

# PHOSPHORUS: THE SILENT THREAT IN CKD — INFOGRAPHIC OVERVIEW

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## Phosphorus: The Silent Threat in CKD

Why it matters, what to eat, and how to control it

A PATIENT GUIDE FOR CKD AND DIALYSIS



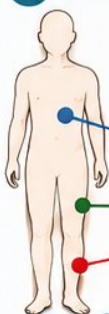
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Phosphorus is essential for life — but in CKD it can quietly damage bones, harden blood vessels, worsen itching, and speed kidney failure.



### 1 What is phosphorus?



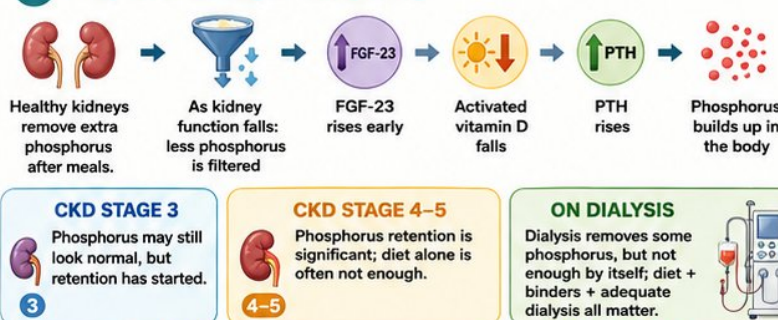
Builds bones and teeth, helps energy production (ATP), and supports vitamins and enzymes.

- About 85% is in bones and teeth
- 14% is in soft tissue
- Less than 1% is in blood

**YOUR BLOOD TEST MEASURES LESS THAN 1% OF TOTAL BODY PHOSPHORUS.**

**i** A "normal" blood phosphorus may be misleading early in CKD.

### 2 Why CKD changes everything



#### CKD STAGE 3

Phosphorus may still look normal, but retention has started.

#### CKD STAGE 4-5

Phosphorus retention is significant; diet alone is often not enough.

#### ON DIALYSIS

Dialysis removes some phosphorus, but not enough by itself; diet + binders + adequate dialysis all matter.

**HD removes only about 800–1000 mg per session, while 1000–1400 mg may be absorbed daily.**

### 3 What high phosphorus does to your body



#### Bone disease (CKD-MBD)

High phosphorus raises PTH, pulls calcium from bone, causes weak, brittle bones and fractures.



#### Vascular calcification

Calcium-phosphorus deposits harden blood vessels, raising heart attack and stroke risk.



#### Faster CKD progression

Phosphorus and high FGF-23 harm remaining kidney cells.



#### Severe itching

Phosphorus crystals in skin can worsen pruritus, especially on dialysis.

**EVERY 1 mg/dL ABOVE TARGET IS LINKED TO ABOUT 18% MORE CARDIOVASCULAR EVENTS.**

### 4 Food guide: not all phosphorus is equal

**ORGANIC PHOSPHORUS** from natural foods  
ABSORBED ABOUT 40–60%

**VS.** **INORGANIC PHOSPHORUS** from additives  
ABSORBED ABOUT 90–100%

#### A. LIMIT OR AVOID

- Organ meats
- Sardines, bangus, dried fish (tuyo, daing)
- Processed meats: tocino, longganisa, hotdog
- Processed cheese
- Evaporated milk
- Instant noodles
- Cola soft drinks
- Pumpkin/sunflower seeds, peanuts in large amounts

#### B. BETTER EVERYDAY CHOICES

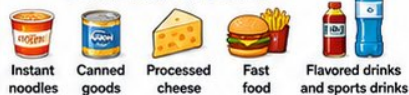
- White rice
- Pandesal
- Bihon or sotanghon
- Freshly cooked chicken or fish in renal portions
- Sayote, kalabasa, sitaw, upo in renal-friendly portions
- Black coffee, plain tea, calamansi juice without additives
- Rice milk without phosphate additives

### 5 Hidden phosphorus: the real trap

Watch for ingredients containing "phos" such as:

- Phosphate
- Phosphoric acid
- Sodium phosphate
- Calcium phosphate

#### COMMON HIDDEN SOURCES



Phosphate-containing enemas or bowel-prep products can be dangerous in CKD.

