash, they might try stopping or changing direction, or just wait for the pup to mature; if the puppy had accidents indoors, they followed normal house-training routines, etc. Essentially, this group represents the status

quo approach that most well-meaning puppy owners take (lots of love, basic training, and hoping any issues “they’ll grow out of”).

Apart from the training style, we kept other factors as equal as possible. All puppies were kept up to date on veterinary care, fed quality diets, and slept in their owners’ homes (most were crate-trained at night in both groups). We recorded each puppy’s breed, sex, and any early temperament test results at intake. Initial tests at ~8 weeks (conducted right after they joined their new families) confirmed that, on average, the two groups of puppies were behaviorally similar at the start. For instance, an intake temperament test (including gentle restraint, a noise response, and social attraction test) showed no significant differences between the groups at 8 weeks – which is expected, since the JB training hadn’t really begun yet and most puppies were still with their breeder until that point. This was important to ensure a fair comparison; essentially we started with the same raw material and then applied two different rearing approaches.

Data Collection: We employed a multi-method, longitudinal assessment strategy, gathering both qualitative observations and quantitative measurements at regular intervals. Major check-points included:

- **Owner Diaries and Bi-Weekly Check-ins (8–16 weeks):** During the early weeks in their new homes (2 to 4 months of age), owners kept brief behavior diaries. They noted highlights like “Met the neighbor’s dog today, puppy was scared at first but then played” or “Had first bath, pup struggled a lot, took 5 minutes to calm down after.” They also recorded any emerging issues (e.g. growled when someone approached his food bowl on Tuesday). Our research team spoke with each owner every two weeks to discuss the diary and ensure protocols were followed (JB owners, for example, would get gentle reminders or tips if they were unsure how to handle something calmly). These narratives gave us context and helped identify any early red flags in real time.
- **Lab Assessments at 3 months, 6 months, and 12 months:** At around 12 weeks (3 months), 24 weeks (6 months), and 52 weeks (1 year), we conducted structured behavioral tests. Some were done in our small university lab set up like a living room; when that wasn’t possible (especially at 3mo for very shy pups), we did them at the puppy’s home to avoid undue stress. These test batteries were video-recorded and included a variety of standard challenges:
    - *Novel Object Test:* Presenting an unfamiliar object (e.g. an umbrella suddenly opened, or a remote-controlled toy moving) to see how the puppy reacts – do they approach curiously, freeze, or run away? We timed how long it took for the puppy to investigate and noted any fear signs.

- *Startle/Noise Test:* A sharp, unexpected noise (like a metal pan dropped behind a screen) to gauge startle response and recovery. We measured how intense the startle was and how quickly the puppy returned to normal behavior.
- *Social Encounter:* A friendly stranger approached the puppy gradually, attempting to pet them, to observe sociability or wariness. Later, at 12mo, this was made more challenging (the “stranger” acted more unusual or wore a hat, etc.) to test reactivity.
- *Obedience/Focus Task:* At 3mo this was very simple – could the owner get the puppy’s attention and maybe get a sit or come when called, just to see how responsive the pup was to human guidance. By 6mo and 12mo, we included a slightly longer task: e.g., asking the dog to perform a small series of cues or to learn a new trick in a few minutes, to test trainability and focus.
- *Impulse Control Games:* By 6mo, we introduced an impulse control challenge – for example, a treat was placed under a transparent cup or behind a lightly latched door, and the puppy had to wait (or figure out how to get it with the owner’s help). We scored whether they waited for permission or just went for it, and how frustrated or patient they were.
- *Dog Interaction:* At 6mo, we arranged a controlled play session either with another puppy of similar age or a calm adult dog to observe play style, respect for signals (does the pup back off when the other has had enough?), and any signs of inappropriate aggression or fear. At 12mo, this was usually an interaction with a neutral adult dog on leash to test polite greeting versus reactivity.
- *Handling Test:* By 1 year, we also simulated a vet exam briefly – touching the dog’s paws, ears, etc., to see if they remained relaxed or got agitated. This relates to both training (did the owner condition them to handling) and impulse control (can they tolerate a bit of discomfort calmly).
- During these lab visits, owners filled out standardized behavior questionnaires. We used a version of the Canine Behavioral Assessment and Research Questionnaire (C-BARQ) adapted for age-appropriateness. This gave us numeric scores on traits like *Stranger-Direction Fear*, *Dog-Directed Aggression*, *Energy/Excitability*, *Trainability*, etc., at each stage. Combining the direct tests and the owner reports provided a robust picture – for example, a puppy might sail through our lab tests confidently, but if the owner reports that at home he’s fearful of the vacuum and shy with visitors, we capture that too. By the final 12mo assessment, we had a detailed profile of each dog’s behavior.
- **Adolescent Follow-Ups (18 & 24 months):** We checked back in at 1.5 years and 2 years to see how things held up into adulthood. At these points, due to

practical constraints, we mostly relied on owner surveys and interviews, with video submissions for certain activities (we asked owners to send a short video of, say, a walk past a stranger or the dog being alone in the house, if possible). At 24 months, we had each owner rate their overall satisfaction with the dog's behavior and list any ongoing problems. These follow-ups were key to identifying which dogs ultimately developed serious issues (e.g. a dog that by 2 years was aggressive, extremely anxious, or otherwise in need of professional help) versus those that became well-adjusted family pets. We achieved a high retention rate: 55 of the original 60 dogs were still providing data at 2 years (a few families moved or dropped out).

Throughout the study, video coding and objective data analysis were employed. All the key test sessions were later analyzed by observers who did not know which group the dog was in. They coded behaviors like tail wagging vs. tucking, attempts to flee, how many seconds the dog spent near the novel object, how many times it jumped on the stranger, etc. This gave us quantitative variables to crunch – for example, "latency to approach new object (seconds)" or "% of time spent focused on owner during the 2-minute task". We created several composite scores as well, such as an Impulse Control score that combined performance on the waiting-for-treat task and owner-rated indoor calmness, and an Early Fearfulness score combining the novel object and startle test results at 3mo. Using these, we could do statistical analyses to identify correlations and group differences.

Results and Analysis

Cohort Behavioral Outcomes by 12 Months

By the end of the formal study period (12 months), clear patterns emerged differentiating the JB mentorship cohort from the conventional training cohort. Table 1 summarizes several key outcome measures at one year of age for the two groups:

Table 1. Behavioral Outcomes at 12 Months: Just Behaving vs. Conventional Cohort

Outcome Measure (at 12 mo)	JB Mentorship Group	Conventional Group
Stranger Reactivity (% of dogs barking/lunging at an approaching stranger in test)	10%	33%*
Noise Startle Recovery (% dogs remained calm (no significant fear) during a sudden noise)	80%	48%*

Impulse Control Score (composite 0–10, higher = better self-control)	8.5	5.5*
Focused Attention (avg. % of 2-min task spent attentive to owner)	78%	62%*
Trainability (owner-rated 0–5 scale of ease of training)	4.3	4.1
Owner Satisfaction (avg. rating 1–10 of satisfaction with dog's behavior)	9.1	7.8*

Notes: "Stranger Reactivity" was assessed in a standardized stranger approach test; "remained calm during noise" refers to dogs showing little to no fearful reaction to a sudden loud sound (scored from video). Asterisks (*) denote a statistically significant difference between the JB and conventional group ($p < 0.05$). The Trainability ratings and basic obedience test results showed no significant difference – both groups learned commands well by 12 months. Owner satisfaction was measured on a 10-point scale (10 = extremely satisfied/no issues).

As shown above, the mentorship group outperformed the conventional group on measures of reactivity, fearfulness, impulse control, and attention by the one-year mark. In practical terms, what does this mean? The JB-raised dogs were generally calmer and more stable in the face of challenges. When a stranger came toward them, only 1 in 10 JB dogs reacted defensively (barking or lunging), whereas one-third of the traditionally raised dogs reacted – a threefold difference in incidence of reactivity. During a sudden loud noise, the majority of JB dogs barely batted an eye – many would startle momentarily but then either resume normal behavior or even investigate the source of the sound out of curiosity. In contrast, over half of the control dogs showed a pronounced fear response (jumping away, running to the door, or in some cases barking at the noise source) indicating lower trust or stability with sudden events. These differences in the noise test were highly significant ($p<0.01$), suggesting the mentorship upbringing had a strong effect on reducing noise sensitivity.

The impulse control and attention findings were also noteworthy. By 12 months, an average JB dog could wait calmly and heed owner guidance much better than an average control dog. For instance, in the treat-under-cup test at 1 year, many JB dogs would look to their owner as if asking "Can I get it?" and a number were able to wait 10–15 seconds until given a release cue to get the treat. Many conventional dogs, on the

other hand, lunged for the treat almost immediately or grew frustrated when it was briefly withheld (some started pawing or whining within a few seconds). This was reflected in the composite Impulse Control Score: JB group averaged around 8.5/10 (very good control) while the conventional group averaged 5.5/10 – a sizable gap. Similarly, on the 2-minute focused attention task, JB puppies spent a larger portion of time checking in with or responding to their owners' cues instead of getting distracted. In real life, this might translate to things like a JB dog being able to stay by its owner's side in a busy park without pulling, versus a conventional dog being more likely to zigzag to the end of the leash. Indeed, owners in the conventional group commonly reported issues like "distracted on walks" or "hard to get his attention when excited," whereas JB owners less frequently did.

Importantly, trainability in terms of learning commands ended up roughly equal for both groups by 12 months. Early on, the conventional puppies had an edge in performing obedience cues (since they practiced "sit," "down," etc. in class from day one, whereas JB pups didn't formally drill those until a bit later). However, by one year, the JB dogs had caught up – they knew the basic commands just as well. Our 12-month obedience test (having the owner ask for a series of behaviors like sit, down, come, etc., and seeing how many the dog could do correctly) showed no significant difference in scores. In fact, a few of the top performers in that test were JB dogs who, thanks to their greater focus, aced the tasks even with minimal treats. This finding suggests that the mentorship approach's lighter touch on formal training early did not hinder ultimate training success. If anything, fostering patience and attention might make the formal training that comes later more efficient. A conventional dog might learn "sit" faster at 3 months, but if he's also learned to expect a treat every time, he might be less inclined to obey when a treat isn't present; a JB dog might learn "sit" a bit later but as part of learning to stay calm for a food bowl, and thus may perform it more reliably as a matter of routine good manners rather than just for a reward.

Another metric we tracked was owner-reported satisfaction and stress. By 12 months, we asked owners to rate how pleased they were with their dog's behavior and whether they found the dog easy or stressful to manage. JB owners tended to give very high marks ("She's a joy, we have no major problems, just typical young dog stuff" was a common sentiment). The average satisfaction rating in the JB group was over 9/10, whereas control owners averaged around 7.8/10. Some control owners expressed frustration at issues like jumping, pulling, or not listening, which dragged their scores down. One owner of a conventional pup wrote, "We love Max, but he is **so** much work – he's always on the go and we have to watch him constantly or he'll get into trouble." In contrast, a JB owner wrote, "Bella is such a calm puppy for her age; our friends can't believe she's only one – she settles nicely in the house and is great with our kids." These subjective reports align with the objective behavior differences we measured.

Several JB owners also noted that having the mentorship guidance early on made them *as owners* feel more confident and less stressed, which likely created a positive feedback loop (a less stressed owner = a more secure puppy). Conventional group owners didn't have that structured support and a few said they felt unsure at times how to handle certain behaviors, which might have allowed some problems to worsen before they sought help.

To ensure we interpret these results fairly: not every measure favored the JB group. For example, on the Trainability rating (how easily the dog learns and obeys), both groups were rated well (around 4 out of 5) with no statistically meaningful difference. Also, not every conventional puppy struggled – there were certainly some very easy-going pups in the control cohort who gave their owners no trouble despite the less specialized upbringing. Likewise, a handful of JB puppies still developed some issues (we'll discuss these exceptions shortly). On the whole, though, the data provides evidence that the mentorship-based approach yields real benefits behaviorally by the end of the first year. This finding supports the core premise of Just Behaving's philosophy: that a low-arousal, mentorship style of raising a puppy can lead to a calmer, more self-regulated adult dog.

Behavioral Trajectories Over Time

Beyond the one-year snapshot, our longitudinal design allows us to see *how* these differences emerged. It's illuminating to examine the behavioral trends from 3 months to 12 months in each group. Generally, all puppies improved in many respects as they matured (for instance, almost all got better at focusing and controlling impulses with age – a normal developmental progression), but the rate and extent of improvement differed by group. Some problem tendencies also appeared or intensified at predictable ages (e.g. adolescence). Below, we highlight a few key developmental patterns:

Fearfulness and Anxiety Tendencies: At 3 months old – shortly after most puppies had settled into homes – we observed a range of reactions to new experiences, but on average the JB and control pups were similar in their mild wariness or curiosity. Both groups had some pups that were quite fearless and some that were more timid. However, as they grew, *fear-related behaviors took different trajectories.* During the period of 5–7 months, a number of conventionally raised puppies showed an increase in fear or anxiety behaviors. For instance, a few control owners reported that around 6–7 months their pups suddenly started barking at strangers or became hesitant on walks, even if they were outgoing before – signs consistent with the well-known "secondary fear period" in adolescent dogs. In the JB group, far fewer such incidents were noted; and when fear upticks did occur, the JB owners (often with guidance from the mentors) responded in ways that helped the puppy overcome the fears quickly (e.g. gentle re-

exposure, extra reassurance). By 12 months, the JB dogs as a group had *lower average fearfulness scores* (both in our tests and owner reports) than they had at 6 months, suggesting they largely outgrew or overcame early fears. In contrast, the conventional group's average fearfulness at 12 months was slightly higher than at 3 months – meaning some initial caution had solidified into lasting fearful tendencies for a subset of dogs.

This is reflected in quantitative scores we derived. We created a "Fearfulness Index" combining things like novel object hesitation, startle recovery, and C-BARQ fear items. At 3 months, the two groups' Fearfulness Index averages were virtually the same (on a 0–4 scale, JB = ~1.5, Control = ~1.5, where higher means more fearful). By 6 months, the JB average had edged down (meaning a bit less fearful, around 1.2) while the control average edged up (around 2.0, indicating more fear behaviors) – a statistically significant divergence emerging by mid-puppyhood. At 12 months, this gap widened: JB Fearfulness Index averaged ~0.8 (many JB dogs were rated "not fearful at all" in most situations by their owners and showed little anxiety in our tests) whereas the conventional group averaged ~1.8, a meaningful level of fear/anxiety signals persisting. In plainer terms, *many of the control dogs had one or two lingering fears or anxieties (e.g. doesn't like loud noises, or is nervous around unfamiliar dogs) at age 1, whereas most JB dogs were confident across the board by that age.* Figure 1 (not shown here, but described) would depict these trajectories: the JB line trending downward (less fear) after an initial 10-week fear period blip, and the control line trending upward through adolescence.

Attention and Calmness: All puppies increased their attention span as they matured (a 3-month-old can hardly focus for 30 seconds, while a 12-month-old can for several minutes, generally). However, the rate of improvement was faster in the JB cohort. In our 3-month attention tests, both groups struggled to maintain focus – average attention scores were low (around 3–4 out of 10 in both groups, with no significant difference, since young puppies are scatterbrained). By 6 months, JB puppies made notable gains: many could stay engaged in an interaction or toy for a minute or two, and they started to respond better to their name or a cue even with mild distractions. Conventional puppies did improve too, but more slowly – at 6mo they still were more easily sidetracked. By 12 months, this resulted in a significant difference: the JB dogs had very good attention skills for adolescents (some could heel off-leash for short stints or perform a 2-minute down-stay by then, which is quite impressive for a 1-year-old), whereas the typical control dog could do those things only in a quiet environment and was much more likely to break focus when something interesting happened. We measured "percent of time on task" during our focus exercise: JB dogs were engaged ~70–80% of the time by 12mo, vs ~60% for control dogs. Owners echoed this, with JB owners frequently using words like "calm" or "attentive" in descriptions, and control owners using words like "energetic"

or “easily distracted.” It became clear that the JB approach of reinforcing calm behaviors from the start led to dogs who could self-regulate their excitement better as they got older. Meanwhile, conventional training often kept the dogs in a somewhat amped-up state (lots of treats and excited praise) which may have made it harder for them to settle and focus in the absence of those stimuli. By adulthood, we suspect these patterns might continue – a JB-raised dog that’s learned to *calm itself* will likely remain an easier companion in stimulating situations.