### 6 Phosphate binders: timing is everything



- ✓ Phosphate binders trap phosphorus in the gut before it is absorbed.
- ✓ They work only when taken with food.

**TAKE BINDERS WITH THE FIRST BITE OF EVERY MEAL AND LARGE SNACK.**

A binder taken on an empty stomach does nothing.

### 7 Know your target

- Serum phosphorus target: **2.5–4.5 mg/dL**
- In dialysis patients, aim toward the lower end.
- Levels above 5.5 mg/dL significantly raise risk.

Ask your nephrologist about your phosphorus, calcium, and PTH.

### 8 Daily phosphorus control checklist

- ✓ Take binders with the first bite.
- ✓ Choose fresh foods more often.
- ✓ Avoid processed foods with phosphate additives.
- ✓ Read labels for "phos."
- ✓ Keep dialysis adequate and don't skip sessions.
- ✓ Track your phosphorus labs regularly.



**BEST PHOSPHORUS STRATEGY IN CKD:** EAT FRESHER FOODS, AVOID PHOSPHATE ADDITIVES, TAKE BINDERS CORRECTLY, AND KNOW YOUR TARGET.



Full infographic from [williamriveromd.com/guides/phosphorus-ckd.html](http://williamriveromd.com/guides/phosphorus-ckd.html) — Pages 2–5 contain the complete food reference tables.

# PHOSPHORUS: THE SILENT THREAT IN CKD — PHOSPHATE BINDERS & TARGET LEVELS

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## PHOSPHATE BINDERS: WHICH ONE, WHEN, AND HOW TO TAKE IT

Binders must be taken **WITH** meals — not before, not after — to block phosphorus absorption in the gut

| Calcium Carbonate                                                                                                                                                                                | Sevelamer (Renagel)                                                                                                                                                                                    | Lanthanum Carbonate                                                                                                                                                              | Al(OH) <sub>3</sub>                                                                                                                                                                       | Ferric Citrate                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Generic; Tums (OTC)</p> <p><b>500-1500mg with each meal</b></p> <p>+ First-line; inexpensive; locally available everywhere</p> <p>- Avoid if Ca&gt;10.2 or vascular calcification present</p> | <p>Sevelamer HCl/CO<sub>3</sub></p> <p><b>800-1600mg with each meal</b></p> <p>+ Preferred if hypercalcemia; non-calcium binder; lowers LDL</p> <p>- Expensive; large tablets; constipation common</p> | <p>Fosrenol</p> <p><b>Chew 500-1000mg with each meal</b></p> <p>+ Chewable tablet; good for patients with swallowing issues</p> <p>- Very expensive; limited PH availability</p> | <p>Aluminum hydroxide</p> <p><b>Short-term only; with meals</b></p> <p>+ Emergency use only; very effective rescue binder</p> <p>- Aluminum toxicity with prolonged use — max 4 weeks</p> | <p>Auryxia/Riona</p> <p><b>210mg iron/tablet with meal</b></p> <p>+ Treats both phosphorus AND iron deficiency simultaneously</p> <p>- Darkens stools; may reduce ESA dose needed</p> |

**CRITICAL RULE:** Take binder **WITH** the first bite of every meal — not before, not after. Skipped meals = skip the binder.