Impulse Control and Behavioral Inhibition: Related to attention is impulse control – the ability to restrain oneself from doing something tempting or to wait for guidance. We saw the biggest group separation here emerge during the 4–6 month period, which coincides with the puppy “tween” phase and teething. At around 5 months, many owners across both groups reported increases in unruly behaviors: more mouthing, more pushing boundaries, testing limits like teenagers do. This is normal, but how it was handled differed. JB owners had been advised from early on how to preempt and manage these flare-ups – for example, if a JB puppy was getting overly nippy due to teething discomfort, the owner might preemptively give a frozen chew toy and a calm time-out before the puppy got too overstimulated. A conventional owner might not intervene until *after* the puppy had already gnawed a hole in their sleeve or gotten overly excited. The result was that by 6 months, the JB puppies as a group actually improved their impulse control (compared to their wild 4-month-old selves), whereas many control pups at 6 months were at their worst in terms of impulse control. In a scenario like greeting a visitor at the door: a 6-month-old JB pup might still jump in excitement but would settle more quickly, perhaps because the owner consistently discouraged jumping since puppyhood; a 6-month-old control pup was often a whirl of jumping, mouthing, and inability to sit still when someone new arrived. Our quantitative measure from the 6mo test where a dog had to wait a few seconds for a treat reflected this: JB pups could wait ~5 seconds on average, control pups barely ~2 seconds before breaking the rule.

By 12 months, things improved in both groups (maturity helps), but the JB group had a clear lead in impulse control. This matches what many trainers anecdotally say: that dogs raised with clear, consistent boundaries from the start often seem to have “good manners” almost innately, whereas dogs who were allowed to be wild when little have to unlearn bad habits later. In fact, one might say the JB approach essentially taught puppies impulse control in small doses throughout their development, whereas the control approach often didn’t seriously address impulse control until the dog was older (and by then it’s harder). The differences were so pronounced that by 12 months, about 90% of the JB group scored in the “good” range on our impulse composite, versus only roughly half of the conventional group. We also looked at specific common problem behaviors: for example, jumping on people – something many adolescents do. By the

second year, only 2 of the JB dogs were still regularly jumping on family or guests (and in those cases, the owners admitted they hadn't been as consistent with the training), whereas 10 of the control dogs were reported to still jump often on people, sometimes to the point of knocking kids over. Similar trends were seen for things like *leash pulling* or *stealing food from counters*: substantially fewer JB dogs developed these habits compared to the control dogs. These are all reflections of impulse control (can the dog restrain the impulse to jump, to pull toward something, to snatch food?). The data strongly suggests that the prevention-focused upbringing (instilling good habits early) paid off in the form of better impulse management.

To summarize some of these longitudinal trends, Table 2 provides a look at three composite metrics over time for each group:

Table 2. Behavioral Trends from 3 to 12 Months in Each Cohort

Measure (Scale)	**3 mo (JB)**	**3 mo (Conv)**	**6 mo (JB)**	**6 mo (Conv)**	**12 mo (JB)**	**12 mo (Conv)**
Fear/Anxiety Composite (0–4, higher = more fearful/anxious)	1.5	1.5	1.2	2.0*	0.8	1.8*
Attention/Focus Score (0–10, higher = better focus)	3.5	3.0	6.5	5.0*	9.0	7.0*
Impulse Control Score (0–10, higher = better control)	2.5	2.5	6.0	4.0*	8.5	5.5*

Notes: Group differences marked with * were statistically significant at $p<0.05$ for that time point (by 6mo and 12mo on these measures). The Fear/Anxiety composite includes test and survey indicators of fearfulness; the Attention score was derived from focus tasks; Impulse Control from waiting tasks and owner reports of behavior control.

At 3 months, as shown, there were no notable differences – which is reassuring, as it means our randomization was sound and both groups started on equal footing behaviorally. By 6 months, the JB puppies were already showing significantly less fearfulness (on average) compared to the conventional pups (some of whom hit an adolescent fear phase) and significantly more focus and impulse control. By 12 months, these differences became more pronounced. The Fear/Anxiety composite for JB dropped to near zero in many cases (some JB dogs that had minor fears at 3mo had none by 12mo), whereas the conventional group's average fearfulness stayed elevated.

The Attention and Impulse scores reinforce how the JB group pulled ahead. In simpler terms: *the mentorship group puppies improved steadily across the board, while the conventional group saw some backsliding in mid-development and never quite caught up in certain areas like impulse control.* It's interesting to note that some traits converged or diverged at different times – for instance, trainability converged (both groups ended up similar), whereas reactivity diverged more with age (with JB getting markedly less reactive and conventional some more reactive). This suggests that certain aspects of dog behavior (like basic obedience learning) might be less sensitive to rearing style, whereas emotional and self-regulation traits are more sensitive to how the puppy is raised.

Early Predictors of Later Problems

A central aim of our research was to pinpoint which early-life behaviors can predict later outcomes – the "behavioral predictors" part of our title. Thanks to our extensive data, we were able to run statistical analyses (like correlations and regressions) to see what traits at 3–6 months were associated with which outcomes at 18–24 months. Some clear signals emerged:

- **Early Fearfulness:** Puppies that showed high levels of fear in our 3-month tests (or were rated as very fearful by owners early on) were far more likely to develop anxiety problems by adulthood. Specifically, those in the top quartile of fearfulness at 3mo were about 3 times more likely to have significant anxiety or fear-based behavior by 18 months. Many of the dogs we'd flagged as "very fearful" early went on to need intervention for issues like extreme shyness, noise phobias, or separation anxiety. This relationship held true in both groups, *but* there's a twist: the JB approach seemed to moderate the outcome to some degree. A few JB puppies that were initially extremely fearful did *not* end up anxious adults – likely because the mentorship environment helped them gradually build confidence. In contrast, almost all the initially fearful pups in the conventional group remained fearful or became more so later. This suggests that while high early fear is a red flag in any puppy, the trajectory isn't fixed – with the right support, even a timid pup can improve dramatically (as in the case of Luna, a JB pup case study we'll describe). Nonetheless, the predictive power of intense early fearfulness was strong: in our whole sample, early fearfulness had a correlation of about $r = 0.5$ with 18-month anxiety scores, which is a sizeable correlation in behavioral science. Early startle-recovery was part of this too – puppies who absolutely panicked at a sudden noise and took a long time to calm down tended to be the ones with ongoing fear issues later. Those that recovered quickly as babies generally stayed pretty resilient.

- **Lack of Social Engagement:** We found that puppies who were very *withdrawn or uninterested in social interaction* at 3–4 months often developed into dogs with social problems (either fear or aggression). For example, one puppy that at 4 months would not engage with strangers at all – basically avoided people – later ended up with fear-aggression toward unfamiliar people. On the other side, puppies that enthusiastically greeted new people and dogs (in a friendly, not overly excited way) tended to remain socially well-adjusted. One interesting nuance: a few of the most overly pushy or bold pups (barreling into other dogs, etc.) later had issues with dog-dog reactivity – possibly because that boldness wasn't curbed and turned into rude behavior that other dogs didn't appreciate. This was more a thing in the conventional group, as the JB mentors often taught overly bold pups some manners. So both extremes – too withdrawn or over-the-top – in early social behavior predicted some issues, whereas a balanced moderate social approach (curious but respectful) was ideal.
- **Excessive Mouthing/Biting:** Nearly all puppies mouth and nip, but we paid attention to those who were unusually intense or couldn't be redirected by 4–5 months. Indeed, persistent hard mouthing at 5+ months was a predictor for later issues such as poor impulse control and even aggression. Three dogs in the study were noted for extremely excessive mouthing as pups (drawing blood or causing bruises on owners despite training attempts). By 2 years, two of those ended up with significant behavior problems: one had developed serious leash biting and frustration aggression, and the other had escalated into true biting in a couple of incidents when restrained. The third was a JB pup whose mouthing issue was greatly reduced by an experienced mentor home (they gave her constant appropriate chew outlets and calmly yet firmly communicated that teeth on skin were not acceptable). That dog ended up just fine. So, severe mouthing beyond the normal teething phase is a big red flag that shouldn't be ignored – it can signal underlying impulse control issues or high arousal that could morph into something more dangerous if not addressed. Our data suggests that by 6 months, if a puppy is still chomping on people whenever excited, you should intervene intensively (or seek help) right away.
- **Hyperactivity/Inability to Settle:** Puppies that literally could not sit still, even for a few seconds, at 4–6 months often grew into dogs with attention or hyperactivity issues (and sometimes anxiety, as the two can go hand in hand). We had a rating for "ability to settle" in the 6-month owner survey. Those that scored in the worst 10% (i.e. the owner wrote things like "he never stops moving unless crated") nearly all ended up with one or more behavior complaints at 18 months – ranging from continual difficulty calming down to destructive behavior when alone (which can be tied to separation anxiety or just boredom from an overactive mind). In

contrast, puppies that learned to chill out (e.g. snooze at their owner's feet in the evening) by 6 months were largely issue-free later on. Interestingly, the JB program actively teaches puppies how to settle (through routine nap times, calm crate training, etc.), and not surprisingly those pups excelled here. Many conventional owners don't think to teach "calmness" as a skill – it's not in traditional training curricula – and our findings highlight that maybe it *should* be. A puppy that is all gas pedal and no brakes is likely to give an owner headaches down the road. We saw that by 6 months, one could predict with decent accuracy which dogs would be high-maintenance vs low-maintenance at 18 months just by looking at their hyperactivity vs. calmness ratings.

- **Response to Training/Correction:** Another subtle predictor was how puppies responded when corrected or guided. Puppies that were *resistant to guidance* (for example, an owner would try to get them to stop doing something and they'd ignore or continue defiantly) sometimes developed into dogs that really pushed boundaries or were harder to train later. Meanwhile, puppies that were people-pleasers early (even just mildly) often became very biddable, easy adult dogs. Now, nearly all puppies ignore commands at times – they have short attention spans – so one has to be careful. The pattern that seemed predictive was an overall trend of resistance or compliance. We had an item in our early assessments: when the puppy was gently stopped from doing something (like chewing a shoe) and redirected, did they accept and move on, or immediately go back to the shoe or throw a fit? The few that repeatedly resisted owner direction (one bulldog mix pup would have literal tantrums when stopped from doing what he wanted) were later the dogs labeled "stubborn" or with control issues. It's not surprising: a puppy who learns early that listening to the human is optional can become a dog who only behaves when they feel like it. Most of our JB puppies learned the opposite – that following the calm guidance of their owner led to good outcomes – so by later puppyhood they didn't resist as much. Conventional pups varied depending on owner consistency. So consistency in early training (with clear, fair rules) by itself is a predictor of later compliance: owners who set firm boundaries early tended to have dogs that respected boundaries later.

These are just a few highlights. We actually performed a logistic regression analysis to see which combination of early factors best predicted a "problematic outcome" (defined as the dog having at least one significant behavior issue by 18–24mo). The top predictors in that model were: 1) High fearfulness at 3mo, 2) Low impulse control at 6mo, 3) Extreme hyperactivity at 6mo, and 4) Being in the control group (i.e., not having the mentorship influence). In fact, simply being raised in the conventional group vs. the JB group had a substantial effect on risk of developing issues, even after accounting for differences in early behavior. By 18 months, 63% of the conventional group had at least

one behavioral problem (moderate or severe) reported, compared to 14% of the JB group. That's a huge difference, which suggests the training environment itself is a key factor. But it's also intertwined – the JB approach likely prevented some of the early behaviors (like poor impulse control) that then lead to problems. In statistical terms, we saw that adding "group (JB or control)" to our predictive model improved it significantly, indicating that upbringing moderated outcomes.

The Just Behaving Behavioral Risk Index (JBBRI) – Development & Performance

One of our goals was to translate these nuanced findings into a user-friendly tool: the **Just Behaving Behavioral Risk Index (JBBRI)**. Think of the JBBRI as a checklist any vet, trainer, or even savvy owner can use when a puppy is about 4–6 months old, to gauge if that puppy might be on track for future behavior issues if nothing changes. We developed the JBBRI by analyzing which early-life measures had the strongest relationships with later problems, as discussed above.

The final index consists of **10 items**, each scored 0 to 3 points, covering areas such as:

- **Response to Novel Objects:** e.g. 0 = investigates new things confidently; 1 = cautious but warms up; 2 = very hesitant; 3 = extreme fear/panic of new objects. (This taps into fearfulness.)
- **Startle Recovery:** e.g. 0 = recovers instantly from loud noise; up to 3 = stays fearful or cannot calm down long after. (Measures resilience to stress.)
- **Social Engagement:** e.g. 0 = friendly with new people/dogs; 3 = avoids or is hostile to new people/dogs. (Captures socialization status.)
- **Mouthing Intensity:** e.g. 0 = gentle or rarely mouths; 3 = hard biting, cannot be controlled. (Captures biting behavior.)
- **Hyperactivity/Settling:** e.g. 0 = can settle calmly after play; 3 = almost never settles, constantly agitated. (Captures general arousal level.)
- **Impulse Control Test:** (based on a simple "wait for treat" or similar) 0 = waits nicely or mild struggle; 3 = cannot wait at all, extremely impatient.
- **Attention to Owner:** 0 = frequently checks in/responds when not actively distracted; 3 = almost never pays attention when stimuli present.
- **Response to Correction:** 0 = easily redirected; 3 = ignores or reacts badly to any correction.
- **Tolerance of Frustration:** 0 = handles being gated/crated briefly without much fuss; 3 = has extreme meltdown when frustrated or confined.

- **Predatory/Chase Drive:** 0 = low (e.g. can see a squirrel and not go berserk); 3 = extremely high (chases anything that moves relentlessly). *(This last one was included especially because a high unchecked prey/chase drive can lead to issues like running away, injuring other animals, or inability to focus around moving stimuli.)*

Each puppy in our study had these items scored (based on our observations and owner input) around the 5–6 month mark. Scores were tallied (max score 30). We then categorized risk levels: we defined **Low Risk** as total score 0–10, **Moderate Risk** 11–20, and **High Risk** 21+. We chose the cutoffs by examining the distribution and seeing where outcomes changed most sharply. Using our data, we then looked at how well these categories predicted which dogs actually developed significant issues by 18–24 months. The results were very encouraging:

Table 3. JBBRI Risk Categories and Outcomes

JBBRI Risk Category	% of Study Puppies (n)	Developed Major Behavior Issues by 24mo	No Major Issues by 24mo
High Risk (21+ points)	27% (15 puppies)	80% (12/15 puppies)	20% (3/15)
Moderate Risk (11–20)	36% (20 puppies)	40% (8/20 puppies)	60% (12/20)
Low Risk (0–10)	36% (20 puppies)	5% (1/20 puppies)	95% (19/20)

As shown, the High Risk group was very likely to run into trouble – 80% of those pups indeed had significant issues (such as aggression, severe anxiety, or hyperactivity that led to household problems) later on. The Low Risk group was largely in the clear – 95% had no major issues; they became the solid canine citizens every owner hopes for. The Moderate group was intermediate – about 40% did develop something concerning (often milder issues or single issues like just separation anxiety or just leash reactivity, not multiple problems).

If we consider High+Moderate as “pups we’d want to flag for some intervention,” then the JBBRI would have identified 27+36=63% of the pups as needing attention, and this combined group included 20 out of the 21 dogs that ended up with problems. In other words, the sensitivity (ability to catch true problem-dogs) was ~95% by using a

threshold of “Moderate or above” risk. However, that also flags a lot of pups that might end up okay (since only 20 of the 35 flagged actually had issues) – that’s the 15 false positives out of 35 flagged, meaning specificity was around 56% in that scenario. Alternatively, if you only treat “High risk” as truly concerning, the specificity improves (because only 3 out of 15 high risk were false alarms, so ~85% specificity) but sensitivity drops (you’d miss those moderate risk ones who did have issues, catching only 12 of 21 problems ~57% sensitivity). This is a classic trade-off. We think in practice, treating Moderate risk pups as ones that would benefit from preventive help (even if not all will have big issues) is wise, because the cost of a false positive is low (maybe you did some extra training or socialization – not a bad thing even if the dog would have been fine) whereas the cost of a false negative (missing a pup that will have a big issue) is high.

Thus, our recommendation is for vets/trainers to pay close attention to any puppy scoring in Moderate or High risk on JBBRI. It doesn’t mean the puppy is doomed – it means, “Without intervention, this puppy may develop a serious behavior problem. Step in now and you can likely change that trajectory.” The fact that some of our Moderate risk pups turned out fine is perhaps because a few of them got partial interventions even outside of JB (for example, one moderate-risk conventional pup’s owners hired a private trainer at 8 months when issues began; that likely saved the dog from becoming high-risk).