## KDIGO 2024 — TARGET SERUM PHOSPHORUS & KEY CLINICAL NOTES

| Patient Type                 | P Target              | Ca×P Target | Action / Priority                                        |
|------------------------------|-----------------------|-------------|----------------------------------------------------------|
| CKD Stage 3 (eGFR 30–59)     | <b>3.5–5.5 mg/dL</b>  | <55         | Diet; monitor FGF-23; binders usually not yet needed     |
| CKD Stage 4–5 (eGFR <30)     | <b>3.5–5.5 mg/dL</b>  | <55         | Binders with every phosphorus-containing meal            |
| Hemodialysis (HD)            | <b>2.5–4.5 mg/dL</b>  | <55         | Diet + binders + 3×/week HD; dialysis alone insufficient |
| Peritoneal Dialysis (PD)     | <b>3.5–5.5 mg/dL</b>  | <55         | Binders still required; more liberal diet possible       |
| Alarm threshold — all stages | <b>&gt; 7.0 mg/dL</b> | >72         | Urgent review; parathyroidectomy if PTH refractory       |

### CALCIUM × PHOSPHORUS PRODUCT: Ca (mg/dL) × P (mg/dL) must stay below 55 mg<sup>2</sup>/dL<sup>2</sup>.

Above this threshold, mineral deposits form in blood vessels, heart valves, and soft tissues.

*If phosphorus is controlled but calcium is high → switch from calcium carbonate to sevelamer (non-calcium binder).*

### DAILY PHOSPHORUS CONTROL CHECKLIST (FROM GUIDE SECTION 8)

- ✓ Take binders with the **FIRST BITE** of every meal and large snack
- ✓ Choose fresh foods more often — less processing = less inorganic phosphorus
- ✓ Avoid processed foods with phosphate additives (look for "PHOS" on ingredient labels)
- ✓ Read labels for "phos" — any ingredient containing it = inorganic phosphate = 90–100% absorbed
- ✓ Keep dialysis sessions adequate and do not skip sessions
- ✓ Track your phosphorus labs every month — ask for your result at every session

### TELL ALL DOCTORS YOU HAVE CKD BEFORE ANY BOWEL PREP OR ENEMA.

Phosphate-containing enemas and bowel-prep products can cause fatal hyperphosphatemia in CKD.

**TARGET: 800-1,000 mg phosphorus / day for CKD Stage 3+ — HD patients aim for the lower end**

**ORGANIC phosphorus (natural food) = 40-60% absorbed | INORGANIC (additive) = 90-100% absorbed**

Values are total phosphorus per serving. Cooking method (boiling vs frying) significantly affects effective absorption.