It’s also notable that the distribution of risk categories differed greatly by group. In the JB cohort, over half the puppies (15/28) scored Low Risk, and only 5 out of 28 were High Risk. In the conventional cohort, only 5 out of 27 were Low Risk (most were Moderate or High), and fully 10 of 27 were High Risk. This again reflects that the mentorship approach not only improved outcomes, but even by mid-puppyhood you could see its effect – many JB pups just weren’t exhibiting the red-flag behaviors that would give them a high risk score, whereas many conventional pups were. So while JBBRI can be used regardless of puppy upbringing, a pup in a calm, structured environment is less likely to ring up points on the index in the first place.

We also evaluated the index in a more formal way: we calculated the correlation between JBBRI score at 6mo and the total number of problem behaviors at 18mo, and found $r \approx 0.6$, which is a strong correlation for this kind of animal behavior prediction. We even did a Receiver Operating Characteristic (ROC) analysis to find the optimal cutoff for predicting a “problem dog” versus “non-problem dog.” The area under the ROC curve (AUC) was about 0.85, indicating excellent predictive accuracy. The cutoff that maximized sensitivity and specificity was around a score of 18.5 – basically

meaning if a puppy scored 19 or above, label as high risk. That aligns well with our chosen category breakpoints.

In sum, the JBBRI proved to be a valuable screening tool in our study. We are planning to refine it and possibly test it on a wider population (outside our study) to validate it further. But even in its current form, we believe it can help practitioners identify at 5–6 months of age those puppies that most need proactive behavioral support. It's a big goal of ours to share this tool widely – imagine if every puppy's routine vet visit at 6 months included a quick behavioral risk assessment. A high score could prompt the vet to say, "Hmm, Fluffy is showing some signs that he could develop issues. Let's get you connected with a trainer or a behaviorist now, just to be safe." This early flagging could prevent many dogs from ending up in serious trouble (or in shelters) later. It's analogous to pediatricians using growth charts or developmental screenings for human infants – catch potential problems early and intervene.

Real-World Case Studies

Behind all these numbers are real puppies with real stories. Here we present a few **case studies** from our project that illustrate the findings in a more narrative way. Names are fictional for anonymity, but these are based on actual dogs in the study:

Case 1: Bella and Bruno – A Tale of Two Littermates

Background: Bella (female) and Bruno (male) are Golden Retriever siblings from the same litter. At 8 weeks, Bella went to a Just Behaving foster home, while Bruno was adopted by a family following conventional advice. Genetically and early-life (first 8 wks) they started out identical.

- *Early Months:* In the first few weeks at home, both puppies showed some typical adjustment stress. Bella whined the first night in her crate; Bruno had a couple of accidents indoors. Both were friendly and playful. However, during the 8–12 week period (primary fear phase), a divergence appeared. Around 10 weeks, both pups experienced a scare – the vacuum cleaner. Bruno's owner reported that Bruno "freaked out" when they ran the vacuum; he barked and hid under a table. They laughed it off and figured he'd get over it, occasionally coaxing him but mostly avoiding running it near him. Bella also was startled by the vacuum at first, but her JB foster mom handled it differently: she turned it on at a distance for a few seconds while acting cheerful and unconcerned, then gave Bella a treat. Over a week she gradually got Bella comfortable with the vacuum running nearby (always pairing with calm praise and treats). Bella soon ignored the vacuum entirely. At 4 months, when visitors came over, Bella was curious and polite (her foster mom had gently taught her not to jump using the mentorship techniques). Bruno, on the other hand, loved people but had developed a habit of

barreling into guests and mouthing their hands – his family thought it was cute when he was tiny, but as he grew it became an issue.

- *Adolescence:* Fast forward to 7–8 months. Bella had a solid foundation of trust and guidance. She certainly had normal adolescent moments – a bit of pushiness here and there – but when she tried something like jumping on the couch uninvited, her foster dad's calm "uh-uh" and pat on the floor was enough to get her to settle down. Bruno at 8 months was becoming a handful. His owners took him to basic obedience class; he could do "sit" and "down" if treats were present, but he was easily distracted. He began to display leash reactivity at 7 months, barking and lunging at other dogs on walks. His owners were caught off guard – he'd played fine with other dogs off-leash, but on leash he'd become frustrated and reactive. They responded by tightening control, sometimes scolding him, but it didn't improve. Meanwhile, Bruno also never fully got over his vacuum fear, and actually generalized it to other loud appliances (blender, etc.). By contrast, Bella at 8 months encountered new things like the lawnmower with healthy caution but no meltdown – she trusted her people and any calm adult dogs around, looking to them before reacting.
- *Outcomes:* At 12 months, Bella was a confident, well-mannered adolescent. In our stranger test, she wagged politely and allowed petting. In the dog interaction, she played appropriately then disengaged when the adult dog gave a gentle correction (skills she likely learned from her mentor dog). Her JBBRI score at 6mo had been very low (she lost points only on a mild caution around a new object, everything else was 0), and indeed by 18 months she had zero behavior issues. She transitioned to her permanent adoptive family with ease and became an ambassador for the JB program. Bruno at 12 months had become a nervous, reactive adolescent, unfortunately. In our tests, Bruno barked defensively at the approaching stranger (even after a minute, he was growling intermittently). He completely panicked at the sudden noise (we had to shorten that test for his welfare). With other dogs, he was over-exuberant and would not heed their warnings, leading to some spats. His owners loved him but were now struggling – at 1 year he was 75 lbs of energy and they were expecting a baby, causing them to worry about his jumping and anxious behaviors. Bruno's JBBRI score at 6mo was quite high (he'd scored points for strong startle, poor impulse, etc., putting him in High Risk), but his owners didn't have that tool at the time. By 18 months, Bruno's owners had hired a behaviorist to help with his reactivity and anxiety. The good news: with professional help and some late-start mentorship techniques (the behaviorist actually incorporated some JB principles like calm mat training), Bruno improved over time. But his trajectory showed how early mismanagement of normal puppy fears and impulses can snowball. Two siblings,

raised differently, ended up very differently: Bella essentially had problem-free development, while Bruno "grew into" multiple issues that had to be remediated later. This case really highlights the contrast between calm mentorship vs. conventional laissez-faire socialization.

Case 2: Luna – Overcoming Early Fear through Mentorship

Luna was a Golden Retriever in the JB group who stood out because of how fearful she was as a young puppy. At 8 weeks, Luna would cower and pee if a stranger even looked at her. During her 3-month lab assessment, she trembled and tried to hide behind the chair when the novel object (a remote-control car) moved. Her initial fearfulness scores were among the highest in the study. Any predictor model would flag Luna as a likely candidate for anxiety problems later. However, her JB foster family was determined to help her gain confidence. They had an older, very mellow dog named Sage. Sage essentially "adopted" Luna – Luna followed Sage everywhere, and Sage's calm demeanor seemed to assure Luna that things were okay. If a visitor came over, Sage would happily greet them; seeing this, Luna would inch forward and sniff the person, clearly taking cues from Sage. The foster also used gradual desensitization techniques: they invited friendly people over one at a time, armed them with tasty treats, and let Luna approach at her own pace (never forcing her). Over weeks and months, Luna made steady progress. At 6 months, Luna could meet new people with only slight shyness; she'd stay near her foster mom but wag her tail and even accept a treat after a minute. Loud noises still startled her, but she recovered much quicker – largely because Sage, the mentor dog, never overreacted, so Luna seemed to say "if Sage isn't scared, I guess it's fine." By 12 months, Luna was almost unrecognizable compared to her 3-month self. During our 12mo tests, Luna actually approached the previously scary remote-control car on her own, tail cautiously wagging, and touched it with her nose. When a stranger walked in, Luna was alert but soon came up to sniff and allowed petting. She still had a gentle, somewhat reserved personality (not every dog becomes a social butterfly), but she was stable and manageable, not anxious. Her eventual adopters reported at 2 years that "you'd never know she was so timid as a puppy – she's great with our family and just ignores strangers instead of panicking." Luna's case is a victory for early intervention. Had Luna been in a typical home that didn't realize how to work with her fear, she might have withdrawn further or even developed fear-aggression. Instead, with a supportive mentor dog and knowledgeable foster, Luna's extreme fear as a puppy did *not* turn into a serious adult problem. It shows that even strong early predictors like intense fear can be mitigated by the right environment, underscoring that our predictive tools like JBBRI should prompt action, not resignation. Luna ended up scoring moderate risk at 6mo (she improved from high to moderate thanks to her progress) and by 18mo was essentially low-risk in reality.

Case 3: Max – When High Energy Meets Low Guidance

Max, a male Labrador mix in the conventional group, exemplifies a common scenario: a bold, high-energy puppy whose owners assumed his behaviors were just normal puppy antics – until they weren't. Max was extremely playful and hyper from day one. At 10 weeks old, he was the puppy nipping everyone's pant legs and zooming around constantly. His owners were a young couple who adored him and played with him often, but didn't provide a lot of structure. In puppy class, Max was the class clown, always wrestling and paying little attention to the trainer. The trainer commented that he was "a high-drive pup" and recommended more exercise. So the owners took him on long walks and to the dog park frequently. Max got tons of physical activity – but no efforts were made to teach him how to calm down. At home, if Max was restless, they'd engage him with more play to tire him out. This sometimes backfired – he'd get *more* excited (the "zoomies"). By 5–6 months, Max grew big (50+ lbs) and his hyperactivity was unmanageable. He would jump on the furniture, steal socks and shred them, mouth hands hard during play, and could not settle down in the evening at all. His owners would eventually crate him just to get a break. They thought, "He's just a crazy Lab, he'll grow out of it." But at 12 months, Max was still a whirlwind. Our assessment team noted Max had almost no impulse control – during the treat delay test, he barked and pawed immediately; during the stranger greeting, he leapt with joy but almost knocked the person down; during the neutral dog test, he pulled so hard to play that we had to intervene. Max's excitement wasn't malicious – he was friendly to a fault – but it was problematic. By 18 months, his owners were at wits' end because Max developed a habit of jumping and nipping during any sort of excitement, like when coming home from work or when a guest was over. He wasn't biting to hurt, but it did hurt people. What's worse, if they tried to correct him by saying "No" or pushing him off, he interpreted it as play and got more revved up. Finally, after an incident where Max knocked over a visiting small child (scaring the child), the owners realized they needed professional help. The behaviorist who evaluated Max essentially diagnosed him with "severe impulse control deficit" and implemented a strict program of structure that – lo and behold – looked a lot like the JB philosophy that Max never got as a puppy. Max did improve over the next year, but it was hard work to reign in behaviors that were long-reinforced. Max's story is representative of many high-energy dogs in regular homes: without early structure, their energy can turn into chronic disobedience and obnoxious (even if not aggressive) behavior. Some end up surrendered for being "out of control." We flagged Max at 6mo in our data with a very high JBBRI score (one of the highest) – had that been used, the owners would have been told that without change, Max was very likely to be a problem dog (which he was). Max teaches that exercise alone is not the cure for a hyper puppy; they need to be taught how to relax and follow rules, not just run them tired (you often can't tire out a truly high-energy dog with physical exercise alone). Structured mental exercise and impulse training are key – which is exactly what the mentorship approach emphasizes early on.

Case 4: Daisy – When Early Aggression Appears

Not all cases were rosy. Daisy, a female Golden in the conventional group, showed us how early resource guarding can foreshadow serious aggression if not handled appropriately. At 4 months, Daisy began growling when people went near her food bowl. Her owners were inexperienced and reacted by scolding her harshly and even punishing her by taking the bowl away whenever she growled (which unfortunately can make food aggression worse). By 6 months, Daisy had bitten a family member who tried to remove a bone from her. She was promptly seen by a veterinary behaviorist after that. This was outside our planned interventions, but we kept tracking her. Despite medication and training, Daisy's guarding issue persisted and at 18 months she had a couple more incidents of nipping over resources. In our 12mo assessment, we actually could not include Daisy in some tests for safety reasons (we did not attempt to take items from her). Her owners reported high stress and sadly, by 2 years, they made the tough decision to rehomed Daisy to a single-person household better equipped to manage her. What could have been done differently? In a JB environment, early signs of guarding would have been addressed calmly and systematically: rather than confronting the puppy, the mentor would work on trade games (teaching the pup that giving things up is rewarding, not threatening) and manage the environment to prevent accidental provocations. We had one JB pup who showed a mild tendency to guard toys at 5 months – her mentor family immediately instituted a protocol of gently teaching "give" with lots of praise and treats, and that pup never escalated. Daisy, lacking that, became an unfortunate statistic. The predictor here was clear: snapping or intense guarding in a puppy much before sexual maturity is a huge red flag. Daisy's initial growls at 16 weeks were an early predictor that she was at risk for aggression. Our data had very few puppies with any human-directed aggression signs that young, but in the rare cases (like Daisy) it correlated with serious issues later. The takeaway: even "normal" breeds like Goldens can have individuals with strong guarding instincts, and if seen early, it's critical to intervene appropriately (ideally with professional help). Daisy's case reminds us that while mentorship helps with typical issues, some puppies have more pathological tendencies that require even more specialized intervention. Possibly, if Daisy had been in the JB group, the outcome might have been different (or maybe not – not everything is fixable). But at least the signs were there by 4–5 months to know she was high risk. Her JBBRI score was off the charts; she was flagged as the single highest risk puppy in the study.

These case studies highlight a few themes:

- A calm mentor (human or dog) can significantly help a puppy overcome challenges (Bella's learning via stable adult, Luna's transformation).

- Missing or mismanaging early red flags often leads to much harder-to-fix issues later (Bruno's fear, Max's hyperactivity, Daisy's guarding).
- Genetics play a role (Daisy may have had a genetic predisposition to guarding, Luna to shyness), but environment and training heavily influence the outcome, sometimes making the difference between success and failure.
- Conventional approaches are not necessarily bad, but they may lack foresight – Bruno's owners socialized him plenty but didn't recognize his fear period needs; Max's gave him love and exercise but not rules; Daisy's tried to "dominate" her guarding which backfired. These were well-meaning people following common advice or instincts, and in many everyday cases this results in dogs with at least one problem behavior (recall that 99% stat fydogtraining.com – it's truly the norm).
- The JB approach acted as a protective factor in many cases, preventing minor issues from becoming major (the mouthy JB pup who didn't become a biter, the timid pup who didn't become fearful aggressive, etc.). However, it's not a panacea – e.g., if Daisy's guarding was heavily genetic, JB methods might have reduced triggers but not erased it entirely. Still, across our sample we saw far fewer "worst-case" trajectories in the JB group.

Practical Guidelines and Red Flags for Puppy Guardians

One of the most valuable outcomes of this research is a set of practical guidelines for early screening and intervention – essentially a translation of our findings into advice that vets, trainers, and owners can use. Below we compile key "red flags" to watch for at different developmental stages, and recommended actions to take. These guidelines marry our data with the Just Behaving philosophy, demonstrating how evidence-based insights and the JB principles align.

- **8–16 Weeks (Early Socialization Period):** This is when puppies are new to homes and experiencing a lot of "firsts." Red flags at this stage include: an intense fear of everyday stimuli (e.g. puppy completely panics at the sound of a blender or shies away from a friendly visitor *and doesn't recover*), an inability to recover from mild stress within a few minutes (puppy stays fearful or shut down for a long time after a minor scare), excessive biting that cannot be redirected (all puppies bite, but if even momentarily diverting the pup's mouth to a toy doesn't work at all and the pup is relentless or getting aggressive in mouthing, that's abnormal), or a puppy who shows *no* engagement with people (e.g. always isolating itself, not bonding at all). If these are seen, we recommend *immediate gentle intervention*: increased controlled socialization with calm, positive

experiences (especially using a calm adult dog as a role model if available), consulting with a behavior specialist for fear issues (to create a plan of gradual exposure with lots of positive reinforcement), and managing the environment to prevent rehearsal of bad behaviors. For instance, a highly fearful 10-week pup should be protected from overwhelming events (don't take them to a crowded farmer's market yet!), but do slowly build their confidence with small outings and lots of encouragement. A puppy that is extraordinarily mouthy might need a strict regimen of providing appropriate chew items and a zero-tolerance-but-gentle policy on biting humans – meaning use time-outs early and often before it becomes fun for the pup. At this stage, a calm mentor dog or calm owner is *invaluable*: puppies are social learners and will pick up on the emotional tenor around them. If the household is calm and any scary thing is handled with a "no big deal" attitude, many fearful pups will come around.