| Food Item (Filipino / English)                 | Serving          | P (mg) | % of 800mg | Risk    |
|------------------------------------------------|------------------|--------|------------|---------|
| <b>SEAFOOD &amp; FISH</b>                      |                  |        |            |         |
| Dried fish / tuyo (daing na bangus)            | 1 piece (~50g)   | 300    | 38%        | EXTREME |
| Tinapa / smoked fish                           | 1 piece (80g)    | 280    | 35%        | EXTREME |
| Sardinas sa lata (with bones)                  | 1/2 can (70g)    | 290    | 36%        | EXTREME |
| Tahong / green mussels                         | 6 pcs (90g)      | 250    | 31%        | HIGH    |
| Talaba / oysters                               | 6 pcs (90g)      | 236    | 30%        | HIGH    |
| Hipon / shrimp (boiled)                        | 100g             | 220    | 28%        | HIGH    |
| Pusit / squid (grilled)                        | 100g             | 210    | 26%        | HIGH    |
| Bangus / milkfish (fried)                      | 100g             | 195    | 24%        | HIGH    |
| Bangus (boiled, broth discarded)               | 100g             | 120    | 15%        | MOD     |
| Tilapia (fried)                                | 100g             | 185    | 23%        | MOD     |
| Tilapia (boiled, broth discarded)              | 100g             | 115    | 14%        | MOD     |
| <b>MEAT, POULTRY &amp; ORGAN MEATS</b>         |                  |        |            |         |
| Atay / liver (beef or pork)                    | 100g             | 360    | 45%        | EXTREME |
| Bato ng baboy / pork kidney                    | 100g             | 280    | 35%        | EXTREME |
| Utak / brain                                   | 100g             | 300    | 38%        | EXTREME |
| Longganisa / chorizo                           | 2 links (80g)    | 200    | 25%        | HIGH    |
| Tocino (cured pork)                            | 100g             | 200    | 25%        | HIGH    |
| Hotdog / frankfurter                           | 2 pcs (90g)      | 185    | 23%        | HIGH    |
| Spam / luncheon meat                           | 2 slices (56g)   | 140    | 18%        | HIGH    |
| Embutido (processed roll)                      | 1 slice (60g)    | 165    | 21%        | HIGH    |
| Corned beef (canned)                           | 1/2 cup (100g)   | 150    | 19%        | HIGH    |
| Baboy / pork (fried / inihaw)                  | 100g             | 200    | 25%        | HIGH    |
| Manok / chicken (fried)                        | 1 pc thigh (90g) | 185    | 23%        | HIGH    |
| Karne ng baka / beef (broiled)                 | 100g             | 185    | 23%        | HIGH    |
| <b>DAIRY PRODUCTS</b>                          |                  |        |            |         |
| Processed cheese (Eden, Quickmelt)             | 2 slices (40g)   | 260    | 32%        | EXTREME |
| Evaporated milk (Alaska, Carnation)            | 1/2 cup (120mL)  | 270    | 34%        | EXTREME |
| Fresh milk / pasteurized                       | 1 cup (240mL)    | 250    | 31%        | HIGH    |
| Condensed milk (sweetened)                     | 2 tbsp (38g)     | 115    | 14%        | HIGH    |
| Kesong puti / fresh white cheese               | 50g              | 190    | 24%        | HIGH    |
| Ice cream                                      | 1 scoop (80g)    | 100    | 12%        | MOD     |
| Yogurt (plain)                                 | 3/4 cup (170g)   | 215    | 27%        | HIGH    |
| <b>BEANS, LEGUMES &amp; NUTS</b>               |                  |        |            |         |
| Monggo / mung beans (cooked)                   | 1/2 cup (100g)   | 156    | 20%        | HIGH    |
| Mani / peanuts (roasted)                       | 1/4 cup (36g)    | 138    | 17%        | HIGH    |
| Pili nuts                                      | 1/4 cup (30g)    | 130    | 16%        | HIGH    |
| Kasuy / cashew nuts                            | 1/4 cup (35g)    | 168    | 21%        | HIGH    |
| Chickpeas / garbanzos (cooked)                 | 1/2 cup (82g)    | 138    | 17%        | HIGH    |
| Tokwa / tofu firm                              | 100g             | 190    | 24%        | HIGH    |
| Tokwa / tofu silken                            | 100g             | 100    | 12%        | MOD     |
| <b>GRAINS TO LIMIT (whole grain varieties)</b> |                  |        |            |         |
| Brown rice                                     | 1 cup (195g)     | 150    | 19%        | MOD     |
| Whole wheat bread                              | 2 slices (60g)   | 130    | 16%        | MOD     |
| Oatmeal (instant)                              | 1 packet (40g)   | 130    | 16%        | MOD     |
| Corn flakes / cereals                          | 1 cup (28g)      | 100    | 12%        | MOD     |

# PHOSPHORUS: THE SILENT THREAT IN CKD — SAFE & MODERATE PHOSPHORUS FOODS

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**GREEN (SAFE) < 100 mg/serving | AMBER (MODERATE) 100-200 mg | All values are per typical serving**

Sample plate from guide: white rice + chicken adobo (renal) + sayote/sitaw + pandesal + black coffee + calamansi juice

| Food Item (Filipino / English)                                             | Serving         | P (mg) | % of 800mg | Risk |
|----------------------------------------------------------------------------|-----------------|--------|------------|------|
| <b>GRAINS, RICE &amp; STARCHES — safest carbohydrate sources</b>           |                 |        |            |      |
| Kanin / plain steamed white rice                                           | 1 cup (186g)    | 68     | 8%         | SAFE |
| Sinangag / garlic fried rice (plain)                                       | 1 cup (180g)    | 70     | 9%         | SAFE |
| Lugaw / rice porridge (plain)                                              | 1 bowl (300mL)  | 55     | 7%         | SAFE |
| Arroz caldo (plain, no atay)                                               | 1 bowl (300mL)  | 90     | 11%        | SAFE |
| Bihon / rice vermicelli (cooked)                                           | 1 cup (150g)    | 30     | 4%         | SAFE |
| Sotanghon / glass noodles (cooked)                                         | 1 cup (150g)    | 25     | 3%         | SAFE |
| Putting tinapay / white bread                                              | 2 slices (60g)  | 50     | 6%         | SAFE |
| Pandesal (plain, small)                                                    | 2 pieces (50g)  | 48     | 6%         | SAFE |
| Rice crackers (plain)                                                      | 4 pieces (25g)  | 28     | 4%         | SAFE |
| Corn / mais (plain boiled)                                                 | 1/2 cup (80g)   | 75     | 9%         | SAFE |
| Kamoteng kahoy / cassava (boiled)                                          | 100g            | 134    | 17%        | MOD  |
| <b>EGGS — white = safe; yolk = limit</b>                                   |                 |        |            |      |
| Puti ng itlog / egg white only                                             | 2 large whites  | 10     | 1%         | SAFE |
| Whole egg (itlog) boiled                                                   | 1 large (50g)   | 100    | 12%        | MOD  |
| Egg yolk only (pula ng itlog)                                              | 2 yolks (34g)   | 110    | 14%        | HIGH |
| Salted egg / itlog na maalat                                               | 1 large (60g)   | 140    | 18%        | HIGH |
| <b>VEGETABLES — mostly safe; boil &amp; discard water when possible</b>    |                 |        |            |      |
| Upo / bottle gourd                                                         | 1/2 cup (100g)  | 20     | 2%         | SAFE |
| Sayote / chayote                                                           | 1/2 cup (100g)  | 22     | 3%         | SAFE |
| Repolyo / cabbage                                                          | 1/2 cup (75g)   | 22     | 3%         | SAFE |
| Labanos / white radish (boiled)                                            | 1/2 cup (100g)  | 24     | 3%         | SAFE |
| Patola / sponge gourd                                                      | 1/2 cup (100g)  | 26     | 3%         | SAFE |
| Pipino / cucumber (fresh)                                                  | 1/2 cup (60g)   | 17     | 2%         | SAFE |
| Okra (boiled)                                                              | 5 pieces (50g)  | 34     | 4%         | SAFE |
| Talong / eggplant (grilled)                                                | 1/2 cup (50g)   | 14     | 2%         | SAFE |
| Kamatis / tomato (small)                                                   | 1 medium (90g)  | 22     | 3%         | SAFE |
| Sitaw / string beans (boiled)                                              | 1/2 cup (55g)   | 41     | 5%         | SAFE |
| Ampalaya / bitter melon (boiled)                                           | 1/2 cup (50g)   | 25     | 3%         | SAFE |
| Kangkong (boiled, water discarded)                                         | 1/2 cup (50g)   | 28     | 4%         | SAFE |
| Pechay / bok choy (boiled)                                                 | 1/2 cup (85g)   | 26     | 3%         | SAFE |
| Kamote / sweet potato (boiled)                                             | 1/2 cup (100g)  | 54     | 7%         | SAFE |
| Gabi / taro (boiled)                                                       | 1/2 cup (100g)  | 84     | 10%        | SAFE |
| Malunggay / moringa leaves (boiled)                                        | 2 tbsp (10g)    | 25     | 3%         | SAFE |
| Kalabasa / squash (boiled)                                                 | 1/2 cup (100g)  | 30     | 4%         | SAFE |
| Singkamas / jicama (fresh)                                                 | 1/2 cup (65g)   | 18     | 2%         | SAFE |
| <b>FRUITS — generally safe for phosphorus (watch potassium separately)</b> |                 |        |            |      |
| Mansanas / apple (no skin)                                                 | 1 medium (120g) | 20     | 2%         | SAFE |
| Peras / pear                                                               | 1 medium (160g) | 18     | 2%         | SAFE |
| Ubas / grapes                                                              | 15 pcs (90g)    | 20     | 2%         | SAFE |
| Pinya / pineapple (fresh)                                                  | 1/2 cup (82g)   | 8      | 1%         | SAFE |
| Pakwan / watermelon                                                        | 1 cup (150g)    | 17     | 2%         | SAFE |
| Mangga / mango (hinog/ripe)                                                | 1/2 cup (82g)   | 18     | 2%         | SAFE |
| Papaya (ripe)                                                              | 1 cup (140g)    | 22     | 3%         | SAFE |
| Dalandan / mandarin orange                                                 | 1 medium (76g)  | 10     | 1%         | SAFE |
| <b>BEVERAGES — dark cola is the biggest trap</b>                           |                 |        |            |      |
| Tubig / plain water                                                        | 1 glass (240mL) | 0      | 0%         | SAFE |
| Calamansi juice (unsweetened)                                              | 1 glass (240mL) | 8      | 1%         | SAFE |
| Brewed black coffee (no milk)                                              | 1 cup (240mL)   | 7      | 1%         | SAFE |
| Unsweetened plain tea                                                      | 1 cup (240mL)   | 2      | 0%         | SAFE |
| Clear soda (Sprite, 7-Up)                                                  | 1 can (355mL)   | 19     | 2%         | SAFE |
| Buko juice / coconut water                                                 | 1 cup (240mL)   | 48     | 6%         | SAFE |
| Instant 3 in 1 coffee                                                      | 1 packet (18g)  | 68     | 8%         | SAFE |