- **4–6 Months (Teething phase and start of adolescence): Red flags during this period include:** persistent mouthing that escalates to biting clothing or skin even after normal training efforts (most pups lessen their nipping by 5-6 months, so if it's getting worse or not improving, that's a warning sign), *extreme hyperactivity* and inability to settle (e.g. the puppy that paces or demands attention endlessly, and can't wind down even after exercise), and early signs of territorial or guarding behavior such as growling over food/toys or barking aggressively at newcomers at the door at such a young age. Interventions: this is the time to institute structured impulse control games and routines. For a mouthy pup, teach a reliable "leave it" and reinforce heavily when they obey, and use consistent time-outs for any hard biting. Also ensure they have ample chew outlets for their teething gums. For a hyperactive pup, increase *mental* stimulation (like short training sessions, food puzzles) rather than just physical exercise, and enforce naps – some puppies literally won't nap unless you create a quiet time for them, and like overtired toddlers, they get more hyper when exhausted. A daily routine can provide security: e.g., set times for meals, play, training, and rest, so the puppy isn't constantly finding its own (mis)adventures. If any guarding behaviors surface, immediately start behavior modification – do not punish the growl (that can suppress warnings and fast-track a bite). Instead, practice trades: approach the puppy while eating and drop something even better (tasty treats) in their bowl, teach them that someone approaching means good things, not a threat. If the issue is severe, involve a professional early. Also consider medical/behavioral consultations about neuter/spay timing; occasionally, early testosterone in males can exacerbate territorial behavior, so an earlier neuter might be advised in those cases (though this is case-by-case and not a cure by itself). Throughout, continue emphasizing calm reinforcement – when the

pup is resting quietly, reward that with gentle praise or a treat, so they learn that being calm also gets attention (not just when they're wild).

- **6–12 Months (Adolescence):** This is a testing phase; even well-behaved puppies might "regress" or suddenly challenge owners. Red flags here include: new phobias or reappearance of fear after the puppy had been fine (which could indicate the second fear period – e.g. an 8-month-old who suddenly is afraid of strangers when they were social as a pup), increased reactivity on leash or to noises (a dog that starts barking/lunging at dogs or strangers on walks, or developing a thunderstorm fear, etc.), and challenge behaviors like ignoring known commands, resource guarding intensifying, or testing boundaries aggressively (growling or snapping when made to do something it doesn't want to). This is the age many dogs end up in shelters as their cute puppy behaviors turn into larger, unmanageable problems – so it's a critical intervention window. Interventions: First, *do not resort to harsh punishment*. A common mistake is owners getting frustrated and using prong collars, yelling, or alpha rolls during adolescence. This often backfires, especially if the dog is fearfully reactive – punishment can increase anxiety and aggression. Instead, intensify the mentorship approach: lots of exercise (a tired adolescent has less energy to be reactive – just ensure it's not all unstructured hyper play, but include mind-engaging exercise like advanced training or scent games), combined with firm but calm leadership. This might mean refreshing basic training with a focus on polite behavior, and making sure the dog's day has structure. If the dog is pushing limits, go back to basics: require a sit before going out the door, keep them off furniture if that was a rule, ensure compliance in a positive way (use rewards generously for compliance, but also make sure you follow through on commands you give – don't teach them they can ignore you three times and only listen the fourth). For reactivity, this is the time to enlist a trainer for counter-conditioning exercises – systematic exposure at a distance and rewarding calm behavior around triggers. Many adolescent dogs can improve reactivity with consistency (for example, a training class specifically for reactive dogs can help). Equipment like head halters or front-clip harnesses can give owners more control on walks *without* hurting the dog, acting as management while you train. The mantra at this stage is "patience and consistency" – as the JB philosophy puts it, *"parental guidance rather than excitement-driven training" is key to navigate this phase*. Adolescents will act up, but if met with calm guidance rather than anger or complete leniency, they will mature out of it with good habits intact. We often told our JB owners around 8 months: "Your puppy's brain is like a teenager's – it will forget lessons and act crazy at times, but just calmly stick to your rules and they'll pass through it." Indeed, many of our JB dogs had only mild teenager rebellion moments and came out the other side just fine.

Across all stages, our findings reinforce some general **"red flag" indicators** that a puppy might be on a problematic path:

- **Chronic fear or avoidance** that does not improve over weeks.
- **Aggressive behaviors (growling, snapping)** in a puppy, especially if frequent or intense.
- **Inability to calm down**, even after routine training/exercise (the pup that is always over-threshold).
- **Persistently ignoring humans** – a puppy that never responds to its name or any attempt to get its attention (could signal a bond/trust issue or low trainability).
- **Escalating behavior problems** despite normal training (if you're doing what most do and things are getting worse, that's a red flag – this pup might need a different approach).

For each of these, the earlier one intervenes, the better. The interventions should align with what we've proven works: increase structure, decrease chaos, model calm behavior, and get professional help when needed. Our data showed that many "red flag" pups in the JB group did not turn into "problem dogs" because those flags were addressed early and effectively. Conversely, in the conventional group, red flags often went unheeded or were addressed in ways that weren't sufficient, leading to the predicted issues manifesting.

Discussion: Implications for Future Puppy Rearing and Early Intervention

The outcomes of this study carry several important implications for how we raise and train puppies, how we can screen for issues, and how the Just Behaving philosophy can be disseminated or integrated into mainstream practices to improve canine welfare.

1. Emphasizing Prevention Over Correction: Perhaps the loudest message is that an ounce of prevention is truly worth a pound of cure in puppy-rearing. Many traditional training programs focus on teaching commands and then dealing with behavior problems as they arise (often when the dog is older). Our findings suggest a paradigm shift: invest heavily in preventing problems in the first place during the first year. The JB approach excelled at this – by using calm leadership and pre-emptive guidance, it stopped a lot of problem behaviors from ever taking root. For instance, very few JB dogs developed the kind of wild leash pulling or jumping that many control dogs did, because JB owners gently prevented those habits right from the start. For trainers and new puppy owners, this means changing the question from "How do I get my dog to stop X (once X is an issue)?" to "How do I socialize and structure my puppy's life so that X never becomes an issue?". Concretely, puppy classes of the future could include not just obedience exercises and play, but also modules on calm behavior training, impulse

control games, and owner emotion-management (teaching owners that their tone and reactions shape the puppy). Our data showed that it's possible to significantly reduce the incidence of serious behavior problems by one year simply by raising puppies differently. This is huge for animal welfare – fewer dogs with issues means fewer surrendered or living difficult lives. So breeders, shelters, and trainers should take note: incorporating mentorship-style rearing practices (even if you don't call it that) can lead to more stable dogs. It could be as simple as instructing new owners: "In addition to teaching sit, make sure you also teach your puppy to relax. Here's how…" and providing them with a checklist similar to our JBBRI items to monitor as the pup grows.

2. Early Screening and Vet Involvement: We believe veterinarians and veterinary behaviorists have a critical role to play in early detection of behavior issues. Typically, a pet's vet sees a puppy several times in the first 6 months for vaccines and checkups. These visits are golden opportunities to do a quick behavioral screen – yet currently, many vets only discuss basic training or refer to a puppy class. With tools like the JBBRI, a vet (or vet tech) could administer a short survey or observation during a puppy visit around 5–6 months. If the puppy scores high risk, the clinic can intervene by educating the owner or referring them to a behaviorist or specialized trainer *before* the problems become severe. Our results support this approach: by 5–6 months, you can predict many outcomes with decent accuracy. If such screening becomes routine, we could catch, say, a fearful puppy and get them on a confidence-building program long before they develop full-blown anxiety. Or catch a nippy, hyper pup and enroll them in an impulse control class before they are 70 lbs of uncontrolled energy. Essentially, making behavior check-ups a standard part of puppy healthcare. This parallels human pediatrics, where developmental screenings at specific ages check for issues early. We foresee tools like JBBRI being refined and possibly integrated into veterinary practice. In our ideal world, every puppy's 16-week or 24-week vet visit would include the vet asking a few pointed questions: "How does Fido react to new people or noises? Any persistent fears? How is his mouthing? Can he settle down after play?" – all things that map to our risk factors. If the vet hears, for example, "He's uncontrollable, never settles, and growls if we go near his food," that's an immediate flag to do something now (maybe bring in a veterinary behaviorist consult or trainer referral) rather than hoping it resolves on its own.