**COMMON FILIPINO MEALS (ULAM) — PHOSPHORUS AT A GLANCE**

| Food Item (Filipino / English)      | Serving         | P (mg) | % of 800mg | Risk    |
|-------------------------------------|-----------------|--------|------------|---------|
| Kare-kare with bagnet / crispy pata | 1 cup (250g)    | 420    | 52%        | EXTREME |
| Dinuguan (pork blood stew)          | 1 cup (200g)    | 350    | 44%        | EXTREME |
| Inihaw na bangus (whole)            | 1 medium (200g) | 390    | 49%        | EXTREME |
| Arroz caldo with atay ng manok      | 1 bowl (300mL)  | 310    | 39%        | EXTREME |
| Pancit canton (with egg & liver)    | 1 plate (300g)  | 280    | 35%        | HIGH    |
| Sinigang na baboy (with mix sachet) | 1 bowl (400mL)  | 320    | 40%        | HIGH    |
| Lechon kawali / crispy pata         | 100g            | 210    | 26%        | HIGH    |
| Adobo (chicken/pork with atay)      | 1 cup (250g)    | 300    | 38%        | HIGH    |
| Ginisang monggo (with chicharon)    | 1 cup (200g)    | 200    | 25%        | HIGH    |
| Tinola (chicken, no liver)          | 1 bowl (350mL)  | 165    | 21%        | MOD     |
| Sinigang na isda (fresh, no mix)    | 1 bowl (350mL)  | 185    | 23%        | MOD     |
| Adobong manok (boiled, no liver)    | 1 cup (250g)    | 195    | 24%        | MOD     |
| Nilagang baka (discard broth)       | 1 cup (250g)    | 185    | 23%        | MOD     |
| Pinakbet (light bagoong, veggies)   | 1 cup (200g)    | 120    | 15%        | MOD     |
| Ginisang monggo (no chicharon)      | 1 cup (200g)    | 156    | 20%        | HIGH    |
| Utang bisaya (boiled veggies only)  | 1 cup (200g)    | 55     | 7%         | SAFE    |
| Ginisang upo with egg white         | 1 cup (200g)    | 45     | 6%         | SAFE    |
| Tinola (plain, no liver, renal)     | 1 bowl (300mL)  | 140    | 18%        | MOD     |
| Chicken breast nilaga (no broth)    | 100g portion    | 170    | 21%        | MOD     |
| Plain sinangag + boiled egg white   | 1 plate         | 78     | 10%        | SAFE    |