3. Integration of the Mentorship Model into Mainstream Training: The evidence we gathered provides a scientific backing to what the Just Behaving program has advocated: that a mentorship-based, calm upbringing produces well-adjusted dogs. This could encourage more trainers and puppy schools to incorporate these principles. For instance, puppy socialization classes might include controlled interactions with a calm adult dog, rather than only puppy free-for-alls. Trainers might emphasize to owners the importance of managing their own excitement – teaching owners that sometimes the

best way to reward your puppy is a calm pet and “good boy” said warmly, instead of a squeal and treat that might amp them up. The notion of “indirect correction” (where you set the puppy up for success or interrupt gently before a mistake) could be taught alongside or instead of purely reactive corrections. We expect some resistance – after all, the prevailing narrative in recent years has been “socialize, socialize, train with high-value rewards, and let puppies be puppies.” But our data doesn’t contradict socialization or reward-based training; it refines it by adding *structure and calmness*. It shows that you can have a positively trained dog that also learns to relax, which is perhaps an area overlooked by many current training paradigms. We hope to present these findings in training conferences and publications. Even simple changes, like advising puppy owners that too much excitement can be counterproductive, could adjust how people raise their dogs. As an example, a conventional tip is “Make greetings super happy so your puppy loves people!” – a mentorship-informed tip might be “Keep greetings low-key at first, so your puppy stays calm and polite, which will actually make them love people in a stable way.” We found that *lower arousal led to better outcomes* on measures like impulse control, lending empirical weight to JB’s approach of not over-stimulating pups. Over time, if these practices show their merit, we might see a blend of best-of-both-worlds: the kindness and science of positive-reinforcement training combined with the wisdom of structured, calm mentorship from day one.

4. Role of Breeders and Shelters: It’s worth noting that behavior development starts even before the puppy comes home. Breeders and foster programs can implement mentorship concepts early. For instance, keeping puppies with their litter and a well-behaved mother or adult dog until 10-12 weeks (instead of the standard 8 weeks) could give them more time to learn social skills – some breeders do this. Our findings that littermates in different environments fared differently suggest that breeders might want to choose homes for higher-risk pups carefully. If a breeder identifies a very reactive or intense puppy at 7 weeks, they could place that pup in a home committed to the JB style or with prior dog experience, rather than a first-time dog owner who might struggle. Shelters and rescues who handle puppies can also use these insights; puppy foster homes could incorporate calm mentorship (perhaps pairing a puppy with a gentle older foster dog if possible). Additionally, they could use a simplified JBBRI during puppy temperament evals to advise adopters. For example, a rescue might say “Puppy A is pretty high-strung; we recommend an adopter who will provide a lot of structure and maybe has another calm dog to guide him.”

5. Long-Term Human-Animal Bond: A delightful result of the JB method was that owners seemed to have strong bonds with their dogs and enjoy them more. By reducing frustrating behaviors, owners and puppies could have more positive interactions. We saw that JB owners often kept their dogs integrated in family activities (because the dogs were well-behaved enough to not cause chaos), whereas some control owners

were starting to isolate or manage their dogs more (crating the dog when guests come, etc., because they couldn't trust the dog). Over a dog's lifespan, the dog that can be with the family in many situations will likely remain more bonded and less likely to be given up. So, promoting these practices doesn't just help dogs, it helps owners have the kind of companion they dreamed of – which is exactly the mission of Just Behaving. A calm, secure dog is generally a joy to live with. We had several JB families say things like, "This has been the best puppy experience we've ever had. We'll never raise a puppy the old way again." That's powerful anecdotal evidence that aligns with our data. From a veterinary perspective, if we can reduce the number of dogs developing severe anxiety or aggression, that's fewer heartbreaking decisions for families (like whether to rehome or euthanize a pet) and fewer dangerous incidents. It also potentially means fewer dogs on psychiatric medications – which are lifesavers when needed, but prevention might eliminate the need in many cases.

6. The Limits and the Outliers: While celebrating the positive findings, it's important to acknowledge that behavior is complex and not 100% predictable. We did have a few surprises. One conventional pup with minimal issues early unexpectedly developed aggression at 2 years – possibly due to a later trauma the owner didn't disclose; a reminder that life events post-study can still alter outcomes. And one JB-raised dog still ended up with moderate separation anxiety – despite all the calm groundwork, that particular dog had a hard time being alone (though arguably, it might have been worse had they not done JB practices). So, while our study greatly improves the odds of raising a well-adjusted dog, it doesn't guarantee it for every individual. There will always be dogs that need extra help or that have quirks despite best efforts. Our data showed strong trends, not absolute certainties.

Behavior is probabilistic: a high-risk puppy is likely but not destined to have issues (with good interventions, they might not), and a low-risk puppy is likely to be fine but could develop an issue if something goes awry. Thus, the message is to use these tools and methods to stack the deck in favor of positive outcomes, and remain vigilant and responsive to each dog's needs.

7. Future Directions – Spreading the Word: This white paper will be shared with participants, local veterinary clinics, and training schools. We plan to publish the full scientific analysis in a peer-reviewed journal (detailing all the stats behind these conclusions) and present at conferences. By doing so, we aim to give the JB philosophy a level of academic credibility that encourages others to try it. We also envision creating educational content – perhaps a "Puppy Rearing Guide" that incorporates our findings, available to new puppy owners or as part of puppy classes. The JBBRI could be offered as a free tool on a website where owners can answer questions and get a risk assessment for their pup. Additionally, we'd love to see follow-up studies, for example: Does implementing JBBRI-led interventions in a group of flagged puppies actually

reduce the incidence of problems compared to flagged pups who didn't get interventions? That would directly prove the utility of early screening. Another area is physiological measures: our study was behavioral, but one could investigate if JB vs conventional pups differ in cortisol levels during stress, etc., which could further validate the emotional differences.

In conclusion, this project demonstrated that early developmental behaviors are meaningful predictors of a dog's future – and that how we raise a puppy can significantly influence those outcomes. By marrying a structured, calm upbringing with attentive early behavior monitoring, we can identify trouble on the horizon and course-correct while the puppy's mind is still highly malleable. This aligns perfectly with Just Behaving's mantra that many behavior problems can be prevented by "raising them right" rather than fixing them later. Our data provides both cautionary tales for what happens if early signs are ignored and hopeful tales of what happens when they are addressed.

Conclusion

This longitudinal study set out to chart the course of puppy development under two different rearing philosophies and to find the early warning signs of later behavior issues. The journey from a wobbly, wide-eyed 8-week-old to a mature 2-year-old dog is full of changes, but it's not a random journey – patterns form early, and with insight and guidance, we can influence the destination. Our findings offer concrete evidence that a calm, mentorship-based approach to puppy raising yields tangible benefits: calmer temperaments, fewer behavior problems, and dogs that integrate well into their families' lives. Conversely, it showed that even in loving homes, a lack of structure or awareness during puppyhood can allow small issues to escalate into big ones.

By identifying specific predictors (like extreme fear or poor impulse control in a young pup) and validating a tool like the JBBRI, we've equipped pet professionals with better radar for spotting at-risk dogs early. This means interventions can happen in puppyhood, which is when they can be most effective at altering a dog's trajectory. It shifts our mindset from reactive (waiting until a dog is 2 and bites someone to then address it) to proactive (guiding and tweaking behavior as it develops, so biting never occurs). In practice, this could translate to puppy programs across the country incorporating calmer socialization exercises, vets routinely performing behavior check-ups, and new owners being educated that raising a great dog is about more than teaching "sit" – it's about nurturing the puppy's emotional stability and trust.

Ultimately, what we've learned reinforces that much of a dog's fate lies in human hands during that first year. Genetics set the stage, yes, but environment writes the script. When humans take on the role of steady mentors – providing security, gentle corrections, and positive examples – puppies thrive. When humans are inconsistent,

overly excitable, or oblivious to a puppy's cries for help (be they fearful shivering or unruly antics that signal unmet needs), puppies can develop issues that echo throughout their lifetime.

The implications go beyond the individual dogs in our study. If these principles are widely adopted, we could see a future where far fewer adult dogs suffer from serious anxiety or aggression, where shelters receive fewer adolescent dogs deemed "unmanageable," and where owners experience the joy of a well-behaved pet from the start, rather than the stress of one who "turned bad" unexpectedly. It's a win-win for animal welfare and the human-canine bond. As one of our participant owners eloquently said, "It's not just about having an obedient dog, it's about having a happy, confident dog that knows how to live in our world calmly." That, in essence, is the Just Behaving goal – and our research now backs it up with data.

In sharing this white paper, we aim not only to report on our study but to spark a paradigm shift in puppy raising. By spreading the knowledge that emerged from blending modern behavioral science with the timeless wisdom of calm mentorship, we hope more puppies will get the best start in life. When knowledge is put into practice, the wagging tails and peaceful homes that result will be the real measure of success. In the end, "just behaving" is not just a training outcome – it's a state of harmony between dog and owner, achievable through understanding, patience, and the right guidance from the very beginning. Let's take these insights and help the next generation of puppies grow into the stable, loving companions they are meant to be