**HIDDEN INORGANIC PHOSPHORUS IN PROCESSED FOODS (90-100% ABSORBED — MOST DANGEROUS)**

| Processed Product                  | Phosphate Additive Type         | Risk    | Better Alternative               |
|------------------------------------|---------------------------------|---------|----------------------------------|
| Instant noodles (Lucky Me, Nissin) | Na-phosphate (seasoning pkt)    | EXTREME | Plain bihon + homemade           |
| Dark cola (Coke, Pepsi, RC Cola)   | Phosphoric acid (E338)          | EXTREME | Sprite/7-Up or calamansi juice   |
| Processed cheese (Eden, Quickmelt) | Na-phosphate, polyphosphate     | EXTREME | Small amt kesong puti (fresh)    |
| Tocino / longganisa / hotdog       | Na/K phosphate (preservative)   | HIGH    | Fresh pork/chicken, boiled       |
| Fast food (Jollibee/McDo/KFC)      | Phosphate-injected meat         | HIGH    | Home-boiled chicken, no breading |
| Corned beef / luncheon meat        | Na-phosphate preservative       | HIGH    | Fresh lean meat, boil & discard  |
| Flavored powdered drinks (Tang)    | Tricalcium phosphate            | MOD     | Calamansi juice, plain tea       |
| 3-in-1 coffee (with creamer)       | Dipotassium phosphate (creamer) | MOD     | Black brewed coffee, no creamer  |

**LABEL RULE: Any ingredient with "PHOS" = inorganic phosphate = 90-100% absorbed.**  
 Na-phosphate, Ca-phosphate, K-phosphate, Phosphoric acid, Dicalcium phosphate, Polysphosphate, Dipotassium phosphate

**HOW TO TAKE YOUR PHOSPHATE BINDER — TIMING IS EVERYTHING**

**TAKE BINDERS WITH THE FIRST BITE OF EVERY MEAL AND LARGE SNACK.**

**WITH first bite:** At the START of eating — not before, not 30 min after. The window is DURING the meal.  
**Every meal:** Breakfast, lunch, dinner AND any large snack with dairy, nuts, or processed food.  
**Dose matches meal:** Large meal = full dose. Small snack = half dose. Empty stomach = NO binder needed.  
**Separate from meds:** Take other medications 1-2 hours away from binders (iron, antibiotics, thyroid meds).  
**A binder on an empty stomach does NOT work.** No binder is present in the gut.

**SMART SWAPS — HIGH-P → LOWER-P FILIPINO ALTERNATIVES**

|                                         |                                                                     |
|-----------------------------------------|---------------------------------------------------------------------|
| <b>Dark cola (Coke/Pepsi)</b>           | Sprite / 7-Up (no phosphoric acid) or plain calamansi juice         |
| <b>Evaporated milk (sa kape/recipe)</b> | Non-dairy creamer (check for PHOS on label) or black coffee         |
| <b>Keso / processed cheese</b>          | Tofu (silken, rinsed) or skip; use garlic/onion for flavour         |
| <b>Monggo soup</b>                      | Clear upo or sayote soup + boiled chicken (no liver, discard broth) |
| <b>Longganisa/tocino (breakfast)</b>    | Boiled egg whites + sinangag + small tomato                         |
| <b>Instant noodles (merienda)</b>       | Bihon guisado with cabbage + chicken, no seasoning packet           |
| <b>Whole milk for calcium</b>           | Calcium carbonate binder WITH meals (gives Ca without phosphorus)   |
| <b>Crispy pata / lechon kawali</b>      | Plain inihaw na manok (no marinade, skin removed)                   |
| <b>Dinuguan / blood stew</b>            | Nilaga (boiled meat, broth discarded) + rice + plain veggies        |
| <b>Arroz caldo with atay</b>            | Plain lugaw + egg white + ginger; no organ meats                    |

Full guide with cascade diagrams, CKD-MBD explainer, binder comparison & daily checklist:  
[williamriveromd.com/guides/phosphorus-ckd.html](http://williamriveromd.com/guides/phosphorus-ckd.html)